

REPORT ON THE ETHIOPIAN ECONOMY

VOLUME III 2003/04

Industrialization and Industrial
Policy in Ethiopia

Ethiopian Economic Association

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FOREWORD

The Ethiopian Economic Association is happy to issue the Third Annual Report on the Ethiopian Economy. As in the previous year, this year's Report is made up of two parts. In Part I the Report assesses the performance of the Ethiopian economy, both at the aggregate and sectoral levels, for the past two years. It evaluates the results and effectiveness of existing economic policies and recommends new policy initiatives, based on recent research findings.

The central focus of this year's report, however, is on industrialization, which is covered in Part II. This report carries the findings of a major research undertaking on industrialization and industrial policy in Ethiopia, focusing, particularly, on the manufacturing sector.

The focus on industrialization is necessitated by a number of reasons. The first compelling reason is the need for structural transformation. The linchpin of the Ethiopian economy is agriculture which provides employment for 85 percent of the population, accounts for 50 percent of GDP and 90 percent of the annual foreign exchange earnings. Because of declining productivity owing to backward technology, diminishing size of farm plots due to high population growth, soil degradation and dependency on the vagaries of nature on account of its being rain-fed, agriculture has been unable to attain and sustain a rate of growth sufficient to ensure food security and locate the economy on a trajectory of dynamic socio-economic transformation.

An equally important point of departure is the fact that Ethiopia is one of the least industrialized economies in the world. The industrial sector contributes about 12 percent of GDP. Thirdly the development of other sectors, particularly agriculture, is victimized by the lack of progress in the industrial and more so, of the manufacturing sector, thereby retarding the development of the country in general. These and other reasons render industrialization a must rather than an option for Ethiopia.

The Report reviews the historical record of industrialization in Ethiopia, identifies problems and constraints facing the manufacturing sector and opts for an industrial policy in the country as a modality for its vigorous and dynamic growth. In doing so it takes account of specific conditions of the economy in general and the manufacturing sector in particular, draws lessons from the experiences of old and newly

industrialized countries as well as the challenges posed and opportunities created by the new global economic environment.

The industrial policy framework sets the specific objectives of industrialization in Ethiopia and identifies industries that should be accorded priorities in the process. It also discusses promotional measures to be adopted and incentive structures to be put in place. It further argues for a new institutional structure to implement the industrialization process.

We very much hope that this Report would be useful to readers and particularly the policy makers that have the fate of the country in their hands.

I would want to express my appreciation to all the people whose contribution has made this Report possible.

Befekadu Degefe,
President
Ethiopian Economic Association

Acknowledgement

The preparation of the “Report on The Ethiopian Economy, Vol. III, 2003/04” is led by Berhanu Nega. Chapters of the report are written by EEPRI experts and external consultants. Contributions involve Macroeconomic Developments by Berhanu Nega, Seid Nuru, Zekarias Mamma, and Kassahun Taddesse; The performance of Ethiopian Agriculture by Samuel G/Sellasse; The Persistence of Famine and its Effect by Berhanu Adenew; Population and Development by Getahun Tafesse, Daniel Asseffa, Fantu Guta, Taddele Ferede and Asfaw Yitnna; and Industrialization and Industrial Policy in Ethiopia by Kibre Moges and Worku Gebeyehu.

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PART ONE

REVIEW OF ECONOMIC PERFORMANCE

(2000/01-2002/03)

Introduction to part one

The Ethiopian economy has not changed much despite all kinds of interventions from policy makers and donors. That is, the economy does not seem to have gone very far in terms of bringing about a sustained growth and structural change. The fact that 85% of the population has been engaged in a technologically backward rain fed agriculture that has been providing a decreasing income for the farming population for at least the past four decades is a clear manifestation of its structural rigidity and its unbalanced sectoral composition. It is probably due to this rigidity that data compilers in international institutions seem to have given up bothering about changing the country's standings in the international community or its per capita income. The World Bank, for example, has not changed both Ethiopia's ranking and the country's per capita income figure for the last five issues of the World Development Report.¹ That is, Ethiopia's per capita income in the World Bank report remained USD 100 for at least four years since 1998 despite varied growth rates in per capita GDP during the reporting periods.

The only slight change observed since our last report is per capita income measured in Purchasing Power Parity dollars (PPP). Ethiopia's per capita income in PPP dollars increased from 599 in the 2000/01 report using 1999 figures to 710 in the most recent report using 2001 data. During the same period the average income in PPP dollars increased from 1970 to 2040 for poor countries and from 1450 to 1620 for Sub Saharan African countries. This generalized growth left Ethiopia's relative income stagnating more or less where it was in 1999. In PPP terms, Ethiopia ranked 202nd

¹ Although this is not the place for it and requires a more detailed treatment, there is reason to suspect the validity of these World Bank figures. For example, the Bank's latest report shows a GDP per capita growth of 5.4% for 2000-2001 periods while the per capita income level remained the same during this period. This discrepancy remained in all the five reports that we checked between 1999 and 2003.

out of 207 countries in the most recent World Development Report compared with 200th out of 206 countries in the 2000/2001 report.²

This report, which is the third in the series, covered the periods between the last EEA report and the most recent period for which data is available. Last year's report covered the periods 1991 and 1992 Ethiopian fiscal year (EFY) or 1998/99 and 1999/00 G.C. Accordingly, the report covered the economic conditions of the country during the two years of conflict with Eritrea. This report will largely cover economic performance in the immediate post-war years covering 1993 and 1994 E.C. but will also include analysis of preliminary data for 1995 E.C or 2002/03 G.C.

As will be seen in the details of the report, the most crucial issue facing the Ethiopian economy is lack of structural change. Events that took place in the three years that are covered in this report have brought this issue in to a sharper focus forcing us to look at the problem of structural transformation of the Ethiopian economy with a renewed sense of urgency. In 1993 (2000/01), the beginning period for this report, a very cooperative weather condition with good and timely rain resulted in a sharp increase in crop production and productivity. However, given the structure of the economy, a bumper harvest in Ethiopia could be a curse to the farming population. Accordingly, a significant increase in crop production in 2000/2001 compared with the previous year led to a precipitous decline in agricultural output prices while input prices such as fertilizers keep rising leading to the further impoverishment of the farming population.³ The immediate reaction of farmers to this decline is to reduce supply by way of reducing the cultivated area which declined by over 17% in the 2001/02 production year leading to a decline in grain production by about 6.4% and a sluggish GDP growth of only 1.2%. Before the economy could recover from this perverse incentive effect, the shortened frequency of drought asserted itself once again in 2002/03 after a brief respite in the previous three years leading to a further decline in agricultural value added by over 12%. The effect of this sharp decline in crop production, as can be expected, was a decline in GDP estimated at about 3.8% in 2002/03. Owing to the persistent dominance of rain-fed traditional agriculture, the Ethiopian economy is prone to sharp and frequent fluctuations even due to minor changes in weather conditions. It is this broad issue of structural transformation that this year's report tries to address.

² World Development Report, 2003, pp. 234-235.

³ The price index for food items declined by about 17% in 2000/01 while both the index for fertilizer (DAP) and transport and communication increased substantially. For details, see the chapter on agriculture in this report.

The first part of this report contains four chapters and deals with economic performance at the economy wide and sectoral levels with the issue of structural change in mind while part II of the report looks at the issue of industrialization and industrial policy as an instrument of transformation in greater detail. Accordingly, the first part of this report is organized as follows. Chapter 1 looks at macroeconomic developments in the reporting period. Chapter 2 looks at the performance of the agriculture sector during the reporting period followed by a detailed look at the causes and consequences of persistent famine in the country with a particular look at the most recent famine that occurred in 2002/03 in Chapter 3. Chapter 4 of the report looks at the issue of population growth and dynamics in general and their effect on economic growth and sustainable development for the country including a brief look at the effect of population pressure on the agricultural sector.

CHAPTER I

MACROECONOMIC DEVELOPMENTS

1. Introduction

The overall performance of the Ethiopian economy since 2000/01 has been less than satisfactory. The transition from war to peace has not delivered the expected peace dividend. After two years of respite, we again went into a war of a different kind, this time with the drought, which threatened to take the lives of more than 14 million people. Real GDP growth averaged 1.7% during the 2000/01-2002/03 period. This translates into a 1.2% decline in per capita income. After a 4.8% growth in 2000/01, per capita income growth fell by 1.7%, and 6.6%, in the years 2001/02, and 2002/03, respectively.

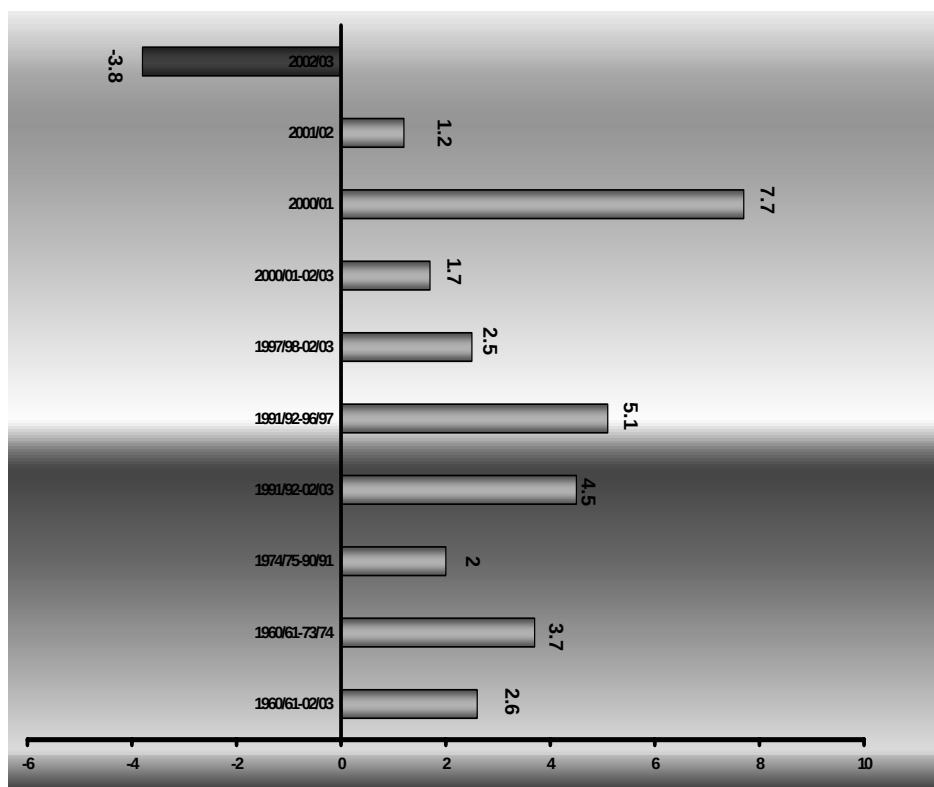
The decline in the value-added of the agricultural sector by 3.1% in 2001/02 and by 12.2% in 2002/03, was the major contributor to the overall decline in the economy. This decline in value-added and the deceleration in overall growth is felt throughout the major sectors except some sub-sectors with relatively low share in the GDP such as education, health, mining and quarrying, and construction sub-sectors. By the end of 2002/03, because of the drought, inflation soared up to an unprecedented rate of 15.1%. Following the conclusion of the war, significant shifts in general government expenditure allocation took place. For instance, defense expenditure declined to just 8.9% of GDP in 2001/02, down from 15.6% at height of the war in 1999/00. Conversely, outlays for health and education showed an average increase of 32.5% and 19.4%, respectively, following the war with Eritrea.

Part I of this report contains seven sections. Following this brief introduction, section 2 presents a detailed discussion regarding growth performance of different sectors of the economy. In section 3, a detailed review of saving behavior is discussed. Section four examines the trends in external trade and balance of payments. Sections 5 and 6 discuss developments in monetary and fiscal aggregates, respectively. Section 7 is dedicated to a detailed analysis of price developments while section 8 concludes Part I of the report.

2. Economic growth performance

The purpose of this sub-section is to outline the growth performance of the economy (both aggregate and sectoral levels) during the period in review and in some cases in relation to past performances. In general, with a 1.7% annual growth in real GDP, there is a clear deceleration in the economy in the last three years compared to the 4.5%, and 5.1% average growth rates recorded between 1991/92-2002/03. This is because the 7.7% growth rate recorded in 2000/01 was offset by the dismal performance in the last two years. Real GDP growth staggered at a rate of 1.2% in the year 2001/02 and declined by about 3.8% in the fiscal year 2002/03.

Figure 1.1: Growth rates in real GDP



Source: MoFED, National Income Accounts (February, 2003) and Staff Computations.

The fall in GDP during the last two years was due to a slump in the value-added of the agricultural sector by about 3.1% and 12.2% in the fiscal years 2001/02, and 2002/03, respectively. The significant drop in the value-added of the agricultural sector and GDP in the fiscal year 2002/03 in particular was due to the extensive drought as a result of which some 14 million of the country's population required food assistance during the period. The poor growth performance in 2001/02 and the slump in 2002/03 reduced the average GDP growth for the period 1997/98-2002/03 to a mere 2.5%. As discussed below, other sectors have also failed to offset the adverse impact of the poor agricultural performance.

The dismal economic performance in drought years and its overall impact on the long-term growth coupled with the high population growth rate resulted in a fall of per capita income during the last three years by 1.2% on average per annum. Rural per capita income fell by about 3.9% during the same period. What is more disquieting and very much unlike previous periods is that per capita income in the non-agricultural sector also declined, although by a smaller margin of 0.2% per annum, during the last three years indicating a broader slow down in the economy. The implication of such a slump is that the policies implemented during the period either failed or the lag is too long to adequately mitigate the external shocks.

Table 1.1: Average per capita income (in Birr)

	Per Income(PCI)	Capita Rural Income	Per-Capita Urban Per-Capita Income
1960/61-02/03	249.3	163.8	837.8
1960/61-73/74	254.8	194.6	732.4
1974/75-90/91	249.6	158.8	894.1
1991/92-2002/03	242.5	135.0	880.9
1991/92-96/97	232.6	140.1	816.7
1997/98-2002/03	252.4	129.8	945.1
2000/01-2002/03	257.2	129.5	961.6

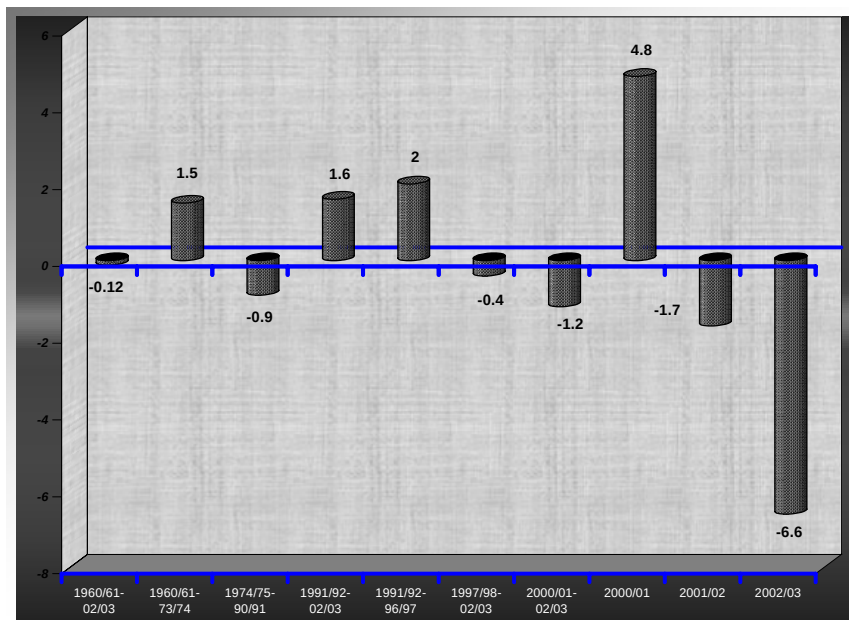
Source: MoFED, National Income Accounts (February, 2003), CSA, Statistical Abstracts (various issues), and Staff Computations

The per capita income growth for the past forty-two years is a little less than zero. That is, the current living standard of the population is almost the same as what it used to be forty years ago. The 1.6% growth in per capita income that has been

recorded since 1991 has yet to fully offset the about 1% per annum decline registered between 1974 and 1991 and its compounded effects.

As Table 1.1 indicates, agricultural per capita income seems to have decreased since 1991/1992, particularly in the last three years. The average per capita income of the agrarian population in the past twelve years is less than that of the Imperial and the Derg regimes by 31%, and 15%, respectively. Given that the recent policy emphasis is centered on agriculture, its low performance raises the viability of the sector in serving as an anchor of development strategy. What the events of the past three years confirm is what has been repeatedly said in our past reports. That is, the Ethiopian economy will continue to stagnate and even deteriorate unless the agricultural sector is transformed from its traditional production methods and its dependence on nature in favor of a modern farm economy. In addition, the structure of the economy has also to gradually change from a predominantly agrarian economy to a more urban industrial economy. Needless to say, no economy that depends on the vagaries of nature could ensure a sustained growth.

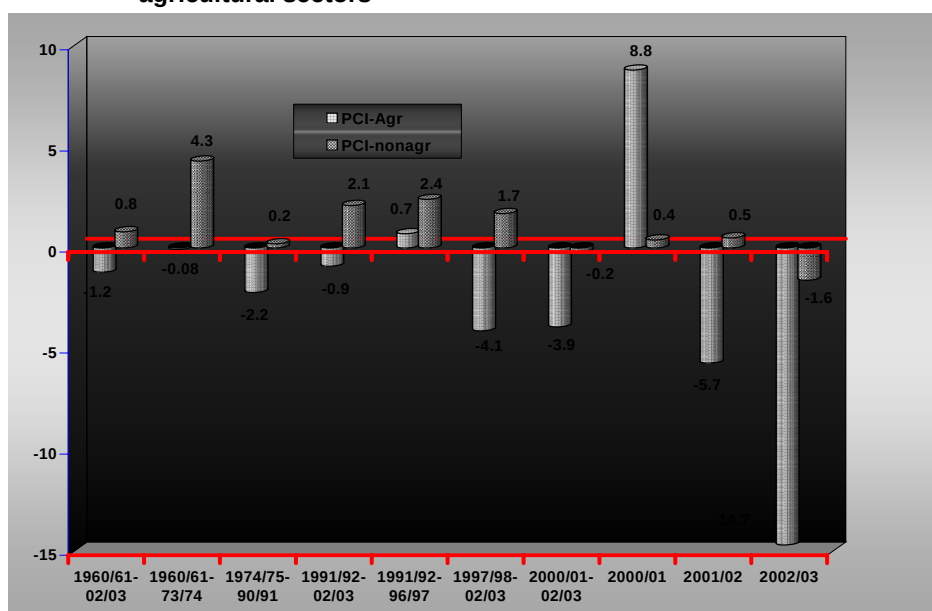
Figure 1.2: Growth rates in per capita income



Source: MoFED, National Income Accounts (February, 2003)

In a country where about 52% of the GDP is produced by 15% of the population (the urban population) while about 48% is produced by 85% of the population (the rural population), it is natural to expect that the level of per capita income is likely to be more depressed in the agricultural sector. Figure 1.3 indicates that per capita value-added in the agricultural sector declined by 3.9% for the period 2000/01-02/03 and rural per capita income declined by 0.9% and 4.1% for periods 1991/92-2002/03, and 1997/98-2002/03, respectively. In the fiscal years 2001/02 and 2002/03, rural per capita income fell by 6.6%, and 14.7%, respectively, after a sharp increase of 8.8% in 2000/01 due to bumper harvest. As a result, per capita income of citizens in the agricultural sector fell, on average, by about 4.1% for the period 1997/98-2002/03. This rate is by far worse than the average of -2.2% recorded in 1974/75- 1991/93. It has to be noted that this is a period characterized by a policy of urban bias including forced requisition of farm outputs at low prices to provide cheap food for the urban population.

Figure 1.3: Growth rates of per capita income in the agricultural and non-agricultural sectors

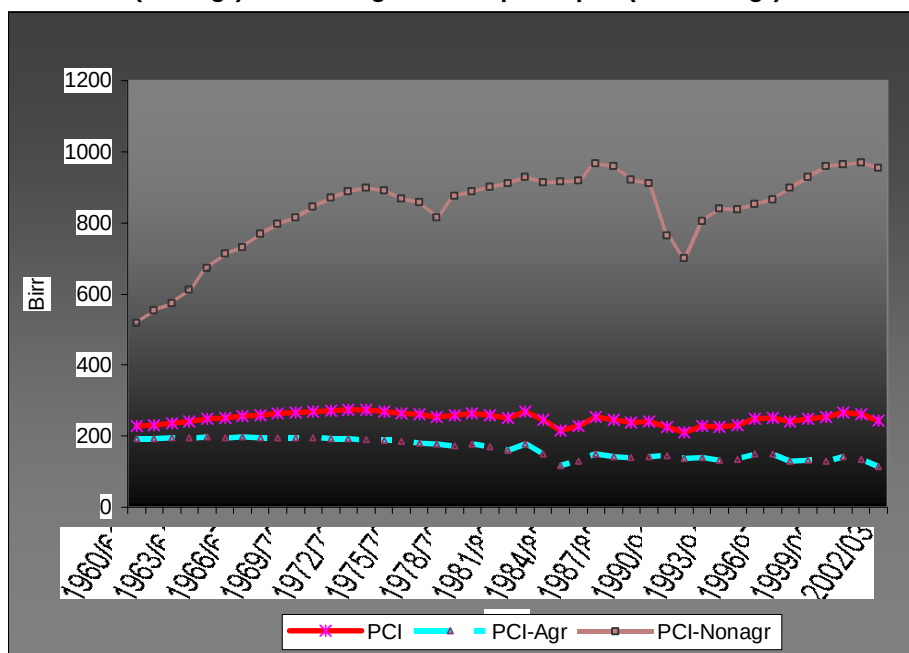


Source: MoFED, National Income Accounts (February, 2003), CSA, Statistical Abstracts (various issues), and Staff Computations

Per capita income growth in the non-agricultural sector staggered at about 0.4% and 0.5% in the fiscal years 2000/01 and 2001/02, and fell by 1.6% in the fiscal year 2002/03. This per capita income growth in the non-agricultural sector is lower than the 2.4% average growth rate recorded for 1991/92-96/97 and the 1.7% growth registered for 1997/98-2002/03.

As can be seen from Figure 1.4, the overall per capita income is significantly influenced by the fall in the per capita value-added of the agricultural sector. The per capita income in the non-agricultural sector has been growing at about 0.8% for the last four decades while rural per capita income has been falling at a rate of 1.2% per annum during the same period. The combined result of this was a stagnant or even slightly declining (by 0.12%) per capita income over the last four decades (1960/61-2002/03).

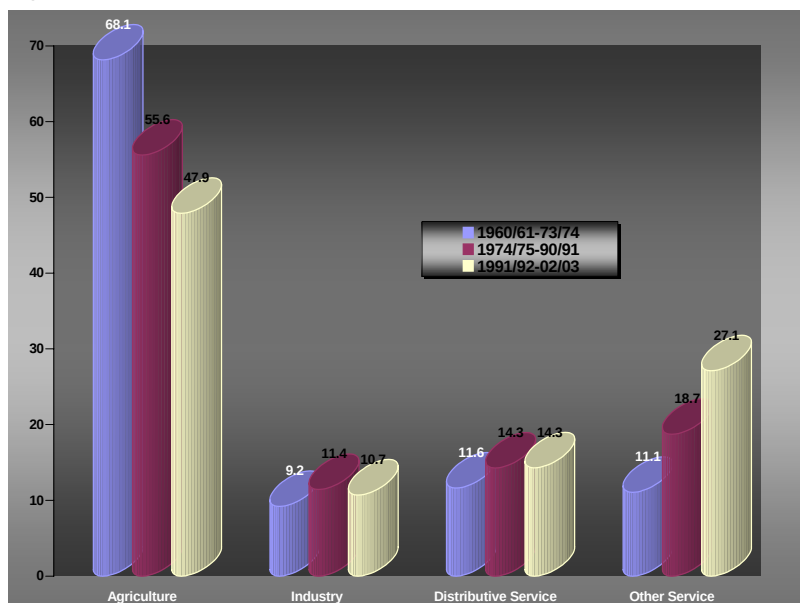
Figure 1.4: Trends in per-capita income (PCI), agricultural per-capita income (PCI-Agr) and non-agricultural per-capita (PCI-Nonagr)



Source: MoFED, National Income Accounts (February, 2003); CSA, Statistical Abstracts (various issues) and Staff Computations.

As has been repeatedly said, the Ethiopian economy did not show appreciable structural transformation over the past forty years. In the fiscal years 2000/01, 2001/02, and 2002/03 the share of agriculture was, 45.1%, 43.2%, and 39.4%, respectively. Such an apparent decline in the share of agriculture is not due to the increase in the share of the other productive sectors as part of the desirable development process. Rather, it is because the sector performed badly in these years owing to the vagaries of nature on which it solely depends. The sector's contribution to GDP for the last decade is still significant with an average share of 48%.

Figure 1.5: Sector share in GDP



Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

The share of the industrial sector in the fiscal years 2000/01, 2001/02, and 2002/03 was, respectively, 10.5%, 10.9%, and 11.9%. However, when the average for the last decade (1991/92-2002/03) is considered, the share of the industrial sector declined to 10% from 11.4% in 1974/75-1991/92. The service sector in general (which is broadly divided into distributive and “other” service sectors) accounted for about 41.4% of

GDP for the period 1991/92-2002/03. The average share of the service sector in the GDP for the last three years (2000/01-02/03) was 46.3%.

Table 1.2: Sectoral growth performance

	1960/61-02/03	1960/61-73/74	1974/75-90/91	1991/92-02/03	1991/92-96/97	1997/98-02/03	2000/01-02/03	2000/01 Pr. Estimate	2001/02 Preliminary- Estimate	2002/03 Projection.
Agriculture & allied activities	1.4	2.1	0.6	1.7	3.5	-1.5	-1.3	11.5	-3.1	-12.2
Industry	3.3	7.0	3.6	5.6	7.4	4.8	5.2	5.0	5.8	4.9
Distributive services	3.5	7.8	2.5	6.5	8.2	4.9	4.3	5.2	4.4	3.2
Other services	5.6	6.9	4.8	7.8	6.4	7.4	3.5	4.5	4.6	1.5
GDP	2.6	3.7	2.0	4.5	5.1	2.5	1.7	7.7	1.2	-3.8
Per capita GDP	-0.12	1.5	-0.9	1.6	2.0	-0.4	-1.2	4.8	-1.7	-6.6
Per capita GDP: Agrarian	-1.2	-0.08	-2.2	-0.9	0.7	-4.1	-3.9	8.8	-5.7	-14.7
Per capita GDP: Non-agriculture	0.8	4.3	0.2	2.1	2.4	1.7	-0.2	0.4	0.5	-1.6

Source: MoFED, National Income Accounts (February, 2003), CSA, Statistical Abstracts (various issues), and Staff Computations

Note: Values for 1991/92-96/97, 1997/98-01/03, and single years are simple arithmetic means while other values are computed using time trend.

The distributive service sector component has showed an appreciable increase share over the last three years. For the fiscal years 2000/01, 2001/02, and 2002/03 the share of this sector was 14.7%, 15.2%, and 16.3%. The average share for the last twelve years (14.3) is not, however, different from the average for 1974/75-1991/92.

The sector that seems to overtake the share of agriculture in the GDP for a relatively longer period is the "other" service sector component. In the years 2000/01, 2001/02, and 2002/03, the share of the sector was, 29.7%, 30.7%, and 32.4%, respectively. The average share for the 1991/92-2002/03 period is 27.1% compared to the 17.7% share for 1974/75-1991/92. However, its sustainability would have been guaranteed if

this increasing share had come from the banking and insurance, education, and health sub-sectors instead of the public administration and defense sub-sectors. The average share of the public administration and defense sub-sectors increased from 7% of GDP in 1974/75-90/91 to 12% of GDP in the last twelve years (1991/92-2002/03), while the share of banking and insurance, and education sub-sectors increased from 5.6%, and 2.1% during the past regime, respectively, to a mere 6.6%, and 2.4%, during the present regime.

In the fiscal years 2000/01-02/03, all major sectors performed below EPRDF's average. In the year 2000/01, the agricultural sector has performed well above the EPRDF's average but fell back in 2001/02 and 2002/03.

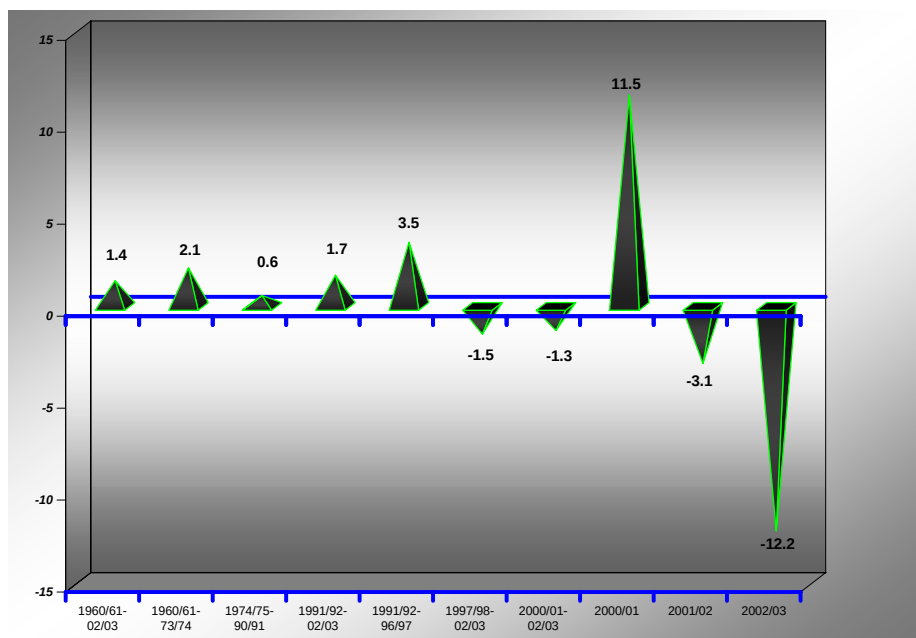
The agricultural sector

As can be seen from Table 1.2 above, value-added in the agricultural sector on average fell by 1.3% during the last three years. This was a significant decline from the 3.5% average growth that was recorded during the first period of the EPRDF regime (1991/92-96/97). Value-added in the sector grew by 11.5% in 2000/01 but fell back by 3.1%, and 12.2%, in the years 2001/02 and 2002/03, respectively. These outcomes reduced the growth in agriculture during the whole EPRDF period to a 1.7% per annum.

This growth was lower by a full percentage point from the 2.7% population growth rate in the sector. Except in the first six years of the EPRDF regime (1991/92-96/97), average growth rate in value-added of the agricultural sector has lagged behind the growth of rural population resulting in significant erosion in the already meager livelihood of the rural population.

One of the culprits and worrisome phenomenon in the context of agricultural sector performance is that both the severity and frequency of drought has been increasing. One of the things this phenomenon suggests is that the agricultural sector may not get enough time to fully recover before it is hit again by a drought. Hence, the need to reduce its adverse impact through expansion of irrigation schemes has become an urgent necessity.

Figure 1.6: Growth rates of value-added in the agricultural sector

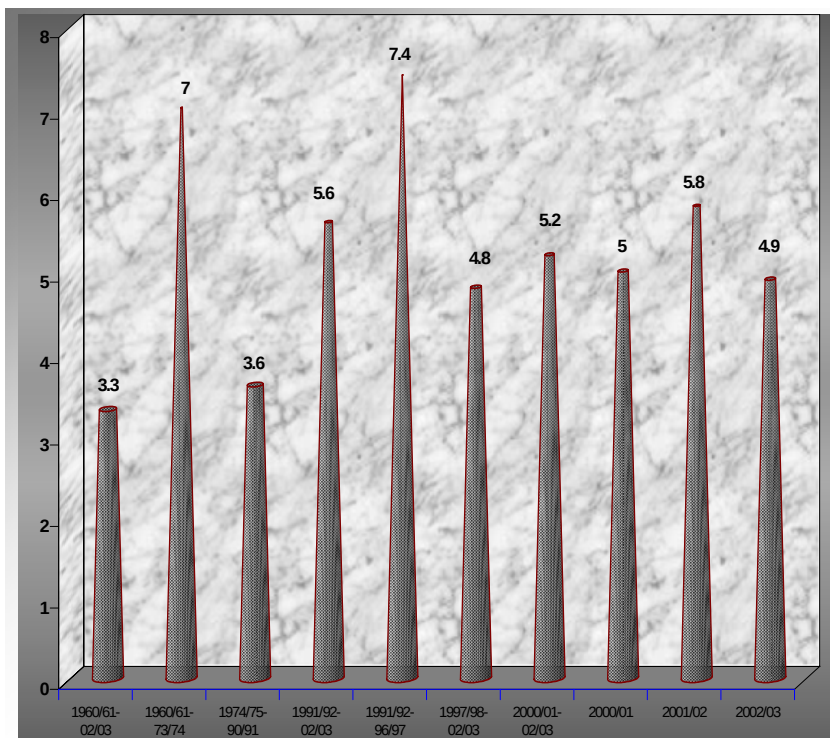


Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

The industrial sector

The industrial sector did not perform well during the entire EPRDF period in general and the last three years in particular. In the last three years (2000/01-2002/03), value-added in the sector grew on average by 5.2% which is less than the 7.4% growth in the first period of the EPRDF regime. This could be partly attributed to the efficiency gains in government owned enterprises but mainly to the increase in capacity utilization. However, this recovery was not sustained. The share of the value-added of the sector in GDP declined from 11.4% during the Derg period to 10.7% during the EPRDF period. Despite the fact that the rate of growth during the EPRDF period exceeded that of the Derg period (5.6% versus 3.6%), its share in GDP declined from 20.8% during the Derg regime to 13.5% in the EPRDF period.

Figure 1.7: Growth in the value-added of the industrial sector



Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

The large and medium scale industrial sub-sector accounts for about 39% of the total value-added in the industrial sector. This is equivalent to about 4.2% of GDP. The average share of this sub-sector in GDP during the entire Derg period was 4.4%.

Among the sub-sectors in the industrial sector, the construction, and small scale industries and handcrafts sub-sectors follow with respective shares of 2.6%, and 1.9%, on average for the period 1991/92-2002/03. The electricity and water sub-sector contributes 1.6% to GDP. The mining and quarrying sub-sector has the lowest share of 0.5%.

Table 1.3: Growth performance in the industrial sub-sectors

	Share in Sector	Share in GDP	Growth					
	1991/92- 2002/03	1991/92- 2002/03	1991/92- 2002/03	2000/01- 02/03	2000/01	2001/02	2002/03	
Industry	100	10.7	5.6	5.2	5.0	5.8	4.9	
Mining & Quarrying	4.4	0.5	8.6	9.3	9.0	9.0	10.0	
Large & Medium Scale Industries	39.0	4.2	6.8	4.5	3.3	5.0	5.0	
Small Scale Industries & Handcrafts	18.0	1.9	3.9	2.6	5.1	2.1	0.5	
Electricity & Water	14.7	1.6	2.9	4.8	3.5	7.1	3.9	
Construction	23.9	2.6	6.3	7.9	8.0	8.4	7.4	

Source: MoFED, National Income Accounts (February, 2003), and Staff Computations

In terms of growth, the mining and quarrying sub sector registered the fastest growth in recent years while electricity and water, and the construction sub-sectors performed above the EPRDF average during the period 2000/01-2002/03. However, value-added in the large and medium scale industries, and small scale industries and handcrafts sub-sectors performed below the EPRDF average during the period under consideration. Since these two sub-sectors account for 57% of the value-added in the industry sector, the deceleration in the value-added of these sub-sectors has reduced the growth rate in the industry sector from its average of 5.6% during the entire EPRDF period to 5.2% during the last three years.

The distributive service sector

The distributive service sector which accounts for about 14.3% of GDP includes two sub-sectors namely trade, hotels, and restaurants sub-sector, and transport and communication sub-sectors. The former accounts for about 57% of the sector and 8.2% of GDP and the latter account for the remaining 43% of the value added in the sector with about 6% contribution to GDP. Value-added in the trade, hotels, and restaurant sub-sector grew by a 3.1% per annum for the last three years. Growth in this sector has been reduced by more than half on average during the past three years compared with the 6.8% average growth rate it registered during the entire

twelve years of the regime. On the other hand, the average annual growth rate in value-added in transport and communication during the three years period under consideration showed a minor decrease of 0.2% from the twelve years average.

Table 1.4: Growth performance in sub-sectors of the distributive service sector

	Share in Sector	Share in GDP	Growth				
	1991/92- 2002/03	1991/92- 2002/03	1991/92- 2002/03	2000/01- 2002/03	2000/01	2001/02	2002/03
Distributive Sector	100.0	14.3	6.5	4.3	5.2	4.4	3.2
Trade, Hotels, & restaurant	57.2	8.2	6.8	3.1	5.2	3.4	0.6
Transport & Communication	42.8	6.1	6.1	5.9	5.3	5.8	6.7

Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

The "other services" sector

This sector, which accounts for about 27.1% of GDP, includes banking and insurance, public administration and defense, education, health, and domestic and other services sub-sectors. Public administration and defense, and banking and insurance sub-sectors account for 44.1%, and 24.5% of the value-added in the "other" services sector, respectively. Domestic and other services sub-sector follows with a share of 18% of the sector and 4.8% of GDP. Education, and health sub-sectors have a share of 9.1%, and 4.3% in the sector or 2.4%, and 1.1% of GDP, respectively.

Except for the education, and health sub-sectors, the growth rate of value-added in each sub-sector slowed down in the 2000/01-2002/03 period compared to the twelve years performance. The major decline in growth and even in value-added is recorded for the public administration and defense sub-sector for obvious reasons. This is partly due to a welcome restoration towards a normal path from its upsurge by about 18.3% during the 1997/98-99/00 conflict period with Eritrea. The not so welcome news is the significant deceleration in the growth rate of the banking and insurance sub sector. Growth rate in the sector halved from a 6.5% average for the last twelve years to 3.3% in the last three years. This occurred after the value-added in the sub-

sector has slumped by 0.3% in 2001/02 and grew at a rate of 4.6% in 2002/03 which is partly a recovery from the slump in the preceding year.

The major achievement in the last three years out of the twelve years period of EPRDF is the growth of value-added in education, and health sub-sectors at an average rate of 11.4%, and 8%, respectively, which are greater than the 6.2%, and 6.9%, respective, average growth rates of the value-added recorded for the entire EPRDF period. This again is part of the welcome reallocation of public resources from defense to social provisions, with all its implications for future socio-economic development, following the secessions of official hostilities with Eritrea.

Table 1.5: Growth performance in sub-sectors of the "other services" sector

			Share in Sector	Share in GDP	Growth Rates				
			1991/92-2002/03	1991/92-2002/03	1991/92-2002/03	2000/01-02/03	2000/01	2001/02	2002/03
The "Other" Service Sector			100	27.1	7.8	3.5	4.5	4.6	1.5
Banking & Insurance			24.5	6.6	6.5	3.3	5.5	-0.3	4.6
Public Administration & Defense			44.1	12.1	10.5	2.0	2.6	6.1	-2.7
Education			9.1	2.4	6.2	11.4	13.1	10.9	10.1
Health			4.3	1.1	6.9	8.0	8.0	7.1	9.0
Domestic & Other Services			18.0	4.8	4.4	3.5	3.8	3.5	3.2

Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

Despite the good performance in the education and health sub-sectors in the last three years, the growth rate of the value-added in the "other services" sector in general has declined from the EPRDF's average of 7.8% to 3.5% in the period 2000/01-2002/03. This is not, however, an indication of bad performance at least with regards to this particular sector because there is a clear performance shift from the less productive public and defense sub-sector, which has been accounting for the major share of the sector, to more vibrant sub-sectors such as education. The poor performance in the banking and insurance sub-sector, however, needs due attention.

3. Saving and investment

This sub-section focuses on saving and investment during the reporting period. In addition to performance indicators, the policy changes undertaken in recent years will also be examined. It also includes the number of investment projects approved and those that reached the operation stage.

Low savings has always been the dominant feature of the Ethiopian economy. Even after various reforms have been undertaken to encourage savings since 1992/93, which included financial liberalization measures that provided positive real interest rates, domestic resource mobilization still leaves much to be desired. During fiscal year 2001/02, gross domestic savings was only around 1.8% of GDP, down from 2.6% in the previous year. Even though domestic saving seems to have recovered a bit in these two years from a mere 0.9%⁴ in 1999/00, the figures are still significantly lower than the average values observed during 1993/94-1999/00 (5.4 %), clearly showing a decline in domestic savings in recent years.

Even more worrying is that gross domestic savings further went down to -2.1% of GDP in 2002/03, which is the lowest domestic savings ever recorded for the country. What is more disturbing is that the average value of gross domestic savings to GDP was the lowest in the reform period compared to the previous three decades. As a matter of fact, the three lowest figures of gross domestic savings to GDP since 1960/61 (0.9 %, 1.8% and -2.1%), were observed in 1999/00, 2001/02, and 2002/03, respectively. If we look back domestic savings over the past four decades, we observe that the ratio of gross domestic savings to GDP in the 1960s and 70s was about 14.2 % and 9.7%, respectively. This decline continued in the 1980s where it reached 7.5% of GDP on average. During the period of 1990/91-2002/03, it stood at about 4% of GDP (see Table 1.6).

Clearly, the decline in savings is not likely due to inappropriate financial policies since the most significant decline has taken place after financial liberalization. Instead, what it shows is that per capita income positively affects the level of savings and that the low level of per capita income is potentially one major factor behind the low level of

⁴ It is to be noted that the data we have for Gross Domestic Savings for 1999/00 in our last report, which was -1% was a preliminary estimate. The actual data has since been adjusted to 0.9%.

private savings in the economy. It is an indication of the increasing destitution of a larger portion of the population and its declining capacity to save.

Table 1.6: Gross domestic savings (GDS), gross fixed capital formation (GFCF) and the resource gap (as share of GDP)

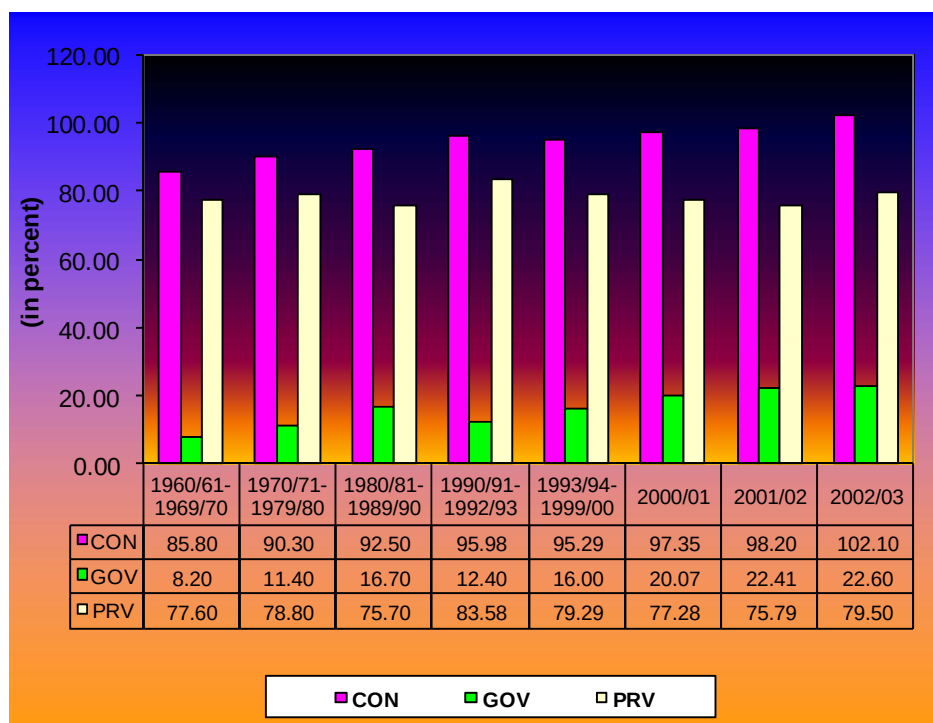
Year	GDS	GFCF	Resource Gap	Share of GFCF Financed from Foreign Sources	Consumption			Debt Service Ratio	Gross External Debt
					Total	Gov.	Private		
1993/94	5.03	15.16	-10.10	66.6	95.0	11.1	84.0	56.9	90.8
1994/95	7.43	16.44	-9.01	54.8	92.6	11.9	81.0	36.7	81.8
1995/96	6.99	16.88	-9.89	58.6	93.0	11.2	82.0	34.5	71.4
1996/97	7.71	17.00	-9.29	54.6	92.3	10.9	81.0	39.8	63.9
1997/98	7.73	17.15	-9.42	54.9	92.3	13.9	78.0	19.2	62.0
1998/99	2.14	16.94	-14.80	87.4	97.9	18.7	79.0	22.9	65.2
1999/2000	0.90	15.85	-15.00	94.6	99.1	23.8	75.0	27.8	86.1
2000/01	2.65	17.79	-15.20	85.4	97.4	20.1	77.0	21.1	89.0
2001/02	1.80	20.50	-18.70	91.2	98.2	22.4	76.0	14.7	103.0
2002/03	-2.10	22.20	-24.50	110.4	102.1	22.6	79.5	13.7	106.8
Average (1993/94-1999/00)	5.40	17.60	-13.60	77.3	96	16.7	79.3	28.7	82.0
Average 2000/01-2002/03	0.78	20.16	-19.47	96.6	99.23	21.7	77.5	16.5	99.6

Source: MoFED, National Income Accounts (February, 2003), National Bank of Ethiopia, Annual Reports (various issues), and Staff Computations

While domestic savings were by and large falling over the years, gross fixed capital formation (GFCF) was showing the opposite trend. GFCF increased to 22.2% in 2002/03, the highest since 1960/61, from 20.5% in the preceding year, despite a slow down in economic activity in these two years where real GDP growth rate was -3.8% and 1.2 %, respectively, far lower than the 7.7% growth recorded in 2000/01. Though gross capital formation in nominal terms grew by 14% and 10% in 2001/02 and 2002/03, the observed high ratio of investment to GDP in both years is partly the result of the lower growth rate of the latter. In fact, the National Bank of Ethiopia

revised the floor for saving deposit rate downwards to 3% from 6% during 2001/02 with an intention of encouraging investment and boost economic activity. Lending rates quickly followed suit as the minimum lending rate charged by commercial banks went down from 10.5 % to 7.5 % in the same period.

Figure 1.8: Government (GOV), private (PRV) and total (CON) consumption (as share of GDP)

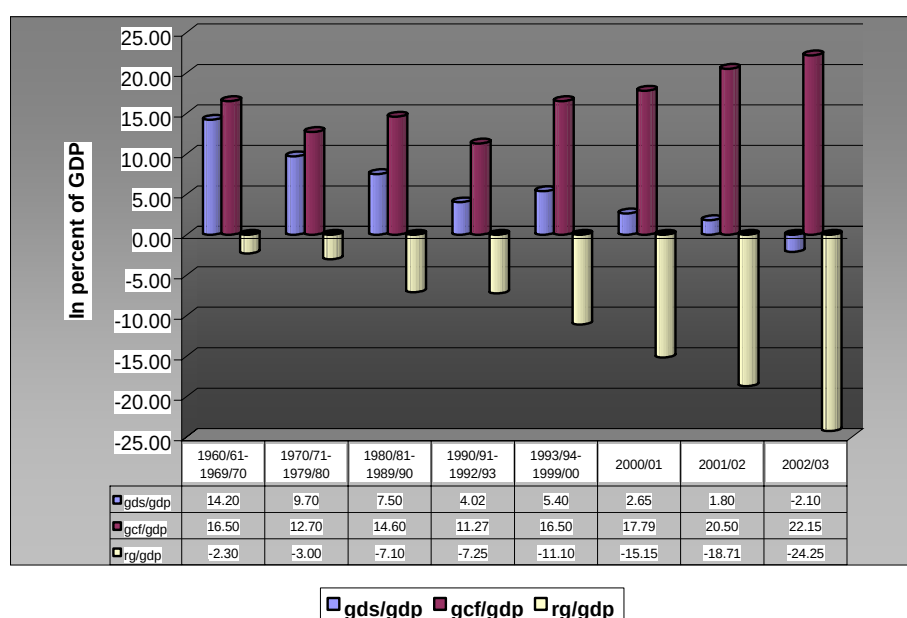


Source: MoFED, National Income Accounts (February, 2003), and Staff Computations

Gross fixed capital formation increased since 1992/93 compared to the last three decades. In the 1960s, gross fixed domestic investment was around 16.7 % of GDP which declined to 12.7 % in the 1970s only to rise to 14.6% in the 80s. During 1990/91-1992/93, the ratio of gross capital formation to GDP plummeted to around 11.3 %. Nevertheless, after the launch of the economic reform in mid 1992/93, gross

capital formation averaged around 17.3 % of GDP. Obviously, since domestic savings have been declining during the same period, foreign sources of capital, mainly loans and grants, have played a crucial role in financing investment further deepening the economy's dependence on foreign sources for financing its investment projects. For instance in 2002/03, 109.5% of the gross domestic capital formation was financed from foreign sources, up from 91.2% in the preceding year.

Figure 1.9: Gross domestic savings (gds/gdp), gross capital formation (gcf/gdp) and resource gap (rg/gdp)

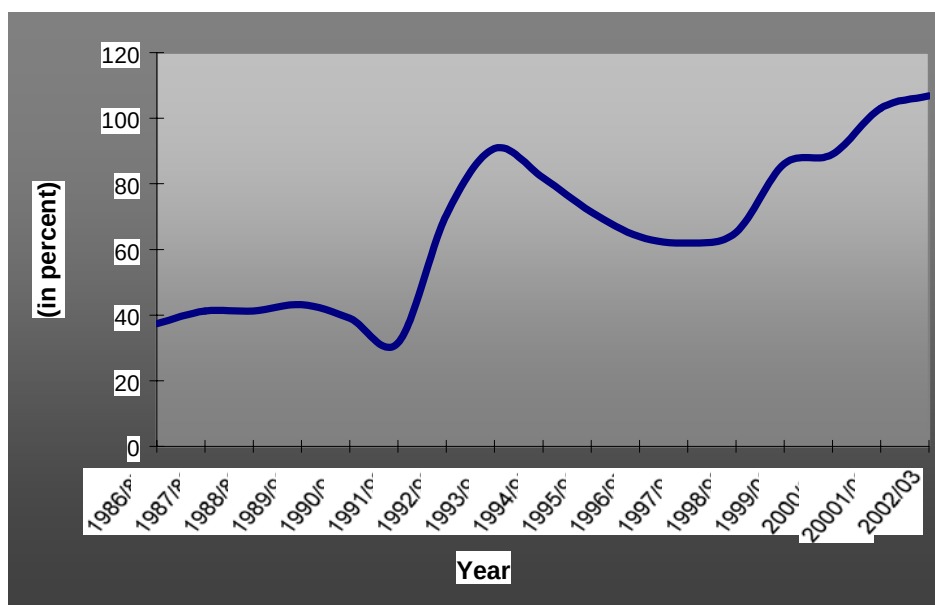


Source: MoFED, National Income Accounts (February, 2003) and Staff Computations

Since the relatively better performance in fixed investment in recent years, particularly during the reform period, was not matched by an equally superior performance in domestic resource mobilization, it gave rise to a widening resource gap over the years. The resource gap, which was 15.2% and 18.7% of GDP in 2000/01 and 2001/02, reached 24.3% by the end of 2002/03 (see Figure 1.9). This gap, as might be expected, resulted in a deteriorating current account balance, and, thus,

contributed to the continuous accumulation of external debt with all its dire consequences reaching close to 107% of GDP in 2002/03. (See Figure 1.10 below and Table 1.6).

Figure 1.10: Gross external debt as percentage of GDP



Source: National Bank of Ethiopia , Annual Reports (various issues), and Staff Computations

3.1 Private investment activity

In reaction to the perceived slowdown in private investment activity, the government introduced a three percentage point reduction in deposit rates in 2001/02 where lending rates also fell by the same amount. After the revision in interest rates, the number of investment projects requested by private local investors and the volume of investment capital in 2001/02 increased by 19.4% and 9.8%, respectively, compared to the preceding fiscal year. Nevertheless, despite a rising number of approved investment projects since 1999/00, the total amount of investment capital devoted to finance the rising number of projects has been significantly lower in the following two

years. From around Birr 14.1 billion in 1999/00, which was planned to finance 624 projects, the investment capital of approved projects during 2000/01 and 2001/02 fell to Birr 8.5 billion and Birr 9.2 billion for the respective 679 and 801 projects. During 2002/03, the number of approved projects reached 1179 with investment capital amounting to Birr 11.9 billion. It seems, after the reduction of the lending rate, the number of approved domestic private investment projects and the volume of capital picked up a bit from the dismal performance in 2000/01.

However, in terms of the composition of approved investment projects, no significant change was observed in 2001/02 and 2002/03 from previous years. In 2002/03, domestic private investment accounted for 63.7 % of the total capital of approved projects, which is also 92.4% of the total number of approved projects. The share of the number and capital of domestic private investment in the total approved projects during 1992/93-2000/01 was 65.3% and 95.3%, respectively. With regard to foreign investment, it exhibited a declining trend during 2000/01 and 2001/02. In 2001/02, only 35 foreign projects (4.6% of the total number of investment projects) worth Birr 1.5 billion (i.e. about 16% of the total) were approved. During 1999/00 and 2000/01, 54 and 41 foreign projects with investment capital of over Birr 1.6 and 2.8 billion were approved. The situation improved to some extent in 2002/03, as 82 foreign projects worth Birr 3.5 billion were approved.

Despite the fact that the investment code of the country has been revised several times, the flow of foreign direct investment is low by any standard. Recent studies show that sub-Saharan Africa's share of the global foreign direct investment (FDI) grew to 9.79% of gross fixed investment in the period 1995-1998 from a mere 3.71% during 1991-1994 while, according to the Ethiopian Investment Authority, foreign direct investment in Ethiopia during 2000/01 and 2001/02 was a mere 0.9% of gross fixed investment. Many agree that the country can ill afford to go along without the much needed scarce foreign capital which, apart from its contribution in employment creation, would contribute a lot in transferring technology, promoting exports and creating back-ward linkages with local firms.

Regarding public investment, the number of government-owned projects doubled in 2001/02 from the previous year where the volume of capital went up to Birr 1.6 billion from Birr 108 million, though the figure is still 72% lower than its 1999/00 level. During 2002/03, 7 public projects with investment capital of Birr 826 million got investment licenses.

On average, the number of approved projects that reach the operation stage is very low. Only around 29% of the total approved investment projects during 1992/93-2001/02 commenced operation. Relative to this average, more number of projects progressed to the operation stage in 2001/02. Accordingly, 177 projects with investment capital of Birr 1.7 billion went operational in the same year. The number of investment projects that commenced operation in 2000/01 was 62 with a capital of Birr 484 million. A great deal of the increment in the number of operational projects came from domestic private investment which rose to 171 from only 53 a year ago. Regarding operational foreign projects, their number declined from 9 to 6 although the volume of capital financing the projects increased to Birr 105 million from around Birr 84 million. No public project was

4. The foreign sector

In the following sub-section, the performance of the external sector will be evaluated. Starting with merchandise trade, it will outline the components of both exports and imports. It will also examine the overall balance and the attendant import capacity during the period under consideration.

The deficit in merchandise trade began to increase in 1998/99 and worsened in fiscal year 2002/03. This has contributed significantly to the deterioration in current account deficit, despite some recent improvements in private transfers from Ethiopians living abroad. Measured as a percentage of GDP, the current account deficit (excluding official transfers) stood at 20.5% in 2002/03, rising from 13.9% in 1999/00 (see Table 1.9).

Export performance still remains heavily tied to coffee which, particularly in recent years, has become very much susceptible to exogenous external and internal shocks. In 2001/02, coffee exports declined by about 8.3% while non-coffee exports showed a 5.3% rise over last year's level. As summarized in Figure 1.11 below, the computed commodity concentration index⁵ has not shown a significant change between 1970/71 and 1997/98, indicating the highly skewed concentration of exports in a single commodity. On average, the commodity concentration index stood at 61.2 for the last three decades. Since fiscal year 1997/98It, however, the share of coffee exports has

⁵ See Annex A for the computation of the Commodity Concentration and Geographic Concentration Indices.

been slightly declining from a high of 69.8% in 1997/98 to a low of 36% in 2001/02. The decline in the share of coffee exports has led to a noticeable decline in the commodity concentration index beginning 1997/98 (see Figure 1.11).

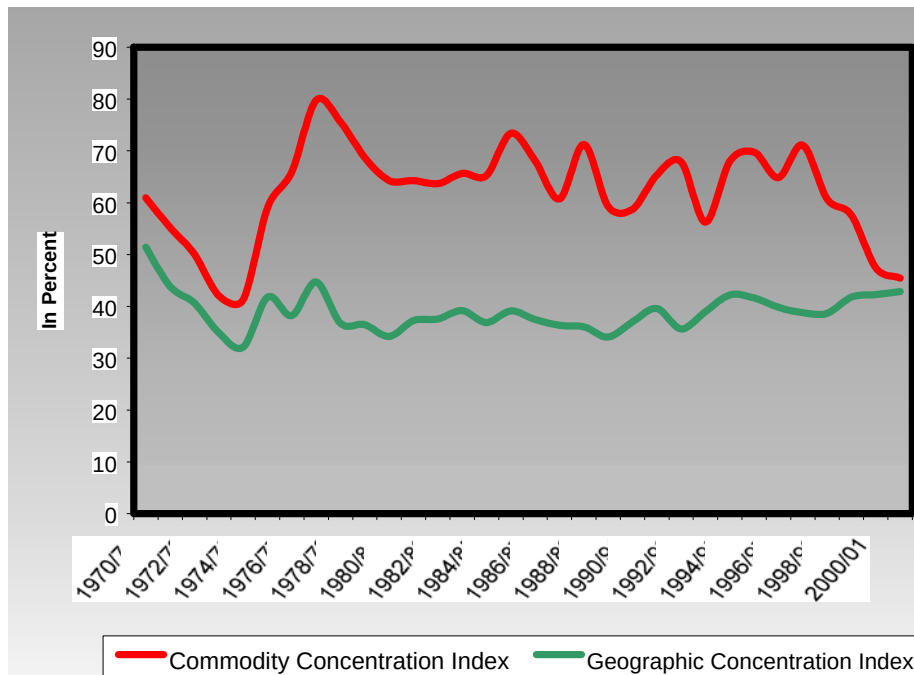
Table 1.7: Growth rates and the structure of exports

Year	Annual Growth Rates of Exports(Value)			Percentage Shares	
	Coffee	Non-coffee	Total	Coffee	Non-coffee
1995/96	-4.2	-14.8	-8.0	66.1	33.9
1996/97	33.8	79.4	49.3	59.3	40.7
1997/98	25.2	-21.0	6.4	69.8	30.2
1998/99	-26.9	21.8	-12.2	58.1	41.9
1999/00	1.0	19.7	8.8	53.9	46.1
2000/01	-28.8	28.6	-2.3	39.3	60.7
2001/02	-8.3	5.3	-0.1	36.1	63.9
2002/03	1.8	10.3	7.2	34.2	65.8

Source: National Bank of Ethiopia, Annual Reports (Various issues) and Staff Computations

Not only do exports depend on a single commodity, the destination of exports also reveals similar picture. In 2000/01 and 2001/02, the geographic concentration index was, on average, 42.5%. This figure is slightly higher than the average figure of 40.2% over the ten year period from 1991/92 to 2001/02. Figure 1.11 depicts a more or less horizontal trend in the geographic concentration index with the implication that there has been small change in market diversification. Region wise, Europe, Asia, and Africa are the major destination blocks for Ethiopian exports. For example, from 1997 to 2002, 43.2 percent of exports went to the European Union, while the share of Asia and Africa, on average, was 32.3 % and 17.6 % of total exports, respectively. At a particular country level, the major markets for Ethiopia's exports were Djibouti, Germany, Italy, Japan, and Saudi Arabia accounting, on average, for about 12.4%, 11.7%, 10%, 9.4%, and 7.3% of total exports, respectively, in the last two years. Needless to say, if a country's foreign trade depends heavily on a limited number of trading partners for a long period of time, then the economy would be vulnerable to economic or no-economic shocks that prevail in the trading partners' economies.

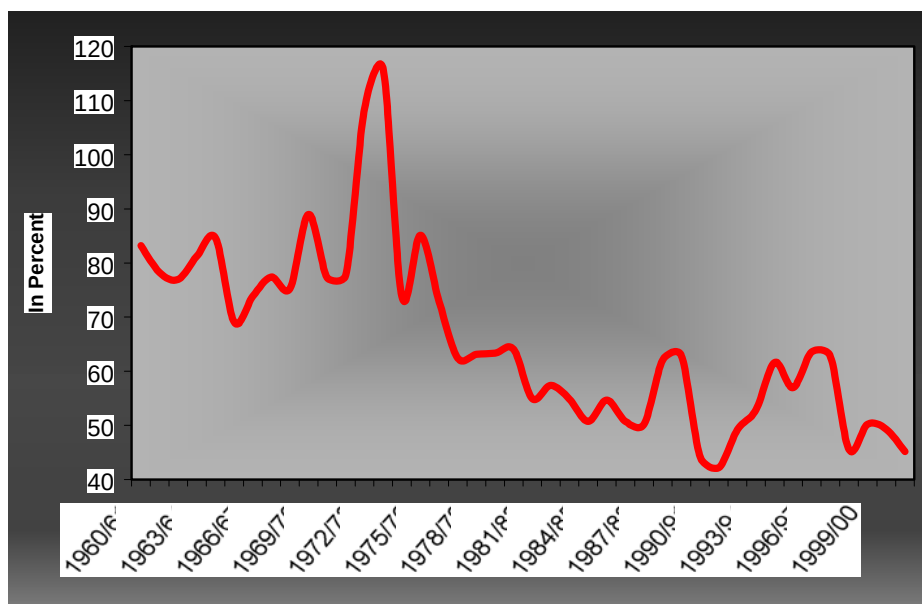
Figure 1.11: Trends in commodity and geographic concentration indices



Source: National Bank of Ethiopia, Annual Reports (Various issues) and Staff Computations

In short, the overall performance of the export sector of the economy has been very weak over the past four decades as evidenced by the lower export/GDP ratio and the declining share of exports in financing imports. The ability of exports in financing imports has been continuously contracting to reach just about 45.1% in 2001/02 (see Figure 1.12). One of the main sources of foreign exchange to import capital goods and technology that are believed to be important ingredients to economic growth is export revenue. The decline in the supply of foreign exchange due to the decline in exports of goods and services could, therefore, lead to a decline in the imports of such important factors of production. In the case of Ethiopia, the decline in export revenue relative to the import bill has led to import compression of essential goods and to the rise of the debt burden. The relative decline in export revenue coupled with the insignificant foreign direct investment puts a strain on the ability to import intermediate and capital goods.

Figure 1.12: Export to import ratio



Source: Ministry of Finance and Economic Development, National Income Accounts (February, 2003)

On the import side, a combination of the current account liberalization and a greater availability of foreign resources fueled merchandise imports in recent years. Merchandise imports grew by 11.7% in 2001/02 relative to the previous fiscal year. As a percentage of GDP, it increased from about 24% in 2000/01 to reach 28 % in 2002/03.

It is also worth noting that the composition of imports shifted in favor of consumer goods at the expense of capital goods in recent years. As can be seen from Table 1.8 above, there has been a continuous rise in import of consumer goods at least since 1999/00, which mainly constitutes imports of consumer durables (like TV sets and cars) and non-durables such as cereals. The first is due to the recent liberalization measure and the second item is due to the drought and thus the import of food items.

Table 1.8: Percentage share in the total value of imports

Year	Raw Materials	Semi-finished Goods	Fuel	Capital Goods	Consumer Goods	Miscellaneous
1995/96	2.5	17.5	12.9	35.9	27.1	4.1
1996/97	2.0	19.2	18.4	38.8	20.6	0.9
1997/98	2.0	16.4	24.4	29.8	19.7	7.7
1998/99	1.7	16.8	11.4	33.7	28.1	8.3
1999/00	1.2	12.7	15.5	29.2	26.8	14.5
2000/01	1.5	18.3	18.8	28.6	30.1	2.8
2001/02	1.8	17.0	15.8	28.3	34.6	2.5
2002/03	1.2	14.8	15.5	29.6	35.2	3.7

Source: National Bank of Ethiopia, Annual Reports (Various issues) and Staff Computations

In 2001/02 Ethiopia has imported Birr 1.3 billion worth of cereals that showed a staggering 104.6% rise over its 2000/01 import bill. The relative share of imports of capital goods has been declining after its peak of 39% in 1996/97. On the other hand, the value of fuel imports is relatively stable in recent years ranging from a high of 24.4% in 1997/98 to a low of 11.4% in 1998/99

Table 1.9: BOP indicators as a percentage of GDP

Indicators	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Exports	9.4	9.2	7.5	7.4	7.1	7.5	7.3
Imports	20.5	20.8	24.2	24.7	23.9	28.0	28.0
Trade Balance	-11.1	-11.6	-16.5	-17.2	-16.8	-20.5	-20.7
Net Services	1.6	1.4	1.0	1.5	1.2	1.7	1.8
Net Private Transfers	4.0	4.9	4.5		5.8	5.8	7.5
Net Public Transfers	3.5	4.0	3.3		6.1	7.2	9.0
Current Account Deficit (Including Public Transfers)	-5.5	-5.2	-11.1	-9.4	-9.8	-13.1	-11.4
Current Account Deficit (Excluding Public Transfers)	-9.0	-9.3	-14.4	-13.9	-15.8	-20.3	-20.5
Non-Monetary Capital	-2.5	1.3	3.6	2.1	4.0	8.4	4.6
Overall Balance	-6.2	-0.3	-0.7	-4.8	-0.8	5.1	4.6

Source: National Bank of Ethiopia, Annual Reports (Various issues) and Staff Computations

Clearly the merchandize component of external trade has been in deficit in recent years. But, despite the deficit in the current account, the overall balance registered a significant surplus during 2001/02 amounting to 5.1% of GDP. The surplus increased by 85% owing to external loans, grants, debt rescheduling, and to a small amount of debt cancellation. Net official transfers also showed a significant improvement as it has showed a 38.6% rise over the 2000/01 level most likely due to the conclusion of the Ethio-Eritrean war.

The surplus in the net services account, which rose to a high of 1.7% of GDP at the end of 2001/02 fiscal year, is mainly attributed to the debt relief arrangement associated with the poverty reduction strategy. The recovery in the services account has resulted in a build up of reserves at the National Bank of Ethiopia. Net reserves of both commercial banks and National Bank of Ethiopia increased by Birr 3226.3 million in 2002/03.

5. Developments in monetary aggregates

The monetary sector as it relates to the supply of money, the size and the quality of financial intermediation and the structure of the banking system is the focus of this sub-section. Policy initiatives recently undertaken and their likely impacts on the workings of the financial sector will also be highlighted.

Broad money supply grew by 10.1% in 2002/03 down from 14.3% in 1999/00. The overall increase in broad money was due to a significant (41.2%) increase in the net foreign asset position. In 2001/2002, the ratio of broad money (M2) to GDP stood at 52.8% and this ratio has, on average, been rising since 1992/93 when the ratio was just only 38 %.

Ethiopia's relatively low level of financial intermediation, as measured by M2 to GDP ratio, suggests the low level of monetization of the Ethiopian economy. Similarly, the velocity of money supply (which measures the average number of times a single birr changed hands in the purchase of goods and services), has fluctuated within a small range since 1992/93. Since 1999/2000 nominal GDP has grown by just 2.1 % while money supply has grown by more than 12 %. As a result, the income velocity of money has declined sharply after 1998/99 (see Figure 1.12).

There was a significant change in the interest rate policy since 1998. The government lifted most controls on lending and deposit rates and revised the minimum floor on saving and time deposits from 6% to 3% per annum in March 2002. As a result, the average deposit rate declined from 6.5% in 2000/01 to 3.5% in 2001/02. The average lending rate, on the other hand, dropped from 12.75% to 10.25%. Notwithstanding these changes, banks still tend to determine the flow of credit based on the quality of collateral rather than the price of that credit which is the interest rate. This behavior is indicated by the fact that lending rates had varied only slightly across banks and over time between 1998/99 and 2001/02 (see Table 1.10).

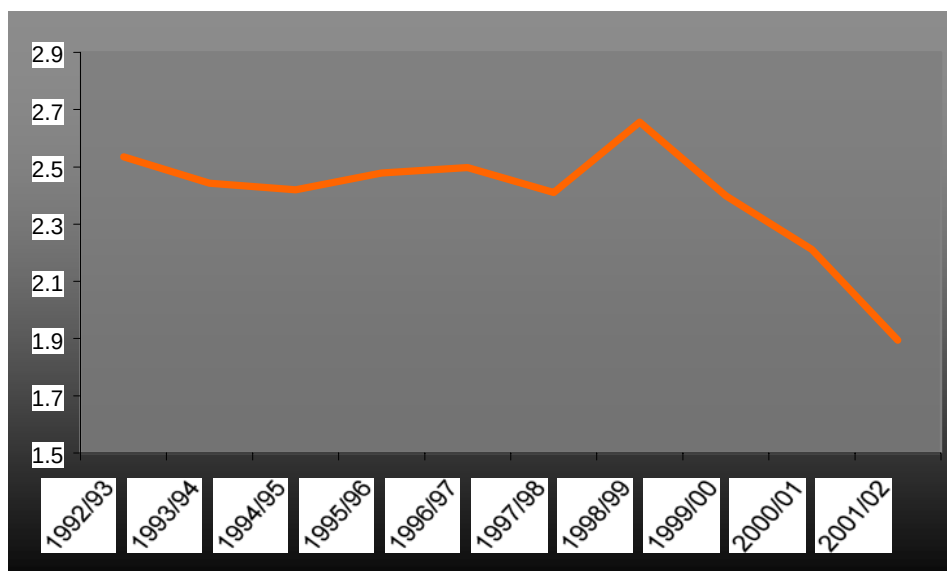
Table 1.10: Interest rate structure

	1998/99	1999/00	2000/01	2001/02	2002/03
Deposit Rate					
<i>Saving Deposit</i>	6.00	6.00	6.00	3.00	3.00
<i>Time Deposits</i>					
<i>6 month</i>	6.11	6.13	6.17	3.30	3.30
<i>6 -12 month</i>	6.27	6.28	6.36	3.41	3.35
<i>12- 18 month</i>	6.30	6.41	6.53	3.51	3.62
<i>18-24 month</i>	6.36	6.54	6.67	3.54	3.72
<i>Over 24 month</i>	6.43	6.69	6.80	3.57	3.82
Lending Rates					
<i>Maximum</i>	13.00	13.50	15.00	13.00	13.00
<i>Minimum</i>	10.50	10.50	10.50	7.50	7.50

Source: National Bank of Ethiopia, Annual Report(2002/03)

In recent years much of the domestic credit went to the government, due to the higher borrowing requirement to finance the budget deficit. Government borrowing absorbed about 58% of total credit in 2001/02. Conversely, the share of the non-government sector credit in total domestic credit is experiencing regression since fiscal year 1998/99, declining, on average, by about 2.2% per annum. This is particularly interesting since government borrowing does not seem to crowd out private sector credit as can be seen by the rather huge amount of excess reserves in the banking sector.

Figure 1.13: The income velocity of money



Source: National Bank of Ethiopia, Annual Reports (Various issues) and staff computations

Table 1.11: Domestic credit by sector (in millions of Birr)

	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03
Domestic Credit(Net)	18523.2	20096.1	26271	27551.7	27528.8	28202
Claims on Government (net)	8857.6	9584.7	14775.7	15171.1	15985.1	17229.8
Of Which: National Bank of Ethiopia	7681.6	8158.9	12982.1	10000.1	8986.7	9387.6
Of Which: Commercial Banks	1176	1425.8	1793.6	5171	6998.4	7842.2
Claims on Other Sectors	9665.6	10511.4	11495.3	12380.6	11543.7	10973
Annual Percentage changes						
Domestic Credit (Net)	12.6	8.5	30.7	4.9	-0.1	2.4
Claims on Government (net)	11.5	8.2	54.2	2.7	5.4	7.8
Of Which: National Bank of Ethiopia	15.9	6.2	59.1	-23.0	-10.1	4.5
Of Which: Commercial Banks	-10.7	21.2	25.8	188.3	35.3	12.1
Claims on Other Sectors	13.7	8.8	9.4	7.7	-6.8	-4.9

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations

Private sector credit in Ethiopia tends to concentrate on short-term commercial activities particularly related to foreign trade with virtually non-existent long-term private borrowing. Commercial banks in Ethiopia have the tendency of keeping much more reserves than is legally required. In fact, excess liquidity has, on average, remained around 46.7% during the 1995/96 -2000/01 period. Despite some of the policy measures during the reform period, the level and quality of financial sector intermediation remained rather shallow over the past decade. Since the reform began, the quantity of credit extended to the private sector amounted, on average, to 19.5% of GDP. This figure does compare favorably with the meager 8.7% of GDP in the previous regime. However, there are still rigidities in the financial sector as evidenced by the amount of excess liquidity in the midst of the popularly perceived overall loanable-fund constraints in the country.

Table 1.12: Reserve and liquidity position of commercial banks

	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01
<i>(In millions of Birr)</i>						
Net Deposit ¹	11,308	12,843	16,167	16,017	18,482	21,635
Reserve Requirement ²	565	642	808	801	924	1,082
Actual Reserves	1,985	1,336	2,425	2,414	4,404	2,500
Excess Reserves	1,420	694	1,617	1,613	3,480	1,418
Actual Reserves Ratio (in percent)	17.6	10.4	15.0	15.1	23.8	11.6
Net Current Deposit ³	10,548	11,996	15,092	15,157	17,677	20,639
Liquidity Requirement ⁴	1,582.2	1,799.4	2263.8	2,273.55	2,651.55	3,095.85
Actual Liquidity Assets	4,885	5,238	7,879	7,601	9,680	6,840
Excess Liquidity	3,303	3,439	5,615	5,327	7,028	3,744

Source: International Monetary Fund, 2002

1/ Demand, savings, and time deposits, less uncleared checks paid, and less uncleared effects (foreign)

2/ Five percent of net deposits

3/ Net deposits, less deposits at notice (deposits that can be withdrawn after 30 day's notice).

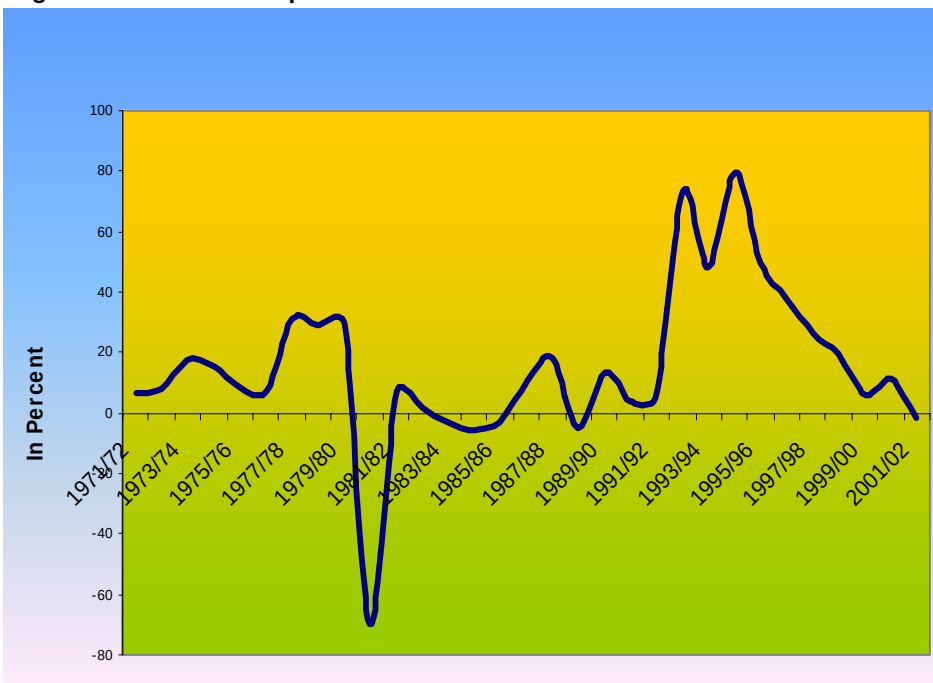
4/ Fifteen percent of net current deposits

This paradox might be due to the following factors. One possible factor relates to the risk-averse behavior of banks in developing countries in general. That is, the bank's perception of shortage of profitable and bankable projects which are worth lending to. This credit rationing behavior seems to be the result of asymmetric information in the credit market. In this regard, almost all banks in Ethiopia find it hard and costly to

gather solid information on borrowers. This is partly because the credit records of borrowers are hard to trace and there is no efficient information sharing mechanism among banks on the credit records of borrowers at the moment. Another additional hurdle is the culture of loan repayment in Ethiopia, where more often than not, clients are unwilling to repay their loans. Therefore, the existence of asymmetric information has led banks in Ethiopia to rely almost totally on collateral, rather than the interest rate, or other market information for assessing risk thus narrowing the pool of borrowers to a small group of wealthy people with accumulated assets that could serve as collateral.

In short, excess liquidity in Ethiopia seems to be the result of structural rigidities, asymmetric information, negative perceptions regarding future profitability of business, and institutional weaknesses of the financial sector.

Figure 1.14: Growth in private sector credit



Source: National Bank of Ethiopia, Annual Reports (Various issues) and Staff Computations

6. Public finance

This sub-section outlines the size and structure of both government revenue and expenditures. In addition to detailing the tax structure and the components of government expenditures (both current and capital) it examines the budget position (surplus/deficit) that occurred during the period in review relative to past years and the sources of financing to fill revenue shortfalls.

Total government revenue ranged between 18.5% to 23% of GDP during the fiscal years 1992/93 and 1998/99, and showed a steady increase in 2000/01 and 2001/2002. Government revenue (including grants) reached a peak of 24.8% of GDP in 2001/02 and it remained around this level (28.9%) in 2002/03. Tax revenue as a percentage of GDP reached 15.3% in 2001/02, which is higher than the 12% registered during the entire reform period of 1992/93-2001/02. Both income tax and business profit tax collections appear to have picked up in 2001/02 which may be attributed to some of the reforms being undertaken by the Federal Inland Revenue Authority. Non-tax revenue (excluding privatization proceeds) accounted for about 24% of total domestic revenue during the period under consideration.

A major trend in recent fiscal performance indicates an increase in general government expenditure from 29.1% of GDP in FY 2000/01 to 32.3% in fiscal year 2002/03. Nonetheless, there have been changes in the composition and quality of general government expenditure since the end of the border conflict. Recurrent expenditure declined from 26% of GDP in 1999/00 to reach 20.4% in 2001/02. Despite the slowdown, the figure is still higher than the period average over the last ten years. By contrast, the outlays for capital expenditure rose to 12% of GDP in 2001/02, which is by far the highest since 1992/93 when the ratio was only just 6.7 %.

Table 1.13: Structure of revenue

Annex 1:2001 - Structure of Revenue						2002/03
Components	1997/98	1998/99	1999/00	2000/01	2001/02	Pre-Actual
In Percent of GDP						
Tax Revenue	11.7	11.5	12.2	13.7	15.3	14.5
Direct Tax	4.2	4.1	4.5	5.0	6.0	5.3
Of Which: Income and Profit	3.7	3.8	4.1	4.6	5.8	5.1
Of Which: Land Use Fees	0.5	0.4	0.4	0.4	0.3	0.2
Indirect Tax	7.6	7.3	7.7	8.7	9.3	9.2
Of Which : Domestic	2.6	2.5	2.7	2.5	2.9	2.9
Of Which : Foreign	4.9	4.9	5.0	6.1	6.4	6.3
Non-Tax Revenue	7.0	7.9	6.9	5.0	4.8	5.1
Grants	2.8	3.6	3.2	4.8	4.7	4.3
Annual Growth Rates						
Tax Revenue	-1.8	6.3	15.9	14.8	6.6	4.0
Direct Tax	-2.2	7.9	17.8	15.5	14.1	-3.6
Indirect Tax	-1.6	5.4	14.9	14.3	2.2	8.9
Non-Tax Revenue	24.6	23.0	-5.1	-25.3	-9.3	17.1
Grants	-15.3	38.4	-2.2	52.4	-7.7	0.9
Total Revenue	6.6	12.5	7.3	0.3	2.3	7.1
Total Revenue & Grants	3.1	15.9	5.9	7.9	0.2	5.9

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations

A major component of recurrent expenditure has always been general services. Looking at expenditure disbursements in this particular category, we can clearly see the effect of the "peace dividend" as there has been a declining share of general services from a high of 61% of total recurrent expenditure in 1999/00 to just 47%, per annum, during 2000/01 to 2001/02 periods. A major factor in this slowdown in the general service category is the lower defense expenditure whose share, in total recurrent expenditure, declined from about 50% at the height of the conflict to just 25% in 2000/01. This significant decline has helped the government to boost expenditure on other sectors of the economy.

Table 1.14: Fiscal trends in Ethiopia, 1980/81 -2001/02

Components	Average 1980/81- 1990/91	Average 1991/92- 2001/02	1998/99	1999/00	2000/01	2001/02	2002/03 Pre. Actual
<i>(As percent of GDP)</i>							
1. Total Revenue	21.9	21.2	23	21.1	23.6	24.8	24.9
Domestic Revenue	19.3	17.7	19.4	17.9	18.8	20.1	19.6
External Grants	2.6	3.5	3.6	3.2	4.8	4.7	5.3
2. Total Expenditure	28.5	27.5	29.8	32.3	29.1	34.1	32.3
<i>Of Which :Recurrent</i>	<i>19.6</i>	<i>18</i>	<i>20.7</i>	<i>25.8</i>	<i>19.1</i>	<i>20.4</i>	<i>21.6</i>
<i>Of Which: Capital</i>	<i>8.8</i>	<i>9.2</i>	<i>9.1</i>	<i>6.5</i>	<i>9.2</i>	<i>11.8</i>	<i>10.2</i>
3. Fiscal Deficit							
Before Grants	9.2	9.9	10.5	14.4	10.3	14.0	12.4
After Grants	6.6	6.3	6.8	11.2	5.5	9.3	7.4

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations

Table 1.15: The percentage share of sectors from recurrent expenditure

Sectors	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
General Services	45.3	55.3	60.6	48.9	43.9	38.0
<i>Of Which: Defense</i>	<i>29.5</i>	<i>41.8</i>	<i>49.8</i>	<i>31.9</i>	<i>24.7</i>	<i>19.0</i>
<i>Of Which: Public Order & Security</i>	<i>3.1</i>	<i>3.8</i>	<i>2.9</i>	<i>4.9</i>	<i>5.4</i>	<i>6.4</i>
Economic Services	9.3	7.7	5.9	9.1	9.9	10.8
<i>Of Which: Agriculture and Natural Resources</i>	<i>6.9</i>	<i>5.2</i>	<i>3.9</i>	<i>6.1</i>	<i>6.4</i>	<i>5.9</i>
<i>Of Which: Urban Development and Construction</i>	<i>1.3</i>	<i>0.7</i>	<i>0.7</i>	<i>1.0</i>	<i>1.1</i>	<i>1.1</i>
Social Services	24.3	18.7	15.3	21.5	26.5	25.9
<i>Of Which: Education</i>	<i>15.9</i>	<i>12.2</i>	<i>9.5</i>	<i>14.6</i>	<i>16.8</i>	<i>18.5</i>
<i>Of Which: Public Health</i>	<i>5.6</i>	<i>4.5</i>	<i>2.9</i>	<i>4.5</i>	<i>4.9</i>	<i>4.3</i>
Interest and Charges	11.8	9.4	8.2	10.4	9.5	8.5
External Assistance	2.3	8.0	9.4	9.4	9.5	15.0
Others	7.1	0.8	0.7	0.7	0.6	1.9

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations

Similarly, expenditure on social services increased from 15.3 to 26.5% of total recurrent expenditure between 1999/00 and 2001/02 while expenditure on economic services saw their share rise from 5.9 to 9.9% during the same period. Between 1999/00 and 2001/02, expenditure on education increased from 9.5% of recurrent expenditure to a high of 16.8% while at the same time public investment on health rose from 2.9 to reach 4.9% of total recurrent expenditure.

On the capital expenditure side, the largest share of capital expenditure has always been outlays for economic development whose share dropped significantly from 69% to 54.3% between 1999/00 and 2001/02. Expenditure on social development, mainly constituting outlays for public health and education, has been rather volatile recently, ranging between a low of 16.3 % in 2001/02 and 24 % of capital expenditure in 1997/98. Here also it is important to note the reorientation of expenditure on public health and education, whose share saw annual average increments of 7.4 and 10.9 percent, respectively, in 2000/01 and 2001/02 (see Table 1.16).

Table 1.16: The percentage of sectors from total capital expenditure

Sectors	1997/98	1998/99	1999/00	2000/01	2001/02	2002/03
Economic Development	57.5	58.4	60.0	63.2	54.3	57.4
<i>Of Which: Agriculture and Natural Resources</i>	19.7	21.6	21.9	20.0	17.8	13.1
<i>Of Which: Transport Construction</i>	21.1	24.3	23.2	29.5	24.9	27.0
Social Development	23.8	22.0	18.2	26.6	16.2	22.9
<i>Of Which: Education</i>	10.2	10.5	9.9	13.3	8.8	13.6
<i>Of Which: Health</i>	6.5	5.0	4.1	10.3	4.5	5.1
External Assistance	11.6	12.0	11.8	0.0	18.2	12.1
General Development	6.8	7.4	10.1	10.2	11.3	7.6

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations

In sum, expenditure increased, in absolute terms, much faster than revenue. This has resulted in a widening of the budget deficit which, in terms of GDP, rose from 10.3 % in 2000/01 to a high of 14 % in 2001/02. Net external borrowing financed the significant proportion of the deficit in 2001/02 while borrowing from the domestic banking sector was only Birr 723 million, down from about Birr 5.5 billion in 1999/00.

Table 1.17: Financing of the budget deficit (as percent of GDP)

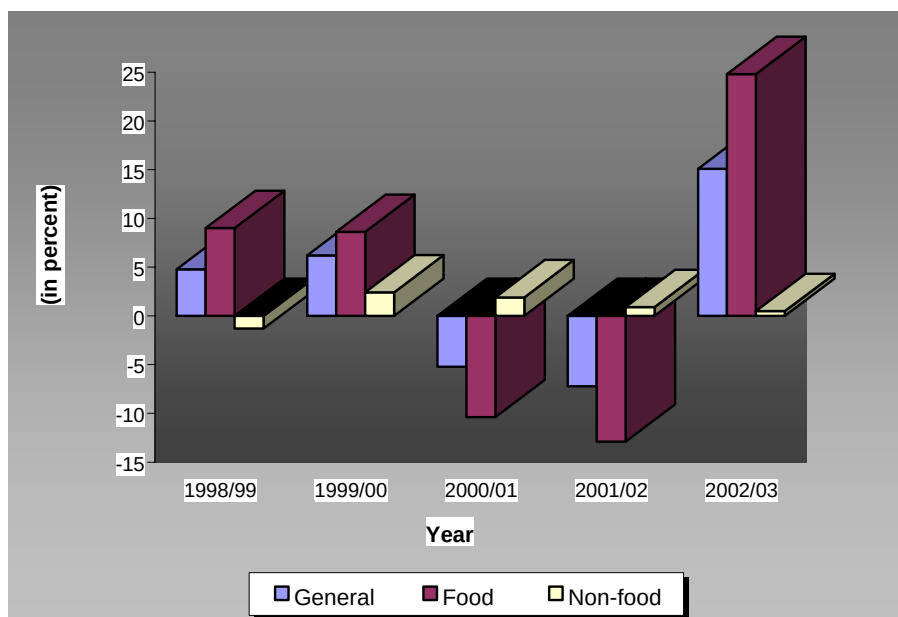
	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03
Total Revenue and Grants	21.6	23.0	21.1	23.6	24.8	24.9
Total Expenditure	25.3	29.8	32.3	29.1	34.1	32.3
Overall Balance						
Including Grants	-3.7	-6.8	-11.2	-5.5	-9.3	7.4
Excluding Grants	-6.5	-10.5	-14.4	-10.3	-14.0	12.7
Financing	3.7	6.8	11.2	5.5	9.3	7.4
External Net	1.7	2.8	1.6	3.8	8.6	6.2
<i>Of which: Gross Borrowing</i>	<i>2.5</i>	<i>3.7</i>	<i>2.6</i>	<i>4.9</i>	<i>10.0</i>	<i>6.3</i>
<i>Of Which: Amortization Paid</i>	<i>-0.8</i>	<i>-0.9</i>	<i>-0.9</i>	<i>-1.1</i>	<i>-1.3</i>	<i>1.3</i>
Domestic Net	1.3	3.1	9.4	0.1	0.6	2.9
<i>Of which: Banking System</i>	<i>1.3</i>	<i>1.8</i>	<i>10.3</i>	<i>-0.4</i>	<i>1.4</i>	<i>2.9</i>
Others and Residual	0.6	1.0	0.2	1.6	0.1	-1.6

Source: National Bank of Ethiopia, Annual Reports (Various Issues) and Staff Computations.

7. Price developments

Except during periods of political instability and drought (which, of course, in recent times has become frequent with short gaps), inflation has always been low in Ethiopia. During 1998/99-2002/03, as if to assert that the fate of the economy is at the mercy of the vagaries of the weather, a year of a bumper harvest in 2000/01 was followed by a severe drought in 2002/03. Consequently, inflation has been exhibiting huge fluctuations in the past five years. As can be seen from Figure 1.15 and Table 1.18, after consistently falling below zero during 2000/01 and 2001/02 (-5.2% and -7.2%, respectively), inflation shot up to 15.1% by the end of fiscal year 2002/03. Since food items take the lion's share in the construction of the general price index, the latter just mimics what is happening to food prices. Accordingly, the food component of the price index fell by 10.4% and 12.9%, during 2000/01 and 2001/02, respectively, only to make a quantum jump to 24.8 % in the following year. Non-food inflation has followed a stable path during 1998/99-2002/03 with an average growth of 0.9%. Its recent growth is also similar to this average. (See Table 1.18).

Figure 1.15: Inflation: general, food and non-food



Source: National Bank of Ethiopia, Quarterly Bulletins (various issues)

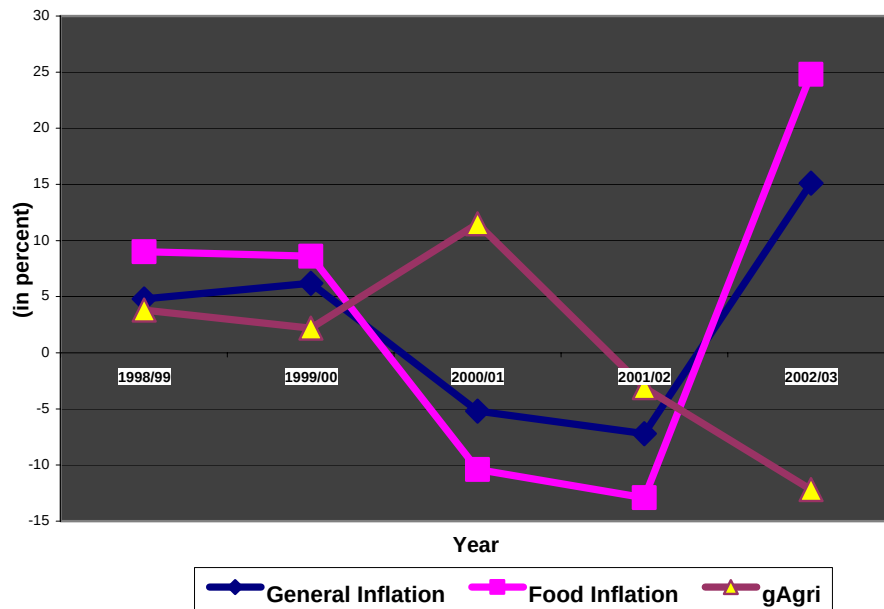
Table 1.18: Trends in prices (in percent)

Year	General CPI Inflation	Food	Non-Food	GDP Deflator	Growth in Agricultural Output	Growth in Broad Money (M2)
1998/99	4.8	9.0	-1.3	3,7	3,8	4.5
1999/00	6.2	8.6	2.4	3,5	2,2	14.3
2000/01	-5.2	-10.4	1.9	-5,4	11,5	10.5
2001/02	-7.2	-12.9	0.9	-5,7	-3,1	11.4
2002/03	15.1	24.8	0.5	9,6	-12,2	10.1

Source: National Bank of Ethiopia, Quarterly Bulletins (various issues), and MoFED, National Income Accounts (February, 2003)

**Inflation is computed on December 2000=100 basis.*

Figure 1.16: Growth in agricultural output (gAgri), general CPI inflation and food inflation



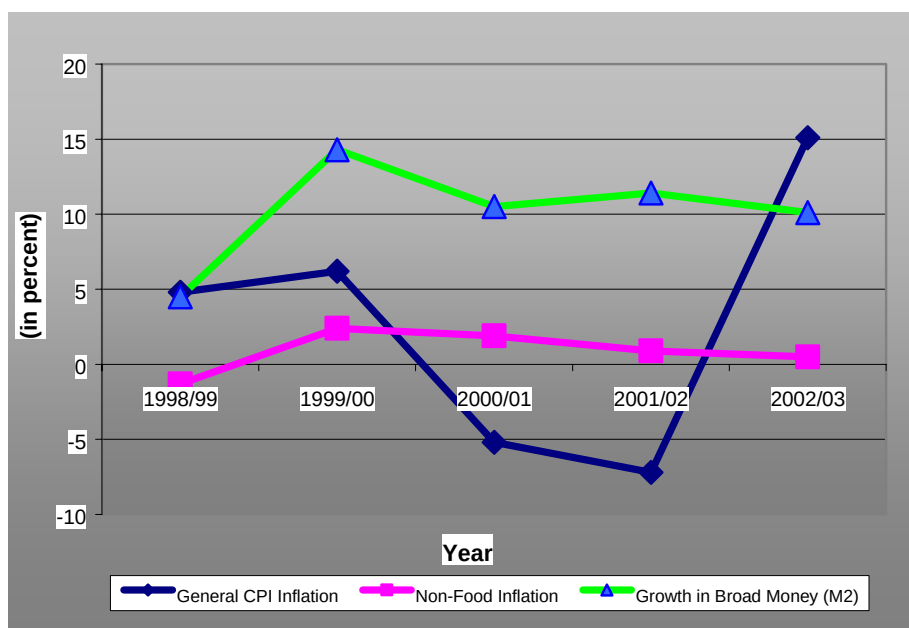
Source: National Bank of Ethiopia, Quarterly Bulletins (various issues), and MoFED, National Income Accounts (February, 2003)

It is safe to conclude that inflation in Ethiopia is very much associated with the performance of the agricultural sector. It can be seen in Figure 1.16 that growth in agricultural production explains the movement in both food and general consumer prices. For instance, during 2001/02, when agricultural production exhibited a significant 11.5% rise, CPI inflation and the GDP deflator went down by 7.2 % and 5.7%, respectively. During the drought year of 2002/03, in which the value added from agricultural output plunged by 12.2%, inflation jumped to 15.1%.

In contrast, growth in broad money supply seems to explain very little of the price dynamics. When inflation was in the negative territory during 2000/01 and 2001/02, money supply was growing by 10.5% and 11.4%, respectively, which was not quite different from its growth rate during 2002/03 when inflation reached 15.1%. Though no conclusive statement can be made regarding the role of monetary aggregates in

influencing inflation, the history of prices in Ethiopia suggests that it is mainly determined by the performance of the agricultural sector.

Figure 1.17: Money supply and inflation



Source: National Bank of Ethiopia, Quarterly Bulletins (various issues)

At least three implications can be derived from the close association between agricultural output and prices. First, supply-side shocks do explain the price dynamics in Ethiopia more than demand-shocks. Second, even though a bold statement about the irrelevance of monetary policy in influencing inflation cannot be made, it is clear that the monetary authorities have a very limited role in influencing inflation and possibly output fluctuations. Third, farmers do not necessarily benefit from a rise in agricultural output since the gain in output is offset by a proportionate decrease in food prices.

8. Conclusion

The general macroeconomic developments outlined in this section attempted to shed light on the performance of the economy to underscore the extent to which such a performance accords with the reform policies undertaken and the ultimate goals envisaged such as poverty reduction. This was by briefly surveying the aggregate and sectoral performances of the economy.

Some of the salient features of the Ethiopian macro economy could be summed up as follows: First, it is volatile and its growth lags behind the growth in population. This is mainly because, owing to weather conditions and its effect on agricultural output, real GDP shrank twice in the past five years. Consequently, given the growth in population, real per capita income was on average falling both in rural and urban areas in the last three years.

Second, Irrespective of what the monetary authorities were doing, prices were fluctuating widely, registering historic lows and highs during the period in review. As noted earlier, this was mainly due the output fluctuations in the agricultural sector.

Third, both internal and external factors have contributed to the weak performance of the economy. As a small open economy, the Ethiopian economy still remains highly susceptible to exogenous shocks no matter what policy makers do. The world price of coffee and its impact on the Ethiopian export revenue is a case in point. The external shocks combined with domestic shocks contributed to the weak performance of the economy.

Fourth, as outlined above, export have not been diversified both in terms of commodity composition and market destination over the past forty years. Consequently, the economy is still vulnerable to external shocks. This suggests the need for a comprehensive marketing strategy for the export sector.

Fifth, after twelve years of substantive economic reform aimed at bringing about structural transformation and poverty reduction, the outcome of the policies have yet to materialize in adequately achieving these goals. It has been about twelve years since the Agricultural Development Led Industrialization has been introduced and implemented. After twelve years of experiment, the advances made in securing food

sufficiency either too little or not at all. For instance, in 2002/03, the total number of famine affected population reached a historical high of 14 million. The recurrent drought and the poor economic performance have made it clear that either the policies in place are not delivering as was expected or even if they are correct they have too long effect lag to serve as a shield against the frequent shocks.

Sixth, the bumper harvest experienced in 2000/01 has demonstrated that as long as there is no market outlet and other structural rigidities prevail, simply increasing agricultural production does not necessarily benefit the agrarian society and the economy at large. That is, in the absence of either effective domestic demand or external market outlet for what is produced, a growth in agricultural output cannot be sustained. This calls for a consistent urban and rural development strategy in which the growth of each sector is meaningfully linked to the growth of the other sectors.

CHAPTER II

THE PERFORMANCE OF ETHIOPIAN AGRICULTURE

1. Background

Except for agriculture's role in the overall economy, this report covers the period 2000/01 (1993 E.C) and 2003/04 (1996 E.C). Moreover, the reporting period for some issues which were inadequately covered in the previous two annual reports will be extended to the 1990s. As the second annual report covered the performance of the agricultural sector up to the year 1999/00, this report uses 1999/00 to link the performance of the sector⁶ in the review years of this report (2000/01 to 2003/04) to past performances.

The major source of data for this report is the statistical bulletins of the Central Statistical Authority (CSA), the National Bank of Ethiopia (NBE) and the Agricultural Inputs Authority. The CSA publishes data on the performance of the food crops in terms of area cultivated and treated with modern farm inputs, and total expected production. In parallel, FAO publish annually data on the performance of the Ethiopian agricultural sector. However, there is a big variation between the two sources. Despite this big variation between CSA's and FAO's data, we use CSA's data only for a matter of consistency (i.e. we used CSA's data in our 2nd annual report). A comparison of the two data sets was made in Annex B4 for readers who want to know and judge the variation. Whenever necessary, we have also tried to highlight some of these variations in our analysis. The other precaution with CSA data is that the data for the 2002/03 and 2003/04 crop years are forecast data which could be changed when CSA publishes its final estimate.

⁶ Except for its contribution to the export sector, the performance of the livestock sub-sector is not covered in this report due to lack of data.

2. Overall performance

Agriculture is the dominant sector in the Ethiopian economy. The overall performance of the agricultural sector could be measured in terms of its contribution to GDP, foreign exchange earnings and production of food crops to meet the objective of food security. Despite the marginal decline in its share in GDP in recent years, the agricultural sector is still the single largest sector and its performance has significantly impact the overall performance of the economy. For instance, agriculture's growth by 2.2% contributed 18.5% to the 5.3% growth in GDP registered in 1999/00 (Table 2.1). Similarly, the sector's growth by 11.4% contributed 64.9% to the 7.7% growth in GDP in 2000/01. On the other hand, a 3% and 12% decline in the growth rate of agriculture in 2001/02 and 2002/03 negatively affected the performance of the overall economy by 112% and 140%, respectively. However, the growth in the industry and service sectors offsets some of the negative effects of the decline in the agricultural sector. Regarding rural and agricultural income, agricultural per capita income (i.e. the value added by the sector per rural person) increased by 8.6% from 130 Birr in 1999/00 to 141.3 Birr in 2000/01 before declining by 5.6% to Birr 133.33 in 2001/02 and further by 14.4% in 2002/03 (Table 2.2).

Table 2.1: The performance of the agricultural sector and its contribution to GDP growth

Year	GDP at 1980/81 factor cost		Share of agriculture and allied activities in GDP		Agriculture's growth rate and its contribution to GDP		Estimated rural population (million)	Agricultural per capita income (Br/rural person)
	(Mn. Birr)	Growth rate (%)	Mn. Birr*	%	Absolute growth/decline	Contribution to GDP growth/decline		
1999/00	16,112.3	5.3	7024.9	43.6	2.2%	18.5%	54.04	130.00
2000/01	17,354.4	7.7	7826.8	45.1	11.4%	64.9%	55.40	141.28
2001/02	17,567.0	1.2	7588.9	43.2	-3.0%	-111.9%	56.92	133.33
2002/03	16,904.0	-3.8	6663.0	39.4	-12.2%	-139.7%	58.38	114.13

Source: Computed based on data obtained from National Bank of Ethiopia, (2001/2002), Annual Report, Addis Ababa, Ethiopia and EEA's database.

* Total value added by the sector

Like its impact on GDP, the performance of the agricultural sector has a direct and significant effect on the performance of the export sector. For instance, a 5.07% growth in the value of agricultural export in 1999/00 had a 52.4% contribution to the 8.1% growth rate in total value of export achieved in 1999/00. In other words, 52.8% of the 8.1% growth in the total value of export could be attributed to the agricultural sector. Similarly, a 3.9% decline in the value of agricultural export had a 55.9% share in the 4.9% decline in the growth rate of total value of export in 2001/02. These data indicate Ethiopia's high dependence on a few and industrially unprocessed agricultural products for the export market⁷. It also makes clear the need for integrating agriculture with industry through the expansion of agro-industries which could add value to primary products.

Table 2.2: Agriculture's contribution to the export sector

Year	Export proceeds						Volume of major export					
	Total value of export (Millions of Birr)	Agriculture's contribution to total value of export					Volume of major exports ^a (Million Kgs.)	Agriculture's contribution to total volume of major export commodities				Share of coffee (%)
		Agriculture's share ^a		Absolute growth/ decline (%)	Contribution to growth/ decline of total export value (%)			Agriculture's share in major export commodities		Absolute growth/ decline (%)		
		Million Br.	%					Million Kgs.	%			
1999/00	3,957.8	3323.3	84.0	5.07	52.4	53.9	253.8	221.4	87.2	4.24	45.94	
2000/01	3,679.8	2684.2	72.9	-23.80	-229.9	39.5	275.2	201.5	73.2	-8.99	34.74	
2001/02	3,499.6	2583.4	73.8	-3.90	-55.9	38.5	396.6	320.3	80.8	58.9	27.13	

Source: Computed based on data obtained from NBE, 2001/2002 Annual Report.

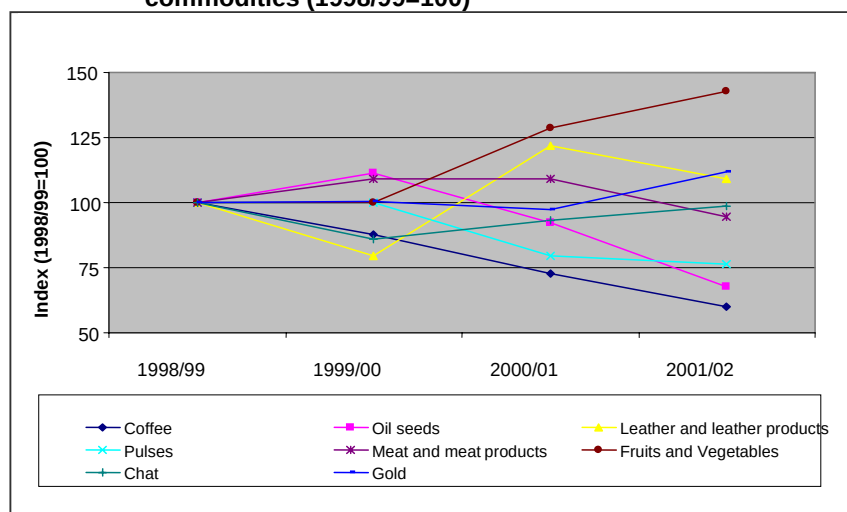
⁷ Processed agricultural products like leather and leather products were not considered as agriculture's contribution to the export sector. However, non-agricultural exports (with the exception of Gold) are processed agricultural products.

⁸ Major export items included coffee, oilseeds, pulses, fruits and vegetables, live animals and t'Chat from the agricultural sector and leather and leather products, meat and meat products, sugar and molasses and gold from the non-agricultural sectors.

⁹ The contribution of agriculture to the export sector was calculated as the total contribution of all export commodities except leather and leather products, meat (canned and frozen), sugar and molasses, gold and other commodities which are unknown to classify into agriculture or non-agriculture as the data source for this report (annual reports of the National Bank of Ethiopia) failed to specify them. However, the estimate was made based on agriculture's average contribution to the export sector. Accordingly, from other commodities, the share of agriculture in the export sector was assumed to be 85%.

The government has provided various support and incentives to exporters and economic agents involved in Ethiopia's agriculture dominated export sector. However, the performance of the agricultural export sector has not been encouraging. For example, agriculture's share in the total value of exports declined from 84% in 1999/00 to about 74% in 2001/02. The major contributing factor for the decline in the value of agricultural export is the decline in world price of coffee which is the single most important export commodity. For instance, coffee lost 40.2% of its value in four years' time between 1998/99 and 2001/02 (see Figure 2.1).

Figure 2.1: Index of unit value of major agricultural and other export commodities (1998/99=100)



Source: Computed base on data obtained from NBE's various annual reports.

3. The performance of food crops

3.1 Cereals, pulses and oilseeds

Cereals, pulses and oilseeds are the three major food crops that accounted for over 85% of the total temporary and permanent crops. For instance, in 2000/01 and 20001/02, 9.4 million and 7.8 million hectares of land, respectively, were covered by these three types of food crops. On the other hand, when compared to the preceding year, area covered by the three major food crops increased by 15.7% in 2000/01 and

decreased by 17.3% in 2001/02. In the subsequent years of 2002/03 and 2003/04, about 7.86 and 8.49 million hectares were cultivated by the three major food crops, respectively (CSA, 2003)¹⁰.

Food crop production in 2000/01 was very impressive. About 106.2 million quintals of cereals, pulses and oil crops were produced in 2000/01. This was a result of 19.95% growth in production and 15.74% increase in cultivated area. Apart from expansion of cultivated area, ideal weather (rainfall) was a major contributing factor towards increased production and land productivity (i.e. production per unit of land). Average yield grew by 3.59% from 10.85 qt./ha in 1999/00 to 11.24 qt./ha in 2000/01 which improved the level of per capita production. For instance, per capita food production grew by 16.5% from 139.4 Kg./person in 1999/00 to 162.5Kg./person in 2000/01.

In the subsequent year of 2001/02 (1994 EC), total food production declined by 6.4%, which resulted from a 17.3% decline in total cultivated land. Yield grew by 13.2% and compensates some of the negative effects of the decline in cultivated land. In 2001/02, total and per capita food crops production was 99.36 million quintals and 147.8kg./person, respectively. Compared to the previous year, this represented a decline by 6.4% in total and 9% in per capita production.

Compared to 2001/02, the performance of the food crops production in 2002/03 and 2003/04 had a mixed picture. In the drought year of 2002/03, food production declined by 26% to 73.47 million quintals, while the forecast for 2003/04 is a record 117.5 million of quintals. This level of production is more than the 2001/02 and 2002/03 production by 18.2% and 59.9%¹¹, respectively. The major contributing factor for this record level production is the ideal weather condition of the year (both in terms of amount and distribution of rainfall in most areas of the country). Yet, this record level achievement is only a modest improvement when looked in terms of other more important performance indicators and the growing gap in the national food requirement. For instance, in terms of per capita production, grain production in 2003/04 is only 165.3 kg/person¹², which is a marginal improvement over the 2000/01 performance of 162.5 kg/person and totally unsatisfactory compared with the 200 Kg/person recorded in some of the years during the 1970s. On the other hand, this

¹⁰ However, FAO's data indicate that about 11.02 and 11.08 million hectares of land were cultivated by cereals and pulses (excluding oil crops) in 2002/03 and 2003/04 crop years. This differs from CSA data by 28.7% (3.16 million hectares) in 2002/03 and by 23.4% (2.59 million hectares) in 2003/04.

¹¹ Again, FAO/WFP production estimate for the 2002/03 and 2003/04 meher season were 89.2 million and 130.5 million quintals respectively. This is higher than CSA's forecast by 17.7% (15.7 million quintals) in 2002/03 and by 10% (13 million quintals) in 2003/04.

¹² According to FAO/WFP estimate, per capita grain consumption in 2004 is 154 kg per year. This estimate considers production from 2003 meher crop, 2004 belg crop and opening stock from 2003, and post harvest losses and seed use.

record level production could not narrow the gap in national food requirement. For instance, about 7.2 million people will still require relief assistance to meet their minimum food requirement in 2004 (FAO/WFP, 2004).

Table 2.3: Estimates of agricultural production, cultivated land and yield of major food crops (grains)

Year	Crop	Performance indicators							
		Area cultivated		Production				Yield	
		'000 Ha.	Growth rate (%)	Total production		Per capita ¹³ production		Qt./Ha	Growth rate (%)
				'000 Qt.	Growth rate (%)	Kg/ person	Growth rate (%)		
1999/00 (1992 E.C.)	Cereals	6,747.50	0.04	77,412.60	0.76	121.92	-2.14	11.47	0.70
	Pulses	1,044.98	19.34	9,594.50	31.08	15.11	27.30	9.18	9.81
	Oilseeds	368.30	7.16	1,499.40	9.06	2.36	5.83	4.07	0.25
	Total	8,160.78	2.47	88,506.5	3.49	139.39	0.51	10.85	1.02
2000/01 (1993 E.C.)	Cereals	7,636.65	13.18	92,960.34	20.08	142.26	16.68	12.17	6.10
	Pulses	1,233.94	18.08	10,736.14	11.90	16.43	8.74	8.70	-5.23
	Oilseeds	574.89	56.09	2,463.37	64.29	3.77	59.75	4.28	5.16
	Total	9,445.48	15.74	106,159.85	19.95	162.46	16.55	11.24	3.59
2001/02 (1994 E.C.)	Cereals	6,370.11	-16.59	87,068.28	-6.34	129.53	-8.95	13.67	12.33
	Pulses	1,016.79	-17.60	10,212.15	-4.88	15.19	-7.55	10.04	-15.40
	Oilseeds	426.13	-25.88	2,081.36	-15.51	3.10	-17.77	4.88	14.02
	Sub-total - Grain	7,813.03	-17.28	99,361.79	-6.4	147.82	-9.01	12.72	13.17
	Vegetables ¹⁴	74.99	NA	2,886.10	NA	4.29	NA	38.49	NA
	Root crops	110.63	NA	11,361.37	NA	16.90	NA	102.7	NA
	Grand total	7,998.65	NA	113,609.26	NA	169.06	NA	14.20	NA
2002/03 (1995 E.C.) (Forecast)	Cereals	6,323.85	-0.73	63,497.25	-27.07	91.86	-29.08	10.04	-26.55
	Pulses	1,061.42	4.39	8,004.83	-21.61	11.58	-23.77	7.54	-24.90
	Oilseeds	474.26	11.29	1,965.47	-5.57	2.84	-8.39	4.14	-15.16
	Total	7,859.53	0.60	73,467.55	-26.06	106.28	-28.10	9.35	-26.49
2003/04 (1996 E.C.) (Forecast)	Cereals	6,959.75	9.26	104,169.20	64.05	146.55	69.54	14.97	49.10
	Pulses	954.32	-6.14	10,190.35	27.30	14.33	23.75	10.68	41.64
	Oilseeds	577.88	35.61	3,109.94	58.22	4.38	54.22	5.38	10.24
	Total	8,491.95	8.05	117,469.49	59.60	165.26	55.49	13.83	47.91

Source: CSA: Various Agricultural Sample Surveys.

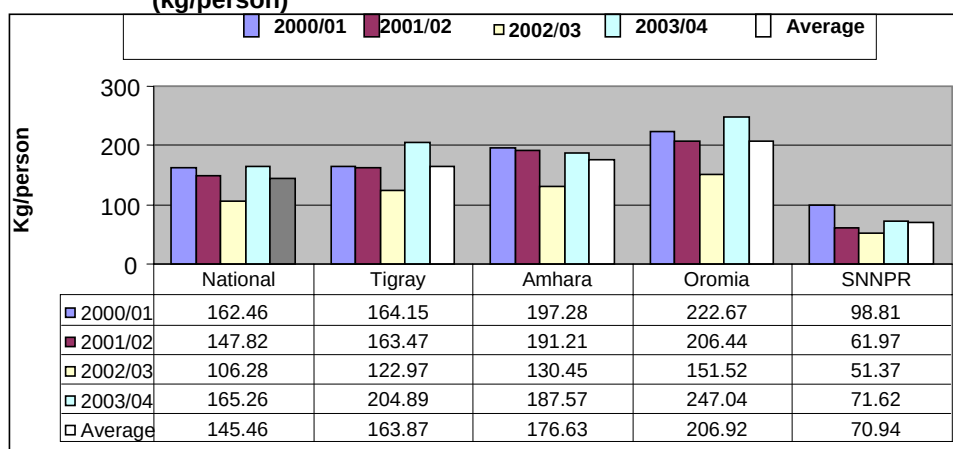
NA=Not Available.

¹³ Calculated based on the estimated total population of 61,672,000, 63,495,000, 65,344,000, 67,220,000, 69,127,000 and 71,083,000 in 1998/99, 1999/00, 2000/01, 2001/02, 2002/03 and 2003/04 respectively.

¹⁴ Data on vegetables and root crops were available only for 2001/02, the year when the Ethiopian agricultural sample enumeration was carried-out.

On a regional level, per capita production of food crops was above the national average in all the major regions of the country (Tigray, Amhara and Oromia) except in the SNNPR. For example, in 2000/01, per capita production of food crops in Tigray, Amhara and Oromia regions was higher than the national average (i.e.162.46 kg./person) by 101.0%,121.4% and 137.1%, respectively¹⁵. However, production of food crops on per capita basis in the SNNPR region was only 60.82% of the national average. Similarly, in 2001/02, food crops production in Tigray, Amhara and Oromia regions was higher than the national average by 110.6%, 129.2% and 139.7%, respectively. The corresponding per capita production figures were 163.5 kg, 191.0 kg and 206.4 kg. In Enset and cash crop dominant part of the SNNPR, per capita cereals production was only 62.01 kg. or 41.9% of the national average¹⁶. For details on estimates of agricultural production and yield on regional level, please see Annex B.1.

Figure 2.2: Per capita production of food crops (grains) 2000/01 – 2003/04¹⁷
(kg/person)



Source: Computed based on data obtained from CSA's various agricultural sample surveys.

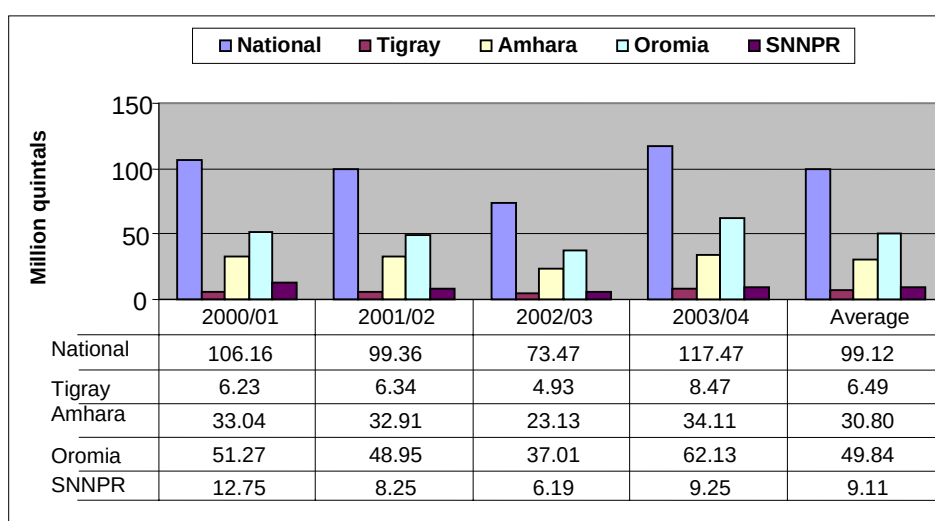
¹⁵ However, according to FAO/WFP data, per capita production in Tigray is less than the national average. For instance, per capita production in Tigray is 182.5 kg, 169.6 kg, 110 kg and 176.1 kg in 2000/01, 2001/02, 2002/03 and 2003/04, respectively. For the corresponding years, this is 93.2%, 95.3%, 85.3% and 96.1% of the level of per capita production at national level. In general, when compared to the FAO/WFP data, CSA's data underestimate the level of per capita production.

¹⁶ Food production capacity of the SNNP region is obviously underestimated as data on Enset and other root crops which serve as staple food in most areas of the region were not considered for lack of data.

¹⁷ Data for 2002/03 and 2003/04 indicate CSA's forecast.

In the drought year of 2002/03, per capita production was 106.3 kg. at national level which was lower than the preceding year by 28.1%. The corresponding figures for Tigray, Amhara, Oromia and SNNPR were 123.0, 130.5, 151.5 and 51.4 kg./person. Compared to the preceding year of 2001/02, this was a 24.8%, 31.8%, 26.6% and 17.1% decline in that order. This implies that the highest drought affected regions were Amhara and Oromia. After the Enset dominant, low cereal producer region of the SNNPR, Tigray was the least affected region.

Figure 2.3: Food crops (grain) production 2000/01 – 2003/04 (million quintals)



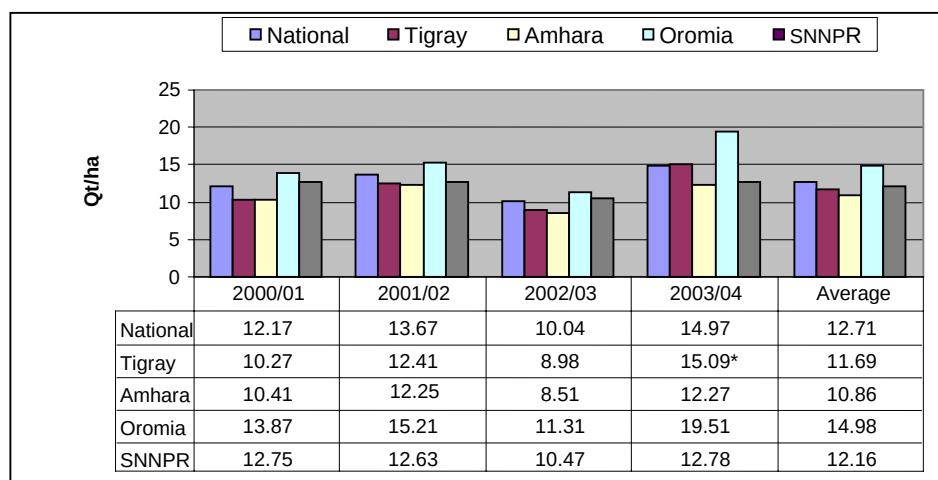
Source: Computed based on CSA's various agricultural sample surveys.

The highest recovery in the 2003/04 bumper harvest year which followed one of the most severe drought years ever recorded in the country was again observed in Tigray region where per capita food crop production improved by 66.62% and surpassed the level of per capita production in some regions like the Amhara, probably for the first time in the country's recent history¹⁸.

¹⁸ According to FAO/WFP data, the highest recovery (by 60%) from the 2003 drought is still observed in Tigray region. However, FAO/WFP data indicate that the level of per capita production in Tigray is still less than the Amhara region (see Annex B4).

Land productivity in cereals production in 2000/01 was above or about the national average in Oromia, SNNPR, Benishangul Gumuz and Gambella regions. However, cereals yield was 14.6% less than the national average (12.17 qt./ha.) in Tigray and Amhara regions where the gap was narrowed to about 10% in the subsequent year (2001/02) (see Annex B2). In general, both in 2000/01 and 2001/02, land productivity was above the national average in Oromia region. Regional gap in land productivity is very high. This is true especially in Amhara and Tigray regions where land degradation highly affected most parts of the regions. However, this relative low land productivity has continued only in Amhara region. It improved in Tigray in 2003/04 when land productivity exceeded the national average by about 0.8% for the first time at least in the past four years (see Figure 2.4)¹⁹. In general, compared to the national average of 12.71 qt./ha, average land productivity for the past four years (2000/01 - 2003/04) in Tigray, Amhara, Oromia and SNNPR was 91.97%, 85.44%, 117.86% and 95.67%, respectively.

Figure 2.4: Land productivity in cereals production 2000/01 – 2003/04 (qt/ha)



Source: Computed based on CSA's various agricultural sample surveys.

* This seems an exaggerated data. FAO/WFP's estimate is only 9.1 qt/ha.

¹⁹ However, CSA's data on land productivity for Tigray region seems to be overestimated. FAO/WFP estimates that only 9.1 quintals of cereals is produced on a hectare of land in Tigray in 2003/04, while CSA inflates it to 15 quintals. On the other hand, for Amhara region, there is no much difference between the two data sets (12.5 qt/ha and 12.3 qt/ha).

Thanks to the ideal weather condition in 2003/04, the forecasted country level (of the four major regions of the country) land productivity in cereal production is near to 15 qt./ha which is very high even compared to the performance of any of the years in the past two decades²⁰.

When compared to the situation during the last three years of the 1990s (1997-1999), total production of food crops is reasonably good during the subsequent four years (2000/01-2003/04). The exception was the drought year of 2002/03. However, average growth in agricultural production is still lagging behind population growth. Hence, in terms of per capita food production (i.e. food security situation), the trend is not encouraging. Average national food crops production between 2000/01 and 2003/04 was only 145.5 kilogram of grain per person²¹, while it fluctuated between 106 and 165 kilograms during these four years (see Figure 2.2). This low level of per capita production together with the modest but insignificant change in yield level continues to attract the attention of policy makers, researchers and the donor community. So far, increased commitment from the government, better support from donors and the continued struggle of Ethiopian peasants could not change the situation in any meaningful way. New policies, strategies and institutional reforms that have been implemented by the government since 1991 could not create favorable socio-economic conditions and institutional prerequisite to enhance the development and transformation of the sector. The government remains with one option: focusing its efforts on real and major problems that hinder the performance of the sector rather than dealing with minor problems or the symptoms of major problems. The conclusion and policy recommendation part of this report provides some of the key issues to be addressed by Ethiopian policy makers.

3.2 The performance of major cereals

3.2.1 Tef

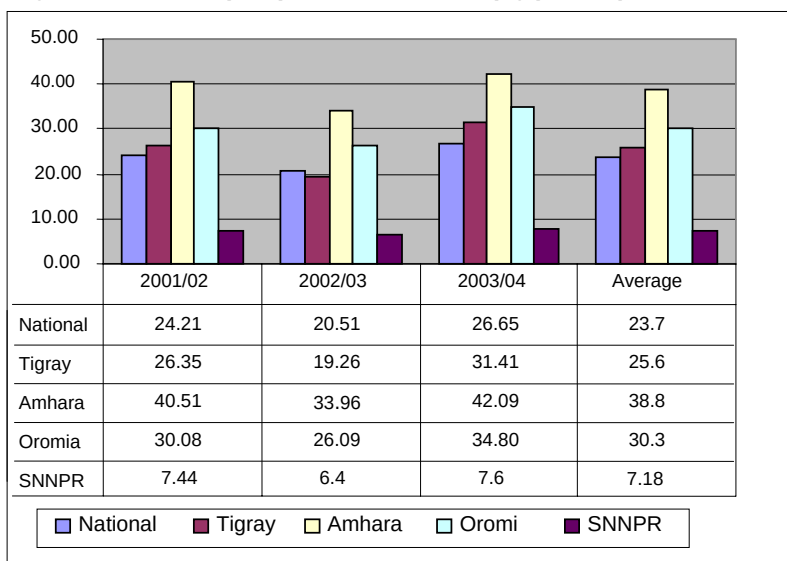
In terms of cultivated area, tef is the single most important crop in the country. On average, tef accounted for 30.1% of total cultivated area by food crops in 2000/01 and 2001/02, while it accounted for 33.5% in 1999/00. It is also endemic to Ethiopia and its cultivation as human food is almost unknown outside Ethiopia. In terms of production, it is the second most important food crop. Annual tef production averaged

²⁰ However, according to FAO/WFP, average land productivity is only about 11.8 qt./ha.

²¹ This is only considering the major harvest of the *mehr* season, which, according to FAO's 2004 production forecast, contributes about 97.7% of total food production of the country.

19.5% of total cereals produced in 2000/01 and 2001/02, while its share in 1999/00 crop year was 23.3%. In the drought year of 2002/03 and in the subsequent bumper harvest year of 2003/04, tef accounted for 32.3% and 28.9% in terms of area, and 23.6% and 19.0% in terms of production, respectively.

Figure 2.5: Per capita production of Tef (kg/person)



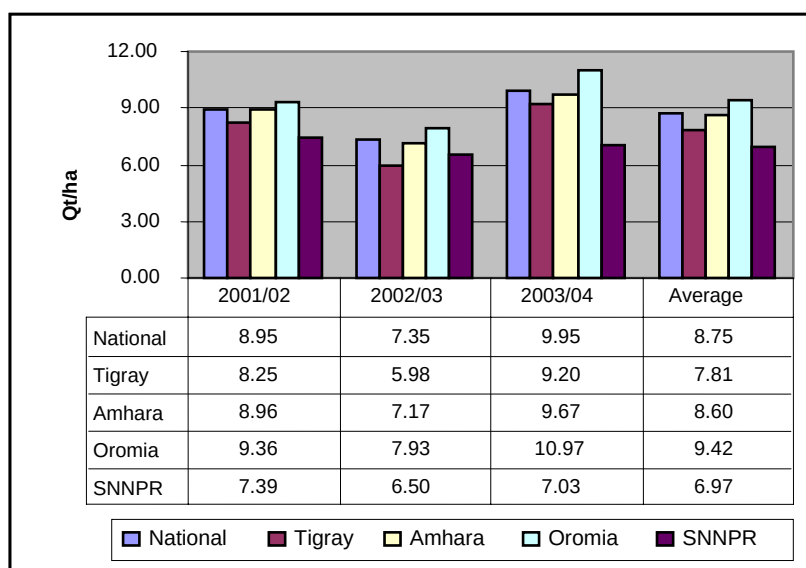
Source: Computed based on CSA's various agricultural sample surveys.

About 17.4 and 16.3 million quintals of tef were produced in 2000/01 and 2001/02 respectively (Annex B2). On the other hand, land productivity in tef production has been fluctuating in recent years. For instance, it was 8.1 qt./ha in 1999/00 which declined by 5.06% to 7.69 qt./ha in 2000/01. A 10.5% improvement was registered in the subsequent year (2001/02), raising productivity to 8.95 qt./ha. This improvement in yield in 2001/02 was helpful to compensate for some of the decline in production that resulted from the decline in cultivated land. Projected yield of tef for the 2003/04 crop year is close to 10qt./ha²², which is good when compared to historical average of

²² FAO/WFP estimate for Tef yield, however, is only 7.6 quintal per hectare of cultivated land, which is lower than from CSA's forecast by 23.6%. The difference between CSA's and FAO/WFP forecasts is even very high for some regions. For instance, CSA forecasted Tef yield is 9.2 qt./ha, while FAO estimate is only 5.7 qt./ha (FAO/WFP, 2004).

8.5 qt./ha. The major contributing factor for this impressive performance was the good weather (rainfall) of the year.

Figure 2.6: Land productivity in tef production (qt/ha)



Source: Computed based on data obtained from CSA's various agricultural sample surveys.

On a regional level, the highest amount of tef production was reported in Amhara region where total production was 7,685 and 6,973 thousand quintals in 2000/01 and 2001/02, respectively. Oromia was the next highest producer both in terms of total and per capita production (see Figure 2.5). In the two years, tef production in Tigray was a little above the national average of 26.6 kilograms per person in 2000/01 and 24.2 kilograms per person in 2001/02. Production level declined in all regions in the subsequent drought year of 2002/03, while it improved in the bumper harvest year of 2003/04 (For details, see Figure 2.5). Among the major regions of the country, tef production in the Enset and root crops dominant region of the SNNPR was the least.

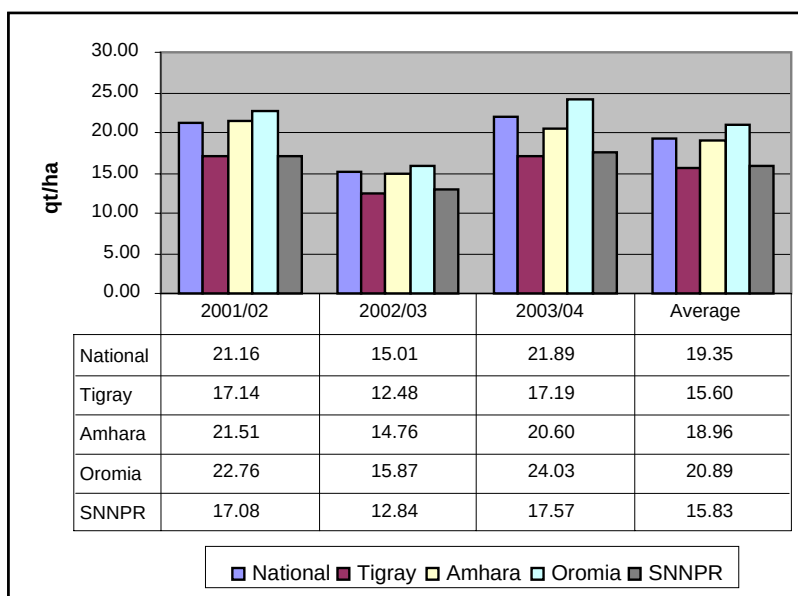
In terms of land productivity, the highest performance was registered in Oromia region where tef yield (production per unit of cultivated land) was higher than the national average. It exceeded the national average of 8.95 qt./ha and 7.35qt./ha by 4.6% and 7.9% in 2001/02 and 2002/03 respectively. Tef yield in Amhara region

fluctuates around the national average, whereas it was below the national average in Tigray and in particular in SNNPR.

3.2.2 Maize

Maize is an important food crop in Ethiopia. In terms of production and cultivated area, it is the first and second, respectively, most important cereal crop in Ethiopian agriculture. Of the total land covered by the five major cereal crops, the share of maize was 23.7% in 2000/01 and 21.9% in 2001/02. In terms of production, its corresponding contribution in the two years was 35% and 33.5% of the total amount of cereals produced. In the subsequent years of 2002/03 and 2003/04, the share of maize declined marginally both in terms of area and production. On per capita level, production varied between 40 Kg and 48 Kg in the past five years. For instance, it was 39.8 Kg./person in 1999/00 and increased to 48.0 and 41.6 kilograms in 2000/01 and 2001/02, respectively, before declining to 25.83 Kg./person in the drought year of 2002/03.

Figure 2.7: Land productivity in maize production (qt/ha)

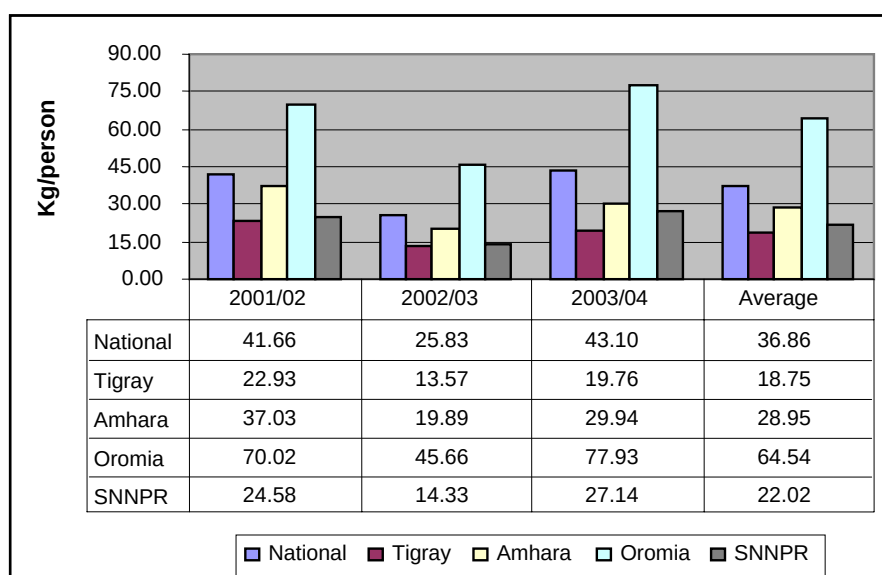


Source: Computed based on data obtained from CSA's various agricultural sample surveys.

Land productivity in maize production improved marginally in recent years. Excluding the drought year of 2002/2003, maize yield has been improving from around 18 qt./ha in the 1999/00 and 2000/01 to about 21 qt./ha in 2001/02 and 22 qt./ha²³ in 2003/04.

Oromia region is the largest producer of maize, producing 17.2 and 16.6 million quintals in 2000/01 and 2001/02, respectively. These make up 54.9% and 59.3% of the total maize produced in the country in the two respective years. In the subsequent drought year of 2002/03, maize production in the region declined by 35% before improving to the record level of 19.6 million quintals in 2003/04.

Figure 2.8: Per capita production of maize (kg/person)



Source: Computed based on CSA's various agricultural sample surveys.

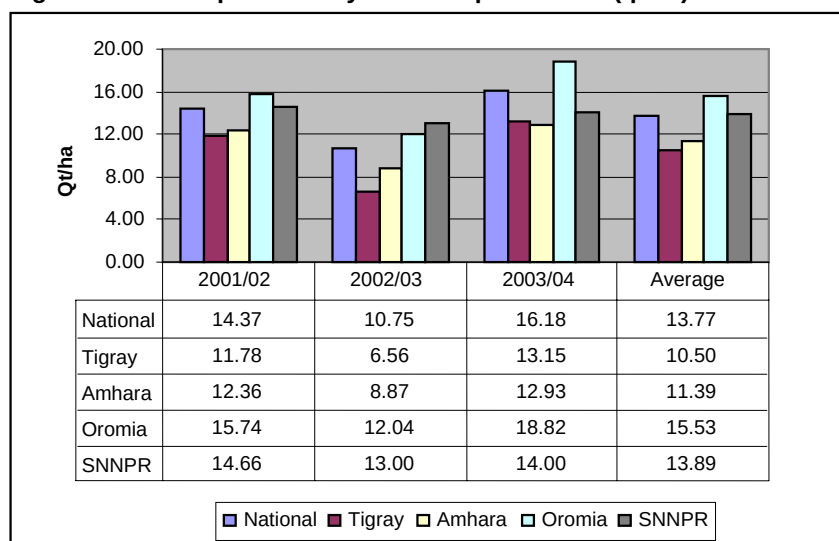
²³ Again CSA's forecast on maize yield is totally incomparable with FAO's estimate. For instance, for 2003/04 crop season, CSA forecasts 22 quintals of maize could be harvested from a hectare of cultivated land, while FAO estimate is only 16.1 quintal per hectare.

3.2.3 Wheat

Ethiopia is a primary gene center for durum (macaroni) type which accounts for more than two-thirds of the total wheat cultivated. The major wheat-producing areas of the country lie between 1500 and 2500 meters above sea level. Arssi and Shoa are the principal producers of wheat in the country (Befekadu D. and Berhanu N., 1999/2000).

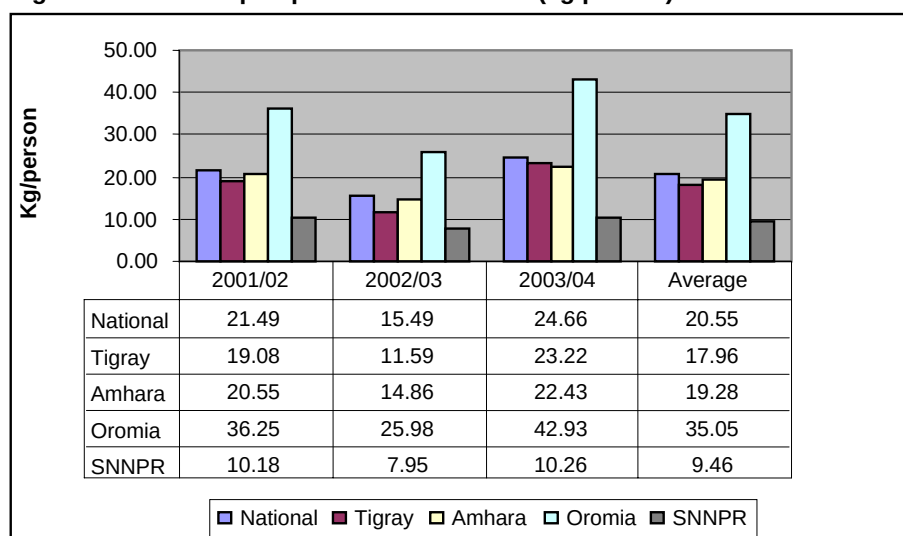
Total wheat production was 15.7 and 14.4 million quintals in 2000/01 and 2001/02, respectively. Compared to the preceding years, there was a 29.6% increase in 2000/01 and a decline of 8.1% in 2001/02 in total production. About 1,139.7 and 1,005.0 thousands of hectares were also covered by wheat in the respective years. This constituted 15.7% and 16.6% of the total area covered by the five major types of cereals in 2000/01 and 2001/01, respectively. Based on CSA's 2003/04 production forecast, area cultivated by wheat increased to 1,085.8 thousands of hectares and total production to 17,570.2 thousands of quintals in 2003/04. Similarly, per capita production and yield reach to 66 kg./person and 16.18 qt./ha respectively.

Figure 2.9: Land productivity in wheat production (qt/ha)



Source: Computed based on CSA's various agricultural sample surveys.

Figure 2.10: Per capita production of wheat (kg/person)



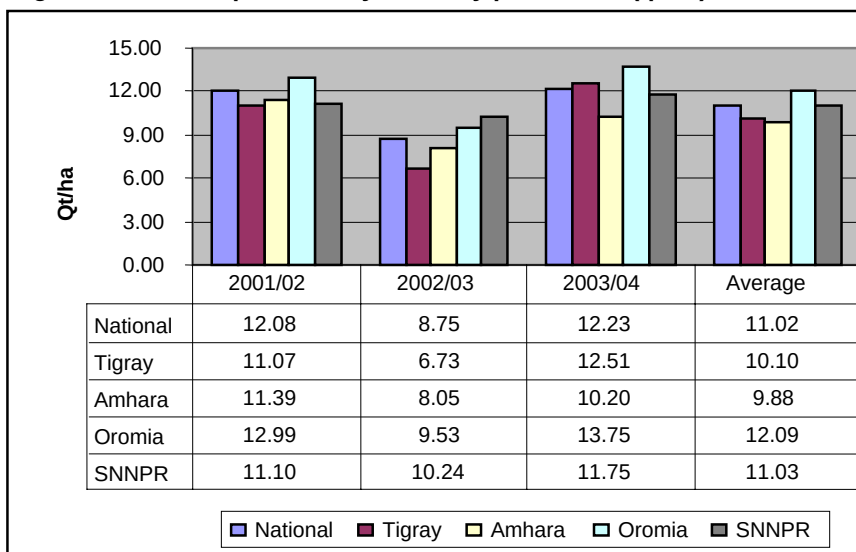
Source: Computed based on data obtained from CSA's various agricultural sample surveys.

Similar to maize yield, yield level in wheat production has improved recently. Excluding the drought year of 2002/03, it increased from 11.8 qt./ha in 1999/00 to 13.79 qt./ha in 2000/01, and from 14.37 qt./ha in 2001/02 to 16.18 qt./ha 2003/04.

3.2.4 Barely

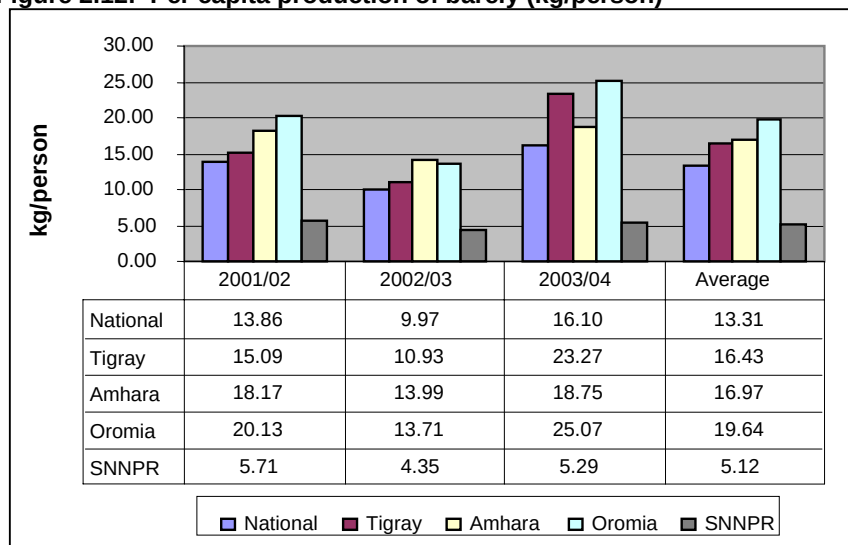
Barely is the most important crop in the cooler highland areas of Ethiopia. Its cultivation is rare in areas under 1900 meters. It is also the most widely cultivated *belg* crop (EEA, 2000). In the 2000/01 and 2001/02 crop year, 0.874 and 0.772 million hectares of agricultural land was covered by barely to produce 9.454 and 9.319 million quintals, respectively. According to government (CSA) data, land productivity in barely production as in the case of other crops improved in recent years. Compared to the 1999/00 yield level of 9.3 qt./ha, it grew by 16.3% and 29.9% to 10.82 qt./ha and 12.08 qt./ha in 2000/01 and 2001/02, respectively. Only 12.1% of the 7.25 million hectares of land cultivated with the five major cereals in 2000/01 was covered by barely. The corresponding figures for 2001/02 were 12.75% and 6.05 million hectares.

Figure 2.11: Land productivity in barely production (qt/ha)



Source: Computed based on CSA's various agricultural sample surveys.

Figure 2.12: Per capita production of barely (kg/person)



Source: Computed based on data obtained from CSA's various agricultural sample surveys.

In the drought year of 2002/03, barely covered 0.789 million hectare of land. The corresponding figure for the bumper harvest year of 2003/04 was 0.938 million hectares. The estimated barely production level for the two respective years were 6.899 and 11.472 million quintals. On per capita basis, this level of production was only 9.97 kg/person in 2002/03 and 16.1 kg/person in 2003/04.

For the well known reasons such as the size of the region, availability of suitable agricultural land and better weather, Oromia is again the highest producer of barely and the highest productive region of the country (see Figure 2.11 and 2.12). On the other hand, the level of yield in SNNPR was the lowest among the four major regions. Moreover, CSA's data indicate that yield has also declined in this region recently. For instance, contrary to the experience of other regions, production declined from 9.54 kg/person in 2000/01 to 5.71 kg/person in 2001/02. The poor performance of food crops production of the region should be the focus of agricultural extension and research institutions of the SNNP region.

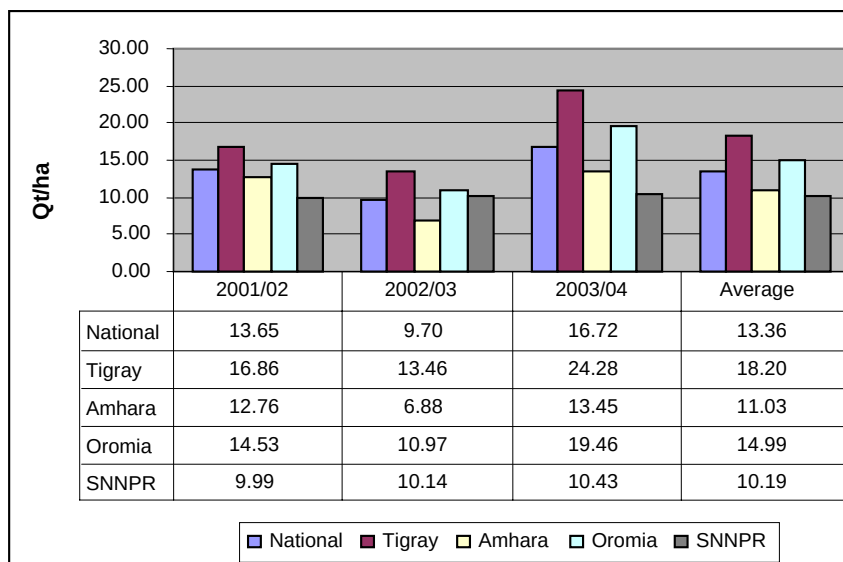
3.2.5 Sorghum

Sorghum grows in the lowlands of the country. It also grows even in the highlands. It serves as a staple food mainly in Hararghie, Wollo and in many parts of Shoa. The stalk is the main fuel and construction material in areas where sorghum is grown. Sorghum is commonly planted at high density with the aim of thinning, as it is a major source of animal feed during the growing season. After harvest, softer parts of the stalk and the leaves are used as hay for animals (Befekadu D. et. al, 1999/2000).

In terms of cultivated area, sorghum is the third largest cereal crop. It covered 18.4% of the 7.25 million hectares cultivated with the five major cereals in 2000/01 and 18.7% of the 6.05 million hectares in 2001/02. Total and per capita sorghum production was 15.38 million quintals and 23.54 kg in 2000/01 and 15.46 million quintals and 22.98 kg in 2001/02, respectively. Yield level in sorghum production improved from 11.54 kg./ha in 2000/01 to 13.65 kg./ha in 2001/02 (see Annex B2). It has further increased to 16.72 qt./ha²⁴ in 2003/04 from 9.70 qt./ha registered in the drought year of 2002/03.

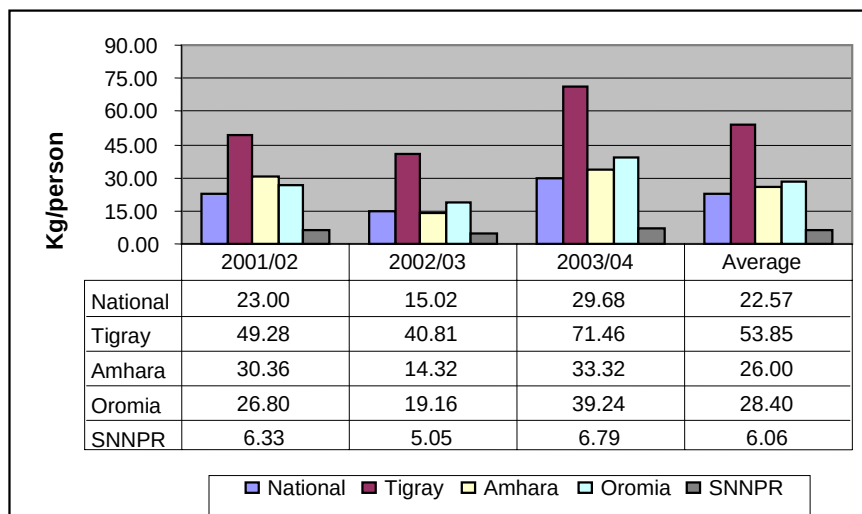
²⁴ However, FAO's estimate is only 11.8 qt./ha.

Figure 2.13: Land productivity in sorghum production (qt/ha)



Source: Computed based on CSA's various agricultural sample surveys.

Figure 2.14: Per capita production of sorghum (kg/ha)



Source: Computed based on data obtained from CSA's various agricultural sample surveys.

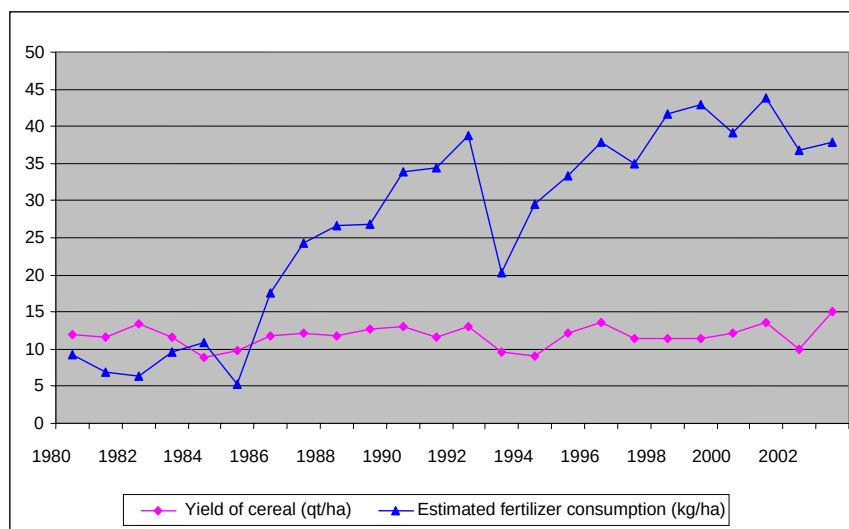
Tigray is the highest producer of sorghum. About 49.3, 40.8 and 71.5 kg./person of sorghum was produced in Tigray in 2001/02, 2002/03 and 2003/04, respectively. This was twice the national average. Land productivity in sorghum production was also high in the region where 16.9 qt./ha were produced in 2001/02 and 24.3 qt./ha in 2003/04. Next to Tigray, the highest per capita production in the 2003/04 crop year was recorded in Oromia region with a figure of 39.2 kg. followed by Amhara with 33.33 kg.

4. Modern farm inputs

4.1 Fertilizer

Fertilizer use has declined in recent years. For instance, compared to the record level of 297.9 thousands ton of fertilizer use in 2000/01, fertilizer consumption has declined by 6.2%, 22.0% and 11.2% in 2001/02, 2002/03 and 2003/04, respectively (see Annex B3).

Figure 2.15: Trend in average yield of cereals (qt/ha) and fertilizer consumption (kg/ha)

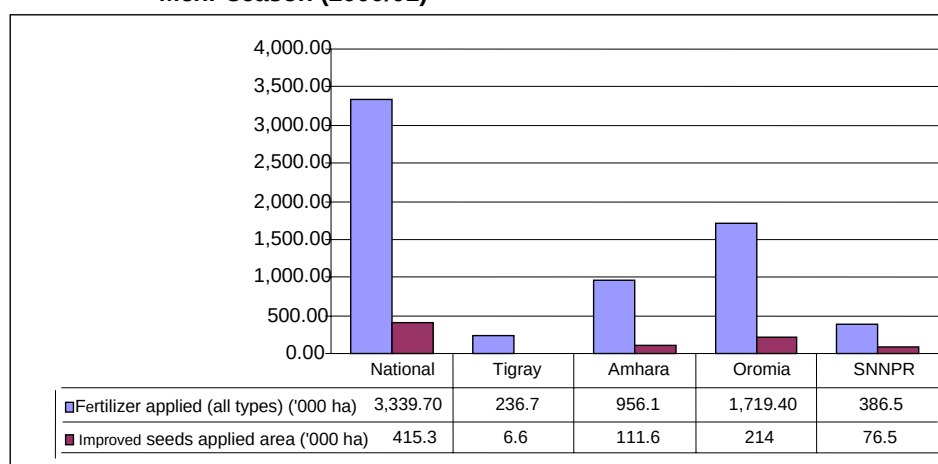


Source: Computed based on data obtained from CSA's various agricultural sample survey reports and Agricultural Input supply Authority.

For further information on how the rate of fertilizer consumption was estimated, please see footnote number 29.

However, the trend in the use of chemical fertilizer has been increasing since 1995, when the country has adopted a new extension system, the Participatory Demonstration and Extension Training System (PADETS). The new system has given due attention to the role of chemical fertilizer in ensuring food security. Fertilizer use grew by 33% from 190 thousands ton in 1994 to 246.7 thousand ton in 1995. Since then this level of consumption has been maintained with exception of the drought year of 2002/03 when fertilizer consumption declined to 232.3 thousand tons.

Figure 2.16: Fertilizer and improved seeds applied area of cereal crops for *Mehr* season (2000/01)



Source: Computed based on data obtained from CSA's various agricultural sample survey reports.

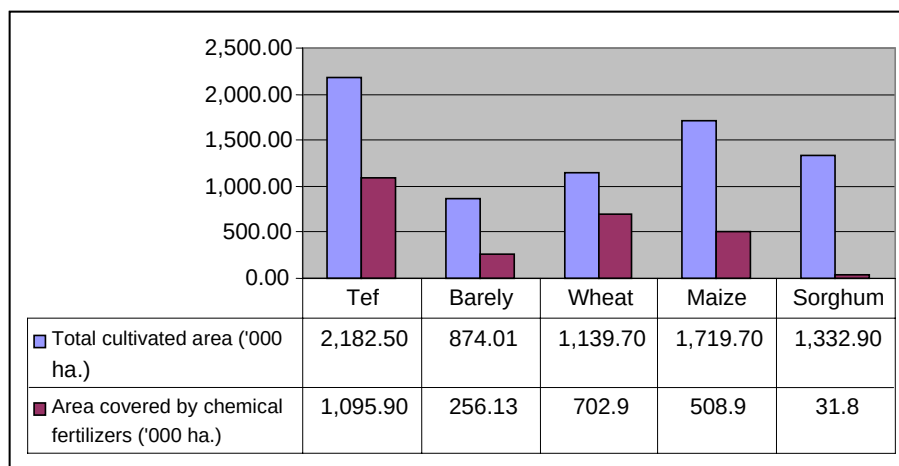
On the other hand, the impact of this growth in fertilizer consumption on yield at best helped average yields to stabilize²⁵. For instance, average cereals yield fluctuated between 11 and 14 quintals per hectare in the twenty year period between 1980 and 2000 (see Figure 2.8). This is in sharp contrast to the growing trend in total consumption of fertilizer and fertilizer application per unit area. There could be various explanations for the modest but intermittent response of yield to the increased use of fertilizer. Among these, the mono-cropping production pattern of most Ethiopian peasants which could reduce soil fertility and deplete soil micro nutrients, lack or low use of complementary inputs like improved seeds which prevent farmers

²⁵ This, however, does not imply that yield level of some individual crops in some potential areas did not improve.

from realizing the maximum benefits they could get from using fertilizers, the use of only two types of fertilizers (DAP and Urea) which some experts say are unable to provide soils with secondary nutrients essential for plant growth, and expansion of cultivated land to marginal and sloppy areas which leads to soil erosion and low yield at national level, are the major contributing factors.

According to CSA's data, 2.73 million hectares of land that was covered by various cereal crops was treated with DAP and/or Urea in the 2000/01 crop year. This was 35.8% of the total area of 7.6 million hectares cultivated by cereals in the year. If we add natural (organic) fertilizers applied to this figure, the proportion of land which used fertilizer reaches 43.7%. Among the five major cereal crops, about 61.7% of the area planted with wheat was treated by chemical fertilizers (DAP and/or Urea) during the 2000/01 crop season. Tef, maize and barely followed as second, third and fourth with 50.2%, 29.6% and 29.3%, respectively, of their total cultivated land treated with chemical fertilizers.

Figure 2.17: Proportion of cultivated land of major food crops covered by chemical fertilizers (Mehar season, 2000/01)



Source: Computed based on data obtained from CSA's various agricultural sample survey reports.

4.2 Improved seeds

Improved seeds are one of the critical ingredients in the government extension program. The Ethiopian Seed Enterprise (ESE) produces and distributes most of the improved seeds to farmers. Hybrid seeds are produced by the Pioneer Hybrid Ethiopia.

Wheat and maize are the two dominant seeds produced by the ESE. Wheat accounted for over 50% of the total seeds produced and distributed in 1999/00, 2000/01 and 2001/02. This indicates the high demand for improved wheat seeds among Ethiopian peasants. However, compared to total cultivated area with (over 1 million hectares) wheat, this level of seed production is still very low. The distribution of improved seeds is, however, the major problem the ESE faces. Only 73% of the seeds produced by ESE were distributed in 1999/00. The figure declined to 42.8% in 2000/01 and to only 14.2% in 2001/02 (see Table 2.4).

Table 2.4: Production and distribution of major improved seeds by the Ethiopian Seed Enterprise (quintals)

Crop type	Year					
	1999/00		2000/01		2001/02	
	Production	Distribution	Production	Distribution	Production	Distribution
Wheat	161,708	125,286	150,356	55,605	178,036	7,934
Maize	103,638	71,198	100,672	54,767	62,218	25,726
Tef	4,447	3,784	2,593	937	2,283	600
Barely	1,956	426	752	375	86	535
Sorghum	1,338	-	341	11	372	63
Haricot bean	523	156	5,408	376	3,327	884

Source: Data obtained for this report from the Agricultural Inputs Authority.

In 1999/00, 125,286 qt. of wheat, 71,189 qt. of maize and 3,784 qt. of tef of improved seeds were distributed to farmers. Compared to 1999/00, improved seeds distribution declined in 2000/01 and 2001/02, by 55% and 93% for wheat, 33% and 64% for maize and 75% and 84% for tef, respectively. These fluctuating and declining trends indicate either the declining demand for improved seeds by farmers or high seed prices or undeveloped market system or a combination of these problems. It also

reflects the poor performance of the extension system in promoting the use of improved seeds and coordinating its activity with the seed producer (ESE) and marketing agencies. The problem may also be associated with the quality of the seeds as there is a growing concern about the quality and standard of improved seeds produced in the country.

5. Agricultural markets and prices

5.1 Agricultural input and output markets

Agricultural markets have been reformed since the adoption of the new economic policy in 1992. Prices for agricultural products have been deregulated and left to be determined by market forces. However, a complete and swift withdrawal of the government from output market has been affecting the sector and Ethiopian peasants who have little bargaining capacity in marketing their output. Whenever farmers' harvest is good, they are forced to transfer a large part of their surplus to traders and consumers located outside the farming sector. Price fell, for example by up to 25 percent, during the 1996 and 2001 bumper harvests (EEA/EEPRI, 2002) as farmers supplied too much in a short period of time and failed to store their product until demand improved. Such market failures have become major reasons for some government advisors and experts to recommend to the government to intervene in the pricing and marketing of agricultural outputs and inputs. For example, a recent document prepared for the UN Conference on Environment and Development by the Federal Democratic Government of Ethiopia reported that in its present stage of development, Ethiopia is unable to rely solely on the market mechanisms as it is characterized by widespread imperfections. The document recommends the government to consider policy options such as price support programs for farmers and targeted food subsidy programs (FDRE, 2001). In general, agricultural output markets in Ethiopia are characterized by inadequate transport network, limited number of traders with adequate capital and facilities, high handling costs, inadequate market information system, weak bargaining power of peasants and underdeveloped agro industrial sectors (Mulat, 2000).

On the other hand, Ethiopian fertilizer market is characterized participation of the private sector and tight bank regulations which demand 100% collateral from fertilizer importers. The number of fertilizer importers declined to only 3 (AISCO, Ambasel and

Wondo trading companies) from at least 7 some four or five years ago. The participation of the private sector has come to an end with the termination of operation of the two private importers (Fertiline and Ethiopian Amalgamated).

While tight bank regulations and some growing monopoly by non-private companies is the big problem, lack of market integration is another big problem. Excluding the financial and transport sectors, there are only three importers and two types of distributors (cooperatives/Wereda bureau of agriculture) in the marketing channel. Private suppliers, wholesalers and retailers should be part of the market if Ethiopian fertilizer market is to function efficiently. In terms of reducing marketing margin, this situation may seem an advantage; however, it is a real problem to establish a sustainable and competitive fertilizer market in the long-term.

On the other hand, small farmers have got credit for fertilizer purchase from government banks, while regional governments provide them collateral from their budget. This kind of credit system could serve at best as a transitional arrangement; otherwise it will damage the development of rural financial market in Ethiopia.

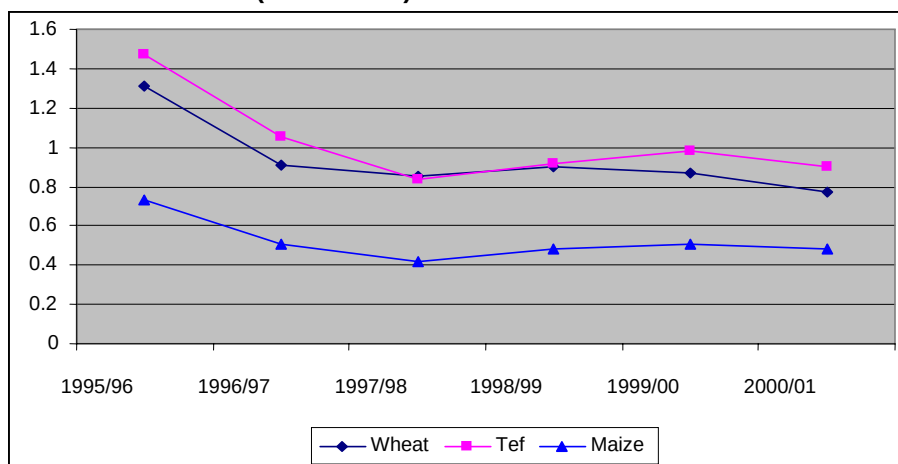
5.2 Agricultural prices and terms of trade

Price for agricultural products and its purchasing power (i.e. relative development of agricultural prices to non-agricultural prices) is, among others, an important factor that determines the level of farm income, productivity and a sustainable use of modern farm inputs like land saving technologies (e.g. fertilizers). Agricultural prices could also influence the nature of agriculture's relation with the environment. If, for example, agricultural productivity remains stagnant and its terms of trade decline over time, farmers will be forced to expand their farming activities into ecologically fragile areas to compensate for lost income and the negative effect of increased population. This will have serious implications on the environment.

Price plays its full role if the production system is market oriented. In Ethiopia, most farmers produce at subsistence level and the principal objective of their production is to meet household needs. This, however, does not mean that all Ethiopian farmers have no marketable surplus and consequently do not respond to market prices. On the contrary, as consumers of non-agricultural products or services, farmers have to sell part of their produce and also search employment in non-agricultural sectors to earn money to buy food and other products. Therefore, it is important to watch

developments in farm prices and the purchasing power of farm prices (i.e. the relative development in farm prices of agricultural products to non-farm prices, for instance to prices of commodities and services like fertilizers, cloth, transport and communication which are consumed by most farmers).

Figure 2.18: Price ratio of 100 kg of wheat, tef and maize to 100 kg of DAP fertilizer (1995 – 2001)



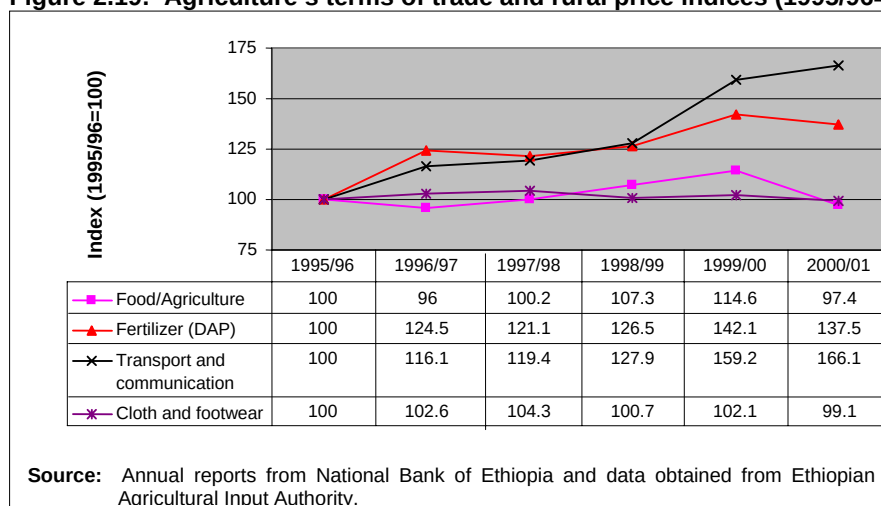
Source: Computed based on data obtained from; a) the unpublished Walta Information Service data (2000) for the grain price during 1995 –1999; b) unpublished report of the MoA (1993 E.C). "Production and market situation in Ethiopia", an Amharic version (for grain price during 2000); c) Fertilizer price obtained from Agricultural Input Authority.

The purchasing power of agricultural prices (i.e. the relative development in the ratio of agricultural prices to non-agricultural prices) could also indicate the direction of resource flows (to or from the agricultural sector). Consequently, the trend in the price of agricultural outputs relative to the price of non-agricultural commodities including tradable agricultural inputs have important implications on agriculture's contribution to the development of (or for lack of development) of the rest of the economy.

Compared to the price of 100 kilogram of DAP fertilizer, the price of 100 kilogram of wheat, tef and maize were reduced by 70%, 63% and 52% between 1995/96 and 2000/01 (see Figure 2.18). On the other hand, the sectoral terms of trade between agriculture and the non-agricultural sector may give a broader picture from a different perspective. The term of trade for agriculture is represented by rural food prices (i.e. a composite price index for cereals, pulses oilseeds and vegetables) while the non-

agricultural sector is represented by the rural retail price index of two commodities (DAP fertilizer, cloths and foot wear) and one service (transport and communication). The price index for food items²⁶ which represents the index for the agricultural sector increased only by 14.6% over the five years from 1995/96 to 1999/00 before declining by 2.6% in 2000/01 while the corresponding figure for DAP (traded agricultural input) and transport and communication grew by 37.5% and 66.1%, respectively²⁷. The term of trade is, in general, against agriculture²⁸. This should be a concern for policy makers and agricultural experts as the decline in agriculture's terms of trade occurred in a situation where agricultural labor productivity is declining. Except for workers in the cloth and foot wear sectors²⁹, the trend in terms of trade indicates that the relatively impoverished agriculture has a positive contribution to the welfare of people engaged in non-agricultural sectors by providing cheap food (relative to non-food items).

Figure 2.19: Agriculture's terms of trade and rural price indices (1995/96=100)



²⁶ Rural prices for cereals, pulses, oilseeds and vegetables and fruits were considered in the computation of agricultural food price indexes.

²⁷ Computed based on data obtained from various annual reports of the NBE.

²⁸ Some other studies also confirm this result. A study by Abdurahman, for example, indicates that the terms of trade is moving against the agricultural sector in general and food production in particular since the reform program (Abdurahman, 1995).

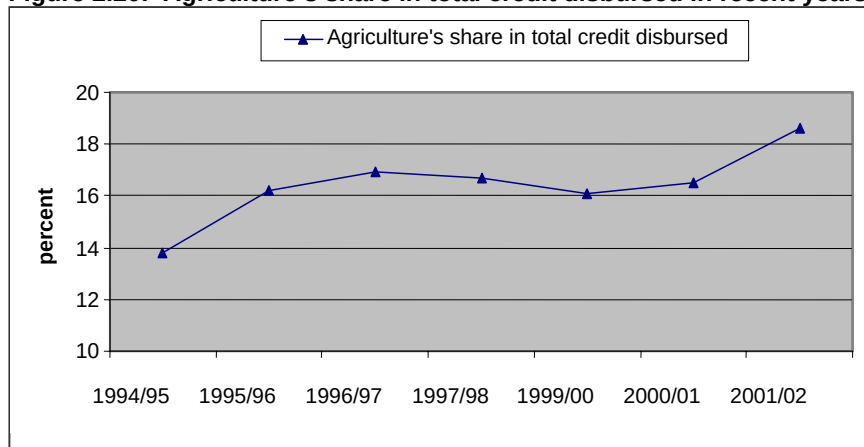
²⁹ Illegally imported clothes and footwear may account for their low terms of trade relative to agriculture. If that is the case, it indicates an illegal resource flow not within a country but between countries and alters the scope of the present problem/analysis.

6. Agricultural credit and investment

6.1 Agricultural credit

In the Ethiopian economy where agriculture accounts for a major proportion of economic activities and employs a large proportion of the population, it could be assumed that increased credit to agriculture would lead to increased growth in the economy and higher production of food, exportable and industrially processed agricultural products. All these are critical to enable agriculture to function as the engine of the economy. However, this depends on many factors. First, credit should be available and accessible to farmers and investors; second farmers should have access to appropriate technologies; third long-term investment in rural areas needs encouraging and predictable environment that provide the required incentive. Availability of well functioning factor markets (especially land and capital) and well defined and transferable property rights and tenure security also play critical roles in influencing the decision of investors and farmers. Finally, availability of competing investment opportunities in non-agricultural sectors with a high rate of return or lesser risk may determine where to invest (in agriculture or other sectors). The success of the government's Agricultural Development Led Industrialization (ADLI) development strategy depends a great deal on the ability of Ethiopian policy makers to deal with all these factors simultaneously and adequately.

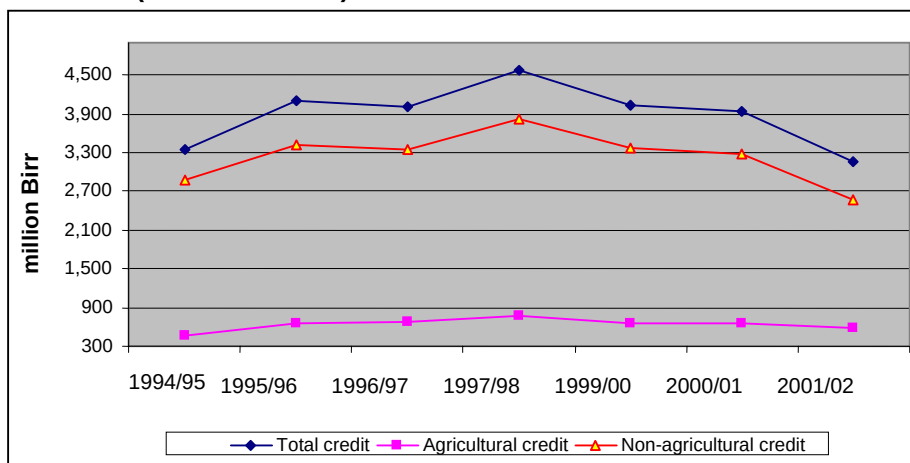
Figure 2.20: Agriculture's share in total credit disbursed in recent years



Source: Computed based on data obtained from NBE's various annual reports.

Due to the subsistence-oriented mode of production, limited use of purchased farm inputs, unreliable weather, unpredictable and low prices for farm outputs and uncertainties associated with land tenure and property right, Ethiopian peasants have little interest for agricultural credit in general and long-term credit in particular. The only exception is fertilizer credit. This is partly due to high government interest to expand the use of fertilizer that is considered as a strategic input to increase cereals production, and partly due to farmers' interest to counterbalance decline in soil productivity that resulted from continuous mono-cropping practices of peasants. As mentioned in section 5.1, the fertilizer credit market has, however, faced many problems that have serious implications for the sustainability of the market and farmers' interest for fertilizers.

Figure 2.21: Growth in agricultural credit versus non-agricultural credit (1991/92 -1997/98)



Source: Computed based on data obtained from NBE's various annual reports.

Despite some success of the policy of the 1990s in shifting the direction of the flow of financial resources (mainly credit) from public enterprises to the private sector, the economic reforms have failed to make the agricultural sector more attractive and suitable for long term investments. The share of the agricultural sector in the total credit disbursement in seven years, 1991/92 – 1997/98, is only 14.7%, while domestic trade had 32.2% and industry 13.2%. Recently, the share of agricultural

credit stagnated at around 16% and never exceeded 19 percent of total credit disbursed. Even though our data source did not indicate the type of investment implemented through the credit, all (or most) of agricultural credit is believed to be short-term which have little impact for long-term development and transformation of the agricultural sector. In general, money flows to the agricultural sector in the form of credit is very low when compared to agriculture's actual and expected contribution to the growth of the economy.

Since other production activities like industry had also a low share in the total amount of credit disbursed in the past decade, agriculture's low share in the credit market does not necessarily indicate the high risk associated with investment in agriculture. Policy related problems like weak and insecure property rights and tiny farm sizes that are mainly associated with the existing land policy may explain at least partially why agriculture becomes less attractive to investors and farmers. Consequently, the government should do more to make agriculture an attractive area of investment. The government, for example, should revise its rural land policy and provide adequate incentives to investors who must overcome other non-policy related problems that are special to agriculture's inherent nature such as high risk and long payback period relative to other sectors, like trade. Moreover, policy instruments like preferential interest rates and other incentives that could improve the relative profitability and security of agricultural investment and make agriculture more attractive to farmers and potential investors.

In general, Ethiopian agriculture at present requires major government support in terms of the right incentives and policy to attract capital that will gradually help the sector to fulfill its promised role as the "engine" of the economy. Consequently, provision of agricultural credit could be one policy variable of a paramount importance to alleviate the critical financial constraint that is hampering farm investments in irrigation, drainage, purchase of hand pumps, tractors and modern inputs like fertilizers, improved seeds, pesticides and animal feeds. However, efforts should first be made to analyze agriculture's absorption capacity of available credit. Despite lack of viable credit market in rural areas³⁰, the problem may be more of agriculture's inability to use credit because of various structural and institutional problems rather than the availability of financial resources. Besides dealing with such issues, the government should realistically assess its claim that in the long-term Ethiopian

³⁰ Micro finance institutions (MFIs) and other regional credit and saving associations are providing credit only for petty trade and short-term fertilizer credit.

peasants can generate sufficient capital from their own production activities using their abundant labor and land³¹ (Development Strategies and Priority of the Abyotawi Democracy, 2000). Such claims may undermine the crucial need of capital and modern farm enterprise management that are desperately lacking in rural Ethiopia where farmers struggle to survive on their subsistence farming.

6.2 Agricultural investment

Agricultural investment is a major instrument to enhance the performance of the sector and its contribution to the national economy. It enhances the use of scarce natural resource in an efficient and sustainable manner. It is through investment that agricultural productivity and the value of agricultural products can be improved. This will consequently contribute to efficient and sustainable utilization of natural resources. On the other hand, small (or marginal) investment in a situation where rural population increases at a very rapid rate, accelerates the process of environmental and land degradations. This is the process that has been taking place in Ethiopia for decades.

As the previous two annual reports on the performance of Ethiopian agriculture issued by the EEA (Ethiopian Economic Association) did not deal with agricultural investment activities, this report covers agricultural investment activities since the 1992 economic reform. According to data obtained from the Ethiopian Investment Authority, a total of 1,311 agricultural projects with an investment capital of 4.4 billion Birr (526.12 million USD at the 2000/01 exchange rate) have been licensed for domestic investors since 1992. Another 31 projects with an initial investment capital of 2.7 billion Birr (321.6 million USD) were licensed for foreign investors. Agriculture's share in total licensed domestic projects was 24.1%, while it was 11.31% in foreign investment. In terms of initial capital, the corresponding figures were 11.4% and 19.5% (EIA, 2002). Even though the number of licensed investment projects seems quite high, the number of projects that either started operation or proceeded according to their project plan is very low. For example, of all projects (both agricultural and non-agricultural) licensed by the Ethiopian Investment Authority since 1992, 52% failed to carry out their projects according to their project plan or abandoned their projects altogether. Moreover, reports indicate that the number of

³¹ Note that the government also claims farm land is also abundant. However, per capita availability of farm lands is too small to allow modern farm operations (see Berhanu Adnew, Berhanu Nega and Samuel Gebre-Selassie (2002). Land Tenure and Agricultural Development in Ethiopia. Addis Ababa, Ethiopia

licensed and operational projects has been declining after reaching its peak in 1995/96 (MEDaC, 1999).

The share of agriculture in private investment has not been satisfactory in recent years. For instance, agriculture accounted only for 11.3% and 6.7% of the total number of projects and investment capital, respectively, approved by the Ethiopian Investment Authority in 2000/01 fiscal year. Among the major factors cited for low and declining investment in the agricultural sector are low infrastructure and market development in rural Ethiopia, problems related to land acquisition, tenure insecurity, inefficient administration and bureaucratic red tape and potential investors' low interest to invest in areas far away from Addis Ababa where infrastructure problems are relatively high. However, the problem is not only related to poor infrastructure, but also to undeveloped factor markets (especially capital and land markets), weak and uncertain property rights and tenure security. Some investors also claim that political risks associated with administrative and legal systems are high especially in some regions of the country.

Table 2.5: Number and investment capital of agricultural investment projects in the period between 1992 - 2001 (capital in million Birr)

sector	domestic investment projects approved by the Eia						foreign investments	
	New		Expansion		Total		No. of projects	Investment capital
	No. of projects	Investment capital	No. of projects	Investment capital	No. of projects	Investment capital		
Agriculture	1,311	4,435.18	70	210.98	1,381	4,646.16	31	2,710.92
Food crops	265	779.04	9	11.00	274	810.04	5	1,193.76
Cash crops	135	1,054.74	3	10.52	138	1,065.26	10	422.49
Food & Cash Crops	300	1,274.37	14	22.62	314	1,296.99	4	843.15
Livestock	339	436.41	23	39.27	362	475.68	7	185.28
Crop & Livestock	79	291.57	2	2.24	81	293.81	4	53.68
Agricultural Services	178	551.87	19	125.34	197	677.21	-	-
Forestry	9	17.8	-	-	9	17.80	-	-
Fishing	6	9.37	-	-	6	9.37	1	12.57
Agriculture's share in total investment (%)	24.1	11.4	11.8	3.8	22.9	10.5	11.31	19.5

Source: Ethiopian Investment Authority (2002), Statistics on Investments in Ethiopia No. 4.

The very low interest for long-term investment especially in the agricultural and rural sectors is an established fact. Frequent revision of the investment code by the government could also not change the situation³². Among others, the growing excess liquidity in Ethiopian Banks which has continued despite government effort to reduce deposit and lending interest rates is a clear sign for the very low interest for investment in Ethiopia. Senior government officials including the prime minister frequently refer directly or indirectly to the continued “rent-seeking” culture among potential investors as the major reason for low interest for long-term investment in the country. Even though the culture of “rent-seeking” that has been growing since the Derg command economy of the mid 1970’s may have a role to play, the inability of Ethiopian policy makers to make Ethiopian agriculture and rural sectors attractive enough to long-term investment may explain more why long-term investment is very low in the country and why the culture of “rent-seeking” did not disappear despite the country’s new economic and political reforms of the early 1990s.

7. Conclusion and policy recommendations

Despite some annual fluctuations, all important indicators for the performance of the sector such as yield (land productivity), per capita production, and agricultural incomes indicate that the sector continues with its sluggish performance. Poor production performance is rooted in poor yields. Despite some differences among different crops, yield level of cereals at national level remains virtually unchanged and fluctuates in their historical margin of 11 to 14 quintals per hectare³³ (see Annex B3). This implies that the considerable change in the amount of fertilizer imported³⁴ since 1991 did little to compensate for soil mining (overexploitation of land) in general and to improve soil fertility in particular. This does not mean that millions of dollars spent on importing fertilizers were wasteful or Ethiopian soils did not respond to inorganic fertilizers. It rather implies that there are some other problems that are not addressed (but still need to be addressed) properly. In this regard, the following points should receive sufficient attention by agricultural extension institutions and policy makers.

³² Even though there are some investment activities recently mainly in flower production.

³³ Due to the exceptional weather condition of the year, yield of cereals reached almost 15 qt./ha in 2003/04 bumper harvest year. As mentioned earlier, FAO’s estimate is, however, only 11.8 qt./ha.

³⁴ Fertilizer imported in recent years has increased tremendously. Compared to 1991, the amount of fertilizer imported increased by over 200% and estimated fertilizer consumption reached to 46 Kg./ha compared to the 34 Kg./ha level in 1990 and only 9.3 kg./ha in 1980 (see Annex B.3).

First, they should acknowledge that soil fertility has continued to decline at a higher rate than the effort carried out to improve soil fertility through the application of inorganic fertilizers. The inclusion of more and more of marginal and degraded lands into cultivation which contribute both for low yield and high soil erosion may explain partly the problem of low returns from increased application of fertilizers.

On other hand, fertilizer application in high potential areas brings modest but intermittent return either due to market problems, land shortage or weather uncertainty (e.g. drought problems). These factors may prevent farmers from using fertilizers on a sustainable basis and to the point where the law of diminishing return sets off. There may be different ways to encourage farmers to use more and more fertilizer and improve the profitability of fertilizer use. First, complementary inputs like high yielding seeds which enable to attain the maximum benefit from fertilizer application use should get equal attention as the effort carried out to promote fertilizer use. Second, Ethiopian input market in general and its fertilizer market in particular should also be improved. Moreover, farmers should be supported in marketing their outputs to ensure sustainable input use. For example, the bumper harvest in 2000/01 led to a very low price, and in the subsequent year, to the reduction of cultivated area by about 17% might have been farmers' response to this discouraging situation. Third, to sustain investment in production enhancing modern inputs, farmers need some predictable output/return or insurance against any extreme risk of loss. In this regard, the role of weather insurance (or in particular rainfall insurance) is an important issue to be considered by policy makers. On the other hand, price intervention like floor price (a warranty for minimum price) is also important to ensure a minimum level of farm income. Floor prices could be maintained for key agricultural products to maintain the term of trade between these products and key non-agricultural goods and services consumed by farmers at some desirable level. After exhausting such production enhancing possibilities, policy makers could focus on other strategies such as enabling entrepreneurial farmers to get more and more land easily which enable them to push their production frontier or the point of diminishing return to key variable inputs such as fertilizer.

Stagnant yields also correlate with the widespread rural poverty. Extreme poverty induces cultivation of marginal and degraded land using primitive technologies and soil management practices. This leads to increased soil erosion and environmental degradation, which in turn reduces the possibility of sustaining or improving

production. In general, the government's effort at improving land productivity through high fertilizer import is an attempt to solve complex and multi-faceted problems such as declining land productivity by tackling only one side of the problem.

The second indicator of the sluggish performance of Ethiopian agriculture is the low level of per capita food production. Low level of per capita production signifies a low possibility to attain the objective of food security. Food security has not been achieved because of rapid population increases, slow growth in domestic food production, and limited financial capacity to import food. Per capita food production relates to the first two factors of determinants of food security, production and population. In Ethiopia, per capita food production continues to decline from around 200 Kg./person during the mid 1970s to about 150 Kg./person in recent years. The inability of the agricultural sector to provide sufficient food to the growing number of population demonstrates the extent of the problem the sector has faced. First, it shows the sector's growing problem to respond sufficiently to changes in endogenous and exogenous factors such as population growth which increasingly threaten its performance. Normally, the continued growth of population put pressure on land resources but this should induce changes in technologies to compensate lost income due to increased shortage of land. Otherwise, food consumption and nutritional status of the people including farmers will be affected negatively. It is very important for Ethiopian policy makers to identify factors which have hindered the agricultural sector from making structural change within itself in response to changes in population, technologies and economic policies. The sector failed to respond to the many changes that have been carried out since the country launches a mixed economic policy towards the end of the Derg regime in late 1980s or early 1990s. The new development strategy, Agriculture Development Led Industrialization that has put in operation since 1995 and made agriculture the centerpiece of the overall economic development, is still unable to improve the performance of the sector and its contribution to the economy. A decade is a sufficient time to revisit the strategy and to draw sufficient lessons why the agricultural sector fails to make appropriate adjustment and ignite a sustainable and dynamic economy. In general the question why Ethiopian farmers continued to practice essentially the same farming methods with very little technical improvement for so long needs careful analysis. Why is it that the natural urge to improve ones economic condition (the most basic axiom up on which economic analysis is based) did not induce improvement in Ethiopian farm practice and management? Policy makers should also satisfactorily answer the

question: “under what conditions the agricultural sector will take care of the ever dynamic growth of the Ethiopian population?”.

The third point that demonstrates the continued poor performance of Ethiopian agriculture is the stagnant agricultural income. As mentioned earlier, agricultural income has important implications to the effort to attain food security as it improves households' access to sufficient food. Moreover, improved agricultural income allows farmers' to send their children to school and purchase non-agricultural commodities and services. This process in turn stimulates the development of the non-agricultural economy and induces a sustainable development. Average per capita rural income (value-added by a rural person) for the three years of 1999/00-2001/02 is only 134 Birr/person. This is very low to stimulate the agricultural or non-agricultural economy of the country. Agricultural income is normally a function of production, price and labor (population). However, output growth is still driven principally by increased use of traditional inputs, mainly land. Growth of modern input use such as fertilizers, higher yielding varieties, and irrigation accounted for an insignificant portion of the changes in output observed in the 1990s. Moreover, the changes observed in total production is not reflected on household agricultural income principally due to high population (and labor) growth, but also due to low price for agricultural products and declining terms of trade between agricultural products and non-agricultural products and services.

The experience to date in Ethiopia indicates that the country has been unable to achieve food security both through Green Revolution like programs or other government interventions. One possible reason for this failure might be wrong policies, institutional instabilities and poor implementation of development programs. There are many examples to support this trend. For instance, why the big and promising irrigation projects like the Alwero, Tana Belse, and Wabishebelle started and stopped arbitrarily by political decisions after millions of dollar spent on them? While the present growing emphasis for water harvesting and pond development is important and encouraging, medium and large irrigation development deserve sufficient attention and commitment from the government. Especially from long-term perspective, they are more important to create a sustainable, dependable and dynamic agricultural sector that can fully play its expected role in the national economy. On the other hand, the various problems reported by international and local institutions on the way current water harvesting projects are implemented should be

corrected the Office for Coordination of Humanitarian Affairs (OCHA, 2003). As many other problems reported on past development programs, the problems reported by OCHA on water harvesting are related more to a campaign like (quota system) implementation of development programs and other problems like poor consultation of technical experts or overlooking their technical advices.

Ethiopia's food insecurity problems that were caused mainly by rapid population growth and low productivity could be solved only through high investment in agriculture and expansion of modern farming methods which could exploit the maximum yield on existing cultivated land. Population pressure has forced Ethiopian farmers to work harder without being able to maintain their incomes or their standard of living, measured in terms of food consumption and production. Therefore, one of the efforts of policy makers should be to reduce rural population growth. Despite affecting negatively any sustainable long-term growth, high population growth overshadowed the modest growth observed in some of the years since 1990. On the other hand, investment in agriculture and adoption of improved agricultural technology raises agricultural productivity with a positive effect on rural incomes and health status. This will in turn have a direct effect on population growth rate (United States Department of Agriculture, 1994). Therefore, the country should follow a comprehensive development strategy by incorporating and finding the right balance between population, technological and institutional issues. Moreover, Ethiopian policy makers should make the agricultural and rural sectors attractive enough for long-term investment. It is more important to take second generation policy reforms rather than talking about excess liquidity and the continued "rent-seeking" culture among some potential investors.

In general, there are two broad problems that still need answer before Ethiopia's food problem starts to subside. The first important point is to understand the complexity and dynamism of the food security problem in Ethiopia. It is difficult to say that Ethiopian policymakers fully recognize the linkage and the dynamic interaction among the various factors that responsible for the poor performance of the agricultural sector. The relationship between the poor performance of the agricultural sector and other important development factors like population-related variables (growth rates, migration etc.), and efficiency enhancing factors like the role of commercial farming and the private sector, the importance of having unrestricted access to land, the value of large irrigation projects such as those abandoned since 1991 should be revisited.

Moreover, the government should provide adequate support for the development of a competitive and dynamic market for modern agricultural inputs in general and chemical fertilizers in particular. The present effort to support small farmers in marketing their farm products and providing storage service should also be continue and strengthen.

The second problem is the weak capacity of government institutions to implement development programs and policies. It is common to observe unsatisfactory implementation of rural projects/programs or premature replacement of one project/program or strategy by another project or strategy without proper and detail evaluation that will guide what should be done next. In short, the growing tendency of running campaign-like programs should be replaced by well-considered, well-implemented, and well-evaluated programs. While the civil-service and capacity development programs of the government are important to improve the capacity of the civil service, Ethiopian policy makers should also aware the damage caused by frequent reorganization of institutions and reshuffling of civil servants. Despite its negative impact by creating instability, institutional information are likely to disappear in the process of restructuring as the country has poorly developed organizational information system. This does not mean that the government should not restructure its bureaucracy; rather it is to suggest that the government should establish stable institutions that could exist for reasonably long period of time.

The other issue that could improve implementation capacity of government institutions is the incentive structure within the system. This includes many interrelated issues like the capacity of the system to attract and retain the most educated and experienced professionals, its ability to assign responsibilities based on merits, the system of rewarding and penalizing of professionals within government institutions. Moreover, openness of the system (government institutions) to enter into open dialogue with professional and civil societies is important to improve and sharpen constantly development ideas and strategies shared among government officials and policy makers. In this regard, the recent experience of the government to discuss its policies with its own civil servants and other segments of the society like Ethiopian farmers is encouraging. However, it excluded many professionals and experienced citizens of the country who are working outside the government system in general and many members of civic and professional societies in particular were excluded from the program`.

CHAPTER III

THE PERSISTENCE OF FAMINE AND ITS EFFECTS IN ETHIOPIA

“Televised images of starving children once again have brought the world's attention to the horn of Africa, where three years of drought have pushed millions of the region's poor to the edge of survival. Haven't we seen this before? Those emaciated faces – are they cruel rerun of past droughts, like in 1984-85 that killed as many a million people in Ethiopia? Hasn't something been done over the years to help those people feed themselves? Why does the world have to help Ethiopia again?”

Paul Jeffrey, April 2000, UMCOR 'Ethiopia Famine'.

“In the continuing saga of the ever suffering Ethiopians, yet another drought, which could turn into a gruesome catastrophe, is threatening the lives of millions of people”.

'The Unhindered Holocaust', Addis Tribune, January 24, 2003.

1. Background

The chapter on the agricultural sector in the Third Annual Report is devoted to the issue of famine and its effects in Ethiopia. The rationale for emphasis on '*famine in Ethiopia*' in the report stems from the contemporary high significance of the famine in explaining the country's socio-economic status. Famine has been one of the major social, economic and political gloomy spots in the country's history. Besides the loss of human lives and social and economic breakdown, famine made the country's image obnoxious in the eyes of the international community. In addition to the natural causes of famine, man-made causes can be traced. The recent trend in famine prevalence and effects calls for revisiting the short and long-term development policies and strategies of Ethiopia. Hence, this report hopes to contribute to the facts required for policy dialogue in this respect.

In the interest of describing and understanding the mystery of recurrent Ethiopian drought and famine several scholars (Ethiopian and foreigners alike) traveled to the country and places hit by the famine, conducted research and wrote reports in all forms. Quite notable writers in this area include Dessalegn Rahmato (1991), Mesfin W. Mariam (2003), Patric Webb and Joachim von Braun (1994), Jansson, Harries and Penrose (1988). For detailed reading about drought and famine in Ethiopia reference can be made to the works of these authors.

2. History of famine in Ethiopia

The history of famine in Ethiopia caused by drought goes back to the 11th century. Some even say that it goes as far earlier as 253 B.C. The Ethiopian Red Cross Society (1985) quoting C. A. Wood, states that between 1900 and now, about 18 famine periods are registered in the country's history (Table 3.1). According to the Institute for Relief and Development (1988) famine is a climax of a long process of interactions of environmental, economic and social factors leading to a deterioration of health to those involved and disruptions of social structures of the respective communities. Famine also means chronic malnutrition, poor sanitation, lack of education, socio-economic deprivation, prevalence of infectious and communicable diseases and general poverty. Some criteria are used to differentiate famine from other chronic conditions. These include the fall of food production and supply to a certain level, the general increase in price level of food and other commodities, the epidemic outbreak of severe malnutrition which is assessed based on clinical and anthropometric findings and the increase in the rate of mortality.

The historical analysis of famine periods in Ethiopia reveals that while the natural factors instigated the conditions for drought and famine, socio-economic and political circumstances at different periods played an aggravating role for the process and effects of drought and famine. The later part of the Imperial regime already experienced severe drought predominantly in the northern and north eastern parts of the country – Eritrea, Tigray, and the Wollo areas. Added to the cumulative effects of land degradation and poor agricultural base, other socio-economic factors had facilitated the ground for vulnerability of the population in these areas. For instance, the landholding system that existed during the Emperor's era in the northern regions, predominantly the *rist* system, led to severe land fragmentation as a result of divisions

among kinships. At the country level, concentration of land in the hands of landlords, the church, and the nobility was one of the major factors for poor economic base of the rural population. Absence of transport and communication partly explains the then weak economic integration between regions of the country. As such the system was a hindrance to agricultural and overall economic growth. The backward administrative machinery and lack of political participation of the peasantry was not favorable to agricultural and general economic growth. With all the backward nature of the economic structure, infrastructure, policy and administrative setup, and weak institutions, it is possible to state that there was a complete absence of any disaster coping mechanism during the Imperial period. That was seen in the 1972/73 drought and famine in Wollo. As explained quite well by Jansson, Harris and Penrose (1988) in their report entitled "The Ethiopian famine", the local representatives of the landlords/administration (called *tschikashums*) were reluctant to disclose the famine in Wollo province. Reports also show that it took longer than expected to convince the then Parliament that drought and famine really happened in Wollo.

The crisis culminated in the downfall of the Imperial regime in 1974. The Derg came to power and introduced social and economic reforms, notably the land reform, which changed the feudal agrarian relations in Ethiopia. Embarking on the socialist mode of economic policy and management, the Derg favored promoting collective farms and commercial large-scale state farms at the expense of the smallholder farming. Lots of political acts and disregard for private initiatives destabilized the rural economy. Villegization by force significantly disturbed the production and exchange systems in rural areas. The civil war with rebels also affected economic development of the country. Corruption of party loyalists, administrative control of farm prices, and quota based delivery of agricultural products to markets had the effect of weakening the economic base of the peasantry. The country experienced a declining trend in social and economic performances and conditions. The continued environmental degradation and bad weather led to the disaster of 1984/85. In the midst of the drought and famine, the Derg regime was busy with costly celebrations of the 10th Anniversary of the revolution. The 1984 drought and famine was one of the worst human system crises witnessed in the country's history.

After the fall of the Derg, the present government Ethiopian Peoples Revolutionary Democratic Front (EPRDF) made attempts at making economic reforms including the introduction of measures for market liberalization, and changes in fiscal and monetary policies. While the economic management followed is a free market economy, the

state, however, still takes the largest share of economic control in production. Land continued to be a state property. Although policies have been issued to enhance domestic and foreign capital and investment in the economy, not much is achieved to date. There has not been a fundamental structural change in the country's economy and its performance. Agriculture continued to bear the effects of the increasing population pressure without a significant move in developing alternative means of livelihood. The result is more and more environmental degradation, declining productivity and earnings of the smallholder farmers, and inability to save and build up an asset base and economic capacity. Despite expanded use of improved input packages by the framers through the national extension program, both national and household food availability could not substantially improve. Owing to the weak market integration across different regions of the country, surplus food produced during years of favorable weather could not be moved to the food deficit regions. The continued structural food deficiency in the country is clearly reflected in the rising volume of food aid to the country. Although the volume of food aid fluctuates depending on weather, the average during the last fifteen years reached about 700,000 MT per annum³⁵. It is under these socio-economic circumstances that the drought of the 2002/2003 occurred affecting close to 14 million Ethiopian. Given the past trend and not much to see currently in economic growth and reduced vulnerability to disasters induced by shocks mainly originating from climatic anomaly, the future is likely to be bleak. In the face of the alarming rate of rural population pressure, current rate of environmental degradation, slow pace of growth of agriculture, limited achievement at creating alternative means of livelihood for the rural and urban poor, and a very slow rate of urbanization, it is obvious that Ethiopia will continue to face more famine incidences.

Table 3.1: A historical documentation of the frequency of famine in Ethiopia

Period (A.D)	Number of famine occurred	Number of famine years
1000 to 1400	4	9
1400 to 1600	4	17
1800 to 1900	8	11
1900 to 2003	18	25

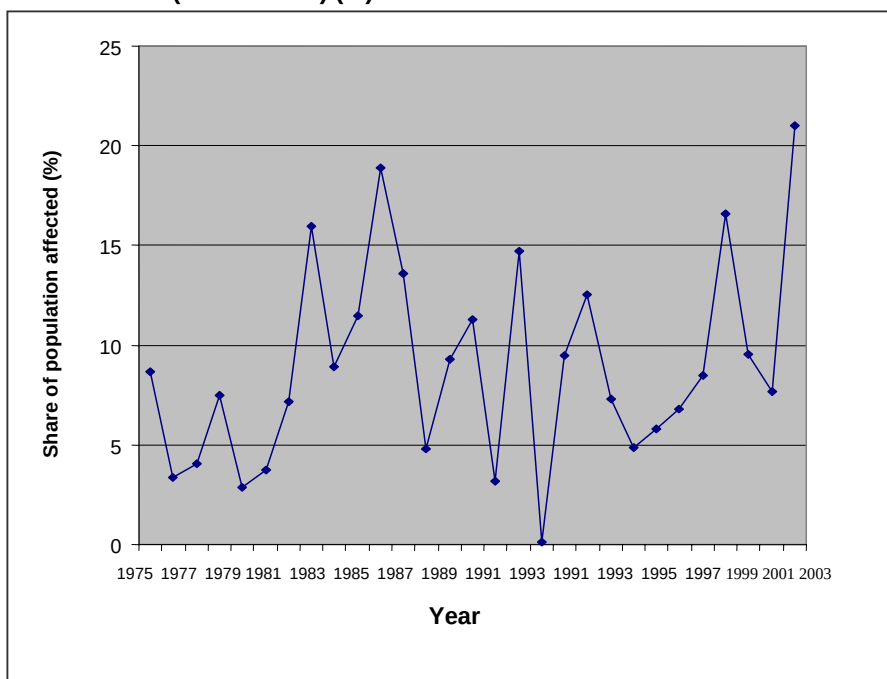
Source: C. A. Wood as quoted in the Ethiopian Red Cross Society (1985).

Recently there has been a marked increase in the frequency of the drought and famine and population affected. The 1972/73, 1984/85, 1993/94, 2000 and 2002/03

³⁵ Reported by The New Coalition for Food Security in Ethiopia: Food Security Program, Volume I. November 2003. Addis Ababa.

famine years are known to be the major ones. As shown in the figure, the number of people affected by drought and famine was on rise. Over a period of two and half decades, the proportion of Ethiopian population affected rose from 4% in 1970s to over 20% during and 2002/2003. This trend, though clearly results from the frequently occurring weather condition and drought, is a sign of a deteriorating coping capacity of the rural community.

Figure 3.1: Population affected by drought during the last 25 years (1978 – 2003) (%)

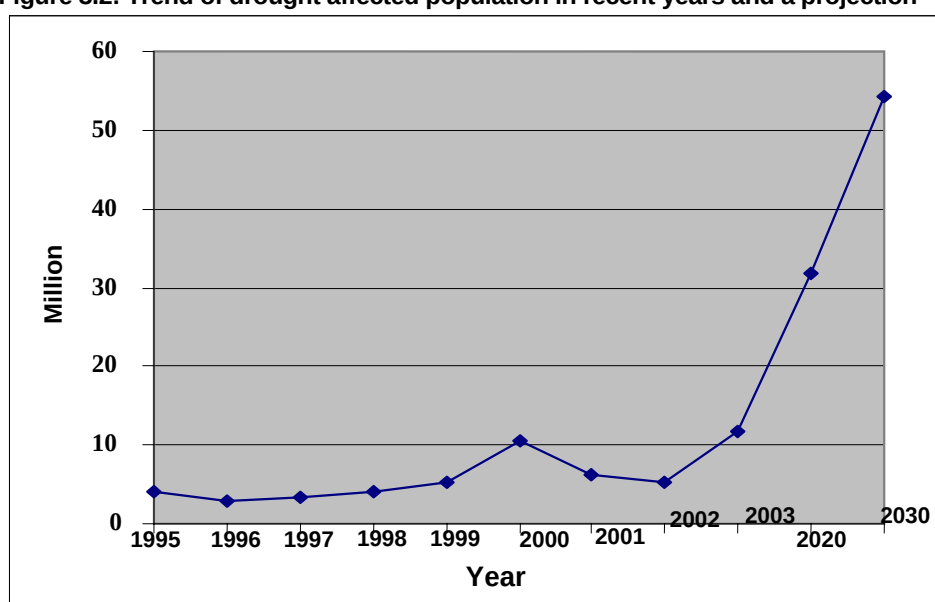


Source: Computed from DPPC, Food Security Profile Reports (various issues).

Analysis of historical data on population affected by drought shows that the number has been increasing at a rate of over 3% per annum during the last two and half decades. While the incidences are the function of unfavorable weather (late rainfall onset, abnormal distribution, and early stopping during a growing season), increased

vulnerability to famine is caused by a multitude of factors and complex interrelationships among the factors. These include underlying poverty, depleting coping capacity as a result of asset depletion, lack of savings from previous harvest, and poor agricultural production which in turn is a result of moisture deficiency and poor soil fertility. During drought periods, crop prices escalate due to shortage while livestock prices fall as there will be oversupply to the market to purchase food grains and reduce the risk of total loss.

Figure 3.2: Trend of drought affected population in recent years and a projection



Source: Computed based on DPPC, Food Security Profile Reports (various issues).

Projection of the Ethiopian population affected by drought and famine is made based on the available historical data. If the current vulnerability trend continues the probability that the number of Ethiopians to be affected may reach 30 to 50 million during the coming two to three decades is high. The projection indicates that by 2030 about 42% of the Ethiopian population (estimated at 138 million) will be vulnerable to drought and famine.

Vulnerability to drought and famine intensified through time; and also geographical expansion is observed. Towards the late 1950s, drought and famine were phenomena more in the two northern regions - Eritrea and Tigray. The famine of 1972-73 was much concentrated in Wollo province which suffered from a crop failure and subsequent famines. That time the Afar pastoral community areas were also affected.

Table 3.2: Geographical expansion of drought over time

Region	Number of affected awrajas /woredas and people during peak drought years				
	1984	1985	1994	2000	2003
Tigray	9 1,331,890	7 1,429,390	54 1,085,000	28 1,717,756	30 1,831,600
Amhara	21 2,514,850	22 3,524,460	64 2,096,000	55 3,569,820	73 3,313,299
Oromia	9 233,210	16 1,020,410	97 1,935,000	80 1,942,824	113 3,110,860
SNNPS	4 265,810	8 667,890	40 840,700	NA	62 1,114,652

Source: Computed from DPPC, Food Security Profile Reports (various issues).

The 1973-75 famine extended to the eastern region and affected specifically the eastern part of Hararghe Province. In 1984 drought and famine affected most parts of Ethiopia, as did the famine of 2003. In 2003 many areas known for their good agricultural performance were affected by drought and famine. Example includes many areas of Arsi zone of Oromia region. As shown in Table 3.2, vulnerability to drought tremendously increased in the major regions of the country. Recently, major droughts occurred during 1984, 1985, 1994, 2000, and 2003. The data shows that in Tigray region nine woredas were hit by drought in 1984 while the number rose to 54 (six fold) in 1994³⁶. In Amhara region the number of woredas affected increased by over three fold reaching 73 in 2003. The expansion of drought affected woredas as a simple indicator of geographical coverage has been very drastic in Oromia and SNNPS regions where a large proportion of the regional territories became susceptible to drought and famine. Taking the major regions of the country as a

³⁶ After 1996 (1988 E.C), the number of woredas in Tigray region reduced from 81 to 45 due to rearrangement or mergers that took place.

whole, vulnerability to drought and famine increased at an alarming rate in the short period of not more than one and half decades.

Only about 8% of the total number of woredas were affected by the drought and famine in 1984. This share rose to 49%, 39% and 53% in 1994, 2000 and 2003, respectively. Currently, there are about 525 woredas in the country. Data obtained from DPPC data shows that the number of woredas which needed food assistance was 210 and 270, respectively, during 2000 and 2001. This is close to half of the number of woredas in the country. In 2003, 377 or over two-thirds of the woredas were affected. Although not all people in the affected woredas necessarily need food assistance, the situation clearly indicates that the country's capacity to withstand drought is deteriorating at an increasing rate. The severity of the drought and famine situation can be observed also when one looks at the rise in the number of affected people. Comparing the situation in 1984 to that of 2003, the number of affected population rose by 38% and 32%, respectively, in Tigray and Amhara regions. An increase by thirteen folds and over four times was observed in Oromia and SNNPR, respectively, between 1984 and 2003 drought years.

Table 3.3: Frequency of drought incidence in drought prone woredas in Oromia region

Zone	Drought Prone woreda	% of affected Population	Frequency of disaster in 7 years (1995-2001) at woreda level.			
			6 times	5 years	4 years	All years
Bale	10	11.2	2	-	-	5
Arsi	13	2.5	1	2	2	2
E/Hararghe	15	18.8	6	1		8
W/Hararghe	9	13.6	4	1	1	3
N/Shewa	12	4.7	-	7	2	2
Borena	10	26.0	1	3	2	4
W/Shewa	5	0.5	-	-	-	-
E/Shewa	9	5.4	-	1	5	-

Source: Daba Gebissa (2002).

Data documented for 7 consecutive years in Oromia region (Daba, 2002) shows that 83 woredas were identified as drought prone where 83% of the people in those woredas are expected to be vulnerable to drought (Table 3.3). During the observation years (1995-2001) 30% of the drought prone woredas (24 of them) had droughts every year. On the other hand, 17%, 18%, 14% of the drought prone woredas had

experienced droughts for 6, 5, and 4, years, respectively, out of seven years. In general, about 48% of the Oromia region is considered to be vulnerable to recurrent drought and food shortages (Daba, 2002). Areas of the region heavily affected by drought and food shortage are Borena, E/Hararghe, Bale, W/Hararghe and E/Shewa where 93%, 78%, 75%, 68% and, 23% of their respective areas are affected. The increasing vulnerability to drought and declining coping capacity can be clearly seen by looking at the peak drought years of 1984/85, 1999/2000 and 2002/2003 (Table 3. 4). From time to time, the country's economy becomes heavily indebted with bad consequences of limiting investment and economic expansion. With slow or stagnating economic growth and a high rate of population growth, the per capita income as a measure of the purchasing power did not improve over the last decades; it rather declined as the data shows. In the same way, per capita food availability also declined by as much as 57% and 70% in 1999/2000 and 2003, respectively, from its average level in the 1980s. The increasing vulnerability to drought, thus, put a large proportion of the population at risk (above 15% of the population) with significant human losses during the famine. The number of deaths during 2002/2003 drought is not reported.

Although famine in Ethiopia is basically instigated by droughts, the inherent problems in the country's agricultural and food production system greatly contributed to the inability of the people to cope with the droughts. The 1984/85 drought and famine came in the midst of the Derg's centrally planned economic system characterized by restricted markets, food trade, and regional mobility of labour. Lack of private incentives in production and distribution, giving more favor to collective farms at the expense of the smallholders' production system (despite its largest share of contribution to the agriculture and food supply) and politically motivated activities (e.g. villagization, recruitment for militia, etc) undermined the productive capacity of the farm sector.

The effects of recurrent droughts are partly the carryover effects of previous ones. Once the rural communities are hit by drought and famine, it takes time to recover and re-build productive assets. A notable effect in this case is the recovery of livestock lost to droughts which takes a long time. To make matters worse another drought year might come before coping mechanisms revive. Although government policies have been pro-production since the early 1990s, there are challenges which still continue constraining improved food security in the country. Increasing population pressure aggravated land degradation and fragmentation in landholding per

household. The weak market integration (low infrastructure and high transport costs) is a bottleneck to the expansion of production and easy transport of food from surplus to deficit areas. Given the existing credit arrangement and weather variability, use of improved farm input technologies tend to be costly to the farmers. These and other general unhealthy economic conditions in the country made the people more vulnerable to drought and famine. That is why the recent drought years (1999/2000 and 2002/2003) inflicted a significant food crisis and famine in the country.

Table 3.4: Comparison of droughts in 1984/85, 1999/2000 and 2002/2003 in Ethiopia.

	1984/85	1999/2000	2002/2003
Basic facts:			
Population	45 million (35 million rural)	64 million (47 million rural)	69 million (53 million rural)
External debt (US\$)	1.8 billion (35% of GDP)	5.4 billion (84% of GDP)	5.6 billion (90% of GDP)
GDP per capita (US\$)	190 (1981) source: World Bank	118 (2000) source: World Bank	108 (2001) Source: World Bank
Agricultural production	450 kg per capita	193 kg per capita	Projected 140 kg per capita
Population affected	8 million (18%); estimated 1 million deaths	10 million (15.6%); estimated 10,000 -50,000 deaths	11.3 million (16.8%)
Causes:	- sequences of drought in 1977-80, and 1984 (47% of average rainfall in Wollo)	- failure of belg rains 1995 -99 followed by belg failure in 2000 in pastoral areas of northeastern and southeastern	- poor belg/meher rains in east 1999-02. In affected areas less than 50% of average rainfall in 2002.
Decreased agricultural Production	- average 4% decline per year prior to drought; problem of land user-right; forced membership in cooperatives, restricted markets, trade, and labour movement; low technology;	- 5.9% lower than 1998/99; although policy is pro-production, state ownership of land, population pressure, smallholdings, land degradation, poor market integration are part of the causes;	- production decline of approx. 21% from 5 years average; decline in fertilizer use by 17%, improved seed by 70% (due to decline in credit use by 30% of 6 years average); continued vulnerability from 1999/2000.

Source: Andy Yates (2003) quoted from the World Food Program (WFP) Comparative Analysis 2002.

3. Effects of famine: Human loss, economic and social crises

Droughts and famine predominantly affect the lives of rural people. For instance, the biggest group of destitute in the Wollo famine of 1972-73 came from an agricultural background. As noted during the famine of 1972-73, unemployed laborers and their dependants, rural water carriers, household servants and village artisans were also affected. Servants and dependents of farmers were among the first to move to look for work. Tenants and small-scale “*rist*” holders also suffered from eviction and were forced to sell livestock. The pastoralists are greatly affected by the loss of animals due to drought (Institute for Relief and Development, 1988).

Table 3.5: Excess mortality rate in Wollo (February 1974 - February 1975)

Regions	All Ages	Infants
Wollo Province		
- East	61	124
- West	61	103
Lowlands in Wollo		
- East	65	137
- West	62	106
Highlands in Wollo		
- East	54	98
- West	58	103

Source: Gopala K. Kumar (1986 p. 18)

The worst scenario of famine is the human loss that it inflicts. Compared to other data and information on drought and famine, the figures on human deaths are, however, difficult to find. According to Kumar (1986), the mortality figure for the 1982-85 drought and famine period was estimated at 175,000 by mid 1984. The mortality rates in the Wollo famine of the 1974-75 are given in Table 3.5. For the famine period of 1972-75, the information on the number of deaths given by the Relief and Rehabilitation Commission (RRC) differs from the ones reported by the international organizations such as UNICEF and OXFAM (Table 3.6). During the three months spanning June to August 1973, RRC reported that 10,000 people died of famine while UNICEF reported deaths in the range of 50,000 to 100,000 for the same period. This difference definitely results from lack of transparency from the Ethiopian government institutions probably due to an attempt to hide the human crisis that the country experienced during that time. It is known that the Wollo famine was deliberately

hidden by the authorities of the Imperial regime until a foreign journalist disclosed it to the media and the world.

Table 3.6: Number of deaths during the 1972-75 famine

Period/Month	RRC	OXFAM	UNICEF
June – August 1973	10,000		50,000-100,000
March 1975	30,000	150 children/day	

Source: Gopala K. Kumar (1986 p.18)

According to the available data, a quarter of a million people died of famine during 1972/73. The number is quadrupled reaching one million during the great famine of 1984/85 (Table 3.7). The death figures for famines that occurred in 1999/2000 and 2002/2003 are not reported. Due to the early warning system that is recently developed as a strategy to combat drought and famine, it seems that human loss is minimized as food aid emergency appeals are made as soon as the disaster is suspected or as it starts affecting the people.

Table 3.7: Human loss that occurred in Ethiopia during the peak drought and famine years

Peak Drought year	Vulnerable Population	% of total Population	Human Loss
1972/73	1.9 million	3.00	250,000
1984/85	8 million	18.00	1,000,000
1993/94	6.1million	11.40	10,000
1999/00	10.5million	17.00	NA
2002/03	11.4 million	18.00	NA

Source: DPPC food security profile reports.

Drought and famine also cause human sufferings while the affected people move from their areas in search of food elsewhere. Evidences show that during famine the normal human habits and traditions are disrupted. For instance, it was reported quite often during famine that people are even forced to feed on grasses and tree leaves to survive or elongate their lives for some time.

Drought also destroys the productive and livelihood bases of the farming population. During droughts the rate of livestock mortality significantly increases making the rural communities more vulnerable to the subsequent weather shocks and droughts as they lose the stock, reproductive base. Droughts have set-off such a process of cumulative loss of the livelihood of many pastoralist communities in the country. A recent drought and famine in Borena zone of Oromia region testifies to an economic loss effect of drought (Table 3.8).

Table 3.8: Livestock population and deaths in Borena during the 2000 drought

Affected Woredas	No. of cattle	No. of dead cattle	%	No. of Goats	No of dead Goats	%	No of Camels	No of Dead camels	%
Yabelo	219,060	84,770	38.7	65,993	NA	-	15,660	NA	NA
Dire	460,893	81,283	17.6	132,870	5,689	4.2	63,961	277	0.43
Liben	573,576	56,022	9.77	775,198	5,604	0.7	279,304	1,830	0.65
Teltele	171,314	47,354	27.64	68,194	7,359	10.7	38,384	3	0.01
Arero	177,426	44,270	24.9	51,163	NA	NA	18,724	1,289	6.88
G/Abeya	101,377	12,425	12.26	36,237	3,486	9.6	6,434	NA	NA
H/Mariam	231,600	7,797	3.37	73,650	1,020	1.3	13,242	20	0.15
A/Wadera	161,920	5,175	3.2	65,065	889	1.3	5,005	12	0.23
Odoshakiso	138,198	42,523	30.77	19,111	NA	NA	958	116	12.1
Moyale	138,726	3,317	2.39	49,001	540	1.1	17,707	31	0.17
Total	2374090	384936		1336392	24,587		444,962	110,629	
Average			17.07			4.18			2.58

Source: Daba Gabissa (2002).

As shown in the table, 17% (about 385000) of the 2.4 million heads of cattle, 4.2% of the 1.3 million goats, and 2.6% of the 444,000 camels were lost to the drought in 2000 in Borena zone. In some woredas the loss of cattle reached up to 39%. The impact is that the loss of livestock makes it difficult for the livelihood system to recover in the years following the drought. In the drought prone lowland pastoral communities, the frequency of drought has increased in recent times. Subsequent droughts follow before the people recover from the effects of earlier droughts and famines.

Psychological effect of famine

It is generally believed that individuals affected by disasters pass through several stages of psychological stress. Initially they show signs of alarm and anxiety. These signs are later replaced by self-centered behavior aimed at obtaining food at all costs. After some time, they become apathetic, dull and depressed and sometimes neglect their own personal hygiene and dignity (Institute for Relief and Development (FHI), 1988). Psychological effects are not, however, limited to only those affected by drought and famine. Although not much is documented on this aspect, famine in Ethiopia has a lot of damaging effects on the people, particularly when it comes to the country's image. The famines in Ethiopia attracted much help from the international community, donors and NGOs. The aid organizations conducted lots of campaigns around the world to gather food, clothing, and drugs for the famine victims. Added to the poverty records of Ethiopia, drought and famine gave it a bad image in the eyes of the international community. It is no wonder that recent editions of dictionaries gave illustrations for the meaning of the word '*famine*' by citing Ethiopia. This unfortunate phenomenon definitely makes Ethiopians including those who in the Diaspora feel ashamed of being the nationals of a country perpetually dependent on food handouts. The bad image and psychological effect it creates recur whenever famines induced by climatic shocks strike the country.

Health problems during famine periods

Drought and famine are not only a cause for starvation, but also for diseases. People catch diseases while moving from their places to new areas in search of food and water. Usually, they end up in congested places like feeding or food aid distribution/rationing centers. Due to weak resistance, they become susceptible to various diseases with children and the elderly being more affected. Studies confirm that the major cause of morbidity and mortality of famine victims are the same as those observed in normal times. According to the WHO technical team report on the 1984 Wello famine, the major causes of morbidity among famine victims are measles, diarrhea, malnutrition, pneumonia, skin infection and malaria. For instance, the data on the number and percentages of the leading causes of out-patients' morbidity in four World Vision sponsored health and nutrition centers in Wollo, Shewa and Sidamo administrative regions (March 1985- February 1986) indicates that among the ten common types of diseases, malaria, intestinal parasite, diarrhea, and pneumonia are the leading ones (Table 3.9).

Table 3.9: Drought and disease prevalence

Diagnosis	Number	Percent
1. Malaria	17,813	12
2. Intestinal Parasite	15,738	10
3. Diarrhea	11,963	8
4. Pneumonia	11,468	7.7
5. Eye Disease	8,805	5.9
6. Upper Respiratory	6,486	4.4
7. Skin Disease	6,446	4.3
8. Fever of unknown origin	2,117	1.4
9. Otis Madia	1,280	0.9
10. Gastritis	644	0.4

Source: IRD, FHI (1988 p.152); Getahun, A. Hailemariam, E. and G. Ngariti (1986).

4. Causes of famine and factors that influence its extent

To explain the causes of famine in Ethiopia, one needs to understand its complex and cumulative nature. The root cause of famine in Ethiopia is poverty which in turn is linked to a complex combination of factors and processes. There are natural and man-made causes that can be associated with famine. The natural causes include drought following unfavorable rainfall (late onset, early stopping and abnormal distributions).

The man-made causes can be explained as related to major factors like population pressure and its effects, malfunctioning of the agricultural sector and the general economic system, and unfavorable policy environments and institutions. These factors exacerbate the processes induced by natural hazards like drought. Malfunctioning of the economic system can be explained by poor production of food, poor income earning and low savings, all of which lead to the poor capacity of the population to withstand the effects of shocks and natural hazards like drought, pest epidemics, etc.

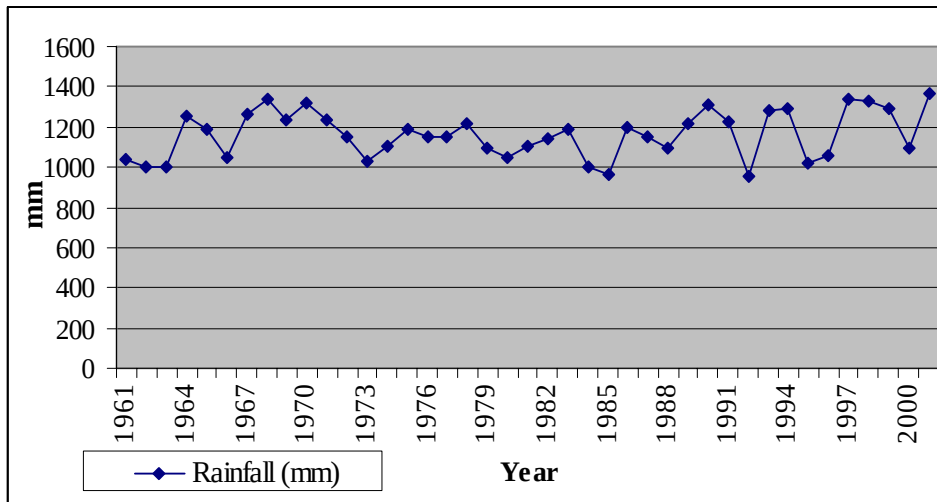
Increasing rural population pressure leads to declining landholding per household, abandoning of traditional land fertility management practices (like fallowing, crop rotation, etc.) and loss of soil fertility, low food production and income and, as a result, eroded coping capacity in times of drought and food shortage. Famine is a symptom of environmental, social and economic failures that were going on for generations and in a way it reflects the country's lack of capacity and resilience to temporal shocks induced by major factors like drought. The causes of famine are complex and interwoven including climatic instability, degradation of the productive and natural resources environment, lack of alternative livelihood means, population pressure and its effects. The narrow range of agricultural production and lack of diversification, weak market links between producers and consumers, lack of or limited access to productive resources (land, credit, water, etc), inefficient agricultural technology generation and dissemination can be fairly cited as the underlying factors why droughts quite often lead to disastrous famines in Ethiopia.

Climatic factors

Naturally, climatic shocks result in droughts. This natural event is given various definitions. Among the definitions given in the literature, for instance, the Ethiopian Red Cross Society (1985) defines drought as "the lack of sufficient water to meet requirements" or "abnormal insufficiency of water below the usual requirements geared to average climatic conditions of the area". Drought is defined from three different points of view. These are metrological, hydrological and agricultural. The metrological aspect involves theoretical/empirical consideration of climatological statistics while the hydrological one concerns water reserves for domestic and industrial uses. The agricultural aspect is about supplies of water for crops production and livestock production.

In Ethiopia, the general observation about rainfall distribution across the country's landmass shows that rainfall decreases when one moves from the southwest to the north east and south east. There is a clear association of drought incidences with the rainfall pattern in the country. In general it is the northeastern and south eastern parts of the country that are frequently vulnerable to drought. Rainfall being the most important natural element that determines the Ethiopian agriculture, inadequacy of rainfall and its erratic distribution are the major factors behind the increasing drought incidences.

Figure 3.3: Trend of average rainfall at the country level during the last 40 years (1961-2001)



Source: Data obtained from National Meteorological Authority.

As the *belg* rain is an important source of moisture in most of the *belg* crop growing areas of the highland, a delay or absence of rain during this short rain period usually sets in drought if coupled with subsequent failure in the major rainfall season (*meher*). Long-cycle crops such as maize and sorghum are severely hit when the rainfall stops early. The main season rain cannot easily offset the effects of poor *belg* rain, as the *belg* production takes quite a substantial share of the annual production in many areas of the of the highland. Whenever the *belg* rain fails, it results in depleted pasture and water resources in the low land pastoral areas as well as agricultural areas of the highland. It leads to severe livestock mortality and reduced livestock by-products. Such was the case, for instance, in Borena during the 2000 and in Afar and Somali regions during the 2003 drought and famine.

As shown in figure 3.3, there is a general instability in the amount of rainfall at a country level. The data of the last four decades indicate that total rainfall varies from year to year ranging between about 1000 mm to close to 1400 mm. Besides the variability, more problematic from the point of view of agricultural activities is the

distribution of rainfall amount during the cropping season or growing periods. During the drought years, in addition to general shortages of rainfall, there has been either late onset or early stopping or both which disturbs the normal pattern of plant growth. It is such an abnormal distribution that results in a fall of agricultural production.

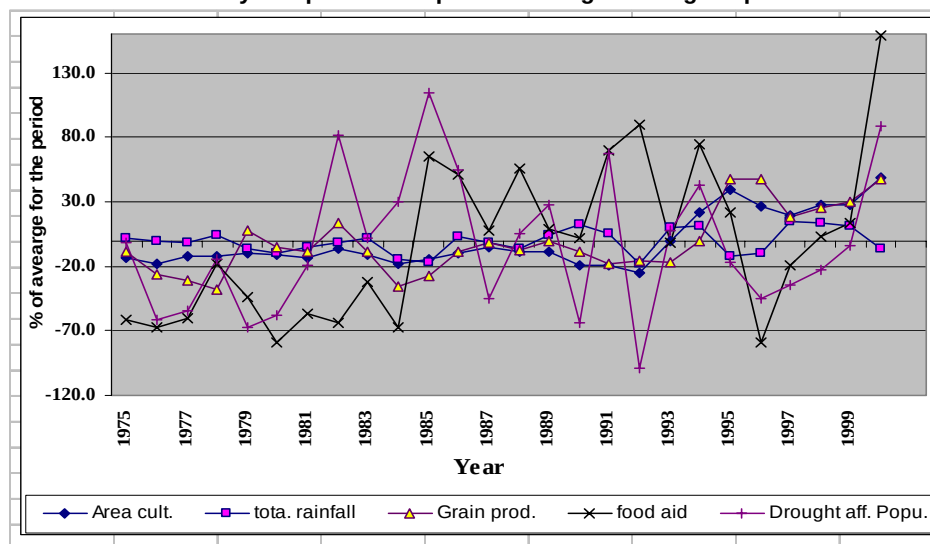
Table 3.10: Average levels and variability of rainfall in Ethiopia during 1961 to 1987

Provinces	Long term average (mm)	Percentage of Ethiopia average	Coefficient of variation	Rainfall in	
				Year	% age of average
Arsi	872	96	16	1980	69
Bale	766	84	26	1965	69
Eritrea	398	44	49	1966	43
Gamo Gofa	747	82	21	1963	48
Gojjam	1170	128	10	1983	82
Gondar	986	108	19	1966	78
Hararghe	497	54	27	1984	49
Illubabor	1304	143	13	1965	67
Kefa	1322	145	11	1980	81
Shewa	830	91	11	1965	77
Sidamo	837	92	24	1980	51
Tigray	571	62	29	1984	44
Wollega	1210	132	20	1970	48
Wollo	837	92	18	1984	47
Ethiopia	913	100	7	1984	78

Source: Webb, von Braun, and Yohannes (1992).

As shown in Table 3.10, regions frequently susceptible to drought and famine (Tigray, Hararghe, and Wollo) had a total rainfall that is less than the national long-term average by 38%, 46%, and 8%, respectively, in the period indicated although not all parts of these regions are affected by drought. Variability of rainfall was also high in Tigray, Hararghe, Sidamo and Gamo Gofa relative to other regions. Analysis of the historical data on rainfall and agricultural production shows that a 10% drop in the amount of rainfall at the national level induces a reduction in food production by 300,000 tons (Webb, et al, 1992).

Figure 3.4: Percentage change of drought affected population, rainfall, and food availability compared to respective averages during the period 1975 – 2000.



Source: Computed from data obtained from different sources (DPPC, Food Security Profile Reports (various years), CSA, "Area Cultivated and Grain Food Production", (various years) and National Bank, "Annual Reports" (1999/2000 and 2001/2002).

In addition to bad weather, the intensity of vulnerability to drought seems to be a cumulative effect of many interacting factors. Analysis of time series data (1975 – 2000) of area cultivated with grain crops, production, amount of rainfall, population affected by drought and emergency food aid imported into the country is shown in Figure 3.4. It is a percentage deviation of respective variables from the average level for the period. Grain food production shows a high variability about the average with some kind of cyclical pattern.

In general, there was a slight increase in production above the average after the mid 1990s, probably due to an increase in area cultivated although average productivity of cereals and grain in general was stagnant throughout the last decades. Similarly, the amount of rainfall was fluctuating from year to year. Both the number of people affected by the recurrent drought and the volume of food aid imported into the country varied from year to year, but certainly tended to increase over time. There is a clear

association of a fall in food production below the average level, the number of drought affected people and increase in the food aid. But, the percentage increase in population affected and food aid imported is larger than the percentage decline in food production. This may show that a slight decrease in production leads to a larger vulnerability as the latter is more of a cumulative effect. The county level food availability does not, however, fully indicate the level of crisis in different regions. This is largely due to the low market integration and disparity in terms of level of productivity and production in different regions of the country.

Environment degradation

Among the major factors of famine in Ethiopia, environmental degradation plays an important aggravating role. Some of the human causes of environmental degradation are related to increasing deforestation due to demand for fuel energy and construction, inappropriate land use and cultivation, which result in loss of soil and water resources.

The performance of the Ethiopian agriculture is very much dependent on nature. One major aspect of improving food security is the extent to which farming is integrated with sustainable soil conservation and fertility management. The fact that land rehabilitation and soil conservation are crucial for Ethiopian agriculture is repeatedly documented during the past decades. An extensive work and documentation in the Ethiopian Highlands Reclamation Study (EHRS) during the 1980s revealed that the rate of land degradation is so alarming that it is a huge threat to the country's future food security and economic development at large. In view of such intolerable magnitude of environmental threat, it can be said that interventions in soil and water conservation have not been given adequate attention. A well-defined, focused and coordinated institutional mandate is lacking to address the continued problem of land and environmental degradation³⁷.

Weak and poorly functioning market systems

³⁷ Throughout 1980s there was much attempt and practice by the MoA and donor-assisted programs to revert the land and soil degradation trends. Soil and water conservation activities like terracing, reforestation, flood control, etc. were practiced. During early 1990s the Ministry of Natural Resources Conservation and Development (MNRCD) was established with the mandate to institutionalize conservation programs. That ministry does not exist any more. Instead an Environment Protection Authority is established to act predominantly on higher policy and regulatory matters than development and practice oriented works in natural resources. Currently, the natural resources conservation and management is the mandate of one division in the Ministry of Agriculture and Rural Development.

Part of the food security crisis during droughts and famine can be explained in terms of weak integration or poorly functioning market systems. During good weather years (such as 1996/97 and 2001/2002) there were good harvests and some surplus production. Due to weak market integration and underdeveloped storage facilities, such surpluses immediately led to a fall in producer grain prices and low farm incomes. Low incentives and incomes hinder asset creation and investment. Lack of capacity to invest in and improve agricultural growth and the economy at large can be cited as the major reasons for declining coping mechanisms against natural shocks like drought. What is a paradox is that years of good harvest are followed by food shortage crises. Even worse is the fact that part of the country suffers from food shortage while ample food is produced in other parts of the country to the extent that surpluses led to low prices. These are partly attributed to weak market linkages. In his article *"Behind the Famine in Ethiopia: Glut and Aid Policies Gone Bad"* Thurow (2003 p.2) put his observation in relation to the markets and the 2002/2003 drought and famine:

"Despite constant warning in 2001 and 2002, there was little effort to stabilize prices or intervene in the country's underdeveloped storage and trading system. The grain got bottled up the market, depressing the prices even further. Belated efforts to create markets offered no relief. A meeting of government experts in March 2002 determined that the country's wretched roads and landlocked situation made exporting a money losing proposition. Less than two months later, the first 2002's seasonal rain was sparser than normal. Within weeks, the government launched its food appeal".

His observation clearly shows that efforts made at improving agricultural production are not coordinated with establishing appropriate market and food distribution systems. At the end, some local surpluses during years of favorable weather could not help withstand drought shocks and famine.

Development policy failures and poor agricultural and overall socio-economic condition

It is well recognized that the real aggravating factors of drought and famine under the Ethiopian context are related to the socio-economic conditions of the country. While it

is quite understandable that drought is a result of a natural climatic shock that occurs in any country, it does not necessarily lead to a famine. In the Ethiopian circumstances vulnerability to disaster mainly results from such factors as lack of appropriate development policies and strategies, low economic development, inappropriate land management practices, high population pressure and environmental degradation, low level of agricultural technologies used for production, etc.

Throughout the successive government and administration periods in the country, there have never been appropriate agricultural development packages that would have helped the drought prone and vulnerable areas to develop the capacity to withstand drought shocks and famine. The Ethiopian development policies have never been conducive to the improvement of the country's agricultural sector and the national economy at large. Among the policy problems with direct effect on agriculture and food production is lack of appropriate settlement policy that considers agricultural land use and carrying capacity. Equally important is lack of emphasis to urbanization.

A. The Imperial period

Among the major factors that had limited the development of agriculture and the Ethiopian economy at large during the Emperor time include concentration of agricultural land in the hands of a few and tenure insecurity of the then tenant-landlord system. Poor utilization of the country's agricultural potential, very low infrastructure and market system led to low production. Under that condition, droughts easily led to famine.

There were attempts to implement some comprehensive and minimum package rural development programs in selected areas. The comprehensive packages of modern inputs and cooperative marketing were promoted through what were called the Chillalo Agricultural Development Unit (CADU), Walaita Agricultural Development Unit (WADU) and Adaa Development Projects in 1960s and 1970s. The minimum package program was meant to provide farmers with few proven technologies during 1970. Those programs did not bear fruits as they focused on high potential agricultural areas and were donor-driven by nature. They did not have packages for marginal and drought prone areas of the country.

The Emperor's regime made little or no attempt to avert the famine that occurred in 1973. For political reasons or personal interest of the aristocracy, the famine of 1973 was known to be hidden. The regime lacked not only interest³⁸ to disclose the famine, but also the capacity and infrastructure to mobilize and deliver food that would have saved the lives that perished in Wollo region. For political reasons and personal interest of the aristocracy, the famine of 1973 was hidden till a foreign journalist by the name Jonathan Dimbleby³⁹ disclosed it to the world and the Ethiopian people. By the time aid agencies and the international community started pledging emergency food aid, the famine had already killed thousands. It is reported that before the official acknowledgment of the drought and famine, the international community could respond only in a piecemeal fashion through missions, international organizations such as UNICEF, and NGOs such as Oxfam and Save the Children Fund which have permanent field staff in Ethiopia (Jansson et al, 1998). Reports also show that in May 1973 the then Christian Relief Committee (now renamed CRDA) was formed to coordinate famine relief projects and food aid from foreign donors.

Although the northern regions especially Eritrea and Tigray were hit by famine and drought in the 1960s, the Emperor's regime took no measures to mitigate similar effects of droughts in those regions and the other parts of the country. With the accumulated socio-economic and political crisis, the famine that occurred during the eve of the 1974 Ethiopian Revolution accelerated the fall of the Imperial regime.

B. The Derg regime (1974-1991)

Following the revolution in 1974, the Derg made notable institutional changes including the land reform that made equitable distribution to the peasantry but at the same time transferred the ownership of land to the state, while the peasants were given user rights. The Derg took over the weak and backward economic system carried over from the Imperial period although there were signs of improvement and growth during the 1960s and 70s. Grassroots associations (kebele and peasant organizations) were formed to implement the government's development and political

³⁸ Jansson, Harris and Penrose (1988 p. 98) reports that in 1973 efforts were made by Parliamentary representatives to draw attention to the plight of their constituencies. The presiding chairman of the Parliament refused to discuss the issue on two occasions and the Wollo representative's evidence was dismissed as a pack of lies.

³⁹ World Addis Ababa, May 7 (ENA)--Jonathan Dimbleby, the renowned ... won in 1974 The Richard Dimbleby Award for a program which exposed the 1973 famine in Ethiopia. See Ethiopian News Agency, May 7, 1974.

programs. No favorable environment could turn out during the Derg's era. Guided by the economic philosophy and policy of socialism, the regime rather, favored mechanized state farms and collective farms at the expense of the smallholder peasant farms. The system introduced administrative control of the market and undermined the incentive for private initiatives leading to further crises in the agriculture and other economic sectors. While the food production and the economic performances were in such a precarious state, another drought of unheard magnitude occurred in 1984. When the crisis was looming the Derg was busy with celebrating the 10th Anniversary of the Revolution. Although the disaster was made to be known to the international community and aid agencies, thousands of lives were lost due to that famine.

After 1974, the Derg tried to manage relief activities by establishing the Relief and Rehabilitation Commission (RRC). The establishment of RRC gave foreign agencies a point of contact although its functions were constrained by many factors including lack of roads, food handling facilities, transportation, and costly fuel (Jansson et al, 1988). Although a Nutritional Surveillance Program was in place, there was no early warning system. Collection of information was constrained by the then on-going civil strife (Yates, 2003).

The Relief and Rehabilitation Commission was given the mandate to carry out drought mitigation activities and resettlement programs. The duties of the RRC were to solicit food aid from humanitarian sources and resettle people from drought-affected parts of the country. Resettlement of the people into other areas was considered as a strategy to mitigate the effects of famine. Out of over 600,000 people affected in 6 provinces, 97% were relocated to other provinces in the country during the two years (1985-1987) after the 1984 drought and famine (Dessalegn, 2003). Although many people were moved from the northern and central regions of the country to the resettlement areas, it was not a success story. Reports said that 5.5% of the resettled people died and 14% of them deserted the settlement sites. Following the overthrow of the Derg in 1991, many settlers are said to have returned to their places of origin from the resettlement areas. In some places, however, it is known that settlers have become well established.

A temporary response of the Derg to the 1984 famine could not however render a lesson in terms of tackling the root causes of famine. The restrictive nature of the central economic management, lack of incentives to raise productivity, and the

intensified civil war during the late 1980s hastened the economic and political crisis of the Derg which culminated in the collapse of the regime in 1991. Alike the previous regime, the Derg also did not have suitable development packages for the drought-prone and marginal areas of the country. The RRC was not any thing more than an organization to facilitate the food aid handout.

C. The Ethiopian Peoples Revolutionary Democratic Front (EPRDF) (since 1991)

The EPRDF government introduced political and socio-economic reforms right after taking power in the early 1990s. The government announced that it follows a free market economic policy. Agricultural market liberalization, privatization of public enterprises, and other macro-economic (fiscal and monetary) reforms were made. By mid 1990s agricultural input subsidies (notably for fertilizer and other inputs) were removed. Paradoxically, as critics say, contrary to the market economic principles and practices, the government continued with almost similar stance on the land tenure policy. The new national constitution of mid 1990s confirmed that land remains to be the property of state while the people are given the user-rights to land. The tenure system has continued retaining the increasing rural population by limiting rural urban migration. A large part of the underdevelopment of the Ethiopian agriculture can be fairly explained by the inappropriate land tenure policies which have undermined the potential role of land resources in economic development throughout the socio-economic and political history of this country.

Since the mid 1990s the government has adopted a socio-economic development policy and strategy that takes agriculture as a centerpiece of development. As a national economic development policy, Agricultural Development Led Industrialization (ADLI) is a strategy in which agriculture and industry are brought into a single framework of development where the development of agriculture is viewed as an important vehicle for industrialization by providing raw materials, a market base, surplus labour and capital accumulation (MoFED, 2002a). The strategy assumes capacity building in human resources and extensive utilization of abundant rural labor engaged in smallholder farming. Despite efforts made at market liberalization (as discussed above) and increased support for the smallholder farmers through the national agricultural extension program, the country's position of food security and agricultural development could not be markedly improved. In general terms, the

strategy is confronted with structural problems and factors that limit its realization. Increasing population pressure, severe land degradation and underdeveloped market system are among the major challenges to ADLI. Deficiencies in markets and infrastructure and the negligence of development in non-farm sectors hindered growth in agricultural and food production. Equally, rural and urban poverty or low purchasing capacity has limited the chance of developing agriculture in this country.

The country continued to rely on foreign food aid and relief activities during the recent major drought years (1994, 2000, and 2003) and even during years of normal weather. This shows that there is no success story yet in terms of building the national as well as household level disaster and shocks coping capacity. Many factors and their cumulative effects through time have left the rural farming community more and more vulnerable to shocks like droughts. Given the rising population pressure in rural areas and absence of adequate alternative livelihood means, agriculture is put more and more in a difficult condition; and it could not fulfill the expectations of being a source of food, raw materials and capital accumulation for industrialization. Currently, the Ethiopian population is estimated at 70 million and is projected to reach 138 million by year the 2030. There is not much hope that the rural population will significantly reduce during the coming decades. Projections indicate that even by 2030 the larger proportion (about 76%) of the population will still reside in rural areas while only about a quarter will be urban dwellers. Given the heavy task of achieving economic transformation and alternative means of absorbing surplus rural population, the mounting pressure on land and natural resources will continue as a major challenge to rising agricultural productivity. The other side of effects of population pressure is declining farm landholdings and land quality.

The government established Disaster Prevention and Preparedness Commission (DPPC) in 1993. DPPC has structures both at the Federal and the Regional government levels. The transitional government of EPRDF also reformulated the emergency code and approved the National Policy for Disaster Prevention and Preparedness Management (NPDPM) in October 1993. The policy called for balanced relief effort and planned development to strengthen the economic status of drought-prone areas, to help mitigate the suffering of affected population and to enhance their capability to face future disasters. As the country continued facing droughts and famine (1994, 2000, and 2003) it is true, as experience has shown, that no effective mechanism is in place to make any disaster prevention and preparedness before drought and famine occurs. As part of the famine mitigation

strategy, the Emergency Food Security Reserve (EFSR) was established in 1982 with the help of the World Food Program's 12000 MT of food. The idea and practice of Food Security Reserve (FSR) is to accumulate some amount of food, which could quickly be borrowed and distributed to the needy areas at the time of food shortages and not to let famine occur as a result of delay in donation of food. Although it was an immature mechanism in the 1980s, this practice of food reserve was considered as a viable mechanism in 1990s despite reduction of the stock to 50,000 MT (in 1999/2000) due to lack of timely repayments and continuous demand for distribution (Yates, 2003). This stock was reported to have a balance of 130,000 MT in November 2002.

As part of the strategy to combat effects of drought and famine, the government has devised a food security strategy. Food security is among the government's priority areas of national development. Hence, the strategy was developed in 1996 and updated in 2002. The adopted strategy relies on three aspects: increasing the availability of food through domestic production, ensuring access to food by food deficit households and strengthening emergency response capabilities of relevant institutions (FDRE, 2002a). The strategy states that both the supply and demand side of the food equation i.e. availability and entitlement will be addressed at national and household levels (p. 8). It further notes that particular attention will be given to the diversity of food production zones in Ethiopia (areas with adequate moisture, moisture deficit and pastoral areas) to tailor options and strategies depending on the situations. Expansion of investments and activities in health, education and road facilities to rural areas as supportive mechanisms are emphasized in the rural development strategy. Following the drought and famine of 2002/2003, another grand program and document called "*The New Coalition for Food Security Program in Ethiopia*" came out in November 2003. It is devised by the government in collaboration with the donors and is planned to be implemented in 3 to 5 years to improve the food security of 15 million people (5 million chronically food insecure and another 10 million vulnerable) at a cost of close to 26 billion birr (3.02 billion USD).

Lack of empowerment and farmers' participation in designing development programs and technology transfer efforts

A persistent failure in the history of rural and agricultural development in Ethiopia is the inability to transmit better development ideas, technology and practices to farmers

in participatory and accountable ways. Over the years, many development programs and measures were prescribed in a top-down approach to the rural people and farmers. As has been observed times and gain, at the end of it, it does not take long before development actors, planners and policy makers find and realize that the top-down approaches were not accepted by the people who were supposed to implement the “prescriptions”. Probably well-thought and designed programs and practices of high social benefit usually failed simply because farmers are not given the chance to ask “why”, “where”, “how” and “when” to practice, adopt, and use them given their circumstances. The development actors who are mandated to persuade or teach farmers at grassroots level are quite often incapable and irresponsible to the farmers. Many examples of weak technology transfer efforts to farmers can be found.

5. Conclusion and policy recommendations

Conclusion

While drought incidences are induced by climatic shocks, famines in Ethiopia are largely explained by the country's deep-rooted poverty and lack of capacity to withstand and avert the effects of drought. Pressure on natural resources as a result of increase in population, malpractices in land use, and deforestation exacerbated the disturbance of ecological health and balances. Inappropriate agricultural development policies and strategies resulted in disincentives that hindered improvement and expansion in production. The results are low agricultural production and productivity and decline from time to time.

Lack of favorable policies, strategies and guidelines during the successive governments of the country hindered economic development and livelihood diversification. While poverty has been growing in rural areas, low urbanization contributed to underdeveloped non-farm economic and service sectors, as a result of which urban areas could not absorb the surplus rural population. The low level of infrastructure, weak market integration, and weak rural–urban linkages added to poor purchasing power of the rural and urban mass limited the opportunities for the

agricultural and economy wide growth. These circumstances led to increasing vulnerability to droughts and famine as can be seen from the rising number of population affected by recurrent droughts.

Policy recommendations

The following policy recommendations can be made to attain sustainable agricultural growth and food security in order to reduce the effects of drought and avoid famine in Ethiopia.

Short-term measures

- The management of early warning systems must be strengthened to effectively plan appropriate measures to mitigate recurrent droughts and famine.
- Effective targeting of access to food in famine prone areas is necessary. Various mechanisms including cash-for-work based public works in environmental rehabilitation and infrastructure can be used. In addition to food, resources must be allocated to improve health, income generating capacity, and productivity of famine prone areas in order to enable them create/regenerate assets (example, livestock in pastoral areas).
- Commitment of donors must be solicited for multi-year food assistance instead of annual responses to aid appeals. In this regard local purchase of aid food should be planned as a contribution to the local market development.

Long-term measures

- A favorable environment should be created to promote investment and economic growth in all sectors of the country's economy.
 - o Policy commitment and practical engagement in bringing agricultural growth through technological transformation and commercialization is imperative.
 - o Barriers that hinder investment in agriculture should be removed.
 - o People must be encouraged and supported to engage in alternative livelihood and diversified income generating activities.

- Control of population growth through effective fertility reduction using family planning measures and by educating women.
- Creation of favorable conditions for a strong rural-urban linkage that also encourage mobility of the farming population and exist of productive labor out of agriculture is one of the indispensable measures. There is a need to urgently devise a coherent strategy in order to enable rapid growth in non-agricultural economic sectors.
- Special attention should be given to and concerted effort must be made for environmental rehabilitation, protection and development.
- Unless proper and vigorous effort is made to develop and utilize the country's water resources, there will not be a better and sustainable future for the Ethiopian agriculture. Hence, strategies and activity plans need to focus on long and short term measures to develop and utilize water resources for agriculture, energy and other purposes.
- A persistent failure in the history of rural and agricultural development in Ethiopia is the inability to transmit better development ideas, technology and practices to farmers in participatory and accountable ways. Effort should be made to create responsible and efficient institutions that provide services for rural development. Attention should be given to enhancing the empowerment of farmers' (men and women) and their genuine participation in development endeavors.

CHAPTER IV

POPULATION AND DEVELOPMENT

1. Introduction

The population issue is very central to economics. To begin with, economics is about limited resources and unlimited wants. So, population instantly becomes a demand

management issue. Given that demand creates supply, a larger population size that is backed by a purchasing capacity could be expected to stimulate growth assuming that there are no supply constraints. In classical economics, labour is also treated as an asset. Hence, more labour could be associated with increased output as long as it can be productively employed.

Yet, at any particular moment, larger population size means smaller resources per person and, depending on its age structure, higher dependency rate. It is not difficult, therefore, to see how population growth could in fact become a factor for reduced level of economic growth. The relationship becomes complex once the reverse impact of economic performance on population growth is introduced. It is not surprising, therefore, there are many different and divergent population theories and that the debate on the nature and characteristics of the interplay between the two variables still continues.

The extreme views on the opposite sides refer to the pessimists who fuel fears of population explosion and the optimists that argue large population size is beneficial to development. In between, views range from those that say there is no discernable linkage to those that emphasize specific objective conditions that determine the nature and extent of linkages. Given that the interplay is likely to be governed by two-way interaction, time horizon chosen (short versus long term effects), period in demographic transition, age structure, and level of economic development, each proposition on population and development linkages should be evaluated in terms of a specific context. This comprises one of the motivations for investigating the issue in the specific context of Ethiopia.

In recent years, the meaning of development has been refined and unequivocally redefined as an improvement in the overall welfare of the people. This has created a direct link between population and development. It is no more possible to talk about development without referring to population and vice versa. Population issue is not simply, therefore, about limiting or increasing the number of individuals, but includes key issues such as poverty, reproductive health, education, and employment which are integral parts of any development policy. Moreover, recent studies conducted across countries have confirmed that population does matter to development, albeit the fact that there are a number of factors that determine the nature and magnitude of the effect of population growth on the economy. Hence, these new developments have further motivated the undertaking of a study on population and development in

the Ethiopian context. In this regard, attempts are made in this chapter to review the literature and studies in Ethiopia, identify specific contextual issues and investigate linkages using empirical data.

2. The nature of the debate

The relationship between population growth and economic performance is highly debated in the development literature. This has particular significance to less developed countries as they usually face widespread poverty while experiencing rapid population growth. Large family sizes and high dependency rates are associated with increased poverty levels, setting aside the issue of which causes which. Despite this, sound theories exist which argue that population size is an asset and a factor for growth.

In reality, an increase in population size has an effect on growth and vice versa. The effect on growth is also conditioned on many factors. What usually complicates debates and leads to divergent views is the fact that the issue can be seen from different contexts (angles) whereas arguments usually refrain from clarifying these.

Note that the debate should be put in clear context from the outset:

- The effects of rapid population growth on macro economic performance
- The effects of national economic situation on population growth
- The simultaneous interactions of population and economic growth rates
- The impacts of household income on micro demographic variables
- The impacts of micro demographic variables on micro household economic situation
- The simultaneous interactions of population and income at micro level
- The treatment of population as a singular most important variable versus the consideration of population amongst other variables and factors

Hence, unless one makes clear the context under which one is making a statement, no meaningful discussions can take place and the right conclusions may not be reached.

The pioneer who brought forth the population issue in the development literature is Reverend Robert Malthus⁴⁰. The basic tenet of his essay is that population grows at a geometric rate because of lack of conscious restraints on fertility while food production grows at an arithmetic rate due to diminishing returns from the increasingly scarce and fixed factor of production, land. His article appeared at a

⁴⁰ His theory appeared in his *First Essay on Population* (1798).

time when severe drought and food shortage were threatened some parts of the world, particularly Ireland. According to Malthus, population pressure constrains per capita income to what is called the “Malthusian Trap”, which is a low level of subsistence. The core of his argument is that if human beings do not make a conscious restraint on fertility, population growth will lead to worsening food availability and mortality.

Malthus's predictions, however, did not necessarily come true. Decline in fertility became a natural phenomenon in most economically developed nations and technical progress significantly increased factor productivity, which led to food surpluses in many countries. He clearly seems to have understated the role of human ingenuity to control fertility and increased food production through technological progress.

But overall population growth in the world has not shown signs of abatement and serious environmental problems such as water shortage, deforestation, climatic changes, and ozone layer depletion continue to haunt humankind. That is why the theory of Malthus is still very profound and supported by some distinguished scientists around the world.

Innumerable studies have been undertaken on the relationship between population and development since the time of Malthus. As a result consensus has emerged on some underlying facts and historical trends as empirical studies demonstrated some regularities. There still remain, however, key outstanding issues.

2.1 Consensus grounds (historical trends and facts)

Demographic transition

The demographic transition theory⁴¹ relates population growth to the level of socio-economic development of a society. Simply put, the theory says: *In traditional*

⁴¹ Various people have contributed to the theory of demographic transition. It was in 1929 that W. Thompson discussed three stages of population growth. In 1945, Notestein made an important contribution to demography. He is regarded as father of demographic transition theory. In 1947 Blacker has mentioned five stages instead of three

society fertility and mortality rates are high whereas in modern society the rates become low creating in between, therefore, a demographic transition. The theory asserts that there is a transition from a biological model of fertility to socio-economic works of fertility in the process of which a country has to pass through four different stages of population growth:

1. The period of stable (low) population growth
2. The period of rapid population growth
3. The period of continued and declining population growth
4. The period of stable low population growth

During the first stage, a society is typically a largely rural, agrarian and illiterate society, which is characterized by low population growth as both fertility and mortality rates are very high. Death rate is high because of poor diet, inadequate medical facilities, poor sanitation and other natural calamities such as famine, crop failures and flood.

Birth rate is high because in the first place mortality rate is high and replacement requires high birth rate. But children in such society are also likely to be seen as assets and an insurance against old age by parents. Given that the economic value of children is high and the cost of upbringing a child is very low, families will be motivated to have higher number of children. Child labour is highly demanded and large family is regarded as a necessity to increase the family income. In addition, poor knowledge and access to contraceptive methods are likely to aggravate lack of restraint on birth rate. Overall, in this stage the masses are illiterate, technological know-how and productivity are low, the development of non-agricultural sector is at its infancy stage and urban development is limited.

The second stage of demographic transition is characterized by rapid population growth which is believed to begin with economic development. Here, there occurs a wide gap between mortality and fertility which gives rise not only to enormous increase in population numbers but also to significant changes in their demographic structure. As economic development sets in mortality begins to decline first slowly and eventually rapidly while fertility remains high. Because a fall in the death rate is

stages. Coale & Hoover (1958), Leibenstein (1960) nelson (1960) also spelled out the economic implications of demographic transition.

not immediately accompanied by a decline in the birth rate, population begins to grow at an accelerated rate.

As economic situations improve, society's standard of living improves with better balanced diet, access to health facilities and increased life expectancy. Blacker (1947) has subdivided the second stage into two phases: The early expanding phase marked by high fertility and high but declining mortality and the late expanding phase with declining fertility but with mortality declining rapidly. This second phase is presented here as the third stage as is formally done in some studies. Hence, as mortality declines birth rate does not correspondingly decrease. Birth rate could in fact increase following the entrance of large number of people in the reproductive age group.

Thus with the decline in death rate and almost no change in the birth rate, the rate of growth of population becomes rapid. Most of the developing countries including Ethiopia are believed to be passing through this stage. The population explosion in these countries keeps the per capita income at a lower level and stands in the way of improvements in the standard of living.

The third stage is characterized by falling birth rates and low death rates. The population still continues to grow but at a declining rate. Birth rates start to fall as family planning services begin to expand, use of contraceptives increase and other health services such as abortion and sterilization expand. There is also less pressure to have large family as infant and child mortality rates decline. This stage probably characterizes the newly industrializing countries.

The fourth stage characterizes a period of low population growth as both birthrate and death rate decline appreciably. The population is either stable or grow only slowly. The advanced countries are believed to be passing through this stage. Here death rate is low because of high standard of living that characterizes all wide socio-economic development. Dietary options and habits are superb, health awareness and access to modern health service are very high, and knowledge about child rearing/ upbringing is very high.

Birth rate is also low for many reasons. Cost of rearing children (not only in terms of finance but also leisure (time)) is very high. Female work participation is high and there is increased mobility of women labour. Opportunity and capacity for high level

of self realization and enrichment in material, social, spiritual and mental wellbeing exist and people do not want to be constrained by child bearing and rearing. The society is characterized by high degree of urbanization, use of advanced technology and high standard of living.

Broadly speaking, the theory of demographic transition explains the gradual replacement of biological determinants of fertility by a process of rational decision making. This happens as a society progresses from traditional to modern way of life. The three fundamental assertions by the theory can be summarized as follows: That the decline in mortality comes before the decline in fertility; the fertility eventually declines to match mortality and socio-economic transformation of the society takes place simultaneously with its demographic transformation. Although the theory is based on observation of trends in the current highly developed countries, there are signs that developing countries are following similar pattern. However, certain differences and peculiar features are likely to occur as, for example, death rates have recently started to increase in these countries due to HIV/ AIDS.

Some empirical regularities

The empirical evidences in support or against different hypotheses of inter-linkage between population and development are scarce, mainly due to lack of availability of reliable and detailed time series data. Yet, there are repeated studies that have confirmed some fundamental features and characteristics with respect to population growth and economic dynamism. Some of the most important ones are discussed here.

A rapidly growing population with a high fertility rate will definitely mean that a relatively large proportion of the population consists of children. A population pyramid structure with a large base comprising high proportion of under 15-year olds is typically a feature of a developing country. High dependency rate is a common phenomenon in less developed countries.⁴² High dependency rate indicates the

⁴² The dependency ratio is calculated by the following formula: Population under age 15 and above age 65 divided by working-age population (those aged 15-64). A dependency ration of 0.8 mens there are 8 dependants for every 10 working-age people. It is, therefore, a measure of the dependence that non-working people have on working people.

burden of economic responsibility of those who are economically active in providing for those that are not⁴³.

Dependency rate is typically low in advanced countries, which have also low and stable population growth rates. As income level increases, there is a tendency both at micro and macro level for a decrease in household and population sizes respectively.

The crucial point in a theory of population is to explain the factors which determine fertility and death rates. Economic theories of population explain the dynamics of population in terms of utility and cost. Considering that every child involves some types of utilities and costs, micro level economic analyses have, for example, demonstrated the inverse relationship between income level and fertility sizes.

There is a clear evidence, therefore, that raising incomes reduces fertility rates. Household sizes typically go lower as income level increases. This is seen not only among countries but among households within a country. Poor families usually tend to have large family sizes. Hence, tackling poverty is seen by many economists as the key to lowering infant mortality and consequently population growth.

Given that population increase could lead to an increase in the number of young people entering the labour force, it has the potential to increase economic growth. Increases in the population can also lead to an increase in market demand thus stimulating production. However, if the population grows at a faster rate than the level of GDP the GDP per capita will fall.

Both the amount and quality of labour are also important factors in looking at the labour force impact of population growth. The effect depends, therefore, on the educational provision capacity of countries. There are numerous studies that have shown the contributions of improvement in skills of the work force and/ or increment in the size of skilled labour to economic growth. The composition of the population variable especially its age structure is also important as it governs the level of dependency rate.

⁴³ Note, however, that in poor countries there is a large number of people who are underemployed who would be counted amongst the working age population and that many children could, in fact, be economically active either working on the land or in the informal sector of the economy.

The negative effects of rapid population growth on environment in general and specific natural resources such as land and forest in particular are clearly documented and evidenced. This holds true, however, only in so far as other factors such as policies, institutions and level of technology are controlled. Given that such other factors are allowed to change, the negative consequences of population growth need not necessarily happen. Hence, an independent population problem approach is likely to be problematic.

Lastly, it should be noted that the demographic transition stages and typical features in each stage discussed above have been witnessed regularly in the current developed countries and more or less continue to be witnessed among the developing countries and those making transition to advanced economies.

2.2 Controversies on population-development inter-linkages

In spite of the above fundamental facts, there is still considerable debate about appropriate population policy in many LDCs. There are those that argue that populations are growing too quickly and are outstripping the countries resources. According to them, worsening poverty and starvation are the inevitable result of this phenomenon more than anything else. There are others, however, who argue that a growing population will provide the labour and the market for a growing economy. In between, views range from those who argue that there is no discernable linkage to those that emphasize specific objective conditions in looking at the implications of population growth. The major lines of argument are summarized below.

No linkage

Some people see population growth as neutral, whose effects on economic growth can be diluted by technological growth and market expansions. A related argument is that population problem will disappear when other problems, such as the political situations of the country, are solved.

There are also studies that indicate no discernable linkage between population and development. Simon Kuznets (1973), for example, undertook a simple correlation

exercise between population growth and per capita output and concluded that empirical data did not support the hypothesized correlation.

Negative impact

Some studies tried to show how population growth may adversely affect economic development and poverty alleviation by depressing wages, reducing savings rates, degrading natural resources, and so on. On the other hand, other studies indicated how under-development may contribute to rapid population growth due to lack of education, health care, and other basic services. So, when we talk here about negative impact, we are basically referring to the problems that rapid population growth creates.

One of these problems is the capital shallowing effect. When population growth leads to an increase in the labour supply without a commensurate increase in capital supplies, there will be less capital per worker, lower capital-output ratio, and thus output per worker (or productivity) is likely to decline, checking economic growth.

Another effect is demonstrated through higher dependency ratio. As population grows, the labour force as a proportion of the total population falls and proportion of dependents rises. Hence, private savings become lower, as more must be spent on consumption. A larger population size also creates pressure on access and use of social services, public infrastructure and utilities. Hence, a large population size affects the availability of capital per worker and crowds the use of services and infrastructure. Effects on such factors in turn influence the growth performance. Hence, rapid population increase could undermine growth and aggravate the poverty situation through:

- unemployment, low wages, and increasing landlessness in the agricultural sector; and
- overstretching of social services including schools, health centers, and water and sanitation.

A large population size and poverty reinforce each other given that poverty also leads to higher population growth. It is known that low income earning people attach a great value to children as a source of labour, income and security during old age. There is a demand for children due to farm and household labor requirements. High

mortality rates also induce to increase the number of children as a guarantee against the risk of death. Demand for children also arises as an old-age security in the absence of social security programs. Hence, poor economic performance could be a factor for rapid population growth.

Lack of knowledge and orientation about the future implies less awareness of family planning services and less confidence to control one's future, which is a pre-requisite to use such services. Low status of women and lack of empowerment to decide on issues regarding fertility also lead to poor family planning. Hence, poor educational levels and lack of access to contraceptive methods lead to large family sizes, which, in turn, result into rapid population growth.

Rapid population growth can create population pressure with consequent effects on size of land holding, landlessness, and environment and land degradation. Given that most countries supporting high fertility and large average family size are agrarian societies, rapid population growth increases pressure on land, leading to a fragmentation and sub-division of farms, which in turn increases rural unemployment and underemployment.

Positive relationship

On the optimist side, the theory by Ester Boserup (1965) argues that as population increases more pressure is placed on the existing agricultural system which encourages invention of new technologies. Boserup's argument is basically that we would never outstrip our food supply, as technology will always continue to improve to keep up with the demand. Based on observations in Southeast Asia and Western Europe, Boserup emphasizes that human population growth and density stimulate technological changes that increase the productivity of land. Her thesis is based on argument that over the long-run increasing population densities induce a shift to more productive labour and land intensive farming technologies. To the extent that this theory is valid, Ethiopia does not need a policy that is aimed at controlling its population growth.

Population growth does not necessarily have a negative impact on the environment. Recent research in Africa reveals that in some cases increasing population densities, if combined with sound agricultural practices, can sustain the environment or even

stimulate environmental improvements (Leach and Mearns, 1996). In areas where population pressure leads to land shortages, potential environmental impacts depend largely on whether people are able to diversify their livelihoods so that they do not depend solely on the land and have the capital to invest in land improvements. People are not necessarily destroyers of the environment, but can be agents of its management, restoration, and improvement.

According to Jean-Marie Cour, the multiplication of the total population is inevitably accompanied by a redistribution of the population between regions and social categories. The most visible signs of this are the process of agglomeration, the specialization and division of labour and the intensification of trade which lead to the growth of productivity. He concludes, "the effects of agglomeration increase with the size of the towns; the higher the population of these towns, the greater their productivity"⁴⁴.

Another supporting argument referred to by many as *revisionism* was advanced by Julian L. Simon (1981) who radically asserted that increases in population has a positive impact in the medium term, especially in developing countries. By introducing the time dimension, feedback and dynamic effects and the inclusion of population density and size in addition to growth and age structure, he empirically challenged the negative relationship assumed between population growth and economic development.

The argument that population growth can have positive effects is also based on consideration of the facts that higher population densities may decrease per unit costs and increase the efficiency of transportation, irrigation, extension services, markets and communications.

Specific objective conditions matter

There are many people who have identified different but specific objective conditions that determine the effects of population growth on economic performance. Some have emphasized the time horizon taken, others single out issues such as age

⁴⁴ According to Jean-Marie Cour (2003), a high proportion of the increase in the gross domestic product can be explained by the increase in "staple requirements" of households, resulting from demographic growth and urbanization. He argues that the growth in demand per farmer requires and makes possible the increased productivity of farmers and encourages the intensification of agricultural production.

structure, level of economic development, policy framework, governance as determining the nature and extent of impacts of population growth.

Population should not be taken to mean only the increasing number of human beings, the so-called "population explosion". Population dynamics entails much more. It consists of information on people such as who is born, number and conditions of births, how do they grow and when they die, where they live, whether their chances of survival differ by gender and class, what proportion of the population is old, and what proportion is young. All these things affect, and are affected by, the equally complex social, economic, and political processes of development that underlie human security.

A major detailed work on the relationship between population and development was produced by the United Nations entitled "*the Determinants and Consequences of Population Trends*" in 1953. Having identified 21 linkages in the relationship, the study concludes that all kinds of impacts are possible depending on the variable of choice. Nevertheless, a net negative overall impact of undetermined size was considered as a typical feature of most of the developing world.

With the emergence of the growth accounting exercise and the pioneering work of Barro (1997), fertility was considered as a key determinant of long term economic growth. Kelly and Schmidt (1995) also showed that reducing fertility has an immediate positive impact on growth by economizing on child rearing expenses. However, the situation will be reversed in about fifteen years as more people enter their reproductive age. Building on the Barro framework, Bloom and Williamson (1997) also introduced the effect through the changes in the age structure driven by changes in fertility and mortality. Hence, the effects of rapid population growth in short-term versus long-term are likely to be different as is the case depending on different age structure.

In more recent years, emphasis has shifted from macro-economic models explaining the relationships between population growth and development to so-called *vicious circle models* (VCMs), which seek to explain the connections among high fertility, poverty, low status of women, and environmental damage. The effect differs from one country to another depending on a number of factors including economic and demographic structure of the particular country referred to. A particularly well argued

view holds that age structure matters to economic and social development.⁴⁵ Malmberg and Sommestad (2003) emphasize that demographic transition results into shifts in age structure over an extended period.

To summarize, the linkages among population growth, human security, and environmental degradation are complex, multidimensional, and conditional. In a more balanced view, the size and composition of the population is likely to have major influences on many problems including resource depletion, access to and the quality of education and health care, employment opportunities, food availability, the speed of urbanization, and the extent of inequality. Some of the factors that determine the effect of population growth on economic performance include, therefore, time horizon, period in demographic transition (particularly age structure of the population), and level of economic development.

This has motivated the investigation of this particular issue in the Ethiopian context and the inclusion of this chapter in this report. Its overall aim is to see the role of demographic factors in the country's economic growth and development. The fact that the environment in which the Ethiopian economy operates is rapidly changing due to population pressure has reinforced the interest to look into the issue in some depth.

3. The context in Ethiopia

Life is highly insecure for millions of Ethiopians. Recent studies indicate that many households are slipping further deep into extreme poverty and destitution (MoFED (2002), SCU(2002) EEA/EEPRI (2002). The frequency and severity of vulnerability to disaster is increasing rapidly (DPPC (2002). According to Berhanu N. (2003) one of the most critical emerging issues that the country faces is "the disparity between the dominant economic activity (agriculture) and its space requirements on the one hand and the rapid growth of population on the other".

⁴⁵ For details, see, for example, Malmberg, Bo and Lena Sommestad (2003), Population Growth and Socio-economic Development: Effect Analysis Models and Swedish Case Studies, paper presented at the First International Conference on the Ethiopian Economy, January 3-5, 2003, Addis Ababa.

There are many views concerning the impact that rapid population growth has on the extent of poverty the country is facing. The dominant view is that population is the major, if not the only, factor behind the deterioration in the welfare of the people. There are others, however, who argue that other socio-economic, environmental and political problems are to blame rather than population size per se. The latter group identifies policy problems as the root causes of worsening poverty in the country.

The reality on the ground is that Ethiopia is experiencing rapid population growth while at the same time poverty situation is worsening. Average land holding size is continuously declining and landlessness increasing. In parallel, severe environmental degradation, soil erosion and loss of biodiversity is taking place at an alarming scale.

The unavoidable challenge is: should the country spend its scarce resources in controlling population growth (if, indeed, there is the need at all) or should the emphasis lie on some other issues such as increasing productivity? For the alarmists that fuel fears of overpopulation, controlling the growth of population takes precedence. For those that believe development is the most effective contraceptive, taking measures to boost the performance of the economy takes precedence. The issue calls for, therefore, an empirical investigation the result of which is provided in section 3.3.

3.1 Trends in population size and structure

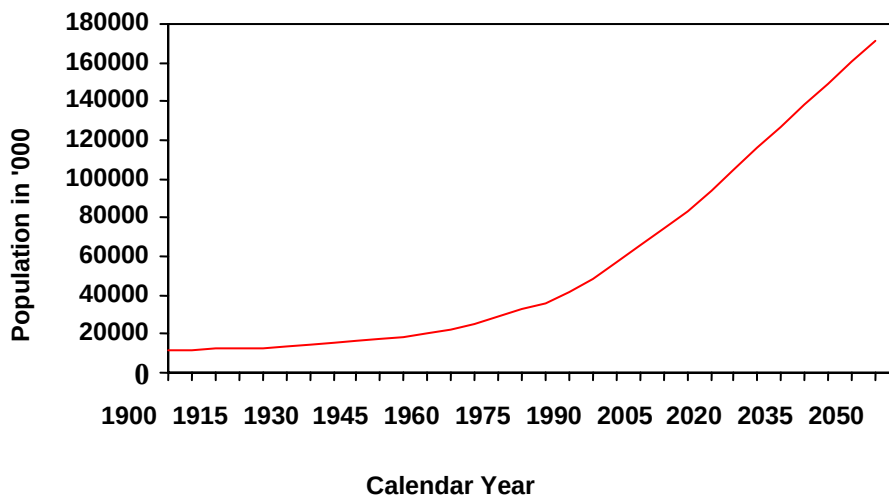
In 1900, the population of Ethiopia was only 11.8 million people, which is almost equal to the present day size of the total urban population. As is depicted in Figure 4.1 below, the trend in population growth was very steady up to the mid 1960s, after which it began to grow rapidly. Hence, not only the total size but also the growth rate of the population have changed during the last century.

At the beginning of the last century, the population growth rate was estimated only at 1 percent per annum. This growth rate increased to about 2.9 percent by the end of the century. Currently, Ethiopia with a total population of 69 million⁴⁶ is the second most populous country in Sub-Saharan Africa, next to Nigeria.

⁴⁶ CSA, 1999: The 1994 population and housing census of Ethiopia Results at the Country Level, Analytical Report, Vol. II. Addis Ababa.

The acceleration in the growth rate is reflected in the doubling period of the size of the population. For example, at the beginning of the last century, it took 60 years for the population size to double, reaching 23.5 million in 1960. It took, however, only 27 years for the 1960 population to increase to 47 million in 1987. Currently, the doubling period is estimated at about 23 years (MoPED, 1994).

Figure 4.1: Population Growth: 1900-2050



Source: CSA (1999) and UN (2002)

According to the official national medium variant population projections, the population will pass the 100 million mark by 2017, i.e., in just a period of 13 years. Even under this favourable scenario (2.43 average growth rate) which assumes a steep decline in fertility, the growth in population will continue to exert serious pressure on the environment, resources and provision of services and infrastructure.

With respect to the demographic transition, Ethiopia is characterized by high fertility and high infant and child mortality rates. In recent years, declining trends are observed both in fertility and mortality levels. Although the decline in mortality and fertility rates is substantial, no significant impact has been made on the population

dynamics. Hence, the demographic factors that contributed to high rate of population growth remain to be high fertility rate and still high but slowly declining mortality rate.

The declines observed are as follows: Under five mortality which was 259 per 1000 in 1960 declined to 172 per 1000 in 2001. Similarly infant mortality declined from 180 to 116 per 1000 during the same period. Decline in fertility level had been witnessed in the 1990s as shown in the Table 4.1 below. The decline is relatively more pronounced in urban than in rural areas.

Table 4.1: Fertility trends in Ethiopia 1970-2000

Residence		Year				
		1970	1984	1990	1994*	2000
TFR	Urban	4.7	6.3	5.7	4.50	3.3
	Rural	5.8	8.1	8.2	7.19	6.4
	Total	5.2	7.5	7.7	6.74	5.9

Source: MOPED, (1994:94), CSA (1997), CSA (2000) TFR = Total fertility rate * the value is the census result of 1994 (adjusted value).

Between 1984 and 1994, the urban TFR declined by 29 percent, from 6.33 to 4.50. Fertility in rural areas declined only by 11 percent, decreasing from 8.08 to 7.19. The level of fertility is still, however, quite high (See Annex). Similarly, in the DHS survey, the urban TFR was only 3.3 children per woman, which is half of the rural level of 6.4 (CSA and Macro International, 2000).

Breakdown by regions indicated that fertility is the highest in the Oromia region (6.4 births per woman) and the lowest in Addis Ababa (1.9 births per woman). Regarding the population distribution, around 85 percent live in rural areas where most of them are concentrated in the northern and central highlands (CSA, 1999).

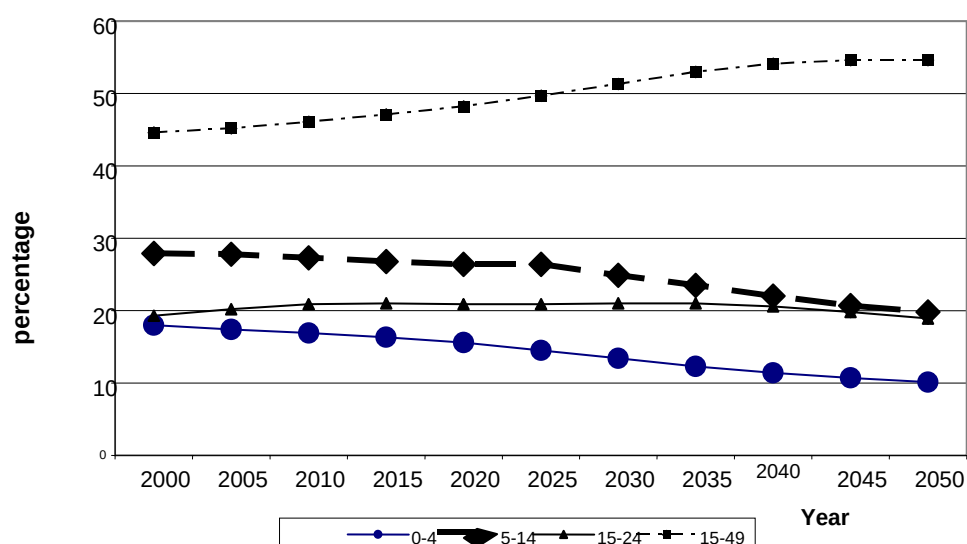
In a high fertility setting, the structure of the population is largely dominated by higher proportion of young age group. In Ethiopia's current population of about 70 million, 44 percent is estimated to be under 15 years of age⁴⁷ which implies a high dependency ratio. Taking into account the high level of unemployment and underemployment and those economically inactive, an economically active person is

⁴⁷ World Population Data Sheet of the Population Reference Bureau, July 2003.

forced to carry more than one dependent person. When the national population policy was issued in 1993, there were 116 inactive persons per 100 active ones (NOP, 2003).

Currently, children (0-14 years) and the youth (15-24 years) account for almost 65 percent of the population. With such a large number of young people in the population structure, the potential for rapid growth still remains high given also that the proportion of women in reproductive age group is very high. Under the declining fertility scenario, the structure of the population in future will be dominated by the youth group which creates an additional burden on demand for social services and infrastructure.

Figure 4.2: Trends in Population Structure (2000-2050)



Source: United Nation population division. World Population Prospect, (2002).

The figure above shows that the youth population (aged 15-24) will be nearly stationary (constant) while the proportion of 0-4 and 5-14 aged children declines. This indicates transformation from children into youth dominated population structure.

The same report shows that the proportion of women in the reproductive age (15-49) increases influencing the future fertility momentum.

Concerning the spatial distribution of the population, about 85 percent live in rural areas. Due to pull and push factors, the urban population is growing more rapidly than its rural counterpart. This is happening in spite of the government's effort to reduce rural to urban migration. Population density is also high in the northern and central highlands of the country (CSA, 1999).

Figure 4.3: Population Settlement Pattern

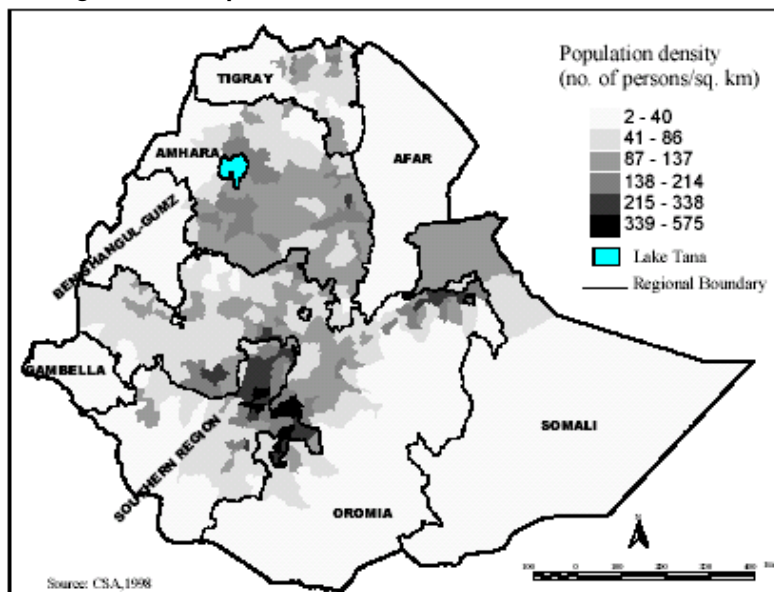


Fig. 1: Population density, by *woreda* 1994

The highest population density is found in the *Enset* growing areas of the southern region, which is as high as 575 persons per km² and the lowest (less than 40 persons per km²) in the low land areas bordering Sudan, Kenya and Somalia.

According to a World Bank report, Ethiopia has the third largest number of people living with HIV/AIDS in the world, causing life expectancy to fall from 45 years in 1990

to 42 years in 2001 (WB, 2003). The disease is, however, unlikely to undermine the significance of population pressure that the country is experiencing in the short to medium term given the current high fertility and youth age structure.

The size of the population is growing by around 2 million people every year, which means an addition of more than five thousand individuals per day or more than 200 persons per hour. Clearly, the population variable has to be integrated in the overall development planning whether its long-term impact is negative or not.

3.2 Policy framework

The government in Ethiopia does not seem to have a clear policy stance concerning the population factor in the development process. Looking at its policies, one is led to believe that the government is in favor of controlling population growth. In fact, it is under the current government that the country adopted its first population policy in April 1993 which aims at narrowing the gap between high population growth and low economic productivity. The policy further states that it aims at reducing rural to urban migration, improving the carrying capacity of the environment and the social and economic status of vulnerable groups such as women, children and the elderly (TGE, 1993).

The government clearly attempts to reduce rural to urban migration. Apart from the questionable merit of such a strategy, it is in direct conflict with the objective of improving the carrying capacity of the environment. What is needed to reduce the burden on rural land and its resources is actually quite the opposite.

Little effort is also made to integrate population issues into other development policies and strategies. Very small space is, for example, devoted to the issue in the major comprehensive policy paper – *Sustainable Development and Poverty Reduction*⁴⁸ – in which it is argued that the population factor is to be taken care of by the population policy and the sector development programs of education and health. In this paper, the government elaborates that the root causes of high population growth are the low education status of women and the high infant and child mortality rates which dictate an increase in girls' education and in the level of mother and child health care as

⁴⁸ Ethiopia: Sustainable Development and Poverty Reduction Programme, FDRE, MOFED, May 2002, Addis Ababa, Ethiopia.

priority interventions. Hence, low priority is accorded to directly population specific programs such as family planning services.

Studies⁴⁹ undertaken recently indicate that there has not been sufficient commitment and support by the government to realize its own objectives set in the population policy. This indeed came to light at the government's own National Conference that was organized to commemorate the 10th Anniversary of the National Population Policy of Ethiopia during July 7-8, 2003 in Addis Ababa. It was indicated that the government did not show commitment by way of allocating the necessary budget for the population program implementation and that it has failed to sufficiently utilize resources generated externally. Moreover, the government has failed to lay out clear execution and coordination mechanisms to integrate the activities of various governmental and non-governmental agencies that are engaged in population related activities in the country. Terefe Degefu (2003)⁵⁰ also indicated that there was a long delay in the establishment of regional population bureaus which still get inadequate support and remain poorly organized.

Regional governments in the country are also unlikely to take the population control agenda seriously for various reasons. In the current ethnic based federal structure and political movements, each ethnic group is motivated to assert its presence and influence through increasing the size of its population. For example, area demarcation into a specific ethnic based district/region is made using the criterion of population size.

Subsidy to regional governments is also mainly based on population size criterion. The larger its population size, the higher the level of subsidy to a particular region. It is not surprising, therefore, that regional governments repeatedly claim that their respective population size is higher than indicated by the Central Statistical Authority (CSA). The fact that the population issue is highly politicized is likely to be the reason for the current postponement of the third census, which was due this year but is postponed to 2005.

The party in power has its structures only in the four regions that have large population sizes. Policy design and program formulation is largely dictated by what is

⁴⁹ See in Assefa Hailemariam (PhD), DTRC, AAU and Sisay Worku, National Office of Population (2003): "Policy Implementation: Achievements and Challenges".

⁵⁰ In "Nation" Newspaper, V.2, No. 75, December 13, 2003.

going on in these four regions. Typically, new initiatives and pilot programs are commonly first implemented in these regions, which overall seem to have attracted priority focus. By pursuing an overall policy of 'the majority prevails', the government indirectly promotes higher population growth.

The aim at this stage is not to advocate a particular stand on population issue but to argue that lack of a clear policy stance leads to contradictory measures which in turn lead to waste of resources, which the country can ill afford. If the government does not believe in population size as a bottleneck to growth, then it should rather abolish its policy and institutional structure that currently consume huge financial, material and human resources.

3.2 Population growth impact on social services

Availability and use of social services are important dimensions of welfare to a society. Consumption of basic services is an end by itself but also a means to growth. In particular, human capital is formed through consumption of adequate and quality social services. It represents the stock of skills that a person possesses which are the result of education and experience; and a person's health, which is the result of access to food and health care together with safe water and sanitation.

Improving poor people's human capital directly benefits them because human capital is like physical capital in that it yields a rate of return. Making the poor healthier and more skilled directly raises their well-being. The sense of shame that the poor often feel and the social exclusion arising from it are also reduced with increased access to basic services.

If access to social services improves human capital, which, in turn, contributes to growth, then growth in population is likely to affect economic performance through its effect on use of social services. As was mentioned at the beginning, development is also defined in terms of improvement in general wellbeing of the people. Hence, by affecting access and use of basic services, population size and distribution will also have a direct impact on achievement of development.

Education

Expansion of education at all levels helps achieve more rapid technological adaptation and innovation and better natural resource management. It is also one of the most powerful instruments societies have for reducing deprivation and vulnerability. It helps raise earning potentials, expands labour mobility, promotes the health of parent and children, reduces fertility and child mortality. In other words, most problems that could arise from rapid population growth could be addressed through expansion of the education system. Ethiopia's weak educational base is, however, unlikely to play such a positive role in the face of huge unmet needs that the country is currently facing.

According to the 1994 census, only 23.4 percent of the country's population was literate. To date, about 40% and 87% of primary and secondary school age children respectively, are still out of school. Based on information from MoE, only about 60 % and 13% of the children are enrolled in primary (grade 1-8) and secondary (9-12) education, respectively. Hence, 2 out of 5 primary school age children and 9 out of 10 secondary school age children could not get access to schooling. As discussed in detail in EEA/ EEPRI working paper on education quality and financing in Ethiopia, there is a growing crisis in the sector in terms of availability and condition of educational facilities. These include overcrowded classes, low level of teachers' qualifications and motivation as well as non-conducive overall learning environment. The increase in population size will further aggravate the problem by widening the gap of unmet need for school enrolment. In particular, attaining the millennium's development goal - universal completion of primary education by 2015 - is unlikely to be achieved given the continuously increasing school age population.

Under the current TFR scenario, the total number of primary and secondary school age population will reach 23 million and 4.6 million, respectively, by 2015 (see the tables below). To maintain the current status, the resource implications in terms of teachers, schools and expenditure required is huge.

Table 4.2: Resources required to maintain current status at primary level

	School age population	Students	Teachers required	Schools required	Expenditure in Birr
2000	14,179,114	8,734,334	174,687	12,959	104,812,008
2005	16,458,538	10,138,459	202,769	15,042	121,661,504
2010	19,181,184	11,815,609	236,312	17,531	141,787,312
2015	22,955,332	14,140,484	282,810	20,980	169,685,808
2020	27,478,460	16,926,730	338,535	25,114	203,120,768

Source: Extracted from Daniel Assefa (2004).

Table 4.3: Resources required to maintain current status at secondary level

	School age population	Students	Teachers required	Schools required	Expenditure in Birr
2000	2,915,031	498,470	12,462	297	104,180,304.00
2005	3,515,566	601,162	15,029	358	125,642,816.00
2010	4,060,379	694,325	17,358	413	145,113,872.00
2015	4,643,607	794,057	19,851	472	165,957,872.00
2020	5,670,063	969,581	24,240	577	202,642,384.00

Source: Extracted from Daniel Assefa (2004).

The projection of school age population made in the above tables is based on the assumption that the current TFR remains unchanged. CSA has also made projection of school age population using high, medium and low population growth rates for three age categories: 7-12, 13-14 and 15-18 years for primary (grade 1-6), junior secondary (grade 7-8) and senior secondary (grade 9-12), respectively (CSA, 1999). Accordingly, the primary school age population will increase by 49% by year 2015 taking 2000 as a base year. The implications to the achievement of universal primary education and the enormous pressure that would be created on secondary and tertiary levels of education should be obvious.

Health

Ethiopia's basic health status relative to other low-income countries is poor (largely attributable to potentially preventable infectious diseases and nutritional deficiencies) (MoH, 2000/01). According to the Ministry of Health estimates, over 80% of the health burden from all causes is preventable and related to only ten communicable diseases that occur in the form of epidemics (EHNRI, 2002). High child mortality and malnutrition levels coupled with the problem of preventable infectious diseases make the country very vulnerable. Epidemic-prone diseases such as malaria, meningitis, cholera, measles and shigellosis are prominent health problems.

Maternal and child mortality rates, which are closely related to reproductive health, are among the highest in the world. According to the recent DHS survey, maternal mortality is 871 per 100,000 women of reproductive age and under five mortality is 166 per 1,000 (CSA and Macro International, 2000). One out of 11 women is likely to die from pregnancy related complications. The comparative figure for Europe and the United States is one out of five thousand.

Lack of access to clean water also aggravates health problems such as diarrhea and other water born diseases. Water supply service in Ethiopia is among the lowest in Africa. Only 19 percent of the rural and 80 percent of the urban population have access to safe water. At the national level, the total coverage is only 26 percent (Dessalegn, 1999). More recently, a World Bank report (2003) indicated that only 24 percent of the people have access to clean water. Hence, about 76 percent of the population still faces high risk from water born diseases. Access to excreta disposal is 49.7, 3.9 and 11.5 percent for the urban, rural and for the country as a whole, respectively.

In general, widespread poverty, high malnutrition, low education levels, inadequate access to clean water and sanitation facilities have contributed to the high degree of ill-health in the country. This situation is likely to be aggravated by rapid population growth which creates an additional strain on health services in the country.

The primary health service coverage was only 61 percent in 2002 (MoH, 2001/02) which moreover varies significantly from region to region. See the table below for trends in the recent past.

Table 4.4: Additional number of primary health prevention institutions and manpower required to maintain health coverage (2005-2030)

Year	Population	Required health post	Required no. of health center	Required no. physician	Required no. of nurse
2005	73,044,000	13,298	2,510	5,416	1,771
2010	83,483,000	2,088	418	1,044	2,088
2015	94,526,000	2,209	442	1,104	2,209
2020	106,003,000	2,295	459	1,148	2,295
2025	117,586,000	2,317	463	1,158	2,317
2030	129,059,000	2,295	459	1,147	2,295
Total required		24,501	4,750	11,018	12,974
2002*	67,220,000	1,311	412	1,888	12,838
No. of times (by 2030)		19	12	6	1

* 2002 was considered as base year for the projection.

Source: Asfaw Y. (2004) "The Nature and Extent of Population Growth Impact on Social Services"

Overall, rapid population growth exacerbates critical gaps in the provision of basic services especially when the economy is not performing well. Moreover, as decline in

fertility continues, the population structure shifts from children to youth group domination, which in turn results into high demand for basic services and infrastructure. One of the results of the AIDS/HIV epidemic in Ethiopia is also likely to be increased mortality rate amongst working age population. The epidemic is likely to create significant burden on the limited health service provision capacity the country has. So, the pressure on social services is likely to grow more under the declining fertility scenario where the youth population needs more training and education as well as health facilities and employment opportunities.

3.4 The impact of population growth on economic performance

For the optimists, the rapidly increasing population size in Ethiopia is likely to result in enhanced growth in the future. This is possible, according to proponents of such a theory, when population pressure finally results into technological innovations and adaptations. However, the question is the point at which population pressure induces technological breakthroughs, if indeed, it does so at all. It is also important to understand other factors that are crucial in this interplay.

Ethiopia is not at present experiencing technological shifts although the population pressure is exerting a tremendous burden on its economy and natural resources. Is the burden not yet too much or are there other factors that are preventing the unleashing of dynamic forces? Further studies are required to investigate how population pressure might lead to economic dynamism and the conditions under which such interplay could materialize.

The question that needs to be answered is whether there is an optimum population size that the country could support. Is it really hard for the country to support the current population size given its natural resource potential, especially the agricultural potential? At any given moment, there should be an optimum population size which corresponds to a given level of productivity and to the utilization of specific technologies.

Given the realities on the ground, which are worsening living conditions and environmental degradation along with rapid population growth, it is not surprising, therefore, the dominant view held in the country is that population growth is

responsible for the abject poverty in the country. This section tries to depict a more realistic scenario examining different issues that have strong bearing on the performance of the economy.

Land holding size

One of the noticeable effects of rapid population growth in Ethiopia is declining land holding size, which is accompanied by growing landlessness. This effect is crucial given the fact that small-scale agriculture constitutes the basis of the national economy. Many studies have shown that the land holding size is one of the main constraints for achieving food security in Ethiopia⁵¹.

Table 4.5: Trend in the agricultural population, output and resources (1960-2000)

Year	Population (in million)	Per capita food output (in kg)	Per capita land holding
1960/61	23	240.2	0.28
1969/70	28	242.7	0.25
1979/80	36	204.4	0.14
1989/90	48	141.7	0.10
1999/00	63	140.0	0.09

Source: Befekadu D. and Berhanu N., 1999/2000 page 85 and CSA.

Over the past four decades, the population size has increased almost 3 fold whereas per capita food production and landholding declined by 42 % and 68% respectively. According to Masefield (2000), the average landholding size in the Ethiopian case would be insufficient to feed a family of five even if production could be successfully increased three times using improved technologies.

The average landholding size will continue to decline unless the current land tenure system and the overall development strategy are changed. It is possible, however, to envisage a totally different scenario assuming that necessary and appropriate measures will be taken to promote urbanization and rural to urban migration as well as large scale agricultural production.

⁵¹ See, for example, Economic Focus, issue no. 4, 1998; Yared Amare, ed. (2001), Food Security and Sustainable Livelihoods in Ethiopia.

The CSA Agricultural Survey of 1996 shows that 47% of rural households have a percapita holding that averages less than 0.5 hectare and that one third of households are unable to produce adequate food supply for their own family. Jean-Marie Cour (2003) raises important questions: If the agricultural population continues to grow at some 2.5% per year as it did in the past ten years, what will be the average size of the family farm in ten and twenty years? The 1994 population census shows that the number of the so-called 'rural unpaid family workers' in the 'active rural population' increased from 37% to 55% between 1984 and 1994. What will be the situation in ten years and twenty years? For him, persistent poverty in rural areas is a result of excess primary population and argues that the average monetary income per farmer will grow in a sustained and significant manner only if the domestic market per farmer expands. Raising the productive capacity of the rural poor is not enough unless the market for their goods and services is expanded. He concludes that in developing countries, where the population growth rate is still high and which are subject to intensive internal migration, "management of the population process is one of the essential factors in development strategies".

As was indicated earlier, Jean-Marie Cour argues that population pressure is inevitably accompanied by a redistribution of the population between regions and social categories. This is reflected, according to him, through the process of agglomeration, the specialization and division of labour and the intensification of trade. Since these factors lead to the growth of productivity, the concentration of population in urban areas can be taken as a process towards higher economic growth.

Environmental and degradation

According to a government report⁵², one of the main reasons for land degradation in Ethiopia is population growth and the consequent addition of marginal land into cultivation. Both environmental degradation and rapid population growth are occurring in Ethiopia simultaneously. This need not necessarily lead, however, to the conclusion that population pressure is causing the degradation. According to Terefe Degefu (2003) there are various reasons why, for example, deforestation takes place: socio-cultural factors, technological challenge, institutions, market and politics.

⁵² FDRE, "National Review Report on the Implementation of Agenda 21". Addis Ababa, March 2001.

Although a large population size could be a factor for environmental degradation, he argues that one needs to investigate the root causes behind. The most appropriate question to raise is why are people cutting the trees? If growth in population size is supported by measures to move people out and encourage employment elsewhere, the negative impact on the environment need not happen. Moreover, it needs to be carefully studied why people are no more protecting their surrounding environment.

Population variables (growth, density, and distribution) are not explicitly included in the entitlements framework, yet proponents of this approach cite case examples where population growth did not necessarily lead to environmental decline or increasing poverty. A frequently cited example is Machakos District in Kenya, where increase in population density went hand in hand with improvements in soil fertility and local livelihoods (Tiffen *et al.*, 1994).

Conflict over resource use

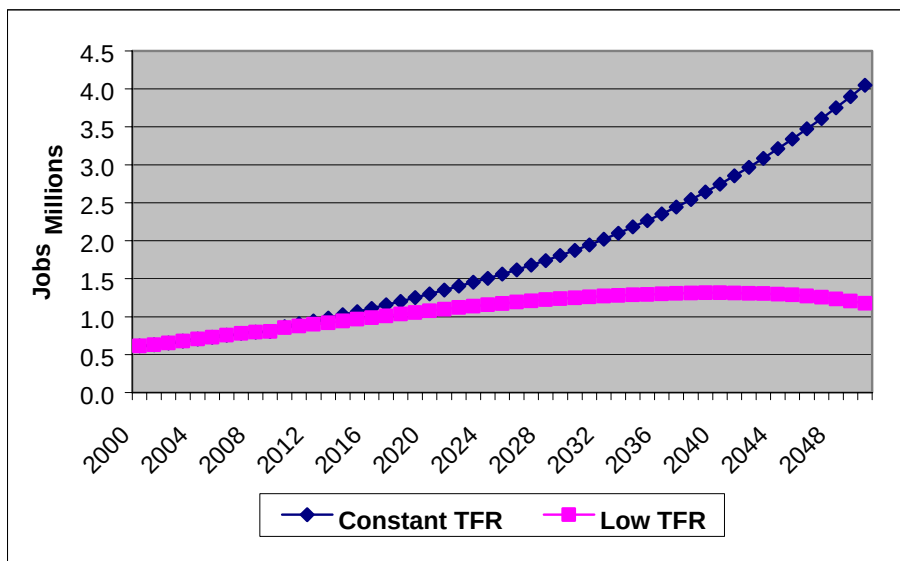
Population pressure is also leading to tribal and boarder conflicts over the control and use of resources such as land and water in various parts of the country. According to Yohannes (2003)⁵³ (cited in Daniel (2004)) violent and non-violent conflicts occur in areas surrounding woodlands of the Rift Valley Lakes mainly contesting for firewood and charcoal sources; cropping area conflicts occur between *Siraro Arsi* and the *Alabas* and conflicts are also common between *Somali* pastoralists and *Oromo* farmers particularly in *Afder* and *Borena* areas where there is also a conflict between *Borena* pastoralists and *Konso* farmers. Incidences of conflicts are also witnessed between *Afar* pastoralists and *Amhara* farmers in Shewa Robit area, *Karayu* pastoralists and *Ittu* croppers in the Middle Awash valley. The recent conflict in Gambella region involving different tribes in the area could also be related to resource use conflict. The damage caused by these conflicts, although it is not properly studied and quantified, is likely to be huge. Apart from physical and human resources directly damaged, the rapture of socio-economic ties and development of mistrust and hostility will substantially undermine the spirit of unity and overall development efforts in the country.

Employment opportunity

⁵³ Yohannes Habtu in Gedion Asfaw Ed.; FSS Civil Society and Environmental Policy Dialogue, the Nature and Consequences of Environmental Problems in Ethiopia, Addis Ababa

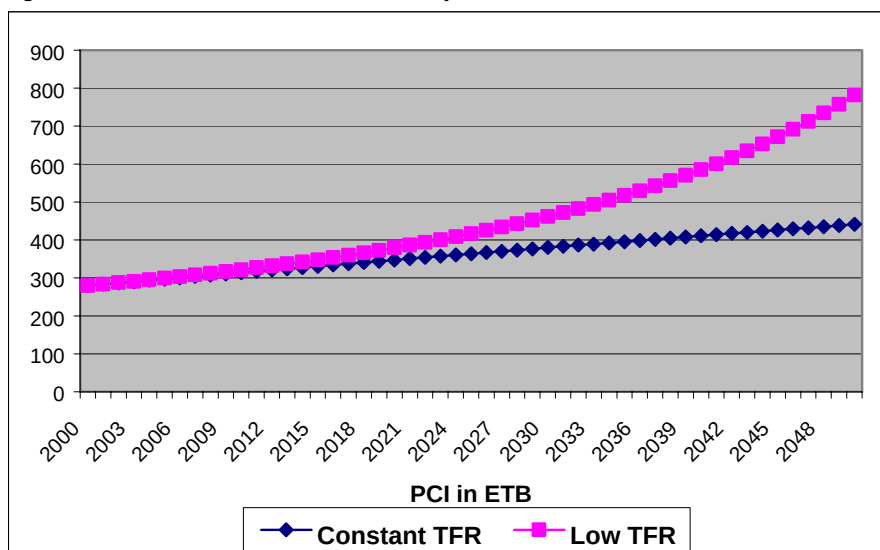
According to the 1999 National Labor Force Survey (CSA, 2000), the unemployment rate at national level is 3.1 while it is 30.7 in Addis Ababa and 15.5 in other urban centers of the country. This is without undermining the fact that there is huge underemployment in rural areas. There are both social and economic costs of unemployment. According to Daniel (2004), in order to maintain the current unemployment level by 2050, an average of 1.8 million jobs per year need to be created for the next fifty years. Even under the highly optimistic scenario of reduction in TFR from the current 5.9 to a replacement rate of 2.1 by 2050, the additional jobs required per annum, on average, will be slightly above a million.

Figure 4.4: Effect on unemployment: Additionally required new jobs every year



Source: Daniel Assefa, 2004.

Figure 4.5: Effect on PCI in constant prices



Source: Daniel Assefa, 2004.

Even with the highly optimistic 4.5% annual average growth rate of the economy, the PCI will not significantly grow in the coming 50 years. If we look at the average PCI using the inflation adjusted GDP which is a good indicator of change in the performance of an economy across time, by 2050 there will be a one fold difference in PCI just because of the population factor.

Empirical evidence⁵⁴

As in the theory, findings of empirical investigations depict mixed signals concerning the interplay between population and economic growth. Some of the major works are summarized below.

Bloom et al (1999) used cross-country regression equations to examine the determinants of economic growth in Asia for the period 1965-1990, using two track equations. In the first stage, the determinants of economic growth have been

⁵⁴ This sub-section is based on the background paper prepared on "Investigating the Link between Population Change and Economic Growth" by Fantu Guta and Tadele Ferede for the purpose of this report. The background paper will be published in the form of an EEA/ EEPRI working paper following the dissemination of this report.

estimated in which instrumental variables have been employed to avoid reverse causality between economic growth and growth rates of total and working age population. In the second stage, the behavior of growth determinants have been examined. In particular, attempt was made to account for the effects of demographic variables on growth by including a number of demographic variables such as growth rates of total and working age population, the proportion of the initial working age population to total population, life expectancy and population density. The results of the study indicate that demographic variables have significant effect on economic growth. While total population growth has a detrimental effect on growth, the growth of working age population has a statistically strong and positive impact.

Higher life expectancy has also a positive effect on growth. The argument is based on the fact that as people live longer, they can save more to ensure that they have enough assets put aside for a long period of old age. Life expectancy can also be taken as an indicator of health status of the population. Population density has, however, a negative effect on economic growth.

Bloom and Williamson (1997) have also introduced demographic variables into the growth model to account for the dynamics of population growth on the growth process of East Asian countries. The results of the study indicate that population growth has a temporary effect on economic growth. The effect of population on growth arises from overall growth rate and age structure of population. Possible channels of transmission are changes in the growth of labour force, saving rate and investment rate. It has also been predicted that demographic change tends to depress East Asian growth while it promotes economic growth of Southeast and South Asian countries.

Pretchett (1996) used cross-country regressions based on time series data to establish the link between population growth and the rate of economic growth. The results of the study indicate that there is no correlation between the growth rate of capital per worker and population growth rate. Moreover, it has also been pointed out that there is weak or no negative correlation between measures of total factor productivity growth and population growth. Key implications of the study are the fact that rapid population growth does not necessarily lead to lowering the growth rate of capital per worker and schooling per worker.

Studies in Ethiopia

Studies that attempted to investigate and quantify the effect of population pressure on the pattern and pace of economic growth in Ethiopia are scanty and mainly theoretical. No empirical study is known to exist that established quantitatively the link between demographic dynamics and economic growth in Ethiopia.

Seyoum (2000) studied the relationship between population, natural resources and environment in the Ethiopia context and concluded that rapid population growth has adverse effects on the economy such as rapid decline in soil quality, depletion of forest resources and reduced farm size. Getachew (2003) also tried to assess the impact of population pressure on the Ethiopian economy and indicated that rapid population growth has a negative impact on crop production, environment, savings, investment and social infrastructure. High unemployment rate and enormous demand pressure on education and health services are ascribed to rapid population growth rate.

Mulat and Bekele (2003) examined the impact of population pressure and declining farm size on the use of improved farming practices. The study has shown that rapid population growth has led to severe land degradation, reduced yield, loss of soil fertility and unsustainable farming intensification. Hence available studies, at least descriptively, point that population growth is not compatible with good economic performance which rather retards saving and investment growth and leads to severe environmental degradation.

Fantu and Tadelles (2004) tried to model the nexus between demographic change and economic growth with the purpose to identify and quantify impacts of changes in demographic variables on economic growth. They used a simultaneous equations approach to take care of the interdependence between population and economic growth in the Ethiopian context. The first equation aims at identifying the determinants of economic growth where demographic variables are entered as arguments in the growth equation and in the second, the population dynamics is modeled where economic growth is entered as one of the explanatory variables. Simulation exercises were made to evaluate the impact of population changes on the future performance of the country's economy. See Annex D.6 (Technical Note) for details of the model.

The data set used in the estimation of the empirical model described in the Annex is obtained from different sources. Information on economic variables such as per capita income, investment, and openness are obtained from the national accounts statistics of the Ministry of Finance and Economic Development. The demographic variables are obtained from the reports of the Central Statistics Authority and the United Nations Population Division. Whenever time series information is lacking, the authors used projections to fill the gap. The sample spans from 1980 to 2002.

Ethiopia's economic growth rate has been highly erratic and volatile during the period under consideration. Population data used, on the other hand, is relatively stable and does not show any significant fluctuations over the study period. Hence, there seemed to be no systematic relationship between economic and population growth in the country.

The study reveals that all demographic variables have the expected signs with the exception of life expectancy, which turned out to be negative in this case. The effect of total population growth rate on the income per capita is found to be negative but statistically insignificant. In addition, negative association between the growth of working age population and economic growth has been found in the study. One simple but plausible explanation for this apparent negative relationship may be the existence of huge unemployment. The study indicated that both total population and working age population densities have negative influence on per capita income. With regard to reverse causation, the authors did not find any significant impact of income on population growth rate.

After estimating the demo-economic model, an attempt was made to generate predictions about the likely impacts of changes in the growth rate of the population on per capita income. The first scenario simulates that population growth declines by 1%, keeping other factors constant which results in an increase in the growth rate of income per capita by about 0.20%, whereas in scenario 2, where population growth rate declines by 2% results in an increase in the growth rate of income per capita by about 0.40% during 2003-2007. The implication is that population reduction alone would not bring significant welfare gain to the society. The overall finding of the study is, therefore, that population growth does not have a statistically and economically meaningful impact on the growth rate of the economy. Moreover, no evidence of

causality is found in both directions about the link between economic growth and population growth.

4. Conclusions and recommendations

The relationship between population and development is complex. The complexity of this linkage and many theories and views that surround it are as controversial as they are stimulating. In reality, an increase in population size has an effect on growth and vice versa. The interplay is, therefore, both ways and subject to many objective factors.

This is confirmed by different studies that were conducted recently across countries. The studies have confirmed that population does matter to development, albeit the fact that there are a number of factors that determine the nature and magnitude of the effect of population growth on the economy. Hence, the effect differs from one country to another depending on a number of factors including the economic and demographic structure of a particular country.

In this chapter an attempt was made to closely investigate the issue in Ethiopia. In terms of the demographic transition stage, Ethiopia seems to be at the second stage, which is marked by rapid population growth that occurs as a result of high fertility and relatively low mortality rates. There are, however, specific features that characterize and determine the interplay between population and development in the country.

Population pressure is not, for example, equally felt everywhere in the country. In lowland areas and relatively less developed regions such as Benishangul-Gumuz, Gambella, Somali, etc. population pressure is unlikely to be a factor of development impediment. It is also true, however, growing population in rural areas of other regions has led to a reduction in per capita land size available for farming particularly in highland areas. The fact that Ethiopia is a large country dictates, therefore, the need to look at the issue taking specific circumstances in different parts of the country. The development of area based population programs that are well integrated into local development programs are recommended rather than pursuing a nationwide blanket policy.

There is convincing evidence that fertility level in Ethiopia is on the decline. This is probably a result of high level destitution and misery and access to contraceptives in urban areas mainly supplied by NGOs and other donors. Studies suggest, for example, that the low fertility level in Addis Ababa is due to shortage of income, poor access to employment opportunities and lack of adequate housing. The decline should not be taken, therefore, as a sign that Ethiopia is edging towards the third stage of demographic transition. It is rather a result of a combination of both increased awareness and access to contraceptives as well as extreme poverty situation. This feature, which is more of an urban phenomenon, is absent in the classical demographic transition theory. Its implication is that people can make rational decision if forced by livelihood circumstances and provided that they get access to information and services. Low cost or free family planning services need to be, therefore, expanded and targeted on low income groups, particularly in urban areas.

The HIV/ AIDS pandemic should also inform the debate about population issue in Ethiopia. The disease is likely to aggravate morbidity and mortality situation in the country. Its influence on sexual behaviour and age of marriage as well as fertility decision via its effects on overall economic conditions are important factors and need to be studied in detail to inform policy decisions.

Ethiopia has also diverse natural resources that are not yet explored fully and utilized well. On the other hand, the technologies in use are traditional and rudimentary. Given this situation it is difficult to confidently say that the current population size is beyond the optimum. The main issue for Ethiopia is likely to be how to effectively and efficiently mobilize and utilize available resources so that its potentials are exploited to the maximum possible.

Based on observations in Southeast Asia and Western Europe, Boserup emphasizes that human population growth and density stimulate technological changes that increase the productivity of land. Whether this theory holds for Ethiopia needs to be studied by comparing, for example, techniques of production in densely populated areas such as Wolaita to those found in less densely areas such as the Somali area.

The empirical analysis conducted for this report indicates that population growth does not have a statistically and economically meaningful impact on the growth rate of the economy. The correlation between economic growth and population growth is found

to be statistically insignificant at 1% level. Moreover, no evidence of causality in both directions is found concerning the link between economic growth and population growth. Simulation results also suggest that a decline in population growth will only have a marginal effect on the economy. Hence, considering the above points the population issue is unlikely to be a priority development agenda, at least at the national level and in the immediate future.

It is no wonder also no major achievement seems to have been made through population intervention in the past. In fact, the ten year review performance (1993-2003) of the population policy in Ethiopia mainly highlighted only problems of implementation and coordination. Progress made in achieving one of the major targets of increasing contraceptive prevalence from 4 to 44% is discouraging with the current rate of only about 8 percent (CSA and Macro International, 2000). The decline in fertility mentioned above is unlikely, therefore, to be attributed to action by the government or the implementation of its population policy. Deteriorating welfare conditions have probably played key role in the reduction of fertility than the ten years of implementation of a population policy that has not led us anywhere.

It is possible that in remote areas some women want to practice birth control but lack the knowledge and services. Studies show that over a third of women in the reproductive age group would like to either control having children or stop giving birth completely, but they have no access to family planning services. Given that the government is not currently investing much on promoting family planning services which are mainly funded by donors, the government should attempt to make the services available to the urban poor and those in remote areas.

Provision of family planning services should not necessarily be justified from the point of population control but from giving citizens the choice and capacity to address one's own problems. Access to basic reproductive health services, especially family planning, for example, can improve child survival rate and decrease maternal mortality.

Apart from fertility, other dimensions of welfare such as access to resources and services, income, migration and urbanization and age structure of the population are issues that require closer attention. Hence, the best approach would be to view population policy as an issue beyond mere control of population growth and one that needs to be tackled based on area specific approach. For this reason, different

approaches should be used in different parts of the country and focusing on integration of population dynamics with the structure of the economy.

Other dimensions of a population policy such as poverty, service provision, creation employment opportunities, environmental protection, production and distribution of resources need to be given more attention in area specific population program designs. From the long term perspective, the focus should be on attaining sustainable improvement in welfare of the people which by itself leads to lower fertility.

CHAPTER V

THE ETHIOPIAN MANUFACTURING INDUSTRY: THE STATE OF MANUFACTURING AND STRUCTURAL PROBLEMS OF THE SECTOR

1. The state of the manufacturing sector

One of the key indicators of the degree of industrialization of an economy is its production structure as reflected by the relative contribution of the economic sectors to the overall national income. In highly industrialized economies the contribution of agriculture to the national income is very small - in the order of less than 5 percent, while the share of industry is about six times greater. [Table 5.1] For least developed, traditional economies, the reverse is the case. Ethiopia is typical of the latter. The contribution of industry, particularly manufacturing, to the overall national income of the country is one the lowest in the world, a sign post of its least industrialized economic structure.

Table 5.1: Output structure (sectoral value added as percent of GDP)

Country Group	Industry		Manufacturing		Agriculture		Services	
	1990	2001	1990	2001	1990	2001	1990	2001
High income group	33	29	22	20	3	2	64	70
Low income group	30	22	16	18	29	24	40	45
Sub-Saharan Africa	34	28	17	15	18	16	48	56
Ethiopia	13	11	8	7	49	52	38	37

Source: World Bank, World Development Indicator, 2003

As shown in the same table, in 2001 the contribution of manufacturing to national income (7 percent) is about seven times less than the share of agriculture, which is 52 percent. It is also less than half of the average for Sub-Saharan Africa. Moreover, through out the decade its share remained, if any thing, stagnant or declining. Thus,

the manufacturing sector in Ethiopia is the least developed even by African standard. The structure reveals a dominant agrarian economy, which does not seem to make any structural improvement overtime towards industrialization.

The dwarf manufacturing sector currently generates a value added (at factor cost) worth less than 300 million US dollars annually – the maximum recorded being 287 million in 2001.⁵⁵ [Table 5.2] This implies a per capita production of less than five dollars per year, and hence the inevitable dependence on imports for even basic manufactured goods. Since the second half of the 90s⁵⁶, 1996-2002, manufacturing growth has been limited, on average, to 1.8 percent annually.⁵⁷ Moreover, being dependent on agriculture (itself largely nature driven and a victim of manmade policies) and imports for its inputs, growth over the years has been marked by a cycle of variation. For instance, there was a surge of production in 2000, while a significant decline was recorded in 1998, 2001 and 2002, on the other. In 2001 and 2002, value added of the sector decreased consecutively by significant margins, 7.9 and 8.8 percent, respectively. Apart from the adverse impact of the poor performance of agriculture and external oriented shocks, the manufacturing sector has also been significantly affected by political instability and recent SAP driven (hasty) opening up of the economy, which led to the closing down of many firms.⁵⁸

Table 5.2: Manufacturing value added (factor cost)

Year	Value added (000 dollar)	Annual growth (%)	Per-capita VA. (doll)
1996	253202	----	4.5
1997	260981	3.1	4.5
1998	224048	-14.4	3.7
1999	228557	2.0	3.7
2000	312354	36.7	4.9
2001	287617	-8.0	4.4
2002	262304	-8.8	3.9

Source: Survey result and CSA's Report on LMSME industries survey (various issues)⁵⁹

⁵⁵ Values in Part Two are given in US dollars to facilitate easy comparison with corresponding values of other countries. The annual marginal exchange rate is used to convert Birr values into USD. [NBE, QB, Vol. 18, No. 2]

⁵⁶ For details of the first half of the 90s, see Befekadu and Berhanu, First Annual Report on The Ethiopian Economy, vol. I., 1999/2000.

⁵⁷ For the period 1999 to 2002, the Institute's survey on manufacturing industries is used [Annex E.1], while for the remaining years CSA's data on LMSM industries survey is employed.

⁵⁸ For the details on the impact of trade liberalization on manufacturing industries, see Befekadu D. et. al Second Annual Report, vol. II., 2000/2001, pp. 112-113.

⁵⁹ For the second part of this Report, EEPRI's survey results are used for the period 1999 – 2002. For the rest of the years, various the Central Statistical Authority's (CSA) report on Large and Medium Scale Manufacturing and Electricity Industries Survey (LMSME) is employed.

Over the same period, 1996-2002, though many firms in various consumption goods industries such as footwear, edible oil, etc., were closed down as a result of the lack of competitiveness in the domestic market following the abrupt opening up of the economy – specifically a steep reduction in tariff rates, dumping and illegal market operation, the total number of firms has increased by 6 percent annually as new entrants outnumber out going ones. [Table 5.3] Despite the increase in the number of firms, however, labor employment has not shown any change; if any thing, it is one of a declining trend. This must be because a large number of industries have reduced their capacity of operation (see Chapter Seven) significantly thereby reducing their labor force. It is also likely that newly entering firms are either not yet operating at normal capacity or are less labor intensive than closing down industries. The retrenchment, mainly in public firms, might also have contributed to lack of growth of the labor force.

Table 5.3: Manufacturing firms and production workers

Year	Firms		Production workers	
	Number	Growth	Number	Growth
1996	623	---	51599	---
1997	703	12.8	51968	0.7
1998	725	3.1	52026	0.1
1999	743	2.5	51732	-0.6
2000	737	-0.8	50203	-3.0
2001	766	3.9	47426	-5.5
2002	880	14.9	50201	5.9

Source: Survey result and CSA's Report on LMSME industries survey

2. Structural weakness of the sector

2.1 Structural linkages of manufacturing with the rest of the domestic economy

The structure of industrialized economies reveals strong and balanced internal linkages between the manufacturing and the rest of the sectors: agriculture, mining, construction, transport communication, etc. This shows the capacity of the manufacturing sector to produce and supply capital, intermediate and consumption goods demanded by all other sectors of the economy. But non-industrialized economies are characterized by internally loose as well as unbalanced forward and backward linkages between economic sectors. This leads to structural dependency on the external economy. The least industrialized Ethiopian economy is a manifestation of this problem.

Table 5.4 shows the value of raw material inputs flow from the real sector of the domestic economy, i.e., agriculture and mining, and from the rest of the world (imports) to industry.⁶⁰ It also shows the value of manufacturing output used as inputs by agriculture and manufactured export.

Table 5.4: Sectoral flow of raw material inputs 2002 (000 USD)

Economic sectors	Agriculture	Manufacturing	Mining	ROW	Aggregate input
Agriculture	---	829	---	61131	61960
Manufacturing	141927	78906	5577	186785	413195
Mining	---	---	---	---	---
ROW	296464	75712	---	---	372175
Aggregate supply*	438391	155447	5577	247916	84331

Source: Survey results

NB: Rows indicate inputs and columns outputs.

* Aggregate supply refers to column sum, not total output of the sector concerned.

Accordingly, of the total inputs required by manufacturing 34 percent originate from agriculture, and an insignificant 1.3 percent from mining (excluding Gold). [Table 5.5] Such inputs largely feed agro-based and construction oriented industries. The remaining of the inputs are manufactured intermediates. Of these, the manufacturing sector itself generates only 19 percent, while the bulk, 45 percent comes from the rest of the world, imports.

Table 5.5: Sectoral flow of raw material inputs (percent)

Economic sectors	Agriculture	Manufacturing	Mining	ROW	Aggregate input
------------------	-------------	---------------	--------	-----	-----------------

⁶⁰ This is a partial and condensed input-output framework. For a complete version of sectoral input-output matrix, see forthcoming report on "Industrialization and industrial policy in Ethiopia", EEA/EEPRI, 2004.

Agriculture	---	1.3	---	98.7	100
Manufacturing	34.3	19.1	1.3	45.2	100
Mining	---	---	---	---	---
ROW	79.7	20.3	---	---	100

Source: Table 5.4

In terms of raw material inputs, what is conspicuous in this structure is that manufacturing is more strongly linked to the external economy rather than to its own and the rest of the domestic economy. The degree to which manufacturing satisfies its raw material demand from internal sources is about 55 percent, depending on the external sector for nearly the remaining half. What is even more concerning in this connection is that, of the total intermediate (processed) inputs demanded by manufacturing, only one-third is generated from within, relying on the external economy for the remaining two-thirds.

The structural weakness of manufacturing can also be seen when considering its backward linkage to agriculture. Of the total manufactured demand required by agriculture – this includes modern technology inputs such as fertilizer, insecticides, pesticides, improved seeds, etc - domestic manufacturing supplies only 1.3 percent, literally negligible. In fact, agriculture is even more dependent on the external economy for its inputs. In other words, agriculture too is more linked, to the rest of the world than to the domestic sectors. Primarily, this is because manufacturing is not only least developed but also structurally distorted.

Another way of looking at the structural linkages of the economy is to read Table 5.4 column wise, i.e., the outflow of goods from each sector.⁶¹ Table 5.6 shows a recalculation of the proportions of inputs with respect to column total, i.e., aggregate outflow from each sector.

Table 5.6: Sectoral output flow (percent)

Economic sectors	Agriculture	Manufacturing	Mining	ROW
Agriculture	---	0.5	---	24.7
Manufacturing	32.4	50.8	100	75.3
Mining	---	---	---	---
ROW	67.6	48.7	---	---
Aggregate outflow	100	100	100	100

Source: Table 5.4

⁶¹ Note that this excludes the bulk of sectoral output which goes as final goods to household direct consumption.

As noted above, of the total outflow of manufacturing, nearly half of it is exported, with the remaining half feeding the sector itself. Manufacturing supply to agriculture is less than one percent of aggregate outflow. So the forward linkage of manufacturing to agriculture is very weak. Similarly comparing the supply of agriculture to manufacturing and the rest of the world, only one third of the total outflow from agriculture goes to manufacturing, while the bulk (two-third) of the output is exported. Note that most of agricultural exports, including coffee are raw materials feeding consumption goods industries, which could have been further processed at home if such industries were expanded. Hence, it is lack of capacity of the manufacturing sector that forced raw products of agriculture to be exported rather than being further processed domestically, an activity which involves even greater value added.

This structure implies that the manufacturing sector is neither capable of supplying the required intermediate inputs, let alone capital, to other sectors of the economy, nor is it capable of absorbing all agricultural supplies for further processing. But most of all, manufacturing cannot satisfy its own demand for intermediate inputs from within. It is heavily dependant on the external economy. Thus lack of industrialization makes other sectors dependent on the rest of the world for their capital and raw material requirements, as well as for markets. The transformation of agriculture materializes only in an economic structure where the industrial sector plays the leading role, i.e., when it can supply machinery and equipment and other inputs completing the backward linkage to agriculture, as well as when it is capable of taking up agricultural supplies for further processing at the forward end of the linkage.

From the point of view of sectoral linkages, therefore, the economy is structurally paralyzed, largely as a result of the highly supply constrained and technologically backward manufacturing sector, leading to complete dependency on the rest of the world, both for its demand and supply. Economic development implies industrialization, not only expanding and technologically upgrading manufacturing but also, industrializing agriculture, mining, construction, transport and communication, etc. Agriculture cannot transform itself, but only with the expansion and modernization of the industrial sector, particularly manufacturing. In a way, lack of industrialization kept agriculture traditional and backward. The structural weakness of the economy is not only due to lack of investment but also unbalanced or uncoordinated investment

across sectors. This calls for a new policy approach to guide new sectoral investments, and reorient existing sectoral activities, including trade.

2.2. Production structure of manufacturing industries

As noted above, manufacturing in Ethiopia is still at its infancy. Its feature can perhaps be better assessed with detailed industrial (sub-sectoral) grouping of firms based on the type of commodities produced. This is very much in line with international (and CSA's) classification, but with further deeper disaggregation to allow industrial policy analysis at sub-sectoral level. Accordingly, it is classified into 51 industrial groups. [Annex E.3]

In this classification, the single dominant industry, with a total value added of about 50 million dollars in 2002, accounting on average for about 20 percent of the value added generated by the sector, is sugar and sugar confectionary. [Table 5.7] It is also the largest single industry in terms of its share in fixed capital assets. [Table 5.8] All other industries have a value added share of less than 10 percent each. Of these, brewery, cement, publishing and printing each has a share of 8.5, 7 and 5.4 percent, respectively. Also, leather tanning, textile and tobacco have a share of less than 5 percent each.

Table 5.7: Value added in selected industries (000 USD)

Subsectors	1996	1997	1998	1999	2000	2001	2002
Sugar & S. confectionary	48,506	50,369	29,335	57,625	61,999	77,927	50,795
Brewery	17786	14481	14511	9059	20721	27597	22420
Cement and lime	15648	18055	18888	-5883	17562	18052	18262
Publishing & printing	12459	8706	10735	11689	12565	12570	14158
Leather tanning	16869	17658	9098	10537	7104	8150	12623
Textiles	21513	17682	14344	13182	18930	15785	11332
Tobacco	6794	9991	14442	18023	18871	7848	10544

Source: Survey result and CSA's Report on LMSME industries survey

Textile is the single most employment generating industry, accounting for more than 27 percent of the total manufacturing employment. And relatively the textile industry is highly labor intensive compared to all other industries shown in Table 5.8. (See below for more detail on labor intensive industries) Moreover, its capital asset share - 14 percent - is also one of the largest, almost as large as the sugar industry. Brewery too, has a significant capital asset share but one of the lowest employment share implying more of a relatively capital intensive or less labor intensive activity.

As shown in Table 5.8, these industries together account for a share of nearly 50 percent of not only the value added but also capital asset and 45 percent of the labor force. However, the number of firms in these industries is only 15 percent of total, reflecting the highly skewed production share among industries.

Perhaps, an important aspect in the performance of the industries, irrespective of their capacity and relative shares, is their growth dynamics. As noted above the sector as a whole has shown very sluggish growth. Sugar, brewery tobacco and cement industries are better performers, recording an annual average growth of about 10, 15, 16 and 26 percent, respectively, over the seven years period. On the other hand, however, leather tanning, the major foreign exchange earning manufacturing industry, has been declining annually at 7.7 percent. Textile has shown little change, a marginal growth of only 1.5 percent. From the same table, it can also be observed that the value added shares of, particularly, leather tanning and textile have been declining overtime. Over the last seven years the former declined from 6.7 to 4.8 percent while the latter fell from 8.5 to 4.3 percent. Some other industries, however, notably sugar, brewery and soft drinks, have improved their shares over the same period of time.

Table 5.8: Economic share of selected industries

Subsectors	V. added share	Share in the no of firms	Labor share	Capital asset share	Average growth
Sugar & S. confectionary	19.4	1.2	3.9	15.0	9.5
Brewery	8.5	0.7	1.7	10.0	14.5
Cement and lime	7.0	0.9	1.5	3.0	25.6
Publishing & printing	5.4	7.5	5.2	2.0	3.7
Leather tanning	4.8	1.6	3.7	4.0	1.5
Textiles	4.3	2.8	27.2	14.0	-7.7
Tobacco	4.0	0.1	0.7	1.0	16.2

Total	53.4	14.8	43.9	48.5	---
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Source: Table 5.7

The poor growth performances of the textile and leather tanning industries may have to do with the adverse impact of macro policy measures and should be a point of attention for industrial policy formulation (see details in Chapter Ten). This is so because while other industries are either partially protected (as sugar) or largely less tradable in nature (cement, brewery, publishing & printing services), leather tanning and textile face strong external and internal competition. It should also be noted that these two industries are given more attention by the government for future support and expansion from the point of view of their labor intensiveness and export potential.

Moreover, it should be remarked that even for better performing industries growth has been cyclical. No industry has shown a consistently positive growth through out the period, indicating the vulnerability of industries in general to various types of shocks.

Another structural feature of manufacturing, which is at least equally important from the point of view of industrial policy formulation, can be explained by the composition of the end use of commodities that firms produce (i.e., consumption, intermediate or capital goods). A balanced structure between these categories of industries is the distinguishing feature of a self-propelling and less externally dependent economy. While industrialized economies have the capability to supply all type of goods, developing economies not only lack the capacity to supply all adequately, but are also entirely dependent on developed economies for the supply of capital goods and to a great extent for the provision of intermediate goods (see sections below). This reflects the degree of technological backwardness and hence lack of competitiveness in general in developing countries. To look into this, firms are regrouped in line with the end use of the commodities produced.⁶²

Table 5.9: Industrial structure by end use -2002 (value in 000 dollar)

Industrial Group	No of firms	Labor force	Value added	Capital asset
Consumption goods industries	586	38103	185333	540325

⁶² A number of problems encountered in categorizing firms by end use. Some commodities fall in more than one category. For instance, sugar is used both for final consumption as well as for intermediate inputs for some industries; apart from few simple truck assembly plants, there are no capital goods producing firms per se, etc.

Intermediate goods industries	283	11362	70809	170070
Capital goods industries	14	736	6162	14190

Source: Survey result

As shown in Table 5.9, in 2002, only 14 out of 883 (about 1.6 percent) qualify as capital goods, 32 percent as intermediate goods and the remaining 66 percent as consumption goods producing firms. In terms of value added and employment, 70 percent is generated by consumption goods industries and another 25 percent by intermediate goods industries. Capital goods account for the remaining 5 percent only. Similarly, the share of capital goods industries in total capital asset is only 2 percent. There is no firm, for instance, which produces machinery and equipment proper for downstream industries and which generates technological externality. Few firms are currently engaged in truck assembly activities (rather than manufacturing per se) and in small scale vehicle body manufacturing. Intermediate goods industries also, largely feed consumption based industries. Hence, not only capital goods but also intermediate goods are largely imported. As it stands now, the manufacturing sector in Ethiopia, therefore, is structurally dependent on the external economy. Hence, it is vulnerable to external shocks and incapable of creating independent and internally dynamic growth of the economy.

A couple of points need to be stressed in this context. Firstly, irrespective of the value added share of industries, most individual firms in the industries indicated in Tables 5.7 and 5.8 are small in size. As can be derived from these tables, with the exception of the tobacco and sugar industries, the value added from each of these industries is between 14 and 22 million dollars. At the risk of disaggregation, and noting that there are some large textile firms, the yearly operating capacity of a single firm in these industries is, on average, under 4 million dollars. Hence, even at full capacity, most firms can hardly benefit from scale economies (see Chapter Seven). Note that even the dominance of the sugar industry cannot be attributed entirely either to its large size or efficiency. Being owned by the state (for that matter most of the firms in industries with relatively large shares including tobacco, textile, brewery and leather tanning are state owned), the sugar industry enjoys monopoly price, which is nearly 50 percent higher than what it should be otherwise. [Kibre, 2003]

Secondly, the structure of the sector is such that relatively high value added industries are largely dominated by agro-industries, which are also natural-resource-based industries. While this may be the case for less developed agriculture-based

economies like Ethiopia, the insignificant share, or literal absence, of other technologically leading industries (such as chemicals, electronics, iron and steel, and related engineering industries), which have also been instrumental for the relatively fast industrialization of both earlier and newly industrialized economies in the world (Chapter Nine), portray the underlying structural weakness of the manufacturing sector in Ethiopia (see next section).

This structural weakness of Ethiopian manufacturing is more revealed when compared to other countries. Table 5.10 shows the share of value added of strategic industries in manufacturing of some African countries for which data is available, including Egypt, Kenya, Tunisia and Ethiopia. It also includes Spain as a target reference for an industrializing economy.

Table 5.10: Value added share of strategic industries in manufacturing (percent)

Industry	Egypt	Ethiopia	Kenya	Tunisia	Spain
Metal engineering	9.2	3.8	6.3	4.7	11.9
Machinery	4.8	0.1	0.5	0.5	5.9
Chemicals (all)	20.8	7.1	9.0	15.4	8.5
Industrial chemical	10.2	0.5	2.2	5.7	2.8
Electronics	4.6	0.0	5.7	5.2	2.6
Measuring appliances	0.2	0.0	2.0	---	0.9
Transport equipment	5.8	1.1	3.3	9.8	10.3
All strategic industries	38.6	12.6	29.0	27.3	33.9

Source: UNIDO, Industrial Statistics, 2003.

Accordingly, the total value added share of these industries, including metal engineering, general machinery, chemicals, electronics, measuring appliances, and transport equipment in Ethiopian manufacturing is less than half of that in Kenya or Tunisia and about one-third of that in Egypt or Spain. As compared to these countries, each industry in Ethiopia has not only the least share, but the shares too are literally negligible, except, chemical industry, which has a 7.1 percent share. This industry produces involves pharmaceuticals, rubber products, cosmetics, etc. but not industrial chemical which has a negligible share, 0.5 percent.

This structure indicates that industrialization in Ethiopia requires a radical change of investment towards these strategic industries without which industrialization would not be thought of. This calls for a specific policy measure and incentive structure to induce significant investment flow towards these industries.

Lastly, this structural imbalance of the economy is largely an end product of the economic management in the country, which has never included active industrialization policy. It emerged through a mixed economy policy environment of the Imperial regime, with the exception of few deliberately established firms by the Derg. The current investment policy and the newly drafted industrialization strategy too, even at its theoretical level, has no room to correct the structural imbalance.⁶³ If any thing, it encourages the past trend to continue thereby further worsening the structural imbalance and dependency. While it is essential to technologically upgrade such natural-resource-based agro-industries to exploit the existing foreign exchange earning capacity and improve their efficiency and competitiveness, to provide investment priority to these same industries as a central industrialization strategy would only escalate the existing structural imbalance and could not create technologically advanced industrial sector in the longer term. In effect, it is not a strategy as it completely ignores strategic industries which are technologically leading and creating significant positive externalities, thereby generating new and dynamic comparative advantages for the economy.⁶⁴

2.3. Intra-manufacturing physical linkages

As noted above, a central problem of manufacturing is the loose and unbalanced structural linkage within manufacturing itself, i.e., between industries/firms. This is manifested both in the flow of intermediate inputs and capital goods.

The extent of industrial linkages can be best measured by an input-output matrix. However, as tabulating such a matrix is an involved task to fit into this report, physical linkages between industries is used as an approximation.⁶⁵ Also, for a broadly categorized industrial grouping, an input-output framework is drawn to trace the

⁶³ See “FDRE, Industrialization strategy for Ethiopia”, August 2002.

⁶⁴ For a detailed and critical assessment of the strategy, see forthcoming report on “Industrialization and industrial policy in Ethiopia”, EEA/EEPRI, 2004.

⁶⁵ For the details of the physical linkages see Annex E.4.

linkages between broadly defined consumption, intermediate and capital goods industries.

Considering the physical linkages, on aggregate, of the possible backward and forward chain between industries in the flow of both capital and intermediate goods, actual linkage is only about 35 percent. [Annex E.4] This explains that, of the possible contacts between domestic industries in the demand-supply chain, only one third is realized.⁶⁶ For the remaining two-thirds, industries are linked with the rest of the world.

There are, however, significant variations in the extent of linkages between each individual industry. Natural-resource-based industries, such as food, beverages, textile, wood and wood products, leather tanning, cement, etc., have relatively high internal linkages, as most of their inputs come from agriculture and mining, and their outputs largely go directly to household consumption and construction rather than to manufacturing industries as intermediate inputs. For instance, the food industry has linkages as high as 61 percent, beverages 70 percent, textile 71 percent, wood and wood products 63 percent, cement 73 percent, etc, (Annex E.4).

On the other hand, higher technology and capital goods related industries, such as, for instance, mining related steel and iron bar industry, chemical industries, electrical and electronics, machinery and equipment, other engineering industries, etc., have little forward and backward linkages with the rest of the economy. Such industries are largely missing. Table 5.11 shows this for some loosely chained selected industries.

Table 5.11: Industrial physical linkages (percent)

Industrial group	Backward	Forward	Overall linkages
Basic chemicals	50	32	35
Basic iron and steel	33	50	47
Structural metal	29	0	16
Cutlery and hand tools	44	26	32
Other fabricated metals	36	25	35
Pumps, compressors, etc	0	0	0

⁶⁶ This does not measure exactly internal supply out of the total raw material demand. For this see section on external linkages.

Ovens, furnaces, etc.	17	10	12
General purpose machinery	33	0	8
Machinery for food & beverages	29	0	10
Battery	0	100	17
Parts, accessories, etc.	17	100	29

Source: survey result

Accordingly, with respect to overall linkages, general purpose machinery, for instance, have only 8 percent, food & beverages machinery industry 10 percent, ovens and furnaces 12 percent, pumps and compressors, 0 percent, structural metal 16 percent, basic chemicals 35 percent, iron and steel 47 percent, etc. Industries, such as electronics, foundries for steel and iron bars, hydraulic engineering, chemical industries, and other engineering industries are largely missing. Thus, strategic industries, which are the foundation for all other industrial activities and which are also technologically leading, are either entirely non-existent or have low internal linkages with the rest of the manufacturing industries.

An input-output framework for a broadly set industrial grouping, i.e., consumption, intermediate and capital goods industries, can also indicate the problem of structural linkage between industries. Table 5.12 shows the extent to which the demand of each industrial group for intermediate goods is met within domestic manufacturing.

Table 5.12: Linkages between broad industrial groups for intermediate goods demand (percent)

Industrial grouping	Final goods ⁶⁷	Intermediates	Capital goods	Total demand
Final goods industries	0	30.0	0.5	30.5
Intermediate goods industries	0	1.3	2.8	4.1
Capital goods industries	0	0.4	0.0	0.4
Total supply	0	31.7	3.3	35.0

Source: Survey result

Accordingly, of the total demand of final goods industries for intermediate inputs, only one third is satisfied by domestic intermediate goods producing industries. The

⁶⁷ Note that consumption or final goods industries supply only to households, hence have no forward linkages with other industrial groups.

contribution of capital goods industries (supplying spare parts) is literally negligible (0.5 percent). As noted in the previous calculations, this implies that the remaining two-thirds need to be imported.

Intermediate and capital goods industries depend on the external economy for nearly all their intermediate inputs. For intermediate goods industry only 4 percent of their total demand for intermediate inputs is met within the manufacturing sector. Capital goods industry is literally non-existent, and as a result of this, linkages between this industry and the rest are almost negligible.

Based on this broad industrial grouping, only 35 percent of the demand for intermediate goods by the domestic manufacturing industries is satisfied internally. This reflects that Ethiopian manufacturing industries are largely consumption based, so much so that intermediate goods industries, apart from partially feeding downstream final goods producing industries, cannot satisfy even their own internal intermediate goods demand. It should be underlined that the critical importance of balanced industrial linkage is its self-propelling efficacy, as it creates an internally balanced demand-supply market chain rather than unnecessary internal competition and excessively dependence on the external economy to the extent of being choked completely.

There are a number of reasons for the thin internal linkages between industries. The lack or total absence of what can be regarded as foundation industries, such as basic steel and iron bars, machinery and equipment, electrical and electronics, chemicals, as well as other engineering industries. These are strategic industries without which industrialization could hardly be realized. Therefore, a policy direction, which accords high priority to new investments in such industries, needs to be in place. Such industries create high positive externalities for all downstream industries, thereby creating high linkages between the domestic industries and reducing dependency.

Low supply capacity and/or poor product quality (low standard), could as well be the factors for the loose linkages between domestic manufacturing industries. In this context there is a need to investigate detailed specific problems at industry and firm levels selectively and address the constraints identified.

It should be appreciated that major reasons for the absence or low supply capacity of such strategic industries of critical importance for industrialization is due not only to lack of investment, but also lack of investment coordination in an environment where market failure prevails both locally and internationally, and where policy guidance is lacking .

2.4 External linkages of manufacturing industries

One of the major challenges of growth in developing countries at large is the external resource imbalance. The underlying cause though is not so much in the focus on primary commodities for export (and adverse terms of trade) as it is in the imbalanced external linkage of the manufacturing sector, which is import intensive, with little export orientation. This is typical of the Ethiopian manufacturing sector. The preceding section has shown the extremely loose internal linkages within manufacturing itself. The implication of this is straight forward: while the sector feeds on domestic agricultural supply for some of its raw material inputs, for all other intermediates, which it failed to meet from within, it inevitably depends on the external economy - imports. The manufacturing sector heavily depends on imports, not only for capital goods but also for intermediate and consumption goods, while exports remain relatively insignificant creating external structural imbalance. As shown below manufactured imports are, at least, three times greater than exports.

2.4.1 Manufactured imports

The majority of manufacturing firms require some imported inputs. About 63 percent of the firms use imported intermediate inputs – raw materials, chemicals, auxiliaries, etc. The total value of yearly imported intermediate inputs is, on average, about 207 million dollars. [Table 5.13] This is not, as such, a large amount, and hence should not have been a concern. What makes it a challenge, however, is the import intensity, and hence the structural imbalance which leads to heavy dependency on the external sector. For the seven year period, 1996 – 2002, the average import intensity (imported intermediate inputs as a proportion of total raw material inputs), was about 50 percent. Considering total imported inputs, i.e., including fuel, lubricants, spare parts, etc., along with intermediates, the import content of a unit cost is as high as 36 percent. Hence, the sector depends on imports for nearly half of its input

requirements. Moreover, this does not include imports of capital goods, for which the sector is entirely dependent on imports. This is a substantial proportion which could subject importing firms to the direct influence of external shocks or economic cycles, hence halting their internal independent development.

Table 5.13: Import dependency of manufacturing (percent)

Year	Importing firms	RM import (USD M.)	Import intensity	Import cost content
1996	59	207.4	43.0	36.3
1997	64	182.6	42.9	34.1
1998	67	181.4	41.0	33.6
1999	65	235.7	54.0	37.2
2000	66	252.1	64.0	44.4
2001	61	209.3	44.0	34.7
2002	62	186.8	41.0	32.4
Average	63	207.8	47.2	36.1

Source: Survey result and CSA's Report on LMSME industries survey

As these imported intermediates are manufactured products, they could have been supplied from within manufacturing had there been an industrially or sectorally balanced investment. This structural imbalance, therefore, reveals lack of domestic industrial linkages leading to a strong but one sided external linkages with and dependency on the foreign sector.

The disaggregated version of the import structure of manufacturing is shown in Table 5.14. As stated above, the total value of imports is quite limited. This is so because on the one hand not all firms require imported inputs, and on the other, even most of those requiring imports are not large in size and take only limited inputs. Moreover, currently industries operate, on average, at half of their full capacity. (see Chapter Seven) Yearly, about 540 firms require imported inputs. The remaining firms (around 350) either use imported inputs infrequently or never import at all. For instance, industries such as meat and vegetable processing, edible oil, grain mill, animal feeds, and wood and wood products require relatively small imported inputs.

What is striking about the import structure of manufacturing is that only a small number of firms in few industries account for the bulk of imports. Only about 200 firms (22 percent of total) in about 16 (out of 52) industrial groups account for 90 percent of the total manufacturing imports. This is a highly skewed structure. Table 5.13 shows few of the industries which accounts for the substantial proportion of total imports. On average, 30 percent of the total annual imported intermediate inputs are used by not more than 15 firms in two industries, basic iron and steel and motor vehicle bodies manufacturing. Major inputs to these industries are steel sheets, iron bars and related metals. Another 30 percent of imported inputs are made by five industrial groups (consisting of about 65 firms) including foam and plastic, textile, rubber, paper and paper products, and soap cosmetics and detergents. A common imported input for these industries, and of major significance for others, is industrial chemical. As shown in the same table, these seven industries alone account for nearly 60 percent of total annual imported raw materials. Thus, relatively few firms (industries) consume most of the imported inputs.

Table 5.14: Industrial share in total manufacturing import (percent)

Industry	2002	2001	2000	1999	1998	1997	Average
Basic iron and steel	21.8	19.2	8.1	28.4	18.1	17.1	18.8
Bodies of motor vehicles	4.5	14.9	33.7	7.9	8.2	5.9	12.5
Foam and plastic products	6.5	7.6	5.0	4.8	6.5	6.7	6.2
Textile	4.9	4.5	3.6	4.9	7.6	8.4	5.7
Rubber products	4.2	6.4	4.6	3.4	7.3	7.2	5.5
Paper and paper products	6.2	4.6	2.0	2.7	5.0	5.4	4.3
Soap, cosmetics, detergents	4.6	4.6	3.7	3.0	4.5	4.7	4.2
Total	52.7	61.8	60.7	55.1	57.2	55.4	57.2

Source: Survey result and CSA's Report on LMSME industries survey

From the point of view of industrialization, the importance of these industries differs significantly. The top two heavily importing industries, basic iron and steel and motor vehicles' body manufacturing, are intermediate and capital goods industries. The latter could be part of the leading industries in auto and related engineering with significant positive externalities for other downstream engineering industries. The former is essentially the foundation for all engineering industries. Its development, therefore, is a prerequisite for industrialization. But the fact that inputs to such pivotal

industries have to be 100 percent imported has significant implications for industrialization. Basic steel and iron bars are essential inputs not only to these two industries but also too many other heavy industries and engineering activities without which industrialization could not be thought of. This, therefore, calls for a policy action to prioritize investment in such industries producing steel and iron and related basic metals

In the case of other industries, they largely produce final goods. Textile also goes as intermediate input for garment industries and it is also one of the natural-resource-based industries in the country. Despite their heavy consumption of imported inputs, none of these industries is capable of exporting in large scale to international markets. The textile industry is currently attempting to export in a very small scale (see section below on export) which cannot cover even its foreign exchange demand for inputs. Similar to the two heavily importing industries discussed in the previous paragraph, a commonly imported input to most of these industries, and many others, is industrial chemical. Chemical industries are pivotal for industrialization. Newly Industrializing East Asian Countries (NIEAC), for instance, gave top priority to the development of chemical industries as a prerequisite for industrialization.

Hence, the underlying issue in this context is that the promotion of essential industries, such as basic iron and steel and motor vehicles' body manufacturing, necessitates the expansion of foundation industries related to mining which supply vital inputs such as steel and iron bars. Promoting chemical industries should also be a priority for an industrialization program.

Another important aspect of firms and industries, as noted above, is their import intensity. Highly import intensive firms, irrespective of their size, inevitably depend on imports for their performance. Variation in costs, regularity of timely supply, availability of foreign exchange, etc., have impacts on the performance of firms. Large size firms may have high import shares, but may not necessarily have high import intensity, though they are often highly correlated. From policy point of view, therefore, these two have different importance, hence requiring setting different priorities and policy approaches.

100 %	75-99 %	50-74 %	25-49 %	>50 %
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Year	No	Prop	No	Prop	No	Prop	No	Prop	No	Prop
2000	95	20	75	15	71	15	73	16	251	50
2001	104	22	64	14	56	12	79	17	224	48
2002	124	23	92	17	68	12	77	13	284	52

Table 5.15: Import intensity

Source: Survey result

Table 5.15, shows the number of firms with relatively high import intensity and their proportion to the total importing firms over the three year period - 2000 to 2002. For instance, the number of firms entirely dependant on imports, i.e., with 100 percent import intensity, have increased from 95 in 2000 to 124 in 2002. Similarly, the number of firms in the lower import intensity categories, below 75 percent has either shown a declining trend or remained unchanged over the same period. What clearly emerged from this table is that the number of high import intensity (above 75) firms increases over time. On average, the proportion of firms increased from 13 percent in the 50-74 percent category to 15 percent in the 75-99 percent category and to 22 percent in the 100 percent category. This indicates that more firms are becoming increasingly dependent on imports. This might be the effect of the recent opening up of the economy. It might as well be said that, depending on the availability of foreign exchange, import intensity or dependency will further increase with the increase in the number of firms and operating capacity. Over all, about 50 percent of importing firms are import dependent for at least 50percent of their inputs. Note that this does not include machinery and equipment, spare parts, and other auxiliaries.

Though not all firms in an industry are import intensive (or otherwise), most firms in some industries are, for the simple fact that intermediate inputs are not produced locally. In the qualitative aspect of the survey, which directly involved managers and owners, 60 percent of those importing firms confirmed that they are importing because raw material inputs are not produced domestically. The remaining 20, 15 and 5 percent stated poor quality, inadequate supply and high price, respectively, as the main reason for not purchasing locally. Table 5.16 shows the top most import intensive, 90 to 100 percent, industrial groups for the three years period. In these industries most of the firms are import intensive. For instance, all firms in battery manufacturing, basic iron and steel, rubber products, paper & paper products, and ovens & furnaces are import intensive.

Table 5.16 also reveals that all industries having high import shares (Table 5.14) are also highly import intensive. Understandably, textile as a natural-resource-based industry feeding itself from local production (cotton), has relatively lower import intensity, about 80 percent, though its share in imports is one of the highest. Other industries with high import intensity, such as battery assemblies, pharmaceuticals, ovens and furnaces, hand tools, etc., have relatively lower import shares because of their size.

Table 5.16: Import intensive industries (percent)

Industries	2002		2001		2000	
	Proportion	Intensity	Proportion	Intensity	Proportion	Intensity
Battery manufacturing	100	100	100	100	100	100
Basic iron & steel	100	99.2	100	100	100	98.6
Rubber products	80	90.0	100	99.9	100	100
Paper & paper products	100	96.2	100	92.0	----	---
Foam and plastic products	91	94.4	96	95.4	95	94.9
Bodies of motor vehicles	80	95.9	467	97.2	78	100
Ovens, furnaces & burners	100	99.5	100	97.6	---	---
Pharmaceuticals	100	98.2	75	99.1	75	96.7
Other fabricated metal prod	71	97.5	76	93.6	75	96.2
Hand tools, cutlery & general hardware	92	94.3	90	99.2	100	95.0
Soap, cosmetics & detergents	81	90.1	94	83.3	100	86.4

Source: Survey result

From the point of view of policy perspective, therefore, the focus should be more on import intensive industries rather than on those with high import shares. This calls for promoting industries producing inputs to these import intensive industries, particularly to engineering and chemical industries such as basic iron and steel, hand tools and general hardware, bodies of motor vehicles, other metal products, etc. which have great significance for industrialization.

2.4.2 Manufactured exports

Manufactured export in Ethiopia is a reflection of not only the undeveloped nature of the sector but also the lack of policy attention. Even in light of acute foreign exchange shortage and massive debt burden, there has not been a strong policy drive or serious measure to promote export oriented manufacturing firms to date. Despite the adverse terms of trade and problems associated with lack of diversification, it has been the policy preference of all regimes to date to rely on the export of raw agricultural products to meet foreign exchange demand rather than encourage export of manufactured or even semi-processed commodities. As a result, manufactured export remained of secondary importance and interest to entrepreneurs in the country, as noted above, leading to lopsided or unbalanced external linkage – relatively large imports with little export orientation.

As shown in Table 5.17, in the seven year period, 1996-2002, the maximum value of export earning of the sector as a whole was only 93 million dollars, while in 2001 the minimum was a pitiful 11 million. On aggregate, export earning has shown an appreciable increase – on average, 31 percent annually - over the same period. However, there has not been a consistent trend. As a result of both supply and demand constraints, a significant variation was manifested over the years reflecting the immaturity and lack of competitiveness of manufactured exports.

Table 5.17: Manufactured export

Description	2002	2001	2000	1999	1998	1997	1996	Avr.
Export value (USD Million)	70.16	93.44	41.62	42.39	17.49	13.82	63.49	48.92
Export growth	-24.9	124.5	-1.8	142.3	26.6	-78.2	---	31.4
Export share (percent of country export)	15.6	20.1	8.6	8.8	2.9	2.6	15.8	10.6
No. of exporting firms	26	40	37	36	14	18	24	28
Proportion of exporting firms-percent	2.9	5.2	5.0	4.8	1.9	2.6	3.9	3.8
Production share of exporting firms-percent	18.9	27.1	23.9	18.1	11.1	18.8	19.7	19.6
Export intensity -percent	40.8	34.4	18.8	24.7	17.8	8.4	37.8	26.1
Proportion of export in MVOP -percent	7.7	9.3	4.5	4.5	2.0	1.6	7.4	5.3
Import coverage -percent	32.5	38.9	15.2	16.3	8.5	6.7	28.2	20.9

Source: Survey result and CSA's Report on LMSME industries survey

The insignificance of manufactured export is conspicuous when seen in light of total export earning of the country. On average, its share figures only about 10 percent over the same period noted above. In 2001 and 2002 manufactured exports accounted for relatively larger proportions, 20 and 15 percent, mainly as a result of a steep fall in coffee price, the major export earning commodity of the country. The minimum was literally a negligible 2.6 percent in 1997.

There are about 40 firms, accounting for 5 percent of total manufacturing firms, engaged in export at various levels.⁶⁸ As these firms are medium in size, their share in terms of the value of production is higher, on average, about 20 percent of total manufacturing output. The extremely small proportion of firms in export trade indicates that manufactured export has never been taken by policy makers as a strategy for foreign exchange earning or by producers, at least, as an important market channel if not as a means of developing technological capability.

Not only that the proportion of exporting firms is small, but their export intensity (export as a proportion of production value) is also low. On aggregate, these firms are not exporting even half of their output. As shown in Table 5.16, the average annual export in the last seven years was only 26 percent of the production value of these firms. Export intensity increased over the years to a maximum of 40 percent in 2002. Note that these exporting firms are operating much below their full capacity (see Chapter Seven). In spite of this, however, they are not capable of selling even half of their current capacity to the export market. This indicates, at least partly, the lack of competitiveness of these firms in international markets (see paragraphs below).

As noted above, the manufacturing sector as a whole imports intermediate inputs and fuels worth about 233 million dollars, on average. This leaves a wide gap between imports and exports. The average import coverage for the seven year period was only 21 percent. As shown in the same table, even in 2001, when export performance was relatively better, import coverage was less than 40 percent. Thus, this is a sector with substantial adverse external balance, which should also be reoriented towards expanding and diversifying its market.

⁶⁸ This includes firms exporting goods worth as small as US 1000 dollars per year. Moreover, for some firms export is an on-and-off activity. Not all firms export regularly every year

2.4.2.1 Firm-level export performance

As noted above, as many as 28 percent of the firms, on average, are reported to have been exporting between 1996 and 2002. However, the value of exports of most of these firms is literally negligible. Export is dominated by a handful of firms year after year. As shown in Table 5.18, on average, about 95 percent of total manufacturing export comes only from four industries, namely leather tanning, sugar, textiles, and spice processing. In fact leather tanning alone accounts for nearly 70 percent of manufacturing export. All other export oriented industries, excluded from this table, have shares of less than one percent each.

As shown in the same table, it is the leather industry alone, which exports most of its production. On average, export intensity in leather tanning figures about 68 percent, which is relatively high. However, there has been no improvement in export intensity over the years. Export capacity of the other three industries is very low.

Table 5.18: Exporting firms and export share

Industry	Description	2002	2001	2000	1999	1998	1997	1996
Leather tanning	Export share	74.1	63.3	71.3	74.2	67.0	34.8	91.4
	Exp. intensity	79.4	71.3	82.8	57.9	76.5	53.4	96.1
Sugar & Sugar confectionary	Export share	21.6	25.3	14.4	---	3.0	4.5	1.3
	Exp. intensity	22.2	24.3	4.9	---	0.8	0.8	1.4
Spices	Export share	2.3	0.7	---	4.6	26.4	24.5	---
	Exp. intensity	68.7	39.5	---	14.8	84.7	75.9	---
Textile	Export share	---	9.7	12.1	14.8	---	27.1	4.2
	Exp. intensity	---	27.9	16.4	16.4	---	19.1	8.3
Total	Export share	98.0	99.0	97.6	93.6	96.4	90.9	96.9

Source: Survey result and CSA's Report on LMSME industries survey

Thus, export in Ethiopia is, nevertheless, a one industry affair – that of leather tanning. Moreover, even this industry is not exploiting all available opportunities. Primarily, it is currently operating at less than full capacity. In fact had it been operating at maximum capacity, export intensity would have been much lower than

what is shown here, as it is demand that largely determines the level of exports. Secondly, it is limited to a semi-processing stage. It does not export finished leather, but only semi-processed –crust and wet blue- hides and skins. [Berhanu and Kibre, 2001]

It should be noted that over the last decade the export status of manufacturing industries has not changed much. Export diversification and intensification remained stagnant. Despite its long experience in the trade, the leather industry itself has not yet moved to a higher processing stage. It draws its comparative advantage from being a natural-resource-based agro-industry, which benefits from reliable and relatively low priced raw material supply and relatively cheap labor. Apart from this, it has not capitalized on this advantage to develop technological capabilities. All other resource based industries, such as textile, sugar, spices, etc., have not even exploited such comparative advantage as much as the leather industry, at least, with respect to foreign exchange earning.

Moreover, these industries largely produce intermediate and consumption goods. Capital goods industries, except manufacturing of bodies of motor vehicles, which is attempting to export irregularly in small scale, are not export oriented.

2.4.2.2 Export support services

As clearly showed above in this section, manufacturing export is still at its infancy. Participating in the international market requires many facilities beyond industry or firm level efforts. Even the tanning industry, the major exporting sector, was initially sought out by foreign importing firms. Though in a small scale, sugar export, is mainly benefiting from the opportunity created by the European Union (EU). There has been no deliberate strong policy drive by the public sector of any significant importance for export promotion.

In the qualitative part of the survey, managers/owners of firms were asked why they are not exporting to international markets. While 41 percent of the respondents confirmed that they are not externally competitive, another 31 percent think that it is difficult to have initial access to international markets. The latter implies that firms could be technically competitive, i.e., firm-level productivities may be high enough to compete in the international markets. However, external factors including lack of

domestic export support services and bilateral and international regulations may be deterring firms from entry into the export trade. With respect to the former, which is of domestic policy interest, 75 percent of the respondents claimed that there is not any export support service by government that could help firms make an initial breakthrough into the export market. The reason why firms may not be externally competitive while performing well locally is largely due to such external factors which involve high transaction costs for individual firms. Hence, it is likely that firms believed to be uncompetitive may turn out to be competitive, if well organized export support services are extended to them.

The most difficult aspect of export activity is initial entry, i.e., price and quality information, identifying and making contacts with potential importers abroad, introducing commodities to potential importers, securing contracts, preparing commodities for export, acquainting with transaction procedures and international sanitary and environmental regulations, etc. In all developing countries, aspiring exporters face this challenge. When East Asians, particularly Korea, Taiwan, and Singapore, embarked on their industrialization programs, their respective governments were at the center of providing such export support services. International trade involves tasks beyond the capacity of firms and industries, which requires the active leadership and participation of other stakeholders such as government and trade associations. In fact, it also demands the support of bilateral and international concerned bodies.

2.5 Size structure of firms and scale economies

It is obvious that, among other factors low unit cost of production is substantially influenced by firm size – economies of scale. The fierce international competition nowadays has put limitations to the minimum size of firms to attain minimum unit cost of production to be internationally competitive. Given other factors, the larger the size the lower the cost of production, and hence the better the competitiveness status.⁶⁹ Another significant advantage of large firms/enterprises is the capability to internalize all costs and externalities thereby reducing the dependency and adverse impact of external factors. Therefore, there is a need to acquire an optimal size of firms which could allow enough room to be cost competitive.

⁶⁹ This, however, does not imply that small firms are inefficient. The case of Taiwan is a good example.

Table 5.19: Size of firms by employment grouping (percent)

Employment grouping	Share in number	Labor share	Wage share	Value added share	Capital asset share
Less than 26	53.5	6.5	3.1	2.8	3.3
26 to 50	15.2	4.8	3.6	3.2	5.9
51 to 100	11.1	7.5	5.9	6.1	10.1
101 to 200	6.7	7.9	8.3	8.0	10.5
201 to 500	7.8	19.0	21.0	20.4	18.2
5001 to 1000	4.0	23.8	29.2	31.2	22.8
Above 1000	1.6	30.6	28.9	28.2	29.2

Source: Survey result and CSA's Report on LMSME Industries survey

To look into the size distribution of manufacturing firms, further categorization is made based on their employment capacity. As shown in Table 5.7, the grouping include firms employing not more than 25, between 26 and 50, 51 and 100, 101 and 200, 201 and 500, 501 and 1000 and over 1000 workers. Based on the survey data for 2002, this disaggregation reveals that nearly 70 percent of manufacturing firms, i.e., 471 in the first and 135 in the second group, employ a maximum of only 25 and 50 workers each, respectively. Despite this sheer number of firms, both groups together account for only 11 percent of the labor force, 5.6 percent of total wages and salaries, 6 percent of the value added and 9 percent of the capital asset of the manufacturing sector. Even by the standard of low income countries these are micro firms proper. These firms have concentrated in the main in the production of domestically consumed goods. Two thirds of them are amassed in the furniture, bakeries, concrete and publishing and printing industries.

On the other end of the scale, large size firms - consisting of 14 (employing over 1000 each) and 35 (employing between 500 and 1000 workers each) - account for only 5.6 percent of total firms. However, they have dominant shares in many respects: 54 percent of employment, 60 percent of wages, 60 percent of the value added and 52 percent of the capital stock of the sector. The largest 14, employing over 1000 workers, are dominant in the sugar, textile and cement industries. Apart from the cement industry, all the rest produce currently exportable goods. It should also be noted that these are all state owned enterprises. Large firms in the second group are, however, scattered, nevertheless, evenly, across the remaining industries.

The remaining small and medium size firms, 225 in number and 40 % of the total, employing between 51 and 500 workers each, account for about 35 to 40 percent of

the value added and capital asset of the sector. These firms have no specific industries of concentration.

Another aspect of the size distribution of firms is their composition by end use. None of the capital goods firms fall in the last category of large firms employing more than 1000 workers each; only 3 of the 14 employ between 501 and 1000, and another 2, between 201 and 500 workers each. Ten firms in capital goods industries, i.e., 66 percent, are largely small scale firms.

Apart from the factors sated above in relation to the share of capital asset, value added, etc, other features distinguishing these groups of firms from each other, as noted in the introductory paragraph of this section, lie in their cost effectiveness, productivity, and other related performances. In this respect, labor productivity, for instance, in the larger size group of firms employing over 500 is at least and on average twice greater than micro enterprises employing less than 51 workers. While labor productivity per year in the first (employing less than 26) and second group (employing less than 51) of firms figure 2263 and 3496 dollars, respectively, in the larger group it amounts to 6868 dollars (for firms employing between 500 and 1000), and 4831 dollar (for those employing above 1000 workers), respectively. There is also a consistent relationship: labor productivity is positively correlated with size, i.e., the larger the size, the higher the productivity. However, productivity per unit of wage bill for micro firms is only marginally lower than large firms, implying the relatively high cost that the former incurs. From the data the high labor productivity for large size firms can be attributed partially, to the relatively high capital intensiveness of large size firms. As shown in the same table, value added per unit value of capital input (productivity of capital) consistently increases with firm size, which can be attributed to greater technological capability of large size firms.

Table 5.20: Performance indicators of firm groups by employment size - 2002

Employment grouping	Factor productivity			F. intensity C/L (dollar)	Profit margin %
	Labor (dollar)	wage	capital		
Less than 26	2263	6.2	.212	7254	25.9
26 to 50	3497	6.3	.200	17492	13.5
51 to 100	4262	7.2	.218	19526	17.8
101 to 200	5312	6.8	.277	19203	21.7
201 to 500	5614	6.8	.405	13862	25.8

5001 to 1000	6868	7.5	.495	13868	38.8
Above 1000	4831	6.8	.350	13785	36.6

Source: Survey result and CSA's report on LMSME industries survey

To show the cost implication directly, profitability of these groups of firms is calculated using the ratio of gross value to cost of production. This increases from 25.9 for firms employing not more than 25 workers to over 36.6 percent for large group of firms employing over 1000 workers. This implies that the profit margin increases (and it increases consistently) from 26 percent to 37 percent, i.e., by 11 percentage points. The direct implication of this is that large firms, irrespective of all other factors are relatively cost effective than smaller firms.

What can be deduced from this section is that manufacturing industries in Ethiopia, even disregarding their number, which, by a national standard, is extremely small,⁷⁰ are composed of largely micro and small scale firms. This is so even allowing the margin for full capacity operation. The overwhelming majority of firms, given their current miniscule size, would not be able to exploit scale economies to significantly reduce their unit cost. What this implies is that, at least in the tradable sector, there is a need for new investment to identify the optimal minimum size, which could allow taking advantage of economies of scale. A policy guide, to put a limit or a restriction on the minimum size of firms that would be established in the future, in selected industries, should be in place. In fact, as competitiveness is the order of the day, even locally, all new investments must be provided with adequate advice on the issue of scale economies. Therefore, any promotional measure must take into account the size and hence the potential of firms to exploit scale economies

⁷⁰ Taiwan way back in the early 80s had over 700, 000 manufacturing firms [Lall, 1996]

CHAPTER VI

TECHNOLOGICAL BACKWARDNESS AND LOW TECHNOLOGICAL CAPABILITY

1. Introduction

Technological capability, i.e., the ability of productive enterprises to handle industrial technologies and cope with technical change, underlies the difference in the competitive status between industrialized and non-industrialized economies. Technical capabilities are the skills, technical knowledge and organizational coherence that enable productive enterprises to utilize efficiently machinery and equipment as well as technical information. As such it involves the technology embodied in physical equipment, the educational qualification of employees, the skills

and learning acquired by employees through training and experience, the entrepreneurial and managerial skills, and the degree of interaction and information flow between industries and firms. These elements constitute the basic determinants of technological development.

In the case of most developing countries, including Ethiopia, technological backwardness is also a cumulative result of various other factors, including importing and deploying technologies inappropriate to the countries endowments of labor/skill, the lack of fully assimilating or internalizing the technologies, and hence not use them at best practice levels of technical efficiency, lack of upgrading the technologies, limited diffusion of knowledge within a country, etc.

Though many factors account for the industrialization of a country, technological capability is the single most critical determinant. Over the last three decades, as a result of the socialization policy of the Derg, which arrested private sector industrial development, and lack of appreciation for the role of industry in economic development by the current regime, the development of technological capability has seriously deteriorated. Ethiopian manufacturing today is technologically backward. This can be shown using various factors such as investment rates, educational status and technical knowledge of employees, entrepreneurial and managerial skill, degree of automation of plants, quality control, maintenance capability, etc. Some of these issues are addressed below.

2. Investment in manufacturing

Developing technological capability requires adequate and continuous investment not only on machinery and equipment and related assets, but also on information, labor education and technical know-how, etc. As shown in Table 6.1, total capital stock for the entire manufacturing industry in 2002 figured only about 700 million dollars.⁷¹ This implies around 15 thousand dollars capital per head of productive worker, which

⁷¹ Financial figures need to be cautiously taken. There is not a standard and acceptable system of depreciation applicable for all firms. These figures have never been systematically checked by external bodies apart from what is stated by owners/managers.

is quite small. This is primarily a reflection of the size of manufacturing firms, which as discussed in the previous Chapter, are largely very small.

Table 6.1: Investment in manufacturing (value in 000 USD)

Description	1996	1997	1998	1999	2000	2001	2002	Avr.
Capital stock	356849	419722	453395	560777	627671	713749	723877	550862
Capital intensity- K/L	6.9	8.1	8.7	10.8	12.5	15.0	14.4	11
Manufacturing investment (MI)	36289	47161	58730	47820	49727	65405	54505	51376
Investment growth		30.0	24.5	-18.6	4.0	31.5	-16.7	9.1
MI / TVP	4.3	5.4	6.7	5.0	5.4	6.5	6.0	5.6
MI / GDP	0.60	0.74	0.90	0.74	0.76	1.00	0.90	0.8
MI /GFCF	3.6	4.3	5.3	4.3	4.8	5.6	4.4	4.6
Machinery / MI	48.2	53.0	55.9	44.0	50.5	42.6	34.6	47.0
Non-residential / MI	17.3	16.8	16.9	24.1	27.7	24.4	16.2	20.5
Other construct. / MI	8.0	6.7	8.2	12.4	10.6	11.3	20.7	11.2

Source: Survey result and CSA's report on LMSME industries survey

It also indicates the low investment level taking place regularly, be it for expansion, upgrading or new investments. Since the second half of the 90s, despite a reasonably adequate rate of growth, average annual investment remained very small - 51 million dollars. This implies an investment rate (as a proportion of total value of production) of 5.6 percent, or broadly taken, only 0.8 percent of GDP is invested in manufacturing annually. In light of the minimum requirement of about 20percent overall rate of investment for a take-off period during industrialization, the 5.6 percent investment level in Ethiopian manufacturing is extremely low. As noted above, in terms of value added, manufacturing contributes about 7 percent to GDP. But the corresponding share in total fixed capital formation is only 4.6 percent. Thus, the undeveloped nature of manufacturing is more conspicuous when seen from the investment point of view.

Apart from the low level of investment, the composition of different investment categories reveals an unfavorable pattern for technological development. One of the most important components in manufacturing investment is machinery and equipment. As shown in the same table, while the share of investment on non-residential and other construction has been increasing over the years, machinery and

equipment has been decreasing, on average, at more than 4 percent annually. For technological advancement, this is a distorted investment pattern. It reflects lack of appreciation for the idea that continuously upgrading and investing more on modern machinery and equipment has on technological capability improvement and competitiveness.

The low level of investment in manufacturing nevertheless indicates that little technological progress has been undertaken in the last decade or so. Moreover, irrespective of the level of investment, it was not directed towards industries of strategic importance for industrialization, be it for technological capability building, promoting export, creating high industrial linkages, or expanding agricultural inputs and accelerating its transformation. This can be shown using Tables 6.2, 6.3 and 6.4.

Table 6.2: Manufacturing investment by broad industrial group (000 USD)

Industrial group	1996	1997	1998	1999	2000	2001	2002	Avr.
Consumption goods ind.	24889	30439	46473	32442	33530	47356	39378	36358
Intermediate goods ind.	10019	15482	10168	13101	11436	16702	14709	12998
Capital goods ind.	1381	1240	2090	2277	4757	1347	1048	2020
Total investment	36289	47161	58731	47820	49723	65405	54505	51376

Source: Survey result and CSA's report on LMSME industries survey.

As shown in Table 6.2, for the seven year period, the bulk of total manufacturing investment, about 36 million dollars on average, was made in consumption goods industries. This accounts for 70 percent of total investment in the sector. [Table 6.3] Moreover, except for a couple of years it has been increasing substantially.

On the other hand, investment in capital goods industries was extremely small, on average 2 million dollars annually, accounting for just 4 percent of total investment. In fact, except in 2000, when a one time, relatively high investment (4.7 million) was made, for all other years, the average did not exceed 1.3 million dollars. Given the relatively large investment level required in capital goods industries, what is shown here can only facilitate minor upgrading and expansion activities. Moreover, the level of investment had steeply declined in the last two years of the period.

Table 6.3: Share of industrial groups in manufacturing investment (%)

Industrial group	1996	1997	1998	1999	2000	2001	2002	Avr.
------------------	------	------	------	------	------	------	------	------

Consumption goods ind.	68.6	64.5	79.1	67.8	67.4	72.4	72.2	70.3
Intermediate goods ind.	27.6	32.8	17.3	27.4	23.0	25.5	25.8	25.6
Capital goods ind.	3.8	2.6	3.6	4.8	9.6	2.1	1.9	4.0
Total investment	100	100	100	100	100	100	100	100

Source: Table 6.2

This investment pattern, therefore, clearly demonstrates the technological backwardness of the sector. Capital goods industries, as discussed above, create the basis for industrialization by providing machinery and equipment for all sectors of the economy. As such, it creates wide and significant externalities as it introduces new hardware technologies in the economy.

Similarly, intermediate goods industries, having the highest linkages in manufacturing, are instrumental for inducing industrial expansion and creating an internally vibrant, less dependant sector. But these industries too are not given due importance. Only a quarter of the total investment, about 13 million dollars on average, was invested in these industries. Its growth too has been inconsistent, facing a decline every other year.

From the point of view of industrialization, however, capital and intermediate goods industries should have been the sub-sectors where relatively the largest proportion of investment had been made. But to date, the investment pattern in the country has been to the contrary; industries with the least externalities and long-run economic benefits have been given the highest investment priority. This can be shown further by disaggregating investment by industry level.

Table 6.4: Industries with high investment shares (%)

Industry	1996	1997	1998	1999	2000	2001	2002	Avr
Sugar & S. confec.	19.9	5.4	2.6	8.1	4.7	13.5	25.3	11.1
Soft drinks	1.8	6.7	7.6	6.3	19.0	12.0	7.7	9.2
Brewery	10.7	7.1	10.3	8.7	7.6	3.3	9.9	8.0
Textile	3.3	4.8	7.9	2.6	7.5	13.1	4.2	6.7
Cement & lime	8.5	4.6	4.2	5.8	6.1	9.2	3.3	5.9
Foam & plastic	5.1	12.7	4.8	6.2	3.1	3.0	3.1	5.2
Footwear	5.4	3.7	5.6	5.6	6.1	5.0	3.2	5.0

Source: Survey result and CSA's report on LMSME industries survey

Table 6.4, tabulates investment shares in seven industries, each having a share of at least 5 percent of total manufacturing investment. These industries alone account on average, for about 50 percent of the investment. Further, two of the top most prioritized industries, sugar and soft drinks, alone account for 20 percent of the investment, which had been increasing significantly over the years. This is an extremely skewed pattern, which demonstrates that manufacturing investment is concentrated in few industries.

In addition to this, with the exception of cement, all other industries largely produce final goods for direct consumption.⁷² Some of these industries, such as sugar, textile, cement and footwear are natural-resource-based industries. But despite the priority given to them in terms of investment, these industries, as shown in Chapter Five, have little importance in foreign exchange earning. The major foreign exchange earning industry, the leather sector, for instance, has been given much less investment priority than these industries, even less than the least strategic industries, such as soft drinks and brewery, in terms of accelerating industrialization.

What is of more concern in this pattern of investment is that industries which are expected to be of critical importance for technological development, and in general industrialization, such as chemical, engineering, electronics, etc., were given insignificant shares in investment allocation.

As depicted in Table 6.5, for instance, the investment shares of industries producing basic chemicals, which are the most demanded intermediate inputs by most industries, and basic iron and steel, a critical input for all engineering industries including construction, are on average, only 0.8 and 2.4 percent respectively. Motor vehicles assembly and bodies' manufacturing have only a share of 2.2 percent. All other capital goods industries have a share of either 0.1 or less than 0.1 percent each.

Table 6.5: Industries with low investment shares (percent)

Industry	1996	1997	1998	1999	2000	2001	2002	Avr
Agricultural machinery, tools, and	1.4	1.7	0.7	1.5	2.0	1.6	1.5	1.5

⁷² Though sugar and textile industries provide small proportions of their output to final goods industries, most of their outputs go for direct consumption.

input producing ind.								
Basic chemicals	0.7	1.2	0.8	0.3	0.9	0.6	0.9	0.8
Basic iron and steel	1.1	2.1	3.3	4.6	1.6	2.8	1.2	2.4
Structural metal	2.3	0.8	0.1	2.1	1.3	0.2	0.4	0.9
Bodies of motor vehicles*	0.3	1.0	1.5	3.4	8.3	0.5	0.6	2.2
Parts & accessories of M.Vh.	0.0	0.0	0.7	0.0	0.0	0.0	0.0	0.1
Machinery for food and bevr.	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1
Ovens, furnaces, etc								0.0
General purpose machinery								0.0
Pumps and compressors								0.0
Car battery								0.0

Source: Survey result and CSA's report on LMSME industries survey

* Excluding the tractor assembly plant

What is more, firms, producing capital and intermediate inputs for agriculture, such as tractor assembly plant, simple hand tools manufacturing, and pesticide manufacturing plant (no fertilizer manufacturing enterprise which is fully operational in the market), have not been given any attention despite the long held policy which advocates priority to agriculture. Enhancing agricultural productivity and accelerating its transformation cannot materialize without the development of such industries. But, their investment share, for the seven year period, was only 1.5 percent. Therefore, the strategy which altogether neglected the industrial sector in general and the manufacturing sector in particular, while simultaneously advocating the provision of top priority to agriculture in investment allocation seems to be self defeating, as industrial backwardness adversely affects growth in agricultural.

Moreover, industries instrumental for technological advancement, such as electricity and electronics industries, information technology and the like, have not been given any attention in investment allocation.

What is also highly relevant, in the context of developing countries where most manufacturing plants are obsolete, is the level of investment on existing plants to replace, expand and upgrade the technology in general. In the case of Ethiopia, entrepreneurs were asked whether they would buy the same brand and quality of machinery and equipment if and when they decide to expand or replace the existing

plant. Interestingly, a large majority, 62 percent, preferred not to do so. They asserted that machinery and equipment are either no more on the market (in 40 percent of the cases) or would like to upgrade the technology (60percent).

This is clear evidence that most machinery and equipments are obsolete and need to be upgraded or changed⁷³. To look into this aspect of investment, firms were asked whether they have invested in the last 10 years or so, and if so for what specific purpose. As shown in Table 6.6, 42 percent of the firms have not invested at all, while the remaining 58 percent have made some investment for different purposes.

Table 6.6: Investment on existing plants (percent)

Investment category	Proportion
Not invested	42
Invested	58
Machinery and equipment	22
General expansion	17
Improve productivity	12
Improve product quality	7
Introduce new products	0

Source: survey result

In 22 percent of the cases investments were made to replace old machinery and equipment, while 17 percent for expansion. The remaining 19 percent was for improving productivity and quality. There is no investment directly meant to introduce new product quality in existing plants. Thus, of the total investment made by firms, the proportion earmarked directly for upgrading the technology is only 19 percent, though replacing old machinery with new ones might involve indirectly some technology improvement.

What can be concluded from this section is that, such insignificant rates and distorted pattern of investment, which has been going on for more than three decades has failed to induce any meaningful technological progress in the sector. In the absence of policy direction, even the small investment resource has been grossly misdirected

⁷³ Note that many of the manufacturing plants in Ethiopia are quite old: 20 percent of them were established before 30 years; another 10 percent before 20 years; still another 20 percent before 10 years. So 50 percent of them have been operating for more than 10 years. Of the remaining 50 percent, 30 percent were established before 5 years and the rest in the last five years. (survey result)

to less beneficial industrial-groups aggravating the backwardness and dependency of the sector.

This low level and distorted pattern of investment, therefore, is the prime factor for technological backwardness, which subjected the sector to remain dwarfed, less export oriented, extremely uncompetitive and dependent on the external economy, even for its own intermediate inputs. It is also this level and pattern of investment, which led to establish only a partial linkage between manufacturing and agriculture, where the latter feeds manufacturing with raw material inputs. But there is little or no forward linkage of manufacturing with agriculture. Capital goods and modern manufactured inputs to agriculture are the prime factors for enhancing its productivity. Lack of domestic supply of such inputs forced agriculture to be dependent on the external economy.

Lack of appreciation of industrial and technological development, and hence absence of policy guidance for investment allocation, therefore, has forced the economy in general and manufacturing in particular to remain technologically backward.

3. Sources of investment financing

It is obvious that such a small sector cannot generate enough re-investible funds (retained earnings) for industrialization. If industrialization is to accelerate, initial investment fund has to be sourced from other sectors, mainly from banks – special development banks/funds and/or commercial banks. However, the role of banks in Ethiopia for financing long term manufacturing development projects has been of little significance. As shown in Table 6.7, for the three year period, 2000-2002, for instance, bank loans for private investment accounted, on average, for only one quarter (26.2 percent) of total annual investment. The bulk of private investment, about 63 percent, was generated from internal sources. Similarly, firms were also asked about the contribution of bank loans in the start up capital. Again the share of bank loans is about 30 percent, while own fund makes up for over 50 percent. This is precisely why investment in manufacturing remained so low, and why the overwhelming majority of firms are micro and small scale.

Table 6.7: Share of financial sources in manufacturing investment (percent)

Financial sources	2000		2001		2002		Average	
	Private	Public	Private	Public	Private	Public	Private	Public
Own fund	62.9	90.7	75.7	79.2	50.6	50.5	63.1	73.5
Banks	32.1	3.9	9.6	4.4	37.0	47.0	26.2	18.4
Foreign	0.8	2.9	0.1	0.0	1.2	0.0	0.7	1.0
Others	4.2	2.5	14.6	16.4	11.2	2.5	10.0	7.1

Source: Survey result

The contribution of bank loans for public investment is even less significant than it is for private investment, though state enterprises can easily access from state owned Commercial Bank, if and when the government decides so.

In general, the role of banks as a source of investment finance is quite limited. Over 50 percent of the respondents have no plan to make major investments, as they do not have easy access to bank loan. For 52 percent of the cases, excessively high collateral requirement is the major deterrence for bank loans.

This calls for an active policy guideline to reorient the direction of bank loans and other investible financial resources towards long-term beneficial projects.

4. Age structure of firms

It is obvious that latest generation machinery and equipment are relatively high-tech oriented, and hence technically more efficient or more productive than older generation ones. The age structure of firms, therefore, reflects the degree of hardware complexity and efficiency and, in turn, the technical competitive status of firms.

To examine this, firms were asked about the year of establishment of factories and if they were new at purchase. As shown in Table 6.8, 50 percent of the total

manufacturing firms were in operation for not longer than 10 years, with 20 percent being less than five years old. Another 20 percent are between 11 and 20 years, while the remaining 30 percent are between 20 to 50 years old.

Table 6.8: Age structure of firms

Age structure	No. of firms	Share (%)
< 5	181	21
6 – 10	267	31
11 – 15	124	14
16 – 20	50	5
21 – 30	93	11
> 30	142	18

Source: survey result

It is of course difficult to draw any border line on the age structure to determine for how long will a given hardware remain technically efficient and competitive, as progress in technology is continuous and dynamic. In today's technological dynamism, even five years may be too long for one generation machinery and equipment to remain technologically competitive. However, based on general experience, depreciation of plants, particularly in developing countries, lasts for about 10 to 15 years, even though hard wares may not remain efficient enough throughout the whole period. In light of this general premise, about 50 percent of manufacturing firms may have difficulty to be technically productive enough to compete with new generation firms. Moreover, as discussed above, replacement investment on machinery and equipment is very small. On this ground, nearly half of the manufacturing firms are nevertheless obsolete.

In addition, as experience indicates, developing countries often purchase second hand or older generation machinery and equipment rather than new ones. If so, the above age structure based on years of establishment of firms may not provide the whole story about the relative technical status of machinery and equipment in manufacturing.

To gauge this, firms were also asked whether plants were new at establishment/purchase. 54 percent claimed that they were new, while 32 percent confirmed that they were second hand. The remaining 14 percent do not know the status of their firms at purchase. This means that about 50 percent of the plants,

which have been operational for the last 10 to 15 years, could actually be technically more obsolete than thought.

What this implies is that, as the prime factor of competitiveness is the technology embodied and the capability of labor to use it at best practice level, older generation machinery and equipment inevitably faces great challenges to remain technically competitive. Hence there is a need to reassess hard ware capability, make continuous investments for upgrading machinery and equipment to keep up with the technological development.

5. Production engineering

A direct reflection of the technological level of hard wares, machinery and equipment is the degree of automation. Today's production engineering is fully automated, largely robotic and computer driven and controlled. The role of labor is reduced to educated and high skill demanding operational activities and supervision supported by precision tools and equipment. In the case of developing countries this certainly is not the case.

But even disregarding the complexity of machines, a large portion of the activities are often manually operated. To see the status of technology from this angle, firms were asked to what extent their activity was machine driven/automated. As expected, only 10 percent claimed that it is fully automated, while the overwhelming majority confirmed that it is automated for up to 50 percent of the activities, the remaining activities being done manually.

This is the sort of technology meant to be labor intensive, where very difficult tasks are power driven and the rest manually performed. Therefore, Ethiopian manufacturing firms are, to a great extent, partially automated.

Obviously, this creates a challenge for being competitive with high technology driven machines and equipment in terms of productivity, quality standard, style, variety, etc.

It is, therefore, imperative that firms have to make significant investment to upgrade the technology of machinery and equipment, if at all they have to catch up and keep up with the fast progressing technology.

6. *Educational status of the workforce*

Today, even the most labor intensive and the simplest production processes, such as, for instance, garment industries, assembly plants, etc., require skilled labor capable of understanding, internalizing the process, and utilizing machinery and equipment of recent generation at best practices. This further leads to making changes and improvements in the production process thereby improving product quality and productivity. This is precisely the process of building up technological capability. But, such a process primarily requires a good background of not only basic education but also technical knowledge. Hence, the level and type of education the labor force acquire are key determinants of technological capability development.

A sample survey of 229 manufacturing firms with a total employment of 57, 525 is used to assess the educational status of the workforce. This is portrayed in Table 6.9. First, considering qualifications, 10 percent of the workforce is illiterate; 45 percent is at elementary school level (grades 1 to 8), and hence can only write and read; and another 35 percent is at high school level (grades 9 to 12), with no skill at all. The remaining 7 and 2.5 percent are diploma and degree holders, respectively. What is astonishing is that over 90 percent of the workforce has no skill at all, at least, at the time of employment. Neither there exist any system of on-job training. Of the entire work force, less than 1 percent is said to have received short term training. Thus, whatever skill the labor force has, it is only acquired through experience.

Perhaps the most important aspect of education from the point of view of technological capability building is the technical knowledge of productive workers. In this regard only 12 percent of the total workforce (or 19 percent of production workers) are engaged in technical activities. The remaining 80 percent of the productive force has no technical knowledge at all. Even among the technical workers only 2 percent of the total workers have diploma and above. Thus, nearly all technical workers have acquired their skill only through experience.

Table 6.9: Educational status of manufacturing workforce (% of total)

Educational standard	Proportion	Technical staff	Quality control	semi-skilled	unskilled
Illiterate	10.1	0.9	0.0	2.4	5.4
1 to 8	45.0	3.4	0.3	12.0	20.0
9 to 12	35.4	5.2	1.8	11.4	6.1
Diploma	7.2	1.9	0.4	1.2	0.0
Degree	2.4	0.4	0.2	0.0	0.0
Total	100	11.8	2.8	27.0	31.5

Source: survey result

Moreover, one of the major determinants of competitiveness is product quality. In this connection, only 2.8 percent of the workforce is engaged in quality control activities. Internal quality standard control is little known in manufacturing. Even quality standard control of the government does not seem to have the capacity to cover all firms/goods. 40 percent of the enterprises responded that there is not any external quality standard control agent, government or otherwise. In general, only 10 percent of the firms claimed to have ISO 9000 or 14000⁷⁴. Even believing this to be the case, the evidence still shows the technological backwardness and low competitive status of firms.

Considering production workers in general, 80 percent of them (nearly 60 percent of total works) either have rudimentary skill or no skill at all. In fact, the larger proportion has no skill at all.

This general picture of the educational status of workers, however, markedly differs from industry to industry. Table 6.10 depicts some industries with relatively high proportions of professional staff (diploma plus degree) and low proportions of unskilled labor, to total workers.

Table 6.10: Industries with high educational qualification (percent)

Industry	No of sample Firms	Professionals	Unskilled
Fabricated metals	10	48	8.1
Rubber products	3	30	2.8
Bodies of motor vehicles	2	26	1.0
Candle and similar products	3	25	0.0

⁷⁴ It is very likely that this figure is exaggerated. It is often said that very few firms have international quality standard.

Pharmaceuticals	3	25	29.1
Paints and varnishes	5	24	16.4
Brewery	3	23	15.0
Structural metal, tankers, reservoirs	9	22	26.2
Basic iron and steel	6	22	19.2

Source: Survey result

A direct reflection of the general low educational status of workers at sectoral level is that even in industries expected to have relatively high qualified staff, professionals account for less than half of the respective work force. Such industries are largely capital goods or engineering related industries, including fabricated metals, bodies of motor vehicles manufacturing, structural metal work, basic iron and steel, etc. It also includes some chemical related industries such as pharmaceuticals, paints and varnishes. But as shown in Table 6.10, the proportion of professional staff for most of the industries, except fabricated metals, which is about 48 percent, is below 30 percent. For the standard of such industries where technical know is a prerequisite, this level of professional staff is extremely low. In fact, for some of these industries, such as pharmaceuticals, structural metal, basic iron and steel, etc., the proportion of unskilled labor is equal to or greater than the number of professionals.

Table 6.11: Industries with low educational qualification (percent)

Industry	No of sample firms	Professionals	Unskilled
Sugar and S. confectionary	3	3	76.6
Textile	11	6	7.3
Leather tanning	9	8	12.0
Garment	12	7	23.2
footwear	12	7	7.3
Soft-drinks	5	5	10.6

Source: Survey result

Table 6.11 shows selected industries having relatively low proportions of qualified staff. In fact, there are firms with much lower proportion of qualified staff than these. But these are selected on the ground that some of these, including sugar, textile, leather tanning, and footwear are given relatively high importance by policy makers for their being natural-resource-based industries. These industries have an insignificant proportion of professional staff – 3 to 8 percent of their respective work

force. On the other hand, in all these industries the proportion of unskilled labor much exceeds that of professional, particularly in sugar and garment industries.

But note that these are some of the industries where relatively high investment allocation is made, [Table 6.4] and which are also identified as priority areas for future support and promotion. Though the criteria for selection are contentious⁷⁵, it implies that a major area of improvement would be significant skill upgrading. Technological capability building, particularly in Ethiopia, should focus on making a radical change in the educational background and skill of the labor force in general.

The labor force in Ethiopian manufacturing is, therefore, the least qualified for improving technological capability. It should be underlined that East Asian newly industrializing countries, particularly South Korea, Taiwan and Singapore, deliberately established selective and specialized educational and training institutes during their industrialization program. The institutes were specifically tailored to meet the skill demand of industries, such as chemical engineering, electronics engineering, information technology, industrial engineering, etc. Singapore, in particular, deliberately created high skilled staff, which was nevertheless its only major comparative advantage along with its geographical location, to attract foreign investment (see Chapter Nine). What this implies is that, a labor force lacking a good educational background and devoid of any skill, such as that existing in Ethiopia, can hardly develop technological capability on its own and only from experience. Industrialization today is knowledge-intensive development. It is, therefore, a prerequisite for industrialization to entirely over-hall the educational and training programs in the country focusing on science and technology.

7. Technology acquisition and capability building

As noted above, technological capability building necessitates investing not only on machinery and equipment, but also on human skill and information. As discussed in the preceding section, the level of investment in manufacturing is extremely small. In addition, however, there is a system failure for acquiring, diffusing and developing technological capability, both on the part of the government and the private sector.

⁷⁵ See forthcoming report on "Industrialization and industrial policy in Ethiopia", EEA/EEPRI, 2004.

The latter requires some degree of industrialization and market availability to establish and develop such a system. Currently, it is only uncoordinated individual effort that is widely operational at rudimentary level.

As shown in Table 6.12, in 35 percent of the cases, firms acquire technological advice largely from an internal source - own employees. In 20 percent of the cases, they use foreign business partners and friends leaving abroad. Domestic business friends account for another 20 percent of the information they require. Government establishments provide only 8 percent of the required advice or information. And it is largely state enterprises which benefit from government establishments. In a related study on the status of export support services in Ethiopia, only 26 percent of the respondents surveyed confirmed to have somehow benefited from a government agency (the Ethiopian Export Promotion Agency). But 80 percent of them are unsatisfied with the services provided. [Berhanu and Kibre, 2003] In fact, government institutes, agencies, ministries, etc, such as Science and Technology Institute, Micro and Small Enterprises Development Agency, Ethiopian Export Promotion Agency, the Ministry of Industry and its affiliates at large, etc, are not primarily meant for advancing technology. As in all other cases there is a policy vacuum in this regard too. This is a major shortcoming. In all industrialized and newly industrializing countries, governments had taken leading roles in their respective economies in promoting technology. In Ethiopia, it is not even started.

Table 6.12: Sources of technology information

Source	proportion
Internal/firm	35
Domestic business/friends	20
Foreign business partners individuals	20
Government	8
Others	17

Source: Survey result

Further, the system of technology transfer agreements at purchase, subcontracting, licensing product manufacturing with foreign firms, etc, that are widely operational in other countries and which are effective for technological capability building, are little known in this country. Nearly 60 percent of the firms have no agreement with suppliers at purchase about technical support on the operation of machinery and equipment or staff training. Ninety percent of the firms know no subcontracting or licensing to produce specific products from foreign firms.

The previous sections have shown that determinants of productivity levels in manufacturing industries, such as investment, degree of automation of plants, age structure of firms, and educational status of workers indicate the existence of unfavorable condition for industrialization and competitiveness. And this section shows that some of the remaining factors for industrialization and competitiveness are also grossly lacking. These factors are largely external to firms/industries, which demand the government to take a central facilitation role.

8. Infrastructure technology

Infrastructure plays a pivotal role for industrialization. It determines transaction and production costs, thereby influencing the competitive capability of firms. The state of infrastructure facilities in Ethiopia such as roads, power, water and electricity and communication media are underdeveloped, unevenly distributed among regions and services are scarce and frequently interrupted. Inadequate and inefficient infrastructural service not only incurs high transaction costs but also restrains entry of new investors.

8.1 Surface transport

The modality of surface transport services in Ethiopia is limited. Railway service is rudimentary. Ethiopia has the lowest road density in Africa and only 15 percent of the national road network is paved. [UNCTAD, 2000] A large part of the rural area is inaccessible by road. Moreover, as a result of technologically backward maintenance facility and financial incapability, existing roads are not often in good conditions. This entails significant delays in freight transport across the country, including in and out of seaports. Survey result shows that nearly 60 percent of the respondents complained about the problem of significant delays in road transport. Besides its direct effect on the cost of transaction, it also restrains access to cheaper areas of raw materials and selling products to potential markets.

On the other hand, Ethiopia has a reputable airline which provides efficient air links with the rest of the world, and to a limited extent locally. Its service to the manufacturing sector is, however, limited and less useful than road transport.

With respect to freight transport services, the result of the survey proves that the large majority of firms, about 79 percent, have their own trucks. The rest depends on rental services. For 78 percent of the respondents, access to rental facilities is not a problem. However, for those firms located in regions such services are limited and incur additional significant costs.

Among firms having their own transport facilities, just about 50 percent have also their own garage and auto technicians to handle maintenance and repair works. The remaining half, however, use rental technical services. The latter reported that extra cost is incurred due to inefficiencies of private garages. About 42.6 percent of the respondents estimated the extra cost to constitute about 2 percent of the normal maintenance cost, while about 38 percent estimate the extra cost to be as high as 5 to 15 percent.

8.2 Energy

In spite of the availability of different alternative sources of energy, such as nuclear energy, the technological incapability of the country has forced it to be confined to only hydroelectric power generation. Even in the case of hydroelectric power, Ethiopia has the lowest energy per capita consumption in Africa. Adequate and efficient supply of energy is a prerequisite for industrialization. In spite of this, however, it is the least developed in Ethiopia. Only about 5 percent of the population has access to electricity. [UNCTAD, 2000] Though the country is said to have many large rivers capable of generating an estimated hydroelectric power of about 15 to 30 thousand megawatts, which makes it one of the most resourceful country in the region, nonetheless, it has been able to make use of only less than 1 percent of the available potential. According to the World Bank, while the average per capita energy consumption of Sub-Saharan Africa is about 454 KWH, (which is nearly one-fifth of world average), in Ethiopia it is only an insignificant 22 KWH.

The problem, however, is not only the limited supply, but also its irregularity and high variability. The latter either damages equipment in cases when it is excessively high

or fails to drive machines in the case when it too low. Besides the frequent interruption and variation of power, which is a reflection of the technological backwardness of the system, a rationing mechanism is at times introduced to address the shortage of supply. The impact of inadequate and irregular power supply on the competitive status of firms is significant. 88 percent of the respondents reported that frequent interruption incurs additional costs. To minimize such additional costs, 36 percent of the firms surveyed have installed standby electric generators. The remaining large majority of firms depend on the central power supply. As a result, the impact of power interruption differs significantly across firms. First, the frequency of power interruption, for instance in Addis Ababa, varies by locality. Some areas are relatively more prone to interruptions than others. Second, the degree of automation of firms also differ, hence more manually operating firms are relatively less affected than fully automated firms. Obviously, the revenue loss of firms with power generators is expected to be less than those having no generators.

Table 6.13: Electric Power cutoff and revenue loss (percent)

Respondents	Revenue loss
10	25 - 40
10	18 - 20
10	12 - 15
15	10
10	6 - 8
15	5
15	3 - 4
15	1 - 2

Source: survey result

Accordingly, as shown in Table 6.13, the annual loss of revenue, as a percentage of average yearly production value, ranges from 1 to 40. For instance, for the least affected groups, about 45 percent of the firms, the revenue loss ranges from 1 to 5 percent. On the other hand, heavily affected firms, about 10 percent, have reported to have incurred revenue losses as high as 25 to 40 percent of their production value. The mean revenue loss is about 10.25 percent.

Note that in the case of power rationing, for instance in the first half of 2003, two days of interruption per week (6 working days) implies that firms will be down for 33

percent of the normal working days, particularly for those without standby power generators. As such, overhead costs, wages and salaries, and other related daily expenses (whether the machines and equipment are running or not) are direct additional costs.

Inadequate and frequent interruption of electric power supply, therefore, poses a considerable adverse effect on the competitiveness and profitability of manufacturing firms. Moreover, it deters new investments, particularly foreign investment. A would be efficient foreign investor is not expected to operate in a foreign country where basic infrastructure is not adequately provided.

8.3 Water supply

Technological backwardness in Ethiopia is not limited to transport and energy sectors. The supply of potable water is archaic and extremely inefficient. Nearly one third of the volume of water supply in Addis Ababa, for instance, is said to be wasted along the distribution system, before it reaches consumers as a result of rusted and broken water pipes. About 57 percent of the firms surveyed reported frequent interruption of water supply, which incurs an additional cost of 5 percent of normal consumption.

8.4 Communication

Perhaps the least progress that Ethiopia has made to date is in information technology. Computers are only known in major towns, and selected government and private enterprises in these towns, and also rarely effectively utilized. Country wide Internet connection was as low as 0.01 per 10, 000 people by the end of 1997. [UNCTAD, 2000]

An efficient and modern communication system is absolutely a prerequisite for effective and competitive production and trade activities of firms. The cost of poor communication on business ranges from loss of potential business (contracts which are never pursued due to lack of information) to a real loss associated with loss of customers owing to orders missed or late shipment. [Berhanu & Kibre, 2002]. In connection with the manufacturing sector, survey results indicate that 57 percent of

the firms claimed to have their own internet connection, while the remaining either have rental access or use other communication means, mainly telephone and faxes. Telephone is the most widely used communication service among firms. The waiting time for main line connection is greatly reduced by the introduction of the mobile system.

Although, as noted above, as many as 57 percent of firms claimed to have internet connection, it is not effectively utilized. For instance, the share of internet bills, out of the total annual communication cost of firms is only 6 percent. While telephone expenses account for 75 percent, faxes and postal services take 13 and 6 percent of the total bill, respectively. What this indicates is that, effective use of new technology among firms is still rudimentary.

In summary, it is evident that, in the single most critical determinant of industrialization, i.e., technology and technological capability, the Ethiopian manufacturing sector is extremely backward. The relative share of investment in manufacturing – investment both in hardware technology and educational and skill development of employees - is very small. As a result, most machinery and equipment are aged, technologically backward, and less automated, hence inevitably less precise, less efficient, and produces poor product quality than recent robot and computer driven technologies.

Moreover, even the small amount of investment allocated to manufacturing largely goes to consumption goods industries, which have less strategic importance for industrial development. This has created an internally unbalanced sector, which is heavily dependent on the external economy for its inputs and technological development. Strategic industries which would be capable of creating technological externalities and which are pivotal in creating a less dependent manufacturing sector are given less importance and priority in investment allocation.

The educational background and technical skill of workers is extremely poor. Workers do not in general have the capability to introduce better techniques of applications or even understand and fully exploit new technological developments.

Information technology, which greatly facilitates production and trade, is least developed in the country, and ineffectively employed in manufacturing.

All these adversely affect the productivity and competitive status of the sector as a whole (see details in Chapter Seven). In a list of 79 developing countries ranked in terms of technological capability and industrial skill of workers, based on the analysis of skills used to produce a particular mix of engineering products each country is reported to have, Ethiopia ranked one of the least, 73rd out of 79 countries. [UNIDO, 1990]

It is therefore evident that the prime target of industrialization in Ethiopia should be to conduct a technology inventory of manufacturing firms and update hardware technology accordingly. It is also essential to devise an effective educational and technical skill development mechanism to enhance technological capability of workers. This has to be primarily implemented in strategic industries. Moreover, as the sector is too small, as it stands now, more attention should be given to new investments. Towards this end, policy measures and incentive structures should be introduced to attract investment significantly in strategic industries.

CHAPTER VII

DECLINING PRODUCTIVITY, LOW PROFITABILITY AND LACK OF COMPETITIVENESS

1. Introduction

As discussed in the preceding two Chapters, the status of many of the factors influencing industrial productivity and competitiveness is not encouraging. Lack of technological capability, in other words, low level of investment and distorted industrial priority setting, backward embodied technology, lack of labor training programs and facilities, poor educational background and extremely low skill of labor, the micro nature of the large majority of firms, and hence lack of exploiting economies of scale, etc., all implies low productivity level in the sector and low capacity to compete internationally.

Productivity growth can be used for policy impact analysis including foreign exchange payments and exchange rates, trade policy, investment licensing and pricing policy. It

can be used for comparative purposes between different economies (developed and developing, liberalized and less liberalized, etc). Productivity differences between technologically similar plants in different countries are of interest in themselves for the insight they provide into the industrialization process. Productivity levels in developed economies also serve as the productivity frontier for the developing ones. They also suggest that there may be high social rates of return from industrial projects that improve performance.

Moreover, for any economy, sustained international competitiveness requires a productivity level and rates of change equal to or exceeding those of competing countries. Without competing levels of productivity growth, industrial expansion in general and competitiveness in international markets in particular will not be possible or at least sustainable. Therefore, investigating the levels and rates of growth of productivities of manufacturing industries is of paramount importance for an assessment of the sector's current or potential competitiveness.

This Chapter addresses productivities and profitability trends and growth at sectoral, industry and firm levels. Further, implications for international competitiveness and capacity utilization are also discussed.

2. Determinants of productivity and competitiveness

Domestic and international competitiveness⁷⁶ of an industry (or a firm) is influenced by mutually reinforcing internal and external factors. External factors, those beyond the direct control of firms or industries have to do with the production environment. Such factors include government policies and incentives within which enterprises operate. These are macroeconomic and sectoral policies, legal and regulatory measures, trade and investment specific incentives, etc. Specifically they include, inter alia, tariffs, taxes, subsidies, foreign exchange rate and allocation system, pricing policy, state monopoly, licensing, etc. The level or stage of development of a country, including availability of infrastructure (roads, telecommunication, power,

⁷⁶ Various definitions of competitiveness are used depending on the scope of the study. In this study we follow the general definition of competitiveness as the ability to sell both in the international and domestic markets. This involves factors influencing not only productivity, largely internal to the firm/industry, but also other external factors including transaction costs.

water, etc.) and demand conditions, supply of export support services, and the nature of the international trading regime (i.e., international trade laws and regulations) are also part of external factors that affect transaction costs, hence competitiveness. [Berhanu & Kibre, 2002] These factors significantly affect the competitive status of industries, particularly in the international markets. In fact, recent studies about the process of industrialization based on experiences in South East Asian countries or the lack of competitiveness of the African manufacturing sector emphasize the role of deliberate strategic interventions by the state through subsidies and the like, [Rodrik, 1999] or other policy variables such as real exchange rate misalignment [Elbadawi, 1999] or factors affecting transaction costs [Collier, 1997] as the most crucial determinants of industrialization and international competitiveness.

On the other hand, factors within the direct reach of enterprises basically determine the physical productivity level, and hence the unit cost of production of a given quality product. While external factors can determine the international competitiveness of otherwise efficient firms, inefficient firms can hardly compete in international markets even if they have a conducive external environment. The fundamental determinants of competitiveness are the level and rate of growth of productivity of factors, which are largely influenced by aspects internal to the firm. Factor productivity is an important component of industrial growth and development. On the supply side, the growth of an economy, (industry or firm) is determined by the rate of expansion of its productive resources and by improvement in their efficiency – that is, the rate of growth of total factor productivity. Perhaps, one of the most significant stylized facts that have emerged from the empirical literature is the importance of productivity contribution to output growth. As much as one-third to one-half of output growth can be contributed by growth in productivities. [Dollar, et al, 1990] Where the growth of employable resources is constrained, high rates of productivity growth are critical to the growth of production.

Conceptually, factors affecting the efficiency of an economic unit of production, such as a firm, can be classified into two categories: those within the firm's sphere of direct influence and those outside a firm's direct control. [Nishimizu, et al. 1986] Factors within a firm's sphere of direct control are those referred to as technology. These factors can be further divided into two groups. One group has to do with the efficiency of each input, which can change quite independently of the input's quantity in production and also independently of the amount and efficiency of any other input combined in production. This group includes factors such as the influence of training

and education on labor productivity, new technology embodied in machinery and equipment, and high grades of primary inputs. The other group of factors affect the efficiency of different inputs simultaneously and the efficiency of interaction among different inputs in a production process. It includes management of a firm, layout of physical plant, economies of scale, efficiency in the management of product portfolio, and other factors that take advantage of what is called economies of scope (for example, shared overhead costs among different production lines).

In manufacturing, all aspects of the quantity and quality of labor and capital discussed in the previous Chapters, including investment levels and priorities, degree of automation, age structure, size and economies of scale, educational background of labor, training and experience, etc. in general technological capability constitute major factors for influencing productivity. With respect to labor, there is a close relationship between worker productivity and human capital acquired through training or schooling. Technological capability, i.e., the ability of workers (and firms) to use, adapt and develop the technology, significantly influences productivity level. Similarly, the size of the capital stock, the quality or technology embodied, and social overhead capital (availability and reliability of infrastructure) all affect productivity. Accordingly, using a comprehensive and effective measure of technical efficiency of a firm is total factor productivity. Total factor productivity (TFP) can be thought of as an index that sums up the partial productivities of all inputs in a production process, so that the efficiency with which all inputs are utilized and combined in production can be captured jointly. In quantitative terms, it is a measure that compares output not only with labor input but also with tangible capital, each weighted by the market value of its services.⁷⁷ In this Chapter, for the purpose of tracing labor and capital productivity growth in manufacturing and comparing productivities of industries overtime with profitability, partial productivity approach is employed.⁷⁸ [Little, M.D. et al, 1987]

A partial (single factor) measure of productivity may show the development of productivity overtime as a result of changes in the given factor, labor or capital, within a sector or industry, keeping the other factor(s) constant. It can capture the relative/comparative productivity level of a given factor between firms having identical production functions. In practice, however, firms may not have identical production

⁷⁷ See Howard Pack (1993); Dollars D. & K. Sokoloff (1990); Berhanu and Kibre (2001). On total factor productivity in Ethiopian manufacturing, for the last decade or so, see Befekadu and Berhanu, 1999/2000 and 2000/2001.

⁷⁸ For a detailed analysis of TFP, see forthcoming report on "Industrialization and industrial policy in Ethiopia" EEA/EEPRI, 2004.

functions. One firm may adopt a labor and intermediate inputs-intensive production technique, while the other prefers a capital-intensive production technology. To account for this, factor intensities could be analyzed along with partial factor productivities. Moreover, a change in one factor inevitably affects the productivity level of the other. For example, a change in the technological level of physical capital not only affects the productivity level of capital itself but also that of labor. Also, changes in the quality of intermediate inputs are reflected in the productivities of labor and capital. Labor productivity therefore may be observed because of greater efficiency on the part of labor itself as well as increased efficiency of capital and quality of other inputs. Hence, partial productivities can be effective instruments to measure changes overtime and to compare industrial productivities. In this Chapter partial labor and capital productivities along with capital intensity and profitability of firms are used to assess the relative productivities of industries and their competitive potential.

3. Productivity and profitability trends in manufacturing

Table 7.1 shows ratios of labor productivity (real value added per employee), capital intensity (real value of capital stock per head of employee), productivity of capital (real value added per unit value of capital stock), average real wage rate, and profitability, calculated as value added net of wages per unit of capital stock over the seven year period, 1996 to 2002⁷⁹. As clearly shown in this table, between 1996 and 2002, labor productivity declined from 4580 dollars per worker per year to 3460 dollars. Labor productivity fell steeply until 1999, with a marginal improvement in the last three years of the period. Over the seven year period, it declined on average, by 3.6 percent annually.⁸⁰ [Table 7.2] The average wage rate for the period, shown in Table 7.1, was about 780 dollars, implying a daily wage rate of less than two dollars. Given this and the productivity level, labor generates a value added nearly 4.5 times its remuneration.

Table 7.1: Productivity and profitability in manufacturing

Year	Labor productivity	Capital intensity	Capital productivity	Wage rate	Profitability
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⁷⁹ Wage is deflated by consumer price index., value added by total manufacturing output deflator and capital stock by machinery and fabricated metal products deflator provided by CSA [CSA, February 2001].

⁸⁰ For the decline in TFP for the previous years, see Befekadu and Berhanu, 1999/2000.

1996	4.58	4.23	1.08	0.68	0.92
1997	4.13	4.61	0.90	0.81	0.72
1998	4.30	5.78	0.74	0.77	0.61
1999	3.05	7.64	0.40	0.73	0.30
2000	3.39	8.42	0.40	0.75	0.31
2001	3.42	9.09	0.38	0.82	0.29
2002	3.46	8.87	0.39	0.89	0.29
Average	3.76	6.95	0.54	0.79	0.43

Source: survey result and CSA's report on LMSME industries survey

NB. Productivities, capital intensity and wage rates are in thousand USD

Moreover, what is more concerning about labor productivity in Ethiopian manufacturing is that the decline in labor productivity took place in the face of a monotonic increase in capital intensity. Capital intensity increased annually by 6.95 percent. As discussed in Chapter Six, investment in manufacturing in the same period was not large.⁸¹ Hence, the increase in capital intensity was not due to a high investment rate, or even a significant shift towards a more capital intensive production technique, though this is an inevitable trend. It was largely due to capacity underutilization (see section below), which forced employment to remain stagnant. Over the same period of time, employment increased only marginally, on average, by 0.73 percent annually, while capital stock increased by 14 percent.

However, the significant rise in capital intensification, failed to induce growth in value added. Actually, over the same period of time, real value added declined, on average, by 3.13 percent annually. This corresponds with the decline in real labor productivity, which decreased annually by 3.6 percent, on average, over the same period of time. [Table 7.2] Thus, the decline in value added on the one hand, and increase in capital intensity on the other, implies a fall in capital productivity, which sharply declined by nearly 14 percent annually.

Table 7.2: Annual changes in productivity and profitability levels (percent)

Year	Labor productivity	Capital intensity	Capital productivity	Wage rate	Profitability
1996	-----	----	----	----	-----

⁸¹ As footnoted earlier, the accuracy of financial figures need to be taken cautiously, as all firms do not adopt standard depreciation method.

DECLINING PRODUCTIVITY, LOW PROFITABILITY AND ...

1997	-9.69	8.98	-17.13	18.63	-21.68
1998	4.14	25.54	-17.04	-4.30	-15.41
1999	-29.03	32.22	-46.32	-5.14	-50.28
2000	11.06	10.20	0.78	1.70	3.47
2001	0.84	7.94	-6.58	10.00	-8.97
2002	1.12	-2.46	3.68	8.24	1.37
Average	-3.59	13.74	-13.77	4.86	-15.25

Source: Table 7.1

The decline in productivities of both labor and capital means a fall in total factor productivity. As the share of labor in value added, represented by the ratio of total wage to value added, is quite small, (on average, 21 percent) the rate of decline in total factor productivity would be much higher than labor productivity, and lower than capital.

The fall in total factor productivity indicates the deterioration in production efficiency. In other words, it implies increasing unit cost of production over the period. This is also indicated by a substantial decline in the rate of profitability.⁸² Not only as a result of the decline in labor and capital productivity, but also an increase in the wage rate by 4.86 percent, profitability fell by over 15 percent, annually.

As noted in the preceding paragraphs, current productivity of labor is quite low. Moreover, the declining trend literally indicates not only the deterioration in the competitive status of the sector but also the process of de-industrialization. The only alternative to catch up with competitive productivity levels is by making sustainable improvement in the technological capability of labor and updating the technology of machinery and equipment.

4. *Productivity and profitability by firm size*

A further analysis of productivity in manufacturing is related to the size structure of firms, where size is determined by employment level. This aspect of the analysis

⁸² The rate of profitability is given by value added (net of wages) per capital stock

carries important policy implication as it provides information on the relations between size and productivity and competitiveness, and whether factor intensity is correlated with size and productivity levels.

Tables 7.3a and 7.3b depict factor productivities, factor intensities, wage rates, and profitability for the six year period 1997 – 2002. As shown in these tables, what has been discussed above in the preceding section, i.e., the declining of labor and capital productivities and profitability and the increasing of capital intensity, also hold in the case of firms disaggregated by employment size. The difference is one of degree or magnitude. For instance, capital intensity for medium size firms, employing between 101 to 500 workers, show only a marginal increase while all other size groups of firms show a clear rising trend. Also labor productivity for the 101 – 250 employment size group does not decline significantly, while all other size groups of firms indicate a substantial decreasing trend.

However, there are some distinguishing features among different size groups of firms when considered from the point of view of cross sectional structure. First, for all the years, both labor and capital productivities increase with size, except for the largest group employing more than 1000 workers. In this group labor productivity, for all the years, is lower than the 501-1000 employment group size. In general, larger size firms show significantly higher labor and capital productivity levels. The highest labor productivity in all the years is recorded in the 500 to 1000 employment group, while highest capital productivities are achieved in the two largest size groups employing above 500 workers.

Capital intensity, however, does not increase with size. There seems to be no clear correlation between size and factor intensity, and hence between productivities and factor intensity.⁸³ In fact, except for 2000 and 2001, capital intensity was highest in the 26-50 and 51-100 workers employing groups of firms. These two groups of firm sizes are relatively small, and as shown in the tables, productivities, both labor and capital, are relatively low. On the other hand, and for most of the years, the lowest capital intensity was recorded in the largest size group, which employs over 1000 workers, followed by the micro size group of firms which employ less than 26 workers. There is no a clear cut pattern of correlation between factor intensity and

⁸³ For a quantitative measure of correlations between factor intensity and productivity, see forthcoming report on “Industrialization and industrial policy in Ethiopia”, EEA/EEPRI, 2004.

firm size, on the one hand, and productivities and firm size, on the other. What should be underlined in this size structure is that, the relatively most labor intensive size group, employing over 1000 workers, is at the same time the least labor productive.

Other aspects of interest in connection with productivities involve wage rates and profitability. Wage rate consistently increased with employment size. Larger employment groups pay relatively higher wage rates. Despite this, however, as a result of greater labor and capital productivities, profitability increases with firm size. For all the years, as the size of firms increased, so did profitability. As discussed in the previous section, increase in both labor and capital productivities means increase in total factor productivity. Increase in total factor productivity implies a decreasing cost of production, hence increasing efficiency. Therefore, in the Ethiopian case, larger size firms are relatively more efficient and competitive than smaller ones.

What can be drawn from this section, are as follows. First, given this size structure or employment category, the tables show that the largest size group employing more than 1000 workers consistently reveals relatively low labor productivity and capital intensity, at least compared to the 500-1000 employment group. It does not seem to fit in the overall trend. It seems that this size category is not operating at optimum level of factor combination. Note that nearly all firms in this category are state owned. Over-employment, which has been a feature of state enterprises for long, seems to continue even today. Or if the right combination of factors is assumed, then it implies that the optimum firm size in manufacturing lies somewhere in the 500-1000 employment group.⁸⁴

Second, smaller size firms seem to be less productive than larger ones. Total factor productivity increases with firm size.⁸⁵ Larger size firms have in general better opportunities to exploit scale economies than smaller firms. As noted above, despite higher wages, profitability is higher in larger size firms, implying lower cost of production, and hence more efficiency and better competitiveness. This has a profound policy implication for future investments in manufacturing; there is a

⁸⁴ Note that any level of size category can be drawn, though, in general, the higher the disaggregation, the better. The size classification followed here is believed to be adequate for the analysis in this Chapter. To investigate the optimum firm size, further disaggregation of the 500-1000 group may be desirable.

⁸⁵ For all the years, productivities of both labor and capital increased with firm size, implying an increase in TFP with firm size.

minimum firm size below which competition would be difficult if not impossible. Towards this end, some policy measures should be in place.

Finally, as shown in Tables 7.3a and 7.3b, labor intensiveness is not a distinguishing feature of either small or large size firms. It is rather the technological status that determines it; relatively modern or high technology firms/industries are obviously less labor intensive. Further, and most important of all, relatively labor intensive firms/industries are not necessarily more productive than capital intensive ones. As shown in Table 7.4 (next section), of the top 15 relatively high labor productive industries, only two of them (13%) have high labor intensity (or low capital intensity) while nine industries (60%) have low labor intensity (or high capital intensity).⁸⁶

⁸⁶ This can also be shown using another approach, such as a regression analysis. See forthcoming report on "Industrialization and industrial policy in Ethiopia", EEA/EEPRI, 2004.

Table 7.3a: Productivity and profitability by firm size 1997 - 1999

	1997						1998					1999				
	Firm %	Y/L	K/L	Y/K	W/L	Y-W/K	Y/L	K/L	Y/K	W/L	Y-W/K	Y/L	K/L	Y/K	W/L	Y-W/K
	52.5	2.11	5.26	0.40	0.44	0.32	1.68	4.26	0.39	0.41	0.30	1.60	5.54	0.29	0.40	0.22
	14.3	3.07	6.51	0.47	0.52	0.39	2.52	8.40	0.30	0.54	0.24	3.34	8.68	0.39	0.60	0.32
	9.3	3.02	6.98	0.43	0.66	0.34	3.18	9.94	0.32	0.69	0.25	3.01	8.05	0.37	0.69	0.29
	10.7	4.76	4.85	0.98	0.84	0.81	3.77	5.13	0.73	0.83	0.57	3.90	7.47	0.52	0.83	0.41
	6.6	4.62	5.80	0.80	0.92	0.64	3.49	6.84	0.51	0.87	0.38	3.37	5.46	0.62	0.85	0.46
	4.3	6.70	6.34	1.06	1.07	0.89	6.92	5.26	1.31	1.01	1.12	6.02	7.01	0.86	0.98	0.72
	2.3	3.62	2.64	1.37	0.72	1.10	4.65	2.87	1.62	0.75	1.36	2.58	3.88	0.67	0.70	0.49

Source: Calculated based on survey results and CSA's report on LMSME industries survey

Table 7.3b: Productivity and profitability by firm size 2000 - 2002

Employment group	2000						2001					2002				
	Firm %	Y/L	K/L	Y/K	W/L	Y-W/K	Y/L	K/L	Y/K	W/L	Y-W/K	Y/L	K/L	Y/K	W/L	Y-W/K
10 – 25	48.5	1.37	5.32	0.26	0.37	0.19	1.65	6.06	0.27	0.37	0.21	1.30	4.17	0.31	0.34	0.23
26 – 50	16.3	2.66	6.57	0.40	0.52	0.33	2.48	7.74	0.32	0.53	0.25	3.29	9.66	0.34	0.61	0.28
51 – 100	12.5	3.45	7.85	0.44	0.65	0.36	3.65	8.73	0.42	0.71	0.34	2.98	9.57	0.31	0.64	0.24
101 – 250	10.1	3.71	8.59	0.43	0.76	0.34	4.61	7.81	0.59	0.88	0.48	4.15	9.16	0.45	0.88	0.36
251 – 500	5.9	3.15	4.84	0.65	0.93	0.46	4.24	8.80	0.48	0.91	0.38	3.07	5.22	0.59	0.83	0.43
501 – 100	4.8	5.62	10.2	0.55	0.87	0.47	5.75	10.4	0.55	1.03	0.45	5.90	6.48	0.91	1.16	0.73
> 1000	1.9	4.86	4.32	1.12	0.96	0.9	4.57	4.66	0.98	0.84	0.80	4.32	7.33	0.59	0.93	0.46

Source: Calculated based on survey results and CSA's report on LMSME industries survey

5. *Productivity and profitability by industrial category*

From the point of view of policy perspective, analysis of productivities by industrial groups has an important bearing. Of course, within an industry, firms could have significant productivity differences and the aggregate by industry level may overshadow such differences. It is, therefore, essential to investigate productivities at firm level for specific policy measures. But as all firms in an industry face similar input-output constraints, similar policies and likely priorities, industrial level analysis provides important information.

The top 15 industries, out of 48, which reveal relatively high labor productivity levels (for the seven year average, 1996-2002) are tabulated in Table 7.4.⁸⁷

Table 7.4: Relatively high labor productive industries⁸⁸

Industry category	Labor productivity	Capital productivity	Capital intensity	Profitability
Tobacco	high	High	Low	high
Brewery	high	High	high	high
Sugar	high	High	high	high
Cement & lime	high	X	high	high
Paints & varnishes	high	High	high	high
Bodies of motor vehicles	high	High	high	high
Iron and steel	high	High	medium	high
Macaroni and spaghetti	high	High	medium	high
Rubber products	high	X	high	X
Pharmaceuticals	high	X	high	X
Blending spirits	high	High	Low	high
Malt manufacturing	high	X	high	X
Soft drinks	high	High	medium	high
Coffee and tea	high	X	high	X
Soap and cosmetics	high	X	medium	X

Source: Survey result and CSA's report on LMSME industries survey

⁸⁷ Details of labor and capital productivities, capital intensity and profitability are given by Annex E.5.

⁸⁸ Drawing demarcations for high, medium and low levels is based on relative terms. No economic reasoning is attached to it. Accordingly, a level of capital productivity equal to 0.8 or above is relatively considered as high; for capital intensity, Low refers to less than 5, Medium is between 5 and less than 10, and High is greater than 10. Similarly, for profitability High refers to levels equal to or greater than 0.5.

Some of the industries with relatively high labor productivities are state owned enterprises. For instance, tobacco, brewery, sugar, cement, macaroni and spaghetti, and malt manufacturing are either entirely or largely State controlled, while the remaining are state or private owned. Except the food industry (spaghetti and macaroni) which faces strong competition from imports, other state controlled industries, including tobacco, sugar, cement, which have a relatively high profitability ratio, are not facing much competition in the domestic market, and prices are largely administratively set. Therefore, it is difficult to conclude that these industries are indeed more efficient than others on the basis of market competition. Moreover, some of these state owned industries, except tobacco and food, industry, are among those with high investment priority (see Chapter Six)

As shown in the same table, not all industries with high labor productivity have high profitability. As profitability implies low cost of production, mostly only those which have mostly high capital productivity are highly profitable. In fact nearly all industries with high capital productivity have high profitability ratio, while this is not so with high labor productivity industries, partly because of high wage rates. Therefore, high labor productivity by itself is not an indicator of technical efficiency, hence competitiveness.

Table 7.4 also shows factor intensity ratios corresponding to each industry. It is clearly observed in this connection that most industries with relatively high labor productivities are largely capital intensive. About 60 percent of the industries are relatively highly capital intensive. While most of the remaining are moderately capital intensive, only two are relatively labor intensive. This implies that most labor intensive industries are not recording high labor productivity level. Neither do these industries have high capital productivity. Out of the 15 relatively high capital productive industries, only five are at the same time low capital intensive. (see Annex E.6) In other words, 75 percent of the industries showing high capital productivity are not low capital intensive. What can be inferred from this is that, at the current rate of the development of wages, high productivity is not a characteristic feature of labor intensive industries. It is rather the relatively high capital intensive industries which record high productivities.

It is also important to note that not all industries that are given high investment priority (Chapter Six) are highly productive. Of those high investment priority industries, only sugar, brewery, cement and soft drinks recorded high productivity and profitability. As noted above, it should be underlined that these enterprises are not facing any

external competition from imports, either because of the less tradable nature of the commodities (as a result of high transportation cost in the case of cement, brewery, soft drinks) or because of protection (such as sugar). [Kibre, 2003] Hence monopoly price prevails particularly in the case of state owned industries such as sugar and cement. It is, therefore, not easy to assert the efficiency of these enterprises.

In this connection, what is perhaps surprising is that industries such as textile, leather tanning, footwear, etc. where investment rates were relatively high, failed to record high productivity levels. In fact, these industries recorded relatively low productivity and are among the low profitable groups of industries. Note also that these three resource based industries are among those given high priority by government for promotion and expansion. [FDRE, 2002]

5.1 Productivity and profitability growth

In the first part of this Chapter, it is shown that productivity growth in manufacturing over the seven year period has been negative. It is off course obvious that though most of the industries have been showing a declining trend, some have performed better. The productivity levels of even those high performing industries in Ethiopia may not be competitive with corresponding high tech sisterly industries in developed economies. This is understandable. Therefore, not just to maintain the current level, but also to catch up with internationally competitive levels of productivity, sustainable growth is absolutely essential. Considered from this perspective, however, few industries have recorded growth in both labor and capital productivity as well as in profitability.

As shown in Table 7.5, only few industrial groups have registered positive trends in the seven year period, 1996-2002. Of the fifteen industries having relatively high productivity level, only five (about 33 percent) registered positive growth in all measures (labor and capital productivities as well profitability), implying that they are not only sustaining their relatively high productivity level but also improving their performance progressively. These industries include tobacco, manufacturing of bodies of motor vehicles, rubber products, pharmaceuticals and malt manufacturing. Most of the remaining high labor productivity performing industries - noted in Table 7.4 - have recorded negative growth in all aspects, thereby deteriorating in efficiency, while others have had positive growth either in labor or capital productivity but not in profitability.

Table 7.5: Annual average growth 1996 – 2002 (percent)

Industry	Labor Productivity*	Capital Productivity*	Profitability*
Tobacco	15.10	32.06	15.10
Bodies of motor vehicles	9.52	10.36	23.14
Rubber products	16.39	26.48	28.02
Pharmaceuticals	10.17	8.75	4.58
Malt manufacturing	18.22	24.81	24.94
Mineral products (marble & ceramics)	9.75	54.05	47.63
Meat, fruits and vegetables	19.56	12.72	32.72
Dairy products	28.52	26.15	21.28
Motor vehicles parts, accessories	33.78	5.59	15.21
Structural clay	41.50	18.03	14.87
Footwear	3.93	1.55	2.19
Leather apparel	2.24	0.25	0.77

Source: Survey results and CSA's report on LMSME industries survey

* As productivity and profitability ratios are small, growth rates appear high.

As shown in the same table, though productivity levels are relatively low in absolute terms, significant growth has been recorded in other industries too, such as manufacturing of parts and accessories of motor vehicles, footwear, leather apparel, meat, fruits and vegetables, mineral products, and dairy products. Except footwear and leather apparel, growth in these industries has been very substantial.

It should be underlined that though most of these are consumption goods industries, some including manufacturing of bodies, parts and accessories of motor vehicles are strategic industries of high importance for industrialization. Moreover, chemical related industries such as pharmaceuticals and rubber products are pivotal for inducing the expansion of other industries through their linkages. However, despite their relatively better performance, such industries are not given due investment priority, perhaps except footwear. It should therefore be underlined that industries with relatively high productivity and profitability levels need to be given due priority in resource allocation. Policy initiatives must be in place to encourage investment in such industries.

6. *Implications for competitiveness*

It is obvious that at least in the case of industries where productivities are not only low but also declining, competition even in the domestic market, would be relatively very difficult. Moreover, as discussed above, even those few industries recording high productivity levels, but which failed to make further progress would hardly sustain their current status. Thus, in general, low and declining productivity induce further deterioration in efficiency, hence competitiveness.

This lack of manufacturing competitiveness is also evident from the results of the qualitative part of the survey. As noted in Chapter Five, the overwhelming majority of manufacturing firms are producing relatively low quality goods for domestic consumption, but not for export. Managers of these firms were asked to explain why they are selling their products in the domestic market only. In the case of relatively low productivity industries (those not included in Table 7.4), which represent for the large majority of manufacturing industries, 62 percent confirmed that they are not competitive in international markets, while in the case of those few industries recording high productivity levels, only 28.6 percent confirmed that they are not competitive. For the latter industries other reasons such as lack of initial access to markets and adequate domestic demand are major reasons for not exporting. Moreover, even in the domestic market, 40 percent of the respondents stated that major competition comes from imported goods.

As noted above, the central problem with domestically manufactured goods in Ethiopia seems to be inferiority of quality. In this respect firms were asked about prices and quality of imported goods as compared to domestic goods. 90 percent of the respondents confirmed that prices of similar imported goods are higher than similar domestically produced goods. However, they also stated that the quality of imported goods is also better. This implies that imported and locally produced goods are in a way operating in different market segments. Imported goods targets high income groups, while locally produced goods, with relatively lower prices, attract largely low income groups. As such, there is no tight competition between local and foreign goods in the same market. This is so because price competition primarily requires producing competitive quality products.

As a result, while imports secure the domestic market where relatively higher income group transacts, domestically produced goods largely operate outside this market. This has an adverse impact on future demand for domestic goods unless significant improvements take place. Experience proves that low income groups are always vulnerable to all sorts of shocks, thereby adversely affecting their demand. Moreover, as per capita income increases, so does the demand for better quality goods (in this context for imports), while the demand for inferior quality domestic goods decreases. Hence, lack of improvement in product quality implies further loss of demand and deterioration in competitiveness. In order to be internationally competitive, it is a prerequisite for firms to make quality their prime concern.

The lack of demand, both domestic and foreign, for locally produced goods, led manufacturing industries to operate much below full production potential. As discussed in the next section, capacity underutilization, in turn, further reduces productivity levels. This vicious circle is currently an outstanding problem of manufacturing industries.

7. Capacity underutilization

The attempt to optimize production in the face of all production and marketing problems forces firms to adjust their production capacity accordingly. Hence capacity utilization is a reflection of the overall business condition of a firm. As a result of deteriorating competitiveness, hence declining demand, the manufacturing sector as a whole has been operating from 1988 to 2002, on average, at half of its maximum potential. As shown in Table 7.6, production capacity ranges only between 50 and 60 percent and there has been little variation over the years.⁸⁹

Moreover, for all the years major factors forcing capacity underutilization were nevertheless the same. From the same table, for 47 to 54 percent of the firms, the outstanding problem was lack of market and/or difficult market competition. Shortage of raw material supply stands as the second most constraining factor, accounting for

⁸⁹ Excluding those firms, which were not operational, but remained in the business without being officially closed down. Firms whose responses were incomplete are also excluded.

20 to 30 percent of the cases. Moreover, the land issue is still a central problem in raising production costs and adversely affecting competitiveness.

Table 7.6: Capacity underutilization and causal factors (percent)

Year	Production capacity	Reasons for capacity underutilization					
		Market	RM	Spare parts	Work place	Other* constraint	No resp./ problem
1998	55	50	21	5	13	1	10
1999	59	47	29	4	1	8	11
2000	50	48	26	3	1	12	10
2001	51	54	19	2	1	10	14
2002	58	54	24	5	3	4	10

Source: Survey result and CSA's report on LMSME industries survey

* Includes lack of working capital, problems with rules and regulations, machine break down, etc.

Also, in some years, for instance in 2000 and 2001, other problems, which include bank credit and foreign exchange constraints, had considerable adverse effect on capacity utilization. And these are closely related to raw material shortages. It should also be noted, however, that every year, at least 10 percent of the firms seem to have no major constraint limiting their operating capacity, implying that these firms were operating at high capacity.

The problem of demand/market is, however, a cumulative effect of many factors. Broadly, it involves the lack of competitiveness of the sector, or industries at large, and lack of access to markets (particularly external markets) even if they are competitive. So the latter is, therefore, more of external to the sector. The former involves three problems: those specific and internal to firms or industries, largely reflected by productivity levels; the overall development level of the economy, reflected by infrastructure; and the policy regime.

As noted above, the overall level of capacity underutilization reflects the prevalence of general unfavorable conditions in the business environment. It does not show specific challenges and problems facing industries. Neither does it provide detailed information on the status of capacity utilization at industry level. What is perhaps more important, particularly from the point of view of industrial policy formulation, is a

breakdown analysis of capacity utilization, at least, by industry level.⁹⁰ This provides information on the prevalence and degree of capacity underutilization in industries, whether capacity underutilization is sector specific, owner specific, firm size specific, or whether there are firms capable of operating at high capacity for a longer period of time. Such information leads to identifying the characteristics, problems and constraints, of high and low capacity performing firms which could serve as a basis for policy formulation.

To look into this, the number of firms operating under different production capacity categories over a period of five years, 1998 to 2002, is shown in Table 7.7. The categories include 85 percent and above, 70-84, 50-69, 30-49, and 10-29.⁹¹ Every year, the number of firms which were operating above 85 percent was as few as 100 firms out of at least 700 manufacturing firms in the country. On average, this is about 13 percent of the total. Similarly, between 60 to 120 firms has been operating at the next capacity category, 70-84 percent, making for another 11 percent of total firms. The median group, operating between 50 and 69 percent of their capacity, makes up for over a quarter of the total manufacturing firms.

The overall picture of capacity utilization by firm level boils down to this: 'only 50 percent of the firms operate at more than 50 percent of maximum production capacity'. This has a profound cost implication. Operating at such low capacity inevitably increases unit costs. But for private firms, it is difficult to survive for long - for more than a couple of years or so, incurring losses. Therefore, for so many firms to stay in the business while operating at such low capacity, unit costs must be relatively high. Note that every year, at least, 25 percent of all the firms in the country keep on operating below 20 percent of their full capacity.⁹² What this implies is that, for a large majority of firms, costs are relatively very high leading to lack of both internal and external competitiveness. It also implies that firms operating at the maximum capacity bracket are making relatively large profits as they are operating in the same markets or receiving similar price levels. This has been partly evidenced by

⁹⁰ Firm level policy analysis requires further disaggregating capacity utilization by specific firms.

⁹¹ There is no any underlying economic reason for this specific category. The point is to make it more disaggregated, as it is easier to aggregate it to smaller categories for detailed analysis. However, it is perhaps more likely that firms operating, at least, at 70 percent capacity level will remain in the trade, even at difficult times, operating at breakeven point. And in general, it might also be the case that firms underestimate their level of operating capacity for various reasons.

⁹² Note that many firms which claimed to have been operating over the years at less than 10 percent of their capacity level are excluded from the analysis.

the closing down of some firms and significant capacity reduction by others as the economy opened up abruptly.⁹³

Table 7.7: Number of manufacturing firms by operating capacity category

Capacity category	1998			1999			2000			2002		
	public	private	total	public	private	total	public	private	total	public	private	total
85 & +	16	91	107	16	82	98	18	67	85	16	92	108
70 to 84	14	44	58	14	55	69	17	53	70	19	102	121
50 to 69	21	165	186	17	172	189	15	172	187	22	223	245
30 to 49	20	151	171	20	143	163	12	132	144	16	152	168
10 to 29	14	157	171	17	174	191	18	190	208	17	176	193
Total	85	608	693	84	626	710	80	614	694	90	745	835

Source: survey data and CSA's report on LMSME industries survey

There is also little change in the proportion of firms operating under different level of capacity overtime, except perhaps in 2002. Between 1998 and 2000, firms operating in the top two capacity categories, numbering between 155 and 165, remained constant, accounting on average for 20 to 22 percent of the total. By the same token, every year, the percentage of firms operating below 50 percent capacity remained 50 percent of the total. In 2002 however, there emerged a noticeable change in this respect. For instance, the number of firms operating in the top capacity categories increased not only in absolute number, which may as well have to do with the significant increase in the total number of firms, but also in proportion. The proportion of firms in the upper two brackets increased to 27 percent, while the proportion of those in the lowest two brackets fell to about 43 percent. This is a significant shift towards higher operating capacity, though only for a single year, which does not indicate any trend or systematic change. This shows that capacity underutilization is not a short term cyclical problem or constraint caused by a certain shock affecting most firms, it is rather, a structural problem of longer duration.

A related issue is the degree of capacity utilization in state and privately owned firms. In this regard, as the number of private firms account for the overwhelming majority, 88 percent, what has been said above invariably holds for private firms too. However,

⁹³ There might be some cases of underestimation of capacity utilization on the part of private firms. However, compared to public firms, where there is little interest to do so, the marginal difference is not significant.

considering the development of capacity utilization separately, for private and public firms, shows significant differences between the two.

Table 7.8: Development of capacity utilization within private and public firms

Capacity category	1998		1999		2000		2002	
	public	Private	public	private	public	private	public	private
85 & +	19	15	19	13	23	11	18	12
70 to 84	16	7	17	9	21	9	21	14
50 to 69	25	25	20	27	19	28	24	30
30 to 49	24	25	24	23	15	21	18	20
10 to 29	16	26	20	28	23	31	19	24
Total	100	100	100	100	100	100	100	100

Source: Survey result

As shown in Table 7.8, for all the years, the proportion of public firms operating, for instance, in the highest capacity category (above 85), is between 18 to 23 percent of the total public firms, while the corresponding proportion for private firms ranges only between 11 to 15 percent. For firms operating above 70 percent, the proportion of public firms ranges from 25 to 44 percent, while for private ones it was only 20 to 26 percent. Over the years, public firms operating below 50 percent fell from 40 percent in 1998 to 37 percent in 2002, while the corresponding figures for private were 50 and 44 percent. Moreover, there is an indication on the part of public firms for an overall improvement in capacity utilization over time. For instance, the proportion of firms which were operating in the top two categories increased from 25 percent in 1998 to 44 and 39 percent in 2000 and 2002, respectively; and a corresponding reduction is observed in the proportion of firms operating in the lowest categories. As noted above, for private sector, however, there is no difference over the years, except a marginal one in 2002. Therefore, public firms operate at a much higher production capacity level than private firms.

There might be a number of factors why public firms attain relatively higher capacity level than private ones. It is true that, every year, the private sector involves new entrants. New firms would be forced to operate for sometime at low capacity level thereby lowering the overall capacity proportion of the sector. On the other hand, new firms in the public sector are very few, if any. In fact, under the country's privatization

program, a declining trend in the number of firms is what would be expected overtime. Hence, given also other conditions, it is likely that public firms would attain relatively higher capacity level over the years. In addition to this, however, as shown in the section above, public firms are relatively of larger size than private ones. Given that large firms have a better opportunity to exploit scale economies, thereby reducing unit costs, it is likely that public firms would in general operate at higher capacity than private firms. Therefore, it seems that large size firms, in general, are operating at higher capacity levels than smaller ones.

Another relevant point which should be assessed is whether high capacity performance is attributable to some firms in specific industries, and whether such firms are uniquely identifiable and consistently keep up their high capacity performance from year to year. To investigate this, the distribution of firms operating over 70 percent capacity level by industry over the four year period is tabulated in Table 7.9. [see also Annex E.6] What can be observed from this is that except in few industries (not more than 10 out of 48), in all others there exists, at least, one firm, which would operate at high capacity in some of the years. This implies that high capacity operation is not, as such, industry specific.

However, what is of concern in this connection is that, the few industries which are operating for most of the years at low capacity are the ones that have critical roles in industrialization programs (see Chapter Nine). Such industries include, among others, manufacturing of basic chemicals, iron and steel, machinery, pumps and compressors, electrical and electronics, etc. Such industries were focal areas of industrialization in the newly industrializing East Asians Economies. These are industries which in the longer term create high technological externalities for other industries. Creating new comparative advantage in the future depends on the development of such industries.

Furthermore, when considering industries recording high capacity utilization, the proportion of firms within each industry operating at such high capacity varies substantially from industry to industry and overtime. Table 7.9 shows the proportions of firms in each industry, which operated over a production capacity level of 70 percent in 1998, 1999, 2000 and 2002. In 1998 for instance, 100 percent of the firms in fiber products industry, 75 in brewery, 64 in leather tanning, 50 each in glass and glass products, macaroni and spaghetti, and publishing and printing, operated over 70 percent capacity. The difference is so large that in industries such as textile only

10 percent of the total firms in the industry (which is the lowest) produced at higher capacity in the same year, 1998. Moreover, the proportion of firms in each industry operating above or below a given capacity changes overtime. For instance, while the proportions of firms in industries such as brewery, glass, rubber, publishing and printing, and macaroni and spaghetti, operating above 70 percent capacity, remained, nevertheless, unchanged over the five year period, for others the proportions either reduced or in some cases increased. For instance, in leather tanning out of 11 firms, 7 operated above 70 percent of their capacity in 1998. In 1999 only 4 firms operated at the same capacity; and in 2000 no firm operated above 70 percent capacity. On the other hand, in textile, 2 out of 20 firms in 1998; 4 out of 25 in 1999; and 8 out of 25 in 2000 and 2002 operated above 25 percent capacity.

Table 7.9 also reveals another relevant aspect of capacity utilization. It shows the proportion of firms in each industry which managed to maintain their high capacity level of operation consistently, at least, for two years. In this regard, of those firms in different industries which were operating over 70 percent in 1998, all firms in brewery, glass and glass products, structural clay, rubber products, pharmaceuticals, macaroni and spaghetti, and sugar managed to operate at the same capacity in 1999 too. In all other sectors some of those firms which were operating at high capacity failed to keep up the same capacity in the following year. Further, in 2000, all firms in only two industries, brewery and glass products, maintained the same 1998 and 1999 proportions. In all the rest the number of firms operating at high capacity fell significantly over the years. For instance, in leather tanning, 64 percent of the total firms in the industry operated at high capacity in 1998; but in 1999, only 12 percent of the total firms maintained their high capacity; and in 2000 none of the firms in the industry operated at high capacity. A similar picture is shown when considering firms of high capacity level in 2000 and 2002.

As noted earlier, for low capacity operators the major reasons are lack of demand and raw material shortage. For high capacity performers, however, in 40 percent of the cases, no major constraint was stated. Twenty five percent of them mentioned lack of markets to be their major constraints. All other factors are relatively of low significance in this respect.

This section has shown that the overwhelming majority of firms are not capable of exploiting their full potential. Only relatively few firms managed, from time to time, to utilize their available capacity. In the preceding section of this Chapter, it is also

revealed that most industries have low and declining productivities, which further leads to capacity underutilization. There is some degree of correlation between them. Some high level productivity industries operate at high capacity, but not all of them. While high level productivity leads to better competitiveness and larger market share, hence leading to high capacity utilization, external constraints such as raw material shortage, financial constraints, policy problems, etc, lead to capacity underutilization, and in turn to declining productivity. Hence, there is some degree of simultaneity between productivity and capacity utilization.

Table 7.9: Proportion of firms in industries operating above 70 percent capacity

Industry	Proportion of firms operating above 70 % capacity				No of Firms maintaining above 70 % capacity in	
	1998	1999	2000	2002	1998 & 1999	2000 & 2002
Edible oil	13	8	15	13	3	8
Grain mill	26	14	30	13	5	8
Bakery & pastry	24	23	17	24	8	7
Sugar & S. confection.	25	38	13	27	25	12
Macaroni & spaghetti	50	75	50	27	50	12
Textile	10	16	35	35	5	13
Fiber products	100	50	0	0	50	0
Leather tanning	64	29	0	0	18	0
Wood & W. products	44	19	13	14	19	7
Paper & P. products	38	14	14	17	13	14
Publishing & printing	49	43	22	39	29	11
Paints & varnishes	43	25	38	33	29	25
Pharmaceuticals	33	33	25	17	33	25
Hygienic products	18	30	18	25	5	12
Rubber products	40	40	75	25	40	25
Foam & plastics	48	24	23	28	19	9
Glass and G. products	50	50	100	100	50	50
Structural clay	20	20	0	0	20	0
Cement & lime	22	44	67	38	11	50
Concrete & plaster	25	20	21	27	7	6
Structural metal work	0	0	30	31	0	6
Bodies of motor vehicles	25	43	0	0	12	0
Furniture	19	23	14	31	6	4
Brewery	75	60	50	50	75	50
Leather wearing	0	0	38	29	0	13

Source: Survey results and CSA's report on LMSME industries survey

The fact that the manufacturing sector is operating at half of its production potential in effect means that, under the same condition, only half of the existing firms in the country would be enough to satisfy the demand, if they operate at full capacity, with the other half remaining redundant.⁹⁴ This suggests that new investments in any industry need to be seen in light of this excess capacity problem.

A couple of points need to be added in relation to the major production constraining factors: raw material shortage and lack of demand/market. Significant raw material shortage, in the face of such considerable demand/market problem is revealed largely as a result of foreign exchange constraint. It could also happen in the non-tradable sector, for instance shortage of forest products, but only to a minor extent. Thus, by and large, raw material shortage reflects the prevailing foreign exchange constraint and to some extent shortage of agricultural inputs to industry. Hence, deep at the root, raw material shortage involves policy problems, both macroeconomic and sectoral. The problem is, therefore, at least partly if not largely, external to the sector.

What should be underlined in relation to the considerable overall capacity underutilization is that, it is the cumulative effect of many factors ranging from internal technical and management capability of firms to government policy regime and global production and marketing conditions, which are partly external to the sector. This is central in trying to address the issue of capacity underutilization of the sector at large.

⁹⁴ Note that it refers at sectoral, not at industry or firm level.

CHAPTER VIII

THE NEED FOR AN INDUSTRIAL POLICY

As discussed in the preceding chapters, though industrialization in Ethiopia was initiated three-quarters of a century ago, manufacturing is still in an incipient stage characterized by unbalanced and distorted internal and external structural linkage, backward technology and lack of technological capability. But what are the underlying policy stances that failed to initiate industrialization?

1. Industrialization during the Imperial era

Following the end of the Second World War, the imperial government launched a consciously planned development agenda of the country, targeting private sector development. As markets were yet to be developed, the state had a significant role, both in terms of complementary investment allocation as well as market intervention through the traditional instruments - monetary, fiscal and trade policies.

Between 1957 and 1974, a series of five-year development plans were drawn, primarily identifying priority areas of investment. Agriculture, natural resource-based agro- industries and human resource development were given high priority in resource allocation. Investment in manufacturing was directed towards creating high input-output linkages with agriculture, i.e., employing agricultural inputs as well as producing agricultural implements, though the success with respect to the latter objective was limited. In the second phase of the development plan, infrastructure, including education, health, and physical/economic infrastructure were the focus areas of the development plan. [Imperial Government of Ethiopia, 1957, 1962 & 1968].

Underlying the lack of capital and entrepreneurial skill, a package of incentives was designed to promote private domestic and foreign investment. The incentives include

a five year profit tax holiday, exemption from import duty on machinery and equipment and building materials, income tax exemption, remittance of profit in the form of dividends and interest payment and gradually taking out the full amount of capital investment upon a specified period of time. Foreign exchange was also allowed for repayment of foreign private credits and foreign purchases. Foreign investors were further permitted access to domestic loans to buy real estate for establishing industries. Similarly, foreign workers were permitted to remit their savings in foreign exchange.

Trade policy was actively employed to encourage import substituting industries. To cushion the adverse effects of international coffee price volatility on the balance of payments and to protect local industries, the government continued to control imports. A drawback system to encourage exports was also made operational. The policy package in general was instrumental for motivating both domestic and private investment in manufacturing and other sectors of the economy. Most of the enterprises that are operating in the country today were established during the Imperial era.

In agriculture too, irrespective of the controversial feudal land holding system, an issue which is not only economic but also political, a significant increase in agricultural output in the southern half of the country and a noticeable initiation in export diversification were recorded in the second half of the 60s and early 70s. Some areas in the northern part of the country, however, were drought stricken and food deficit.

However, the imperial strategy was not without weaknesses. And at the center of its weakness lies the controversial land policy. Also, as noted above, though a favorable general policy direction to introduce and advance the development of a modern economy was in place, there were not any deliberately drawn agricultural and industrial policy initiatives to accelerate industrialization and transform agriculture.

2. Socialist industrialization strategy

With the emergence of the socialist Derg, the development strategy fundamentally changed. Private development initiatives which were gathering momentum were forcefully suppressed by the regime, not to revive even to date. The centerpiece of the development strategy of the socialist regime was agricultural development.⁹⁵ In a traditional society where the vast majority of the population earns its livelihood on agriculture, there can be no disagreement on the issue of providing development priority to agriculture. It is however, the underlying institutional framework, which has a critical role in development that is debatable.

Under the socialization program of the Derg, which was the social and economic corner stone of the regime, land (both urban and rural), private medium and large scale manufacturing enterprises and rented buildings and houses were nationalized. Moreover, a limit on the capital ceiling of private investment relegated the private sector to petty or small scale activities. It is precisely this institutional setting – state ownership of land and other assets and the marginalization of the private sector, among others, which are the driving factors of today's unprecedented poverty and industrial stagnation in the country.

As a result, the manufacturing sector (and in general the industrial sector) remained stifled and inefficient. Moreover, the nationalization scheme while ending the role of private investment in medium and large scale manufacturing, simultaneously closed the door for the possible import of new technologies and along with it the learning process and advancement technological capability.

In the socialist development scenario, the sequence of development starts with agriculture, and its transformation induces automatically the process of industrialization. Growth in peasant agriculture (which was accorded due priority - manifested by a relatively higher budget allocation) through mechanization and

⁹⁵ It might as well be broadly said 'rural development' though in actual practice programs heavily concentrates on increasing agricultural productivity.

application of modern technical inputs on socialized farms, was to create increased demand for manufactured goods thereby inducing higher utilization of production capacity and increased investment in manufacturing. Investible capital was to be generated primarily, through primitive socialist accumulation, i.e., surplus extraction from agriculture, state enterprises and other sectors. Under this mechanism, the industrialization process would proceed on sustainable basis. The socialist regime, outside its block, operated in a hostile international environment. As a result there was literally no foreign direct investment or substantial development loan and assistance. Economic stability would be maintained through administratively controlled prices and directed resource allocation in all sectors of the economy. Hence, there was no need for an industrial policy per se.

In line with 'socialist industrialization' strategy, the Derg pursued a strong inward-oriented industrialization approach. The average rate of effective protection on imported goods was considerably high – as high as 230%. Quantitative restrictions were imposed by way of quotas, strict licensing procedures, foreign exchange rationing and extended negative lists. On the export side, however, restrictions were limited. Israel (1986) indicated that "For all types of exports, be it agricultural or industrial, there is all across the board 2% customs duty on FOB". An overvalued exchange rate was also maintained. On the other hand, domestic support mechanisms, such as subsidies were introduced to enhance the competitiveness of exports.

Meanwhile, the vast peasant farms remained traditional and backward, hence unproductive. Outside the socialized farms, there was no visible strategy in place for transforming the rain-fed peasant farming system and related agricultural activities. As a result per capita food production declined. The spread and intensity of famine across the country increased.

However, in a poor country such as Ethiopia, which hardly produces enough to provide basic necessities, and where a significant proportion of the population lives on food aid, the idea of industrialization while at the same time marginalizing the private sector is at the outset unthinkable. Even within the highly state-centric economic structure of the modern sector of the economy, industry was not given any importance. The military government, nevertheless haphazardly and with support

from the socialist block, established a few state owned large firms, such as a cement industry, a tractor assembly plant, large-scale engineering firms, etc. However, their overall contribution to the growth of the manufacturing sector was insignificant, and hence were not to induce further industrialization and transformation of the economy in general. By the time the military government run over its course the economic situation of the country in general was much worse than it had been a decade and a half before. The manufacturing sector was in a state of decline while entrepreneurial skill and motivation was forced to decay.

The overarching development strategy of the regime currently in power is Agricultural Development Led Industrialization (ADLI). Similar to the preceding socialist strategy, development starts with agriculture and expands to other sectors, particularly manufacturing. Also, previously nationalized land and urban housing are still state owned. In addition the government controls some strategic industries, such as large-scale engineering, metallurgy, communications, power and pharmaceuticals. Given this, growth in agricultural productivity, through increased application of technical inputs, is expected to create a high demand for manufactured goods, which in turn motivates higher production capacity utilization and investment in manufacturing. The only difference this time is that unlike the socialist scenario, ADLI operates in the context of a hybrid market economy environment. As market forces create efficient resource allocation, the role of the state will be limited largely to creating a conducive policy environment and providing infrastructure. What this implies is that industrialization is inherent in market arbitrated resource allocation, and hence industrial policy is not required.

Accordingly, a number of measures have been taken to create a free market environment and reinstate the private sector's role in the economy. This was effected through the IMF led Structural Adjustment Program, based on the motto of stabilization, liberalization and privatization. Inline with this, first generation reforms such as decontrolling prices, deregulating markets, setting minimum deposit rates and devaluing the domestic currency substantially were undertaken. Tariff rates were also substantially reduced and the financial sector partially liberalized. An outward looking strategy to promote export and attract FDI is the central focus of the strategy. A number of state owned medium size manufacturing and service enterprises were also privatized and investment capital ceiling lifted.

Another new institutional setting of the current regime, with significant economic repercussions, is the ethnic based administrative decentralization. The federal government which collects the large proportion (over 80%) of the national revenue distributes a portion of it to regional governments based on an evolving formula.⁹⁶ The regions are responsible for planning and implementing development programs. They also license and facilitate investments in their respective regions. As for private investment, regional governments, based on the broader political line, primarily appeal to investors of ethnic affiliation to participate in the development of their respective regions.

Under this framework, government priority in resource allocation goes to agriculture in the form of mainly infrastructure provision (roads, education, health, etc). The supply of modern technical inputs such as chemical fertilizer is considered as the key instrument for increasing productivity in agriculture. Moreover, in some areas, a number of isolated measures such as terracing, afforestation, and small scale irrigation (even in very arid regions of the country) have been implemented. In industry, however, with market oriented policies in place, industrialization is expected to come about automatically.

However, neither increased productivity in agriculture, nor industrialization have been realized in the last decade and a half. A number of reasons accounts for this.

Primarily, private sector long term investment basically requires the confidence of economic agents on the political system/stability, good government intentions and appropriate and conducive economic policies. The ethnic based political structure, hence the double standard in implementing rules and regulations, lack of effective and unbiased rule of law, corrupt practices and holding offices on ethnic criteria rather than skill and ability, firmly stands counter to and works against national development. This kept private business confidence low and deteriorating. [Berhanu and Kibre, 2003]

⁹⁶ Though there are other determinants, the formula basically takes population and level of development as major factors.

Orthodox structural adjustment program, which mainly focuses on macroeconomic policies, has limited short term benefits. What is more, it is also devoid of any noticeable impact on the real sector of an economy, since in a backward economy such as Ethiopia, where markets are not only least integrated but also lacking and yet has to be created, its linkage with economic sectors and individual economic agents at the micro level is weak. Thus, with little impact of the adjustment program to generate supply side response to kick-start growth in the economy, and the crisis in the agricultural sector, the current strategy followed by the government to achieve long term development seems to be less meaningful.

In agriculture, in light of a rapidly encroaching desertification and massive soil erosion on the one hand, and the lack of investment on the part of the farmers to contain the adverse impact on the other, the application of technical inputs in a rain-fed agricultural system is a highly risky venture. With the fundamental problem of land ownership and tenure insecurity (which has been manifested by repeated land redistribution at any time the government wishes) unresolved for the last thirteen years, the situation has been aggravated further. Productivity declined continuously and the intensity of famine increased. As high as 21 percent of the population now lives on food aid. So ADLI which was supposed to bring about surplus agricultural production and initiate industrialization through income effects remain a mirage.

In manufacturing, as noted in the previous chapters, liberalization - specifically, sharply reducing tariff rates - led to the closing down of a number of firms and underutilization of capacity in many others. The manufacturing sector is on average operating at less than half of its full capacity. However, this is taken as an inevitable impact of competitive market operation. As such, no measure has been taken on the part of the government.

Moreover, frequently revised and updated investment codes since 1992, and the effort of the present government to appease international financial institutions by undertaking less appropriate programs, such as orthodox structural adjustment program (SAP), failed to induce any appreciable foreign investment, except loans and aid.

The agricultural development led strategy (i.e., indirectly inducing industrialization through income effects of agricultural growth) failed to materialize in practice. So as it stands now there is literally no viable policy even for reducing poverty, let alone industrialization as initially thought. There is no program or plan that could lead socio-economic activities on the ground in a coordinated and complementary manner as it were the markets that were expected to facilitate this. However, as noted above, markets are largely disintegrated, fragmented and, in some cases, non-existent, and hence incapable of facilitating socio-economic activities. What is required, therefore, is an industrial policy capable of transforming the economy as a whole by creating future dynamic comparative advantage. This necessitates placing the manufacturing sector at the center of the program.

Clearly, the need for industrialization has generated some kind of a re-thinking about future directions as the recent high level discussion on industrialization indicates. What is, however, commonly missing in all these programs and policies is a comprehensive development perspective, which could interactively address the problems in all sectors of the economy and meet the longer-term objectives of achieving high employment level and a rising standard of living rather than dealing with the specific problems of a state owned firm in isolation.

3. The significance of industrialization

A number of distinct features of the manufacturing industry enable it to play a dynamic role in terms of economic development. This includes among others,

- *Economies of Scale:* Industrial production is particularly subject to economies of scale. The cost per unit of production is inversely related to the volume of production. Large firms incur less unit cost than smaller ones. But this is not true to the same extent in agriculture, or indeed in many services. So the move to industrialize would significantly increase the production efficiency of developing economies, thereby accelerating growth.

- *Externalities and linkages:* Another reason for supposing that industry is particularly important for economic development is that externalities are more significant than in other sectors. The setting up of one activity creates benefits for others, thereby introducing positive externalities. A more specific application of this is the notion of linkages. The setting up of an industry creates both backward and forward linkages. While the demand for inputs creates backward linkages, the provision of services downstream, such as whole selling and retailing, maintenance, etc., form forward linkages. Industry, particularly manufacturing, creates more linkages than other sectors (particularly agriculture) and can therefore give a much greater impetus to economic development.
- *Productivity increases:* Industry is also characterized by more scope for increases in productivity than other sectors. It has been historically observed that the faster manufacturing output increases, the greater the rate of productivity growth, reflecting increased learning and the incorporation of new, higher productivity technology, which depends on the rate of growth of output.

Also, since the industrial sector provides machinery and equipment for other sectors, increases in productivity in manufacturing can reduce costs elsewhere in the economy, thus contributing to the development of other sectors.

The significance of expanding the industrial sector, therefore, goes beyond manufacturing, and lies in its capacity to help transform other sectors of the economy, particularly agriculture. This has been the case in many developed economies during their period of industrialization. For instance Shafaeddin, in his interesting survey of the industrialization process in the now developed countries noted that “ In both cases, (Great Britain and United States) as well as France and Germany, agricultural development, often helped by protection and other forms of government intervention, was accompanied and facilitated by the process of industrial development.” [Shafaeddin, 1998, p.1] For instance, increasing output in agriculture usually involves increasing productivity through employing some form of machinery and other industrial inputs. Moreover, while on the one hand, the high surplus labor in agriculture of backward economies must be absorbed into other sectors, largely manufacturing, on the other, the further processing and transformation of agricultural outputs (crops & livestock) require the expansion of the manufacturing sector.

Industrialization introduces continuous changes in the social feature and economic structure of an economy over the longer period. Its complexity and the profound and economy wide implication that it engenders, poses a great challenge to every developing economy. Successful and effective industrialization requires appreciating the specific feature of the economy at issue in general and the industrial sector in particular, including the historical background, the static and dynamic comparative advantages, the degree of complementarities and substitutability of industries, vertical and horizontal integration between industries and sectors, the technological status of industries, potential trade and investment partners abroad, the extent of undue external pressure, etc.

But, successful implementation of the industrialization process, which involves such complex issues, is beyond the capacity of fragmented, un-integrated, weak and in many cases, non-existing market forces of developing countries. It requires the conscious and devoted leadership of the state, along with the active participation of the private sector, trade unions and other stakeholders. To run such a complex process of industrialization, however, it necessitates an active industrial policy framework drawn on the basis of the specific feature of the economy at issue. Country experiences demonstrate that there is no country that industrialized its economy without an industrial policy to guide the process. For instance, Shafaeddin in his article on the history of trade and industrial policy in Britain and the United States of America (USA) explained that:

Indeed in all cases, to develop their industries (referring to Great Britain, United States, Germany and France) these economies benefited from an infant industry protection phase and heavy government intervention in the foreign sector. Nevertheless, the degree of protection and government intervention varied in different countries. The United States was the motherland of infant industry protection not only at the intellectual level, but also in actual fact. Despite the fact that the industrial revolution contributed to rapid industrialization in Great Britain, its industrial sector benefited from trade protection and other forms of government intervention in the trade flow through the Navigation Act and by means of political power and military power. [Shafaeddin, M. 1998, p. 25]

So the industrial success of both early and newly industrialized economies was based on home tailored industrial policies with deliberate, conscious, and measured state intervention, at least, in their initial period of industrialization. As one of the major outcomes of industrialization is the creation of a well functioning and competitive domestic market, the state and other agents in part work through and with the market. In short successful industrialization cannot be undertaken by exclusive reliance on market forces. And there are important justifications for this. It includes, among others, the importance of coordinating complementary investments, particularly in the presence of significant scale economies and capital market imperfection, organizing domestic firms into cartels in their negotiation with foreign firms and governments, learning externalities, and infant industry promotion. [Chang H., 1999]

Generally, any program, transitional or otherwise, must be comprehensively development oriented in the sense that its goal in the longer-term should be achieving high employment and a higher standard of living for the population at large. Regionally segmented and narrowly viewed development strategy is likely to be nationally less optimal and counter productive in the longer term. National interests need to be at the center of a development strategy. Secondly, and by implication, any short term gain arising in any one sector must be sustained. Thirdly, sectoral integration necessitates coordinating sectors based on linkages such that the sector which is pivotal (i.e., with higher degree of linkages to all other sectors, implying a higher capacity to stimulate the growth of other sectors) needs to be at the center of the program. Fourthly, as noted above, the significance of the manufacturing sector in the development process is its wide linkages and capacity to help transform other sectors, particularly agriculture. Hence the development strategy for Ethiopia must make industry central to accelerate growth in all other sectors of the economy.

CHAPTER IX

KEY ISSUES IN THE DEBATE ON INDUSTRIALIZATION

1. Introduction

Development thinking/theory since its emergence in the aftermath of the Second World War with the independence of many Asian and African countries has taken turns and twists. With the collapse of primary commodity exports during the great depression and the acceptance of Keynesian ideas in developed economies, laissez faire policies based on orthodox economic theories, gave way for structuralism which accorded central role to government in economic development. Though the exact role of the state differed from country to country there was agreement on a number of key points: first, market forces alone had failed to bring about economic development and therefore the state must actively seek to promote it; second, development must be achieved by transforming predominantly agricultural economies into industrial ones; and that economic growth and structural transformation required an increase in the level of investment in the economy. [Easterly, 2001]

Despite remarkable economic growth and progress in industrialization, developing countries remained dependent on international capital for investment, failed to bring about technological dynamism and to transform the traditional sector. As a result unemployment grew worse. Moreover, the strategy failed to exploit the opportunity from international trade. Despite the strategy's dominance in development thinking and practice for over two decades, however, sustaining it became difficult as it coincided with the emergence of the oil crisis of the 70s and the international financial (debt) crisis of the early 80s.

This situation, particularly the debt crisis, thus set the stage for the emergence of neo-liberalism as the dominant development thinking with strong support from

developed economies, and international financial institutions, such as IMF and the World Bank, for its application.

At the heart of neo-liberal policy making is market liberalization (both domestic and international) and the reduced role of the state. Many developing countries adopted the prevailing neo-liberal policy package under stabilization and structural adjustment programs of the IMF/WB through out the 80s and 90s. The neo-liberal approach, however, produced little result in reducing poverty, let alone introducing development. It is now largely recognized, even by its proponents, including the multilateral financial institutions that the neo-liberal policy package, as it was initially formulated within the rubric of the “Washington Consensus”, is not adequate to provide the desired results. Given the limited success of the initial offerings, its advocates have expanded the policy scope to include broader issues of governance in what Rodrik calls the Augmented Washington Consensus. [Rodrik, D. 2003]

As a result of the lack of visible success emerging from the implementation of this dominant paradigm, a serious debate has ensued among development thinkers and practitioners concerning the theoretical validity and practical applicability of its policy prescriptions. This rethinking process has again brought into focus some of the old ideas in development economics that were disparaged by the new paradigm while others have sought to carefully look at the experiences of successful developing countries particularly in East and South East Asia, to draw lessons for the less successful ones [Amsden, 1989; Wade 1996]

This Chapter tries to briefly look at key issues in the current debate in the development literature particularly related to strategies or models of industrialization.

2. *The Neo-Liberal approach*

Based on the classical theory of comparative cost advantage, the neo-liberal approach essentially leaves industrialization (the nature, rate, etc) to be determined by market forces. Central to neo-liberal thinking is the notion of price distortion. It underlines the belief that market prices provide the best indicators, or ‘signals’ for decision about resource allocation. If prices diverge from their free market level (i.e. if distorted) because, for example, of government price control or subsidies, then the

economy will not attain efficiency. In this context, for a small developing economy, the relevant free market prices, it is argued, are those set on the world market. Though, prices in the real world are often distorted, which could be due to monopolistic tendencies, fragmented or nonfunctional markets, neo-liberals hold that in most instances it is government intervention in pursuit of some social or economic objectives that generate these distortions.

Alongside the importance of freeing market prices, the neo-liberal perspective strongly emphasize the virtues of free international trade based on static comparative advantage. Accordingly, each country concentrates on producing those goods in which it has a relative (comparative) advantage instead of trying to produce goods which could be imported cheaply from countries producing them at the lowest cost. The effort to encourage local production of goods, which can be produced cheaply abroad, deliberately interferes with trade and introduced inefficiency.

Another major strand of neo-liberal thinking is related to the role of the state. Relying on the market as the best arbitrator of prices and efficiency, the state should take a hands-off approach to development. Economic decision should be left to private agents and the state should only provide those goods and services with demonstrable market failure and the provision of public goods such as infrastructure, education and health, which would not otherwise be provided by the private sector. Not only protectionism in international economic relations, but also other forms of interventions in the domestic economy, are considered counter productive. These include any form of national planning, all forms of intervention in the market and direct investment in the production of goods and services that can be produced by the private sector through state enterprises. All these are presumed to lead to a high budget deficit, spiraling inflationary pressure, rent seeking behavior and generally, to an inefficient allocation of economic resources.

As such, the emphasis of the neo-liberal approach is on individual economic agents and on the free play of market forces to provide short-term allocative efficiency, in the belief that achieving such efficiency would inevitably lead to long-term growth and development.

2.1 Neo-liberal policy prescription

The policy prescription drawn from the neo-liberal approach is straightforward:

- The first is market liberalization, often referred to as 'getting prices right'. It mainly involves removing price controls, financial liberalization and less intervention in labor market.
- Trade liberalization to move the economy towards greater outward orientation, i.e., removing import quotas, reducing tariff, and maintaining a realistic exchange rate.
- Reducing the role of the state in the economy through privatization and reduced government spending.

These policy prescriptions are expected to limit the role of the state as an economic agent and restore market forces, both domestic and international, which facilitate the free and efficient operation of the economy. Then the activities of individual economic agents, in the context of competitive domestic and international markets, will lead countries towards an optimal allocation of resources. Hence, an attempt to direct an economy towards certain kinds of production activity would be counter productive to the development process.

Given the current circumstances of the country, this implies that since Ethiopia's comparative advantage is in agriculture, the country should concentrate its efforts at developing this sector and making it competitive in the international market. Industrialization, if it happens, must come as a result of the operation of market forces rather than through a deliberate intervention on the part of the state through industrial policy.

The neoclassical theoretical perspective, however, has been under intense criticism, not only from its radical critics, but also from revisionists within the mainstream economic thought, witnessing in practice the failure to record any economic growth by developing countries, particularly Africa, under the SAP policy framework on the one hand, and a running success of South East Asians under the non-neo-liberal policy framework on the other. Some of these critical issues are briefly summarized in the following sections.

3. The Structuralist perspective

The Structuralist perspective is based on the theory of dynamic comparative advantage and the experience of industrialization in other countries. Its proponents argue that the doctrine of classical/traditional comparative cost advantage is essentially concerned with static efficiency in the allocation of resources, and is not conducive to long-term development, which is the chief concern of Least Developed Countries (LDCs). In other words, there is a possibility of incongruence between market determined comparative cost advantage in the short-run and the acceleration of long term development. It starts from the premise that certain special features of the economic and social structures of less developed economies and the international environment in which they operate make a significant part of neo-liberal analysis inapplicable and misleading. Thus, there is the need for a conscious and home-tailored and specific industrialization strategy and policy package. This approach has the following underlying features:

- (i) *Skepticism about the beneficial effects of unadulterated free market.* Structuralism questions the neo-liberal premise that the free play of market forces (both domestic and international) by itself can bring about economic development in LDCs.

Countries are linked to the global economy largely through trade and movement of goods, services and capital. For the long term development of a country, what matters is not only its active participation in international trade on the basis of comparative cost but also the nature of the commodities it specializes in. This is because demand conditions differ depending upon the nature of the commodity. The demand for primary commodities, for example, tends to be income inelastic. Accordingly, as the demand for primary commodities (LDCs' main exports) in developed economies is falling relative to those of manufactured goods (LDCs' imports), LDCs are facing an unfavorable terms of trade.

The flow of capital in the form of foreign direct investment, to LDCs has been at best limited, as it primarily requires necessary economic infrastructure, large market and guaranteed political stability, which developing economies may not satisfy. Even when the inflow occurs, it may eventually act as a break to growth as a result of increased outflow of profit. Foreign loans too, have their own adverse effects. The sharp rise in international interest rate, over which LDCs have no control, and eventual outflow of interest and dividends, may have devastating effects. In addition, banks' reluctance to extend loans and the political

criteria attached to bilateral, and even multilateral loans, cast great doubt to the availability of capital for long-term development.

Moreover, real world markets are often segmented along the lines of quality, design, geography (creation of blocks), etc, and therefore the world market may not be as big and as open as it seems, given that it takes time and resources to penetrate into new markets.

- (ii) *Emphasis on structural change.* Development is seen as a process of transformation of economic and social structures in which industry, particularly manufacturing industry, plays a crucial role. Economic history of developed countries shows that the importance of industry has been steadily increasing over time. Moreover, studies comparing the economic structure of developed and developing countries revealed that the major difference lies in the size of their industrial (and largely its derivative, the service) sectors compared with their respective agricultural sectors.

While the neo-liberal approach has generally no concern for sectoral differences, treating all activities as equivalent, structuralists believe that a number of features of industry, such as economies of scale, externalities, productivity, etc. enable it to play a dynamic role in economic development.

- (iii) *Emphasis on the dynamic aspects of technology.* Technology plays a critical role in development. As such, developing local technological capability has prime importance. On the contrary, neo-liberals hold the view that as developed countries have comparative advantage in industrial technologies as a result of long experience as well as ample financial resource and human capabilities (skills), LDCs would be better-off (in light of limited resources) to import existing technologies, but not re-invent the wheels. An extended version of this view argues that LDCs should not introduce technologies that divert development away from basic needs. Less developed countries can, therefore, acquire technological capabilities by integration into the world economy, relying on foreign technology and through direct foreign investment and/or licensing.

For the alternative approach, technology is rather the outcome of research and development by firms or research institutions and on-the-job learning (learning by doing and learning by using), which is referred to as 'endogenous growth' in the

literature. [Nelson & Pack, 1977] Importing foreign technology does not, therefore, necessarily offer a short cut to industrialization. Rather, excessive reliance on imported technology may lead to technology dependence. This may create a number of problems, including acquiring an expensive and outdated technology (because of LDCs' weak bargaining position due to lack of expertise, inadequate information and lack of alternative sources of supply), importing inappropriate technology (in terms of intensity of factor inputs and scale/capacity of production), and inability to adapt imported technology due to lack of local technological capability.

- (iv) *Capital accumulation and investment in productive sector.* A high rate of capital accumulation is a necessary condition for bringing about structural transformation and increased level of productivity. However, for increased levels of accumulation to give rise to faster industrialization, resources should be channeled largely into productive investment rather than consumption. As pointed out above, for the neo-liberals the type of activity engaged in does not matter for economic development; while for the Structuralists, economic development requires higher investment in industry by channeling resources from other sectors.
- (v) *Ownership and control of resources.* Highly concentrated ownership and control of resources affect the outcome of economic policies and processes. Hence, ownership should be taken into account. While the contributions that foreign ownership can make by introducing advanced technologies and providing access to foreign markets is well recognized, unrestricted foreign ownership might have negative effects on economic development. Because of considerable market power, and various accounting procedures, Trans National Corporations (TNCs) may evade taxes and repatriate a large amount of profit. Another effect of high ownership concentration is skewed income distribution, which in turn may also have an adverse impact on long-term development.

3.1 Structuralist policy prescription

Based on the underlying arguments indicated above, Structuralists firmly believe that development is too important to be left to the free market alone. The state in less

developed countries should pursue active strategic interventions in order to promote industrialization/development. This, however, should not marginalize the already fragmented market, but rather develop it. There are a number of key areas in which the state can play a promotional role.

- (i) *Link with the world economy*: As the free play of market forces tends to lead to further polarization, the state must intervene to mediate the relations between the national and the world economy. With respect to prices of primary commodities at the international market, LDCs should together create international commodities agreements, or form producer cartels, like OPEC, to stabilize prices of primary commodities.
- (ii) *Infant industry Promotion*. Infant industries can be pressurized to make improvements in their productivities and overall efficiency levels only over time since learning and acquisition of technological capability take a considerable period of time. Until then, however, industries should be given some form of support to withstand the pressure from experienced and technologically advanced and highly competing foreign firms. The state has a vital role in managing the required positive intervention.

The modality, however, may not necessarily be the traditional across the board, indefinite and unlimited protection, which was practiced in the past in many developing countries with adverse economic consequences. Rather, protection should be applied selectively, at a limited level and for a fixed period of time.

Protection should be *selectively targeted*. It should be a reward to a specific firm for achieving a targeted performance related to productivity, production, export, etc. It is not necessary that all industries be equally and simultaneously protected.

Moreover, if a given target is to be achieved, then there must be a time limit. Hence, protection should be *temporary*. It is essential to avoid monopoly tendencies. While firms are externally protected, internal competition should be encouraged. Competition against imports should be enhanced gradually.

Lastly, the level of protection must be *limited*. It should not be excessive to eliminate competition from abroad altogether, or too low to avoid exposing the industry concerned to the dangers of foreign assault.

Infant industry protection, therefore, should not be a blank check. It should be accompanied by regular pressure to make firms improve their productivity and efficiency, which will in turn make them competitive internally as well as externally. In a way, the ultimate objective of protection is to create a competitive market. If for structural reasons infant industries cannot altogether compete even in the domestic market, let alone exporting, then the market, in effect, is a siege monopoly market.

Government should also actively promote/encourage exports. While on the one-hand the domestic market is protected for selective products, firms should be encouraged and pushed to compete in the international market. Import substitution and export promotion are not, after all, contradicting, but rather reinforcing policies.

- (iii) *Priority setting*. Establishing new industries involves a great risk; hence producers have to be provided with extra incentives to enter the business. In such cases, the state should provide the required incentives, if such industry falls in the priority list.
- (iv) *Coordinating complementary & substitutable investments*. The importance of coordinating complementary investments in the presence of capital market imperfection and significant economies of scale, require the intervention of the state. The state should also coordinate competing industries (so called managed competition) to avoid Oligopolistic (wasteful) competition.
- (v) *Efficient scale operation*. Government should encourage the establishment of factories, which are well above the minimum efficient scale but not those which are too much below the minimum efficient scale.
- (vi) *Ownership and structural change of industries*. Certain key industries involve high risks or may require large capital investments, which may not be attractive to the private sector. Hence, in such industries (e.g. steel, petrochemicals, large engineering, etc.), which are essential for creating an integrated industrial sector, the state should necessarily invest to create complementarities in the sector.

When production enterprises turn into declining industries due to structural problems (so called structurally depressed industries), the state should accelerate resource transfers and help the producers upgrade their technologies.

- (vii) *Structure of the industrial sector.* To ensure that adequate investment is flowing to priority sectors or sub-sectors, such as capital goods industries, to keep the balance between large and small scale industries or to create input-output linkages between industries, the state should play a key role, by providing adequate incentives.
- (viii) *Technology transfer.* To reduce the cost of imported technology, the state should intervene in technology transfer. This would be essential to import only technologies that are not available at home. This is the so called 'unpacking technology'. The state should also be involved in direct support for applied research and providing fiscal incentives for such expenditures by the private sector, to enhance local technological capacity.
- (ix) *Foreign investment monitoring & control.* While recognizing the benefits which TNCs offer in terms of technology transfer and access to foreign markets, state awareness and reaction on the behavior of TNC's is necessary if the costs of foreign investment are to be minimized. The state should monitor and control the pricing practices of foreign enterprises. The state should also directly *negotiate with foreign companies* to obtain more favorable terms in revenue through taxation, royalties and share ownership than the free market can provide. Moreover, the state must have a role as the organizer of domestic firms into implicit cartels in their negotiations with foreign firms or governments.

For successful industrialization, Structuralists call for a 'hand-and-glove' approach between all stakeholders in the economy, namely the state, private investors/producers, labor unions, and consumers. The overall state intervention program, including promotional support and corresponding obligations, duration and level of support and targets to be achieved, should be discussed, understood and agreed upon, particularly between the state and the concerned business community. This is critical to control the level of government intervention so as to avoid government failure and enterprise inefficiency.

4. *A revisionist critic of the neo-liberal policy perspective*⁹⁷

Another line of argument comes from within mainstream economist critical to the biased policy interpretation of economic principles. According to Rodrik, for instance, mainstream economic principles of higher-order, such as protection of property rights, market-oriented incentives, prudential regulation, and the like have universality in the sense that it is in the interest of every country to achieve sound economic management. These are principles required to achieve allocative efficiency (requiring property rights, the rule of law and appropriate incentives), macroeconomic and financial stability (requiring sound money, fiscal solvency, and prudential regulations), social objectives /distributive justice and poverty alleviation/ (requiring incentive compatibility and appropriate targeting), etc. And no country has experienced rapid growth without some degree of adherence to, at least, some of them.

In order to operationalize these principles, however, a set of institutional arrangements (policy actions) is required. It is only through institutional arrangements that they can be realized. In fact, such universal principles are not *a priori* attached to any institutional setting. It is not for neoclassical economic analysis to determine the form that institutional arrangements (specific policies) should take. A direct corollary of this line of argument is that there is only a weak correspondence between these principles and the specific policy recommendations in the standard list of the Washington consensus. Reforms have substantial room for creatively packaging these principles into institutional designs that are sensitive to local opportunities and constraints. Growth promoting policies tend to be context specific. While successful countries are those that have used this room wisely, those which violate it in favor of the cut and dry uniform policy package of the Washington consensus, recorded little success.

The experiences of successful countries employing different sets of policies that differ from standard Washington consensus proves various policy/institutional arrangements could be drawn from these principles. Different sets of policies have different costs and benefits depending on prevailing political constraints, level of administrative competence, and market failures. From the stand point of policy makers, the challenge is identifying the balance between the role of the state and the

⁹⁷ This section heavily draws on Dani Rodrik's articles on 'growth strategies'. See Rodrik, 2003.

market, drawing appropriate regulations, efficient tax and tariff structure, etc. Such economic specific measures cannot be derived directly from fundamental economic principles. This implies the existence of possible multiple institutional arrangements that could be compatible with the universal principles. Successful reform therefore lies in identifying relevant and appropriate set of institutional arrangements which is believed to be consistent and least cost incurring. In light of these arguments Rodrik summarizes the action of international institutions as follows: [Rodrik, 2003, p. 12]

These ... clarify why the standard recommendations [of the Washington consensus] correlates poorly with economic performance around the world. The Washington consensus, in its various forms has tended to blur the line that separates [universal principles from institutional arrangements]. Policy advisers have been too quick in jumping from the higher-order principles ... to taking unconditional stands on the specific operational questions posed [regarding to institutional arrangements]. And as their policy advice has yielded disappointing results, they have moved on to recommendations with even greater institutional specificity (as with "second generation reforms"). As a result, sound economics has often been delivered in unsound form.

The above argument can be illustrated with economic performances of countries which adhered to the Washington consensus, irrespective of their political and economic specificity, such as in Latin America and Africa, and those which defy the Washington consensus in favor of policies consistent with their specific conditions.

On the one hand, Latin American countries such as Mexico, Argentina, Brazil, Colombia, Bolivia, and Peru did more liberalization, deregulation and privatization in the course of a few years than East Asian countries have done in four decades. Yet the striking fact is that Latin America's growth rate was not only significantly inferior to countries which adopted unorthodox policies, but also remained much significantly below its pre-1980 level, when unorthodox policies were employed. Similarly, economic decline persists in Africa despite an overall improvement in the policy environment in line with the Washington consensus.

On the other hand, the story of countries in East Asia, where predominantly unorthodox policies were consistently applied is different from the above. When Taiwan and South Korea decided to reform their trade regimes to reduce anti export bias, they did this not via import liberalization (which would have been the advice under the Washington consensus) but through selective subsidization of exports. Trade and financial sectors were partially and gradually liberalized in both countries well until their industries became fairly competitive, at least in the domestic market.

Foreign direct investment was limited and directly controlled, particularly during the initial phases of the industrialization process. Both countries industrialization proceeded under state led industrial policy, encompassing various non-neo-liberal oriented policy measures, including direct credit allocation, trade protection, export subsidization, tax incentive and the like. Both countries rejected the Washington consensus of taking an arm's length approach to their enterprises and actively sought to coordinate private investments in targeted sectors (see details in the next Chapter) Another success story, widely acknowledged, is China. China did not even adopt a private property rights regime and it merely appended a market system to the scaffolding of planned economy. China liberalized agriculture only at the margin. [Rodrik, 2003, p. 7]

Farmers were allowed to sell surplus crops freely at a market-determined price only after they had fulfilled their obligations to the state under the state order system. ... The system generated efficiency without creating any losers. It provides microeconomic incentives to producers while insulating the central government from the fiscal consequences of liberalization. ... As long as state quotas were set below the fully liberalized market outcome (so that transactions were conducted at market prices at the margin) and were not ratcheted up (so that producers did not have to worry about the quotas creeping up as a result of marketed surplus) China's dual-track reform in effect achieved full allocative efficiency.

Also, in the area of property rights, rather than privatize land and industrial assets, the Chinese government introduced institutional arrangements under which land was assigned to individual households according to their size (Household Responsibility System) and enterprises were vested in local communities (townships and villages).

Similarly, Singapore greatly expanded public investment in the economy, rather than reducing state intervention, and provided generous tax incentives to attract foreign investment. It also undertook extensive industrial policies. Moreover, Mauritius created in 1970 an export-processing zone without liberalizing its trade regime across the board. The domestic sector was highly protected until the mid-80s, a legacy of the policies of import-substituting industrialization.

The key is to realize that these principles do not translate directly into specific policy recommendations. That translation requires the analyst to supply many additional ingredients that are contingent on the economic and political context, and cannot be done a priori. Specific economic conditions change from country to country, requiring appropriate institutions to develop, but fundamental economic principles remain the

same. This is what the experiences of successful economies demonstrate. Local oriented institutions/policies, differing from the set of institutions known as the Washington consensus, worked precisely because they produced desired results, namely market-oriented incentives, property rights, macroeconomic stability, and so on.

5. *Micro-level perspective of the neoclassical Approach*

The above discussion focused largely on the macro version of contending theories. An important extension of the macro version, particularly from the point of view of its relevance to industrial policy is, however, the micro-level implications of these theoretical perspectives.

5.1 Neo-liberal micro-development perspective

In the standard neoclassical approach, all markets, including markets in developing economies, are assumed efficient. Product markets give the correct signals for investment in new activities, and factor markets respond to these signals without serious lags or friction.

No activity that is efficient will by definition die out and none that is inefficient will survive. The demise of inefficient activities will release productive resources for others that are efficient and that will spring up in response to the new price signals. Resources will move with little lag and with no constraints from missing or defective markets. Comparative advantage in industry, as given by resource endowments, will thus be fully realized, not only in a static sense but also in the emergence of new advantages that arise from the accumulation of capital.

At the firm level, given perfect competition, information, foresight and efficient factor markets, the optimum point on the production frontier is chosen according to prevailing relative factor prices. All firms are by definition equally efficient: technology is freely available, with full knowledge on techniques available to all firms – most importantly, it is costless and instantly absorbed, and any learning process is known, predictable and automatic.

Overtime, as factor prices change to reflect changing endowments, their activities change accordingly. This represents the optimal pattern of specialization and forms the basis for evolving comparative advantage. Hence static optimization in turn leads to dynamic long-term growth.

A revised version of this paradigm, the market-friendly approach, drops some of the assumptions of the neoclassical approach. [Lall, 1996; WB, 1993] It accepts that factor markets may not operate perfectly, and that education markets, in particular may need interventions to create the human-capital base for industrialization. These interventions are taken to be 'market friendly' (i.e. not selective), on the implicit assumption that skills are generic and fungible. Thus different patterns of industrialization are taken to have similar skill needs. The market-friendly approach also accepts market failures in coordinating investment decisions within industry for several reasons: Missing information markets (financial markets), capital-market deficiency, economies of scale, interdependent investments in vertically related activities, externalities in skill creation and learning, and 'multiple-linkages'. However, the conclusion remains the same: that market failures are unimportant and selective interventions not effective.

5.2 Neoclassical assumptions on technological development

The implications of the neoclassical theory to industrial policy go beyond what is hinted above. Moreover, there are additional detail assumptions on technology that are central to the debate on industrial and technological development policies.

In the neoclassical world, all firms operate with full knowledge of all possible technologies, equal access to these technologies and the ability to use them efficiently without risk, cost or further effort. The import of technology is just like the purchase of a good: there is a given market price based on perfect information about the product and its competitors, and technology is sold and bought like a physical good. There are no tacit elements in the transfer, no learning costs and no need to make adaptations. Thus all firms can immediately use technologies with the same degree of efficiency - all at best practice levels. In this setting, technical inefficiency is

due only to managerial slack or incompetence, and can only exist if governments intervene to create barriers to trade or competition.

With regard to the learning process, it is believed to be fairly short and predictable. It is confined to running in a new plant until it reaches rated capacity, and until the benefits of passive learning by repetitive activity are released. It is generally assumed that such costs are relatively trivial and similar across industries. The learning process does not involve investment, risk or long maturation periods. Firms know what to do to reach best practice levels: they have full information on what to do to become efficient. Given perfect capital markets, firms can borrow to finance the entire learning process wherever resource endowments justify the technology. If there are capital market failures, these should be tackled at source, rather than by governments, 'picking winners', and protecting or subsidizing them.

Firms are assumed to operate as individual units, essentially in isolation. There are no linkages between them, and no externalities resulting from individual efforts to generate skills and information. Since all markets function efficiently, there is no need to create institutions to provide information, technology, and so on. Since there are no externalities, there is no need to coordinate investment decisions across activities that may have intense linkages. Nor are some sets of activities more significant for industrial development than others in that they have more beneficial externalities.

6. *Markets failure and a different approach to micro-perspective of industrialization*

The central issue with the above argument, however, lies in the assumptions. If the assumptions are changed or fail to hold, which is largely an empirical question specific to an economy, and hence implying market imperfection, there is no guarantee for the conclusions to remain the same. The view that markets in developing countries are efficient and imperfections are insignificant is the assumption of neo-classical advocates. Considerable recent research into technological capabilities in developing countries suggests that the neoclassical model that underpins industrialization is oversimplified and misleading. [Lall, S. 1992] Various market failures make interventions necessary. A micro-level perspective of

industrial development provides detailed aspects of market failures and the need for intervention than the simple neoclassical model based on a unique static equilibrium.

The process of technological capability development may face various market failures. Free markets may not, in other words, give correct signals to resource allocation, first between simple and difficult activities, and second between physical investments, technology purchase, and internal technological effort. The first, between simple and difficult activities, is the basis of the classical case for infant-industry protection: in the process of learning, new entrants to an industry will inevitably face a disadvantage compared with those that have undergone the learning process. Lack of production experience is not the only disadvantage; the lack of technological linkages with other activities that are also undergoing uncertain learning processes and the absence of developed capital markets capable of financing the learning process are also some of the problems that late comers face. Given these problems of costs, cumulative learning effects, externalities, unpredictabilities, and capital markets imperfections, all widespread in developing countries, exposure to full import competition can altogether prevent entry into activities with relatively difficult technologies.

The second kind of allocation, between physical investments, technology purchase, and internal technological effort, affecting the deepening of capabilities within activities, can also suffer from market failures. Free market may fail to ensure optimal innovative activity because of imperfect appropriability or leakage of information and skills.

Industrialization in developing countries depends essentially on technological and managerial development. Technological development starts with using imported technologies efficiently and extends to innovations. Technology is not perfectly transferable like a physical product: it has many hidden elements that require the buyer to invest in acquiring new skills, technical know-how and organizational modalities and information. The process of gaining technological competence is not instantaneous, costless or automatic, even if the technology is well diffused elsewhere and has been utilized for long. It is rather risky, unpredictable and often it has to be learnt over a long period of time. In developing countries, particularly, new firms may not even know what their deficiencies are or how to go about identifying such deficiencies and their remedies. Building technological capability involves interactions with other firms and institutions. Apart from physical inputs, it calls for

various new skills from the education system and training institutes, technical information and services, contract research facilities, interactions with equipment suppliers and consultants, standards bodies, and so on. Networking such chains of activities and reactions could only be developed through experience overtime. This constant and uncertain process of learning differs radically from the standard neoclassical model of firm development, and leads to different policy implications.

Industrial development is not just about starting new activities. As economies progress and mature, it involves deepening in various forms, including technological upgrading of products and processes within industries, entry into more complex and demanding new activities, increasing local content, and mastering more complex technological tasks within industries (from those relevant to assembly to those needed for more value-added activity, adaptation, improvement, and finally design, development and innovation). Each involves its own costs. These costs differ by activity, rising with the sophistication of the technology, the extent of linkages and the level of technological capabilities aimed at. Progressive deepening is to some extent a natural part of industrial development, but it is not inevitable. Its pattern and incidence differ greatly, depending on the strategies pursued by the government.

As the cost of learning differs between activities, interventions to ensure efficient resource allocation have to be selective rather than uniform. In simple activities the need for protection may be minimal, because the learning period is relatively brief, easy to get information on, and predictable. In fact, in labor-intensive activities like garment assembly, the wage cost advantage of developing countries may off-set the learning cost completely, making protection unnecessary. In complex activities, with large scales, advanced information and skill needs, wide linkages and intricate organizations, by contrast, the learning process could spread over years, even decades. The learning process in such complex activities may not be undertaken unless supported by some form of protection.

Importing foreign technologies in a complete package, where the supplier provides the hard and software, does the start-up, training and adaptation, and manages the operation and marketing, is relatively easy. Though, such technology acquisition is an effective and relatively less risky way to access technology, it leads to little capability building in the developing country apart from production skills. This is so because, the move from production to innovative activity involves a complex and difficult process, which foreign investors tend to be unwilling to undertake in developing countries. For

instance, there is generally less investment in design, development and innovation by foreign compared to local firms, and the externalities generated by the technological activity that does take place tend to be captured by the investor rather than the host economy.

There is, in other words, a risk of market failure in capability deepening because of the substantial learning costs involved, very similar in nature to infant industry considerations. For technological capability building, therefore, it may be necessary to selectively import technology where the buyer has to do much more of the activities so as to develop broader and deeper capabilities. However, there are many technologies that are available only through direct investment or that are too complex for local capabilities, which have to be imported in internalized form, i.e., where the large part of the activities would be undertaken by the supplier. In order to bear the risks, costs and expenses of locally absorbing and very complex technologies, it may also be necessary to promote large size firms. Technological deepening can be a legitimate goal of industrial policy, since the development of indigenous design and innovative capabilities has many beneficial externalities.

Integration and promoting considerations also apply to deepening local integration: the development of local suppliers and subcontractors. Apart from the production benefits, these linkages speed the diffusion of technology, increase specialization and raise industrial flexibility. In particular, the development of local equipment suppliers can raise the generation and diffusion of technology. Because of these externalities, there may be a case for promoting entire sets of related activities, which would not otherwise be able to coordinate their investments. There may also be a case for selecting those sets of activities that offer higher learning potential, because of the advanced technologies involved. This is argued by new growth theorists, who trace differences in sustained growth rates partly to the ability of some countries to specialize in more technology-intensive sets of activities. Again, the nature of the market failures depends on the economy concerned and the decision to acquire technologically complex industries.

Since the skills and information needs of different industrial activities differ, interventions in these factor markets have to be integrated with other interventions to promote activities or technological deepening. If the government targets, say the electronics industry for promotion, it has to ensure that skills in electronics are provided by the learning institutions, technical information and support facilities on

electronics are provided by infrastructure institutions, and so on. Market- friendly interventions are thus necessarily selective once skill and information become specific rather than generic. Finally, since protection reduces the incentive to invest in capability development, industrial policy must provide offsetting incentives in the form of performance requirements, such as export, higher productivity, etc.

To summarize, it is immediately obvious that the aims of industrial policy are not simply to move from labor-intensive to capital-intensive activities. A two factor neo-classical model does not begin to capture the complex process of upgrading and learning involved. The promotion of industrial development may need interventions to overcome market failures in resource allocation between activities and within firms. These interventions have to be selective and geared to the learning process within firms. They may cover particular activities or sets of activities, and they may require the promotion of large firms. They have to be integrated with selective interventions in factor markets, including measures affecting the mode of technology import.

In the presence of widespread market failures, simply leaving matters to the market can penalize the development process. In particular, it can hold back entry into activities with complex technologies, increasing the local content and the undertaking of demanding technological tasks locally, what may be broadly labeled 'industrial deepening'.

CHAPTER IX

KEY ISSUES IN THE DEBATE ON INDUSTRIALIZATION

1. Introduction

Development thinking/theory since its emergence in the aftermath of the Second World War with the independence of many Asian and African countries has taken turns and twists. With the collapse of primary commodity exports during the great depression and the acceptance of Keynesian ideas in developed economies, laissez faire policies based on orthodox economic theories, gave way for structuralism which accorded central role to government in economic development. Though the exact role of the state differed from country to country there was agreement on a number of key points: first, market forces alone had failed to bring about economic development and therefore the state must actively seek to promote it; second, development must be achieved by transforming predominantly agricultural economies into industrial ones; and that economic growth and structural transformation required an increase in the level of investment in the economy. [Easterly, 2001]

Despite remarkable economic growth and progress in industrialization, developing countries remained dependent on international capital for investment, failed to bring about technological dynamism and to transform the traditional sector. As a result unemployment grew worse. Moreover, the strategy failed to exploit the opportunity from international trade. Despite the strategy's dominance in development thinking and practice for over two decades, however, sustaining it became difficult as it coincided with the emergence of the oil crisis of the 70s and the international financial (debt) crisis of the early 80s.

This situation, particularly the debt crisis, thus set the stage for the emergence of neo-liberalism as the dominant development thinking with strong support from developed economies, and international financial institutions, such as IMF and the World Bank, for its application.

At the heart of neo-liberal policy making is market liberalization (both domestic and international) and the reduced role of the state. Many developing countries adopted

the prevailing neo-liberal policy package under stabilization and structural adjustment programs of the IMF/WB through out the 80s and 90s. The neo-liberal approach, however, produced little result in reducing poverty, let alone introducing development. It is now largely recognized, even by its proponents, including the multilateral financial institutions that the neo-liberal policy package, as it was initially formulated within the rubric of the “Washington Consensus”, is not adequate to provide the desired results. Given the limited success of the initial offerings, its advocates have expanded the policy scope to include broader issues of governance in what Rodrik calls the Augmented Washington Consensus. [Rodrik, D. 2003]

As a result of the lack of visible success emerging from the implementation of this dominant paradigm, a serious debate has ensued among development thinkers and practitioners concerning the theoretical validity and practical applicability of its policy prescriptions. This rethinking process has again brought into focus some of the old ideas in development economics that were disparaged by the new paradigm while others have sought to carefully look at the experiences of successful developing countries particularly in East and South East Asia, to draw lessons for the less successful ones [Amsden, 1989; Wade 1996]

This Chapter tries to briefly look at key issues in the current debate in the development literature particularly related to strategies or models of industrialization.

2. The Neo-Liberal approach

Based on the classical theory of comparative cost advantage, the neo-liberal approach essentially leaves industrialization (the nature, rate, etc) to be determined by market forces. Central to neo-liberal thinking is the notion of price distortion. It underlines the belief that market prices provide the best indicators, or ‘signals’ for decision about resource allocation. If prices diverge from their free market level (i.e. if distorted) because, for example, of government price control or subsidies, then the economy will not attain efficiency. In this context, for a small developing economy, the relevant free market prices, it is argued, are those set on the world market. Though, prices in the real world are often distorted, which could be due to monopolistic tendencies, fragmented or nonfunctional markets, neo-liberals hold that in most

instances it is government intervention in pursuit of some social or economic objectives that generate these distortions.

Alongside the importance of freeing market prices, the neo-liberal perspective strongly emphasize the virtues of free international trade based on static comparative advantage. Accordingly, each country concentrates on producing those goods in which it has a relative (comparative) advantage instead of trying to produce goods which could be imported cheaply from countries producing them at the lowest cost. The effort to encourage local production of goods, which can be produced cheaply abroad, deliberately interferes with trade and introduced inefficiency.

Another major strand of neo-liberal thinking is related to the role of the state. Relying on the market as the best arbitrator of prices and efficiency, the state should take a hands-off approach to development. Economic decision should be left to private agents and the state should only provide those goods and services with demonstrable market failure and the provision of public goods such as infrastructure, education and health, which would not otherwise be provided by the private sector. Not only protectionism in international economic relations, but also other forms of interventions in the domestic economy, are considered counter productive. These include any form of national planning, all forms of intervention in the market and direct investment in the production of goods and services that can be produced by the private sector through state enterprises. All these are presumed to lead to a high budget deficit, spiraling inflationary pressure, rent seeking behavior and generally, to an inefficient allocation of economic resources.

As such, the emphasis of the neo-liberal approach is on individual economic agents and on the free play of market forces to provide short-term allocative efficiency, in the belief that achieving such efficiency would inevitably lead to long-term growth and development.

2.1 Neo-liberal policy prescription

The policy prescription drawn from the neo-liberal approach is straightforward:

- The first is market liberalization, often referred to as 'getting prices right'. It mainly involves removing price controls, financial liberalization and less intervention in labor market.

- Trade liberalization to move the economy towards greater outward orientation, i.e., removing import quotas, reducing tariff, and maintaining a realistic exchange rate.
- Reducing the role of the state in the economy through privatization and reduced government spending.

These policy prescriptions are expected to limit the role of the state as an economic agent and restore market forces, both domestic and international, which facilitate the free and efficient operation of the economy. Then the activities of individual economic agents, in the context of competitive domestic and international markets, will lead countries towards an optimal allocation of resources. Hence, an attempt to direct an economy towards certain kinds of production activity would be counter productive to the development process.

Given the current circumstances of the country, this implies that since Ethiopia's comparative advantage is in agriculture, the country should concentrate its efforts at developing this sector and making it competitive in the international market. Industrialization, if it happens, must come as a result of the operation of market forces rather than through a deliberate intervention on the part of the state through industrial policy.

The neoclassical theoretical perspective, however, has been under intense criticism, not only from its radical critics, but also from revisionists within the mainstream economic thought, witnessing in practice the failure to record any economic growth by developing countries, particularly Africa, under the SAP policy framework on the one hand, and a running success of South East Asians under the non-neo-liberal policy framework on the other. Some of these critical issues are briefly summarized in the following sections.

3. The Structuralist perspective

The Structuralist perspective is based on the theory of dynamic comparative advantage and the experience of industrialization in other countries. Its proponents argue that the doctrine of classical/traditional comparative cost advantage is

essentially concerned with static efficiency in the allocation of resources, and is not conducive to long-term development, which is the chief concern of Least Developed Countries (LDCs). In other words, there is a possibility of incongruence between market determined comparative cost advantage in the short-run and the acceleration of long term development. It starts from the premise that certain special features of the economic and social structures of less developed economies and the international environment in which they operate make a significant part of neo-liberal analysis inapplicable and misleading. Thus, there is the need for a conscious and home-tailored and specific industrialization strategy and policy package. This approach has the following underlying features:

- (i) *Skepticism about the beneficial effects of unadulterated free market.* Structuralism questions the neo-liberal premise that the free play of market forces (both domestic and international) by itself can bring about economic development in LDCs.

Countries are linked to the global economy largely through trade and movement of goods, services and capital. For the long term development of a country, what matters is not only its active participation in international trade on the basis of comparative cost but also the nature of the commodities it specializes in. This is because demand conditions differ depending upon the nature of the commodity. The demand for primary commodities, for example, tends to be income inelastic. Accordingly, as the demand for primary commodities (LDCs' main exports) in developed economies is falling relative to those of manufactured goods (LDCs' imports), LDCs are facing an unfavorable terms of trade.

The flow of capital in the form of foreign direct investment, to LDCs has been at best limited, as it primarily requires necessary economic infrastructure, large market and guaranteed political stability, which developing economies may not satisfy. Even when the inflow occurs, it may eventually act as a break to growth as a result of increased outflow of profit. Foreign loans too, have their own adverse effects. The sharp rise in international interest rate, over which LDCs have no control, and eventual outflow of interest and dividends, may have devastating effects. In addition, banks' reluctance to extend loans and the political criteria attached to bilateral, and even multilateral loans, cast great doubt to the availability of capital for long-term development.

Moreover, real world markets are often segmented along the lines of quality, design, geography (creation of blocks), etc, and therefore the world market may not be as big and as open as it seems, given that it takes time and resources to penetrate into new markets.

- (ii) *Emphasis on structural change.* Development is seen as a process of transformation of economic and social structures in which industry, particularly manufacturing industry, plays a crucial role. Economic history of developed countries shows that the importance of industry has been steadily increasing over time. Moreover, studies comparing the economic structure of developed and developing countries revealed that the major difference lies in the size of their industrial (and largely its derivative, the service) sectors compared with their respective agricultural sectors.

While the neo-liberal approach has generally no concern for sectoral differences, treating all activities as equivalent, structuralists believe that a number of features of industry, such as economies of scale, externalities, productivity, etc. enable it to play a dynamic role in economic development.

- (iii) *Emphasis on the dynamic aspects of technology.* Technology plays a critical role in development. As such, developing local technological capability has prime importance. On the contrary, neo-liberals hold the view that as developed countries have comparative advantage in industrial technologies as a result of long experience as well as ample financial resource and human capabilities (skills), LDCs would be better-off (in light of limited resources) to import existing technologies, but not re-invent the wheels. An extended version of this view argues that LDCs should not introduce technologies that divert development away from basic needs. Less developed countries can, therefore, acquire technological capabilities by integration into the world economy, relying on foreign technology and through direct foreign investment and/or licensing.

For the alternative approach, technology is rather the outcome of research and development by firms or research institutions and on-the-job learning (learning by doing and learning by using), which is referred to as 'endogenous growth' in the literature. [Nelson & Pack, 1977] Importing foreign technology does not, therefore, necessarily offer a short cut to industrialization. Rather, excessive reliance on imported technology may lead to technology dependence. This may

create a number of problems, including acquiring an expensive and outdated technology (because of LDCs' weak bargaining position due to lack of expertise, inadequate information and lack of alternative sources of supply), importing inappropriate technology (in terms of intensity of factor inputs and scale/capacity of production), and inability to adapt imported technology due to lack of local technological capability.

(iv) *Capital accumulation and investment in productive sector.* A high rate of capital accumulation is a necessary condition for bringing about structural transformation and increased level of productivity. However, for increased levels of accumulation to give rise to faster industrialization, resources should be channeled largely into productive investment rather than consumption. As pointed out above, for the neo-liberals the type of activity engaged in does not matter for economic development; while for the Structuralists, economic development requires higher investment in industry by channeling resources from other sectors.

(v) *Ownership and control of resources.* Highly concentrated ownership and control of resources affect the outcome of economic policies and processes. Hence, ownership should be taken into account. While the contributions that foreign ownership can make by introducing advanced technologies and providing access to foreign markets is well recognized, unrestricted foreign ownership might have negative effects on economic development. Because of considerable market power, and various accounting procedures, Trans National Corporations (TNCs) may evade taxes and repatriate a large amount of profit. Another effect of high ownership concentration is skewed income distribution, which in turn may also have an adverse impact on long-term development.

3.1 Structuralist policy prescription

Based on the underlying arguments indicated above, Structuralists firmly believe that development is too important to be left to the free market alone. The state in less developed countries should pursue active strategic interventions in order to promote industrialization/development. This, however, should not marginalize the already

fragmented market, but rather develop it. There are a number of key areas in which the state can play a promotional role.

- (x) *Link with the world economy*: As the free play of market forces tends to lead to further polarization, the state must intervene to mediate the relations between the national and the world economy. With respect to prices of primary commodities at the international market, LDCs should together create international commodities agreements, or form producer cartels, like OPEC, to stabilize prices of primary commodities.
- (xi) *Infant industry Promotion*. Infant industries can be pressurized to make improvements in their productivities and overall efficiency levels only over time since learning and acquisition of technological capability take a considerable period of time. Until then, however, industries should be given some form of support to withstand the pressure from experienced and technologically advanced and highly competing foreign firms. The state has a vital role in managing the required positive intervention.

The modality, however, may not necessarily be the traditional across the board, indefinite and unlimited protection, which was practiced in the past in many developing countries with adverse economic consequences. Rather, protection should be applied selectively, at a limited level and for a fixed period of time.

Protection should be *selectively targeted*. It should be a reward to a specific firm for achieving a targeted performance related to productivity, production, export, etc. It is not necessary that all industries be equally and simultaneously protected.

Moreover, if a given target is to be achieved, then there must be a time limit. Hence, protection should be *temporary*. It is essential to avoid monopoly tendencies. While firms are externally protected, internal competition should be encouraged. Competition against imports should be enhanced gradually.

Lastly, the level of protection must be *limited*. It should not be excessive to eliminate competition from abroad altogether, or too low to avoid exposing the industry concerned to the dangers of foreign assault.

Infant industry protection, therefore, should not be a blank check. It should be accompanied by regular pressure to make firms improve their productivity and efficiency, which will in turn make them competitive internally as well as externally. In a way, the ultimate objective of protection is to create a competitive market. If for structural reasons infant industries cannot altogether compete even in the domestic market, let alone exporting, then the market, in effect, is a siege monopoly market.

Government should also actively promote/encourage exports. While on the one-hand the domestic market is protected for selective products, firms should be encouraged and pushed to compete in the international market. Import substitution and export promotion are not, after all, contradicting, but rather reinforcing policies.

- (xii) *Priority setting.* Establishing new industries involves a great risk; hence producers have to be provided with extra incentives to enter the business. In such cases, the state should provide the required incentives, if such industry falls in the priority list.
- (xiii) *Coordinating complementary & substitutable investments.* The importance of coordinating complementary investments in the presence of capital market imperfection and significant economies of scale, require the intervention of the state. The state should also coordinate competing industries (so called managed competition) to avoid Oligopolistic (wasteful) competition.
- (xiv) *Efficient scale operation.* Government should encourage the establishment of factories, which are well above the minimum efficient scale but not those which are too much below the minimum efficient scale.
- (xv) *Ownership and structural change of industries.* Certain key industries involve high risks or may require large capital investments, which may not be attractive to the private sector. Hence, in such industries (e.g. steel, petrochemicals, large engineering, etc.), which are essential for creating an integrated industrial sector, the state should necessarily invest to create complementarities in the sector.

When production enterprises turn into declining industries due to structural problems (so called structurally depressed industries), the state should accelerate resource transfers and help the producers upgrade their technologies.

- (xvi) *Structure of the industrial sector.* To ensure that adequate investment is flowing to priority sectors or sub-sectors, such as capital goods industries, to keep the balance between large and small scale industries or to create input-output linkages between industries, the state should play a key role, by providing adequate incentives.
- (xvii) *Technology transfer.* To reduce the cost of imported technology, the state should intervene in technology transfer. This would be essential to import only technologies that are not available at home. This is the so called 'unpacking technology'. The state should also be involved in direct support for applied research and providing fiscal incentives for such expenditures by the private sector, to enhance local technological capacity.
- (xviii) *Foreign investment monitoring & control.* While recognizing the benefits which TNCs offer in terms of technology transfer and access to foreign markets, state awareness and reaction on the behavior of TNC's is necessary if the costs of foreign investment are to be minimized. The state should monitor and control the pricing practices of foreign enterprises. The state should also directly *negotiate with foreign companies* to obtain more favorable terms in revenue through taxation, royalties and share ownership than the free market can provide. Moreover, the state must have a role as the organizer of domestic firms into implicit cartels in their negotiations with foreign firms or governments.

For successful industrialization, Structuralists call for a 'hand-and-glove' approach between all stakeholders in the economy, namely the state, private investors/producers, labor unions, and consumers. The overall state intervention program, including promotional support and corresponding obligations, duration and level of support and targets to be achieved, should be discussed, understood and agreed upon, particularly between the state and the concerned business community. This is critical to control the level of government intervention so as to avoid government failure and enterprise inefficiency.

4. *A revisionist critic of the neo-liberal policy perspective*⁹⁸

Another line of argument comes from within mainstream economist critical to the biased policy interpretation of economic principles. According to Rodrik, for instance, mainstream economic principles of higher-order, such as protection of property rights, market-oriented incentives, prudential regulation, and the like have universality in the sense that it is in the interest of every country to achieve sound economic management. These are principles required to achieve allocative efficiency (requiring property rights, the rule of law and appropriate incentives), macroeconomic and financial stability (requiring sound money, fiscal solvency, and prudential regulations), social objectives /distributive justice and poverty alleviation/ (requiring incentive compatibility and appropriate targeting), etc. And no country has experienced rapid growth without some degree of adherence to, at least, some of them.

In order to operationalize these principles, however, a set of institutional arrangements (policy actions) is required. It is only through institutional arrangements that they can be realized. In fact, such universal principles are not *a priori* attached to any institutional setting. It is not for neoclassical economic analysis to determine the form that institutional arrangements (specific policies) should take. A direct corollary of this line of argument is that there is only a weak correspondence between these principles and the specific policy recommendations in the standard list of the Washington consensus. Reforms have substantial room for creatively packaging these principles into institutional designs that are sensitive to local opportunities and constraints. Growth promoting policies tend to be context specific. While successful countries are those that have used this room wisely, those which violate it in favor of the cut and dry uniform policy package of the Washington consensus, recorded little success.

The experiences of successful countries employing different sets of policies that differ from standard Washington consensus proves various policy/institutional arrangements could be drawn from these principles. Different sets of policies have different costs and benefits depending on prevailing political constraints, level of administrative competence, and market failures. From the stand point of policy makers, the challenge is identifying the balance between the role of the state and the

⁹⁸ This section heavily draws on Dani Rodrik's articles on 'growth strategies'. See Rodrik, 2003.

market, drawing appropriate regulations, efficient tax and tariff structure, etc. Such economic specific measures cannot be derived directly from fundamental economic principles. This implies the existence of possible multiple institutional arrangements that could be compatible with the universal principles. Successful reform therefore lies in identifying relevant and appropriate set of institutional arrangements which is believed to be consistent and least cost incurring. In light of these arguments Rodrik summarizes the action of international institutions as follows: [Rodrik, 2003, p. 12]

These ... clarify why the standard recommendations [of the Washington consensus] correlates poorly with economic performance around the world. The Washington consensus, in its various forms has tended to blur the line that separates [universal principles from institutional arrangements]. Policy advisers have been too quick in jumping from the higher-order principles ... to taking unconditional stands on the specific operational questions posed [regarding to institutional arrangements]. And as their policy advice has yielded disappointing results, they have moved on to recommendations with even greater institutional specificity (as with "second generation reforms"). As a result, sound economics has often been delivered in unsound form.

The above argument can be illustrated with economic performances of countries which adhered to the Washington consensus, irrespective of their political and economic specificity, such as in Latin America and Africa, and those which defy the Washington consensus in favor of policies consistent with their specific conditions.

On the one hand, Latin American countries such as Mexico, Argentina, Brazil, Colombia, Bolivia, and Peru did more liberalization, deregulation and privatization in the course of a few years than East Asian countries have done in four decades. Yet the striking fact is that Latin America's growth rate was not only significantly inferior to countries which adopted unorthodox policies, but also remained much significantly below its pre-1980 level, when unorthodox policies were employed. Similarly, economic decline persists in Africa despite an overall improvement in the policy environment in line with the Washington consensus.

On the other hand, the story of countries in East Asia, where predominantly unorthodox policies were consistently applied is different from the above. When Taiwan and South Korea decided to reform their trade regimes to reduce anti export bias, they did this not via import liberalization (which would have been the advice under the Washington consensus) but through selective subsidization of exports. Trade and financial sectors were partially and gradually liberalized in both countries well until their industries became fairly competitive, at least in the domestic market.

Foreign direct investment was limited and directly controlled, particularly during the initial phases of the industrialization process. Both countries industrialization proceeded under state led industrial policy, encompassing various non-neo-liberal oriented policy measures, including direct credit allocation, trade protection, export subsidization, tax incentive and the like. Both countries rejected the Washington consensus of taking an arm's length approach to their enterprises and actively sought to coordinate private investments in targeted sectors (see details in the next Chapter)

Another success story, widely acknowledged, is China. China did not even adopt a private property rights regime and it merely appended a market system to the scaffolding of planned economy. China liberalized agriculture only at the margin. [Rodrik, 2003, p. 7]

Farmers were allowed to sell surplus crops freely at a market-determined price only after they had fulfilled their obligations to the state under the state order system. ... The system generated efficiency without creating any losers. It provides microeconomic incentives to producers while insulating the central government from the fiscal consequences of liberalization. ... As long as state quotas were set below the fully liberalized market outcome (so that transactions were conducted at market prices at the margin) and were not ratcheted up (so that producers did not have to worry about the quotas creeping up as a result of marketed surplus) China's dual-track reform in effect achieved full allocative efficiency.

Also, in the area of property rights, rather than privatize land and industrial assets, the Chinese government introduced institutional arrangements under which land was assigned to individual households according to their size (Household Responsibility System) and enterprises were vested in local communities (townships and villages).

Similarly, Singapore greatly expanded public investment in the economy, rather than reducing state intervention, and provided generous tax incentives to attract foreign investment. It also undertook extensive industrial policies. Moreover, Mauritius created in 1970 an export-processing zone without liberalizing its trade regime across the board. The domestic sector was highly protected until the mid-80s, a legacy of the policies of import-substituting industrialization.

The key is to realize that these principles do not translate directly into specific policy recommendations. That translation requires the analyst to supply many additional ingredients that are contingent on the economic and political context, and cannot be done a priori. Specific economic conditions change from country to country, requiring appropriate institutions to develop, but fundamental economic principles remain the

same. This is what the experiences of successful economies demonstrate. Local oriented institutions/policies, differing from the set of institutions known as the Washington consensus, worked precisely because they produced desired results, namely market-oriented incentives, property rights, macroeconomic stability, and so on.

5. *Micro-level perspective of the neoclassical Approach*

The above discussion focused largely on the macro version of contending theories. An important extension of the macro version, particularly from the point of view of its relevance to industrial policy is, however, the micro-level implications of these theoretical perspectives.

5.1 Neo-liberal micro-development perspective

In the standard neoclassical approach, all markets, including markets in developing economies, are assumed efficient. Product markets give the correct signals for investment in new activities, and factor markets respond to these signals without serious lags or friction.

No activity that is efficient will by definition die out and none that is inefficient will survive. The demise of inefficient activities will release productive resources for others that are efficient and that will spring up in response to the new price signals. Resources will move with little lag and with no constraints from missing or defective markets. Comparative advantage in industry, as given by resource endowments, will thus be fully realized, not only in a static sense but also in the emergence of new advantages that arise from the accumulation of capital.

At the firm level, given perfect competition, information, foresight and efficient factor markets, the optimum point on the production frontier is chosen according to prevailing relative factor prices. All firms are by definition equally efficient: technology is freely available, with full knowledge on techniques available to all firms – most importantly, it is costless and instantly absorbed, and any learning process is known, predictable and automatic.

Overtime, as factor prices change to reflect changing endowments, their activities change accordingly. This represents the optimal pattern of specialization and forms the basis for evolving comparative advantage. Hence static optimization in turn leads to dynamic long-term growth.

A revised version of this paradigm, the market-friendly approach, drops some of the assumptions of the neoclassical approach. [Lall, 1996; WB, 1993] It accepts that factor markets may not operate perfectly, and that education markets, in particular may need interventions to create the human-capital base for industrialization. These interventions are taken to be 'market friendly' (i.e. not selective), on the implicit assumption that skills are generic and fungible. Thus different patterns of industrialization are taken to have similar skill needs. The market-friendly approach also accepts market failures in coordinating investment decisions within industry for several reasons: Missing information markets (financial markets), capital-market deficiency, economies of scale, interdependent investments in vertically related activities, externalities in skill creation and learning, and 'multiple-linkages'. However, the conclusion remains the same: that market failures are unimportant and selective interventions not effective.

5.2 Neoclassical assumptions on technological development

The implications of the neoclassical theory to industrial policy go beyond what is hinted above. Moreover, there are additional detail assumptions on technology that are central to the debate on industrial and technological development policies.

In the neoclassical world, all firms operate with full knowledge of all possible technologies, equal access to these technologies and the ability to use them efficiently without risk, cost or further effort. The import of technology is just like the purchase of a good: there is a given market price based on perfect information about the product and its competitors, and technology is sold and bought like a physical good. There are no tacit elements in the transfer, no learning costs and no need to make adaptations. Thus all firms can immediately use technologies with the same degree of efficiency - all at best practice levels. In this setting, technical inefficiency is

due only to managerial slack or incompetence, and can only exist if governments intervene to create barriers to trade or competition.

With regard to the learning process, it is believed to be fairly short and predictable. It is confined to running in a new plant until it reaches rated capacity, and until the benefits of passive learning by repetitive activity are released. It is generally assumed that such costs are relatively trivial and similar across industries. The learning process does not involve investment, risk or long maturation periods. Firms know what to do to reach best practice levels: they have full information on what to do to become efficient. Given perfect capital markets, firms can borrow to finance the entire learning process wherever resource endowments justify the technology. If there are capital market failures, these should be tackled at source, rather than by governments, 'picking winners', and protecting or subsidizing them.

Firms are assumed to operate as individual units, essentially in isolation. There are no linkages between them, and no externalities resulting from individual efforts to generate skills and information. Since all markets function efficiently, there is no need to create institutions to provide information, technology, and so on. Since there are no externalities, there is no need to coordinate investment decisions across activities that may have intense linkages. Nor are some sets of activities more significant for industrial development than others in that they have more beneficial externalities.

6. *Markets failure and a different approach to micro-perspective of industrialization*

The central issue with the above argument, however, lies in the assumptions. If the assumptions are changed or fail to hold, which is largely an empirical question specific to an economy, and hence implying market imperfection, there is no guarantee for the conclusions to remain the same. The view that markets in developing countries are efficient and imperfections are insignificant is the assumption of neo-classical advocates. Considerable recent research into technological capabilities in developing countries suggests that the neoclassical model that underpins industrialization is oversimplified and misleading. [Lall, S. 1992] Various market failures make interventions necessary. A micro-level perspective of

industrial development provides detailed aspects of market failures and the need for intervention than the simple neoclassical model based on a unique static equilibrium.

The process of technological capability development may face various market failures. Free markets may not, in other words, give correct signals to resource allocation, first between simple and difficult activities, and second between physical investments, technology purchase, and internal technological effort. The first, between simple and difficult activities, is the basis of the classical case for infant-industry protection: in the process of learning, new entrants to an industry will inevitably face a disadvantage compared with those that have undergone the learning process. Lack of production experience is not the only disadvantage; the lack of technological linkages with other activities that are also undergoing uncertain learning processes and the absence of developed capital markets capable of financing the learning process are also some of the problems that late comers face. Given these problems of costs, cumulative learning effects, externalities, unpredictabilities, and capital markets imperfections, all widespread in developing countries, exposure to full import competition can altogether prevent entry into activities with relatively difficult technologies.

The second kind of allocation, between physical investments, technology purchase, and internal technological effort, affecting the deepening of capabilities within activities, can also suffer from market failures. Free market may fail to ensure optimal innovative activity because of imperfect appropriability or leakage of information and skills.

Industrialization in developing countries depends essentially on technological and managerial development. Technological development starts with using imported technologies efficiently and extends to innovations. Technology is not perfectly transferable like a physical product: it has many hidden elements that require the buyer to invest in acquiring new skills, technical know-how and organizational modalities and information. The process of gaining technological competence is not instantaneous, costless or automatic, even if the technology is well diffused elsewhere and has been utilized for long. It is rather risky, unpredictable and often it has to be learnt over a long period of time. In developing countries, particularly, new firms may not even know what their deficiencies are or how to go about identifying such deficiencies and their remedies. Building technological capability involves interactions with other firms and institutions. Apart from physical inputs, it calls for

various new skills from the education system and training institutes, technical information and services, contract research facilities, interactions with equipment suppliers and consultants, standards bodies, and so on. Networking such chains of activities and reactions could only be developed through experience overtime. This constant and uncertain process of learning differs radically from the standard neoclassical model of firm development, and leads to different policy implications.

Industrial development is not just about starting new activities. As economies progress and mature, it involves deepening in various forms, including technological upgrading of products and processes within industries, entry into more complex and demanding new activities, increasing local content, and mastering more complex technological tasks within industries (from those relevant to assembly to those needed for more value-added activity, adaptation, improvement, and finally design, development and innovation). Each involves its own costs. These costs differ by activity, rising with the sophistication of the technology, the extent of linkages and the level of technological capabilities aimed at. Progressive deepening is to some extent a natural part of industrial development, but it is not inevitable. Its pattern and incidence differ greatly, depending on the strategies pursued by the government.

As the cost of learning differs between activities, interventions to ensure efficient resource allocation have to be selective rather than uniform. In simple activities the need for protection may be minimal, because the learning period is relatively brief, easy to get information on, and predictable. In fact, in labor-intensive activities like garment assembly, the wage cost advantage of developing countries may off-set the learning cost completely, making protection unnecessary. In complex activities, with large scales, advanced information and skill needs, wide linkages and intricate organizations, by contrast, the learning process could spread over years, even decades. The learning process in such complex activities may not be undertaken unless supported by some form of protection.

Importing foreign technologies in a complete package, where the supplier provides the hard and software, does the start-up, training and adaptation, and manages the operation and marketing, is relatively easy. Though, such technology acquisition is an effective and relatively less risky way to access technology, it leads to little capability building in the developing country apart from production skills. This is so because, the move from production to innovative activity involves a complex and difficult process, which foreign investors tend to be unwilling to undertake in developing countries. For

instance, there is generally less investment in design, development and innovation by foreign compared to local firms, and the externalities generated by the technological activity that does take place tend to be captured by the investor rather than the host economy.

There is, in other words, a risk of market failure in capability deepening because of the substantial learning costs involved, very similar in nature to infant industry considerations. For technological capability building, therefore, it may be necessary to selectively import technology where the buyer has to do much more of the activities so as to develop broader and deeper capabilities. However, there are many technologies that are available only through direct investment or that are too complex for local capabilities, which have to be imported in internalized form, i.e., where the large part of the activities would be undertaken by the supplier. In order to bear the risks, costs and expenses of locally absorbing and very complex technologies, it may also be necessary to promote large size firms. Technological deepening can be a legitimate goal of industrial policy, since the development of indigenous design and innovative capabilities has many beneficial externalities.

Integration and promoting considerations also apply to deepening local integration: the development of local suppliers and subcontractors. Apart from the production benefits, these linkages speed the diffusion of technology, increase specialization and raise industrial flexibility. In particular, the development of local equipment suppliers can raise the generation and diffusion of technology. Because of these externalities, there may be a case for promoting entire sets of related activities, which would not otherwise be able to coordinate their investments. There may also be a case for selecting those sets of activities that offer higher learning potential, because of the advanced technologies involved. This is argued by new growth theorists, who trace differences in sustained growth rates partly to the ability of some countries to specialize in more technology-intensive sets of activities. Again, the nature of the market failures depends on the economy concerned and the decision to acquire technologically complex industries.

Since the skills and information needs of different industrial activities differ, interventions in these factor markets have to be integrated with other interventions to promote activities or technological deepening. If the government targets, say the electronics industry for promotion, it has to ensure that skills in electronics are provided by the learning institutions, technical information and support facilities on

electronics are provided by infrastructure institutions, and so on. Market- friendly interventions are thus necessarily selective once skill and information become specific rather than generic. Finally, since protection reduces the incentive to invest in capability development, industrial policy must provide offsetting incentives in the form of performance requirements, such as export, higher productivity, etc.

To summarize, it is immediately obvious that the aims of industrial policy are not simply to move from labor-intensive to capital-intensive activities. A two factor neo-classical model does not begin to capture the complex process of upgrading and learning involved. The promotion of industrial development may need interventions to overcome market failures in resource allocation between activities and within firms. These interventions have to be selective and geared to the learning process within firms. They may cover particular activities or sets of activities, and they may require the promotion of large firms. They have to be integrated with selective interventions in factor markets, including measures affecting the mode of technology import.

In the presence of widespread market failures, simply leaving matters to the market can penalize the development process. In particular, it can hold back entry into activities with complex technologies, increasing the local content and the undertaking of demanding technological tasks locally, what may be broadly labeled 'industrial deepening'.

CHAPTER X

OVERVIEW OF EXPERIENCES OF INDUSTRIALIZATION STRATEGY⁹⁹

1. *Introduction*

Earlier and newly industrializing economies provide rich panorama of experience in industrial development, including government intervention: types, instruments, level and extent of intervention, and criteria for identifying industries for promotion.

However, it is obvious that as much as there are similarities there are also differences between countries which could limit the extent of the lesson to be learnt.

Differences may have two aspects. First, countries may have significant differences in their political environment and stage of economic development. Inevitably, the political economy of countries dictates the type, design and applicability of not only of industrial policy but also other policies: macroeconomic, education, agriculture, and the like. It also creates differences in the scope of visions that governments could have with respect to their development strategies.

As such, the complexity and range of intervention in one country may not be quite the same in another. And even if governments' visions happen to be the same, the extent of the replicability of policy interventions and institutional configurations would be limited. However, similarities do exist providing common lessons for those aspiring to industrialize. In the case of East Asia, for example, as much as there were differences, there were also significant similarities in their industrialization approach. Different economic, institutional and political conditions dictate different strategies, but they do not rule out strategies all together. There are valuable lessons to be learned

⁹⁹ For detailed accounts of countries' experiences, see forthcoming report on "Industrialization and industrial policy in Ethiopia", EEA/EEPRI, 2004.

from the experiences of other countries if they are adapted to the economic conditions and political realities of each country.

Critics argue that effective implementation of industrial policy requires above all the competence, insulation, relative lack of corruptibility of the public administration and the pragmatism and flexibility of governments. [WB, 1993] While there is no dispute on the need for an efficient bureaucracy for the conduct of an effective industrial or, for that matter, any policy, it does not imply that industrial policy is more difficult to administer than other policies. The point is that a categorical statement cannot be made about the ease or difficulty of a particular type of policy without looking at the particular policy and the country concerned.

Moreover, there is no country, including those in East Asia that can be regarded as a model devoid of incompetence and corruption through out its development history. Nevertheless, every country has its own mark of administrative inefficiency at one time or another. History and traditions might have some elements of influence on administrative efficiency. However, capabilities and (the institutions that embody them) can be built and destroyed or phased out, or reoriented by development a lot more easily, and are not fixed endowments.

In general, it is likely that each country possesses its own unique and perhaps irreproducible elements. However, there are enough economic lessons (and which could make a difference) that can be applied by other countries, making allowances for administrative and political circumstances.

It is in this context that this Chapter considers the industrialization experiences of other countries. Ethiopia, being one the least industrialized economies in the world, would greatly benefit from countries' experiences in designing and implementing its industrialization program. There is quite a lot of literature written about the experiences of industrialization related to the industrialization path followed by early industrializers and newly industrializing ones. In this Chapter, a concise account of the experience of few countries, focusing more on newly industrializing economies, is provided.¹⁰⁰

¹⁰⁰ The interested reader can for example look at the articles by Shafaeddin M. (1998, 2000a) for early industrializers and Amsden A. (1989), Lall S. (1996) and Rock, M. & Jomo K.S. (1998) for late industrializers.

2. *Early industrializers*

There is no one a priori formula or theory that guided the industrialization process of the now industrialized countries. There have been attempts to summarize the actual history of industrialization to identify common elements in the process for the purpose of generalization. Amsden for example, identified three modalities of industrialization, namely industrialization through invention, innovation and copying to explain the process of industrialization of England, the second generation industrializers such as Germany and the United States, and the newly industrializing countries of East Asia, respectively. [Amsden 1989] While there are similarities in some of the strategies followed by these experiences, the period in which the industrialization occurred and the domestic and international environment that prevailed during the launch period dictated the path to industrialization each country or group of countries pursued.

2.1 The case of Britain

Though Britain, as a forerunner of industrialization had encountered little competition from other countries in its earlier periods. Inventions and innovations were the main accelerating factors for industrialization while trade restriction, which was planted well before the industrial revolution, has facilitated the process of industrialization. Initially Great Britain adopted protectionist policies which facilitated processing of woolen clothes. Initially, wool had constituted the main export item of the country, but then protection resulted in the rise and expansion of manufacturing and later on in export of woolen cloth. The process of protection continued well into the industrial revolution and beyond until around the 1860s. [Shafaeddin, 1998]

2.1.1 The role of trade policy

Trade policy as a mechanism for infant industry protection in Britain has similarity not only with second generation industrialized countries such as the United States, Germany, etc., but also with the newly industrialized economies of today.

Firstly, infant industry protection was selective. The process which started with protection of woolen products, cotton products and iron, was extended later on to other metals, leather, shipbuilding and fisheries, and subsequently to flax and silk.

Local production was usually protected against imports. Protection of the cotton industry was pivotal for its potential to act as a leading industry in production and export, while the iron industry was protected for its strong backward and forward linkages. Raw iron was produced at home and iron was the input to steel production, steam engine, etc. When shipbuilding was developed, Great Britain secured for her own vessels sea transport and fisheries through its Navigation Act, which was an instrument of protection.

Secondly, only after the industrial revolution was well established and when Britain had consolidated its industrial base did it start to follow a free trade policy after some gradual tariff reduction. In the mid-19th century its industries were mature enough to compete in the internal and external markets. Great Britain's advocacy of universal free trade was on the basis of the perception that it would provide the country with export markets for manufactured goods and access to raw materials.

In short, Great Britain began its trade liberalization after over two centuries of protection, and even then liberalization only took place very gradually over a period of almost 30 years. Moreover, to exploit foreign markets, Great Britain also advocated free trade, or enforced it, in other countries and its colonies.

Thirdly, prior protection of the domestic market was a vehicle for cost reduction necessary for international competition. According to Marshall "...the growing richness of her home markets lowered the cost of production of those of her exports which conformed to the law of increasing return and therefore enabled her to sell more of them abroad." [Marshall, 1920, p. 65]¹⁰¹ So protection of the domestic market in turn allowed industries to realize increasing returns and expand exports.

Moreover, being technologically a forerunner, Britain was also used to restrict the sale of technology, manufacturing hard ware, to other countries until it makes sure that the old technology is replaced by advanced ones which provide her a competitive edge. The British Government prohibited exports of machinery, and this remained in force until the 1830s. Further, the use of machinery in the colonies was also prohibited. [Reinert, 1996] This was another mechanism through which Britain effectively protected its industrial sector.

¹⁰¹ Quoted in Shafaeddin, 1998, p.5.

2.1.2 Government intervention

The extent of government intervention in the case of early industrializers was relatively much less than late industrializers, not only because competition was rather limited, but also the pace of technological change was slow, depending on the development of new inventions. As a result government intervention in Britain was not as pervasive as Germany, the United States, or other late industrializers. Nevertheless, its selective intervention was significant, particularly in foreign trade including the navigation act and economic relation with its colonies. It was argued that without government intervention, transition from farm and cottage industries to manufacturing would not have been possible.

Government intervention was not just limited to trade. The conscious drive for developing infrastructure, roads, railways, waterways, etc. played a significant role in the acceleration and consolidation of industrial development. Similarly government intervened in the financial market through the Bank Charter Act. The Bank of England was used as a tool for public borrowing. Small and provincial banks and banking houses were created to facilitate credit to the private sector for industrialization. In addition many private banks were also established.

Moreover, government intervention in trade, at times, went far beyond its normal scope. Government intervened in foreign trade, claiming responsibility for the “political control of trade, as was the case with the blockage of Canton in China in response to the action taken by the Chinese Government against opium smugglers. As a result, the Chinese had to admit British merchants on the terms dictated by the British Government.” [Shafaeddin, M. 1998, p. 9]

Therefore, Britain’s experience had more to do with infant industry protection, at least during its industrial revolution, rather than with universal liberal trade policy. It was only after the development of its supply capacity, or its strong industrial base, that free trade was pursued.

2.2 The United States

Similar to Britain, the relatively late comer, the United States too, relied on infant industry protection. Moreover, the later a country started the industrialization process, the more profound was the role of the government and the stronger the intervention becomes. So by contrast, the United States had deeper and wider intervention than Britain, though less than Germany, Japan and other late industrializers.

It is interesting to note that not only “the modern protectionist school of thought was actually born in the United States”, but “it was also the mother country and the bastion of modern protectionism.” (Bairoch, 1993, pp. 23 & 30)” It was argued that international trade was not free and Europe was not only more advanced in manufacturing, but also its industries were enjoying governmental support. If free trade was to be adopted, it was argued, the United State would suffer from “unequal exchange” because competition with established manufactures of other nations on equal terms was impracticable.

In line with this argument, a system of protective duties, prohibition and subsidies, based on other countries’ successful experiences, was proposed as a means of temporary infant industry protection. Moreover, selective protection was also favored. In order to encourage technological advancement and promote institutions necessary for industrialization, government intervention in other areas was also applied. The role of the government, at early stage of industrialization, was required to be complementary to that of the private sector.

In countries where there is great private wealth, much may be effected by the voluntary contributions of patriotic individuals; but in a community situated like that of the United States, the public pursuit must supply the deficiency of private resources, in what can it be useful, as in prompting and improving the efforts of industry. (Mckee, 1934, p. 270)

The protection of infant industries began with the Tariff Act of 1816. The tariff system encompassed a significantly high *ad valorem* tax and specific import duties in order to protect selected light industries. In addition, imports of some other items were prohibited. Such developments provided stimulus to domestic industries, proving the benefit of protection. The protection of infant industries began with cotton, cloth, iron, and wool.

Two new processes were also initiated. The first was the use of reciprocity in international trade in order to secure foreign markets for exports of established US industries. The second was the extension of protection to more sophisticated industries, i.e., the introduction of the second round of import substitution. This led to an increase in tariffs on new products such as readymade clothes, carpets, plate-glass, tin plates, etc. Later protection was extended to shipbuilding. Further, subsidies on the production of some items were also introduced. [Ashley, 1920] The intensification of protection once again led to a rapid economic expansion.

After the Second World War, with the decline of Europe's industrial supply capacity, the US objective changed to liberalizing international trade not only in the United States but elsewhere (as Great Britain did when it consolidated its industrial base in mid 19th century) to provide markets for its industries. This is how the first round of trade liberalization through GATT started in 1948. [Shafaeddin, 1998, pp. 15-17]

Government intervention was not limited to external trade only. It also intervened in the economy extensively to encourage capital accumulation, technological development, organizational change and institution building, which were believed to accelerate the industrialization process. In addition to the provision of financial capital for capital accumulation through the central bank, the government directly invested in infrastructure – railway, telegraph, etc.

In summary, the adoption of protectionist policies enables the United States to record a very high rate of growth. "In particular the intensification of protection after 1860 allowed the country to accelerate growth and catch up rapidly with Great Britain in terms of GDP per capita, technological development and export performance." [Shafaeddin, 1998, p.18]

2.3 Industrialization experiences of Germany and France

It should be noted that all other industrial countries, including Germany and France, not only have developed their manufacturing industries through infant industry protection but also through a relatively more pervasive government intervention than their predecessors.

Germany began protecting its industries in the 1840s, after its unification, and it was further reinforced in the 1850s and early 1860s. To secure foreign markets for German trusts and cartels, reciprocal trade treaties were signed with a number of neighboring countries. Under these agreements, Germany benefited from preferential treatment in exchange for preferential access to the highly protected German market. The government also took a number of other measures. Exemption from import duties were made for raw materials which could not be produced at home; further tariffs on intermediate goods were not supposed to interfere with exports. From 1897 onwards, export bonuses were for the first time introduced, and were applied more systematically. The system of drawbacks was also introduced, and imports of goods for processing, or repairs, and re-exportation became free. Similar to Britain, excessively high tariff rate was imposed to protect the capital goods industry. In general, without infant industry protection, Germany would not have been able to develop its industrial base to compete with the established British and United States (US) industries.

Protection in France started earlier than in Germany. As early as 1790, imports of some goods were prohibited, but imports of raw materials were free. Protection of manufactured goods was intensified. But latter, as progress was made in industry and agriculture and because of the strong need for raw materials, significant reduction was made on imports of many commodities in the 1840s and 50s.

So, high tariffs were also used for improving the bargaining position of the government in bilateral negotiations for signing trade treaties, particularly with the US. In addition to significant increases in tariffs, additional support such as bounties for shipbuilding and subsidies for shipping had been introduced. Considerably high tariffs were imposed to protect metal products and machineries.

Once again, without infant industry protection France could not have developed its manufacturing industries. The intensification of protection after 1880 helped the expansion of French industries significantly.

Although to varying degrees, all other industrial countries, including Canada, Australia, New Zealand, etc., also went through a period of infant industry protection to develop their industries.

To conclude, early industrializers all relied on infant industry protection mechanism to develop their industrial sector. Indeed in all cases, these economies benefited from an infant industry protection phase and heavy government intervention in the foreign sector though to a varying degree.

Moreover, in all cases: Britain, United States, Germany and France, even when the industrial sector was mature, protection was used as a means of bargaining in bilateral trade negotiations and trade treaties.

It is more interesting to note that even today active, targeted, industrial policy still prevails in various forms in most developed countries, including the United States, the most advanced industrial economy and leading advocate of globalization. [Reinert, 2000]

Provision of assistance to producers and exporters is not confined to the United States. Another example is the enormous amount of subsidies provided to producers in the European Union countries under common agricultural policies.

3. *Experiences of newly industrializing economies of East Asia*¹⁰²

This section discusses the industrialization experiences of some of the highly successful newly industrializing economies of East Asia, including Singapore, South Korea, Taiwan, and Malaysia. Most of them registered unprecedented growth and diversification or structural change of their economy in a span of not more than three decades. Governments in these countries designed specific industrial policies and, though to a varying degree, consciously intervened at different levels (industry or firm level) and in all markets to overcome market failure and achieve rapid industrialization. It should be underlined that irrespective of the differences in the scope and extent of interventions, the central and key overarching objective of all newly industrializing countries was 'technological advancement or development'. This was the converging goal of all these economies. Selective as well as functional interventions played a vital role in the pattern of industrial and technological capability

¹⁰² this section heavily draws on Lall's article [Lall, S. 1996]

(TC) development. The nature and impact of interventions differed according to different government specific objectives and political economies. In what follows major policy interventions adopted by each country during their process of industrialization is discussed.

3.1 Singapore

Though a city-state with small agricultural sector and hence, small and low economic complexity, its successful strategy to develop its industrial technological base, upgrade industrial skills, and attract foreign direct investment is worth reviewing.

Singapore had initially a weak tradition of local entrepreneurship, with only few light industries - mainly garment and semiconductor assembly. Its capabilities, influenced by its geographic location, were largely in the service sector including *entrepot* trading, ship servicing and petroleum refining.

3.1.1 Trade Policy

After a brief period of import-substitution, Singapore moved into export-oriented industrialization, under a liberal trade regime, based overwhelmingly on foreign direct investment, while raising domestic resource mobilization by various measures, such as taxes, import duties, etc.

3.1.2 FDI policy

Its policies for attracting Foreign Direct Investment (FDI) were based on liberal entry and ownership conditions, easy access to expatriate skills, and generous incentives for the activities that it was seeking to promote. The new technologies that the Multi National Corporations (MNCs) had to bring into Singapore were strongly influenced by the incentive system and the direction followed by the government, which provided the necessary skilled manpower in consultation with the MNCs. To upgrade the industrial base, government targeted activities for promotion and aggressively sought and guided MNCs to higher value-added activities using different incentives. Singapore relied heavily on foreign investors to bring 'ready made' technology and by specializing in small segments of the technology rather than seeking to establish integrated facilities.

Singapore also encouraged MNCs to establish their research center. The National Technology Board (NTB) of Singapore directed the expansion of a research and development infrastructure for new industries, such as agro-technology, biotechnology, robotics and automation. To facilitate this, new incentives, such as the regional headquarters scheme, international procurement scheme, international-logistics-center scheme, and the approved traders' scheme were introduced. [Lall, 1996]

3.1.3 Technological capabilities building

Singapore chose a number of selective interventions to move from labor-intensive to capital-skill-technology-intensive activities. Its technology acquisition policy was directed at consciously acquiring, and subsequently upgrading, the most modern technologies mainly based on direct foreign investment. In areas where foreign investment was not feasible or desirable, government directly set up a number of public enterprises to undertake activities considered to be of future interest to the country.

The government mounted strong effort to support small and medium enterprises (SMEs). Government agencies were established to provide support to SMEs with management and training, finance and grants, and coordinating assistance from other agencies. A substantial fund was also set up to facilitate product-development assistance, technical assistance to import foreign consultancy, venture capital to help technology start-ups, robot leasing, training, and technology tie-ups with foreign companies. Further assistance in various aspects, including disseminating technology, providing information on foreign technical requirements and how to meet them, management advice and consultancy, identifying technology requirements and purchase technologies, and technology up-grading strategies were provided to SMEs.

Singapore also established several government-support research centers, including the Singapore Science Park, the Institute of Molecular and Cell Biology, the Institute of Systems Science, and the Information Technology Institute.

3.1.4 Skill development

Singapore's approach to deliver the skill needs of the industrial sector is said to be one of the best in the region. To provide the required skill, government selectively developed an efficient, industrially-targeted, higher technical education structure and a special workers training program. To this end the government established The Vocational and Industrial Training Board. The Board administered several programs including apprenticeship training to school leavers and ex-national servicemen to undergo technical skills training, directly meant to provide basic technical skills. The government covered expenses of the training. Government also assisted employers to conduct skills training courses at various levels matching their specific needs. Moreover, the government collaborated with MNCs, and worked jointly with foreign governments to provide technical training on regional basis. Singapore's intervention in education, therefore, created an entirely new set of basic endowments to selectively accommodate the activities, and meet the requirements for foreign direct investment that the government targeted.

Hence, availability of high-skilled and specialized labor force and elaborate communication and transport infrastructure, accompanied by the incentive system gave Singapore a competitive edge. As a result, despite its small size, it emerged as one of the largest recipients of FDI and exporter of high-tech products.

However, such narrow specialization heavily relying on foreign investment did not result in the advancement of indigenous technological capabilities development. The diffusion of technology to local industrialists remained limited. The promotion of indigenous industrial and technological deepening was highly constrained.

3.2 South Korea

3.2.1 Trade policy

Korea's aspiration to develop indigenous capital-skill-technology-intensive heavy industry made its intervention more detailed and pervasive. The Korean government actively promoted manufactured exports using trade policy. However, exports were not promoted either through free trade or export processing zones. Korea protected its domestic market with a range of quantitative and tariff measures for a limited period to give infant industries space to develop their capabilities. Manufactured goods selling in the home market continued to be given considerable protection from

foreign competition, on condition that they meet export targets. In other words, the potential adverse effect of protection was offset by an incentive driven strict discipline imposed by the government in terms of export performance, and vigorous domestic competition. Profitable protection on home sales was mixed with less profitable or even loss-making export targets. Manufacturing profitability was high only because losses on exports were more than compensated for by high profits on domestic sales. The Korean government combined selective import substitution with forceful export promotion, protecting and subsidizing targeted industries that were to form its future export advantage. As such, import-substitution and export promotion strategies were neither mutually exclusive nor substitutable, but rather complementary and reinforcing.

3.2.2 Technological capability development

One of Korea's unique industrialization strategies is the determination to develop advanced heavy industry independently. In order to enter heavy industry and acquire the technology, it primarily relied on importing capital goods, technology licensing, and other technology transfer agreements. It imported large capital goods and encouraged firms to obtain the latest equipment and technology. It used reverse engineering, adaptation and own product development to develop its own technological capabilities. It invested heavily in local R&D to build up its technological capabilities. To help resolve technical problems, Korea also encouraged the hiring of foreign experts and the flow of engineers from Japan. Korea is a forerunner in using imported technology successfully to feed into its domestic technology and to develop an independent innovative base.

The central element in Korea's technology strategy, and which markedly differentiated it from other newly industrializing economies of the region, was its deliberate creation of large local private conglomerates, the so called, *Chaebol*. Such conglomerates were initially hand picked by the government from local successful-exporters and were given a range of subsidies and privileges, even the restriction of MNCs entry, in return for implementing the strategy of setting up capital-technology-intensive activities geared to the export market. [Amsden, 1989]

The rationale for opting for large size firms was obvious. Large firms could internalize many of the risks and constraints prevalent, such as deficient market for capital, skills, technology and even infrastructure. They could undertake the cost and risk of

absorbing very complex technologies (without a heavy reliance on FDI), further develop it by their own R&D, set up world scale facilities and create their own brand names and distribution networks. Korea imposed strict discipline on large firms in terms of export performance (implying the need to achieve high productivity and efficiency), vigorous internal competition, and deliberate interventions to ensure rationalization of the industrial sector in return for an all out and nearly success guaranteeing incentives.

The Korean government heavily invested on technology infrastructure to promote and deepen local technological capabilities. The Korean Institute of Science and Technology, first established to conduct applied research aimed at solving simple problems of technology transfer and absorption, was later engaged in the study of a series of National R&D projects. These were large projects regarded as too risky for private industry to tackle alone but which were selected as being in the country's future industrial interest. A number of specialized research institutes focusing on specialized disciplines such as machinery, electronics, chemicals, shipbuilding, etc, were also established.

3.2.3 Technology diffusion

A number of promotional measures were also taken to diffuse technology through out the industrial sector, i.e., to enhance the technological advancement of smaller firms. The Korea Institute of Economics and Technical Information facilitated the diffusion of technology to industries, including SMEs. Policy support to smaller firms covered start-up, productivity improvement, technology development and export promotion along with various incentives including tax exemption, subsidized credit, credit guarantees, government procurement, and the setting up of specialized banks to finance small and medium establishments.

However, a more effective mechanism of technology diffusion was to promote subcontracting to SMEs. Government enacted a law designating parts and components that had to be procured through them, and not made by large firms, the *chaebol*. Some foreign firms were also required to do the same. Generous financial and fiscal support was provided to support the operations of sub-contracting SMEs, and help them in process and product development. In addition sub-contracting SMEs were exempted from stamp tax and were granted tax deduction for a certain

percentage of their investments in laboratory and inspection equipment and for the whole of their expenses for technical consultancy.

3.2.4 FDI policy

Consistent with this central strategy of developing indigenous technological capability, FDI was given a secondary role. FDI was allowed only when it was the only alternative of obtaining closely-held technologies or gaining access to world-markets. In some cases foreign investors were even forced to sell out after the technology has been absorbed locally. The government also intervened in technology imports and contracts to lower prices, strengthen domestic buyers, and maximize the participation of local consultants in engineering contracts to develop basic process capability. The government stipulated that foreign contractors transfer their design knowledge to local firms, in plant and process engineering. So with respect to FDI, Korea used it to further the acquisition of technology by local firms, but never became the engine for technological or industrial development. [Lall, 1996]

3.2.5 Financing industrial and technological development

Korea's heavily-regulated financial system was a key instrument in the government's industrial policy. Korea's selective credit allocation and subsidy for industries was central to its industrial policy. The government provided technology financing in the form of grants and directed subsidized loans through various institutions: venture capital companies, banks, credit guarantee companies and others. Subsidies were provided for research approved or targeted by government, but conducted by firms on their own, by research institutes or by firms in collaboration with research institutes. Loans were given at subsidized rate for long-term productivity improvement and technology upgrading in high-technology industries. Such loans were extended to firms and research institutes undertaking highly advanced national projects and also to smaller firms to support their technological development and environmental investment. The state banking sector provided long-term loans to industry at preferential rates, which was critical to the development of the manufacturing sector. By controlling the allocation of bank loans, it implicitly taxed depositors and channeled the proceeds to targeted activities for investment. Interest rates were controlled and kept low for most of the period. So the short term welfare loss incurred

by rent creation was more than compensated by long-term dynamic comparative advantage of the economy.

A number of private venture capital funds were set up along with state-owned banks to lend money to firms and research institutes for technology development. Government established credit guarantee fund and offers credit guarantees for loans made to help firms, including smaller ones, develop or commercialize technology.

3.2.6 The incentive structure

The incentive system used by Korea for technology deepening was far more comprehensive than simple financing. Incentives schemes for private R&D included tax exempted reserve fund, tax credits for R&D expenditures, accelerated depreciation for investments on R&D facilities and a tax exemption for 10 percent of the cost of relevant equipment, reduced import duties for imported research equipment, and a reduced excise tax for technology-intensive products. [Lall, 1996] Moreover, the import of technology was promoted by tax incentives; transfer costs of patent rights and technology import fees were tax deductible; income from technology consulting was tax exempt; and foreign engineers were exempted from income tax.

3.2.7 Skill development

A conscious intervention of the government in expanding and up grading technical skill led Korea to have the highest relative enrollment in science and technology at universities in East Asian countries. At both undergraduate and graduate levels, special institutions such as the Korea Advanced Institute of Science and Technology and Korea Institute of Technology are set up to facilitate high level technical education for exceptionally gifted students. At the same time, the normal university system caters students with standard training in science and engineering. Another educational targeting in support of industrial strategy is the policy of upgrading electronics design skills. The government provides financial support to the Seoul National University's semiconductor laboratory to train a new generation of chip designers.

In-firm training is also strongly encouraged. "The government levied a 5 percent payroll tax on large firms, refundable if they undertook employee training in approved programs." [Lall, 1996:91]

3.3 Taiwan

Taiwan's industrialization strategy, which encompasses import protection, strong export promotion, directed credit, selectivity on FDI, support for indigenous skill and promotion of indigenous technological capability, closely resembles Korea, though there are important differences because of their different industrial structure and political economy.

3.3.1 Trade policy

Taiwan started on import-substitution industrialization early in the 1950s. Later, it switched to export promotion strategy while retaining effective protection and targeting to promote and guide industrial growth and export. [Lall, 1996:63] Similar to Korea, the domestic market of Taiwan was not exposed to free trade. A range of quantitative restrictions and tariff measures were employed for a limited period to give selected infant industries a breathing space to mature, while exports were promoted with an effective incentive system.

3.3.2 Technological capabilities development:

Unlike Korea, Taiwan did not promote giant private conglomerates, nor did it attempt to enter into the heavy industry sub-sector. Its industrial structure is largely composed of SMEs, and, given the disadvantages inherent in small size firms with respect to acquiring technological capability on its own, (lack of scale economies) a variety of well designed inducements and institutional measures were put in place by the government to upgrade their technology.

The Taiwanese government started developing local research capabilities early in the 50s to enhance innovative efforts with respect to upgrading and diversifying its exports. Later, a science and technology program targeting energy, production automation, information-science, materials-science, biotechnology, elector-optics, etc, was launched. As private sector R&D has been relatively weak because of the relatively small size of most firms, government was heavily involved in R&D directly.

For instance, The Industrial Technology Research Institute imported and started to develop process technologies for very large integrated circuits, since the private sector failed to make the required advancement in semiconductors. The firm then made agreements with Chinese owned firms in the US and started to develop advanced chip designs. It also made joint venture arrangements with other foreign companies to expand its high-tech activities.

Government also established an export promotion agency. The agency developed sophisticated computerized data banks on foreign markets, buyers and suppliers, providing a one-stop source of information on the supply potential of Taiwan. It helped exporters to develop design and packaging appropriate to different foreign markets.

Taiwan has a comprehensive and well coordinated *technology infrastructure* for supporting its vast (estimated at 700,000 in the early 90s) SMEs. [Lall, 1996: 98] A number of government agencies and centers were set up to cater different support to SMEs: provision of finance, credit guarantee, management and technology, industrial technology (in metal, textiles, biotechnology, information, etc), accounting, marketing, productivity raising efforts and vendor assistance.

The Chinese Textile Research Center extend services to firms in inspecting exports, training, quality system, technology development, and directly acquiring foreign technology. The metal industry Development center works on practical development, testing and quality control, provision of training and software development in metal working industries. The Precision Instrument Development Center fabricated instruments and promoted the instrument-manufacturing industry, and also produce advanced vacuum and electro-optics. The Industrial Technology Research Institute conducts research and development dealing with chemicals, mechanical industries, electronics, energy and mining, materials research, measurement standards, electronics and electro-optics. The government also strongly encouraged industry to contract research to universities.

Taiwan Handicraft Promotion center supported handicraft industries (with less than 20 employees), particularly those with export potential. In addition, through a specific program for the promotion of technology transfer, close contact with foreign firms having leading-edge technologies was made in order to facilitate the transfer of those technologies to Taiwan.

The China Productivity Center promoted automation in industry to cope with rising wages and increasing needs for precision and quality. It sent out teams of engineers, visiting plants through out the country to demonstrate the best means of automation and solve relevant technical problems. It also run applied research on improving production efficiency and linked enterprises to research centers to solve more complex technical problems.

A further special effort of the government is the setting up of a science town (in Hsinchu) to promote private R&D. To attract start-ups, it provides prefabricated factory space, five-year tax holidays, and generous grants. Hundreds of companies, specializing laboratories, universities are located in the town. [Lall, 1996: 100]

So a unique feature of Taiwan's industrialization strategy was establishing many specialized institutions catering services for different industries or industrial groups.

3.3.3 FDI policy

Similar to Korea, Taiwan assigned FDI much of a secondary role, though with less nationalistic fervor than Korea. A variety of means and incentives were employed to acquire foreign technology selectively and use it to develop local technological capability. In the earlier years of industrialization, the government sought to attract FDI into activities in which domestic industry was weak, and to ensure that they transfer their technology to local suppliers. However, Taiwanese FDI policies changed overtime to meet domestic technology demand and became more discriminatory as technological capabilities deepen.

For enhancing technological and skill linkages with foreign firms, the government used FDI to benefit local firms by promoting local sourcing and subcontracting. This promotion was made by 'local content' rules, backed by provisions that foreign firms transfer skills and technology to subcontractors and raise the technological capability of local firms. [Lall, 1996: 99]

Such targeting was facilitated by incentives such as attractive tax-holidays, accelerated depreciation of equipment, low tax rates for selected activities and duty free imports of R&D materials and equipment.

3.3.4 Financing technology

Taiwan has developed an effective technology financing system. A number of private venture-capital companies extended loans and investment funds. Financial support for industrial restructuring by the government is another form of technology financing. Government embarked in a major financing program to upgrade the technology and move to capital-intensive process and raise the quality of their products.

A number of government agencies were established to provide financial support for different specific programs. A program under the Industrial Development Bureau provides grants to private firms to speed up technological renovation, encourage R&D, and improve design capabilities by importing latest automated equipments and providing training in new technologies and new design skills. Banks provide low-interest loans to SMEs to move their facilities overseas and import new equipments. So government strategic use of finance illustrates a system of targeting and supporting, not only a new high-technology activity but also and largely a mature industry which faced market failures and expensive restructuring.

3.4 Malaysia

Malaysia inherited, from its colonial past, a liberal economic system with a well functioning bureaucracy, stable macroeconomic policies, good infrastructure, trade-oriented economy with foreign investment playing a large role in the productive sector, and a natural resource based sector that provided most of its export earnings. However, industries in Malaysia before 1960 were meant to supply processed raw material, mainly tin, rubber, and palm oil, to industries in developed economies. After independence, Malaysia set out to diversify and restructure its industry.

In the first phase industrial policy (1960-1985), Malaysia employed both import-substitution and export promotion policies, rather than free market trade policy. Its export promotion policy attracted foreign transnationals to invest in processing industries for export. So while import-substituting industries were given protection, generous incentives were devised in the area of export promotion. [Rock, M. and Jomo K.S., 1998]

However, despite the protection from import competition, locally owned light and primary processing industries were not able to develop their competitive status. They remained technologically backward as they were not linked to MNCs led technologically better advanced export industries. A further set back was the government's political agenda which linked the industrialization program with the improvement of the ethnic Malay's economic status.

Failure to develop the indigenous industries prompted the government to establish state owned large firms, very much in line with the Korean approach. However, such state owned giant industries suffered large losses in the early years of their operation. In addition, many of the other smaller state-owned enterprises also performed poorly

As indicated above, Malaysia was successful in its FDI program. A generous fiscal incentive, disciplined and literate labor force, good infrastructure, low wages, efficient administration, favorable regional location, and favorable investment climate helped Malaysia to attract MNCs and launch a successful high-tech export path. [Rock, M. and Jomo K.S., 1998]

Government moved into the second phase of industrial policy (in the mid 1980s) with a fresh drive to attract MNCs, privatizing some public enterprises and adopting a pragmatic strategy towards ethnic balance.

3.4.1 Technology development

The new industrial policy in this second phase shifted to more selective strategy, i.e. providing critical factors for industrial development (skills and training, technical support, finance, quality improvement, and the like). The government moved to strengthening science and technology institutions and stimulating private R&D enterprises. Industrial restructuring programs were devised to provide cheap finance for the textile and engineering industries. Infant industry protection continued but has been governed by dynamic notions of comparative advantage, promoting the development of industrial sub-sectors that are intended to replace light manufacturing activity as the main exporters. The restructured public sectors retained a role in industries (such as automotive, petrochemical, iron and steel, etc) where the required investments were large and long gestation periods involved.

3.4.2 Enhanced FDI policy

Fresh and more generous incentives were designed to attract FDI. This time, the newly industrializing countries, led by Taiwan and Hong Kong, showed much interest in investing in Malaysia. Japanese MNCs continued to relocate their assembly operation in Malaysia, and induced many of their suppliers to invest along with them.

The government moved to more selective policies on export oriented MNCs. It started to use incentives to guide FDI into higher value-added activities and more technology-intensive processes, very much in the Singaporean mould. Malaysia introduced additional incentives to increase local content.

3.4.3 Financing technology

Two aspects of financing were largely used in Malaysia. First, Venture capital companies, privately owned but promoted by the government, were expanding. Manufacturing was largely the focus of the financing scheme. However, little went into financing genuinely technology based new ventures, and most was directed at expansion projects, by large credit-worthy firms.

Government also designed programs to promote technological upgrading by SMEs. First, Vendor Development programs provided potential supplier firms with indirect access to foreign technology. It includes training and related activities to upgrade production and absorptive capabilities of SMEs. Second, the Industrial Technology Assistance Fund provided matching grants for SMEs to undertake consultancy and feasibility studies, product development and design, quality and productivity improvement, and market development. Third, the Soft Loan Scheme for Modernization and Automation catered low-interest loans for the purchase of machinery and equipment by SMEs. [Lall, 1996]

3.4.4 Skill development

Malaysia also launched programs to create specific skills, in electronics design, biotechnology, automobile design, etc. Government established an industry-led training center - the Penang Skill Development Center - in an area where high-technology MNCs engaged in export-oriented activities are located. The State

provided land and financial support to start-up the training program and invited MNCs and other local private companies to participate in the venture. [Lall, 1996]

Furthermore, the center was allowed to bring in, without formal work permits, high-level foreign trainers. The equipment needed for training was often obtained at no cost, from equipment manufacturers hoping to increase sales of their products. Some companies even moved their training equipment to the center, releasing space for their plants. The training center also provided pre-employment training.

The Malaysian industrial policy, at least compared to the other three, had significant limitations. As noted earlier, Malaysia's industrialization and economic progress is one of the success stories in East Asia. From being a predominantly resource-based exporter, its economy transformed to one of the largest exporter of manufactures - high-skill and technology complex products - in the region. However, the level of local technological capability, the central objective of industrialization, remained limited, at least by the standard of other newly industrializing economies in the region. The export sector, dominated by MNCs is still detached from the remaining domestic industries without any technological linkage, hence limited technology diffusion. The high-tech export sector is still largely at the assembly stage, with little technological deepening taking place.¹⁰³

4. *The lesson to learn*

From the industrialization experiences of earlier developed and newly industrializing countries, industrial policy refers to the role of government in promoting industrial and technological capabilities development. This implies adopting measures not only to make up for market failures, but also to accelerate industrialization beyond what could be managed by functional market forces. In the long run industrial policy creates and develops markets, setting favorable conditions for an open and more integrated economic structure.

¹⁰³ For the details on the limited success of Malaysian industrial policy, see forthcoming edition on 'Industrialization and Industrial policy in Ethiopia', EEA/EEPRI, 2004.

While industrial policies in all countries were economy specific and consciously designed, the nature, level and duration differs among countries, mainly and not exclusively, because of the extent of market failure, degree of economic development (industrial base, infrastructure, skill availability, and financial structure), institutional capability, government objectives, and the political economy setting.

Though it is difficult to generalize the industrial policies of countries as a result of such dissimilarity in economic, political, social and historical settings, some broad conclusions particularly with respect to the industrial policies of East Asian countries can be drawn with the necessary caution to avoid over generalization.

4.1 The trade regime

While the domestic markets need to be protected from aggressive import competition for targeted industries, export promotion has to be concurrently encouraged with an effective incentive system.

The interventions must be limited in time and in resource transfers as well as performance based, which may include, among others, competitive exports, productivity enhancement, level of production, and technology diffusion.

Firms cannot become efficient on their own without strong linkages with other firms and new factor needs. Protection by itself cannot lead to competitiveness unless these linkages and factor market needs are addressed. In essence protection has to be part of a larger, coherent package of measures to promote capability building.

4.2 The incentive structure

The incentive structure involves broad categories, including Tax incentives, import duty exemption and deduction, subsidies, financial incentives, government procurement, free support services, provision of infrastructure, etc.

4.3 Supply side measures

Strong human-capital base to meet the desired level of industrialization is necessary. It involves not only formal education at all levels but also specialized on-the-job-training and skill acquired through experiences. Advanced technologies require not only formal education but also a range of specialized technical training to meet design and research needs. Since high-level skills are not fungible, the range of specialization grows with the range of industrial establishments and complexity.

Often the education market cannot fully anticipate the skill needs of industries, in time to provide an adequate base of engineers and technicians. It is therefore necessary for the government to promote the required skills that the education system has to create accordingly. Selectivity in one sphere necessarily calls for selectivity in all related, supporting activities. This coherence is what marked the success of interventions in NIEs of East Asia

4.4 Technical information and support services

All newly industrialized economies consistently provided such services under the banner of Science and Technology. It includes, the encouragement of technological activity in general; the development of special research skills; the setting of industrial standards and the promotion of quality awareness; the provision of metrology services; the undertaking of contract research, testing or information search for firms that lack the facilities or skills; other extension services for small enterprises; and the undertaking and coordination of basic research activities.

Export promotion requires an active standards institute, not merely to inform producers of the required standards and to vet product quality, but to play an active role in helping industry to achieve those standards – a technically demanding task. There is a need to provide it comprehensively.

SMEs have special needs of technology support. The most effective approach involves extension services, delivering comprehensive packages of assistance comprising: technical know-how, finance, management skill, training, and sales information. Such delivery is a skill-intensive task, involving a strongly proactive approach by the services concerned. Extension services need a subsidy element, since SMEs are unable or unwilling to pay full market costs for a considerable period of time.

4.5 Financing

Financing is a widely and commonly used effective strategy. Instruments facilitating financial transaction under free market regime proved inadequate to cater industrialization programs undertaken in NIEs of East Asia and elsewhere. A variety of financing mechanisms were used by governments in promoting industrial and technological development.

- Selective credit priority allocation and loans on special terms or at concessional rate using state owned banks
- Providing credit guarantee schemes.
- Equity participation by the lender or both.
- Promoting venture capital companies
- Foreign exchange allocation

4.6 Technology Policy

Unlike earlier developed economies, the pivotal objective of East Asian industrialization policy was indigenous technological advancement, beyond the simple desire of capital stock accumulation, as the former is the major determinant of international competitiveness.

Technology selection has to be guided by strategic vision rather than confined by only countering market failures in a static sense. Because of the costs and risks involved in moving into more complex technologies and developing more advanced capabilities, there is a need for government support for such a vision.

There are two broad options for technology upgrading: relatively dependant, internalized means of technology transfer via FDI (like Singapore and Malaysia), and relatively autonomous, based on indigenous enterprises with externalized technology transfer (like Korea). The later is more demanding but yields higher dividends, while the former, FDI dependent strategy, can lead to considerable technological deepening and a competitive production base if the government adopts selective policies to stimulate upgrading of activities and support this with investments in human capital and technology infrastructure of the appropriate type.

The technology infrastructure plays a crucial role in supporting industrial technology, and can be used to promote the development of new technologies. However, countries must ensure that research institutions become closely tied to industrial needs.

4.7 Foreign investment policy

FDI was treated very differently by each of the four countries that are considered here and so played very different roles in their technological development.

First, though investors can provide access to the most modern technologies, they transfer only those technologies that the host country, with its skills, capabilities, supplier base and infrastructure, can absorb. So a country with poor indigenous capabilities will only get simple technologies. While the investor will try to ensure that these are efficiently implemented, the further upgrading of industrial structure will depend upon the effort the country puts into building up its skills, suppliers and so on. Ultimately, the foreign investor cannot do the capability development. There is no substitute for indigenous capability development effort, and technological transformation cannot be a passive process based on open doors to foreign investors.

Those that wanted to promote indigenous technological deepening had to intervene to restrict foreign entry and to guide their activities and maximize the spillovers. Those that choose to rely on MNCs and upgrade with their global production structure had to intervene to target investors, guide their allocation and induce them to set up more complex functions than they would otherwise have done. In general, two broad strategies of selective intervention were identified: the 'restrict and exploit' strategy of Korea and Taiwan and the 'target and guide' strategy of Singapore.

So there is no single optimal policy for developing countries on foreign investment. The entry of foreign investors should be encouraged, to boost technological capabilities and to attract capital in capital-poor countries. Accordingly, overly restrictive policies retard technological upgrading and capital deepening. On the other hand simply opening doors to foreign investors without a broader strategic plan is not a solution to the problems on technological capability development. Perhaps to encourage domestic know-how with selective entry of foreign investors can yield

significant dividends for industrial development at a certain stage of the process. And the optimal choice of the form of technology transfer should depend on the absorptive and innovative capacities of local firms and the willingness of foreign investors to invest in deepening local capabilities.

To conclude, both earlier industrialized and newly industrializing economies provide a fascinating panorama of experience in industrial technological development, government intervention and treatment of FDI. What is undeniable was that their governments played a critical catalytic role in forming their competitive (or ownership) advantages in trade and industry, which then determined their participation in the global economy.

What is probably pivotal and most challenging in their industrialization programs was in formulating the national strategies that, given their initial starting positions, changed the entire basis of their competitiveness. "This is where the static optimization approach is least satisfactory, since it does not explain why Korea chose to go into D-Ram chips, steel and automobiles, Taiwan into PCs and Singapore into specific types of producer electronics or biotechnology." [Lall, 1996: 211] These were choices made out of a large range of possibilities and were not addressing any static optimization failure.

CHAPTER XI

INDUSTRIAL POLICY FRAMEWORK IN THE ETHIOPIAN CONTEXT

1. Introduction

The previous Chapters have made it clear that the manufacturing sector is structurally unbalanced and technologically backward, resulting in a state of declining productivity and deteriorating competitiveness. The policies pursued in the past failed to initiate appreciable industrialization in the country. On the other hand, experiences of successful industrializers, as shown in the next chapter, clearly underline the need for a guided industrial policy.

This Chapter briefly highlights some of the issues that need careful consideration in formulating an active industrial policy for the country by drawing lessons from successful late industrializers and firmly based on the concrete conditions that currently prevail in the country's manufacturing sector as discussed in the preceding Chapters.

2. The challenge of undertaking industrial policy in light of Ethiopia's current specific features

There is little disagreement that successful industrialization requires addressing the specific features of the country undertaking the program. Prevailing economic, institutional, and political conditions certainly influence the sort of industrial policy that could be operational and the extent of success that could be achieved.

Ethiopia's economic, institutional and socio-economic setting has both favorable and unfavorable features for a relatively rapid industrialization. Identifying these specific features and understanding their possible impact is essential for designing a more appropriate industrial policy. First, the country is in a state of political transition. Each administrative region, structured on ethnic basis, has its own investment and development policies and programs, more likely based on the respective potentially exploitable resources and to some extent drawn on the perceived priorities of the ethnic group.

Another area requiring due attention is economic governance. Ownership status should not be a basis for securing government's support priority. There should be no double standard at play to provide unfair benefit for either the private, government or state owned businesses. One cannot run at the expense of the other. To lead an industrial policy, the government must win the trust of the private business community at large.

These rather unique features of the country's political economy raise the issue of sectional interest. While national development sustainably benefits all parties, sectional interest could delay the long term social gain of the country, but only for a short term private benefit. Moreover, it is often likely that such short term sectional gain will eventually end up in creating long term unfavorable condition. The case of Malaysia is a typical example. Its first phase of industrialization, which was partly meant to improve the economic condition of the Malays ethnic group, terminated with little success. It was only after this sectional interest had been dropped during the second phase of the industrialization program, that better success was recorded. Unfortunately, such sectarian interest in Ethiopia is a challenge for implementing a rapid industrialization program. Experience demonstrates that a hand-and-glove approach among all stakeholders is a prerequisite for implementing an industrial policy. A political agenda conflicting with national development is always self defeating. It is therefore critical to come clean with such sectional interests and reconcile varying interests in line with dominant national interest. This can be offset by having a visionary leadership, setting up of appropriate institutions, and internal checks on the allocation of favors to ensure that the interests of the collective are not sacrificed for the benefit of sectarian interests.

Another issue is related to the ownership and marketability of land. The idea of promoting industrialization is in effect sharing short term costs and risks (of investors)

in favor of long term social benefit. From industrial point of view, while state ownership of land is in fact advantageous, as it could be used as an incentive instrument, the existing lease system and the near monopoly price charged by the state might have a deterrent effect. Given the central importance of land in investment decision making, on the one hand, and existing monopoly (lease) price and different regional policies on land, on the other, there is a need to reverse the policy in order to make sure that this would not have an adverse effect on the pace of industrialization. Politicizing land, against its economic advantage, is not sustainable. Hence, this too is self defeating.

Successful industrialization necessitates even going beyond overcoming such constraints noted in the above paragraphs. In this regard Rodrik states that

What we have come to understand much more about the nature of development policy and the policies that tend to support it, is that the key in all of these instances is to get your own domestic producers, your own domestic investors, your own domestic entrepreneurs excited about investing in the home economy. That in some sense is the central challenge of development – not how to get exports out, not how to get foreign investors in – but how to excite your own domestic entrepreneurs to want to invest and to be entrepreneurial in the home economy. [Rodrik, D. 2004, pp. 80]

3. *Specific objectives of industrial policy in Ethiopia*

While the overarching long term objective of industrialization remains high employment, thereby improving the standard of living of the population, industrial policy should primarily identify the specific objectives/goals to be achieved over a defined period of time. Countries differ in their industrial structure, technological status, efficiency, competitiveness, etc. This in turn leads to differences in their specific objectives. It has been shown in the previous Chapters that most manufacturing industries in Ethiopia are technologically backward and the sector as a whole has very weak sectoral linkages and internally an unbalanced structure. As a result, it is dependent, almost entirely, on the rest of the world for its intermediate inputs and capital goods; it has very low and declining productivity; and internationally, it is least competitive. This characteristic, therefore, suggests what the

specific objectives should be. Successful industrialization in Ethiopia, therefore, should basically achieve the following objectives.

- (a) Create a more complete structural linkage between manufacturing and agriculture**
- (b) Create an internally balanced manufacturing sector**
- (c) Enhance the productivity and efficiency of firms**
- (d) Develop dynamic comparative advantage of industries**

(a) Sectoral linkages: A unique feature of manufacturing is its position vis-à-vis the other sectors of the economy. It is the only sector that has a linkage with all other sectors of the economy, including agriculture, mining, transport, communication and services through its input-output structure, i.e., demand for raw material inputs and supply of intermediate and capital goods. In the Ethiopian context, the backward linkage of manufacturing with agriculture is significant. The manufacturing sector largely feeds on domestically produced agricultural raw materials. However, its forward linkage with agriculture is loose. Traditional agriculture requires a great deal of modern technology inputs including fertilizer, pesticides and insecticides, labor saving improved farming and harvesting implements, and transport supporting facilities to enhance productivities. In this respect, the manufacturing sector failed to supply such implements to agriculture. As a result, agriculture heavily depends on outdated traditional farm implements and inputs and on imports for its intermediate inputs capital goods. So, a prime and immediate objective of industrialization would be to meet the demand for inputs and capital goods of agriculture.

(b) Balanced structure among industries: The analysis in Chapter Five has shown that the structure of industries within manufacturing, i.e., structural linkages among consumption, intermediate and capital goods industries is grossly unbalanced. As the sector is overly dominated by consumption based firms, demand for not only capital goods but also for intermediate goods, is largely met through imports. The linkages among industries are very weak. Critical intermediate inputs are largely imported. A developed manufacturing sector satisfies its own intermediate inputs and capital goods from within. Another important objective of industrialization, therefore, would be to create a structurally balanced manufacturing sector, less dependant on the external economy at least for critical and timely inputs, and more vibrant and dynamic internally.

(c) Productivity and efficiency: Survey results have shown that productivity and profitability of most firms have been declining for long, rendering them less competitive even in the domestic market, thereby operating at a level less than full capacity. Because of technological backwardness, most firms are inefficient. Another central objective of industrialization, therefore, is to enable firms update their technology, improve their managerial and labor skills, and enhance their marketing capability so as to move to a high productivity and efficiency frontier. It should be underlined that an industrialization strategy in countries such as Ethiopia should not be simply picking winners and dropping losers. Given the underdeveloped nature of the sector, Ethiopia cannot afford to abandon firms and waste the few experienced managers and workers. So the strategy should be to support firms in all possible accounts while simultaneously pressurizing them to improve their productivities irreversibly, and remain in the business.

(d) Dynamic comparative advantage: Ethiopia's comparative advantage today lies in its natural endowments, mainly agriculture and cheap (and trainable) unskilled labor force. However, given the low level of labor productivity and the weakness of agriculture, even this cannot be relied on for long. Dynamic industrialization primarily requires developing technologically leading industries which could create positive externalities and spillover effects for other industries. The competitive edge of today's industrialized economies lies on dynamic comparative advantage, which is essentially superiority in technological capability – high tech industries and technically skilled labor. Thus developing broad based technological capability in order to emerge efficient and competitive in the long-run, should be the central objective of industrialization in Ethiopia.

4. *Selection of industries for promotion*

As noted above, most manufacturing firms are structurally weak and inefficient. In this respect, promoting manufacturing industries in Ethiopia would involve considerable financial, human and other resources that could not be easily affordable. It would be beyond the capacity of the state to support many industries simultaneously. Effective industrial promotion, therefore, can only be carried out selectively, on priority basis, and in phases or sequences.

Moreover, selection of firms/industries should be based on a set of identified criteria, which would satisfy the specific objectives outlined above. Accordingly, industrial groups which satisfy the basic objectives, and hence which should be given more priorities than the rest, include the following:

(i) Industries producing modern technical inputs to agriculture: This involves firms manufacturing fertilizers, pesticides, insecticides and improved implements. There is little disagreement on the critical role that technical inputs play in raising productivity. Currently, only less than half of the farmers in the country (much less in terms of acreage) use fertilizer. Moreover, the rate of fertilization is much less than the recommended minimum. Increasing productivity in agriculture significantly, therefore, demands augmenting the level of fertilizer input exponentially.

Moreover, as the merit of inorganic fertilizer is becoming questionable world wide, the applicability of alternative inputs (organic fertilizer) is widely under consideration. It is, therefore, essential that Ethiopia shifts to such alternative inputs not only to enhance productivities, but also to maintain and further promote its agricultural export. This calls for producing such technical inputs which are suitable to the specific soil condition of the country in large scale.

Also, Ethiopian subsistence agriculture is dominated by micro size plots, largely less than a hectare. While application of mechanized farming is not easily practicable because of small size farms and difficult terrain, as well as the problem of affordability, farmers are still deploying age old farming and harvesting tools and techniques. In many countries, including India and South Africa, the green revolution has already introduced various labor saving, low cost and productivity augmenting appropriate implements. In Ethiopia little has been done in this particular case.

Therefore, manufacturing industries in these areas, specifically those engaged in the production of fertilizer, pesticides, insecticides and improved farm implements have to be encouraged. Promoting such firms has many advantages. Primarily, it supports the food security and poverty reduction programs. It also creates a regular and reliable supply of inputs, and labor being relatively cheap, it can also be expected to lower production costs, at least, in the longer term. It further reduces import costs substantially. Currently fertilizer import alone accounts for nearly four percent of the value of total imports.

(ii) **Industries producing intermediate and capital goods.** As discussed earlier lack of investment coordination created a structural imbalance (imbalance among consumption, intermediate and capital goods supply). While intermediate inputs supplying firms are few, capital goods industries are largely lacking. This resulted in heavy dependency on imports for intermediate and capital goods. Some of the intermediate inputs, such as chemicals, are so critical that lack of them could significantly retard production. Therefore, industries which produce critical intermediate inputs and capital goods should be given due priority for promotion. **Such industries, with relatively high potential linkages, include basic chemicals, iron & steel, cutlery & hand tools, basic and general purpose machinery, paints, varnishes and mastics, etc.**

Promoting such industries will significantly induce more new entrants through the forward and backward linkages effect, thereby expanding the sector, and hence creating more employment. Since such industries lie at the center of the linkages, they have strong spillover effects setting the required technological and quality standards.

Except fuel and spare parts, the remaining import demand of the sector constitutes intermediate inputs. Promoting industries with high linkages, therefore, will substantially reduce the import demand of the sector as a whole. This leads to a structural change towards a more independent and internally vibrant manufacturing sector.

(iii) **Import cost reducing and export promoting industries.** A major challenge of industrialization at least at the initial stage, is the massive import demand, which far exceeds export earnings. Therefore, promoting both import substituting (or import cost reducing) and exporting activities is not only complementary and reinforcing, but also necessary.

Though most manufacturing industries use imported inputs, the import demand of some industries is relatively much larger than others. In most cases, the demand of such industries would be met if the internal structural problem of the sector is resolved, i.e., if the capacity of intermediate goods producing industries is augmented substantially. There are, however, industries with relatively weak linkages but high import demand. As discussed in Chapter Five, industries such as battery

manufacturing, basic iron and steel, etc. are largely import intensive. **Therefore, establishments producing inputs to industries such as metal casting foundries, iron bar and iron sheet industries, chemical industries, etc., have to be the focal point for promotion.**

Promoting export oriented industries is a well recognized strategy. Ethiopian manufacturing is least known for its export performance. Currently, export is literally a single industry's affair - that of the **leather tanning**. Other industries making limited export effort include **sugar, textile, meat and fruits processing**. Most of these export oriented industries are natural-resource-based agro industries, hence exploiting the existing comparative advantage of the country. **Capitalizing on this natural resource potential, promoting such agro-based exporting industries is obviously justifiable.**

Export promotion, however, should not be limited to these industries alone. Export diversification is essentially a key strategy. Even more important is exporting of intermediate inputs, though the short term prospect, at least in large scale, is limited. Despite this, export promotion should be open equally to all industries capable of making the effort.

(iv) Efficient and innovative firms: irrespective of the above categorization, there are firms which emerge efficient and innovative on their own effort. Such firms could be exemplary, and their experience could be diffused to other firms if supported and promoted to expand their scope and scale of activities. From time to time, a number of such innovative firms have emerged in the manufacturing sector. For instance, successful ventures such as manufacturing of elevators through reverse engineering and adaptation, truck and trailers manufacturing, building a water based machine cooling system in a plastic products manufacturing enterprise, and the like have been witnessed. [UNCTAD, 2000] There are also related ventures in experimenting with alternative sources of energy, such as solar energy. Recently emerging enterprises engaged in electronics industry, such as computer assembly, TV assembly have to be encouraged to move into manufacturing of parts. For instance, the lack of policy to support and encourage the few auto assembling firms to move into higher value added manufacturing stages, has left this industry in limbo with little technology transfer to other industries. Also, the high-tech skill said to be the mark of Ethiopian Airline is confined within itself without any spill over effect to other industries for decades. Hence, encouraging and promoting such enterprises so that

they could expand and extend their activities to manufacturing would allow other industries/firms to benefit from their innovative experiences.

(v) Strategic industries: As noted earlier, the relatively cheap and reliable supply of agricultural products, which make up the bulk of the raw material inputs for agro-based industries, such as leather, textile, sugar, meat, fruits and vegetables processing industries, along with cheap and trainable labor, provide the static comparative advantage of the manufacturing sector. However, industrialization, in the main, is creating a long-term dynamic comparative advantage, i.e., building technological capability - expanding technologically leading industries and creating technically skilled labor force. Promoting strategic industries which could generate technological externalities to all other industries is the central long-term strategy of industrialization.

Such industries involve electrical and electronics, chemical, iron casting foundries, iron sheet, iron bar, aluminum manufacturing, machinery manufacturing, precision instruments, and other engineering industries. In Ethiopia, however, strategic industries are largely missing and they have to be created, nurtured and developed through new investment. This should be primarily the focus area for public investment as well as FDI.

The categories outlined above are quite broad. A large number of industries and firms fall under these categories. But as intervention resources are limited only a few activities should be promoted at any one time. This implies that there is a need for further prioritizing industries and firms. For instance, even after selecting chemical industries, it may be necessary to identify further a few relatively more important chemicals for promotion in the first phase, to be followed by others at a latter phase. Drawing such priorities requires more detailed studies of each industry identified for promotion.

However, it should be underlined that promoting a single industry has practical limitations and could be less beneficial than promoting a group of closely linked industries. In practice the latter is advantageous and often preferable. This is so particularly when an industry has both forward and backward linkages.

Moreover, promotional activity is not passive. It is rather, a very active exercise. It requires aggressively challenging industries/firms to improve, actively move to a

higher stage, to be competitive and become more professional in return for active support or else face the consequences.

5. *Promotional measures*

Now that the industries to be promoted are identified, what is the role of the state in promoting the industries? What are the measures that the state could undertake in the Ethiopian context? It should be underlined that intervention should be comprehensive. There is little outcome if investment is encouraged while ignoring marketing activities; it is also less useful to upgrade the hardware technology of plants while the skill of workers remain rudimentary. So interventions, or promotional measures must be undertaken in all markets, including product market, input market, capital market, technology market, skill market and foreign direct investment. Moreover, interventions in all markets should be closely coordinated. One without the other may be ineffective even counterproductive. Moreover, as noted above, interventions could simultaneously involve broader and linked group of industries or selectively, a single industry, firm, or product.

A number of measures are identified below. While some of these have common features for many developing economies undertaking industrial policy, others are specific to the Ethiopian manufacturing sector.

5.1 Identify the specific problems and critical constraints of selected industries

Survey results have indicated that most firms have little idea about the internal critical problems of their plants or firms, particularly technical aspects. They have little information or knowledge outside their own firm. The same is true with respect to the new technology on the market, productivity levels of sisterly firms in other countries or at international level, new management techniques, labor skills, new product qualities and mixes of improved raw materials to improve product quality, etc. Lack of such knowledge leads managers to think that their main problem is lack of market and shortage of raw material. **So, identifying the major problems and critical**

constraints of selected industries and firms is precisely the initial major undertaking of the industrialization process.

This requires establishing teams of experts which form the nucleus of the office which will run the industrialization process (for details see below under institutional requirement). Such teams should be composed of versed experts in each industrial activity, involving largely engineers in various fields (chemical, electrical, mechanical, hydraulic, etc.), industrial chemists, production managers (in textiles, leather, foundries, etc.), economists, etc. It is these teams of experts which will visit each firm, identify their problems with respect to technological status, labor skill, product quality, managerial techniques, etc., and recommend what specific promotional measures should be undertaken, what instruments to use, what incentives to provide, for how long and to what extent, etc. It is these teams which will recommend the type of technology, the size of the firm, labor skill, product quality, etc., for new investment in a specific industry. In short, these teams involving experts of international standard with full information access to and knowledge of manufacturing technology will lead the industrialization process in the country.

Once detailed recommendations are in place, promotional measures appropriate for each industry/firm could be outlined or planned. Leaving such specific promotional measures to be determined by final studies, relatively broad promotional measures which could be undertaken in the context of the Ethiopian manufacturing sector are identified below under each market.

5.2 Product market

Promotional measures in the product market are related to investment, production, and marketing.

In the area of investment:

- **Coordinating investment and production horizontally and vertically.** This creates interdependency and close structural linkage between domestic industries thereby reducing external dependency. As such,
 - it economizes scarce investible/capital resources;
 - it reduces unnecessary or wasteful competition; and
 - it creates markets through increasing linkages.

- Targeting products (hence firms/industries) and actively **seeking for investors**
- Setting the **minimum optimal size of firms** for new investment which would enable them to be internationally competitive.

In marketing:

- **Maintaining a higher tariff margin** to limit the volume of imports for targeted products, to provide space or learning period (improving the practice of application of new technology, capability/skill build up, improving marketing techniques, etc) to new investments as well operating industries selected for promotion, particularly industries such as chemical, machinery, iron and steel, and other engineering industries.
- **Reservation of markets** (such as government purchase) for targeted export or other products
- **Providing a computerized databank** on foreign markets, buyers and suppliers, and on supply potentials of Ethiopia. The Ethiopian Export Promotion Agency could handle such activities. The government can as well implement this through private organizations such as Ethiopian and Addis Ababa Chambers of Commerce by providing financial support.
- **Targeting exports.** To further augment exports, the government can set export targets for firms, not only for those identified above as exporting industries, but also any firm, in return for a favorable price and guaranteed sales/market domestically or any other incentive as discussed below, including subsidy.

5.3 Input market

Intervention in the input market encourages the development of firms/industries through enriching their linkage on the input side. The following interventions are relevant.

- Promoting **subcontracting** to encourage specialization and structural linkages between industries. For instance, auto assembly industries have no local content, despite the fact there are vehicle body manufacturing firms, battery assemblers, etc. There is a need to make a study in this connection and promote the activity.

- Providing **industrial infrastructure** to ease supply side constraints. The recent attempt to locate an industrial site with better infrastructural facilities for new investment is commendable. However, it is also important to provide infrastructural priorities for the already established firms such as energy and communication lines. It may as well involve support for relocation, to newly identified industrial sites, wherever it is initiated.

5.4 Capital markets

The critical role of capital/financial markets in promoting industrialization is well known. In this respect, apart from the general measures of **strengthening financial institutions, both private and public**, further effort would be required to cater the large financial resource that industrialization demands. In the Ethiopian context this may include establishing various financial institutions including the following.

- **Reorienting the functions of the Commercial Bank of Ethiopia** to provide the required finance for targeted/selected industries.
- **Establishing an industrial development fund.** This is not new for Ethiopia, as the Development Bank of Ethiopia has been providing a similar service to the industrial sector
- Establishing **specialized funds such as science and technology promotion fund, technical assistance fund**, etc.
- Establishing and encouraging, long term **capital markets, venture capital companies, credit guarantee companies**, and related **specialized financial institutions**.

In line with this, the government can facilitate finance for targeted activities using different financial mechanisms.

- Targeted industries may benefit from **direct credit from state owned banks or government guaranteed** private, local or even foreign banks.
- **Special credit scheme for selected industries and activities.** Investments in targeted industries, such as strategic industries, have to benefit from special long term credit schemes, including credit subsidy, longer grace period, etc.

- **Finance linked to specific performance criteria.** Targeted performances, such as export, productivity improvement, adopting new technology, positive externalities, etc., could benefit from priorities in financial credit at favorable terms.
- **Provision of matching grants.** Large capital and technology requiring investments, targeted by the state, may benefit from matching grants.

5.5 Technology market

Promoting technology is the core strategy of an industrial policy. In the Ethiopian context, it is even critical. However, intervening in the technology market is also most challenging and expensive. Apart from the general provisions of **technology infrastructure, such as metrology, standards, quality and testing**, the government should promote technology using diverse schemes as outlined below.

- The government should have a **mechanism to support all forms of foreign technology transfer to Ethiopia**. In other words, it should help firms locate, purchase, and adopt new foreign technology. It should provide technical advice and guidance in terms of identifying appropriate technologies in all industries. The **choice of labor intensive type technology should be weighted against possible efficiency (hence competitiveness) tradeoff**, which could come with high-tech capital intensive technology types. Moreover, the rise in wages (including environmental issues) may necessitate, even in the medium term, moving out of labor to capital intensive type industries. The massive deindustrialization in Hong Kong, a relocation of labor intensive industries to remote Chinese villages, is a lesson to be aware of. So it is important to weigh the short term advantage against the longer term when choosing labor or capital intensive industries.

Direct support should be provided to strengthen targeted technology imports to reduce prices and **strengthen the position of local buyers through different transfer agreements such as purchase of equipment by itself or with know how and technology assistance, contracts for blue prints and patents, hiring consultants, etc.**

In this regard the government should compile a database on sources and prices of technology supply

- **Special incentives to firms to develop indigenous own product development capability through reverse engineering and adaptation.** As discussed above, there are exemplary innovative undertakings in the manufacturing sector, though small in number.
- **Hiring of foreign experts to help industrial technology development.** The success of a vehicle body manufacturing enterprise here in Ethiopia by hiring an expatriate knowledgeable in the field is exemplary. The government should **encourage employment of technology skilled expatriates through tax exemptions, remittances and other incentives.**
- **Direct support for research at firm/industry level** no matter how preliminary it is. Also **establishing and sponsoring basic R & D** on industrial related initiatives
- **Engaging in joint venture with foreign firms to acquire difficult and complex technologies**
- **Supporting updating, automation, renovation and modernization of existing technology**
- **Technical support and extension services.** This is to overcome informational, technical, equipment, and other handicaps of industries. This would in turn enable industries to undertake consultancy and feasibility studies, product development and design, quality and productivity improvement and acquire modern marketing techniques. **To implement this, a mechanism for diffusing new technologies, management techniques and skills to micro and small scale firms has to be installed.**

The government should provide training, information, advice on automation, arranges visits to plants to identify technological problems, prepare trade fairs, etc. This requires a well organized center, which should be regularly involved in these activities.

The institutional demand to provide such support services is challenging. Though the currently existing institutions such as Science and Technology Institute, Micro Enterprises Development Institute, etc., could be restructured to provide the required

services, various specialized additional institutes and centers in collaboration with the private sector and foreign technical assistance should be established.

5.6 Skill market

Building industrial technological capability is not just adopting advanced hardware technology, but also developing highly skilled labor. In fact the latter is a prerequisite. Provision of formal higher education by itself may not be adequate, even if it is of high standard. Of course, basic and high standard educational background is essential. However, **much emphasis should go for specialized technical skill training**. In this regard much effort would be required, as **creating a pool of skilled labor force by itself is today a prerequisite to attract foreign direct investment**. Promotional measures may include the following:

- Expand and strengthen the **comprehensive or technical secondary education system** to create workers with basic technical skills.
- Provide more **specialized technical training on different categories of industrial technology**
- Provide special **incentives for selected skills to reverse brain drain**. It is extremely important to provide due attention to higher education graduates in engineering technology and natural sciences.
- Give pre-employment technical skill training for school leavers
- **Arrange customized courses for workers based on the demand and tailored to the needs of industries**
- Provide **on the job training on workplaces using actual work machines and equipment** to directly enhance relevant skills in improving productivity, quality, product design, marketing etc. And also, directly support (financial or professional) firms/industries to provide on the job training.

To cater for this, specialized institutes and training centers are required, such as for instance, **special industrial technology training institute**. However, the institutional demand can as well be met by guiding and promoting private sector investment, which is currently deployed in less useful and quick profit earning training activities.

5.7 Foreign direct investment

Attracting FDI may be desirable, but admittedly, it is a difficult task. The requirement for FDI is not only economic. It demands, among other things, the existence of political stability and a conducive economic environment. The latter implies good infrastructure, skilled labor, efficient economic governance, highly competitive and attractive incentives, etc. However, success in this field does not always come on the cheap when seen from the perspective of long term development and industrialization. It is not always the case that the interests of host countries and investors coincide. Particularly, while large investment in technologically leading strategic industries, whose benefit accrues in the longer term, is badly needed by developing countries, including Ethiopia, the preference of FDI is in quick and highly profitable natural resource-based industrial activities. So, there is a need to balance or reconcile diverging interests. Moreover, as industrial policy is, primarily, building the domestic economy, with or without FDI, the latter should not be taken as a prerequisite.

In the Ethiopian context, primarily, government has to provide the **essential infrastructure and institutional requirements for FDI**. Moreover, on top of the general facilitation of investors, guarantees and arbitration, government can employ the following promotional measures.

- Encourage **FDI in areas where domestic investment is weak**. When FDI moves into areas with **relatively better comparative advantage**, such as in resource-based industries, which can easily be managed by domestic investors, such advantages must be compensated by a **parallel investment in strategic industries**.
- Promote **FDI in export-activities**, particularly in non natural-resource-based industries
- Provide **generous incentives for FDI with greater externalities in technology and skill transfer, including design knowledge**. In this regard, the government can give due priority and an **all round support to proven foreign investors, such as the MIDROCK and sisterly groups so that they can move to high-tech strategic industries**.

- Encourage **subcontracting and significant local content in all FDI operation**
- Encourage existing foreign investments engaged in **simple assembly activities, such as in auto assembly, to move into manufacturing.**
- Encourage FDI in **joint venture activity, particularly in advanced technology oriented industries**
- Target and encourage lower-tier foreign companies, particularly those from newly industrializing economies

6. *Incentive instruments*

It should be underlined that as the objective of industrial policy is not to maintain inefficient firms, **incentives have to be selective, goal specific, measured in magnitude, limited in time, and performance based.** Moreover, the incentive scheme should also be differentiated based on the importance of activities to be promoted. For instance, investing on a strategic industry, say chemical or metal casting, may be given higher priority than investing in footwear. Hence the incentive for the former should be more rewarding than the latter.

Apart from the specific incentives stated above under each market, the remaining instruments are quite diverse and commonly applicable in each market intervention. A number of instruments could be employed simultaneously or separately. For instance, a new investment in say strategic industries may receive subsidized credit as well as tax exemption for some time. The instruments include:

- Taxes (direct and indirect): tax exemption, tax holiday, tax credit, tax reduction/deduction,
- Accelerated depreciation
- Finance: Grants, direct credit, credit priority, low interest credit, long term credit, prolonged grace period.
- Foreign exchange priority
- Priority in infrastructure provision
- Import duty exemption or reduction
- Subsidies
- Free or favorable provision of land
- Reduced electricity charges

- Reduced domestic air cargo charges
- Employing government procurement to encourage new investment or expansion of selected/targeted products

7. *Measures of control*

As noted above, promoting industries with a package of rewards should necessarily be based on achievements which are specified, limited in time, and measured in outcome. As promotional programs involve costs and risks, firms are required to share at least some of the costs and risks commensurate with the benefits they receive. As the overarching objective of industrial policy is to develop an industrial sector which is productive and efficient, hence competitive, the benefit basically accrues to firms themselves. Hence sharing the costs and risks is not only logical but also inevitable as the alternative in today's competitive environment is to close down, i.e., go out of business eventually.

Control measures or performance requirements could be varied depending on the importance of the industry/commodity targeted for promotion. Requirements may include, among others, the following.

- **Level of productivity and efficiency:** An outstanding problem of most firms is low productivity and efficiency, which results in lack of competitiveness and loss of demand even in the domestic market. This is a challenge for nearly all firms. Therefore, targeted firms would be required to improve their efficiency significantly, if they have to benefit from promotional incentives.
- **Product quality:** Irrespective the price level, product quality is the primary prerequisite, particularly for export products. Exporting industries may be required to improve their quality to benefit from the incentive schemes.
- **Level of production:** Despite their productivity or efficiency levels, some industries producing critical products and currently of high import content, such as specific chemical industries, may be required to expand their capacity and volume of production first, and then move to meeting productivity and efficiency criteria.

- **Investment:** As noted above, Ethiopia's manufacturing sector is quite dwarf. A great deal of the industrialization program would only come through new investments, particularly in strategic industries. Therefore, new investments in targeted industries to benefit from generous support and incentives would be the major requirement.
- **Targeted level of export:** In newly industrializing economies, targeting export has been used as an effective mechanism for not only increasing export earnings, but also improving efficiency. In the Ethiopian context too, export targeting could be used as a prerequisite for benefiting a significant state support.
- **Introducing new technology:** Technology heavily influences levels of productivity and efficiency. It is likely that existing firms have to update their technology to improve their efficiency. Therefore, benefiting from the incentive package may require introducing new technology.

Again, at any one period, requirements could be one or more depending on the importance of the industry. For instance, a firm may be required to increase its volume of production as well as export. On the other hand, a strategic firm may first be required to increase production to fill the gap in import shortage (foreign exchange saving) and may later be required to increase its productivity level.

8. *Institutional requirement*

Industrialization requires a great deal of organizational, informational, skill and financial resources. A successful industrial policy demands the existence of such capability. As noted earlier, leading the industrialization program should be the prime responsibility of the government. The leading role of the government is not contestable as it is the only institution which has the prerogative to formulate and implement national policy. Moreover, no other institution has a nationwide structure and capability to undertake such a long term program.

Perhaps the major challenge in this undertaking is the institutional demand. Primarily a central organ/office to coordinate and lead the program at the apex has to be in place. This office, as noted above, must be composed of all stakeholders, including the government, the private sector, labor organizations, civic society, etc, not only for the sake of transparency, but also for addressing the common interest of all stakeholders which is critical for the success of the program. It is this central organ

which will establish the structure of the office and pool together the required human resource for designing, administering and implementing the program. The task of the latter is very challenging as it has to draw a coherent and detailed action plan and also organize various required institutions. Financial, technical/technological, educational, marketing and investment promoting institutions and centers for intervention in different markets need to be established. Such institutions demand a large amount of resources, both financial (including foreign exchange) and human. The demand for both financial and human resources is challenging as it requires experts in varying fields, including engineers (chemical, electrical, mechanical, etc), statisticians, industrial experts, management experts, economists, financial experts, marketing experts, etc, to design, administer, and monitor the program (i.e., to identify priorities, specify promotional measures and incentives, confirm performances, etc.).

Establishing such institutions requires a priori study and as industrialization is a long and painstaking process, it is important that such institutions and staff be permanently assigned to maintain the sustainability of the program.

However, because of the challenge and complexity of industrial policy, some question the capability of governments to successfully undertake such a program. For instance, the World Bank argues that developing country governments are intrinsically unable to act in the national interest, for various reasons including lack of acquiring enough information to select better than the market, lack of skill to design and implement detailed and complex industrial policy, the tendency to gravitate towards sectional interest rather than national interest, corrupt practices, etc. [Chang, 1999; WB, 1993] It is because of such reasons that industrial policies of South East Asia, particularly, Japan, South Korea and Taiwan, are said to be not replicable.

It is true that developing countries, including Ethiopia face some of these shortcomings and constraints. Hence, there is a need for a careful preparation to overcome such shortcomings. In the Ethiopian context, with respect to the information gap on markets, factor conditions, technology, skill requirements and organizational needs, the experience of industrialized countries could serve as an initial source of information to make selective decisions. Second, the government can utilize its offices abroad, embassies, consulates, etc, as a source of information. In this connection, NGOs can also be viable sources as they have access to external information, outside Ethiopia. Third, private sector associations, such as the Chambers of Commerce, Ethiopian Manufacturing Industries Association and

specialized trade associations (Leather tanning, coffee export, etc) along with trade unions, and professional associations, are all valuable sources of information. Also, Ethiopian nationals living abroad could serve as reliable sources.

The lack of skill to design and implement such a complex program is a serious shortcoming. This can be mitigated initially by training staff and hiring skilled and experienced experts from countries which have undertaken an industrialization program. Moreover, experience, along with on the job training, is the best medium for acquiring further skills.

A major challenge also arises from sectional interest (noted above in this section) and corrupt bureaucratic practices. While it is relatively easy to reduce rampant corruption at the lower tiers of government – through supervision and incentives- it is more difficult at higher levels. Today Ethiopia is not free from this problem. As noted above, this is the underlying reason for organizing a leadership entrusted with managing such a program composed of different stake holders. The involvement of all stakeholders will discipline the state and make it accountable to the public, hence improving the quality and outcome of government interventions. Disciplined and competent bureaucracy to avoid rent seeking practices is a prerequisite. Certainly, a corrupt government should not be entrusted with undertaking detailed industrial policy. Transparency in the implementation of the program is one instrument to mitigate the potential abuse of such a program.

9. *Integrating macro and sectoral policies with industrial policy framework*

What can be inferred from the discussions is that, industrial policy is essentially a development policy. What is perhaps unique is that, it places manufacturing at the center of the development program. However, because of its linkages to all sectors of the economy, it cannot stand on its own.

What this implies is that, sectoral as well as macro policies need to be consistent with the industrial policy in place. If for instance, agricultural policy, such as land policy, is not revised to allow massive agricultural inputs – fertilizers, insecticides, improved seeds, improved farm implements, then, the industrial policy which accords priority to

industries producing agricultural inputs would be of no avail. Similarly, if macro policies, such as financial policy, are not retuned to support targeted industries, then the success of the industrialization program would be inevitably limited. If the energy policy does not provide priority to targeted industries, then the industrialization program would be adversely affected.

It is therefore, obvious that industrialization demands revising all relevant development policies and programs to be consistent to the industrial policy in place. Particularly, critical in the Ethiopian context are the land policy and sectional interest based on ethnic affiliation as well as aligning with remotely designed irrelevant international programs for political advantage. Such policies and programs need to be revised radically.

CHAPTER XII

CHALLENGES AND OPPORTUNITIES: THE MULTILATERAL TRADING SYSTEM AND IMPLICATIONS TO INDUSTRIALIZATION STRATEGY

1. Introduction

The global environment provides both opportunities and challenges or constraints for faster industrialization. Many countries, particularly South East Asian's managed to exploit actively the international trading and investment opportunities as part of their industrialization program, while others, particularly African countries found the situation difficult to do so.

With the emergence of the all embracing idea of globalization and the World Trade Organization (WTO) regime, international trading and investment rules and regulations are fast changing and debates and negotiations to make international trade more development oriented is intensified.

Following the completion of the Uruguay Round of the General Agreement on Tariffs and Trade (GATT) and the formation of the WTO in 1994, a number of successive rounds of meetings has been held, the recent one being in Cancun in September 2003. These rounds of negotiations have been marked with intense debates and controversies as members attempted to establish a fair multilateral trading system (MTS) that would benefit all its members.

The WTO regime outlines rules and disciplines to facilitate international trade. It specifies legally binding restrictions that are prohibited and unrestricted activities allowed along with the conditions that should prevail. It has also installed dispute

settlement procedures into the system to ensure that rules and regulations are observed accordingly.

WTO rules encompass many socio-economic issues including, among others, textile and clothing, agriculture, services, trade related investment, intellectual property rights, etc. Further, negotiations to include deeply involved issues, such as the rights to be granted to foreign investors, competition policy, government's procurement practices, labor and environmental standards and many others, are on the table.

In light of the disparity in the level of development among groups of member countries and the resulting unequal exchange, the WTO regime has attempted to install a mechanism to minimize the losses that would be incurred by developing countries. When unequal parties engage in negotiations on trade liberalization, the weaker party expects some compensation mechanism for a fair distribution of benefits. Accordingly, WTO rules incorporate some special and differential treatment for developing countries, particularly for the poorest ones. However, the relevance, adequacy and implementation viability of the rules under the differential treatment has been, to say the least, controversial. Meanwhile, the pressure on developing countries to liberalize, particularly to open up the domestic economy for international trade, is mounting.

Newly industrializing countries employed industrial policies specifically tailored to the economic conditions of their respective countries outside the influence of the WTO regime and keeping at bay all other policy constraints, such as those advocated by international financial institutions. But with the imposition of globalization and binding WTO rules, it is suspected that developing countries may not have the leverage over their own economic development that their predecessors had. Are the WTO rules and regulations altogether prohibitive of the use of the kind of interventionist trade and industrial policies used by earlier industrialized and newly industrialized countries?

Recently Ethiopia applied for WTO membership. It is also considering the prospect of becoming a full member of the Common Market for Eastern and Southern Africa (COMESA). Ethiopia today is one of the least industrialized countries in the world and, as such, it has to undertake the long delayed industrialization program. This is an inevitable course. But what implications do WTO rules and regulations, including regional associations, have on the implementation of an industrialization program in Ethiopia? This Chapter examines this specific issue. As the WTO regime attempts to

address many socioeconomic issues, the emphasis in this Chapter would be only on the implications of some of the rules to industrial policy.¹⁰⁴

Following this brief introduction, section two of this Chapter summarizes debatable issues on the theoretical relationship between international trade liberalization and development. Section Three provides a short critical assessment of some important WTO rules and regulations from development perspective. Section Five discusses the implications of WTO rules to industrial policy setting and the prospect of Ethiopia's industrialization under the WTO regime and COMESA arrangements. Finally, a brief concluding remark is provided.

2. *The promise of trade liberalization*¹⁰⁵

The case for trade liberalization is well known, hence only a summary is provided here.¹⁰⁶ The current perception of the advocates of trade liberalization is premised on two concepts: universality and uniformity. The former implies that all trading partners, irrespective of their level of development, industrial capacity, technological capability, etc., benefit from trade liberalization, while the latter, uniformity requires standardization of tariff rates across countries - ideally no tariff rates.

The role of trade strategy as a major determinant of industrial performance is based on the key role of incentives and the presumed superiority of outward-orientation. It is argued that the combination of lower protection and neutrality of incentives between import-substituting and export promoting will produce both static and dynamic gains.

The static benefits are realized in two forms. [Kirkpatrick, 1994] First, lowering tariffs (and eliminating other non-tariff barriers) exposes domestic producers to external competition from imports. This stimulates domestic manufacturers to reduce their costs, and hence prices and/or to improve product quality, thereby becoming more efficient and competitive. This holds irrespective of the level of technological

¹⁰⁴ For the details of the impact of WTO rules and regulation, see forthcoming report on "Industrialization and industrial policy in Ethiopia", EEA/EEPRI, 2004.

¹⁰⁵ This section heavily draws on Shaefaddin's article 'Free trade or fair trade?' (December 2000b)

¹⁰⁶ There is a vast literature on the theory of international trade including Samuelson P.A. (1962), and Krueger O.A. (1980), Dessus S., Fukasaku K., Safadi R. (1999),

capability and other determinants of productivity and competitiveness. In this version, no new investment is required to increase the technical efficiency of firms. Second, static benefit is also effected through allocative efficiency. It is argued that the removal of protection barriers introduces a set of relative prices for traded goods that corresponds to international opportunity costs. This forces the reallocation of resources to the relatively most efficient sectors in line with their comparative advantage. This is the standard comparative advantage gains from trade.

In fact the theoretical foundation of universal trade liberalization is based not only on static comparative advantage but also on the well functioning of markets all the time. "Markets would function well and provide growth if only policy makers would abstain from unproductive intervention" [Krueger A.O. 1980:289]. According to the theory of comparative advantage, each country specializes in the production (and export) of commodities which employ the relatively abundant resources of the country, based on the present structure of costs. In other words, comparative advantage is market determined and free international trade improves the efficiency of resource allocation. In this context, developing countries should specialize on labor-intensive primary products, as these (labor, natural raw materials) are their comparative (static) advantage.

The theory of comparative cost advantage¹⁰⁷ implies that

... since firms have no active role, comparative advantage is achieved at national level. Hence, present market determined factor costs (wages, interest rates, and raw materials) are the only sources of international competitiveness. Since the exchange rate converts national prices into international prices, it is influential in attaining international competitiveness. By contrast neither productivity¹⁰⁸ nor non-price factors play any role in international competitiveness. Another implication concerns the terms of trade, which are established by the forces of reciprocal supply and demand for exports and imports, and are not influenced by power relations in international trade. [Shafaeddin, 2000b:6]

¹⁰⁷ This particularly refers to the Heckscher-Ohlin (H-O) version of comparative advantage where the sources of comparative advantage stem from differences between countries in factor endowments as opposed to the Ricardian version where comparative advantage arise as a result of differences in quality of production factors.

¹⁰⁸ The trade liberalization hypothesis advocates that export promotion leads to productivity improvement, as mentioned earlier. It neglects, however, the role of the many different factors which contribute to productivity improvements at both the micro and macro levels.

A number of key simplifying assumptions underlie the theory of comparative advantage, at least the H-O version.¹⁰⁹ The first is full employment of resources, i.e., production factors, labor and capital, are fully employed. So are raw materials. Hence, firms are running at full capacity. Second, technology is freely and equally available to all trading countries and technology capability building is costless. In other words, no firm has monopoly power (price) over technology, hence patents do not exist. Third, it is also assumed that countries are similar in all respects except for factor endowments. This implies similarity in terms of development, industrialization, technology capability, infrastructure, institutions, organizations, etc. It also implies that commodities traded differ in factor intensities and utilization of different technologies, but each product is produced with the same techniques among all trading partners. Finally, and perhaps the most important assumption is the prevalence of perfect competition in both commodity and factor markets, and markets are free and complete. Perfect competition is in turn characterized by a set of both implicit and explicit assumptions. Most important of these include, the small size of all firms operating in the market so that no firm has any influence on the market, constant return to scale, passivity and absence of power in the market, free entry and exit, availability of perfect information about the market – about prices, quality, and supply and demand of products and production factors - homogeneity of goods and production factors, absence of uncertainty and risk, given resource and technology, independence of present and future costs and prices, etc. Complete market refers to the existence of present and future markets for all goods and factors. In addition, economic institutions and organizations are given and conducive to the function of market forces.

The assumption of perfect competition then prevails not only in one but elsewhere, in all trading partners and no political influence or interference in international trade is assumed as there is no conflict of interest. Moreover, as noted above, factors of production are homogenous and mobile within each country, but immobile between countries. It also suggests that trade does not involve costs, and sales are not targeted at a particular market.

These assumptions underlie the justification for universal trade liberalization. However, this theoretical justification is not without criticism. Critics label that not only most of the assumptions are unrealistic, but that these theories are also suffering

¹⁰⁹ As these assumptions are widely known only a summary is provided here.

from internal contradictions.¹¹⁰ In spite of these criticisms, however, these theories are used to justify universal trade liberalization on which the rules and regulations of the GATT/WTO regime are based. These rules and regulations are briefly treated in Annex E.2.

3. The WTO regime from a development perspective¹¹¹

As discussed in the preceding section, the WTO regime, appreciating the development needs of developing countries, has provided special and differential treatments (SDT). The provisions mainly involve longer transition periods to adjust and greater flexibility to deviate from commitments to help them integrate with the global trading system.

However, critics argue that WTO rules are contradictory by design and implementation. Neither are these rules capable of addressing the central problems of developing countries.¹¹² After several years of experience with the implementation of the Uruguay Round agreements developing countries began to perceive that the provision for special and differential treatment did not adequately address their practical trade problems. As a result, the Doha ministerial conference agreed to review all the Special and Differential Treatment (SDT) provisions to make them more development oriented. [WTO Doha declaration, 2003] All pre-Seattle proposals are now subject to negotiations and revisions. This section provides a brief assessment of the WTO rules from the perspective of developing countries' needs.

3.1 Agriculture

Agriculture has been excluded from the multilateral trading system since the establishment of the GATT by industrialized countries under the pretext of its multifunctionality. Industrialized countries still provide large protection and domestic

¹¹⁰ There is a rich literature on the criticism of the classical universal international trade theory. Interested readers can refer to Shafaeddin M. 2000, Kohr M. 2000, Scherer FM & Ross D 1990, and Streeten, P 1993.

¹¹¹ This section heavily draws on UNDP (2003)

¹¹² See also section in this chapter on theoretical foundation

and export subsidies to agriculture, while developing countries increasingly come under heavy pressure to liberalize the sector.

3.1.1 Tariff reductions, peaks and escalation

Between 1945 and 1995, the average tariff on industrial goods fell from 40% to 4%, yet agricultural tariffs still average 62 %. For example, in 1995 average tariffs in OECD countries were 214% for wheat, 197% for barley, and 154% for corn [Konandreas and Greenfield, 1996]

Industrialized countries also use extensively tariff peaks and escalation on agricultural products. Major developing country exports, such as sugar, tobacco and cotton, including processed foods, are often taxed at some of the highest rates – more than 100 percent. [Shirotori, 2000] Similarly, tariff escalation occurs in products of export interest to developing countries, such as coffee, cocoa, oilseeds, vegetables, fruits and nuts. One of the main impediments to export diversification for developing countries and a major constraint to vertical diversification of other agricultural exports is tariff escalation.

3.1.2 Domestic support measures

The agreement on Agriculture allows industrialized country agribusinesses to buy and sell agricultural crops at prices below the cost of production, creating unfair competition for farmers in both developing and more efficient industrialized countries. This has adverse effects on food security, farmers' livelihoods and employment in developing countries.

The amount of domestic support categorized as distorting trade and production (amber box) on aggregate was subject to a reduction of 20% of the agricultural value added for developed countries and 13.3% for developing countries from the base period level (1986-88). But in most industrialized countries, declaration of such support exceeded 20%, with almost half exceeding 50%, even after compliance with the agreement. [UNDP, 2003, p. 118] Developing countries, however, as a result of the IMF/WB forced SAP, which nevertheless eliminated such support, claimed zero percent. Moreover, because reduction is planned in aggregate terms rather than product specific, industrialized countries have been able to increase their domestic

support for sensitive products of export interest for developing countries (such as rice, sugar, dairy products, etc.)

3.1.3 Export subsidy

The agreement on agricultural export subsidy involve major implementation problems. For instance, export credit, often used by industrialized countries such as the US, does not come under the purview of export subsidy, though its impact in encouraging export is as effective as subsidy. Moreover, support measures, such as banning export control, export taxes and restrictions (on food products among others), which are not any less effective than the subsidy in promoting export, are not considered as subsidy, hence are not addressed in the agreement.

In many developing countries export subsidy, irrespective of its modality, has more adverse effects than many domestic support measures. Such subsidies allow exports of agricultural products from industrialized countries at prices well below production costs, thereby depressing world prices and causing import surges and agricultural dumping in developing countries. It is said that billions of dollars of subsidies in the EU and US allow exports at prices one-third lower than the production cost from these industrialized countries. What this means is that poor farmers in developing countries are competing not only with high tech farming systems but also against the richest treasuries in the world. [Oxfam International, 2002]

3.1.4 Export dumping

Agricultural dumping is a severe problem for developing countries, yet the agreement on agriculture has failed to address it. Dumping is said to be the consequence of low-priced exports, resulting from overproduction, by giant agribusinesses from industrialized countries. Most of the benefits of such exports do not accrue to small farmers of industrialized countries. Hence, developing countries' farmers are forced to compete actually with giant companies that dominate the international export markets of grain and which are the prime beneficiaries of industrialized countries farm policies. Therefore, agricultural dumping requires effective multilateral rules if poor farmers in developing countries have to address their food security problem.

3.2 Textile and clothing

Textile and clothing is probably the most protected sector of all other activities under the purview of the WTO regime. Even after the conclusion of the Uruguay Round agreement in 1994, tendencies remained strong to protect textiles and clothing. Following the emergence of a rapidly developing and highly competing textile and clothing sector in developing countries, industrialized (importing) countries forcefully resorted to striking deals with developing countries for a more comprehensive 'voluntary' export restraint packages to regulate the volume of export. This mechanism was meant to buy time for industrialized countries long enough to permit structural adjustment of the sector at home. With such a deal already in place, the only feasible solution during the Uruguay Round in 1994 was to phase out the Multifibre Arrangement (MFA) over a long period (10 years) of time. Hence, because of the deal between importing and exporting countries, textile and clothing were exempted for long from basic GATT disciplines.

Thus, under the Agreement on textile and clothing (ATC), trade continues to be governed by quota regulations. Developing countries encounter high tariffs and tariff escalation as well as increased use of contingent forms of protection, notably anti-dumping actions and new barriers such as labor and environmental standards.

With respect to the liberalization of textile and clothing, the ATC fell much below expectation by including a far wider range of textile and clothing products in the group to be liberalized than was ever included in the MFA to begin with. Moreover, the period for any significant liberalization was postponed until the final stages of 1 January 2005, when it is hoped that most sensitive products will be subject to basic WTO disciplines. While developing countries, with the exception of least developed ones, were forced to implement rapidly most URA provisions, the MFA was phased out gradually in different steps over the 10 year period. Even after all this, the process of liberalization is not moving according to schedule. For instance, in the first liberalization stage, 1 January 1995, Canada, US and EU only liberalized less sensitive products. The EU barely included the highly sensitive clothing sector, and liberalized only 1% instead of 17%. [Baughman, et al, 1997] The story with the US is much the same.

3.3 Industrial tariff and market access

Although in principle the Generalized System of Preference (GSP) can increase developing countries' market access, the system does not cover some important products of export interest, such as fish and textile and clothing. As a result, for such excluded products, developing countries face tariff peaks and escalation. Similarly, though some developing countries, such as the ACP, have been granted duty-free access to some major industrialized markets (Canada, EU, Japan and US), such grants exclude products of critical importance, such as textile and clothing. Moreover, the increase in free-trade agreements and customs unions among industrialized countries has led to considerable tariff discrimination against developing countries. For instance, during the Uruguay Round OECD countries cut their average tariff by a higher margin for imports from OECD members, but by a much lower margin for imports from developing countries. This resulted in a 3% average trade-weighted tariff on imports from other OECD members, compared with the 5% for developing countries. [OECD, 2001]. For manufactured exports, the trade weighted most-favored-nations tariff from developing countries (3.4%) is almost 4 times higher than for exports from OECD countries. [Michalopoulos, 1999].

3.3.1 Tariff peaks and escalation

Despite the agreements reached during the Uruguay Round, some major industrialized countries, such as Canada, USA, Japan, and the EU maintained numerous tariff peaks on industrial products, especially food industry products, textiles and clothing, leather and travel goods, automotive products and consumer electronics and watches. Some of these are as high as 900%. [Supper, 2000] Tariff peaks are particularly damaging to the least developed countries, because 11 percent of their exports to these industrialized countries are subject to the peaks, even though these constitute just 4 percent of the four major industrialized countries' (noted above) total imports. [Hoekman, et. al, 2001]

Tariff escalation prematurely kills exporting industries of developing countries, including those producing food industry products, textile and clothing, footwear, leather products, rubber products, and wood industry products. For instance, for footwear, most-favored-nations tariff reached 260% in Japan, and on average 33-58

% for certain rubber, plastic and textile shoes in the US, and 18% for shoes in Canada (Supper, 2000, pp. 89-103)

3.4 Anti-dumping

A WTO member can unilaterally impose anti-dumping duties to protect its domestic industry from dumped imports and offset its loss or damage. Anti-dumping is targeted at firms; as such it is politically the least difficult measure to apply of all the trade remedies available under the WTO provisions.

The rapid liberalization of trade regimes by developing countries has led them to pass anti-dumping legislations to protect their industries from unfair competition. Despite this, however, developing countries, nevertheless, remained the main victims of anti-dumping measures by industrialized countries. Anti-dumping actions applied by countries with major markets can have a significant impact on individual industries, often arresting competitive infant industries. For instance, an extensive OECD review of anti-dumping cases in Australia, Canada, the EU and the US found that 90% of the instances of import sales considered to be unfair under anti-dumping rules would never have been questioned under national competition laws, that is, if they had been domestic sales by a domestic enterprise. [OECD, 1996, p.18]

Another problem with anti-dumping legislation is the way in which anti-dumping is calculated and proved. Proving whether an imported good is being sold at less than its normal price in the country of origin is a difficult task as comparison of the goods between the two countries is often asymmetrical.

Moreover, whether a claim is found to be valid or not, the initiation of an anti-dumping proceeding alone has a significant impact on developing countries' export industry. A government undertaking a dumping investigation can demand vast quantities of information to be supplied within a short period of time. Given resource constraints, developing countries can not afford to meet such demand. Empirical evidence shows that anti-dumping measures against developing countries can have an immediate effect on trade flows and prompts importers to seek alternative sources of supply, which is of course a difficult task. Even when investigations have been dismissed, the

harassment will inevitably force exports to decrease. In other words, the mere existence of anti-dumping policy and the knowledge that domestic industries are ready and willing to file cases if competition becomes too fierce can cause firms in developing countries to compete only timidly so as to avoid having cases filed against them. Developing countries must seek a balance between their need to export to industrialized country markets and their need to protect domestic industries adapting to a free trade environment. For this reason, they would be forced to choose not to resort to anti-dumping measures against an industrialized country trade partner.

Many developing countries, particularly those in Africa have complained bitterly about what they perceive as massive dumping into their markets – which they have neither the expertise nor the administrative resources to counter and combat. Anti-dumping as a protectionist tool tilts the balance of trade against developing countries, given the bias in industrialized countries' legislation and the high costs of initiating and defending anti-dumping cases.

3.5 Subsidies and countervailing measures

Although the agreement on subsidies and countervailing measures (ASCM) contains concrete measures providing developing countries with SDP, many of them believe that it has created an imbalance on measures that can be taken by industrial and developing countries. ASCM does not take into account the development problems of developing countries.

While the Tokyo Round Subsidy talk allowed developing countries to maintain export subsidies when necessary for development, the ASCM extends the prohibition of export subsidies to most developing countries – limiting above all their policy flexibility. The problems facing developing countries in the application of the export subsidy provisions relate to their need to use export subsidies for development purposes. Moreover, provisions failed to take into account certain characteristics of developing countries, thereby undermining their international competitiveness.

Prohibiting industrial export subsidies also inherently discriminates against smaller countries, where domestic production can be viable only if a large portion is exported. Many of these countries are not low-income and so do not qualify for the exemption

from the ASCM that applies to the least developed countries and others with GNP per capita below \$ 1000 a year.

Furthermore, contrary to the Tokyo Round code – which prohibited only export subsidies – the ASCM prohibits both export subsidies and subsidies contingent on the use of domestic over imported goods. [Sajjanhar, 2000] In practice, this means that countries cannot use subsidies to support import substitution policies.

Non-actionable subsidies are also significantly biased against developing countries. The subsidies used primarily by industrialized countries – for research and development and to support disadvantaged regions – are non-actionable. Yet, subsidies to promote the development of national industries – the tool used most often by developing countries to diversify and upgrade their export industries – are either prohibited or actionable.

The more favorable treatment of agricultural (as opposed to industrial) subsidies is seen as creating another major imbalance between industrial and developing countries. Current rules permit industrialized countries to retain massive export subsidies on agricultural products but effectively prohibit those used by developing countries.

Developing countries perceive that significant imbalances remain in the ASCM's treatment of industrialized countries and themselves. Given the importance of subsidies in early stages of industrial development, these imbalances will likely accentuate human development problems in developing countries, causing further divergence in countries' development levels. Moreover, many developing countries have not been permitted to use even the flexibility mechanisms they enjoy under the ASCM, because loan conditions of international financial institutions require the reduction and elimination of the generally applicable, non-specific subsidies that are non-actionable under the agreement.

3.6 Trade-Related Investment Measures (TRIMS)

Trade- Related Investment Measures are not clearly defined by the agreement; nor provided with criteria for identifying them. This leaves room for interpretation/misinterpretation and dispute, though some aspects of it, such as

TRIMs that do not violate the national treatment obligations of GATT or the prohibition on quantitative restrictions are clearly permitted.

From the point of view of developing countries' interest, TRIMs should facilitate the expansion of small firms to full competitive scale and should also be used to channel foreign direct investment to bring infant industries to maturity. It should also be used to mitigate the problem of disadvantaged regions and enhance investment to build and upgrade domestic technological capacity, hence increasing the value added share of exports. However, many developing countries contend that, implementation experience so far demonstrates that the agreement has not taken into account their development requirements. Particularly, the agreement has adverse impacts on employment and value added, as it prohibits developing countries from pursuing domestic content policies, which have been partly instrumental for the fast industrialization of East Asia's newly industrializing countries.

Moreover, developing countries argue that TRIMs should be designed to counter trade-restrictive and trade-distorting strategies of transnational corporations. For instance, local content requirements can be used to increase employment, protect the viability of local firms and avoid over-pricing by transnational corporations. Local content requirements can also be a necessary response to vertically integrated transnational corporations that dominate the market.

Implementation of the TRIMs agreement has posed a number of challenges for developing countries. These include the difficulty of identifying TRIMs covered by the agreement and ensuring their timely notification to the WTO, the inadequacy of the transition period for phasing out prohibited TRIMs and disputes arising from the lack of clarity between the GATT, the TRIMs agreement and the agreement on Subsidies and Countervailing Measures.

3.7 Trade-Related Intellectual Property Rights (TRIPS)

Despite the agreement on some of its merits, critics hold the strong view that TRIPS is trade restricting since it creates monopoly rights and prevents the entry of cheaper, generic versions of products. It is therefore at odds with the aims of the WTO of furthering economic development through increased trade. The negative implications

of TRIPS meanwhile are clear and unambiguous: restricted access and higher prices for protected goods. [UNDP, 2003]

Obviously, the main beneficiaries of intellectual property protection are largely transnational corporations, which can use intellectual property laws to own and control research and development, while developing countries face higher prices and restrictions to new technologies and products. Intellectual property protection on educational materials, essential drugs and medical equipment is likely to affect poor consumers adversely.

In principle, WTO negotiations and agreements involving trade concessions are meant to make all members better off. In the case of TRIPS, however, low-income countries are predominantly technology consumers and have little to bargain with. The expected gains from TRIPS are likely to materialize in developing countries only after a range of complementary policies, such as investment in tertiary education and research capabilities, reward mechanisms in research sectors and appropriate investment climate are in place.

Also, developing countries are net technology importers; consequently, the first impact of an international patent regime that they experience is the rise in the cost of purchasing technology. TRIPS increases the cost of purchasing, and thereby absorbing, patented technology. Patents also restrict access to the original technologies, preventing incremental innovation from making a breakthrough in new findings. Therefore, TRIPS restricts technology absorption. It also makes acquisition of technology more difficult. Developing countries acquire technology through direct investment, through embedded technology in capital goods imports, purchase or foreign technology licensing, or technology transfer through assistance. However, TRIPS consolidate knowledge ownership and reduces opportunities for learning and imitating for new entrants. TRIPS raises the cost of copyright protected educational material. In the software industry, only a small segment of developing country populations can afford copyright protected software. Since few large firms control the hardware technology, under TRIPS they can control the terms on which technology is distributed. Finally, developed country firms also control the information industry. Therefore, TRIPS also impedes the spread of knowledge.

Moreover, developing countries lack the legal structure to deal with abuse of monopoly power as effectively as developed countries. Patent enforcement also

incurs significant costs. Internationally, TRIPS brings with it the threat of litigation with high cost, which is quite burdensome for a developing country.

Therefore, developing countries are unlikely to be better off under TRIPS if viewed from development perspectives. The bargaining framework of the WTO is inherently inappropriate for an asymmetric agreement such as TRIPS, and intellectual property protection issues should not be subjected to trade sanctions.

3.8 General Agreement on Trade in Services (GATS)¹¹³

GATS provides important opportunities for developing countries. But it is not without problems. The problems arise primarily from its practical application and the ability of developing countries to derive full benefit from the actual flexibility of the agreement and the operationalization of beneficial provisions.

Developing countries require provisions for maneuvering, including reversing policy decisions when and if they find it necessary. The GATS potentially offers that flexibility. But because of the time and high costs that it involves, developing countries face difficulties to realize this in practice

Because of the existing power imbalance in negotiation between developing and industrialized countries, the former would not be in a position to take advantage of the flexibilities and other provisions of the GATS. Thus the provision of voluntary offer process may not work properly. Because of the pressure on developing countries, governments that lack the power and capacity to resist may be pushed to make rushed decisions on which sectors to liberalize and what kinds of limitations to place on specific commitments.

Moreover, it may be necessary for a government to retain some important domestic regulations that are potentially inconsistent with the GATS and/or add others as development needs arise or change. But the lack of crucial data and information that most developing countries face to assess this may create difficulty for decision-making.

¹¹³ See WTO (1994)

The GATS puts pressure on governments to deregulate their domestic markets, privatize public entities and open their markets to the rest of the world. It has two related mechanisms to operationalize its provisions: First GATS' rules such as market access and national treatment affects government's ability to formulate domestic development policy, especially public and industrial policy. Second GATS directly affects key sectors, such as public services, financial services, the movement of labor, etc.

Developing countries have made substantial commitments and accepted a larger share of full market access bindings under the cross-border and commercial presence supply modes than industrialized countries. By contrast, industrialized countries have made very few liberalization commitments. Market access impediments for developing countries include the following:

- Subsidies, including horizontal subsidies and investment incentives, provided in industrialized countries in sectors of export interest to developing countries.
- The non-recognition in industrialized countries of many developing country qualifications and standards also serves as a significant market access barrier.
- Lack of access to information and distribution networks such as those in telecommunications and air transport services (through alliances)

3.9 Standards

The issues related to standards in the WTO involve the Agreement on Technical Barriers (TBT) and on Sanitary and Phytosanitary Standards (SPS). The TBT agreement aims at ensuring that regulations, standards, testing and scientific procedures, which vary from country to country, do not create unnecessary obstacles to trade, while the SPS agreement aims at preventing domestic sanitary and phytosanitary standards from being trade restrictive and protectionist.

Governments need to ensure that goods and services in an economy, whether imported or domestically produced, adhere to basic minimum standards of safety relating to toxins, pests, additives and disease-causing organisms and the like. In determining standards at the domestic level, it is important to take into account the country's industrial and resource capabilities. Also important, though more difficult, is to balance domestic public health concerns with differing levels of acceptable standards internationally.

Developing countries have been required to provide scientific justification for their sanitary and phytosanitary standards since 1999. But many lack the laboratories and technical personnel to conduct proper scientific tests. This affects their ability to set and defend their own standards as well as to meet the burden of proof of importing countries. It also limits their ability to negotiate mutual recognition agreements, because of lack of confidence of industrialized countries, on the capacity of developing countries in laboratory testing.

A major concern of developing countries is that increasing restrictive sanitary and phytosanitary standards can be used as a non-tariff trade barrier. The decision by developed countries, such as the EU, to apply restrictions going beyond international standards will definitely have significant adverse impact on developing countries' exports.

Developing countries have had little role in setting standards. The SPS Agreement, for instance, was developed outside the WTO, based largely on existing standards and regulations in industrialized countries. When developing countries participated in developing standards, those standards were often adopted by a simple majority vote, without amendments to reflect concerns of those in the minority. [Zarilli, 2000] Although developing countries now have greater opportunities to voice their opinions, full participation is often beyond the financial and technical means of developing countries.

The attempt to harmonize international standards based on those of industrialized countries has led to severe problems in implementation because of countries' varying circumstances and inadequate capacity. Moreover, once standards are in place, developing countries have little option but to comply with them. However, the major burden is the cost of establishing the institutions, providing massive information, etc.

3.10 Dispute settlement

Despite its positive feature, the dispute settlement mechanism of the multilateral trading system still weighs against the interest of developing countries. In a trade dispute, an offended party's ultimate recourse is trade retaliation against the (offending) trade partner. While this could serve as an effective threatening

instrument for industrialized countries against their weak trading partners, developing countries cannot use this instrument against industrialized countries because of their weak political and economic power. There is no symmetry in its application.

3.11 The special and differential treatment

The SDT legitimized the General System of Preferences and provided more favorable treatment with respect to non-tariff barriers, preferential trade rules for developing countries and special treatment for the least developed countries. The enabling clause, however, is more voluntary and selective, not binding.

Policy space provisions allow developing countries to wave off some WTO rules without fear of retaliation by industrialized countries, through two mechanisms: longer transition periods to adjust to new commitments and provisions to help developing countries integrate with the global trading structure. The transition period is more common and for least developed countries it can be extended. The second provision includes active steps to increase market access for developing countries more than for others (such as preferred schemes and GSP), safeguard options to prevent injury and the provision of special preferences to the least developed countries. However, preferential trading schemes between developing and developed countries require members to request an annual waiver from WTO rules.

After several years of experience with implementation of the Uruguay Round Agreements, developing countries have realized that provisions for SDT did not adequately address their practical trade problems. Nor were the time limits for the application of the agreements realistic, undermining development policies. Developing countries believe that any special or preferential trade treatment from industrialized countries was nullified by discriminatory trade-related measures of even greater significance – including the agricultural regimes of industrialized countries, the MFA, and related constraining measures, such as voluntary export restraints. [South Bulletin, 2004, pp. 76-78]

Most WTO provisions for special and differential treatment are not phrased in contractual language, making them difficult to operationalize. In most cases SDT is conditional on negotiations on extended transition periods and on industrialized country discretion. Moreover, such treatment is subject to costly and time-consuming

litigation. This implies that countries constantly need to renegotiate extensions. Extensions, if granted, are political decisions based on asymmetric bargaining power. But developing countries' weak position is more likely to force them to bargain away other important concessions just to get the extension.

4. *Implications of WTO rules for industrial policy*

Is it feasible to design industrial policies, which have been employed by many earlier industrialized and newly successfully industrializing countries under the new WTO laws? As indicated in the preceding sections, WTO rules encourage and pressurize for rapid and comprehensive liberalization of developing countries' domestic economy on the ground that free international trade is a prerequisite for development. On the other hand, as discussed in Chapter Nine, countries' industrialization experiences demonstrate that liberalization was gradual and selective and came late after the take-off period and after the domestic economy achieved some degree of competitiveness, at least in the domestic market, if not internationally.

The scope of global trade agreements has extended into areas (such as services and intellectual property rights) that until the creation of the WTO were in the domestic domain, while at the same time enhancing existing disciplines to make them more intrusive. These new features together – extension into new areas, more intrusiveness into domestic policy-making and the single undertaking – extend the WTO's influence over domestic policy making in areas critical to the development process. The agreements under the regime commit members not just to trade liberalization in the goods' sector, but also to specific policy choices on services, investment and intellectual property rights. For the first time trade sanctions were seen as a way of enforcing property rights. Thus the international trade regime is starting to have a direct effect on national regulation and legislation, through rules and agreements that seek to harmonize different norms and standards of governance.

Trade liberalization, particularly, reducing tariff and eliminating non-tariff barriers have, in many cases, led to the marginalization of small producers, creating more unemployment. Firms in developing countries are facing increasing difficulty to cope with import competitions. WTO provisions provided primarily in the form of different tariff and subsidy targets are meant to enable developing countries to meet

commitments. All these mechanisms aim at increasing adherence to the specific policies implied by the agreements. They do not allow enough room for developing countries to design more appropriate and country specific industrialization policies. In agriculture for instance, developing countries have traditionally a range of domestic policy instruments to deal with food security, farm livelihood and other agricultural development objectives. The design and implementation of certain parts of the Agreement on Agriculture – especially its discipline on tariffs, domestic support and export subsidies – have constrained some of those policy choices.

Investment policy measures such as local content (obliging firms to use at least a specified minimal amount of local inputs) and foreign exchange balancing (that limit the import of inputs by firms to a certain percentage of their exports) will be prohibited for most developing countries. Local content requirements can be used to increase employment, protect the viability of local firms and avoid over-pricing by transnational corporations. Local content requirements can also be a necessary response to vertically integrated transnational corporations that dominate the market. Such policies have been instrumental for the fast industrialization of East Asia's newly industrializing countries.

Such measures protect a country's balance of payments, promote local firms and enable more linkages to the local economy. The prohibition of these investment measures will make the attainment of development goals much more difficult and cause developing countries to lose some important policy options to pursue their industrialization.

Developing countries are also obliged to introduce intellectual property rights legislation (IPR) with standards of protection that are similar to industrialized countries. This will hinder developing countries' indigenous technology development. It should be noted that the present industrialized countries did not have patent or IPR laws during their industrializing period, and this enabled them to incorporate technology design originating from abroad in their local systems.

Development policy may require that governments protect some service sectors. For instance, governments might have to limit the number of service suppliers in such sectors as banking or telecommunications; or a government may wish to direct some of the savings in the economy towards industrial or agricultural producers and provide tax breaks to domestic firms, as was done successfully by East Asian and Latin

American economies – thereby limiting the amount of savings controlled by foreign based banks. Such measures will require that governments have the flexibility to at least regulate the number of service suppliers and the value of transactions or assets. A government may have to create an enabling environment for promising domestic companies in key sectors by allowing the banking sector to favor domestic firms in credit allocation. Similarly, an important part of an industrial strategy is requiring foreign investors to use local suppliers, hire local staff and transfer technical-know how. But under the principle of market access, a government that wishes to do so may be challenged. WTO rules require developing countries to deregulate their domestic service markets, privatize public entities, and open their markets to the rest of the World.

Effective and broad-based financial services are crucial elements of development policy. However, under WTO rules, a country may not be able to protect its own banking industry through tax breaks, credit and interest rate subsidies and the like as the principle of national treatment and most-favored-nations are likely to work to the benefit of foreign financial firms, which have greater financial strength, more sophisticated information technologies and greater economies of scale than domestic financial firms. This would undermine the creation of capacity in financial institutions for long-term credit support to firms generating new technologies or employment, as well as the development of new financial instruments for small and medium-size enterprises. Thus, WTO rules are not quite consistent with developing countries' capacity to regulate their financial sectors, providing a recipe for financial crisis.

The role of subsidy in development is central. While the Tokyo Round Subsidy talks allowed developing countries to maintain export subsidies when necessary for development, most developing countries are prohibited – limiting above all their policy flexibility. Non-actionable subsidies are also significantly biased against developing countries. The subsidies used primarily by industrialized countries – for research and development and to support disadvantaged regions – are non-actionable. Yet, subsidies to promote the development of national industries – the tool used most often by developing countries to diversify and upgrade their export industries – are either prohibited or actionable. Current rules permit industrialized countries to retain massive export subsidies on agricultural products but effectively prohibit those used by developing countries.

It is evident, therefore, that the greater the range of issues coming under the purview of the WTO, the more will the capacity of national policy making in individual countries diminish. In fact the WTO regime is part and parcel of the globalization process where the rights of national policy making would be eventually determined largely outside the boundaries of sovereign states.

5. *Implementing industrial policy in Ethiopia under the WTO and COMESA arrangements*

As noted earlier, Ethiopia has just applied for accession to the WTO. It is also a member of other regional associations such as the COMESA and the newly formed New Partnership for Africa's Development (NEPAD). From time to time it also joins related short term bilateral agreements, such as for instance, the phased out SAP and the currently on going Act of Growth Opportunities for Africa (AGOA) and Economic Partnership Arrangement (EPA). But the most important of these, from the point of long term development and undertaking industrial policy, are the WTO and COMESA.

Currently, Ethiopia is a member of COMESA, but has not yet fully integrated into the common market system. It is adopting a gradual and step-by-step trade liberalization strategy for eventual integration. In the COMESA arrangement the first step is the establishment of the free trade area (FTA), which eliminates tariff and non-tariff measures on trade in goods produced within member countries. The FTA is then expected to expand to a custom union (CU) regime. In this arrangement, a common tariff and non-tariff measures on imported goods from non-members is introduced in all member countries, further consolidating the integration. Overtime, the CU develops to a common market (CM) where trade in goods would be followed by trade in services and free movement of factors of production, both labor and capital, as well as entrepreneurial skill.

Such a regional model not only allows the development of member countries on equal status, but also provides a strong position for the community to negotiate for a fair external trade, which has always been against developing countries. Neither it is difficult to imagine the further development of the common market to an economic and eventual political union across the continent. Therefore, while the development of

a trade treaty, such as the COMESA, to a wider and deeper economic and political integration is a logical and real possibility, an all embracing global umbrella, such as the WTO, dictating policies of each country and terms of regional treaties is likely to abort the development of regional integration and foster, as in the past, an unbalanced and lopsided development pattern, which works against developing countries.

As noted in the preceding sections, whether the special and differential provisions of the WTO for LDCs are adequate and effective or not, most of the provisions are largely non-binding. The applicability of these provisions, therefore, depends on the discretion of the trading partners - developed countries. Besides, even if the provisions were not non-binding considerable barriers are encountered during implementation. One of the major challenges is the resurgence of protectionism in the form of new non-tariff barriers (usually presented as quite legitimate concerns of societies), such as food safety (sanitary and phytosanitary standards), labor standards, protection of the environment, rules of origin, tariff escalation and peaks, etc, which hinders better market access and entry of developing countries exports into developed countries' markets.

Moreover, even if these constraints are abolished and the provisions made effectively binding, the major gain for LDCs from the multilateral trading system would mainly be market access. Market access is, however, only one aspect (the demand aspect) of the development dimension. The most important element – the production/supply side (including competitiveness) is however given lukewarm importance. WTO provisions undermine the policy space which is closely related to the supply side problems of the industrialization process. How then do LDCs with perpetual problems of supply take advantage of the market access opportunities when and if it is translated into reality (if at all it did)?

The importance of policy space as opposed to market access is obvious. For all newly industrializing economies, it was the policy space, and not market access per se, that was the driving force of their industrialization. Rodrik discusses this by contrasting the GATT with the WTO.

What is striking is that the GATT system was much more development-friendly than the WTO system, largely because developing countries were free to do what they wanted under the GATT system. If you look all the successful countries and

when their successes were obtained, they were obtained either under the GATT system or were not WTO members like China and Vietnam or basically largely played by GATT rules rather than the WTO rules. [Rodrik, 2004, p. 82]

What this implies is that LDCs require more room or policy space for experimenting different and flexible institutional measures for industrialization, even if the measures happen to conflict with WTO rules. In other words, LDCs should be able to have priorities in specific development policies over WTO disciplines in pursuit of their industrialization program. This is precisely the prerequisite to undertake an industrial policy under the WTO regime. An industrial policy addresses not only market access (the demand side), but also the long term supply capacity and competitiveness problems of a developing economy.

Currently, the WTO rules are far from settled; the Doha declaration confirmed that all pre-Seattle agreements are subject to renegotiation and that all provisions for LDCs would be reassessed to make it more effective in light of the problems they encountered in the past. [WTO, 2003] If so, there is ample opportunity for implementing a successful industrial policy under the WTO regime. Under the current setting of the WTO rules, however, implementing an industrial policy is likely to face strong challenges manifested not only in the form of high implementation costs but also technical implementation difficulties.

So, how should Ethiopia implement an industrial policy program should it decide to join the WTO sooner than later - for non-economic reasons or otherwise? As part of the World Bank/IMF led Orthodox SAP, a number of macroeconomic and trade liberalization policies was undertaken, including significant reduction of tariffs and removal of non-tariff barriers. The unweighted average tariff rate is in the order of 17.5 percent while the maximum is about 35 percent. [WB, 2003] Some argue that Ethiopia has reduced its tariffs substantially and "has already undertaken reforms that are consistent with WTO rules and disciplines such as non-discrimination and reduction of quantitative restrictions to less than 2 percent of imports", which could bring about earlier benefits when it joins the WTO. [WB, 2003, p. 7]

The benefits are expected to emanate mainly from access to well developed markets based on the principle of reciprocity. However, there are a number of issues that raise doubts about the possible benefits. The first is that, even disregarding the barriers to market access noted in the preceding paragraphs, is market access the fundamental

(or even a general) problem of the Ethiopian economy today? Second, even with duty free market access to well developed markets (such as the QUAD markets), Ethiopia still has to compete with many other suppliers of raw materials. Can Ethiopia competitively sell its products in these markets? Moreover, even assuming that it is competitive, how large is the gain from our pitiful export? In connection with the later, here is what Rodrik has to say regarding the gain of developing countries from the liberalization of developed countries' agricultural markets.

"But what I am dismayed by is how exaggerated the claims are about the developmental impact of agricultural liberalization. ... First of all, we know that not all developing countries are going to be net gainers from agricultural liberalization for the simple reason that not all developing countries are net exporters of agricultural products. But more fundamentally, what we have learnt from a very large number of poverty studies in microeconomic studies around the world is that poverty impact of changes in prices of agricultural products tends to be heterogeneous, uncertain, and uneven. Furthermore, what is striking is that even studies that claim that there is going to be a large poverty impact from agricultural liberalization tend to find that the impact on world prices of agricultural liberalization actually going to be quite small – of the order of 3 to 5 percent of increases in agricultural prices." [Rodrik, 2004, p. 80]

In the Ethiopian context, there are even more limiting factors. In light of the frequently recurring drought, Ethiopia's experience demonstrated that it cannot regularly supply a given volume of agricultural goods to the export markets. Moreover, with many suppliers of agricultural raw materials to limited markets, substantial price increases is unlikely to happen, particularly in the short run. In fact, what we have witnessed in the past were uncertainties and significant price fluctuations. So, the short term gain from a hasty marriage with the WTO would be insignificant, while the burden of closing down industries as a result of further liberalization and competition in the domestic market (as demonstrated since the second half of the 1990s) and ensuing deindustrialization and deepening poverty would be unbearable. Moreover, "... since other countries who are members of the WTO extend concessions to all on most favored nation basis, Ethiopia could "free-ride" to gain access to markets without having to meet WTO obligations", [WB, 2003, p. 8] at least for agricultural and leather sector products, which constitute most of Ethiopia's export bundle.

Therefore, relatively better benefits would arise through buying time to launch and proceed with the restructuring process of the economy so as to enable it acquire, at least, a better shock absorptive capacity, if not a strong competitive status. The first

thing to do in this regard is to design an appropriate industrial policy (see following chapters) and make necessary institutional changes towards its implementation. In this context, readjusting the tariff structure in line with what the industrial policy demands, specifically in line with the promotional measures to be undertaken for selected industries, would be an important task. By and large, this is likely to require raising tariffs to some extent to protect selected industries. It should be underlined that at this juncture, i.e., during the process of accession (i.e., before joining the WTO), not only that Ethiopia has the right to readjust the tariffs in any direction, but it is also logical in that it will be a basis to negotiate for the maximum period that could be granted for the transition period.

It should also be emphasized that long-enough period should be given for the accession process. This is so because the WTO rules are not only about trade per se. The WTO regime is so intrusive that there is literally no domestic policy area that it doesn't intervene. Its influence is felt in every policy making area critical for the socio-economic development process. Moreover, membership demands all obligations to be taken as a single undertaking, as a package rather than selectively in pieces. This, therefore, necessitates detailed studies of its content and possible impact on the economy over the coming years. Longer period also allows the industrial policy to take firm root. In addition to this, such study would also help to further retune the industrial policy framework and make it more compatible, as far as it could go without fundamentally changing the objectives, with the rules and demands of the WTO regime.

Ethiopia should also demand the maximum period possible which could be allowed for the transition period. As noted above, little (if any) would be gained in the short run. It is the long run benefit that matters most. The Diagnostic Trade Integration Study confirms that "... there would not be an immediate benefit except to signal to international community that Ethiopia's trade regime is bound to the international rules of the game." [WB, 2003, p. 7] The transition period will also give it a breathing space to promote its industries with relatively less pressure from the WTO.

Lastly, even undertaking a well planned industrialization program, it is obvious that Ethiopia would remain in the least developed category - perhaps for more than a decade or so from now. It should exploit whatever provisions are available for least developed countries to promote its industrialization program.

To reiterate, given the current stage of development of the country, neither trade is the fundamental development constraint, nor market accesses is more beneficial than policy space. And the later, policy space, is not the main concern of the WTO. It is, therefore, logical for the country to focus on what matters most, addressing the supply side problem - supply capacity and industrial efficiency. This calls for undertaking a deliberately initiated industrial policy aiming at the long term development of the economy. Joining the WTO now for short-term political benefits is likely to deepen further, as it did in another country, the economic crisis in the country.

6. *Concluding remark*

According to proponents of a rule based international trading regime, the main advantage of trade liberalization under WTO for developing countries is not only with market access but also “security of market access” by subjecting the trading partners to established and agreed procedures. While access to markets could contribute to export expansion, and thus to exports proceeds, the security of market access could reduce uncertainty and risks involved in exporting to developed countries, thereby preventing arbitrary decisions by member countries. The reduction in risk, in turn, would contribute positively to the process of decision-making and planning for investment in production and export capacity. Experience, however, shows that developing countries have not benefited from the multilateral trading regime. This created increased uncertainty, and therefore risks, of market access for main exports of interest to developing countries.

Developing countries are under pressure to liberalize rapidly. But time and assistance to support their industries to become efficient is badly needed. The result of the pressure to liberalize rapidly and sharply, particularly in least developed countries, has been very slow industrialization, the closing down of existing industries without any replacement, with severe unemployment as a consequence, low income, social deprivation and marginalization. In most of these countries some simple processing of raw materials has been encouraged; otherwise, they became locked in production and exports of primary commodities. [Shafaeddin, 2000a]

It is therefore obvious that WTO rules pose significant barriers and constraints to the design and employment of domestic industrialization policies in late industrializing countries. Despite such challenges, however, there are ways and means, within and

without WTO rules, for adopting an industrial policy, appropriate and specific for a given developing economy.

Firstly, WTO rules provide some policy space to developing countries, particularly least developed countries, in the form of extended time for adjustment and exemption from certain challenging commitments, though such transition periods are said to be inadequate.

Secondly, as decided in the Doha declaration, all agreements are subject to further studies and renegotiations. It should be underlined that the prime and central objective of developing countries is industrialization, and not trade. As extensively discussed earlier trade is a means of attaining industrialization, and not an end by itself. WTO rules should necessarily confirm to the development needs of developing countries, and it is up to developing countries to see to it. The WTO regime is an evolving system. Its characteristics will be determined only with the accumulation of precedents overtime, because as in any other legal system, its principles are stated in general terms and therefore need to be actively interpreted.

Thirdly, the existence of WTO rules should not be an argument against using appropriate industrial policy. These rules need to be revised and changed to aim at achieving a fair trading system in which the differential situation of countries at various stages of development should be taken into greater consideration. The experience of IMF/WB led SAP – the one size fits all adjustment formula – is a vivid lesson that externally tailored development strategy may not reduce poverty, let alone promote industrialization.

Finally, membership in such multilateral trading organizations at the current level of industrialization comes with more costs than benefits. It has been underlined that neither trade is a prerequisite for industrialization nor lack of market is Ethiopia's major development constraint. It should also be emphasized that the industrialization process of all developed and newly successfully developing countries had been carried out outside the GATT/WTO rules. Therefore, Ethiopia should take all the time it could to put its industries in-order, i.e., with greater shock resistance, more productive and competitive, before it becomes committed member of the WTO. More time for negotiation before accession, detailed study of the pros and cons of joining the WTO with relatively higher tariff rate on goods produced at home less competitively, detailed study of the benefits and costs of developing countries that are

already members of the WTO, request for the maximum transition period possible, carefully study and exploit fully all the special provisions available for LDCs, etc. Specifically, the country must make sure that it is in a position to exploit the opportunities, rather than pay undue price by joining earlier and unprepared. The case of a developing country, a member of the former Soviet Union, which joined the WTO for would be political gain, but now suffering from the economic consequences, should be a good lesson for Ethiopia.

SUMMARY AND CONCLUSION TO PART TWO

Preceding chapters have shown that industrialization in Ethiopia is still in an incipient stage. The promising policy drive of the imperial regime focused on natural resource based agro- industries, along with agriculture, human resource developments and infrastructure as priority areas in resource allocation through the traditional instruments of monetary, fiscal and trade policies. Investment in manufacturing was directed towards creating high input-output linkages with agriculture, i.e., employing agricultural inputs as well as producing agricultural implements, though the success with respect to the latter objective was limited.

Underlying the lack of capital and entrepreneurial skill, a package of incentives was designed to promote private domestic and foreign investment. The incentives include a five year income tax holiday, exemption from import duty on machinery and equipment and building materials, income tax exemption, remittance of profit in the form of dividends and interest payment and gradually taking out the full amount of capital investment upon a specified period of time. Foreign exchange was also allowed for repayment of foreign private credits and foreign purchases.

Foreign investors were further permitted access to domestic loans to buy real estate for establishing industries. Similarly, foreign workers were permitted to remit their savings in foreign exchange.

Trade policy was actively employed to encourage import substituting industries. To cushion the adverse effects of international coffee price volatility on the balance of payments and to protect local industries, the government continued to control imports. A drawback system to encourage exports was also made operational. The policy package in general was instrumental for motivating both domestic and private investment in manufacturing and other sectors of the economy. Most of the enterprises that are operating in the country today were established during the Imperial era.

However, the imperial strategy was not without weaknesses. In addition to the land policy, it failed to deliberately promote exports. Also, as noted above, though a favorable policy package to introduce and advance the development of a modern economy was in place, there was not any deliberately drawn and explicitly specified industrial policy framework to accelerate industrialization in the country.

With the emergence of the socialist Derg, the development strategy fundamentally changed, introducing a new institutional setting – state ownership of land and other assets and the marginalization of the private sector, among others, which are the root causes of today's unprecedented poverty and very weak industrialization drive in the country.

With the private sector marginalized, the growth of the manufacturing sector was left to the state whose capacity to develop a modern and efficient industrial sector on its own was highly limited. Even within the highly state-centric economic structure of the modern sector of the economy, industry was not given due importance. The military government, nevertheless haphazardly, established a few state owned large firms, such as a cement industry, a tractor assembly plant, large-scale engineering firms, etc, but with little impact on the growth of the sector, let alone stimulate the economy in general.

The overarching development strategy of the regime currently in power is reflected by the Agricultural Development Led Industrialization strategy (ADLI), which has a close

similarity with the socialist version, with the minor difference that the former is expressed in the context of a hybrid market economy environment. Growth in agricultural productivity, through increased application of technical inputs, is expected to create a high demand for manufactured goods, which in turn motivates expansion in production capacity utilization and investment in manufacturing. But unlike the socialist scenario, it is private investment – domestic and foreign - that is expected to materialize as the economy is operating under a free market environment. Industrialization, therefore, is inherent to the system, and hence under this scenario too, industrial policy is not required.

Under both scenarios, agricultural growth would be achieved with little investment – mainly with adequate technical inputs only. But the application of technical inputs in a rain-fed agricultural system, particularly in light of a rapidly encroaching desertification in the country, is a highly risky venture. This is precisely what has been demonstrated by the results where agriculture failed to meet expectations while the environment deteriorated.

Therefore, the institutional framework, which denied farmers their livelihood security by the state ownership of land and the risk-prone rain-fed agriculture amid a high rate of population growth, led to a declining per capita production and income. Hence, agriculture, which was expected to generate a high real income and induce industrialization turned out to be less successful. The strategy of both regimes (i.e., induced industrialization through the trickling down effect of agricultural growth) failed to materialize in practice.

Another important element of the development strategy is related to foreign investment. The socialist regime, operated in a hostile western environment. Hence, neither foreign investment nor loans or aid were available to support the development program. On the other hand, the effort of the present government to trigger economic growth by undertaking externally driven strategies, such as SAP, failed to induce any appreciable foreign investment, except loans and aid. Apart from the institutional setting discussed above, poor infrastructure, lack of neutrality in economic management, and most of all ethnic based governance, kept private business

confidence low and deteriorating. Hence, both domestic and foreign investment remained lacking to a great extent.

The regime in power reinstated the role of the private sector in the economy. Some manufacturing enterprises have been privatized. External trade and financial policies were also partially liberalized and markets deregulated. The domestic currency was substantially devalued and forced to depreciate further, gradually. Incentives to encourage exports are also undertaken, including introducing a duty drawback system, export credit guarantee scheme, foreign exchange retention scheme, etc., though implementation obstacles still remain. Moreover, provision of export support services is initiated. On the other hand, all forms of subsidies were removed under the principle of free market economic management.

Despite such pro-market policies, however, some of the Derg's central economic policies are simultaneously still kept intact. In addition to state ownership of land and nationalized urban houses, the government also controls some strategic industries, such as large-scale engineering, metallurgy, communications, power and pharmaceuticals.

The structural adjustment program, which exclusively focused on macroeconomic policies, has limited short term benefits (even if it was successful). What is more, it was also devoid of any noticeable impact on the real sector of the economy, since its linkage with economic sectors and individual economic agents at the micro level is weak.

On the other hand, the exclusive focus of development on agriculture is self defeating as it requires the simultaneous growth of industry and services to sustain its initial growth and eventual transformation. Thus, with little impact of the adjustment program to generate supply side response to kick-start growth in the non agricultural sectors, and the crisis in the agricultural sector despite the official bias in its favor, the current strategy followed by the government to achieve long term development seems to be in a limbo. Clearly, that has generated some kind of a re-thinking about future directions as the recent high level discussion on industrialization indicates. [FDRE, 2002] What is, however, commonly missing in all these programs and policies is a comprehensive and visionary development perspective, which could interactively

address the problems in all sectors of the economy and meet the longer-term objectives of achieving high employment level and a rising standard of living.

As already shown by the preceding chapters, on all accounts, the manufacturing sector is too small and underdeveloped. Its structural linkages with other sectors of the economy, and within itself are lopsided and unbalanced. Within manufacturing, the structure of the industries is highly skewed. It is largely dominated by industries producing goods for domestic consumption, with underdeveloped intermediate and largely missing capital goods industries. As a result, it is heavily dependent on imports for intermediate inputs and capital goods.

In terms of investment allocation, it is the least prioritized sector. For more than a decade investment in manufacturing has been quite small. As a result, updating existing technologies and introducing new ones were limited. Investment was not only low, but also uneven or unbalanced across industries. The large proportion of investment went for consumption goods industries. Strategic and high-linkages creating industries received relatively low proportion of the resources.

Hence, in light of the unbalanced and dependent structure as well as technological backwardness of industries, along with unskilled labor force, productivity and efficiency of the manufacturing sector is inevitably low. For more than a decade, total factor productivity and efficiency in most firms have been declining. As evidenced recently with the opening up of the economy to foreign competition, and the substantial reduction of tariff rates, many firms were closedown, while a large majority of them are forced to operate at very low capacity. On aggregate, the sector is currently operating at half of its maximum potential.

It is an accepted truism that markets failure, particularly in developing countries, is deep rooted and pervasive, thereby limiting the application of reform programs based on the neoclassical growth theory and industrialization. The outcome of the IMF-WB led reform programs in Africa, over the last two decades, proved this unequivocally. It is also evident, contrary to the prevailing wisdom of comparative cost theory, that no country ever industrialized based on free market principles of resource allocation and international trade. Lessons from countries' industrialization experiences demonstrate that international trade is not a prerequisite for industrialization/development, it is rather an outcome. The history of industrialization also reveals that all industrialized nations opened up their domestic markets for international trade at later stages, after

economies achieved some degree of industrial growth and progress. This is so because the costs of opening up the economy earlier are much higher than the benefits. Ethiopia's accession to the WTO should, therefore, be seen in this perspective. Little would be gained, compared to the cost burden that would be incurred, from joining the WTO unprepared.

The analysis on the state of the manufacturing sector underscored the fact that hitherto pursued policies by all regimes failed to induce industrial growth in the country. Therefore, the need for an industrial policy in Ethiopia is a long overdue issue.

Countries' experiences have shown that a successful industrialization necessitates the conscious and active role of the state to counterbalance the impact of markets failure and to guide, coordinate and support industrial investment and entrepreneurial activities.

Given the critical constraints and problems of the manufacturing sector, industrial policy in Ethiopia needs to achieve, at least, four closely interdependent objectives. It includes, creating a more complete structural linkage between manufacturing and agriculture, creating an internally balanced manufacturing sector, enhancing the productivity and efficiency of firms and developing dynamic comparative advantages of the industries

In light of the wide ranging problems and constraints that most firms are facing on the one hand, and the large resources (financial and human) required for supporting these firms on the other, there is no alternative, except making interventions selectively and sequentially, based on a set of priorities. Accordingly, during the first phase of the industrialization program, promotion should focus on agricultural inputs and implements producing industries, intermediate and capital goods industries, import cost reducing industries, exporting industries, strategic industries, efficient and innovate firms.

It should be underlined that promotional measures need to be comprehensive. In other words, selected firms should be given investment, financial, technological, production, marketing and other related supports. One without the other may be ineffective, even counter productive.

As industrialization is largely developing knowledge based technological capabilities – involving technologically advanced hardware and technically skilled labor force - and as these are the critical elements that most Ethiopian manufacturing industries are lacking, the focus of industrial policy should be mainly on moving from simple labor intensive processing and assembly activities to technologically leading strategic manufacturing activities. In this context it should be underlined that this was the pattern pursued by most industrialized economies.

A unique feature of industrial policy is that the incentive structure is largely market based which would allow more flexible implementation, besides ensuring greater market responsiveness. Such an incentive structure also creates new markets. Promotional measures are not for free; they demand specified and measured outcomes in a defined period of time. Enterprises which would be entitled to benefit from the rewards of success must also share the costs of failure. This is the mechanism which eventually ensures efficiency and competitiveness. In this context performance requirements should be, as far as possible, simple, transparent, attainable, and measurable.

In light of the central role of manufacturing for creating sectoral linkages, policies designed for the manufacturing sector also affects other sectors. This implies that the industrial policy inevitably influences other sectoral and macro policies. For the industrial policy to be effective, therefore, there is a need to retune macro and sectoral policies in line and consistent with the industrial policy in place.

As with markets there are degrees of failure and success with governments. As administering an industrial policy is a prolonged and an involved task, it would inevitably involve ups and downs. Moreover, the process of capability building often takes time. But this does not mean that the government should not undertake such a program. Capability can be, and have often been, built rather quickly as there is always the opportunity of learning by doing in administration/management as in production or service provision. Institutions are subject to imitation and innovation. For a successful industrialization, however, it is a prerequisite for the government to clean all corrupt practices and sectional interest in favor of national economic development.

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Annex A: Calculating Commodity Concentration and Geographic Concentration Indices

1. The Commodity Concentration Index (*CCI*)

The Gini-Hirschman coefficient is used to calculate this index and is given as

follows.
$$CCI = 100 \sqrt{\sum_{i=1}^n \left(\frac{X_i}{X}\right)^2}$$

Where; CCI = Commodity Concentration Index

X_i = The Value of exports of commodity i to the rest of the world

X = The Total Value of Exports in the same period

n = Total number of commodities exported

2. The Geographic Concentration index (*GCI*)

This index of trade direction is computed as:

$$GCI = 100 \sqrt{\sum_{y=1}^z \left(\frac{X_y}{X}\right)^2}$$

Where; GCI = Geographic Concentration Index

x_y = The Value of exports to country y

X = The Total Value of Exports in the same period

Z = Number of trade partners

Source: Birhanu Lakew (2002), Economic Research Department, National Bank of Ethiopia

REPORT ON THE ETHIOPIAN ECONOMY

Annex B.1: Estimates of agricultural production, area and yield of major crops by region, *mehr* season.

YEAR	CROP	MAJOR CROPS AND PERFORMANCE INDICATORS											
		Cereals				Pulses				Oil crops			
		Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)	Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)	Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)
			Total ('000 quintal)	Per capita (Kg./person)			Total ('000 quintal)	Per capita (Kg./person)			Total ('000 quintal)	Per capita (Kg./person)	
2000/01	Tigray	535.19	5,494.5	144.71	10.27	60.78	575.1	15.15	9.46	38.73	162.71	4.29	4.20
	Amhara	2,644.91	27,513.9	164.28	10.40	560.09	4,513.2	26.94	8.06	254.37	1,011.3	6.04	3.98
	Oromia	3,300.21	45,784.5	198.86	13.87	440.89	4,377.2	19.01	9.93	234.47	1,104.0	4.80	4.71
	SNNPR	904.75	11,533.5	89.39	12.75	161.94	1,191.0	9.23	7.35	6.12	24.6	0.19	4.02
	Afar	26.84	74.4	5.99	2.77	1.54	-	-	-	0.88	-	-	-
	Somalia	57.95	443.2	11.67	7.65	0.88	4.0	0.32	4.55	*	*	*	*
	Benishangul Gumuz	129.99	1,578.5	286.47	12.14	5.09	40.2	7.30	7.80	37.34	142.5	25.86	3.82
	Gambella	13.44	301.6	139.6	22.44	*	*	*	*	6.12	*	*	*
	Harari	6.40	50.1	30.18	7.83	0.09	0.32	0.19	3.56	1.19	7.34	4.42	6.17
	Addis Abeba	9.52	117.8	4.58	12.37	2.05	29.4	1.14	14.34	0.11	0.69	0.03	6.28
Dire Dawa	7.45	68.4	20.73	9.18	0.51	5.15	1.56	10.10	0.06	0.37	0.11	6.17	
2001/02	Tigray	462.53	5,770	147.87	12.47	42.71	433.0	11.10	10.14	30.63	175.45	4.50	5.73
	Amhara	2,216.03	27,144	157.70	12.25	488.18	4,920.2	28.58	10.08	176.21	849.38	4.93	4.82
	Oromia	2,911.62	44,260	186.67	15.20	363.96	3,780.7	15.94	10.39	188.39	908.39	3.83	4.82
	SNNPR	575.66	7,273	54.67	12.63	108.56	964.6	7.25	8.89	3.37	11.31	0.09	3.36
	Afar	8.29	75	5.90	9.05	0.1	0.3	0.022	3.00	0.14	0.75	0.06	5.36
	Somalia	57.04	714	18.31	12.52	1.35	6.3	0.16	4.67	0.49	2.37	0.06	4.84
	Benishangul Gumuz	103.94	1,390	245.84	13.37	6.68	60.4	10.68	9.04	25.24	120.39	21.29	4.77
	Gambella	7.88	144	65.12	18.27	0.12	0.7	0.32	5.83	0.34	0.99	0.45	2.91
	Harari	4.62	44	25.55	9.52	0.025	0.13	0.08	5.20	1.25	12.07	7.01	9.66
	Addis Abeba	16.08	164	6.08	10.20	4.89	43.7	1.62	8.94	0.01	*	*	*
	Dire Dawa	6.43	89	25.99	13.84	0.2	2.14	0.63	10.70	0.03	0.22	0.06	7.33

Source: Computed based on data obtained from CSA's various agricultural sample surveys.

Annex B.1 continued...

YEAR	CROP	MAJOR CROPS AND PERFORMANCE INDICATORS											
		Cereals				Pulses				Oil crops			
		Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)	Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)	Area cultivated ('000 ha.)	Production		Yield (Qt./ha.)
			Total ('000 quintal)	Per capita (Kg./ person)			Total ('000 quintal)	Per capita (Kg./ person)			Total ('000 quintal)	Per capita (Kg./ person)	
2002/03 (Forecasted)	Tigray	487.88	4,380.21	109.18	8.98	48.67	357.39	8.91	7.34	30.31	195.88	4.88	6.46
	Amhara	2,216.03	18,863.76	106.62	8.51	496.48	3,531.00	19.66	7.11	181.60	736.95	4.17	4.06
	Oromia	2,900.88	32,823.24	134.41	11.31	381.01	3,304.10	13.53	8.67	226.81	873.48	3.58	3.85
	SNNPR	502.34	5,261.68	38.36	10.47	119.05	917.97	6.69	7.71	2.08	6.32	0.05	3.04
	Afar	6.54	37.95	2.92	5.80	0.71	1.78	0.14	2.51	0.21	0.80	0.06	3.81
	Somalia	63.02	506.96	12.66	8.04	0.81	3.75	0.09	4.63	0.54	1.39	0.03	2.57
	Benishangul Gumuz	109.19	1,390.29	240.00	12.73	9.29	70.08	12.08	7.54	30.77	139.85	24.11	4.55
	Gambella	7.02	144.05	63.64	20.52	0.06	*	*	*	0.37	0.76	0.34	2.05
	Harari	5.52	43.86	24.55	7.95	0.02	0.07	0.04	3.50	1.45	9.86	5.52	6.80
	Addis Abeba	18.85	163.77	5.99	8.69	5.02	44.46	1.63	8.86	0.03	0.05	0.00	1.67
2003/04 (Forecasted)	Dire Dawa	6.46	89.10	25.07	13.79	0.30	0.78	0.22	2.60	0.05	0.16	0.04	3.20
	Tigray	514.24	7,761.83	188.22	15.09	39.73	456.41	11.07	11.49	35.37	247.25	5.60	6.99
	Amhara	2,328.45	28,576.75	157.15	12.27	454.24	4,471.96	24.59	9.84	207.52	1,060.08	5.83	5.11
	Oromia	3,198.11	56,561.36	224.89	17.69	312.40	4,042.89	16.07	12.94	291.86	1,529.97	6.08	5.24
	SNNPR	636.74	8,138.06	57.55	12.78	129.39	1,096.23	7.75	8.47	3.30	6.32	0.04	1.92
	Afar	8.23	101.08	7.61	12.28	0.41	2.23	0.17	5.44	36.62	*	*	*
	Somalia	67.91	928.16	22.58	13.67	1.38	7.49	0.18	5.43	0.13	0.62	0.02	4.77
	Benishangul Gumuz	108.83	1,544.34	259.43	14.19	8.02	9.51	1.60	1.19	36.32	237.08	39.83	6.53
	Gambella	8.40	159.59	68.87	19.00	0.10	0.48	0.21	4.80	0.89	2.42	1.04	2.72
	Harari	6.34	65.82	35.50	10.38	0.02	*	*	*	1.61	15.45	8.33	9.60
	Addis Abeba	19.56	205.22	7.29	10.49	1.52	14.10	0.50	9.28	0.03	*	*	*
	Dire Dawa	6.88	126.96	33.17	18.45	0.27	3.39	0.89	12.56	0.05	0.39	0.10	7.80

Source: CSA: Various Agricultural Sample Surveys. CSA use asterisks (*) to indicate unreliable estimates

Annex B.2: Estimates of agricultural production area and yield of major cereals for private peasant holdings

YEAR	CROP	PERFORMANCE INDICATORS			
		Area cultivated (⁰ 000 ha.)	Production		Yield (Qt./ha.)
			Total (⁰ 000 quintal)	Per capita ¹¹⁵ (Kg./person)	
1999/00 (1992 E.C.)	Tef	2,123.5	17,175.6	27.05	8.1
	Barely	794.1	7,419.3	11.68	9.3
	Wheat	1,025.0	12,126	19.10	11.8
	Maize	1,407.3	25,254	39.77	17.9
	Sorghum	995.4	11,811	18.60	11.9
	Total	6,345.30	73,785.90	116.21	11.63
2000/01 (1993 E.C.)	Tef	2,182.5	17,369.00	26.58	7.69
	Barely	874.0	9,454.3	14.47	10.82
	Wheat	1,139.7	15,711.6	24.04	13.79
	Maize	1,719.7	31,384.5	48.03	18.25
	Sorghum	1,332.9	15,382.8	23.54	11.54
	Total	7,248.8	89,302.0	136.66	12.32
2001/02 (1994 E.C.)	Tef	1,818.4	16,273.2	24.18	8.95
	Barely	771.5	9,319.1	13.85	12.08
	Wheat	1,005.0	14,444.3	21.46	14.37
	Maize	1,323.0	28,002.1	41.61	21.16
	Sorghum	1,132.5	15,462.1	22.98	13.65
	Total	6,050.4	83,500.8	124.08	13.8
2002/03 (1995 E.C.) (Forecasted)	Tef	1,931.09	14,196.10	20.51	7.35
	Barely	788.69	6,899.68	9.97	8.75
	Wheat	997.72	10,721.45	15.49	10.75
	Maize	1,191.43	17,880.31	25.83	15.01
	Sorghum	1,071.96	10,397.99	15.02	9.7
	Total	5,980.89	60,095.53	86.83	10.04
2003/04 (1996 E.C.) (Forecasted)	Tef	1,908.46	18,986.94	26.65	9.94
	Barely	938.04	11,472.01	16.10	12.23
	Wheat	1,085.84	17,570.21	24.66	16.18
	Maize	1,403.25	30,713.48	43.11	21.89
	Sorghum	1,264.93	21,144.05	29.68	16.72
	Total	6,600.52	99,886.69	140.19	15.13

Source: Computed based on CSA's various agricultural sample survey reports.

¹¹⁵ Calculated based on the estimated total population of 63,495,000, 65,344,000 and 67,220,000 in 1999/00, 2000/01 and 2001/02 respectively.

Annex B.3: Area, fertilizer consumption and yield levels of major cereals in the past 22 years.

Year	Total land cultivated (million hectare)	Total fertilizer consumed (thousand ton)	Yield of cereals (qt./ha)	Estimated fertilizer consumption ¹¹⁶ (Kg./ha.)
1980	4.68	43.3	11.90	9.26
1981	4.57	31.1	11.64	6.81
1982	4.97	31.7	13.37	6.37
1983	4.69	45.1	11.52	9.61
1984	4.34	46.9	8.83	10.8
1985	4.52	24.1	9.77	5.34
1986	4.75	83.3	11.8	17.55
1987	5.00	121.3	12.17	24.2
1988	4.85	129.5	11.73	26.7
1989	4.82	129.5	12.65	26.9
1990	4.30	145.7	12.99	33.9
1991	4.26	147.0	11.56	34.5
1992	3.95	152.7	13.05	38.7
1993	5.29	107.5	9.66	20.3
1994	6.45	190.0	9.07	29.5
1995	7.39	246.7	12.20	33.4
1996	6.69	253.2	13.55	37.8
1997	6.31	220.4	11.44	34.9
1998	6.74	281.4	11.39	41.7
1999	6.75	290.3	11.47	43.0
2000	7.64	297.9	12.17	39.2
2001	6.37	279.6	13.67	43.9
2002	6.32	232.3	10.04	36.8
2003	6.96	264.3	14.97	37.9

Source: CSA's various agricultural sample surveys and data obtained for this report from the Agricultural Inputs Authority.

¹¹⁶ Estimated fertilizer consumption is computed by dividing total fertilizer consumed in the country to land cultivated by the five major cereal crops which accounted on average for 81% of the total area covered by food crops (cereals, pulses and oil crops) which in turn account for over 90% of the total area covered by temporary or permanent crops. Even though the estimated data shows the trend in the rate of fertilizer use, it may slightly overestimate the actual use. Data on the rate of fertilizer application by crop type is not available.

Annex B.4: Comparison of CSA's and FAO/WFP data on the performance of the food crop (cereals and pulses) sector
1. CEREALS

Crop year		Tigray		Amhara		Oromia		SNNPR	
		CSA	FAO	CSA	FAO	CSA	FAO	CSA	FAO
2003/04	Area (000 ha)	514.24	761.3	2,328.45	2,993.0	3,198.11	4,409.0	636.74	1,194.0
	Prod (000 qt)	7,761.83	6,983	28,576.75	37,500	56,561.36	56,730	8,138.06	14,520
	Yield (qt./ha)	15.09	9.17	12.27	12.53	17.69	12.87	12.78	12.16
2002/03	Area (000 ha)	487.88	691.6	2,216.03	3,212.3	2,900.88	4,274.9	502.34	1041.1
	Prod (000 qt)	4,380.21	4,273	18,863.76	27,602	32,823.24	38,037.0	5,261.68	9,733
	Yield (qt./ha)	8.98	6.18	8.51	8.59	11.31	8.90	10.47	9.35
2001/02	Area (000 ha)	462.53	722.6	2,216.03	3,306.6	2,911.62	4,418.6	575.66	1,104.4
	Prod (000 qt)	5,770	6,372	27,144	35,455	44,260	53,256.0	7,273	12,463
	Yield (qt./ha)	12.47	8.82	12.25	10.72	15.20	12.05	12.63	11.28
2000/01	Area (000 ha)	535.19	827.4	2,644.91	3,301.9	3,300.21	4,308.9	904.75	1,104.1
	Prod (000 qt)	5,494.5	6,679	27,513.9	37,920	45,784.5	56,679.0	11,533.5	14,498
	Yield (qt./ha)	10.27	8.07	10.44	11.48	13.87	13.15	12.75	13.13

Source: CSA's various agricultural sample surveys and FAO/WFP (2004).

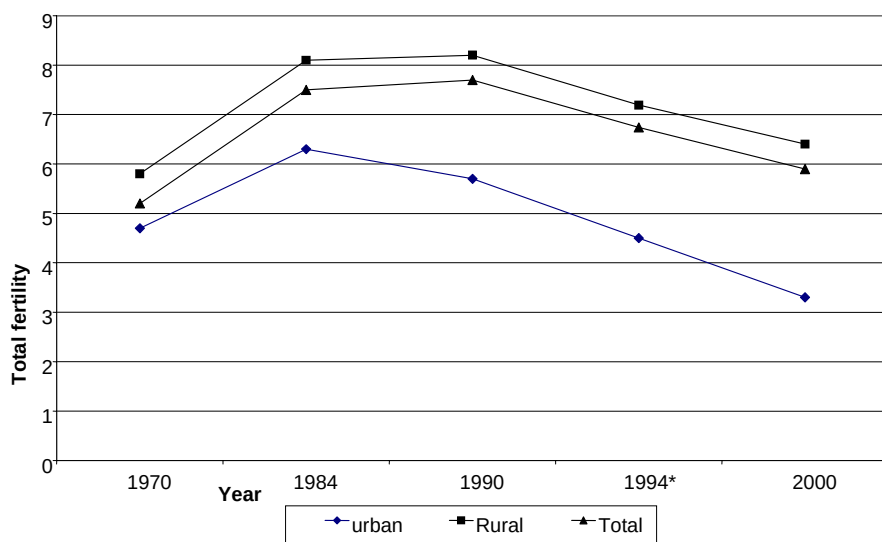
Annex B.4 continued...

2. PULSES

Crop year		Tigray		Amhara		Oromia		SNNPR	
		CSA	FAO	CSA	FAO	CSA	FAO	CSA	FAO
2003/04	Area (000 ha)	39.73	53.5	454.24	582.0	312.40	578	129.39	192
	Prod (000 qt)	456.41	279	4,471.96	6,280	4,042.89	4,090	1,096.23	1,420
	Yield (qt./ha)	11.49	5.21	9.84	10.79	12.94	7.08	8.47	7.40
2002/03	Area (000 ha)	48.67	41.8	496.48	683.1	381.01	609.6	119.05	169.6
	Prod (000 qt)	357.39	142	3,531.00	3,605	3,304.10	2,867	917.97	977
	Yield (qt./ha)	7.34	3.40	7.11	5.28	8.67	4.70	7.71	5.76
2001/02	Area (000 ha)	42.71	47.3	488.18	655.6	363.96	607.7	108.56	176.6
	Prod (000 qt)	433.0	246	4,920.2	4,244.0	3,780.7	4,162.0	964.6	1,293
	Yield (qt./ha)	10.14	5.20	10.08	6.47	10.39	6.85	8.89	7.32
2000/01	Area (000 ha)	60.78	50.5	560.09	655.5	440.89	582.7	161.94	193.5
	Prod (000 qt)	575.1	252	4,513.2	4,279	4,377.2	4,133.0	1,191.0	137.9
	Yield (qt./ha)	9.46	4.99	8.06	6.53	9.93	7.09	7.35	7.13

Source: CSA's various agricultural sample surveys and FAO/WFP (2004).

Annex D.1: Fertility trends in Ethiopia 1970-2000



Source: Asfaw Yitna (2004)

Annex D.2: Table Regional Distribution and Density of Ethiopian Population: 2003

Region	Total Population In thousands	Total Area in square km	Pop/Sq. KM
Tigray	4,006	50,079	80
Affar	1,301	85,107	15
Amhara	17,672	159,173	111
Oromia	24,395	353,007	69
Somali	4,000	261,952	15
Benishangul	580	49,289	12
SNNP	13,686	112,343	122
Gambella	228	25,802	9
Harari	178	311	572
Addis Ababa	2,725	530	5,142
Dire Dawa	357	1,213	294
Total	69,128	1,098,806	63

Source: Daniel Assefa (2004)

Annex D.3: Age structure of the population of Ethiopia (%)

Year	Under 15 years	15-64	65 and above	Dependency ratio		
				Young	Elderly	Aggregate
1970	45.3	51.5	3.2	88.0	6.0	94.0
1981	45.5	51.0	3.5	89.0	7.0	96.0
1984	48.1	47.1	4.8	101.9	9.2	111.1
1990	50.0	43.8	6.2	114	14.0	128.0
1994	45.4	51.4	3.2	83.8	6.6	90.4
2015	56.8	40.3	2.9	70.8	5.1	75.9

Source: MEDaC, 1999; NOP, 2003

Annex D.4: Infant mortality rate and life expectancy at birth, 1970 - 2000.

Year of Survey	Infant mortality			Life expectancy	
	Rural	Urban	Total	Rural	Urban
1970	135.0	134.0	153.0	43.8	45.0
1981	141.0	117.0	139.0	46.5	50.8
1984	112.0	94.0	110.0	51.7	55.06
1990	111.6	94.2	110.1	53.2	56.7
1994	121.0	98.0	116.0	51.7	55.1
2000	115.0	97.0	97.0	-	-

Source: MOPED (1994:95), CSA (1999), CSA and Macro International (2000)

Annex D.5: Projected primary and secondary school age population 1995-2030

Year	Primary school age projected population aged 7-14 in '000'	Secondary school projected population aged 15-18 in '000'
1995	11,827	4,977
2000	12,883	5,726
2005	14,754	6,366
2010	17,710	6,803
2015	19,139	8,780

2020	20,618	9,313
2025	21,771	10,152
2030	22,592	10,748

Source: CSA (1999:314)

Annex D.6: Technical note on modeling demographic change-economic growth nexus

The Income sub-model

The specification of the growth model follows that of the neoclassical model but augmented with demographic variables. Following the standard specification, growth models assume the following Cobb-Douglas technology,

$$Y_t = A_t K_t^\beta L_t^{1-\beta} \quad (1)$$

where Y is total output; K denotes capital; L represents labour; A is total factor productivity (TFP); β is the elasticity of output with respect to capital. In the conventional Solow growth models, TFP is assumed to be exogenously determined and capital accumulation tends to converge to the steady state. In the endogenous growth models, however, TFP is the result of learning-by-doing externalities and hence, it is determined within the system. Invoking the assumption that capital accumulation and TFP converge to the steady state, output per worker can be written as:

$$\left(\frac{Y}{L}\right)_t = A_t \left(\frac{K_t}{L_t}\right)^\beta \quad (2)$$

Moreover, the steady state output per worker is assumed to be determined by a set of factors, X , that may affect capital accumulation and total factor productivity such as human capital, geography, economic policy, etc. Formally,

$$y_t^* = X\psi \quad (3)$$

where y_t^* is the steady state level of output per worker and X represents a vector of variables that influence the steady state level of TFP and capital intensity. This model assumes that the actual level of income per worker slowly adjusts to the initial steady state level which can be given as:

$$r_{y_t} = \mu(y_t^* - y_t) \quad (4)$$

where r_y is growth rate of output per worker; y^* is the steady state level of income per worker; y is the actual income per worker; and μ is the speed of convergence to the steady state. Equation (4) states that a country's rate of growth is proportional to its initial level of income per worker, i.e. a country's income continuously adjusts and approaches to the steady state income per worker which is known as conditional convergence (Mankiw, Romer and Weil, 1992; Barro, 1991; Barro and Lee, 1994).

It should be noted that equations (3) and (4) provide the theoretical underpinnings of the sources of economic growth. Combining these two equations would yield the following:

$$r_y = \mu X\psi - \mu y + \varepsilon \quad (5)$$

In empirical analysis, the standard neoclassical growth equations are usually specified in per capita terms but the above equations are expressed in per worker terms. Actually, every member of the population is not a member of the work force since there are age differences within a population. That is, the entire population is composed of economically active population and inactive or dependent population. To account for age differentials, adjustments can be made from output per worker to output per capita which is given as:

$$\frac{Y}{Pop} = \frac{Y}{L} * \frac{L}{Pop} \quad (6)$$

where L is labour and the rest are as defined above. Transformation of equation (6) yields the following:

$$\tilde{y} = y + \ln\left(\frac{L}{Pop}\right) \quad (7)$$

where $\tilde{y}$ is output per capita and y is output per worker. Using equations (5) and (7), the growth rate of income per capita can be specified as:

$$r_{\tilde{y}} = -\mu\tilde{y} + \mu\ln\left(\frac{L}{Pop}\right) + \mu X\psi + n_{wp} - n_{pop} + \varepsilon \quad (8)$$

where $r_{\tilde{y}}$ is growth rate of income per capita; n_{wp} and n_{pop} denote growth rate of working age and total population, respectively. This decomposition indicates that the higher workers per capita, the greater will be the steady state income per capita in the long-run. For instance, keeping other things constant, an increase in the ratio of workers to total population leads to a decline in the dependency burden which may increase labour force participation. On the other hand, if the growth of total population has no effect on the ratio of workers to total population, the above framework predicts that there is no change in workers per capita and hence, per capita income remains unchanged. This is an over simplified assumption particularly in developing countries where the economy cannot absorb a rapidly growing labour force. Under such situations, a rapidly growing work force may affect workers per capita via diminishing capital per worker and thereby reducing output per worker. To reflect the ground realities of developing countries in general and Ethiopia in particular, the following estimable equation of the income sub-model is specified:

$$\ln\left(\frac{Y}{Pop}\right)_t = \alpha_0 + \alpha_1 \ln\left(\frac{T}{Y}\right)_t + \alpha_2 \ln\left(\frac{I}{Y}\right)_t + \alpha_3 \ln(n)_t + \alpha_4 \ln(PopD)_t + \alpha_5 \ln(LE)_t + \varepsilon_t \quad (9)$$

where $\frac{Y}{Pop}$ is per capita GDP; $\frac{T}{Y}$ is measure of openness; $\frac{I}{Y}$ is ratio of investment to GDP; n is growth rate of population and technological progress; $PopD$ is population density; LE represents life expectancy at birth; and ε is the random error term.

Population growth sub-model

In the neoclassical growth models, as discussed above, population growth rate is treated as exogenous. However, population growth is determined by the natural increase which is the difference between birth and death rates and net migration. It has been documented that fertility rates have a long-lasting effect on population growth rates. The population sub-model follows that of Rodrigo (2000) where households have a utility function that depends on consumption of goods, number of children and children's quality of life such as entertainment and food. Parents maximize this utility function subject to the constraint, i.e. in this case is a production function which in turn has income, time of parents and number and "quality of children" as arguments (Rodrigo, 2000). Following the standard microeconomic theory, changes in income have two effects: income and substitution effects. Invoking the assumption that all goods are normal, the income effect shows more number and quality of children. Similarly, under the assumption that the number of children is time-intensive, the substitution effect would imply more quality and less number of children. If substitution effect dominates the income effect, it would be straightforward to establish an inverse relationship between changes in income and population growth.

Formally, it is assumed that households have a linearly homogenous production function to produce quality of children. Given such production function, utility maximization by households can assume the following functional form:

$$\begin{aligned} \max U &= U(N, Q, Z) \\ \text{subject to} \end{aligned} \tag{10}$$

$$P_Q Q + P_N N + P_Z Z = M$$

where p_i represents the shadow price of good i ; Q is the "quality of children"; N denotes the number of children; Z stands for consumption of other goods; and M is

the total household income. Solving equation (10) yields the following demand function for the number of children which depends on prices and income of households.

$$N = N(P_q, P_N, P_z, M) \quad (11)$$

Under the assumption that the demand for children depends mainly on income implies that more income is related to larger shadow price for the number of children. Accordingly, the functional relationship expressing desired population growth rate (n^*) at time t can be given as:

$$n_t^* = \zeta_1 + \zeta_2 \ln(M_t) \quad (12)$$

Moreover, if there is a partial adjustment process in the actual population growth rate, then the observed population growth rate will be given by:

$$n_t = n_{t-1} + \phi(n_t^* - n_{t-1}) + v_t \quad (13)$$

where ϕ is the partial adjustment coefficient and v_t is the random error term which is assumed to be uncorrelated with the lagged population growth rate. Combining equations (12) and (13) gives the basic population growth equation which can be written as:

$$n_t = (1 - \phi)n_{t-1} + \phi[\zeta_1 + \zeta_2 \ln(M)] + v_t \quad (14)$$

It should be noted that the lagged population growth can be considered as exogenous in the population sub-module and the estimation is going to be carried out at national level. Hence, the specification of the population growth sub-module using the same variable used in the growth model is given by:

$$n_t = \varphi_0 + \varphi_1 n_{t-1} + \varphi_2 \ln \left(\frac{Y}{Pop} \right)_t + \nu_t \quad (15)$$

A look at equation (15) reveals that the sign of φ_1 is expected to be positive since past population growth would enhance the current population growth rate; but φ_2 is negative. Equations (9) and (15) form the core of the study that would enable us to simultaneously determine the growth of per capita income and population growth. In this way, the two-way causality between growth of per capita income and population growth can easily be captured where such type of systematic analysis has never been addressed in most empirical work in the country to date.

Annex D.7: Summary of Demographic Transition Factors

Stage 1: Pre industrialization: Stable population growth	Stage 2: Rapid population growth	Stage 3: Continued and decreasing population growth	Stage 4: Stable low population growth
High Birth rates	High Birth rates	Falling Birth rates	Low Birth rates
No or little Family Planning Parents have many children because few survive Many children are needed to work the land Children are a sign of virility Some religious beliefs and cultural traditions encourage large families	As stage 1	Family Planning utilized , contraceptives, abortions, sterilization and other government incentives A lower infant mortality rates means less pressure to have children Increased mechanization and industrialization means less need for labour Increased desire for material possessions and less desire for large families Emancipation of women	

High Death Rates	Falling Death Rates	Death rates Low	Death rates Low
Disease and plague (e.g. bubonic, cholera, kwashiorkor) Famine , uncertain food supplies and poor diet Poor hygiene, no piped clean water or sewage disposal	Improved medical care e.g. vaccinations , hospitals, doctors, new drugs and scientific inventions Improved sanitation and waters supply Improvements in food production in terms of quality and quantity Improved transport to move food and doctors A decrease in child mortality	As stage 2	

Source: <http://www.bized.ac.uk/virtual/dc/copper/theory/th10.htm> (as downloaded o

ANNEX E.1

THE MANUFACTURING SURVEY

The manufacturing survey was conducted by EEA/EEPRI, between November 2002 and April, 2003. It covered both private and public firms around Addis Ababa as well as other towns, including Debre Zeit, Nazret, Zewaye, Wonji, Metahara, sebeta, Debre Berhan, Awasa, Harar, Dire Dawa, Desse, Combolcha, Bahar Dar, Gonder, and others.

The survey had two parts. Part one constitutes qualitative issue on labor and management, investment and technology, finance, raw materials, production and marketing, access to land, infrastructure, government rules and regulations and incentives. This part of the questionnaire was completed by owners and/or managers. The second part was on firms' statistics – quantities and values of raw materials and other inputs, production and sales and stocks, imports and exports, investment,

capacity and utilization. It also involves employment by education category and experience, wages and other related information.¹¹⁶

The survey covered selected firms in all industrial groups (see Annex E.2). The selection was based on the employment level and volume of production. In other words, firms employing relatively more workers and producing larger volume of a given commodity were given more weight. Also strategic industries were also given relatively more weight. An attempt was made to cover about 400 firms, but only 250 responded (of which 230 were consistent) to the second part of the questionnaire and 103 to the first part.

The survey was conducted by the Ethiopian Economic Policy Research Institute (EEA/EEPRI) in collaboration with the Ethiopian and Addis Ababa Chambers of Commerce and the Ethiopian Manufacturing Industries Association. The Institute also received close support from the Ministry of Trade and Industry, Ethiopian Manufacturing industries coordinating supervisor and the Central Statistical Authority. The Institute is grateful to all organizations which supported this survey.

¹¹⁶ See forthcoming edition on 'industrialization and industrial policy' for the details of the questionnaires.

ANNEX E.2

THE WORLD TRADE ORGANIZATION¹¹⁷

The rules of the WTO regime extend beyond what its predecessor, the GATT, used to address (i.e., trade liberalization on goods) to specific policy choices on services, investment and intellectual property rights. Together with these new features, WTO's influence extends to new areas of domestic policy making critical to the development process. It also has stronger compliance mechanisms to discipline member states. As the purpose of this Chapter is to identify what opportunities and constraints the WTO regime provides and its implication for industrial policy, only selective agreements are addressed in this section.

1. Trade in Agriculture:¹¹⁸ The agreement on agriculture requires members to convert all non-tariff barriers into bounded tariffs that represent the ceiling to which they could be raised, and reduce the tariffs according to the commitments agreed upon, to provide market access. All domestic support measures and export subsidies have to be reduced and eliminated over a six year period commencing 1995.

A special safeguard mechanism was also installed for imports that a country identifies as subject to safeguards in its schedules. This allows countries to impose additional duty if either the volume exceeds or the unit price falls below a trigger level.

Developing countries are allowed to apply different rates of tariff reduction and levels of domestic support. Developing country members shall have the flexibility to implement reduction commitments over a period of up to 10 years. Governments are allowed to provide assistance to encourage agriculture and rural development, investment and agricultural input subsidies generally available to low-income or resource-poor producers.

Developing country members shall not be required to undertake commitments with respect to the provision of subsidies to reduce marketing costs of agricultural exports including transaction and transport costs. [Article 9] Least developed countries on the other hand are exempted from domestic support and export subsidy commitments.

¹¹⁷ For this section refer <http://www.wto.org>

¹¹⁸ For details see WTO "Agreement on Agriculture", <http://www.wto.org/>

2. Textile and clothing: Textile and clothing have been excluded from basic GATT principles until 1993 because of long term bilateral deals (outside the GATT) between importing (industrialized) and exporting (developing) countries. So the Agreement on textiles and clothing in 1994 had no alternative except phasing out the multifibre agreement quota over a longer period of time (10 years).

The phase out schedule has four sets: 16% of the quota/volume to be phased out by January 1995, 17% by January 1998, 18 percent by January 2002, and the remaining 49% by January 2005. Under the agreement there would be no change either in the process of the schedule of liberalization, nor the final date for complete integration into the WTO principles. [Article 2]

Moreover, the agreement on textiles and clothing (ATC) allowed imports of products under quota, but not included in the schedule, to grow by 16, 25 and 27 percent.

The agreement provides transitional safeguarding measures if increased import volumes cause or threaten serious damages to the domestic industry, and they can be maintained for a maximum of three years and invoked on a country by country basis. However, this can only be applied on products which have not yet been integrated into the mainstream GATT/WTO rules.

The Textile and clothing agreement requires members to take into account exports of developing countries when applying the transitional safeguarding provision and to accord more favorable treatment when setting economic criteria for imports from these countries. It also prohibits the use of the provision for developing country exports of cottage industry handlooms, traditional folk art textiles and products. The agreement on textile and clothing provides significantly more favorable treatment in the application of the transitional safeguards for least developed countries. [Article 6.6]

3. Trade in services: A service refers to a range of areas, including transport, communication, education, health, and finance, among others, except those supplied by government. The agreement on trade in services calls for progressive liberalization of regulations that stand as obstacles for trade and investment in services.

The international delivery of the services is regulated under four modalities, including:

- cross-boarder supply, such as telephone and postal services,
- consumption abroad, such as tourism,
- foreign commercial presence, such as banks, insurance companies, etc., and
- presence of natural persons, such as temporary workers of any skill.

A member country has to provide a schedule with respect to the sectors chosen to liberalize or provide market access. The schedule includes terms, limitations and conditions as well as qualifications on market access. Accordingly progressive liberalization of the market should be made.

In accessing their markets, developing countries shall be given flexibility in liberalizing fewer types of transactions and in favorable timeframe. The participation of developing countries will be facilitated through specific negotiated commitments including:

- strengthening domestic services through access to technology
- improving access to distribution channels and information networks
- liberalization of market access of export interest.

Least developed countries shall be provided special priority in the implementation of trade in services. Members shall give special consideration to opportunities for the LDCs in telecommunications services.

4. Subsidy and countervailing measures: Subsidy involves financial contributions by a government or public body for instance, in terms of direct transfer of funds (grants or loans), equity infusion (through investment decisions which are inconsistent with the norm) and potential direct transfer of funds or liabilities by way of loan guarantees (if the firm pays lower than the case without government guarantee). Revenue forgone or not collected such as tax credits and provision of goods or services other than general infrastructure, at lower prices or purchases of goods at higher prices are also considered as subsidies.

A member shall neither grant nor maintain subsidies contingent upon export performance and upon the use of domestic over imported goods. If any subsidy of one member has resulted in adverse effects on the interests of another member, the member granting subsidy shall take appropriate steps to remove the adverse effects or shall withdraw the subsidy.

Non-actionable subsidies, which are not directed towards a specific firm or industry, are not subject to countervailing duties or other remedial actions. It includes assistance for research activities, grants to disadvantaged regions within the country and assistance to promote adaptation of existing facilities among all similar firms to new environmental requirements.

A member shall take a countervailing measure, which is a special duty levied on imported good, if the said good is thought to be subsidized.

Developing countries with a per capita income of less than \$1000 are exempted from the prohibition on export subsidies, while other developing countries are exempted for a period of eight years from the date of entry into force of the WTO agreement. A country may, however, apply for an extension. Developing countries are also exempted for five years from the prohibition on subsidies contingent upon the use of domestic over imported goods. Remedies over prohibited subsidies shall not apply to a developing country provided that its export subsidies are consistent with the above stated provisions. [Article 27]

5. Antidumping measures: A product is considered to be dumped if the price of the product exported from one country to another is less than the normal value in the ordinary course of trade. In order to offset or prevent dumping, an importing party may levy an anti-dumping duty, but not greater in amount than the margin of dumping. [Article 15]

6. Safeguards: A member may apply to a safeguard measure to a product if that member has determined that such product is being imported into its territory in such increased quantities compared to domestic production. A safeguard measure is applied only upon investigation by a competent authority.

Safeguard measures shall not be applied to products originating in developing countries whose share of imports of the product concerned in the importing member does not exceed 3% and the import share collectively accounts for not more than 9% of total imports of the product concerned. Developing countries shall have the right to extend the period of application of a safeguard measure for up to two years beyond the maximum period (eight years).

7. Sanitary & phytosanitary measures: It refers to measures applied to protect human, animal and plant life or health arising from the entry, establishment or spread of pests, diseases, disease-carrying or disease-causing organisms, additives, contaminants, toxins or disease causing organisms in food, beverages or feedstuffs. This agreement is based on the condition that members need to have harmonized sanitary and phytosanitary measures.

Sanitary measures include all relevant laws, regulations, requirements and procedures including end product criteria, processes and production methods, testing, inspection, certification and approval procedures. It also involves quarantine treatments, including the transport of animals or plants or the materials necessary for their survival during transport; provisions on relevant statistical methods, sampling procedures and methods of risk assessment, and packaging and labeling requirements directly related to food safety.

Accordingly, a member country may keep at bay imports from another member country if goods do not confirm to the internationally set standard.

The least-developed country members may delay application of the provisions of sanitary and phytosanitary agreement for a period of five years following the date of entry into force of the WTO agreement with respect to their sanitary and phytosanitary measures affecting imported products. [Article 14]

8. Trade Related Investment Measures (TRIMs): The aim of the agreement on TRIMs is to eliminate trade-distorting investment measures taken by members. The agreement does not define TRIMs, leaving to members to decide which actions are illegal, though TRIMs is inconsistent with the above indicated agreements on agricultural and industrial goods.

Measures considered inconsistent with the TRIMs agreement include measures which require the purchase or use by any enterprise of products of domestic origin or from any domestic source, or which requires the purchase or use of imported products to be limited to an amount related to the volume or value of local products that it exports. Also measures which restrict the volume or value of imported inputs to an enterprise as a proportion of local production or which limit the imported inputs of an enterprise to the amount of foreign exchange it earns from export are regarded inconsistent, hence should be eliminated.

Industrialized countries were expected to eliminate such inconsistent measures within two years, developing countries within five years and least developed countries within seven years. Provision for extension is also provided, particularly for developing member countries.

A developing country member shall be free to deviate temporarily from the provisions of TRIM. Developing country members could apply quantitative restrictions for balance of payments purposes in a manner which takes account of the continued high level of demand for imports likely to be generated by their programs of economic development.

9. Trade related intellectual property rights (TRIPS) agreement: The agreement on TRIPS aims at reducing distortions and impediments of international trade taking into account the need to protect intellectual property rights. TRIPS include copyright, trademarks, geographical indications, industrial designs, patents, lay-out designs of integrated circuits and protection of undisclosed information. In general, members shall accord the principles of National Treatment and Most-Favored-Nations-Treatment to other members in the case of TRIPS too.

9.1 Copyright and related rights, including computer programs, data compilation, performers, recordings, broadcasting organization rights extend to expressions and not to ideas, procedures and methods of operation. Protection to expression will be in line with the Berne Convention.¹¹⁹ The terms of protection, for works not belonging to natural persons, will be a minimum of 50 years, from the date of publication or creation.

9.2 A trademark constitutes a sign capable of distinguishing the goods or services of one undertaking from those of others. The term of protection shall be not less than seven years, renewable indefinitely.

9.3 Geographic indications: refers to indications which identify a good originating from a specific territory where its quality or other characteristics are attributable to that territory. Such geographical indications shall be protected. Additional protection shall be made for wine and spirits.

¹¹⁹ For the Berne convention, refer to <http://www.law.cornell.edu/treaties/berne/overview.htm>

9.4 *Industrial designs*: New or original industrial designs, independently created shall be protected for 10 years.

9.5 *Patents* shall be available for any inventions of products or processes for all fields of technology, provided that they are new, involve an inventive element (non-obvious) and capable of industrial application. The protection period shall be 20 years. Plants and animals other than micro organisms are not patentable.

9.6 *Integrated circuits*: There shall be no importing, selling, or otherwise distributing for commercial purposes of protected layout designs of integrated circuit. Protection shall be for 10 years.

A developing country member is entitled to delay the provisions of TRIPS for a further period of four years from the date of application. Least developed countries can delay the provisions of TRIPS for 10 years from the date of application, which is also subject to extension upon request

10. Technical barriers to trade (TBT): Members are expected to observe international technical regulations and standards of products, which otherwise could be a barrier to trade. Accordingly, members shall ensure that their central government standardizing bodies accept and comply with the provisions set by an international standardizing body, such as ISO/IEC information center in Geneva.

Technical regulations shall not be more trade-restrictive than necessary to fulfill a legitimate objective, taking account of the risks of non-fulfillment would create for instance on national security requirements, the prevention of deceptive practices and protection of human health or safety, animal or plant life or health or the environment.

ANNEX E.3

INDUSTRIAL GROUPING AND ISIC NUMBER

Manufacturing industry	ISIC-EEPRI
Processing and preserving of meat, vegetables & fruits	1511
Manufacture of vegetable and animal oils and fats	1514
Manufacture of dairy products	1520
Manufacture of grain mill products	1531
Manufacture of animal feeds	1533
Manufacture of bakery & pastry products	1541
Manufacture of sugar & sugar confectionery	1542
Manufacture of Macaroni & spaghetti	1544
Manufacture of coffee & tea	15491
Processing of spice & salt	15492
Distilling, rectifying and blinding of sprites	1551
Manufacture of wine	1552
Manufacture of malt	15531
Manufacture of beer	15532
Manufacture of soft drinks & mineral waters	1554
Manufacture of tobacco products	1600
Spinning, weaving and finishing of textiles	1710
Manufacture of cordage, rope, twine and netting	1723
Knitting mills	1730
Manufacture of wearing apparel (clothes)	18101
Manufacture of leather wearing apparel	18102
Tanning & dressing of leather, luggage and handbags	1910
Manufacture of foot wear	1920
Manufacture of wood & wood products	2000
Manufacture of paper & paper products	2100
Publishing and printing services	2200
Manufacture of basic chemicals	2411
Manufacture of paints, varnishes and mastics	2422
Manufacture of pharmaceuticals, medicinal chemicals, & botanical products	2423
Manufacture of soap, cosmetics, detergent & cleaning products	2424
Manufacture of candle and similar products	2429
Manufacture of rubber products	2510
Manufacture of foam & plastic products	2520
Manufacture of glass and glass products	2610
Manufacture of structural clay products	2693
Manufacture of cement & lime products	2694
Manufacture of articles of concrete & plaster	2695
Manufacture of mineral products (marble & ceramics)	2699
Manufacture of basic Iron & steel	2710
Manufacture of structural metal work, tanks, reservoirs etc	2811
Manufacture of cutlery, hand tools and general hardware	2893
Manufacture of other fabricated metal products	2892/2899
Manufacture of pumps, compressors, taps & valves	2912
Manufacture of ovens, furnaces, & furnace burners	2914
Manufacture of other general purpose machinery	2919, 2929
Machinery for food and beverage	2925
Battery	3140
Manufacture of bodies for motor vehicles	3410, 3420
Manufacture of motor vehicles parts/accessories	3430
Furniture	3610
Manufacturing of agricultural implements and pesticide	34201
Manufacturing of electrical goods	31401

Source: CSA's industrial classification and EEPRI's modification.

ANNEX E.4

Physical linkages among manufacturing industries

Industries	Actual	Potential	%
1. Meat, vegetables & fruits	8	12	66.6
2. Animal oils & fats	6	8	75.0
3. Dairy products	2	6	33.3
4. Grain mill	3	5	60.0
5. Bakery & pastry	5	10	50.0
6. Sugar & S. confectionary	10	11	90.9
7. Macaroni & spaghetti	2	6	33.3
8. Spice & salt	3	6	50.0
9. Spirits	6	8	75.0
10. Wine	4	6	66.7
11. Malt	3	6	50.0
12. Brewery	7	9	77.8
13. Soft drinks & mineral water	6	7	85.7
14. Textiles	11	12	91.7
15. Fiber products	5	8	62.5
16. Garment & knitting	1	3	33.3
17. Leather garment	1	3	33.3
18. Tanning	6	8	75.0
19. Foot wear	7	11	63.6
20. Wood & W. products	7	10	70.0
21. Paper & p. products	11	18	61.1
22. Printing	5	8	62.5
23. Basic chemicals	13	37	35.1
24. Paints, varnish & mastics	19	28	67.8
25. Pharmaceuticals	5	10	50.0
26. Soap, cosmetics & detergents	8	10	80.0
27. Candle & related	5	7	71.4
28. Rubber	3	11	27.3
29. Foam & plastic	14	22	63.6
30. Glass & G. products	9	13	69.2
31. Structural clay	1	4	25.0
32. Cement & lime	2	4	50.0
33. Concrete & plaster	3	4	75.0
34. Mineral products	1	3	33.3
35. Basic iron & steel	8	17	47.0
36. Structural metal	2	12	16.7
37. cutlery & hand tools	9	28	32.1
38. Other fabric. Metal	7	20	35.0
39. Pumps, compressors, etc.	0	7	0.0
40. Ovens, furnaces, etc	2	16	12.5
41. General purpose machinery	2	25	8.0
42. Food & beverages Mach.	2	20	10.0
43. Battery	1	6	16.7
44. Other Basic Machineries	0	39	0.0
45. Bodies for M. vehicles	6	9	66.7
46. Parts, access M.V	2	7	28.6
47. Furniture	7	10	70.0
Total	250	550	45.5

Source: Staff computation based on survey result and CSA's report on LMSME industries survey.

ANNEX E.5

Productivity, capital intensity and profitability by industrial group

Industry Group	Labor productivity	Capital intensity	Capital productivity	Wage rate	Wage share	Profit
1,600	18.64	4.83	3.86	1.38	0.07	3.57
15,532	15.27	16.50	0.93	1.26	0.08	0.85
1,542	10.21	10.40	0.98	1.08	0.11	0.88
2,694	9.78	15.55	0.63	1.15	0.12	0.56
2,422	8.80	9.98	0.88	1.00	0.11	0.78
3,420	8.71	10.95	0.80	1.10	0.13	0.69
2,710	8.36	7.12	1.17	1.30	0.16	0.99
1,544	7.64	6.89	1.11	0.85	0.11	0.99
2,510	6.84	25.99	0.26	1.36	0.20	0.21
2,423	6.48	21.93	0.30	0.97	0.15	0.25
1,551	6.44	1.86	3.47	1.01	0.16	2.92
15,531	6.31	14.33	0.44	0.76	0.12	0.39
1,554	5.89	7.28	0.81	0.99	0.17	0.67
15,491	4.13	12.51	0.33	0.34	0.08	0.30
2,424	4.01	6.45	0.62	0.64	0.16	0.52
1,910	3.83	7.56	0.51	1.17	0.30	0.35
2,520	3.78	9.27	0.41	0.72	0.19	0.33
2,100	3.50	4.11	0.85	0.91	0.26	0.63
15,492	3.34	21.59	0.15	1.05	0.31	0.11
2,892	3.33	17.90	0.19	1.02	0.31	0.13
2,610	3.11	6.68	0.47	0.84	0.27	0.34
3,430	2.87	9.67	0.30	0.84	0.29	0.21
2,200	2.80	2.94	0.95	0.98	0.35	0.62
2,699	2.67	13.82	0.19	0.69	0.26	0.14
1,531	2.65	8.53	0.31	0.75	0.28	0.22
2,429	2.58	6.09	0.42	0.87	0.34	0.28
2,000	2.45	1.00	2.45	0.69	0.28	1.76
1,541	2.16	4.29	0.50	0.52	0.24	0.38
1,552	2.16	2.36	0.92	0.89	0.41	0.54
2,912	2.14	12.51	0.17	1.14	0.53	0.08
1,920	2.10	5.81	0.36	0.71	0.34	0.24
1,511	2.05	5.66	0.36	0.53	0.26	0.27
2,893	1.71	3.09	0.55	0.75	0.44	0.31
18,102	1.56	3.52	0.44	0.65	0.42	0.26
3,610	1.50	3.85	0.39	0.63	0.42	0.23
2,695	1.45	2.27	0.64	0.41	0.28	0.46
2,914	1.45	3.91	0.37	0.44	0.30	0.26
2,811	1.45	5.22	0.28	0.62	0.43	0.16
2,693	1.35	1.81	0.75	0.48	0.36	0.48
1,514	1.33	13.19	0.10	0.59	0.44	0.06
1,520	1.33	7.74	0.17	0.44	0.33	0.12
2,925	1.30	4.82	0.27	0.59	0.45	0.15
1,723	1.12	1.87	0.60	0.90	0.80	0.12
2,411	1.10	21.19	0.05	0.76	0.69	0.02
1,710	1.00	4.14	0.24	0.55	0.55	0.11
2,919	0.98	4.20	0.23	0.46	0.47	0.12
1,533	0.86	0.85	1.01	0.53	0.62	0.38
18,101	0.65	2.25	0.29	0.49	0.74	0.08
3,140	-0.19	2.56	-0.07	0.77	-4.06	-0.38

Source: Survey results and CSA's report on LMSME industries survey.

ANNEX E.6

Number of firms operating at high (>70%) production capacity

Industrial Group	Number of firms		High capacity firms as% of total	
	1998	1999	1998	1999
Vegetables & animal oils, fats	4	2	12.5	7.7
Grain mill products	10	7	25.6	14.0
bakery and pastry	19	17	24.1	22.7
Sugar and sugar confectionary	2	3	25.0	37.5
Macaroni & spaghetti	2	3	50.0	75.0
Textile	2	4	10.0	16.0
Cordage, rope, twine & netting	2	1	100.0	50.0
Leather tanning	7	4	63.6	28.6
Wood & wood products	7	3	43.8	18.8
Paper & paper products	3	1	37.5	14.3
Publishing & printing	22	23	48.9	43.4
Paints, varnishes & mastics	3	2	42.9	25.0
Pharmaceuticals, medicinal, etc	1	1	33.3	33.3
Soap, cosmetics, detergent, etc	4	7	18.2	30.4
Rubber products	2	2	40.0	40.0
Foam & plastic products	10	6	47.6	24.0
Glass & glass products	1	1	50.0	50.0
Structural clay products	1	1	20.0	20.0
Cement & lime products	2	4	22.2	44.4
Articles of concrete & plaster	14	11	25.0	20.4
Bodies of Motor vehicles	2	3	25.0	42.9
Furniture	22	27	19.3	22.9
Brewery	3	3	75.0	60.0
Total	145	136	27.9	25.0

Source: Survey result and CSA's report on LMSME industries survey

ANNEX E.6: Continued...

Industrial Group	Number of firms		High capacity firms as% of total	
	2000	2002	2000	2002
Meat, vegetables & fruits	2	1	33.3	14.3
Edible oil	4	4	15.4	13.3
Grain mill products	15	8	30.0	13.3
bakery and pastry	15	27	17.4	23.7
Sugar and sugar confectionary	1	3	12.5	27.3
Macaroni & spaghetti	4	3	50.0	27.3
Tobacco	1	1	50.0	50.0
Textile	8	8	34.8	34.8
Wood & wood products	2	3	13.3	14.3
Paper & paper products	1	1	14.3	16.7
Publishing & printing	12	26	21.8	39.4
Paints, varnishes & mastics	3	3	37.5	33.3
Pharmaceuticals, medicinal, etc	1	1	25.0	16.7
Soap, cosmetics, detergent, etc	3	4	17.6	25.0
Rubber products	3	1	75.0	25.0
Foam & plastic products	5	9	22.7	28.1
Glass & glass products	2	2	100.0	100.0
Cement & lime products	4	3	66.7	37.5
Articles of concrete & plaster	11	18	20.8	26.9
Structural metal work	9	10	30.0	31.3
Furniture	16	46	14.2	31.3
Spice and salt	1	1	33.3	33.3
Brewery	2	3	50.0	50.0
Leather wearing apparel	3	2	37.5	28.6
Total	128	188	22.9	27.2

Source: Survey result and CSA's report on LMSME industries survey