Ethiopian Economic Association (EEA)

PROCEEDINGS OF THE FIFTH INTERNATIONAL CONFERENCE ON THE ETHIOPIAN ECONOMY

Edited by

Getnet Alemu

Edilegnaw Wale

Volume II

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FOREWORD

The Ethiopian Economic Association (EEA) is happy to issue the proceedings of the 5th International Conference (the 16th Annual Conference) on the Ethiopian Economy that was held from June 7 – 9, 2007 at UN Conference Centre. EEA has been organizing annual conferences on the Ethiopian Economy every year as part of its overall objectives to contribute to the economic advancement of Ethiopia through dissemination of economic research findings; promotion of dialogue on socio-economic issues; promotion of education in economics in higher learning institutions; enhancing national, continental and global networks of professionals and institutions; and advancement of the professional interests of its members.

In quest of its mission, EEA has been actively engaged in economic research, training, organization of International and National conferences and round table discussions on the Ethiopian economy and the dissemination of the results of these activities through its professional journals and various publications. It has also been engaged in providing professional opinion and reflections on many issues affecting the development of this country.

As a result of these and other efforts of the Association, EEA has established itself as a truly independent source of socio-economic policy options and data base in Ethiopia for the Ethiopian Government, the Ethiopian people and the International Community at large.

The 5th International Conference on the Ethiopian Economy was attended by about 450 participants. The conference was organized in five Plenary Sessions and four concurrent sessions. Panel discussion was also organized on the Current State of the Ethiopian Economy. The main speakers of the panel discussion were H.E. Ato Neway Gebreab, Director EDRI and chief Economic Advisor of the PM; Ishac Diwan, WB Country Representative to Ethiopia and the Sudan; Geni Kulgman, WB Lead Economist; Mulat Demeke, Economic Department of AAU; and Haile Kibret, EEA/EEPRI. In addition, keynote speech was delivered by Prof. Dr. Joachim Von Braun, Director General of IFPRI on Rural-Urban Linkages for Growth, Employment and Poverty Reduction.

Some of the sessions were co-organized with the World Bank, African Development Bank, Economic Commission for Africa (ECA), International Food Policy Research Institute (IFPRI), Ethiopian Development Research Institute (EDRI), Poverty Action Network (PANE) and Forum for Social Studies (FSS). The Plenary Sessions

discussed about 15 papers on Poverty, Future Agriculture, Urban-rural Linkages. Labour Market, African Development, Environment, Investment, Public Finance etc. Similarly, in the concurrent sessions about 68 papers were presented in the area of macro and sectoral issues, of which 49 papers were presented by individuals while the rest 19 papers were delivered by co-organizers.

Out of the total 49 papers presented by individuals on this 5th International Conference, the editorial committee received 39 papers from authors and reviewed them. Comments and suggestions including editorial comments were communicated to authors for improvement. Among the 39 papers, the editorial committee selected 23 papers to be included in this edition. In addition, 11 papers which were presented by co-organizing institutions were also reviewed and included in this edition. All these papers are organized into three volumes. Volume I contains ***Industry, Trade, Finance and Development;*** Volume II contains ***Social Sectors (Poverty, Health, Education)*** and Volume III contains **Water, Natural Resource and Agricultural Practices.**

I would like to take this opportunity to express my heartfelt gratitude, on my own behalf and on behalf of the Ethiopian Economic Association, to the many people and organizations that made the conference a resounding success. First and foremost, I thank the authors of the papers and the audience whose active participations made the conference meaningful and dynamic. The UN Economic Commission for Africa deserves huge thanks for granting us the free use of the UN Conference Centre. The African Development Bank, Commercial Bank of Ethiopia, Bankers Association, Ethiopian Airlines, Future Agriculture, and Ethiopian Manufacturing Industries Association are sincerely acknowledged for sponsoring the conference. The many professionals who dedicated their time to the conference and served as chairpersons deserve due thanks for their special contributions.

The staffs of the EEA/EEPRI deserve a special recognition for their enthusiasm and perseverance in managing the conference from inception to completion. I also want to extend my personal gratitude to the Organizing Committee and members of the Executive Committee of the Ethiopian Economic Association for the dedicated services and the leadership they provided to the Association.

I would like to seize this moment to express our gratitude to the Consortium of Donors who have funded the conference and all other activities of EEA/EEPRI and maintained continued interest in our Association. These are: Friedrich Ebert Stiftung of Germany (FES), Embassies of UK (DFID), Ireland (DCI), Sweden (SIDA), the

Netherlands, Norwegian Church Aid and the African Capacity Building Foundation (ACBF).

Finally, I would like to extend my sincere gratitude to H.E, Ato Tadesse Haile, State Minister of the Ministry of Trade and Industry, for his an insightful keynote address; ministers, parliament members, and other senior government officials who spared their busy schedule and participated in the conference.

Wolday Amha (Ph.D)
President of the Ethiopian Economic Association

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Social Sector (Poverty, Health and Education)

INFORMAL RISK SHARING STRATEGIES AND POVERTY DYNAMICS IN RURAL ETHIOPIA: LONGITUDINAL ANALYSIS

Andinet Delelegn[1], [2]

Abstract

Based on Ethiopian Rural Household Survey (ERHS) data, this study used a two-step dynamic nonlinear panel data model to analyze the impact of informal risk sharing (IRS) strategies on poverty dynamics. The model better explains the dynamic process of rural poverty in Ethiopia, which reveals the existence of true state dependence confirming other empirical findings from Ethiopia using the same data. Size of land owned, number of oxen, male headship and higher educational attainment reduces the risk of poverty. Many of IRS strategies significantly reduce current poverty. However, in the long-term receiving remittance and food gift prolongs poverty. While saving and quasi-saving means such as lending to others and membership in Eqqub (rotating saving and credit association) have a poverty reducing impact both currently and in the long-term. This implies institutional interventions that makes saving safe and more convenient through saving-oriented microfinance institutions, formal banks or postal saving arrangements may increase the capacity of self-insurance and reduce poverty. Conversely, the crowding out of some of informal arrangements, remittance and food gift, may have valuable social benefits through ameliorating adverse incentive problems.

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[2] Acknowledgement: I would like to extend my gratitude to my supervisor, Dr. Getnet Alemu. I owe many thanks to Dr. Abebe Shimeles, for his support, advice and comments. Debel Gemechu and Nigusse Tefera deserve my gratitude for support regarding data issues.

1. Introduction

Understanding poverty and its dynamics by focusing on welfare levels and distribution in a certain socio-economic context doesn't suffice and present the real picture of the underlying process behind the observed levels of deprivation. It is understood that besides many other factors that explain the welfare and poverty dynamics, risk and shocks are important causes of persistent poverty. People in developing countries face numerous uninsured risks such as human illness, sickness, death of livestock, crop pests and diseases, erratic rains or droughts, political strife , etc. (Dercon 2002 and 2005, Hoogeveen et al. 2005).

Risk affects whether people can maintain assets and endowments, how these assets are transformed into incomes and earnings are translated into broader development outcomes, such as health and nutrition. Risky events are treated as 'exogenous', not directly under the control of people. However, an essential part of analyzing risk and its consequence on poverty are that households use sophisticated ex-ante and ex-post strategies to manage, reduce, or cope the consequences of risk (Dercon 2005b).

To smooth income and consumption, poor people use different risk-coping strategies, markets or technologies, conservative production and employment decisions such as storage of grain; land fragmentation; borrowing and saving, depleting and accumulating nonfinancial assets, adjusting labor supply, sell assets, or send their children to work instead of school to supplement income, and employing formal and informal insurance arrangements such as informal credit and gifts among friends, relatives and neighbors, borrowing from local money lenders, rotating savings and credit associations (ROSCAs), interlinkages in agricultural contracts, and so forth (Daniel 2003, Dercon 2000, Jacoby and Skoufias 1997, Morduch 1995, Townsend 1995 and 1993, Udry 1994, Deaton 1992, Paxon 1992, Deaton 1990 and Rosenzweig 1988).

In developing countries self-insurance is inadequate to protect households from the risk of fluctuating income. In the absence of formal and other inter-temporal markets as an alternative ex-post mechanism, households resort to informal risk-sharing schemes (Daniel 2003). As discussed in Carter 1997, it is rational for households to voluntarily share with their less fortunate neighbors in the hope that their neighbors will help them out sometime in the future. This kind of reciprocity sharing is denoted as "endogenously enforced" because it does not depend on any external norms or authority to function. Reciprocity schemes can be described as vertical or horizontal. Horizontal reciprocity refers to sharing rules between households that have approximately equal wealth endowments, which permit a group to enjoy benefits

across individuals in the group. However, there are costs associated with horizontal reciprocity. In addition, to the extent that reciprocity works like a marginal tax on output, it would depress work incentives and potentially result in reduced mean output.

Anthropologists considered informal risk sharing to play a role in securing social status and signaling commitment to the community, however, Economists tend to scrutinize it as they do other transfers like public aid. According to Morduch 1999, these coping strategies, although effective in reducing vulnerability and current poverty, can reduce economic growth, long-term welfare, or social mobility.

Households in rural Ethiopia employ a variety of coping strategies. Skoufias and Quisumbing 2003 (using the ERHS longitudinal data of 1994, 1995 and 1997) and Niggusse 2005 (using panel data of year long intensive monitoring 5th round rural household survey in selected villages of rural Ethiopia) identified the presence of consumption smoothing where households use all means of risk management to insulate themselves from risk and identified the different coping strategies. Applying limited commitment model to empirically test the role of credit transactions and the effect of informal networks on risk-sharing between rural households in Ethiopia, Daniel 2003 found evidence of risk-sharing arrangement through credit transactions, where enforcement problem limits the direct credit transactions in risk sharing arrangements between rural households. Although, there are voluminous works in the area of the impact of risk and shocks on growth, welfare and poverty, there are still gaps on revealing the impact of coping strategies (especially IRS strategies) on welfare, growth, or poverty dynamics in rural Ethiopia.

Recently, there are emerging views and shift concerning the implication of risk upon poverty dynamics. This study takes part in revealing the role of shocks and informal risk-sharing strategies on the dynamics of poverty. Even if, IRS strategies have their own advantage of reducing risk, under imperfect enforceability this may create adverse incentive problem.

The study uses longitudinal household data of the Ethiopian Rural Household Survey (ERHS) collected by the Department of Economics, Addis Ababa University covering 1477 rural households. However, the sample doesn't include pastoral households or urban areas. Since some of the questions are retrospective and self-reported, there may be memory tumble and observation bias that may lead to over- or under-reporting of asset levels, consumption, etc.

In section two, we briefly review literatures regarding the concept of risk, shocks and the associated coping strategies, especially IRS in rural village economy settings to relate with poverty and its dynamics. In Section three, we presented the theoretical model of consumption insurance and specified our poverty dynamics model that is appropriate for our panel data. Section four and five discusses the data, descriptive and empirical, respectively. with some implication, we concluded in section five.

2. Review of Literature

2.1 Linking Risk and Poverty

The consensus after the works of Sen 1999 is that poverty encompasses more than just low levels of income or consumption. Although, studies on poverty analysis emphasizes on the welfare levels and distribution, there are two consequences of risk on poverty; there is the impact of shock[3] and the behavioral impact. The impact of shocks and the coping strategies may destroy or reduce the physical, financial, human or social capital of the household. The behavioral impact, on the other hand, is that households faced with risk and with access to limited insurance alternatives, such as assets or safety nets, are pushed towards risk management strategies such as low risk activities and asset portfolios, at the expense of lower mean return and incomes. As in least developing countries, if credit market and insurance markets are poorly developed, exposure to risk may induce household to hold least productive asset portfolios for the purpose of buffering consumption (Dercon 2005b).

The direction of causation can also be reversed so that poverty causes exposure to risk. As discussed in Hoogeveen et al. 2005, to avoid extreme income poverty households may choose to cultivate in insecure areas, land infested with landmines, areas where rebels are active, or live in an unhealthy/unsafe environment.

2.2 Risk and coping strategies

In addition to coping strategies employed by households, there are different forms of ex-ante and ex-post institutional coping strategies to manage risk and its consequences. These strategies can be categorized into three main institutional arrangements. First, *market based arrangements*; these have great potential and, where available, households and individuals take advantage of the financial products offered by insurance and banking institutions. Second, *public arrangements;* there are arrangements made by governments to deal with social risks such as unemployment,

[3] Shock is the manifestation of risk.

old age, work injury, disability, widowhood, and sickness. Third, *informal arrangements;* in a situation where there is missing market or public institutional arrangements to deal with idiosyncratic and common risks, individual households respond to risk through informal arrangements. They involve a system of mutual assistance between family networks or community members. The first two institutional arrangements are none or limited in LDCs (Hoogeveen et al. 2005).

2.3 The theory of Full-risk sharing and the theory of limited commitment

Any two agents may be said to share risk if they employ state-contingent transfers to increase the expected utility of both by reducing the risk of at least one. Risk-sharing can be viewed as the cross-sectional equivalent of consumption smoothing over time. Full risk sharing is a situation in which all idiosyncratic risk is eliminated. Since risks are shared, the marginal utilities of consumption are perfectly correlated across all agents. That is, movement in average group consumption represents aggregate risk. Full risk sharing is an important feature of any Pareto efficient allocation in an Arrow-Debreu economy; provided that agents have von Neumann-Morgenstern preferences, no one is risk-seeking, and at least one agent is strictly risk averse[4] (Townsend 1994).

There are a number of empirical works that tests whether household consumption allocations replicate the Pareto-efficient full risk-pooling outcomes resulting from a complete set of competitive state-contingent markets, i.e, testing the null hypothesis of full risk-sharing. For instance, Mace 1991 and Cochrane 1991 (US data), Deaton 1992 (Cote d'Ivoire, Ghana, and Thailand), Townsend 1994 (ICRISAT data from semi-arid India), Fafchamps and Lund 1997 (Philippines), Skoufias and Quisumbing 2003 based (Bangladesh, Ethiopia, Mali, Mexico, and Russia), Daniel 2003 (Ethiopia), Niggussei 2005 (Ethiopia), etc are some of the empirical works in the area of risk sharing. In sum, the finding reveal the estimated response of consumption to income shocks is small but significant, suggesting a rejection of the null hypothesis of full risk sharing or perfect insurance.

[4] Note that risk aversion and the attitude towards smooth consumption, 'fluctuation aversion', are typically indistinguishable in the standard theoretical framework (Dercon 2005a).

2.4 Limited information, limited commitment and risk-sharing

It has been argued that information asymmetry among insiders is not a stern problem in rural village economies. However, the setting in these rural villages doesn't support the assumption of full information (Udry 1994 and Kocherlakota 1996 in Daniel 2003).

Among the efforts made by different authors to explain the failure of full risk-sharing in the context of developing countries, Ligon 1998 and Ligon et al. 2000b are the most citable one, who suggests to relax the assumption of full information and then replace it by a system of private information that excludes some contracting possibilities due to moral hazard and adverse selection problems. The failure of full risk-pooling may be due to either problems of limited information, limited commitment or both (Ligon et al. 2000b). Cognizant of this problem, recent papers appeal to the theory of limited commitment to explain the observed positive relationship of individual consumption with current and lagged individual income[5].

In their successive work, Ligon et al. 2000a, examine a dynamic limited commitment model of mutual insurance by introducing intertemporal substitution possibilities, such as intertemporal production, storage, or access to external credit market. They show that under certain conditions savings enhance the use of mutual risk-sharing as a subgame perfect equilibrium, while under another condition it encourages agents to renege by tightening their sustainability constraints as it increases utility derived from autarky.

2.5 IRSS in Ethiopia

Driven by religious, culture or based on reciprocity, historical evidences from Ethiopia disclose the existence of risk sharing networks both in rural and urban areas. They have traditions of gathering to defend their village from aliens, participate in community development activities like erosion preventions, gather for funerals, wedding ceremonies, religious festivals, in sickness, etc. Institutions and activities of the informal sector in Ethiopia include rotating savings and credit association, for example – *Eqqub*, mutual aid association, such as *Iddir*, and local moneylenders, agricultural interlinkages such as sharecropping and calling work party/labor sharing, *Debo*/*Wonfel*. *Eqqub* and *Iddir* are usually formed among persons united in family and friendship, by place of work, by living in the same localities, etc (Daniel 2003).

[5] To explain such phenomena, Ligon et al. 200a advises use repeated game theory because informal agreements are used to enforce mutually beneficial arrangements without any written and legally binding contracts.

3. The Model

3.1 Theoretical model of consumption insurance

In this part we discuss the theoretical and econometric model of consumption insurance. The theoretical underpinning of consumption insurance and full risk sharing is based on the theory of full insurance introduced by Arrow (1964) in uncertain economies and later developed by others (Morduch 1995, Townsend 1994, Besley 1995, Deaton 1992, Paxon 1992, Cochrane 1991, Rosenzweig 1988, etc). Under fully functioning market, households will not be vulnerable to income shocks, where all risk should be diversified away so that shocks should have no impact on consumption level. The consumption insurance tests are based on the proposition that with full-insurance, consumption growth should be independent of idiosyncratic variables[6]. In other words, discounted marginal utility growth of consumption should be the same for all households under full risk-sharing.

Based on the theoretical model employed by Cochrane 1991, Townsend 1994 and Skoufias and Quisumbing 2003, let us consider an endowment economy with N households indexed by $i = 1,...,N$ maximizes the sum of life time utility subjected to community resource constraints. Assume that expected utility of households is time separable and inter-temporally additive for period $t = 1,...,T$, defined over instantaneous utility $v(.)$. Households face a finite set of possible states of the world, $s = 1,...,S$, each of which occurs with probability $p(s) \in \{1,...,S\}$. Furthermore, let $v'(.) > 0$ and $v''(.) < 0$, i.e., instantaneous utility is concave[7]. This implies that households will have an incentive to smooth consumption.

For household i at time t and state s with state-contingent consumption $c_{it}(s_t)$ the problem facing a social planner is to solve

$$\max_{\{c_{it}(s_t)\}} \sum_{i=1}^{N} \lambda_i \sum_{t=1}^{T} \beta_i^t \sum_{s=1}^{S} p(s_t) v_i(c_{it}(s_t), \delta_i(s_t)) \qquad \textbf{[1]}$$

Subject to the resource constraint

[6] For more discussion on consumption insurance models see Skoufias and Quisumbing 2003, Attanasio et al. 2000, Cochraine 1991, Townsend 1994, etc.
[7] The individual is risk averse.

$$\sum_{i=1}^{N} c_{it}(s_t) \leq \sum_{j=1}^{N} \omega_{it}(s_t) \qquad \text{For all } s_t$$

Where, λ_i is household *i*'s Pareto weight which are assumed to be constant over time and $\sum_{i=1}^{N} \lambda_i = 1$, $\beta_i^{\,t}$ is household *i*'s rate of time preference, $p(s_t)$ is the probability that state s_t occurs, $v_i(.)$ is the i^{th} household utility function, $c_{it}(s_t)$ is household *i*'s consumption at date *t* and state s_t, and $\delta_i(s_t)$ is a preference shocks. Our Lagrange equation, therefore, will be

$$\ell = \sum_{i=1}^{N} \lambda_i \sum_{t=1}^{T} \beta_i^{\,t} \sum_{s=1}^{S} p(s_t) v_i[c_{it}(s_t), \delta_i(s_t)] + \mu[\sum_{i=1}^{N} c_{it}(s_t) - \sum_{j=1}^{N} \omega_{it}(s_t)] \quad \textbf{[2]}$$

If we let $\mu_t(s_t)$ denote the Lagrangian multiplier associated with the resource constraint for period *t* and state s_t. By taking the first derivative of ℓ with respect to consumption and satisfying the condition in all periods and states for every agent, for the social planner, it follows that

$$v'_i(c_{it}(s_t), \delta_i(s_t)) = \frac{\lambda_j}{\lambda_i}\left(\frac{\beta_j}{\beta_i}\right)^t v'_j(c_{jt}(s_t), \delta_j(s_t)) \qquad \textbf{[3]}$$

For any period *t,* any pair of agents (*i,j*) and any state s_t, so that $corr(v'_i(.,.), v'_j(.,.)) = 1$, i.e, the marginal utility across agents will be the same and we have full risk-sharing among households .

Given specific parameterization of the utility function, such as an isoelastic utility function;

$$v_i(c_{it}(s_t), \delta_i(s_t)) = \frac{[c_{it}(s_t)]^{1-\rho}}{1-\rho}\theta_{it} \qquad \textbf{[4]}$$

Where, θ_{it} is a multiplicative shock factor and ρ risk aversion coefficient, which is assumed to be constant over time. Substituting [4] into [2] and taking the first order condition for the maximization problem, dividing the FOC for an individual household at two points in time, we obtain;

$$\beta_i \frac{p(s_{t+1})[c_{it+1}(s_{t+1})]^{-\rho}\theta_{it+1}}{p(s_t)[c_{it}(s_t)]^{-\rho}\theta_{it}} = \frac{\mu_{t+1}(s_{t+1})}{\mu_t(s_t)} \qquad \textbf{[5]}$$

Equation [5] is the condition that marginal utility growth is equated across households for the hypothesis of full risk-sharing to hold. Taking the log of this equation and adding the error term ε_{it+1} will give the following equation

$$\log\left(\frac{c_{it+1}}{c_{it}}\right) = -\frac{1}{\rho}\left[\log\left(\frac{\mu_{t+1}(s_{t+1})\,p(s_t)}{\mu_t(s_t)\,p(s_{t+1})}\right) - \log\left(\frac{\theta_{it+1}}{\theta_{it}}\right) - \log(\beta_i)\right] + \varepsilon_{it+1} \qquad \textbf{[6]}$$

This is a simple consumption function, which is expect to be consistent with any efficient allocation. Where, $\frac{\mu_t(s_t)}{p(s_t)}$ and $\frac{\mu_{t+1}(s_{t+1})}{p(s_{t+1})}$ are related to the aggregate supply of the consumption good in period *t* and *t+1*, respectively, which are the only determinants of consumption depending on the random state[8]. The terms $\log\left(\frac{\theta_{it+1}}{\theta_{it}}\right)$, ρ and $\log(\beta_i)$ represent household preference shifts and ε_{it+1} is measurement error. For the theory of full risk-sharing to be true, with the assumption of homoskedasticity of the measurement error and preference shifts, which are uncorrelated across households, the coefficient of additional regressor that is cross-sectionally independent of the preference shifts and measurement error will be zero[9].

3.1 Econometric strategies of testing consumption insurance in the literature

The most commonly applied version of equation [6] in the empirical literature using panel data (in Ravallion and Chaudhuri 1997, Jacoby and Skoufias 1998, Skoufias and Quisumbing 2003 and Nigussie 2005) is of the form,

$$\Delta \ln c_{it} = \sum_{tv} \varphi_{tv}(D_{tv}) + \beta \Delta \ln y_{it} + \phi X_{it} + \Delta \varepsilon_{it} \qquad \textbf{[7]}$$

where $\Delta \ln c_{it}$ denotes the change in log consumption or the growth rate in total consumption per capita of household *i* in period *t* (between round *t* and round *t*-1 in

[8] This shows that the only risk borne by agents in an efficient allocation will be aggregate risk.
[9] That is these regressors do not explain the change in the growth rate of household consumption under the assumption of full risk-sharing.

our case); $\Delta \ln y_{it}$ is the growth rate of household *i* income; X_{it} is a vector of household or household head's characteristics; D_{tv} denotes a set of binary variables identifying each community separately by survey round[10]; φ_{tv}, β, and ϕ, are parameters to be estimated; and $\Delta\varepsilon_{it}$ is a household-specific error term capturing changes in the unobserved components of household preferences.

Based on the underlying theory of risk-sharing, the coefficient β provides an estimate of the extent to which idiosyncratic income changes play a role in explaining the household-specific consumption growth rate. As noted in Skoufias and Quisumbing 2003, the set of discrete terms, D_{tv}, identifying communities by survey round, serves two interrelated functions. First, the term controls for the role of aggregate (covariate) shocks common to all households within any given community and survey round. Second, given that consumption and income are in logarithms, they also account for potential difference in the round-to-round inflation rate across communities. They also noted that including community/round interaction dummies is equivalent to deviate all variables for their respective community/round mean.

3.3 Econometric model of poverty dynamics in rural Ethiopia

Once we identify the poor and the nonpoor, the next step is to analyze the dynamics of poverty over the past 10 years, 1994 to 2004[11]. There are a number of empirical and theoretical models for the analysis of poverty dynamics. The most commonly applied are binary response models. Although, the econometric literature on nonlinear panel data models is growing, there are computational problems and indistinctness to clearly establish the issue of identification and estimation of nonlinear models that allow for both individual-specific effects and state dependence[12]. As discussed in Chay and Hyslop 1998, one of the fundamental issues in estimating dynamic binary response models is the issue of unobserved initial conditions of the dynamic process, i.e., initial conditions bias. Although, the practicability and performance of the models is not still well grounded, there are several methods that account for initial condition bias both in the linear dynamic

[10] This set of survey round/community interaction terms is meant to control for the role of aggregate or covariate risk faced by households in the insurance community.
[11] Six survey rounds.
[12] See Chay and Hyslop 1998 for a very good empirical summary of dynamic binary response panel data models using data from U.S. (PSID and SIPP).

regression models[13] and nonlinear models that allow for both individual effects and state dependence[14] using different simulation techniques.

For our purpose of modeling poverty dynamics in rural Ethiopia, we apply models that account for the initial conditions and state dependence. This is of interest because results in Islam and Shimeles 2005 reveals the importance of state dependence in explaining poverty dynamics in rural Ethiopia. The underlying dynamic binary response panel data model has the following specification:

$$P_{it}^{*} = X_{it}'\beta + \gamma P_{it-1} + v_{it}, \qquad i = 1,...,N \;;\; t = 1,...,T \qquad \textbf{[8a]}$$

$$P_{it} = 1(P_{it}^{*} > 0) = 1(X_{it}'\beta + \gamma P_{it-1} + v_{it} > 0) \qquad \textbf{[8b]}$$

$$prob(P_{it} = 1 \mid X_{it}, \alpha_i, P_{it-1}) = F(X_{it}'\beta + \gamma P_{it-1} + v_{it}) \qquad \textbf{[8c]}$$

$$v_{it} = \alpha_i + \xi_{it}$$

Where, P_{it}^{*} is the underlying response variable determining the latent process, P_{it} is the poverty status of household *i* during round *t* as measured by the consumption expenditure of the household and P_{it} takes the value of 1 if the household is poor in the relevant period, $1(\bullet)$ is an indicator function which is equal to one if the enclosed statement is true and zero otherwise, X_{it} is a vector of exogenous determinants of poverty status, $X_{it} = (X_{i1},...,X_{iT})$, α_i represents all household-specific, time invariant observed and unobserved factors, ξ_{it} is the transitory error which is assumed to be i.i.d. over time with a distribution function $F(\bullet)$, and finally, β and γ are the parameters to be estimated. In this case γ represents structural state dependence[15] in poverty and α_i is the source of spurious state dependence attributable to permanent unobserved heterogeneity in the household such as intelligence, ability, motivation, attitude, etc.

Using Hausman Specification Test, which basically tests whether the vector $(K \times 1)$ of random effects coefficients (efficient estimates) of the time varying variables, $\hat{\beta}_{RE}$,

[13] See Anderson and Hsio 1981, Holtz-Eakin et al. 1988 and Arellano and Bond 1991 for linear panel data models.

[14] See Honoré 1993, Honoré and Kyriazidou 1997 and An and Liu 1997 for non-linear panel data models.

[15] In their application of this model to welfare participation, Chay and Hyslop 1998, γ represents "welfare trap".

are systematically different from the corresponding fixed effects coefficients (consistent estimates under Ho), the result obtained from this test using linear probability[16] fixed effects and random effects specifications for poverty dynamics model shows that we reject the null hypothesis at 10% level of significance. Therefore, the two specifications are systematically different indicating that there is endogeneity in some of the regressors, where one of the random effects model assumption ($E(X_{it}\alpha_i) = 0$) breaks down.

Hence, the random effects model is not consistent and efficient. Because fixed effects approaches do not require parametric assumptions about the conditional distribution of the individual conditions, a lot of information is being absorbed in order to "non-parametrically" condition out the unobservable individual heterogeneity. As a result, fixed effects estimators may be sub-optimal since they 'throw away' comparisons between individuals that may be informative about the truth. If time-constant variables are of interest like the time-varying variables, the robustness of fixed effects estimator to correlation between the unobserved effects, α_i , and the X_{it} is useless. For these reasons, we use random effects nonlinear model. But to increase the robustness of our random effects model we applied two-step procedure, as specified below, which can control for the correlation between some of the regressors and the unobserved individual effects (Wooldridge 2003).

State dependence

As noted above, empirical works show that there is state dependence in the dynamics of rural poverty in Ethiopia. For this we introduce poverty status of the household in the previous period, P_{it-1} as a regressor that will allow us to test for the presence of genuine state dependence. According Heckman 1981a and1981b state dependence can be spurious or genuine arising from three sources: unobserved household characteristics; the effect of time varying shocks that are not specific to the household; and behavioral and preference shifts associated with poverty spell in the past. Genuine state dependence is due to past poverty status that results behavioral and preference shift. To test for the presence of genuine state dependence, one has to control for the other spurious sources of state dependence, i.e. controlling for observable and unobservable individual characteristics.

Unobserved Heterogeneity

We base our model in line with the work of Arulampalam et al. 1997 in their application to unemployment persistence in Britain. Assume the unobservable

[16] We used the linear Probability Model version for testing purpose due to its convenience and simplicity using standard statistical software packages, specifically STATA ™ (See Table 5 in Annex)

household specific heterogeneity, α_i, is time-invariant, from the error term in equation [8], we have;

$$v_{it} = \alpha_i + \xi_{it} \quad \textbf{[9]}$$

Were α_i denotes the household-specific unobservable effect and $\xi_{it} \sim i.i.n(0, \sigma_\xi^2)$. Assume $E(\xi_{it} X_{it}) = 0$ and α_i is random variable. In most cases, the household specific unobserved heterogeneity are correlated with the time-varying characteristics. In this case the maximum likelihood estimates of β will be inconsistent, which pick up some of the effects of the unobservable, α_i (Arulampalam et al. 2000). To overcome this problem, we relax the assumption that α_i and X_{it} are independent. The relationship between the unobserved household specific heterogeneity and the observed household characteristics can be modeled as

$$\alpha_i = \lambda_0 + \bar{X}_i' \lambda_1 + w_i \quad \textbf{[10]}$$

Where $\bar{X}_i$ is a vector of means of the time-varying covariates for household *i* over time, $w_i \sim i.i.n(0, \sigma_w^2)$ is independent of X_{it} and ξ_{it} for all *i* and *t*. Substituting equation [10] into equation [8a], we obtain

$$P_{it}^{*} = X_{it}' \beta + \gamma P_{it-1} + \bar{X}_i' \lambda_1 + w_i + \xi_{it} \quad \textbf{[11]}$$

Were the intercept λ_0 is absorbed in β. Thus this model is similar with the random effects probit model which accounts for the dependence between unobserved household specific effects and the observable household characteristics with additional regressor, $\bar{X}_i$.

[17] We can easily show that the correlation between the two successive error terms, v_{it} and v_{it-1}, for the same individual is constant, i.e,

$$corr(v_{it}, v_{it-1}) = \frac{\text{cov}(v_{it}, v_{it-1})}{\sqrt{\text{var}(v_{it})\,\text{var}(v_{it-1})}} = \frac{\sigma_w^2}{\sigma_w^2 + \sigma_\xi^2} \qquad \text{t=2,…T}$$

The initial conditions problem

Considering the initial conditions problem is another important parcel of nonlinear dynamic panel data model. This problem arises because the start of the survey period (1994 in our case) is not the same as the start of the stochastic process generating individuals' poverty experiences. Households observed in the state of poverty in 1994 may be there because of an early history of poverty (state dependence) or because of some observed and/or unobserved characteristics affecting their probability of being poor. As applied in Islam and Shimeles 2005, Arulampalam et al. 2000, Lawless 2005, and others, we also follow Heckman 1981c specification of the reduced form equation for the initial observation as

$$P_{i1}^{*} = Y_i' a + \eta_i \qquad \textbf{[12a]}$$

$$\mathrm{var}(\eta_i) = \sigma_{\eta}^{2} \qquad \textbf{[12b]}$$

$$corr(w_i, \eta_i) = \rho \qquad \textbf{[12c]}$$

Where Y_i' is a vector of strictly exogenous instrumental variables, which are relevant in period one, pre sample information affecting the probability of being poor in period one, and the vector of means, $\bar{X}_i$. For consideration of a non-zero ρ, we use linear specification in terms of orthogonal error components as

$$\eta_i = \varphi w_i + \xi_{i1} \qquad \textbf{[13]}$$

Given the fact that w_i and ξ_{i1} are orthogonal to one another, $\varphi = \rho \frac{\sigma_\eta}{\sigma_w}$ [18] and after simplification and substitution we obtain $\mathrm{var}(\xi_{i1}) = \sigma_\eta^2 (1-\rho^2)$. Furthermore, we assume that $corr(P_{i1}\xi_{it}) = 0$ and $corr(X_{it}\xi_{i1}) = 0$ for all *i* and *t*. Then after substituting equation [13] into equation [12a] the 'initial conditions' equation becomes

$$P_{i1}^{*} = Y_i' a + \varphi w_i + \xi_{i1} \qquad \textbf{[14]}$$

[18] It can easily be shown that $\varphi = \frac{\mathrm{cov}(\eta_i, w_i)}{\mathrm{var}(w_i)}$ and since $\rho = \frac{\mathrm{cov}(\eta_i, w_i)}{\sigma_\eta \sigma_w}$ we can easily solve to obtain the result.

From equation [11] and equation [14] we obtain a complete model of poverty dynamics, which can be estimated using different techniques. The estimation of this full model requires the use of special software or writing a program. However, we use two-step method of estimation suggested by Orme 1997, which is consistent with Heckman's standard sample selection correction method in case of small values of ρ. This procedure has been applied in Arulampalam et al. 1997 and Arulampalam 2002. In this procedure, to account for the correlation between the initial condition and the unobserved heterogeneity, a correction term is added to the conditional model. Then the complete model can be estimated using standard software packages.

Closing the model

In order to obtain estimable equation using standard statistical software packages, equation [11] and [14] we need to follow simple steps. First, we estimate the reduced form model for the initial observation, P_{i1}, using a simple probit model and then using the generalized residuals from this regression as a correction to the random effects dynamic probit model for the rest of the sample. Using equation [11] and [12a] we can capture the correlation $corr(w_i, \eta_i) = \rho$ by re-specifying equation [13] as

$$w_i = \phi\eta_i + \upsilon_i \qquad \textbf{[15]}$$

By construction, η_i and υ_i will be orthogonal to each other and similar to the previous specification, $\delta = \rho\frac{\sigma_w}{\sigma_\eta}$, and $\text{var}(\upsilon_i) = \sigma_w^2(1-\rho^2)$. By substituting equation [12] into our random effects dynamic probit model, equation [11], we obtain the following reduced form estimable equation

$$P_{it}^{*} = X_{it}'\beta + \gamma P_{it-1} + \bar{X}_i'\lambda_1 + \phi\eta_i + \upsilon_i + \xi_{it} \qquad i = 1,...,n \text{ and } t = 1,...,T \qquad \textbf{[16]}$$

$$prob(P_{it} = 1 \mid X_{it}', P_{it-1}, \bar{X}_i, \eta_i) = F(X_{it}'\beta + \gamma P_{it-1} + \bar{X}_i'\lambda_1 + \phi\eta_i + \upsilon_i + \xi_{it} > 0) \qquad \textbf{[17]}$$

In this specification there are two individual specific random error components, υ_i and ξ_{it}, because ξ_{it} is assumed to be orthogonal to the regressors, we can treat υ_i as the usual error component in a random effects probit model, provided that we can take care of the unobservable η_i. The other issue to note is that (w_i, η_i) are assumed

to be a bivariate normally distributed error components[19]. Finally, a test of the null hypothesis that $\rho = 0$ is given by the standard t-test of the coefficient of this additional regressor, ϕ.

3.4 Modeling implication of IRS strategies on Poverty dynamics

There are a number of ways of testing the hypothesis of full-risk pooling in our village economy setting. Households employ a portfolio of strategies rather than favoring one single coping strategy. Niggusse 2005 found that rural households in Ethiopia employ a range of risk coping strategies, livestock sales, food/crop received through food for work, credit, remittance, food/crop received from friends or relatives within the communities.

Most these variables although not exhaustive, are readily available from the ERHS data. Such as remittances received (both in kind and in cash), food gift from informal sources (gift, loan, other, excluding sources from wage, NGOs, or government, barter), whether households involved in any labor sharing arrangement (work party, like *Debo*, *Wonfel*, etc.), whether any member of the household is/are member/s in *Eqqub,* whether the household borrowed from informal sources, whether the household lend to others. Using these variables the underlying model for our poverty dynamics can be written as:

$$prob(P_{it}=1 \mid X_{it}, P_{it-1}, W_{it}, W_{it-1}) = F(X_{it}'\beta + \gamma P_{it-1} + \bar{X}_i'\lambda_1 + \sum_j \theta_{j1} W_{jit} + \sum_j \theta_{j2} W_{jit-1} + \varphi D_{vt} + \phi\eta_i + \upsilon_i + \xi_{it}) \quad \textbf{[18]}$$

[19] But, as discussed in Arulampalam et al. 1997, the assumption of a bivariate normal distribution of (w_i, η_i) implies that $E(\upsilon_i \mid P_{i1}) = 0$ and $E(\eta_i \mid P_{i1}) = \frac{(2P_{i1}-1)\phi(Y_i'a)}{\Phi(\{2P_{i1}-1\}Y_i'a)} = e_i$ where e_i is a probit generalized error in the probit equation given by equation [12], which will be replaced in place of the unobservable η_i. Unfortunately, this bivariate normality assumption implies that υ_i is heteroskedastic, i.e, its variance is not constant, $\text{var}(\upsilon_i \mid P_{i1}) = \sigma_w^2(1-\rho^2\kappa)$, where $\kappa = \frac{\phi(Y_i'a)}{\sqrt{\Phi(Y_i'a)\Phi(-Y_i'a)}}$. But, Orme 1997 in Arulampalam et al. 1997 , using Monte Carlo Simulations, shows that as far as the value of ρ is small this heteroskedasticity will not produce inconsistent parameter estimates.

Where, W_{it} is vector of variables representing IRS arrangements. W_{it-1} is the lagged value of these variables. While θ_{j1} captures the short-term impact, θ_{j2} captures the long-term implication.

4. The Data and Results

4.1 The Data

We use the longitudinal household data of Ethiopian Rural Household Survey (ERHS). The survey was conducted in six rounds in 1994[20] (two times), 1995, 1997, 1999, and 2004 which encompasses 15 peasant associations (PAs) in four national regions, covering a sample of approximately 1480 households. The shares within the sample are broadly consistent with the population shares in the three main sedentary farming systems in the country. For these reasons, the sampling frame to select the villages was stratified in the main agro-ecological zones and sub-zones, with one to three villages selected per strata. Further, sample size in each village was chosen so as to approximate a self-weighting sample (Dercon et al. 2005).

We have a balanced panel data set consisting of 1,236 households who are included in all the six rounds. These households are included because all important information are available or responded in each wave. Missing values for some variables are filled by a regression based imputation both based on cross-sectional and time series information.

4.2 Definition and Description of Variables

The dependent variable for the binary poverty dynamics model is determined using the total poverty line for each rounds and it takes 1 if the particular household in that round is poor, otherwise zero. The lagged value of this variable is also used as a regressor. We used one of the villages, Harasaw, food poverty line to derive our spatial and overtime deflator. We try to control for asset holding of the household by using land holding (in hectare), number of livestock other than oxen, and oxen plus bulls. Household characteristics are captured using variables such as sex of the head, age of the head in years, age squared of the head to see the second order effect of age, mean age in the household to capture the age composition in the household, household size, squared value of household size to capture the idea of scale economies at the household level, head's educational level. A set of dummy

[20] Two times in 1994. first form March to July and second wave from October 1994 to January 1995.

variables representing IRS strategies such as remittance, credit form informal sources, lending to others, food gift from informal sources, membership in *Eqqub*, involvement in work party (*Debbo*, *Wonfel*, etc) are used. We couldn't introduce information on membership in *Iddir* and *Mahiber* for the fact that it was not readily available in all rounds. **See Annex Table 7 for Definition & Description of Variables used in the model.**

4.3 The poverty line

In this study, the cost of basic needs (CBN) approach is adopted. To this, first we construct the food poverty line, which is the cost sufficient to get consumption bundle adequate to meet the predetermined food energy requirement[21]. Market price information collected during the survey period in that particular *Woreda* was used to obtain the monetary value of the food bundles specific to area. Then allowance for basic non-food consumption is made by dividing the food poverty line by the average food share of households at the poverty line. We sum the food poverty line and allowance for non-food consumption to obtain the total poverty line. Monthly consumption expenditure pre-capita or per adult equivalent is used to determine whether the household is poor or not.

4.4 Poverty profile and description of dynamics: 1994-2004

We can see from Table 1a that poverty declined from 1994 to 1997. This is due to the fact that there was policy reformulation and recovery of the economy from the longest civil war and socialist economic system and good natural conditions in the first four survey rounds elapsing from 1994 to 1997. In the fourth round, 1997, there is a very high improvement in poverty status of rural households. This is mainly because the data was collected immediately after harvest, which resulted in an exaggerated level of reported income and consumption compared to other rounds. Poverty conditions worsen in the year 2000 due to multiple social, economic, and political crises. There was a full scale war between Ethiopia and Eritrea, a sharp decline in world coffee price, unfavorable weather and macroeconomic condition and 13 million people starved due to drought (see Begisten and Shimeles 2006). There is some recovery in poverty indicators in 2004 compared to 2000. This is due to resurgence form the 1999/2000 multidimensional crises in the country and good weather conditions in the consecutive years.

See Annex Table 1a.

[21] The food poverty line calculation is base on the cost of 2200 kcal per day per adult equivalent. The adult equivalent units are calculated using WHO 1985 conversion codes for each age category and sex of the household members. See Annex 1 Table 1 for the common bundle of commodities that gives 2200 Kcal per day per month.

4.5 Poverty Entry and Exit

When we look at the status of poverty by the number of times a given household is being poor, Table 1b presents that 21.84% of the rural households have never been poor but only 3.4% of the households under consideration were always poor. We see that the percentage of households declines as the number of spell in poverty increases. This implies that there are a large number of vulnerable households concentrating around the poverty line, who fell into and exit from poverty. An important implication is that poverty in rural Ethiopia predominantly transitory.

Disaggregating the number of times households in poverty by wealth status[22], the percentage of those households who have never been poor increases as their land holding increases, which implies that land is important asset for rural households in their course of struggle against poverty. Land poor households are more vulnerable to relentless poverty (repeated/multiple spell in poverty) compared to the land rich. Logical pattern can be observed in households categorized by heads' level of education enlightening the importance of human capital against poverty. For instance, there are no households who have always been poor among those heads attained tertiary education. This could be due to the reason that besides their farm activity more educated household heads have managed to obtain off-farm wage employment, engaged in trade, employment in community service centers like clinic or schools. Duration in poverty spell is short for those households whose head's age is below 35 years. Higher percentage of households, whose size is above the median size experiences persistent poverty than others, which could be due to higher dependency ratio.

See Annex Table 1b.

4.6 State dependence

Table 2 in Annex shows movement into and out of poverty depending on past poverty status of households. For instance, 57.8% of those households who were poor in round two had been poor in round one. Similarly, 80.47% of the non poor households in round two were nonpoor in round one. Except in the case of round four, where most of the households were nonpoor, above 50% of those currently poor were poor in the previous round while above 66% of currently nonpoor households were nonpoor in the previous round.

[22] We used land holdings as measure of wealth classified into four classes of wealth, those in the first quartile, between the first and the second quartile, between the second and third quartile, and in the third quartile.

On average, there is relatively smaller percentage of state dependence in the poor category compared to the nonpoor revealing the concentration of poor households around the poverty line who managed to exit in one round but reenter in the other. This can also be interpreted as the transitory nature of poverty in rural Ethiopia. Generally, there is genuine state dependence in the poverty dynamics of rural Ethiopia.

4.7 Informal risk sharing

Table 3a and 3b presents the percentage of households who have some form of informal risk sharing arrangements and the intensity of their involvement. As discussed in the literature households use a variety of self-insurance and informal insurance strategies to smooth consumption form idiosyncratic and covariate shocks. In Table 3a, the most widely employed informal schemes are calling work party, credit from informal sources and membership in *Eqqub*, respectively. Households who are Land poor, female headed and age of the head above 65 tend to receive more remittance and food gift than the land nonpoor, male headed, and head age below 65 years, respectively. This clearly shows that there is endogenous self-selection regarding remittance and to some extent food gift, where the recipients are more or less vulnerable group. More interestingly, land non-poor and male headed households tend to participate in work party than those who are land poor and female, respectively. This reveals the advantage of male headed and land rich households in agricultural labor sharing arrangements and other productive engagements in the community.

The intensity of participation in informal risk sharing schemes is presented in Table 3b. Overall, around 73% of households participate in any one or more of the schemes. About 37.6% participate in any one while 26% in any two of the informal schemes. The percentage of households' participation declines as the number of schemes increase. This shows that there could be an optimal number of network participation for rural households.

Higher percentages of land nonpoor, male headed and head's age ranging between 25 and 65 years participate in multiple arrangements compared to the land poor, female headed and heads age above 65 years. This implies that membership in IRS is not an easily accessible arrangement to every member in the community. Those who are capable and well-to-do actively and intensively participate in informal arrangements than others. Hence, vulnerable group in rural community like old aged, land poor and female headed households tend to be relatively neglected.

See Annex Table 3a and 3b.

4.8 Determinants of poverty dynamics in rural Ethiopia

Using our specification in equation [17], we have estimated dynamic poverty model which accounts for state dependence and initial conditions problem. For comparison we also estimated static version of the model given by column (a) in Table 5 (This should be table 4-you do not have table 4 in the paper). From the Wald chi-square we can read that overall both models are significant at 1%. Our dynamic nonlinear model (column (b)) is more robust (smaller value of log likelihood) than the static version. On the other hand the fraction of variance due to idiosyncratic error term (Rho) has significantly decreased in the dynamic specification. That is, the variation in household specific effects is better controlled in the dynamic model. The coefficient on the lagged dependent variable is positive and significant at 1%, which dictates existence of genuine state dependence in rural poverty dynamics, where past poverty status inflicts an adverse behavioral and physical impact on the individual that leads to downward shift in preference and loss of motivation. In other words, in the course of reducing future poverty, current poverty matters. The correction term, generalized probit error, is also positive and significant at 1% validating our model specification. This indicates that there is serial correlation and ρ is different from zero.

For brevity, we only interpret correlates of poverty dynamics in column (b). From the set of household asset and wealth regressors like land, livestock and oxen, only the coefficient of size of land owned is negative and significant at 5%, This implies that as the size of land owned increases the probability of becoming poor declines, signifying the importance of land to reduce the incidence of poverty in the rural Ethiopia. But the coefficient on change in size of land owned is found to be positive and significant at 10%, may be indicating the nonmarket and institutional evolution in size of land owned by the household in rural Ethiopia, where land is state owned. Although, current number of oxen + bulls owned are found to be statistically insignificant, the mean number of oxen owned over time is significant at 1%. As mean oxen ownership over time increases the risk of poverty declines.

Most of the correlates of poverty have become less significant, insignificant, or their magnitude has declined in the dynamic model (b). By implication static models of poverty overstates the impact of poverty covariates.

Table 5: Random Effects regression of Poverty dynamics: 1994-2004. Binary dependent variables

Dependent variables		Random Effects Regression (a)		Dynamic Random Effects Regression (b)	
		Coefficients	Absolute Z-value	Coefficients	Absolute Z-value
	Const	-1.50318*	6.45	-1.2039*	6.53
	LD(1)	-	-	0.3268*	5.61
	Generalized Probit Error	-	-	0.2878*	7.95
Asset					
	Land size owned	-0.0846703*	4.79	-0.0519**	2.2
	No. of livestock	-0.0201328*	6.76	-0.0069	1.48
	No. of Oxen +Bulls	-0.075565*	4.00	-0.0110	0.49
	Interaction term Land X Oxen	0.0073225	1.50	0.0025	0.53
Household characteristics					
	sex of the head	-0.2926615*	4.73	-0.2436*	4.39
	Household size	0.347603*	11.15	0.3551*	10.06
	(Household size)^2	-0.0106152*	6.00	-0.0099*	5.92
	age of the head	-0.0011719	0.14	0.0023	0.46
	(age of the head)^2	-0.00000556	0.07	-0.00003	0.51
	Mean age in the household	0.0054901	1.39	0.0133**	2.17
	Primary education - head	-0.1345829**	1.97	-0.1599**	2.5
	Secondary education - head	-0.6077186*	3.65	-0.3309**	2.07
	Tertiary education - head	-1.203716*	2.94	-0.6248	1.48
Change in household characteristics and asset					
	Change in household size	0.0023693	0.17	-0.0052	0.27
	Change in mean age in the household	-0.0080153***	1.90	-0.0095***	1.78
	change in age of the head	0.0025523	1.21	-0.0005	0.24
	Change in size of land owned	0.0392977*	3.10	0.0324**	2.07
	Change in no. of livestock ownership	0.0078659**	2.28	-0.0017	0.39
	Change in no. of oxen (oxen + bulls)	0.0153167	1.42	-0.0049	0.38
Mean variables over time					
	Mean of mean age in the household	-	-	-0.0129**	1.99
	Mean household size	-	-	-0.069*	2.98
	Mean size of land owned	-	-	0.0352	1.14
	Mean No. of livestock owned	-	-	-0.0055	0.92
	Mean No. of Oxen (oxen +bulls) owned	-	-	-0.1246*	3.7
Other variables					
	Chat growing village	-0.7085159*	-6.68	-0.2763*	2.72
	Coffee growing village	0.2009743**	2.35	-0.942*	4.75
	Interaction term chat X coffee	0.8573128*	5.00	0.2558	1.48
Rho		0.2692029		0.1378043	
Log likelihood		-3278.6387		-3059.5507	
Number of observations		6085		6085	
Wald Chi-square		589.92*		1102.09*	

Note:

* Significant at 1%, **significant at 5%, ***significant at 10%. A set of interaction terms between rounds and Villages are included but not reported. Most of these set of dummies are statistically significant.

Compared to female headed, male headed households have lower probability of being poor, cetirus paribus. There are a number of reasons behind this gender differential. One could be female headed households, in most cases, are those whose husbands are deceased, widowed or living elsewhere making them more vulnerable to poverty than the male headed one. Second, due to traditional and religious believes, women in rural Ethiopia are usually denied access to and participation in productive resources and opportunities. Household size increases risk of poverty, while its second order effect is to reduce it reflecting the presence of scale economy in the household. But the magnitude of the coefficient of household size square is negligible. Educational level of the head has important implication on household poverty status. Having attained primary, secondary or tertiary schooling by the head reduces the probability of falling into poverty. Although, the magnitude is not economically meaningful, increase in mean age in the household have statistically significant impact of reducing poverty. This can be interpreted as transition of some members from childhood to working age/adult increases the pool of productive age members in the household that has poverty reducing impact. Compared to cereal cultivating regions, dominantly central and northern Ethiopia, households residing in chat and coffee growing areas have lower probability of being poor.

4.9 The implication of informal risk sharing strategies on poverty dynamics

The impact of informal risk sharing strategies on poverty dynamics using dynamic random effects probit specification of equation [19] is presented by Table 6. To see both the short-term and long-term impacts of these informal arrangements, we have included current and lagged values into the regression. There may be some correlation between the lagged and current values of regressors. But result from pair-wise correlation matrix shows that none of them are significantly correlated. As can be compared with Table 5, the inclusion of these regressors, has both increased the magnitude of state dependence and improved the robustness of the model. After controlling for household specific observed and unobserved effects, state dependence, covariate and time varying transitory shocks and other developments, many of the IRS arrangements significantly affects poverty dynamics. Among our set of IRS strategies receiving remittance, receiving food gift, lending to others, and membership in *Eqqub* reduces the incidence of current poverty with statistical significance of 10%, 5%, 1% and 1%, respectively. With the exception of receiving credit and involvement in work party, the sign of all other current informal arrangements is negative, implying that they reduce the probability of being poor, currently. The coefficient of lagged value of receiving remittance is positive and significant at 5%, while all others are insignificant. This can be interpreted as that the

long-term impact of remittance is to increase risk of poverty due to adverse incentive impact on the behavior of the recipient household while the long-term impact of the other informal arrangements is statistically insignificant.

Table 6: Impact of informal risk sharing strategies on Poverty dynamics: 1994-2004. Binary dependent variable

Dependent variable		Random Effects	
		Regression Coefficients	Absolute Z-value
	Const	-1.2104*	6.60
	LD(1)	0.3306*	5.65
	Generalized probit Error	0.2692*	7.89
Informal risk sharing			
	Received Remittance	-0.1391***	1.79
	Received food gift	-0.2157**	2.06
	Received Credit	0.0469	1.08
	Lend to others	-0.2719*	3.12
	Member in Eqqub	-0.2698*	4.03
	Involved in Work party	0.0131	0.23
lagged values of informal risk sharing			
	Received Remittance	0.1754**	2.20
	Received food gift	0.0508	0.54
	Received Credit	0.0296	0.69
	Lend to others	-0.0996	1.11
	Member in Eqqub	-0.0943	1.43
	Involved in Work party	-0.0237	0.40
Rho		0.1259	
Loglikelihood		-3033.7479	
Number of observations		6085	
Wald Chi-square		1137.51*	

Note:

* Significant at 1%, **significant at 5%, ***significant at 10%. Variables entered into the regression but not reported; size of land owned, no. of livestock owned, no. of oxen owned, sex of the head, age of the head, (age of the head)2, household size, (household size)2, mean age in the household, education level, change in size of land owned, change in no. of livestock owned, change in no. oxen owned, change in age of the head, change in mean age in the household, interaction term between size of land and no. of oxen owned and a set of interaction terms between regions and rounds.

Remittance is direct cash/in-kind transfer and can be treated like other transfers such as public aid (Cox and Jimenez 1991 in Morduch 1999). The short-term impact is counterbalanced by the long-term welfare reducing impact may be due to adverse

incentive effect reducing work incentive (adverse incentive impact) and trigger dependency. This is because the remitter cannot easily observe the associated long-term adverse behavioral impact and has no calculated mechanisms of checking the adverse behavioral consequences.

On the other hand, an important and theoretically consistent implication can be derived, where lending to others and membership in *Eqqub* are important means of household saving in rural Ethiopia. Lending to others can be considered as both saving and investment by households in rural areas. Through lending to others, households can put away their income from current consumption and earn interest rate, which is usually large, that can be reinvested on productive activities or consumed in the future. The risk of default on the other hand is very small in rural setting. Compared to formal lending institutions, enforcement mechanisms, social exclusion and other punishment methods are effective resulting in relatively smaller default rate. *Eqqub*, on the other hand, is a rotating saving and credit scheme, where members contribute constant amount of money each period and collect a sum of pooled money when it is their turn. The lion share of this money is spent on the purchase of food items and other household consumables like clothes, while smaller proportion still goes to the purchase of livestock (the table can be obtained from the author). Generally, saving in the form of lending to others and *Eqqub* have an important positive short-term and long-term impact on the welfare of rural households while remittance and other forms of direct and free transfers may lead to persistent poverty in the long-term.

5. Conclusion

The main objective of the paper was to uncover factors that determine the nature of rural poverty dynamics in rural Ethiopia from various dimensions and assess the impact of IRS strategies on poverty dynamics. Unlike static treatment, the dynamic consideration is more robust and it confirms the existence of genuine state dependence in rural poverty dynamics.

Household wealth status as measured by land size holding and mean number of oxen owned, sex of the head, level of education attained by the head and mean age in the household are important household characteristics that determine poverty dynamics. Cetirus paribus, land is important asset for rural dwellers which significantly reduce the risk of poverty. But its change reinforces the risk of poverty, which is may be indicating the non-market institutional evolution of land in rural Ethiopia. Our result also shows that female headed households are vulnerable to

risk of poverty than male headed. Those households residing in chat and coffee growing villages have lower risk of being poor compared to others.

After we controlled for state dependence, household characteristics, covariate time varying transitory shocks and other developments, receiving remittance, food gift, lending to others and membership in *Eqqub* significantly reduce the risk of current poverty. But in the long-term the impact of receiving remittance is to increase the probability of falling into poverty. The short-term positive impact of this receipt is offset by the long-term negative impact. This could be due to adverse incentive impact of gifts on work incentive that create dependency. While the impact of lending to others and membership in *Eqqub* have poverty reducing impact both in the short-term and the long-term, signifying the importance of saving in the form of contribution to *Eqqub* and saving and investment in the form of lending to others.

Although, results derived from the study are indicative and robust, there are some problem related with the model and variables used. For instance, we applied non-linear dynamic random effects panel data model based on two-step procedure that do not take Autocorrelation into consideration. The model is more robust (Homoskedastic), when ρ is small. But the magnitude of ρ is arbitrary that is difficult to define whether it is large or small. To keep our panel data balanced we drop out many households that increases attrition rate in the data. In addition, the set of dummy variables representing informal risk sharing arrangements used in our model are not exhaustive, which disregarded membership in *Mahiber*, *Iddir*, etc. due to lack of consistent information for each panel wave. Furthermore we only use one lag to approximate the long-tem impacts. And these lags should not be interpreted as one year lag. The lag length ranges from four months to four years. Given these shortcomings, still important implications can be derived from the study that will be helpful and indicative both for researchers and policy makers. According to the finding, some of existing informal risk sharing strategies available to the household like remittance and food gift increases long-term risk of poverty, and hence they are not effective insurance means in the long-term. Given the possibility of crowding out of the existing informal arrangements, institutional interventions that makes saving safe and more convenient through saving-oriented microfinance institutions, formal banks or postal saving arrangements will increase the capacity of self-insurance and reduces poverty. On the other hand the crowding out of some of informal arrangements, for example remittance and food gift, may have valuable social benefits through ameliorating adverse incentive problems.

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Annex 1.

Table 1a: Poverty Profile in Rural Ethiopia: 1994 – 2004

Poverty Measures	1994	1995	1997	2000	2004*
0 Per capita	56.0%	49.0%	39.0%	50.0%	42%
P0 Per Adult Equivalent	48.0%	40.0%	29.0%	41.0%	33%
P1 Per Capita	25.1%	21.3%	16.3%	21.7%	18%
P1 Per Adult Equivalent	21.0%	16.0%	10.0%	14.1%	14%
P2 Per Capita	16.7%	13.3%	8.8%	13.7%	11%
P2 Per Adult Equivalent	13.1%	10.2%	6.0%	10.2%	7.8%

Source: Bigsten and Shimeles 2005.

*Author's calculation for 2004 (N=1236)

Table 1b: Percentage of Household by duration in by Household characteristics: 1994-2004

Poverty status	The whole sample	By Land holding Between quartile:				Male Headed	Female Headed	Education level of the head			Age of the head			Household size (Median=6)		
		1st	1st and 2nd	2nd and 3rd	3rd			Primary	Secondary	Tertiary	<=25	<=35>25	<=65>35	>65	< 6	>=6
Never Poor	21.84	13.21	15.76	26.12	31.85	22.14	20.84	22.28	24.64	33.33	24.05	25.64	20.35	22.06	28.12	15.89
Once Poor	21.44	15.11	18.67	27.09	24.66	21.74	20.43	21.56	31.16	26.67	25.38	26.07	19.11	23.17	24.27	18.75
Twice Poor	16.5	17.85	17.82	17.36	13.12	16	18.21	17.07	16.67	26.67	15.53	15.25	17.31	15.29	17.79	15.29
Thrice Poor	14.4	18.35	15.28	10.77	13.33	14.93	12.65	17.07	15.22	10	16.1	11.55	15.03	14.64	13.49	15.26
Fourth times poor	13.11	18.86	14.69	9.79	9.34	12.37	15.57	11.14	7.97	3.33	9.85	11.62	14.03	12.79	8.73	17.26
Five times poor	9.3	12.31	11.56	6.91	6.56	9.41	8.96	6.11	3.62	0	6.44	6.46	10.49	9.45	5.68	12.74
Always Poor	3.4	4.31	6.21	1.96	1.15	3.42	3.34	4.76	0.72	0	2.65	3.41	3.68	2.59	1.91	4.81

Source: Author's calculation from ERHS data.

Table 2: Transition Matrix: 1994-2004

Status in		Round 2		Round 3		Round 4		Round 5		Round 6	
		Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
	Poor	**57.8**	42.2	67.8	32.18	33.9	66.09	39.9	60.12	52.6	47.4
Round 1	Nonpoor	19.5	**80.47**	32.5	67.5	9.07	90.93	24.4	75.59	33.8	66.25
	Poor	-		**76.1**	23.86	34.3	65.68	45.7	54.32	55.7	44.32
Round 2	Nonpoor			31.4	**68.59**	11.3	88.69	22.7	77.26	33.9	66.08
	Poor			-		**33.2**	66.84	43.6	56.41	53.5	46.5
Round 3	Nonpoor					7.22	**92.78**	19.5	80.49	31	68.97
	Poor					-		**50.6**	49.38	58.1	41.91
Round 4	Nonpoor							26.1	**73.87**	37.7	62.31
	Poor							-		**59.2**	40.84
Round 5	Nonpoor									33.8	**66.16**

Table 3a: Percentage of households participated in informal arrangements by asset holding and demographic profile

							Age Category			
Informal schemes	Overall	Land poor	Land non-poor	Male Head	Female Head	**<=25**	**<=35>25**	**<=65>35**	**>65**
Received remittance	8.33	10.40	6.30	7.10	12.47	7.58	5.52	8.55	11.40
Received food gift	4.64	5.61	3.69	4.12	6.38	6.25	5.23	4.17	5.00
Credit	42.81	44.91	40.76	43.52	40.46	39.39	43.72	45.06	34.11
lend to others	6.69	3.73	9.59	7.60	3.63	6.25	9.44	6.23	5.28
Eqqub	16.36	15.63	17.07	17.10	13.88	15.53	16.19	17.26	13.25
Work party	43.26	34.72	51.63	45.78	34.84	42.99	45.75	45.44	31.23

Table 3b: Percentage of households members in multiple informal risk sharing arrangements: 1994-2004

	Age Category								
Informal schemes	Overall	Land poor	Land non-poor	Male Head	Female Head	**<=25**	**<=35>25**	**<=65>35**	**>65**
None	26.13	31.64	20.73	24.28	32.32	27.65	24.18	24.07	36.33
Any 1 Scheme	37.63	34.83	40.38	38.07	36.18	38.26	36.6	38.2	36.33
Any 2 Schemes	26.15	22.63	29.59	27.59	21.31	24.81	29.77	26.74	19.74
Any 3 Schemes	8.37	8.82	7.93	8.41	8.26	7.39	8.21	9.09	6.12
Any 4 Schemes	1.52	1.91	1.15	1.51	1.58	1.52	1.09	1.71	1.3
Any 5 Schemes	0.19	0.16	0.21	0.14	0.35	0.38	0.15	0.18	0.19

Table 7: Definition and Description of variables

Variable	Description
P_{it}	Dummy =1 if the household i is poor in period t, otherwise zero.
Lnrcpc	log of real consumption per adult equivalent per month
Lnry	Log of real consumption per adult equivalent per month
P_{it-1}	Previous poverty status.
Asset holdings	
land	Sized of land owned per household in hectare
livstk	No. of livestock other than oxen and bulls
Oxen	No. of oxen + bulls
dlivstk	Change in no. of livestock owned
doxen	Change in no. of oxen and bulls owned
dland	Change in size of land owned.
Household demographic characteristics	
sex	Sex of the head =1 if male, otherwise zero.
age	age of the head in years
agesqr	age square, to see the second order effect of age
hhsize	household size
hhsizesqr	square of household size to see household economies of scale
mage	mean age in the household
predu	Dummy=1, if head of the household has primary education
seduc	dummy=1, if head of the household has secondary education
teduc	dummy=1, if head of the household has tertiary education
dhhsize	Change in household size
dmage	Change in mean age in the household
dage	change in age of the head
Over time mean variables	
mmage	Mean of mean age in the household
mhhsize	Mean household size
mland	Mean size of land owned
mlivstk	Mean No. of livestock owned
moxen	Mean No. of Oxen (oxen +bulls) owned
Regional and Community characteristics dummies	
Chat	Chat growing village
Coffee	Coffee growing village
DVit	Region X Round interaction term. (5X5=25 variables)

DETERMINANTS OF URBAN POVERTY: THE CASE OF DEBRE MARKOS[1]

Esubalew Alehegn[2]

Abstract

Poverty has remained the central agenda of any developing country. Ethiopia, one of the developing countries, took poverty reduction as the prime concerns of the nation. Though rural poverty is still perceived as the country's major problem, recent empirical studies confirm the reverse with overall increasing trends in urban poverty. This paper examines determinants of urban poverty in Debre Markos. The data, though not exclusively, came from cross-sectional surveys conducted in 2006. Methodologically, it used logistic regression with the probability of a household being poor as a dependent and a set of demographic and socioeconomic as explanatory variables. It employed cost of basic needs approach to identify the poor from the non-poor. Based on this approach we found the head count, poverty gap and severity poverty indices respectively 0.66%, 0.21%, and 0.09%. Of the hypothesized variables, monthly income, family size, educational level, and health status of households affected incidence of poverty significantly at 1% level. This calls for interventions, among others, diversifying households income through different employment opportunities, family planning, education, and improving households health conditions which these in turn entail coordination efforts of the urban local government and residents themselves.

Keywords: Urban, Poverty, Debre Markos, Ethiopia

[1] This is part of Master's Dissertation in Development Studies.

[2]National Bank of Ethiopia. Thanks are to Ato Abebe Baye, Manager of the city administration, who helped me in availing the necessary databases for the study. I also acknowledge the financial and material supports of the city administration service.

1. Introduction

Poverty is a deep-seated and pervasive reality of most nations. About half of the world's population lives on less than US$ 1 a day or less. It is a vicious circle of poor health, reduced working capacity, low productivity and shortened life expectancy. It is also a trap leading to inadequate schooling, low skills, insecure income, early parenthood, ill health, early death. It curtails growth, results instability and keeps developing countries from advancing to the path to sustainable development (Admassie 2004).

Poverty has remained a longstanding socioeconomic problem of any developing country. In Ethiopia it affects a significant portion of the rural and urban population. Based on estimates of international poverty lines, US*$* 1 per day per adult equivalent, absolute poverty in the country comprises 26.3 percent of the whole population. The percentage will further increase to a significant number if the poverty line is raised to USD 2 per day per person in the year 2007 (World Bank 2005). Based on the 1999 national poverty line of the country 44 percent of the population live below absolute poverty line (Ministry of Finance and Economic Development 2002). World Bank (2000) and UNDP (2003) cited in Michago (2005) reported the country's lowest GNP per-capita in the world with its purchasing power parity (PPP) adjusted GNP ranking 200th from 206 countries. The human development index (HDI) and human poverty index (HPI), respectively, also ranked Ethiopia 91st and 6th from 175 and 94 developing countries (UNDP 2003).

Poverty in its nature is multidimensional. Like in many other developing countries, in Ethiopia, it is manifested in a number of ways. This manifestation is attributed to a multitude of interrelated causes. Girma (2006), for example, has discussed causes of poverty as lack of income and asset, poor health conditions, low or absence in school education and backward attitude towards work. Insufficient income will result in the reduction of consumption expenditure, poor health leads to being unproductive, absence from work, and lack of education results in skill shortage and limited opportunity to employment. Such factors are widespread in most third world countries. However, there are some variations among the causes, processes, and consequences of poverty. Its severity also very much varies both in urban and rural setups among nations. Due to its poly-dimensional nature, variations across and within nations in rural and urban areas, strategies aimed at poverty reduction, need to identify factors that are strongly associated with poverty and that are amenable to modification by policy (Geda et al 2005).Albeit urban poverty has been increasing smoothly in Ethiopia factors that account for results are not studied very well, specifically, in medium towns/cities as most empirical studies concentrate either in

the primate city or big cities of the country. With this in mind, this paper aimed at assessing determinants of urban poverty in Debre Markos, a city/town, which according to the urban classification of the country taken as a medium urban area. It particularly tried to identify households who live below poverty line and crystallizing variables with significant impacts on urban poverty. The rest of the paper is organized as follows. Section two presents brief description of the study area. Section three brings data and methodology. Section four reviews literature. Section five discusses results and finally, section six, brings conclusion and policy implications.

2. Study Area: *Debre Markos*

Founded in 1853, Debre Markos is one of the oldest and medium[3] cities of Ethiopia. It is located 300 kilometers northwest of the capital city, Addis Ababa, and 265 kilometers southeast of the Amhara National Regional State capital city-Bahir Dar. The geographical coordinates of the city are 10^{o} 21^{1} latitude north and $37^{o}43^{1}$ longitude east. Its municipal area roughly covers 60 Km^2. Situated at 2420 meters above sea level the city enjoys moderate temperature. The city experiences a mild tropical climate with mean annual rainfall of 1308 mm and temperature 16^{o}c (Planning and Economic Development of East Gojjam 2004).The 1994 population projection , the median variant, puts population of the city in 2006 117,816.

In spite of its age old, it is constrained with huge physical and social infrastructures backlogs. Water supply, sewerage, human waste and sanitation, drainage and flood control, solid waste management, urban road structure, neighborhood improvement programs, public housing, core housing sites and services improvement program, new settlement and satellite settlements programs, urban land provision and guided land development, market infrastructure improvement, public transport terminals, electricity provision, and telephone services are by no means the least. Its economic infrastructure by any standard happened to be the least. Social amenities such as health, education, and sport are to the lowest level. Dwellers generally do not lead decent lives (Planning and Economic Development East Gojjam 2004). A number of issues attribute to this, lack of commerce for absence of commercial crop productivity in nearby rural areas, attitude towards work, homogeneity in culture, language, ethnicity, and religion, lack in business competition, low educational level, and lack of entrepreneurship are believed to be the few ones. Most residents work on areas of limited returns, including, petty trade and urban agriculture. Females predominantly are busy in preparing and selling traditional drinks-*Tella and Tej.* A small number of

[3]Ministry of Works and Urban Development of the Federal Democratic Republic of Ethiopia classified urban areas into various grades. Based on this classification, Debre Markos is rated as the second grade city in the Amhara National Regional State.

residents employed in civil services, while others in trading, small-scale industries (woodwork and metalwork), handicrafts: weaving and sewing. Despite paucity of data generally there is an increasing general trend in unemployment. This is increasingly aggravating the existing social problems. The absence of affordable recreational centers in the town is another problem to dwellers. Assaults, thefts, cases of law negligence, and burglaries are some of the common features of the city (East Gojjam Administrative Zone 2001)

3. Data and Methodology

The data for this study came from cross-sectional survey conducted in 2006. Household demographic characteristics, employment, monthly income, educational level, household size, health status, and consumption expenditure were taken as variables for the study. These variables were gathered through structured questionnaires. The structured questionnaires posed to adult (head) female households. The rationale behind the choice of adult female/ household head as a unit of analysis is with the belief that these people are more likely to give true responses compared to other members of the household. The sample size is shown below (Fowler 2002).

$$n = \frac{(Z\alpha/2)^2 P(1-P)}{D^2}$$

Where, n= sample size
$Z\alpha/2$ = the two-tailed critical value at 5% level (1.96)
P = assumed incidence of urban poverty [4]in Debre Markos
D = marginal error between the sample and population size (0.05)

The result gives: $n = \frac{(1.96)^2 0.22(1-0.22)}{(0.05)^2} = 260$

Therefore, the sample size is 260.

The study covered six kebeles[5] of the city. They are kebele 01, 03, 04, 05, 08, and 12. The total number of households in these kebeles adds up 9270. Selection in

[4]In incidence studies we usually take the incidence rate. When there are no familiar previous studies it is recommended to take 0.5 as the assumed rate of incidence. But if there is empirical study in the area of interest we take that value. In the case of Debre Markos we took 0.22 as the incidence rate consulting Ethiopian Urban Household Survey of 2004.
[5] Kebele is the lowest administrative unit

each kebele were determined proportion to *Kebele* population and households were randomly selected through systematic random sampling based on sampling frames prepared from the housing registry available at the *kebele* administrative offices. The following table shows the distribution of households in each kebele.

Table 1: Household size of surveyed *kebeles*

Surveyed Kebele	01	03	04	05	08	12
Total Households	820	1711	1284	1141	995	1319
Sampled Households	23	48	36	32	84	37

Source: Respective kebele list and own computation

The Logit Model

In analyzing correlates of urban poverty we employed Logistic regression. Logit model is appropriate when we assume random components of response variables follow binomial distribution & when most variables have categorical responses. Demographic characteristics (sex, age, family size), educational level of the household head, occupation, and household services: health, water, and house tenure were taken as explanatory whereas urban poverty as the dependent variables. The form of the Logit model following Gujarati (2006) is:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + ... + \beta_k X_k + \varepsilon \quad \textbf{(1)}$$

Where,
Y = probability of a household being poor
α = intercept/constant term
β_k =coefficients of the predictors
X_i= predictors/independent variables
ε = random effect/error term

Aggregating the value yields

$$\acute{Y} = \alpha + \sum_{k=1}^{k} \beta_k X_k + \varepsilon \quad \textbf{(2)}$$

In practice Y is unobserved, and ε is symmetrically distributed with zero mean and has cumulative distribution function (CDF) defined as F (ε). What we observe is a dummy variable y, a realization of a binomial process defined by

$$y=\begin{cases} 1 if y > o \\ 0 otherwise \end{cases} \quad \textbf{(3)}$$

From equation (2) and ignoring the constant term and rewriting the model yields

$$\text{Prob (Y=1)} = \text{Prob}\left(\sum_{k=1}^{k}\beta_k X_k + \varepsilon > 0\right)$$

$$= \text{Prob}\left(\varepsilon > -\sum_{k=1}^{k}\beta_k X_k\right)$$

$$1 - F\left(-\sum_{k=1}^{k}\beta_k X_k\right) \quad \textbf{(4)}$$

The Logit model usually takes two forms. It may be expressed in terms of Logit or in terms of event probability. When expressed in Logit form, the model is specified as

$$Log\left[\frac{p(y=1)}{1-p(y=1)}\right] = \sum_{k=1}^{k}\beta_k X_k \quad \textbf{(5)}$$

Using equation 4 and 5 and replacing the general CDF, F, with a specific CDF, we can specify a Logit model of event probability as shown below:

$$\Pr ob(y=1) = 1 - L\left[\sum_{k=1}^{k}\beta_k X_k\right] = L\left[\sum_{k=1}^{k}\beta_k X_k\right] = \frac{e^{\sum_{k=1}^{k}\beta_k X_k}}{1+e^{\sum_{k=1}^{k}\beta_k X_K}} \quad \textbf{(6)}$$

The above equation represents the probability of an event occurring. For a non-event, the probability is just 1 minus the event probability.

$$\Pr ob(y=0) = \left[-\sum_{k=1}^{k}\beta_k X_k\right] = L\left[\sum_{k=1}^{k}\beta_k X_k\right] = \frac{e^{-\sum_{k=1}^{k}\beta_k X_k}}{1+e^{-\sum_{k=1}^{k}\beta_k X_k}} \quad \textbf{(7)}$$

4. Literature Review

Research in the past indicated variations in the forms and dimensions of poverty both in rural and urban settings (Todaro & Smith 2006). Customarily, rural poverty is linked to agricultural productivity, land possession, and livestock number while urban

poverty is connected, though not entirely, with heterogeneous economic and social factors(Ravallion 1995,1993,1992).All too often, the poverty of the rural populace, specifically, of the third world nations, does have great impact on urban poverty. In such nations rural poverty is one of the many factors that stimulate massive exodus among the productive segments, most of which are unskilled, posing negative externalities to cities. In such cases, the poor economic performance of the rural areas will be the major contributing factor to the persistence of urban poverty (Mulugeta 2001).The heterogeneity of poverty in urban settings mainly attributes to the high monetization of economies. Unlike in rural areas, urban poverty, usually dictated at the individual level. Poverty in such context is typically described in terms of occupation, income, pocket money, consumption level, and employment status (Department for International Development 1997).

World Bank cited in Tesfaye (2002) described urban poverty as multi-dimensional phenomena characterized by cumulative deprivation where one form of deficiency leads to another. The various dimensions of urban poverty include income, health, education, tenure insecurity, personal insecurity, and disempowerment. The multi-faceted nature of urban poverty is also noted in Mulugeta (2001). Pursuant to the writer's result the various features of poverty that characterize most urban poor include unemployment, lack of employment, failure to send children to school, lack of access to health facilities, sanitation, potable water, electric services and good housing. Above all, lack of employment is one of the greatest economic challenges that incapacitate poor people to meet their basic needs.

Christensen (2004) examined evolution of urban poverty. On the causes of urban poverty, Christensen's findings point to such factors as high urban population growth, rural- urban migration and migration from small to big towns. Rural-urban migration is a coping mechanism devised by rural poor, but migration adds to the existing burden of urban poverty. Unlike findings elsewhere in sub-Saharan Africa, Christensen's results indicate that the rate of urban poverty is strikingly similar to that of rural poverty in Ethiopia. Cities and towns irrespective of their status are expanding without the necessary preconditions. This phenomenon, recently, is increasingly paving the way for rampant urban poverty. The level and growth of urbanization in the country do not go in parallel. There is, indeed, ample evidence that urban areas are unable to cope with the increasing population and delivery of services has deteriorated markedly over the years. Access to housing, health, and education services continues to be seriously limited. Basic sanitary conditions are atrocious by any standard. Transportation facility, energy availability and access to job, labor market, skill reproduction, work, entitlements and finance are also at their lowest level (Rahmato & Kidanu 2002).

Urbanization is increasingly pausing a major issue of concern not only in the primate city, Addis Ababa, but is leading to quagmire challenges among the regional capital cities such as Awassa ,Bahir Dar, Dire Dawa , Mekelle, Nazareth and presently even to the medium and small towns of the country. Given the high rural - urban migration and natural increase within the urban areas the structure of the population is largely dominated by higher proportions of the lower age group. The burden of the dependency ratio aged 15- 64, estimated 88 percent. The young population dominates the main features of the Ethiopian urban population with children (0-14 years) and youth (15-24 years) together accounting for almost 65 present of the total population (Central Statistical Authority 2003).

There are visible urban poverty signs everywhere-malnourished citizens with dirty and torn clothes, beggars, shanty homes, scattered garbage, small items exchange sites, idle persons and the like. These poverty symptoms are likely to aggravate with increased urbanization that the country is undergoing (Ethiopian Economic Association 2004/05).Mamo and Andrew (2003) analyzed quantitatively the status of chronic poverty in urban Ethiopia. They conducted in Addis Ababa, Bahir Dar, Nazereth, Dire Dawa, Mekelle, Awassa, Jimma, and Dessie. They conducted the study in three waves of panel data set on 1500 households collected through the Ethiopian Urban Household Surveys from 1994 to 1997. Their study showed the extent of chronic and transitory poverty in urban Ethiopia, identified the characteristics of the poor, and determinants that explain chronic and transitory poverty. They used total household consumption expenditure as poverty proxy. They examined the robustness of the pattern and trends of poverty with quantitative and subjective evaluation of welfare changes. They found that during 1994-1997 median consumption expenditure per adult declined for the total sample from 100.46 Ethiopian Birr (ETB) to 73.4 Birr. This decline, according to their study, is evident in all areas, is monotonic over the period, and is particularly apparent between 1994 and 1995. Overall, their result suggested acceleration of urban poverty.

In the second and third waves of their study period (1995 &1997) they focused on changes in household income, expenditure, and living standards since 1994. Methodologically, they adopted qualitative approach perception of households. The study revealed that 40 percent of the households' income has generally reduced. The study further found the congruence between the subjective responses and quantitative approaches through consumption expenditure. Overall, the finding showed increased urban poverty.

Bigsten et al (2003) reported poverty trends using consumption poverty lines on urban Ethiopia between 1994 and 1997. He found a decrease in consumption level in

the years considered. The result showed an increase in poverty from 1995 to 1997. Likewise, in the case of Tadesse (2003) trends vary by city. Between 1994 and 1995, it declined in Addis Ababa, Awassa, Bahir Dar, and Jimma whereas it increased in Dessie, Dire Dawa, and Mekelle.

Ministry of Finance and Economic Development (2002) of the Federal Democratic Republic of Ethiopia studied urban poverty in Ethiopia from 1995/96 to 1999/2000. The study was basically based on consumption expenditure. Consistent with other studies this study also revealed overall increase in urban poverty more than 11 percent. Access to food has also deteriorated in urban areas as measured by real food expenditure per capita and/or adult which it also resulted in decline to calorie consumption per day per adult. The percentage change of food consumption, according to some survey in urban areas, is negative.

Alemayehu (2004) analysis using panel data generated through Economics Department of Addis Ababa University has confirmed poverty increment in urban areas. Clox (2003) in Ghana found correlation of household head and spouses' educational level with significant positive impact on the likelihood that a household was never poor. The spouses having been educated to primary level or the head to secondary level both had strong negative influences on the likelihood that the household was chronically poor. Djavad (2002) in Michago (2005) found negative relationship of education for long-term poverty .However, for short-term poverty its effect was only significant with high school and above.

Tadesse (2003) studied determinates and dynamics of urban poverty in Ethiopia using panel data of households drawn from Ethiopian urban socio-economic survey conducted through the Economics Department of Addis Ababa University. The study used multivariate regression model to capture factors that determine changes in the standard of living and mobility of households in and out of poverty. He employed total household expenditure per adult equivalent as the dependent variable with the exogenously predetermined household characteristics as the explanatory variables. Grootaert (1997) in Garza (2001) studied determinants of poverty in Cote d'Ivore using Probit model. He used the data from Cote d'Ivore living standards survey conducted annually from 1985 to 1988. He estimated the Probit model for both urban and rural areas separately. Both researchers (Tadesse and Grootaert) found that the probability of being poor decreases as the age of the household head increases. In assessing the correlates of employment with urban poverty Mamo and Andrew (2003) Fissuh and Harris (2004) and Tadesse (2003) found a negative and significant relationship between employment level of the household head and incidence of poverty.

Empirical studies suggest that there is a positive correlation between households' size and poverty. Djavad in Michago (2005) for Iran concludes that households with larger number of members tend to be poor. Likewise, Grootart for Cote d' Ivor, International Food Policy Research Institute (IFPRI) for Malawi, Herrer for Peru, Garza for Mexico, Fissuh and Harris for Eritrea, Tadesse, and Ethiopian Economic Association for Ethiopia also reached similar conclusions-household size is positively correlated with poverty.

Lawson et al (2003) analyzed poverty transitions and persistence in Uganda. The study used the Uganda National Household Survey conducted in 1999/2000. He used multivariate nominal Logit model. The result indicated an increase in household size had significant and positive influence on the likelihood that household was chronically poor or fell into poverty.

Garza examined determinants of poverty in Mexico. The data used in the study came from the 1996 National Survey of Income and Expenditure of Households. A Logistic regression was estimated based on the data with the probability of a household being poor as the dependent variable and a set of economic and demographic variables as explanatory. The study found no evidence as to why female-headed households are more likely to be poor than male-headed households. Using a Logistic regression and the 1992 National Survey of Income and Expenditure, Cortes (1997) arrived to a conclusion that if a woman heads the household the probability of being poor decreases by six percent. These studies are not in conformity with Ethiopian case. A case in point will suffice to mention the works of Tesfaye (2002) and Tadesse(2003) in which female-headed ones are those who experience hard-core poverty.

Siefu (2004) adopted average odds of participation in analyzing how households in different socioeconomic levels shared the benefits from public sectors expenditures on health. The study assumed access to health service would increase a household welfare in so doing reducing poverty. His findings indicated that households in the bottom quintile have managed to utilize health services relatively more than those in the upper expenditure intervals.

In general, determinants of urban poverty in primates, big cities, and medium towns of Ethiopia are generally pervasive and this is attributed to low levels of physical and human capital, unequal distribution of productive assets, inadequate access to social services, high fertility specially amongst the poor, unemployment, and urban development strategies which are biased against labor absorption and the rural community.

5. Results and Discussion

Descriptive Analysis

The research used cost of basic needs approach in the identification of the poor from the non-poor. It first enumerated baskets of food items frequently consumed in the city (annex table 5). Then these bundles of food items were valued based on the prevailing market prices. Second, non-food items consumption expenditures were listed out and expressed in Ethiopian Birr. Third, the current market price of food and non-food expenditures were aggregated and calibrated to the international poverty line, 1 US$, per adult equivalent a day

Based on this approach we found 66 percent of households below poverty line. The fact that 66 percent, or head count ratio of 0.66, below poverty line, poverty gap 0.21, and severity/depth of poverty 0.09 suggest incidence of rampant poverty in the city. Table 2 below indicates the number and percentage distribution of households below and above poverty line.

Table 2: Surveyed kebeles

	Name of Kebele						
Poverty Level	**Kebele 01**	**Kebele 03**	**Kebele 04**	**Kebele 05**	**Kebele 08**	**Kebele 12**	**Total**
Above PL	1	15	15	15	31	11	88
Percent	1.1%	17.0%	17.0%	17.0%	35.0%	12.5%	100%
Below PL	22	33	21	17	53	26	172
Percent	12.8%	19.2%	12.2%	9.9%	30.8%	15.1%	100%
Total	23	48	36	32	84	37	260
Percent	8.8%	18.5%	13.8%	12.3%	32.3%	14.10%	100%

Source: Survey result 2006, Note: PL=Poverty Line

, **, * Significant at 1%, 5%, and 10% level*

Table 2 above presents data on number of households below and above poverty line in six kebeles: 01, 03, 04, 08 &12.A glance at the table one would observe hardcore poverty in each kebele. The numbers of households who live below poverty line these areas respectively constitute 22, 33, 21, 17, 53 and 26 households. The corresponding percentage distribution is also higher in three of the six kebeles: 04,

05, and 08 .In the above poverty line category, the table further reveals equal footings of poverty status in three kebeles: 03, 04, and 05, each with 15(17.0%). In below poverty line, however, one would get different figures among kebeles. In Kebele 01 number of households below poverty line is nearly twenty two fold of the above poverty line within the same category. Kebele 03 has almost a fifty-fifty proportion of poor and non-poor.

From the surveyed areas Kebele 12 has relatively non-poor households. In this kebele, one would roughly get one household below poverty line in every 2 non-poor [6]households. Cross-tabulating the data revealed prevalence of poverty statistically significant at 5 percent. In general, from the surveyed households one can observe the highest and lowest poverty incidence in kebele 01 and 12 of the town respectively.

Analysis of the data showed numbers of households with private houses constitute 181 whereas those who own, car, refrigerator, and stove are, 20, 28, and 10 respectively (annex table 1). In such a situation, for every household without house, there are nearly 2.30 households with a house. Similarly, for every household with a car there are thirteen households who do not have implying the numbers of car owners in the town comprise few. Obtaining such figure is not, however, surprising given there are no gratifying economic dynamisms. Households who own tape recorder, television, radio, and milk cow are in order 189, 121, 63, and 27. These points to the conclusion that large number of households, nearly 73 percent, have tape recorder while a small, only 10 percent, of them with own milk cow. Generally, the study found that monthly mean income of households is 412 and 724 Birr for the poor and non-poor in order. The mean and standard deviation of the values of house, car, refrigerator, television, tape recorder, radio, stove, milk cow, other assets, and total average income of households is indicated in table 1 of the annex.

We have also assembled data on household assets. They include: house, car, refrigerator, television, tape recorder, radio, stove, milk cow, other assets, and average income of the household per month. All values of variables are expressed in Birr. We found ownership in house, car, and television statistically significant in explaining the prevalence of poverty at 10%, 5%, 10% levels respectively where as milk cow, other assets, and average income of households is significant at 1% level (Annex Table 1).

[6] In this paper poor may interchangeably used as households below poverty line and non-poor those households above the poverty line.

The study also used monthly consumption expenditure and saving as proxies of poverty. The monthly basic needs mean consumption expenditure for the non-poor group was found 452.53 Birr while the poor ones are 246.24 Birr. In the case of the non-basic consumption expenditure both household groups of the poor and non-poor expend insignificant amount, on average, Birr 98.70 to the former and 43.91 for the latter. Like monthly consumption expenditures on basic items, monthly expenditures of non-poor households on non-basics, consume twice of the poor households. This shows, on average, the existence of a wide variation between the poor and non-poor households in the study area. Saving status in both household categories by any measure constitute the least with 118.25 for the non-poor and 51.01 Birr for the poor, on average, per month. Non-poor household's expenditure on basic and non-basic items varies more than those of the poor. On the contrary, the value of standard deviation on saving is the reverse.

We included households' expenditures on clothes, ceremonies, entertainments and domestic services (servant and guard salaries etc) to correlate with poverty. We found that households yearly mean expenditures on clothes, ceremonies, and entertainments or on domestic services whether in the category of poor or non-poor is disappointingly small. There are no big variations of expenditures both for the poor and non-poor groups on these variables. The insignificant amount of expenditures on each variable is an indication of the presence of rampant poverty in the town, if it were not; the expenditure value of each variable could have significant contribution to poverty.

Continuous variables such as households' monthly private tap water charges, households' annual health expenditure, monthly electricity charge, number of rooms of the house, and monthly rent of kebele and private houses were also analyzed in the study. The monthly mean charge and standard deviation with private tap water for households of non-poor consume 16.78 and 10.06 Birr respectively. And those of the poor groups are 12.64 and 9.47. At this juncture, it is clear to observe negligible consumption differences between the poor and non-poor households. However, for electricity consumption expenditure there is a wide variation of monthly bill between the poor and non-poor households. This is, perhaps, non-poor households used electricity for purposes like cooking, and refrigerator. The standard deviation of the non-poor, which is 13.92 Birr per month for electricity, shows existence of big variation payments among households.

For health amenities only 18 households (10 non-poor and 8 poor) have a regular and fixed annual budget while 242 households do not generally have regular expenditure. A small number of households took treatment from hospital and clinics

household members become sick. The very small numbers of households with regular annual budget to health services is contributing to the rise of health problem Unable to take treatment could usually lead to absenteeism from jobs, reduction in productivity, and aggravating the scope of poverty. The annual mean health budgets for households of non-poor and poor categories are 404 with standard deviation of 539.59 Birr.

In short, yearly expenditure on clothes, on entertainments, on health and monthly expenditure on electricity respectively were found statistically significant at 10 %, 5%, 10% and 5% levels (annex table 2).

The Logit Model

We checked for multi-collinearity effects of the explanatory variables using bi-variate correlation matrix table. The result of the test confirmed moderate collinearity between education and employment (0.48) whereas the rest of the variables did not show significant collinearity. Employment and education are, therefore, taken as determinants for their collinearity is less than 0.8. Besides, to assess whether or not the model fits the data, the study used a prediction table. The following table, namely, classification table, shows how best fits the model the data. The on and off-diagonals respectively tell the correct and incorrect number of predictions of the data. Thus, using these diagonals we can see how many households from the study area are correctly classified and how many are misclassified.

Table 3: Classification table

Observed	Predicted		
	Below PL	Above PL	Correct percentage
Below PL	146	26	84.8
Above PL	35	53	60.2
Overall Percentage Correct			**76.5**

Source: Survey result 2006

The diagonal entries of the table show that 146 out of 172 households who live below the poverty line are correctly predicted. Similarly, the model correctly predicted 53 out of 88 households who live above the poverty line. On the other hand, the off-diagonal entries of the table show that 26 households who live below the poverty line and 35 households who live above the poverty line respectively are incorrectly predicted.

From a total of 172 households who live below the poverty line 84.8 percent were correctly predicted and of 88 households who live above the poverty line 60.2 percent

were correctly classified. Generally, 76.5 percent of the 260 valid cases were correctly predicted. Therefore, the model fits the data.

Odds and Marginal Effects

The first, second, and third columns (annex table 3) respectively represents independent variables, coefficients of predictors, and standard errors. The third, fourth, and six columns of the table depict *Wald*- square of the ratio of odds (ß) to standard error $(\beta/SE)^2$, P- values, and exponent of β in order. The coefficients of predictors are shown blow.

$$Y = 3.03 - 0.09X_1 - 0.60X_2 + .40X_3 - .49X_4 - .51X_5 - 2.24X_6 - .84X_7 + 1.61X_8 - 04X_9 + .05X_{10} + 0.08x_{11} - 0.06x_{12}$$

Examination of the maximum-Likelihood estimates (annex table 3) demonstrates that the variables that are positively correlated with the probability of being poor are sex, family size, and health status. The variables that are negatively correlated with the probability of being poor are age, marital status, education, employment, income, water connection, house tenure, telephone, and electricity. In the fifth column of the 12 predictor variables, only four: family size, educational level, monthly income, and family health status significantly affect households falling into poverty at 1% level.

The positive value of β in sex indicates that as females head household the probability that a household falls into poverty increases. However, its contribution to poverty is found to be insignificant. In the same fashion as household size increases the chance of falling into poverty increases. Hence, female-headed households and high family size have positive relationship with poverty. Health status gives the same result in which households with frequent sick members experiences more chance of falling into poverty.

On the other hand, negative value of ß to age (18-30 and greater than 60), income, marital status, educational level, employment, house tenure, and water connection indicates as the value of these variables increases households are less likely to fall into poverty or as households' posses they are more likely to move out of poverty.

The table further indicates that as the age of the household increases by one year (within the ranges of 18-30 and greater than 60), ceteris paribus, coefficient of ß**,** and odds ratio (exp ß) of falling into poverty decreases by a factor of 0.09 and 0.914 respectively. Likewise, as the educational level of a household head increase by one, holding other independent variables constant, the odds and odds ratio of being poor

decreased by a factor of 0.493 and 0.637 in order. Similarly, employment will decrease by 0.512 and 0.6. On the other hand, as the number of the family size of the household increased by a unit, the odds and odds ratio, keeping all other independent variables constant, are more will increase by a factor of 0.403 and 1.668 indicating positive relationship between household size and poverty. A married household head, households with private tap water, house, telephone, and metered electricity correlated negatively to poverty. Yet none of them contributed significantly.

In short, by looking at the signs and significance levels attached to the predictors' coefficients- (odds) and odds ratio (exp ß), we observe that households headed by females, households with sick members and big family size(observe hypothesis annex table 4), experience poverty in the study area. These variables correlate with poverty positively and those that are negatively correlated are age, marital status, educational level, employment/occupation, water source, and house tenure.

6. Conclusion and policy implications

This paper assessed determinants of urban poverty in Debre Markos. The result came from a cross-sectional survey conducted in 2006. It used cost of basic needs approach in the identification of the poor from the non-poor. First, it enumerated baskets of frequently consumed food items in the area. Then these bundles of food items are estimated using the prevailing market price. Second, monthly costs of non-food bundles of consumption expenditure were listed and valued. Third, we add costs of the food and non-food monthly consumption expenditures. The aggregate value calibrated into 1 US$ per day per adult equivalent.

Based on this approach, of the 260 surveyed households 0.66% was found below poverty line. This implies hardcore poverty in the area and that incidence of poverty is rampant and deep-rooted among the surveyed: 0. 66 the head count, 0.21 poverty gap, and 0.09 severity indices in the city respectively calls for pertinent interventions aimed at curbing the fate of the poor. The results of the paper imply some policy interventions among which the following are some.

Construction of comprehensive poverty profiles at the town level is vital but the task could only be possible if there is commitment from concerned body. This research is cross-sectional which can tell results of one time survey. The availability of panel data is, therefore, badly needed in order to construct better models of determinants of poverty in the town.

The study assessed determinants of poverty in six Kebeles/half parts of the town at a household level. It is of the writer's belief that future studies ought to study the town's /city's poverty status comprehensively other than the household level so as to get a wider view of poverty profiles and policy implications. This could be seen institutionally, socially, and gender wise.

The study employed cost of basic needs approach in the identification of the poor from the non-poor. The validity of this research could be testified again if other approaches are applied. Therefore, methods other than the ones adopted should be incorporated in future studies.

That the educational attainment of the head of the household is found to be the most important correlate of urban poverty clearly suggests ways of focusing on the values of education. Adequate education is central in addressing incidence of poverty. Specifically, college education is found to be of paramount importance in reducing poverty in Debre Markos. In this regard the recently introduced private colleges would play critical roles and they, therefore, should be encouraged.

Female-headed households were found more likely to experience poverty than households of which the head is men. The implication is, therefore, that promoting female education should be an integral part of poverty reduction policies. This is because female education and fertility are negatively correlated such a policy could also have an impact on household size which is another important determinant of poverty in Debre Markos.

Household size was positively and significantly correlated with poverty. Households with large size will fall into the hardcore sections of poverty easily than those who have not. Thus, in order to minimize such effects, family planning be provided .In this regard town's health service can play vibrant roles.

Income, as it was expected, correlated negatively and affected poverty significantly. Thus, ways of diversifying income should be introduced. At this juncture both households and government should have joint effort and responsibility in searching for possible panaceas. One of the potential ways of doing this is through education and entrepreneurship. Technical and vocational trainings, which are available in the town/city, can play instrumental roles.

Health status of households was also found to affect incidence of poverty significantly. Not a large number of households took medical treatments though sick. They, therefore, should be diagnosed whenever they contract disease and bad

beliefs and suspicions about the curability of modern medical facilities should be avoided. In this regard health professionals answerable to government and the private can have vibrant responsibility to teach households.

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Annex

Computations of Poverty Lines and Indices

Poverty Lines

There are, of course, a number of studies and approaches in the construction of poverty. In this paper we have attempted to follow the method of international poverty line. There are two basic types of poverty line estimations: cost of basic needs approach and the food energy intake. In this study we adopted the cost of basic needs approach. In this case we first took values of monthly food consumed by adult equivalent in a household. Second, we computed non-food consumption per adult equivalent. Adding the non-food consumption expenditure with the food cost gives the benchmark poverty line per adult equivalent a day.

Poverty Indices

The most commonly used poverty indices, according to Thorbecke **(**2004) are the head count index (P_o), poverty gap/depth index (P_1) and the severity index (P_2). Derivation of each of these indices is indicated bellow.

Head Count Index (P_0)

This index tells us the proportion of population whose consumption expenditure falls below the predetermined poverty line. Put simply,

$Po = q/N$ Where q is the number of people earning income below the poverty line and N the total number of people in the population. While P_0 has an advantage of simple calculation it suffers from two problems: a reduction in the incomes of the poor doesn't reveal how worse the poor will be poorer and it doesn't in any case depict distribution of income among the poor.

Poverty Gap/Depth Index (P_1)

This measures how far an individual's income falls short from the poverty line. Since this index is based on the aggregate poverty deficit of the poor relative to the poverty line, it is by far better than P_0. Mathematically, P_1 can be depicted as follows,

$$P_1 = \frac{1}{N}\sum_{i=1}^{Q} [Z - Yi]/Z$$

Where;

Y_i = Consumption expenditure or income of the poor; Z = Poverty line

Although this model measures the depth of poverty better than P_0, it is insensitive to the number of individuals below the poverty line and to the transfer of income among the poor.

Severity Index (P_2)

The severity index also called, the Foster-Greer-Thorbecke Index, measures severity of poverty by squaring and averaging the gap between the income of the poor and poverty line. It is given by the formulae,

$$P_\alpha = \frac{1}{n}\sum^{q} \left(\frac{Z - Xi}{z}\right), ^{\alpha} \quad \alpha = 0,1,2$$

Where;

X_i is income or consumption expenditure of household, Z is the poverty line, n size of the population, and q is the number of the poor. P_0, P_1, and P_2 tell respectively the incidence, depth and severity of poverty among individuals. P_2 changes in accordance with α and P_2 measures the mean of squared proportional poverty gaps. It gives more weight to the poverty of the poorest by squaring and averaging the gap.

Table 1: Group statistics

	PL of the HH	N	Mean	Std. Dev	Sig.
Value of House in Birr	Above PL	67	53059.70	31309.250	
	Below PL	114	41622.81	29577.37	0.054***
Value of Car in Birr	Above PL	13	181538.4	139193.28	
	Below PL	7	11285	44986.771	.032**
Value of Refrigerator in Birr	Above PL	19	5426.32	9751.40	
	Below PL	9	5700	8411.89	0.842
Value of Television in Birr	Above PL	64	3768.44	5158.72	
	Below PL	57	2514.82	897.57	0.063***
Value of Tape Recorder in Birr	Above PL	79	868.27	1052.43	
	Below PL	110	495.73	813.92	0.503
Value of Radio in Birr	Above PL	28	193.21	166.97	
	Below PL	35	140.71	98.47	0.207
Value of Stove in Birr	Above PL	7	427.14	324.53	
	Below PL	3	900	964.36	0.257
Value of Milk Cow in Birr	Above PL	14	3614.29	4110.93	
	Below PL	13	2861.54	3260.76	0.000*
Value other Assets in Birr	Above PL	9	20405.56	22878.6	
	Below PL	19	374.21	304.	0.000*
Total average income of the household per month	Above PL	88	7.4	2.99	
	Below PL	172	4.12	2.68	0.005*

Source: Survey result 2006

*, **, *** Significant at 1%, 5% and 10% significant level

Table 2: Expenditure on different items (in Birr)

Variables	Sig.	t-value
Yearly expenditure on clothes	0.002*	2.821
		2.529
Yearly expenditure on Ceremony	0.744	-0.065
		-0.066
Yearly expenditure on Entertainment	0.019**	1.335
		1.271
Monthly expenditure Domestic service	0.897	2.135
		2.141
Monthly expenditure- Total	0.146	-0.318
		-0.347
Monthly Charge for private tap water	0.183	2.885
		2.839
Annual health expenditure	0.095***	0.970
		1.053
Monthly charge for electricity	0.005*	2.067
		1.576
Monthly Charge for kebele house rent	0.540	0.531
		0.499
Monthly Charge for private house rent	0.500	2.472
		3.039

Source: Survey result 2006

*, **, *** Significant at 1%, 5% and 10% significant level

Table 3: Logit Maximum Likelihood Estimates

Number of Observations =260					
Explanatory Variables	**ß**	**S. Error**	*Wald*	**Sig.**	**Exp (ß)**
Age	-.090	.347	.067	.795	.914
Marital St	-.604	.428	1.989	.158	.547
Family Size	.403	.111	13.312	.000*	1.668
Education	-.493	.375	1.728	.003*	0.637
Employment	-.512	.596	.736	.391	.600
Income	-2.242	.400	31.436	.000*	.106
Water	-.841	.748	1.266	.261	.431
Health Status	1.616	.474	11.645	.001*	1.199
House	-.470	.394	1.420	.233	.600
Telephone	-0.082	0.276	0.113	0.684	. 871
Electricity	-0.062	0.184	0.092	0.571	.723
Sex	.056	.442	.016	.899	1.058
Constant	3.031	.732	17.152	.062	20.725

Source: Survey result 2006

* Significant ***at 1 percent level***

Table 4: Assumptions of variables used in the estimated equations

Variables	Assumption
Dependent Variable :Urban Poverty	1 if poor, 0 otherwise
Explanatory Variables	
Age	1 for 18-30 and >60,0 otherwise
Sex	1 for female, 0 otherwise
Marital Status	1 married, 0 otherwise
Family Size	1 for >5,0 otherwise
Highest Educational Level	1 for ≤grade 8,0 otherwise
Employment Status (four dummies)	0 self-employed, 1 otherwise; 2 for laborer, 3 otherwise; 4 for pensioner, 5 otherwise; 6 for disabled, 7 otherwise
Monthly Income	1 if less than 860 Birr, 0 otherwise
Water Service	1 if without private tap water, 0 otherwise
Health Status	1 if sick frequently, 0 otherwise
House Tenure	1 if without private house, 0 otherwise
Telephone Service	1 if subscriber, 0 otherwise
Electricity	1 if without metered, 0 otherwise

REPATRIATION AND SQUATTING: THE CASE OF RETURNEES FROM ERITREA TO KORE, ADDIS ABABA

Asmamaw Legass Bahir[1], [2]

Abstract

This paper explores the compelling causes, processes and consequences of Ethiopians displaced from Eritrea in 1991. To lay down a general framework for the study, the model of migration and theories of Aided Self-help housing and Empowerment Approaches of Alternative Development were employed. Questionnaire surveys, field observations, interviews, focus group discussions and artefacts were used to generate the necessary data for the investigation. The findings identified that the defeat of the Dergue government and shift of political power into the hands of Shabia in Eritrea were the main factors for the displacement of Ethiopians into a number of countries. Along the arduous journey and in refugee camps, displaced Ethiopians were confronted with the mistreatment of the Shabia force and other challenges. The results of the survey indicated that 92.3% of the sample respondents of Kore community were using the informal sector as the sole means of earning their livelihood. However, the repatriates at Kore benefited from their settlement in Addis Ababa in getting access to temporary shelter, base of organized negotiation, social services, base of informal economy and livelihood strategies though they were marginalized. The lack of open discussion between government and community representatives widened the gulf to come into common rehabilitation strategies. The delay of appropriate rehabilitation measures by the concerned government institutions as well led the repatriates' to be opportunity seekers. Thus, the Kore squatters demanded the government to provide them either urban land or public houses in Addis Ababa with other benefits. Such escalated demand of the community in most cases ended up with frequent contradiction on the claim of urban landholding. Generally, appropriate rehabilitation measures that compromise and

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incorporate the demand of the community and capacity of the government would have been designed through discussion because in such public discussions differences can be minimized, conflict would be resolved and foundation might be laid for sustainable development.

Key words: displacement, returnees, livelihood strategies, opportunity seekers, rehabilitation.

1. Introduction

Housing is one of the basic needs of human beings. However, the provision of conventional houses is one of the serious problems in urban areas of developing countries. UNCHS (1987:11) states that urban housing polices have been unable to provide shelter at costs that intended beneficiaries can reasonably afford. Lugalla (1995, quoting Kuala, 1985) pointed out high urban population growth, inability of the government to provide low-cost conventional housing and others contribute to the problem. As a result, in urban areas of the Third World, a wide gap exists between the demand and available supply of housing units. Similarly, citing the Ethiopian Herald; the information section of UNDP emergencies unit for Ethiopia stated the housing problems of Addis Ababa:

The population of Addis Ababa was estimated at 3 million with an annual growth rate of 4% competing for a total of 280,000 residential housing units. The city had an estimated number of 600,000 households. According to the same source, over 50% of the residents in Addis Ababa were effectively homeless or living in a condition of extreme hardship. Shortage of housing is especially acute for several thousands of low and middle income families even though many households who do not have dependable jobs rent their houses to generate income. The shortage of housing and rising demand in Addis Ababa is also leading to an expansion in the number of illegally built squatter settlements on the outskirts of the city (UNDP, 1981:11).

Squatter settlements, though they have many constraints of urban planning, can provide their own benefits. The low cost of squatter housing is often a staging area for the urban poor. Squatter settlement offers not only a source of shelter but also serves as “the base camp” for strategies that enable large mass of the urban poor to survive with minimum demands and climb out of poverty (UNCHS, 1987). However, to minimise the expansion of squatter settlement, governments and NGOs have to give their support in tackling the urban housing problems of Third World Cities.

2. The Research Site

The Kore study area is found in Kebele 02 of Nefassilk-lafto sub city in Addis Ababa (Figure 1). The study sub city encompasses eleven Kebeles out of the total 100 urban Kebeles of Addis Ababa.

According to the Ethiopian Human Rights Council Report; Kore squatter community had 550 households and 2, 320 total residents who lived in the study area (EHRC, 2002). However, the Foreign Relations and Development Co-operation Bureau (FRDCB) of Addis Ababa City Government had approximately estimated 350 households within the Kore community. The discrepancy of the population data of the two reports was probably the result of conflict between displaced returnees and government officials on the issue of landholding.

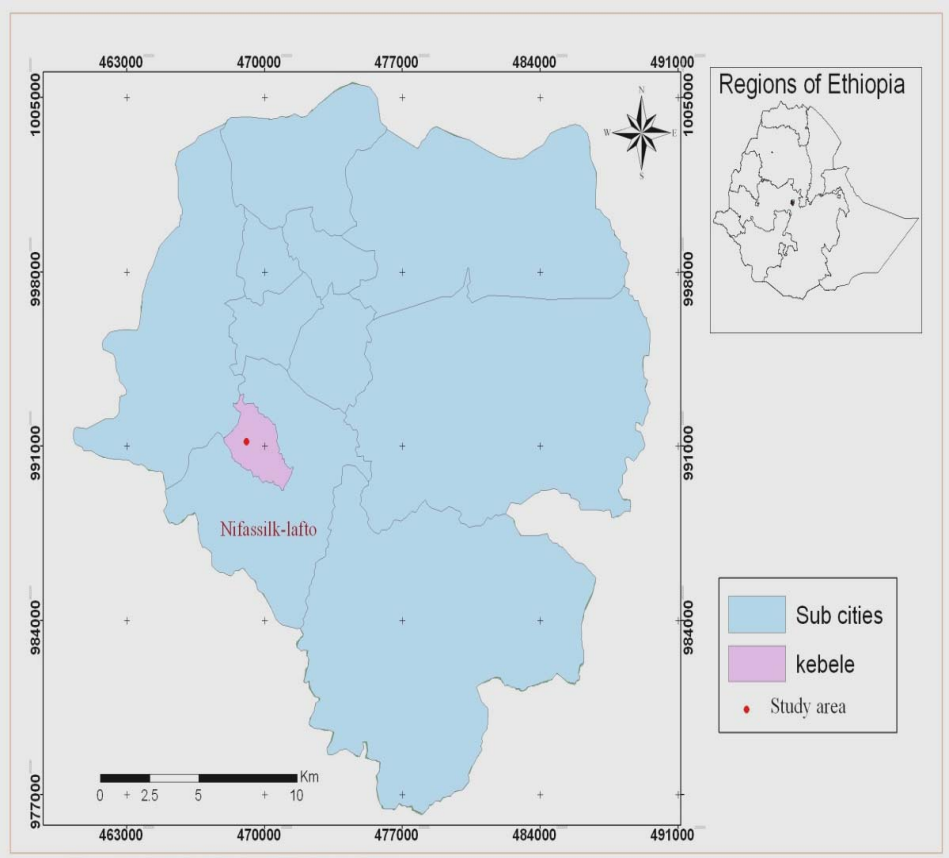


Figure 1. Location Map of the Study Area

As the researcher found out, two or more households used to live within a single housing unit. An outsider, therefore, would not be able to determine the exact number of household heads in the community simply by counting the number of houses. This might complicate identification of the exact number of households of the study area in the short period of data collection. As a result, the information about the number of households cannot be absolutely accurate. Rather, based on the household data of the above reports and information generated from key informants, the community might have household ranging from 350 up to 550 families.

3. The Problem and Objectives

Squatter settlements are common throughout the cities of Third World Countries. These settlements are established due to various factors. One reason is large influx of people from rural to urban areas. Second, owing to the limitation of national and municipal resources, the numbers of formal and planned shelters are unable to cope and fail to satisfy the demand for shelter. Third, the legal low-cost housing is expensive for poor people. Squatter settlements are, thus, often the only affordable option used by the majority of inhabitants in many cities of developing countries (Carter, 1972; Herbert and Thomas, 1990; Nordberg and Winblad, 1994). In relation to housing, urban poor can be divided into three categories:

First-the large class of homeless or street sleepers who in some Third World cities can be numbered in hundreds of thousands. Often more recent migrants or refugees, or those who have failed to assimilate belong to this group. These people live in abject poverty. Second- the slum or tenement dwellers, especially in south Asia, who occupy densely, built up areas of the old cities. Their problems are overcrowding in multi occupied buildings with severe shortage of basic facilities; “home” could be small, windowless cubicle, shared between 6 and 10 people in a tenement building. Third- squatters or occupants of the shantytowns who are ubiquitous throughout the Third World cities. Squatters are illegal occupants of urban space though many, through length of tenure, can achieve a kind of de facto legality (Herbert and Thomas, 1990 citing Abram, 1980).

However, from the different urban poor, the study was limited to investigate the impacts and opportunities of squatter dwellers taking the Kore community of Addis Ababa as a case study. Squatter settlements have the following characteristics and constraints:

The quality of shanty dwellings is normally rudimentary; initial squatter settlements in particular will use thatch, cardboard, wood, zinc sheets, or any constructional materials

that happen to be locally available. In areas of general poverty or with a refugee problem, shanties persist in these forms. In other parts of the world where some foothold in employment or security of tenure is possible, space may be added, materials replaced and there is improvement in situ. Severe absence of public services is often a problem. Unpaved roads, crude systems of sanitation, inadequate water and electric supplies are their features (Herbert and Thomas, 1990:56). The poorest are the most disadvantaged in urban areas (Lugalla, 1995), because squatters are forced to live on the outskirts of cities and towns where employment opportunities and urban services are absent or low. Frequently, environmental health conditions in these areas are appalling. The research finding by Lugalla (1995) made in Tanzania also confirmed the negative attitude of government to squatter settlements. The technocrats, town planners and government officials tend to see squatter areas as dangerous manifestations of social disease and chaos. They harbour and generate considerable immoral behaviour that gives the areas a negative reputation. Thus, it is evident that what follows such negative thinking is the eradication of such settlements as a common practice in urban areas of developing countries (Lugalla, 1995). In the urban areas of Ethiopia the demand for housing is growing with time due to a number of reasons. Hence this paper would point out the relationship of war displacement and establishment of Kore squatter settlement in Addis Ababa, because the related studies made by other professionals in Addis Ababa did not consider the link between war displacement and establishment of squatter settlement.

3.1 Objectives of the study

The study attempts to:

1. Uncover the compelling causes leading to the establishment of Kore squatter settlement and its impact on the living condition of inhabitants.
2. Describe the whole displacement process of returnees from Eritrea to Addis Ababa, Ethiopia.

4. Theoretical and Conceptual Framework

4.1 Concepts and Models of Migration

Analysing the most important models of displacement can contribute to conceptualise the meaning, causes, and effects of migration/displacement. Migration is a broad concept and fact of life. Though refugee is one category of migrants, there are a number of differences between migrant and refugee. A migrant leaves his home seeking better opportunity while a refugee is one who does so out of fear; a migrant travels to escape poverty and stagnation while a refugee travels to escape persecution, conflict & perhaps death; a migrant seeks opportunity while a refugee

seeks haven; a migrant does not “wish” to return home while a refugee cannot “dare” do so (Velath, 2003 citing Weiner, 1985).

To understand the nature of migration and its relation with refugees, it is necessary to explore first the reasons why people change their domicile. Some of the causes of migration lead people to move within their own country while others compel them to permanent emigration to a new country (Cox, 1976). In this research project, I am daring to treat forces of international migration that particularly instigate people to seek refugee life out of their country.

Better economic opportunities and political conditions such as better social security system or opportunities for greater freedom of expression may pull people to migrate to another country. In addition, religious or racial intolerance may push large population transfer, often very hastily from the area of origin to the country of destination (Cox, 1976). Both international migrants and refugees are partly the same because the movers cross their border into a foreign country. However, refugees are always brought to occur due to the push factors and absence of opportunities in the country of origin while migration is taking place owing to the pull and push factors of the country of destination and origin respectively. As a result, the movement of migrants is based on choice while that of refugees is instigated by the absence of choice in the country of origin.

As Ravenstein’s model depicts some of the determinants of internal migration such as the lack of employment opportunities, oppression and discrimination of certain social, racial, political, ethnic and economic factors can lead people to international migration (Shrivastava, 1983). In Lee’s model, migrants are defined as a group of people who are ambitious to travel or who cannot get any job at the place of their origin or cannot get jobs to suit their skills, knowledge, or cannot get incomes that they want, or who cannot tolerate socio-political and cultural conditions of the point of origin, and who are determined enough to surmount intervening obstacles (Shrivastava, 1983). In his definition of migrants, Lee has also agreed with Ravenstein’s model about the main forces of migration.

The crisis of migration from Ethiopia was similarly instigated through a multitude of factors. The frequent natural disaster of drought, famine, inappropriate policies of successive governments, political repression of human rights, and continuous civil wars obliged hundreds of thousands of Ethiopians to abandon their homes and flee into refugee camps in various countries (Bauer, 1991). Particularly, the 1993 returnees of *Ada Bai* settlers around the town of Humera in the Northwest era past of

Ethiopia had fled war and famine to the refugee camps of Sudan from their native region of Tigray in 1984-1985 (Hammond, 1999).

The forcible villagisation and resettlement program of the *Dergue* regime had also generated a number of migrants. In Harerge[3] alone, the forced imposition of villagisation prompted 33,000 Ethiopians to flee to Somalia (http://www.lupinfo.com/country-guide-study/ethiopia/ethiopia57.html). Forced collectivisation had been empirically proved in Ethiopia to be a hindrance to development (Bauer, 1991). Ideological differences of political groups were not resolved through negotiation and discussion during the regime. Rather, the security and military forces of the government banned the real and imagined opponents. The ruthless repression of human rights by the *Dergue* regime brought more deaths and exodus of students and professionals to foreign countries. The long civil war between opposition forces and the imperial regime had led to a large influx of refugees into different countries. The escalation of armed conflict through time between the *Eritrean* and *Tigrean* opposition groups and the Dergue regime also caused a number of deaths and migration of Ethiopian refugees across different countries. The war devastated not only the life of people but also seriously relinquished the resources and economy of the country.

4.2 Aided Self-Help Housing Theory

Aided self-help housing theory tries to overcome the housing problems of urban poor families in collaboration with state or private investors/NGOs (Mathey, 1997). Considering its merits, therefore, the resolution of UN Vancouver Habitat Conference held in 1976, Canada accepted assisted self-help housing as an alternative strategy to conventional mass housing schemes (Mathey, 1997; Potter & Lioyd-Evans, 1998). States adopting the policies of aided self-help housing can support the urban poor to improve their houses through the following strategies:

4.2.1 Site and Service Strategy

Site and service strategy of aided self-help housing benefits urban poor families in three ways. First, the state or local authority provides a small plot of land with security of tenure for families on which they can build houses by themselves. The strategy favours thousands of families to get access to land where conventional housing could reach only hundreds (Hesselberg, 1996; Rodell & Skinner, 1983). Second, the state provides minimal public services such as streets, latrines, water supply, lighting and waste removal, etc and some subsidised materials for the construction of a dwelling (Saini,

[3] Harerge-the former name of an administrative region in Southeast Ethiopia

1979; Rodell & Skinner, 1983). Third, the residents are allowed to construct houses from any material [either permanent or temporary] they choose. The houses can be built from mud to sun-dried bricks and bamboo with simple low-cost roof structures.

The city centre is the ideal residence for the urban poor to generate a relatively better income and get market access for their labour and local products (Dwyer, 1979). However, site and service projects are usually located on the fringes of urban areas owing to the problem of finding sufficient land at the city centre. The dwellers are, therefore, forced to travel long distances to ideal areas in search of better source of livelihood and market to sell goods (Hesselberg, 1996).

4.2.2 Upgrading of the Existing Settlement

This strategy has been used in many developing countries when finding sufficient land is a problem for site and service project. It is used to improve the quality of the existing slums and squatter settlement at its location. In many countries, upgrading strategy entitles the residents to security of tenure and improve either one or many aspects of their infrastructure, for example, water provision, sewerage, basic amenities of sanitation, path ways, street lighting and providing social services, or to the upgrading of people's dwellings at a lower cost (Saini, 1979; Hesselberg, 1996).

4.2.3 Core Housing Schemes

In this strategy, the government provides a single room "core-house" to which a family could add more rooms later according to their incomes (Hesselberg, 1996). Turner's aided self-help housing policy generally advised the governments of developing countries to support the urban poor through public intervention and other mechanisms. Therefore, Abram's (1964) report in Potter & Lioyd-Evans (1998) pointed out that the self-help housing strategies curiously attack the bulldozing of houses in the condition of housing shortage.

4.3 Empowerment Approach

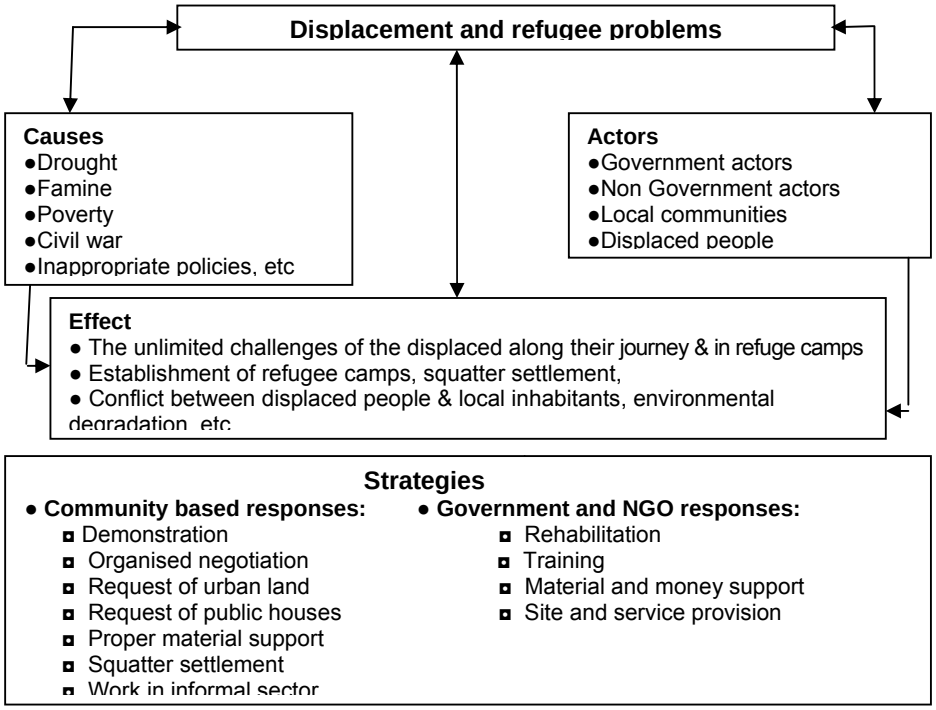
The disempowered members of society lack the means of development and ''require help from religious organizations, labour unions, and even the state" to fulfil the basic needs of life (Friedmann, 1992:71). Therefore, empowerment approach claims the incorporation of development guarantee for the weakest social groups such as the squatters of towns and cities in all development programmes (Bjørn, 1995).

Squatter occupants of Third World Cities are the disempowered members of the society. They are living in small, low standard and crowded houses mainly in town or city outskirts with meagre social services. Therefore, to improve their life, the urban poor could be empowered to participate in decisions affecting their life, because alternative development theory is centred on the satisfaction of people's needs and sustainable uses of the environment rather than production for profit (Friedman, 1992). In the view of the theory, development has to minimise or, if possible overcome, the central problems of the society such as poverty, social inequality, unemployment and others. Above all, the strategies of development and needs of the people may not necessarily be designed by the top authorities they must rather also come from the participation of the community.

5. Analytical Framework

The analytical model is used to indicate the **actors, causes, effects and strategies** of the people (Figure 2). The **actors** encompass the local Kore community and committee as indicated at the right corner of the model. In addition, government organizations, domestic NGOs and International agencies that were directly or indirectly involved in addressing the problem were included in the category of actors. For this study, the **causes** of displacement, refugees and temporary squatting have been discussed together since they are integrated in one or other ways. The **effect** theme tries to sum up the various human and environmental impacts of displacement, refugees, and temporary squatting. The **strategies** at the bottom of the model present **the request and action** of local human agents made to influence the measures to be taken by the government. The top-down approaches that the government used in addressing the constraints of repatriates were portrayed at the lower right corner of the frame. The bottom-up measures of the Kore community were shown at the lower left side. Therefore, the strategic components of the model clearly show Giddens' (1984) mutual interaction between structure and human agents.

Figure 2. Analytical Framework



6. Research Design and Methodology

Denscombe (1998) & Jick (1983) confirmed the strong value of investigating research through different methods because the findings of one method can be proved or disproved by the outcome of the other and it also enhances the reliability and validity of data and research results. This notion tells us that quantitative and qualitative research methods can be combined as complementary rather than as rival camps in data collection, analysis and interpretation. Therefore, methodological triangulation was employed for this study to understand the whole processes of displacement and its impacts.

6.1 Sampling of Respondents

In most cases the selection of representative and generalisable sample is an inescapable aspect of research. As a result, in this study stratified random sampling technique was used to select about 25% of the sample respondents of the total households of Kore squatters.

The strata of the sampling frame were divided based on age. Age stratification of the informants was used to get the experiences of different age groups because what the young people openly explained cannot be easily reached from elders due to either cultural or other factors. The age intervals of the study ranged from 30-59 years old. 32 observations were equally and disproportionately selected from each age group. From the three stratified age intervals[4], 96 household heads were thus randomly selected.

However, the key informants with better knowledge and experience of the problem had been purposely selected for the qualitative survey. The local committee members have contributed their part to select the key informants. In addition, some key informants were selected based on the information the researcher gained during the questionnaire survey. The informants were selected both from the local community and committee. The concerned government officials were interviewed in their office during their working hours.

6.2 Instruments of Data Gathering

The required data of the research were collected through household survey, in depth-interview, group discussion, personal observation and from secondary sources.

Questionnaire-structured interview, which mostly incorporate closed questions were used to collect a large volume and various types of data. To collect in-depth qualitative data, an open-ended text box was included in most of the questions. In the questionnaire survey, the limitation of wording, ordering of questions, the range of pre-coded and available answers given to respondents have the advantages of "standardisation" for analysis and efficient and quick use of time (Denscombe, 1998).

Observation-helps to prove facts practised in the real world rather than relying upon what people say. It draws on the direct evidence of the eye to witness first-hand events (Denscombe, 1998). Observation was used before, during and after the structured and semi-structured interview surveys. Observation was employed in the field to investigate the life styles, social services and environmental problems of the Kore community.

Interview-was employed to learn about the complex processes of displacement and refugee life that the repatriates came across because semi-structured interview gives interviewees the opportunity to develop their ideas and speak freely on the issues

[4] Age intervals range from 30-39, 40-49 and 50-59 years old.

raised. Therefore, one-to-one in interview depth- was carried out with twelve local informants, two community leaders and two higher government officials.

Focus group discussion was used to discuss issues among group participants and helped to recall forgotten ideas of one participant by others. It also helped to increase reliability of data. It was used to collect data about the constraints of displacement, becoming refugees and impacts of the Kore squatting. Both males versus females groups were formulated for the discussion. I separated males from females' focus group discussion to avoid the constraints of culture. The males' focus group was composed of both the local people and community leaders. However, the females' focus group was only composed of local community owing to the absence of appointed female within the local committee.

Photographs document non-verbal behaviour and communication like the facial expressions, gestures and emotions, the life styles and activities of people (Marshall and Rossman, 1999). Hence, the necessary sources of data that can be taken by camera such as the types of dwellings, key informants and other important sources of information were photographed because photographs can visualise the existing realities of the study and develop the imagination of readers. The local committee members were initially approached to ask the permission of the people in taking photographs.

Secondary sources of data for the research were collected from the central statistical Agency, Addis Ababa Master Plan Revision Project Office (AAMPPO), the Municipality of Addis Ababa, and the Works and Urban Development and Foreign Relations and Development Co-operation Offices of AACG. Additional data were also drawn from books, journals, website information, proceedings, bulletins, maps, newspapers, statistical abstracts and unpublished documents available in various libraries.

7. Results and Discussion

7.1 Repatriation and the Opportunities of Squatting

Ethiopia has terribly suffered recurrent internal wars at different historical times. The fighting of the TPLF and EPLF in the northern parts of Ethiopia, against the central government were among the most recent wars in the country. The different attempts made to solve those conflicts became unsuccessful and resulted in the defeat of the Dergue regime in May 1991. The defeat of the national army by secessionist military

forces of EPLF [locally known as *Shabia*[5]] in Eritrea brought Ethiopians to be seen as foreigners in the area. Following the defeat of the regime and change of political power into the hands of *Shabia*, as it can also happen during war in other countries, Ethiopians were compelled to leave Eritrea and migrate to Ethiopia, Sudan, Djibouti and the Middle East countries to escape possible killings. The focus group participants during field work for this research also reported the massive exodus of Ethiopians from Eritrea to neighbouring countries leaving their worthy possessions behind except the clothes they wore and some properties such as tape, radio, gold, etc. they held. Therefore, after the fall of the regime, a large number of Ethiopians were displaced from Eritrea into many countries and some of these had returned to Ethiopia since May 1991.

By the permission of the government, approximately 30, 000 returnees settled and sheltered in 19 camps, old grain stores, community halls, tents, etc of different Weredas in Addis Ababa (GOAL International, 1996). In this article, attempt will be made to discuss the causes, processes and effects of displacement and the opportunities provided to the Kore squatter community.

7.2 Causes, Processes & Challenges of Displacement and Kore Squatting

As explored through the questionnaire survey and interview data, the defeat of the *Dergue* regime resulted in the displacement of many civilians and military Ethiopians from Eritrea into a number of countries. Some portion of the displaced Ethiopians settled as refugees in other countries while others directly returned from Eritrea to Ethiopia. This study tries to investigate the overall aspects of displaced Ethiopians repatriated from the refugee camps of Sudan and returnees from Eritrea.

As many of the interviewees reported, most of the displaced Ethiopians fled on foot from their area of departure in Eritrea into the border areas of Eastern Sudan. In the arduous journey, the people suffered from shortage of water and food. Moreover, the *Shabia* force intensively challenged the displaced people in guiding them to wrong direction, compelling them to travel on bare foot and spilling out the water they carried in their *Jerican*[6] and *Koda*[7]. Many displaced people were plundered of their properties such as gold, watch, money, tape, radio, clothes, etc and others were isolated from their families while traveling to Sudan. Following the defeat of the Dergue regime by

[5] Shabia-is the name of the military force of EPLF.
[6] Jerican-is a liquid container made of plastic materials/rubber products.
[7] Koda-is a liquid container made of metal.

the combined forces of EPLF and TPLF, Eritrean women who gave birth to children from Ethiopians were also forced to emigrate from their country.

In various countries illegal squatter settlements are established and developed through a number of triggering factors. This fact is also true of Addis Ababa. The temporary camping of Kore community had progressively developed into 'temporary' squatting in response to the following factors. First, the wornout tents of the community lead to the establishment of rudimentary houses in the area. Second, the lag of the government to provide permanent solutions had mainly consolidated the temporary camping to be transformed into squatter settlement. Similar studies made in Buenos Aires proved that most of the urban poor of the Third Word Cities build, buy, or rent an "illegal dwelling" in the absence of alternatives since they cannot afford even the cheapest "legal" house or apartment (Hardoy and Satterthwaite, 1989). The Kore community likewise built "informal dwellings" as self-help housing to solve their shelter problem.

7.3 Impacts of Repatriation

The repatriation of Ethiopian refugees from Eritrea and Sudan to Ethiopia in 1991 had brought a number of major impacts. These are discussed in the following subsections.

7.3.1 Temporary Squatting

In the post repatriation period, the 1991 refugees of Ethiopia were temporarily allowed to reside in the pocket areas of different *Weredas*[8] in Addis Ababa (Goal International, 1997). As a result, the repatriated Kore community was transported into the study area with the support of the Relief and Rehabilitation Commission (RRC) of *Shewa* province. The Kore community, as one group of the 1991 Ethiopian repatriates, did not have permanent legal urban land rights for their settlement in the area. Rather they were temporarily but legally permitted by the Transitional Government of Ethiopia (TGE) to shelter in the tents installed by RRC of *Shewa.* Thus, the researcher argues that the 1991 repatriation process had contributed to the expansion of squatting in temporarily but legally permitted settlements in the pocket urban lands of Addis Ababa.

[8] Wereda- is the Amharic term which is equivalent to the English word district.

7.3.2 Conflict of Kore Community versus Government

Following the warning out of government established tents, the Kore community had built self-help squatter houses to minimise the pressing constraint of shelter. However, 91.7% of the respondents of the questionnaire survey pointed out high rate of conflict between the community and government on the security of tenure. Such recurrent conflict might indicate the potential insecurity of the settlement to steadily exist in the study area. Furthermore, 93 (100%) of the respondents of the sample survey, except 3 missing cases, pointed out the uncertainty of land tenure and dismantling of their settlement in the future. The temporary nature of Kore squatting and insecurity of land tenure refrained the people to invest time and money in improving the quality of their houses. Hence, most houses of the study area were made of cheap & non-permanent material and characterized by their poor quality, short height, and small size (Picture 1).

Picture 1: Mud house with plastic roofing

Therefore, to minimise the housing problems of urban poor families, the government should adopt aided self-help housing approaches either in providing legal title deed to the occupied land tenure or new site with basic services to enable returnees in establishing their permanent settlement (Vaa, 1998; Rodell & Skinner, 1983; Mathey,

1993). However, the attempt of the government to evict repatriates from the area would only relocate the constraint to other areas of the city rather than providing sustainable remedies to the problem.

7.3.3 Health Impacts

The poor in Third World urban areas live in overcrowded settlements, destitute houses, or small shacks and usually suffer comparable or higher rates of diseases and death than their rural counterparts (Hardoy, Cairncross & Satterthwaite, 1990). Most of the houses of Kore community were similarly cramped and crowded. The sizes of the houses were ranging from $4m^2$ to $20m^2$ while heights were varying between 1.50m and 2m. From the survey of 96 households, 71% of the respondents lived in single room tenements. It was only 3.1% of the sampled population who were living in three room dwellings.

The holes between roofs & upper rim of the walls and through the walls of almost all houses either due to poor quality of construction materials or removal of plastering mud exposed residents to the impacts of weather change. This in turn might lead people to high risk of diseases. The common breeding and recurrent appearance of frogs, lizards, *Cockroach/Berero*[9] and millipedes especially during summer within and outside the dwellings might spread diseases among the community. The results of multiple responses indicated that 83.3% of sample households suffered from the dampening of their houses in the wet season. The high risk of diseases, noise pollution and diffusion of dusts into the houses were commonly reported by 71.9%, 58.3% and 51% of sample household heads respectively. The consequences of the cramped and poor houses, therefore, could exacerbate the risk of diseases and ill health of the people.

A single communal tap was the main source of water to all residents of the study area. The restricted supply and occasional intermittence of the communal water contributed to the low water consumption of the people below the average requirement for normal health. The constraints of fleas and lice, reported by some interviewees might be partly the result of inadequate water supply that influence the hygiene and sanitation of people. The inadequate provision of garbage collection, accumulation of solid wastes for a long time and spread of human excreta from over-flown old pit latrines during the *kiremt* season contributed to the health risks of the community. Such poor sanitation can favour the breeding of flies and pathogenic micro-organisms which can either intensify transmission or cause diseases among

[9] Berero-is an Amharic term to name flying insects.

the community. The bad smells of the garbage and toilets were also the causes of asthma and whooping cough through air pollution. As reported by most interviewees, the offensive smell of *fagulo*[10] was the other cause of *asthma* especially among women. Though medical professionals prohibit *fagulo* as a source of fuel, many people continued to use it due to its affordable price; than the cost of wood and/or Kerosene. Triggered by a number of factors; intestinal parasites, diarrhea, respiratory infection, typhoid and tuberculosis were the common types of diseases among the people (Table 1).

74.1% of the valid multiple respondents reported the occurrence of intestinal parasites in their household within one year time until July 2002. In addition, parasitic diseases, respiratory infection and diarrhea were the dominant health risks in the area. Though the number of counts seems low, tuberculosis was common owing to the crowded nature of the settlement and delay of residents to attend medical treatments at the right time.

Table 1: The Common types of self-reported diseases in Kore community, Addis Ababa, 2002 (Multiple response is possible, N=96)

Types of diseases	Count	Percentage
Tuberculosis	10	12.3
	34	42.0
Typhoid	16	19.8
Intestinal parasites	60	74.1
Respiratory infections	34	42.0

Source: Field Survey, July 2002.

7.3.4 Psychological and Social Impacts

The psychological and social impacts of repatriation and squatting were related either to the informal nature of the settlement or the meagre level of social services or socially constructed by the perception of people.

First, though the authorities repeatedly requested the people to evacuate from the area, the residents reacted against the request through demonstration or organised negotiation. The repeated conflict between the government and repatriates had developed uncertainty of the settlement and fear of losing land in the mind of the

[10] Fagulo- is the residual of oil seeds.

community. This fear in turn deterred the establishment of *idir*[11] that affected the social stability of the residents.

Second, the psychological problem of the people emanated from the inadequate provision of toilet facilities. As observation during the field survey proved, the toilets of the community were poor in sanitation, old in nature and had repelling smell to residents, especially who were *asthmatic*, to influence them to defecate in the nearby open fields. Defecation in the open field was not psychologically easy since the people at least feel shame, guilty and lose confidence during defecation. So, defecation did not only deplete the quality of the environment but also eroded the personality of the people.

Third, the naming of the Kore settlement as *meteleya*[12] developed negative perception in the minds of the residents for at least two reasons. First, it eroded the social status of the people because the term connotes something wrong about the people. Second, it conveyed the instability of the settlement of the Kore repatriates. The researched community, therefore, aspired to nullify the naming of *meteleya* either to minimise or avoid the negative connotation related to the name of their settlement.

7.4 Kore Repatriates and Squatters: the Discourse of Permanent Opportunities of Housing the Urban Poor

Repatriation is a complex process. It needs an integrated decision of UNHCR, other UN agencies, the host and immigrating governments to provide appropriate assistance to returnees. Therefore, repatriation is not only a mere transportation of people across international borders. In the process of repatriation a multitude of planning questions must be raised as a guiding line to make the necessary preparation. Where, in the host country, should refugees be repatriated? What kind of short and long-term assistance should be given to the repatriates? Who is to be charged for ensuring their protection and welfare? For how long are they considered as a "vulnerable group", possibly deserving of specially targeted assistance? (Hammond, 1999).

Discussions above revealed that the returnees of the Kore community confronted a number of problems throughout the whole process of their displacement. Though

[11] Idir-is an organized traditional and informal welfare system that has been voluntarily arranged by individuals. The cardinal aim of the members joining this society is to meet the expenses of death, organizing mourning and securing an honorable burial after death.
[12] Meteleya-is an Amharic term equivalent to the English word shelter. However, it has a temporary life span in its duration as the context of its Amharic meaning conveys.

repatriation helped the Kore community to return to Addis Ababa, the inadequate social services and recurrent conflict with the government on the issue of urban land tenure challenged the people. From all the social calamities the people faced after repatriation, the issues of housing and the urban land tenure were some of the utmost problems of the community.

In this section response was not given to all questions raised above. Rather, attempt was made to discuss the durable strategies implemented by government or proposed by the residents in addressing the housing and urban land tenure constraints. The first approach analysed strategies of the state while the second approach explicated the opportunities proposed by the community.

7.5.1 Top-down approach strategy

Finding plausible strategies that can solve individual or societal problems is a complex matter. However, the top down approaches represent the strategies of the current government in minimizing or solving the housing problem of the urban poor. According to the interview data, the high rank government officials of Works & Urban Development and Foreign Relation & Development Co-operation Bureau of AACG had divergent strategies about the permanent housing remedies of the Kore community. The main strategies proposed by the two officials are analysed below.

A. The higher government official in Works and Urban Development Bureau (WUDB) of Addis Ababa City Government (AACG) proposed three different strategies to minimise the housing problems of the urban poor in particular and residents in general. These were:

1. Creating awareness about the negative impact of illegal housing construction through the dissemination of the necessary information by the responsible officials. This awareness creation can progressively help the people refrain from illegal activities.

2. Improving the urban housing policy of the country. In Ethiopia, housing construction was almost basically dependent on individual or co-operative bases. During the Dergue regime, the urban housing policy did not permit people to construct more than one house. To the contrary and with the exception of some real estate like *Ayat*[13]*,* there were not many private house construction companies in Addis Ababa. To balance the demand and supply of housing, the shift in urban housing policy was crucial. The urban housing policy should have permitted people or companies to build affordable houses for renting or sale during the present regime. The assumption is the

[13] Ayat-is the private housing construction real estate company in Addis Ababa.

change of urban housing policy and provision of low-cost affordable housing for renting or sale that would gradually minimise the problem of shelter.

3. Providing site and service for the poor urban dwellers. The current demand of housing is much higher in Addis Ababa than its supply. To minimise this imbalance, and the housing problem of the Kore community, the higher official from Works and Urban Development Bureau supported the *'site and service'* approach of 'aided self-help' theory. With this strategy the state or local authorities should provide land, communal water supply, electricity, and unpaved road services and some subsidized materials to the urban poor to build their houses on a given plot of land (Hesselberg, 1996). In response to the interview questions about the constraints of urban housing, the higher-ranking official of Works and Urban Development Bureau confessed that:

Without implementing the provision of the housing strategies, bulldozing could not be an appropriate remedy to control the illegal construction of houses. Therefore, the forceful evacuation of the Kore community from the area might not be the right measure in solving the urban housing and land tenure constraints."

In principle the representative of WUDB agreed to the provision of site and service to minimize the housing constraints of Kore repatriates. However, until the summer of 2002, the period of data collection, the government didn't practically provide either legal title deed to the occupied land or new site to permanently rehabilitate the Kore community.

B. The higher-ranking official of Foreign Relation and Development Co-operation Bureau (FRDCB)[14] proposed technical training, material and money support to rehabilitate repatriates and provide durable solution to the housing and urban land problem of Kore community. The institute provided short term training, of three months duration, for young and adult people who were aged up to 45 years. The training was in hair dressing, carpentry, construction, maintenance, mechanics, pipe work and production of building materials. At the end of the training, the institute also gave technical materials and money support ranging from 375 up to 500 *birr* for every household. The institute gave about 2750 Ethiopian *birr*[15] per household only to patients and elderly people who were unable to attend the training. However, the institute made sanction that strictly forbade returnees to rehabilitate in Addis Ababa because, the institute believed that trainees could not afford the market competition and high rent of housing in the city with their low training and income. The low quality of training, mismatch of interest to the area of training, low amount of money support and restriction of rehabilitation in Addis Ababa were blamed by the repatriates.

[14] FRDCB-is the government institute responsible to assist and rehabilitate the 1991 Ethiopian repatriates who had settled in different pocket areas of Addis Ababa.
[15] Birr- is the name of the National Currency of Ethiopia.

Through the people's resistance, the institute raised the amount of money support between 1430 and 2500 *birr* for the repatriates who completed the training and accepted rehabilitation program of the project outside Addis Ababa. Since the amount of money support depends on the cost of the technical materials, attempt was made to balance cost of materials and amount of money aid. This adjustment was taken into consideration to make equitable resource support for all households of returnees. On the bases of community request and constitutional right of a person to live in any part of the country (article 32), the institute had also avoided the restriction of repatriates to live in Addis Ababa. Though the government had tried to meet some of the above requests, still the people continued to oppose the rehabilitation project demanding provision of either urban land or public housing in Addis Ababa. The request for urban land or public housing was the nuclei of intensive disagreement between the Kore community and government representatives during the implementation of the rehabilitation strategies of the government.

7.5.2 Bottom-up Approach Strategy

The survey and interview results confirmed that the community lived in the temporary squatting of Kore for about twelve years until July 2002. During their stay, as the male focus group participants reported, the Kore shelter benefited the repatriates to provide temporary squatting, source of informal economy, social services and base of organised negotiation with the government.

As it had been proved through interview, most members of the Kore community agree with the site and service strategy of Works and Urban Development Bureau. As the bottom up strategy of decision making, more than 96% of the sample households believed in the provision of either ***site and services*** or ***legal title deed*** to the occupied land to bring permanent solutions for their urban housing constraint. The inconsistent rehabilitation decisions of the FRDCB of AACG, the top-down approaches of rehabilitation that excludes the voice of the poor mass and shift of rehabilitation authority from RRC/DPPC of *Shewa* to FRDCB adversely affected the permanent rehabilitation of Kore community for a number of years.

7.6 Conclusion and Implications

The May 1991 victory of EPLF in Eritrea and TPLF in Ethiopia did not only overthrow the Dergue regime from power but it also brought many changes in the history of Ethio-Eritrea. **First,** Ethiopians were considered as foreigners in the face of Eritrean people affiliated to EPLF. **Second,** the change of system in Ethiopia was accompanied by the demobilization of almost all the national forces of *Dergue*

regime. **Third,** the change of government in Eritrea had also exposed massive Ethiopians exodus from Eritrea either into their home country or different countries to avoid violation of *Shabia* forces. **Fourth,** even Eritrean women who gave birth to children from Ethiopians were obliged to leave their country if they wanted to keep their children. This fact had been a cause of displacement for some Eritrean women. So, Eritrean women who wanted to live in their country had to send their children outside Eritrea because, the *Shabia* government considers the children of Eritrean women who had an Ethiopian father as potential enemy. However, the researcher did not find a child born from Ethiopian women and an Eritrean father during the field work. **Finally,** the defeat of the *Dergue* regime contributed to the change of Politics both in Eritrea and Ethiopia and divided the same people into two different nations. As the results of the study depict, the researched community suffered a lot from challenges in the arduous journey, refugee camps & Kore temporary squatting. Generally, the poor quality of houses, lack of water supply, and meagreness of garbage collection, poor sanitation, malnutrition and inability of most people to use modern health facilities at the appropriate time exposed the residents to various endemic occurrences of preventable diseases. In addition, the instantaneous change of decisions made by the FRDCB of AACG and shifting the authority of rehabilitation from RRC/DPPC of *Shewa* to FRDCB adversely affected the provision of durable solution to the community. To minimize conflict between people and government in line with empowerment approach of alternative development it would have been better to include the voice of the people while designing the rehabilitation project that affects the life of repatriates (Friedman, 1992). Furthermore, institutional instabilities should be avoided to minimise the gap of understanding and handle constrains at the right time.

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HOUSING AND URBAN (RE) DEVELOPMENT SCHEMES IN ETHIOPIA: IMPLICATIONS FOR FEMALE-HEADED HOUSEHOLDS IN ADDIS ABABA

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Abstract

The aim of this research was to make reflections on the ongoing urban redevelopment schemes as part of the government housing policy with a view to assessing their implications on poor women headed households facing eviction and identifying new local policy options. A total of 150 female-headed households residing in condominium houses and temporary shelters in one of the sub cities of Addis Ababa City Administration (Arada kifle ketema) were approached.

The study tried to answer the following questions:

- *To what extent have concerned government officials acted in the interests of poor women headed households, and how far have their actions affected the displaced households?*
- *How can access to housing by the poor women be increased and sustained? Also, what interventions are needed to enable increased and sustained supply of housing in a manner that provides equal opportunities for living and earning a livelihood?*

The before-after approach was mainly adopted to assess respondents' conditions in the previous settlement and the new one. In order to make statistical analysis possible, all the data were transformed into a quantitative form.

The findings of the study have identified the following policy issues:

- *Inadequate housing has a severe effect on women.*
- *The condominium projects by large benefited households with better income.*
- *Poor female-headed households reported that they are bitterly affected by the relocation schemes. Quite a large number reported that new sites are inappropriate or running businesses and they transferred to the new residence against their will.*
- *Although the housing development policy paper ascertains that the project is in favor of the poor, it appears that there is a gap in actual implementation and promises of the policy document.*

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1. Introduction

Researches in the low-income housing field acknowledge that inadequate housing tends to have a more adverse impact on women and children, who proportionally spend more time in home and its immediate environment (Moser 1987; Fahra 1999; Chant 2003a, 2003b). Moreover, some studies (Mejia 1999, for instance) ascertained that urban modernization of slum areas undermines site bound employment opportunities such as the informal economy thereby imposing negative effects on the urban poor, the unemployed or underemployed or households headed by women.

Resettlement sites are mainly located in urban fringe zones where restoration of employment, income and social networks is difficult. As in other developing countries, the underdevelopment of housing and infrastructure contributes to the poor conditions under which the majority of Ethiopian communities live. The lack of satisfactory housing conditions acts as a barrier to many low-income women to gain easy access to basic resources, including employment, health care and education.

Poor women and their families remain under the threat of eviction in Addis Ababa because of road construction, land issuance for investors, housing cooperatives, office buildings, and residential quarters for higher military and civil governmental officials and condominium houses. Policy measures are being exercised without sufficiently understanding the context, scope and meaning of the housing concerns of poor female-headed households and the implications of urban redevelopment schemes on them.

Therefore, if the plight of the homeless and slum dwellers, and especially the predicament of women are to be effectively acknowledged in the current housing policy approaches, other sectoral reforms, planning and development instruments in the country, there is an urgent need to gather adequate and reliable information about available policy options and approaches for poor women, and the implications and effects of the on-going condominium housing projects and urban redevelopment schemes on the living and working conditions of women and their immediate families.

This paper primarily aims at examining the impact of housing and urban (re)development schemes on the living and working conditions of women and their immediate families. Both secondary and primary data were collected in the study. Secondary data pertaining to government urban (re)development schemes and housing programs were collected from various governmental and relevant institutional documentations.

Primary data were collected to provide household level evidence on the impact of housing and urban (re)development schemes on the living and working conditions of female ´headed households. The data were collected using survey method. Sixty-six household heads living in condominium flats, 69 in temporary shelters and 15 in villa chosen randomly were interviewed using a list prepared by census of the study area. Three sites (from neighborhoods of 'Kebena', Tourist Hotel and 'Yigezu Meda') were chosen purposively since they represent the highest concentration of affected households.

2. Literature Review

2.1 Housing the Urban Poor: Approaches and Challenges

Decentralization policies currently in progress in almost all developing countries make local authorities more responsible to their constituencies. What is more, in a globalizing world, municipal governments have to take escalating conscientiousness in making cities more competitive, efficient and productive, as well as more equitable, safe and healthy. Slum upgrading is a more affordable method of attaining these ambitions (Balbo, 2001).

New institutional and economic conditions are making the provision of affordable housing for the urban poor and slum upgrading strategies more germane. The increased importance of cities in national production is ever more accredited and housing the poor is seen as an important housing of irregular settlements.

The supply of public housing through the construction of condominium houses and the improvement of irregular settlements has often been hindered by economic and implementation problems. For instance, slum-upgrading projects in Kenya were constrained by lack of affordability, high standards for infrastructure, land tenure complications, inappropriate regulatory frameworks and administrative incompetence (The School of Public Policy, 2001).

Landowners and many governments in the developing countries have opposed legalization of slum and squatter settlements for political as well as economic reasons (Balbo, 2001; UN, 2003). Above and beyond being an important economic asset, particularly in rapidly growing cities, land is a fundamental political gizmo directly affecting urban power relations (Akrofi, 2001).

2.2 Women's Rights to Housing and Land

The right to adequate housing has been widely renowned as an important human right in the universal declaration of Human Rights and the Covenant on Economic, Social, and Cultural Rights. The UN Commission on Human Rights adopted a resolution (2002/49) entitled, women's equal ownership of, Access to and Control over Land and the Equal Rights to own property and to Adequate Housing. Yet, women are still to grossly deny the right to adequate and related rights such as access to sanitation facilities, and potable water (Kothari, 2005; Reitsma, Lund and Schofield, 2004).

Poverty is a decisive overlying factor that traverses with the other factors to rebuff women's right to adequate housing. Various studies (by Akrofi, 2001; Keles, 2001; Kothari, 2005) have congregated proofs from a range of women in India, Malaysia, Srilanka, Thailand and Indonesia who faced eviction from slums and squatter settlements when they lose their husbands, widowed women are unalterable to being deprived of their rights to adequate housing because of insufficient protections on their inheritance, property and housing rights. Poor urban women are still disgustingly denied the right to adequate housing, who as a consequence are most directly affected by unhealthy and unacceptable living standards (Kiwala, 2005).

2.3 The Ethiopian Experience

Nowadays the capital, Addis Ababa, hosts the larger number of slum and squatter settlers and homeless population in the country. According to ORAAMP (2002), 85 percent of dwellers of Addis Ababa reside in dense, unsanitary and insecure slums. The majority of slum dwellers (about 80%) are low-income groups of which 60% are below poverty line. Moreover, about 60% of the central most part of the city is dilapidated and about a quarter of all housing units have been built informally. Slums and squatter settlements in Addis Ababa are growing in size and in share of its urban population, a demonstration to policy and institutional failures of land, housing and infrastructure systems to generate adequate supply, even where people have confirmed a strong willingness to pay.

Recent studies pointed out that the displacement and resettlement schemes of the city failed to consider the interest and psychological makeup of the displaced households. Berhanu (2006) basing his study at *Casanchis*, Addis Ababa, assessed the impacts of urban redevelopment on the livelihoods of displaced people in Addis Ababa. His major findings reflected that the current urban redevelopment schemes of

the city are failed to address the needs and priorities of the urban poor, rather they impoverished and marginalized the affected communities.

Alebel and Genanew (2005) assessed households' willingness to resettle and their preferences to forms of compensation. They ascertained that compensation among the resettlement programs failed to reflect on the needs of the displaced households, and resettlements projects are enacted without negotiations with the affected group, who are dominantly low-income groups.

Similarly, Demelash, et al (2004) tried to reflect on the displacement and resettlement process of Addis Ababa city. They witnessed implementation difficulties and inconsistencies on the government side with regard to plot allocations and compensation benefits (for instance, women are more negatively affected than men in compensation). Other studies (Ayalew, 2003; Dereje and Wondimu, 2003; Abebe, 2001; Nebiyu, 2000; Feleke, 1999; Elizabeth, 1996) also share the views of the above researchers.

3. Findings

3.1 Household Size and Number of Dependants

The overall average household size was 3.94 for the previous settlement and 3.69 for the new one. The majority of the respondents support relatively large households. About 46 percent of the samples (all types of dwelling units)[2] reported that they support households with 4 to 6 members and nearly 41 percent with 1 to 3 members. A relatively large percentage (73.3) with regard to household size (4 to 6 members) was noted among villa owners followed by occupants of condominium units (51.5 percent). A smaller share of temporary shelters in terms of the set variable might be due to inconveniencies in the housing structure and due partly to job insecurities and as such some of the household members might have preferred to stay in the previous settlement.

The average number of dependents residing with the respondents in the previous settlement was 2.31 (for condominium dwellers), 3.14 (for occupants of temporary shelters) and 3.25 (for those residing in villas). The corresponding values for the new

[2] All dwelling units refer to the three housing units considered for the purpose of this study. These are condominium houses, temporary shelters and villas. Condominium house (unit) is a kind of multi-story residential blocks (in the case of Addis Ababa consisting of studios, one bed room, two bed rooms and three bed rooms). Temporary shelter is a house made up of corrugated iron sheets with one room giving all services (serving as a bed room and a store). Villa is a conventional housing unit, which may be built using hollow blocks or wood and mud.

settlement were 2.54 (for condominiums), 3.25 (for temporary shelters) and 3.37 (for villas). As this study was directed to female headed households, such household burden will have due impact on their livelihood.

3.2 Marital Status

As regards to marital status, the survey data shows that more than 47 percent of the respondents were widowed, 26 percent married, 11.3 percent single and 15.3 percent divorced. According to the literature (Moser 1987; Moser and Peake 1994; Chant 2003a, 2003b) single-headed, female-headed households are particularly held back by the triple burdens of employment, housework and childcare. For those reasons single-headed, female-headed households are often assumed to be worse off than two-parent households and therefore more in need of housing.

3.3 Educational Status

Education is identified in the literature as a strategic need that should be addressed. According to Moser 1987; Moser and Peake1994; Chant 2003a, 2003b, lower education levels have a more severe impact on women than males. Lower education levels still prevent low-income people from accessing economic opportunities and could lead to discrimination or exploitation in the labor market. The majority of the respondents (76.7 percent) had either no schooling or some primary education. Household heads with secondary education number 9 (6 percent). In addition, only 3.3 percent of the respondents had bachelors degree and above level of education. Since women with lower educational levels are less likely to be included in the formal employment sector, they usually have to turn to the informal sector with lesser-paid jobs. Access to housing could provide women with opportunities to start income generating activities from home.

Nonetheless, quite a good number of respondents expressed their complaints related to the difficulty of running businesses in the current resettlement site. As condominium houses entail living in apartment modes where the occupants should be guided by the rules set by municipal officials (such as using condominium units for residence purposes only), commencing former businesses in the locations become more unlikely.

Survey data revealed that about 73 percent of the respondents were engaged in home based businesses (such as producing and selling low quality goods and less profitable commodities and food vegetables) and other domestic works when they were in the previous residences. This point raises a policy issue of how to

compromise between housing supplies for the poor (particularly female headed households) and their eventual lose of former businesses.

3.4 Number of Years in the Resettlement Site

Although the average number of years that the respondents stayed in Addis Ababa was more than 28 years (29.71, 26.05 and 29.36 respectively for condominium, temporary shelter and villa dwellers), the low-income houses were relatively new. It was found that respondents had short stays in their new dwelling units (an average of 1.0 year).

The fact that the respondents resided in their low-income house for an average of one year and that the houses had been constructed relatively recently is an observation that should borne in mind during the remainder of the analysis, in particular with regard to the satisfaction levels of the product received.

3.5 Economic Profile

The employment and income profile of respondents questions the ability of female-headed households to make incremental contributions to their housing. The data in Table 1 and Table 2 indicates the employment status and income categories of respondents before and after resettlements.

The data in Table 1 show that about 43.3 percent of the respondents were unemployed in the current resettlement site while the figure stood at 18 percent for the previous settlement (the unemployment figure has increased by a quarter). The drop in the employment figure was the highest for those respondents in the temporary shelters. This event really attracts attention. Eyewitness in various sites disclosed that the resettles were settled in localities, which are remotely connected to the market.

Table 1: Employment status of respondents before and after resettlement by type of dwelling units

Employment Condition	Condominium				Temporary Shelter				Villa				All type of dwelling			
	Before		After		Before		After		Before		After		Before		After	
	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Government Employed	6.0	9.1	6.0	9.1	6.0	8.7	6.0	8.7	7.0	46.7	7.0	46.7	19.0	12.7	19.0	12.7
Informal self-Employed	30.0	45.5	19.0	28.8	45.0	65.2	21.0	30.4	4.0	26.7	2.0	13.3	79.0	52.7	42.0	28.0
NGO/Private firm	1.0	1.5	1.0	1.5	5.0	7.3	4.0	5.8	4.0	26.7	4.0	26.7	10.0	6.6	9.0	6.0
Retired	10.0	15.2	10.0	15.2	5.0	7.3	5.0	7.3	-	-	-	-	15.0	10.0	15.0	10.0
Unemployed	19.0	28.8	30.0	45.5	8.0	11.5	33.0	47.8	-	-	2.0	13.3	27.0	18.0	65.0	43.3
Total	66.0	100.0	66.0	100.0	69.0	100.0	69.0	100.0	15.0	100.0	15.0	100.0	150.0	100.0	150.0	100.0

Attempts were made to reflect on the income status of the respondents in line with the classification made by the Addis Ababa executive summary (2001)[46]. Table 2 gives a picture of the average monthly income of the sample household heads in the study area.

[46] The Addis Ababa summary report identified the following income groups in Addis Ababa:
i) High income (>2000Birr/Month) group comprising 4% of the city's dwellers.
ii) Medium income (670-2000Birr/Month) group comprising 16% of the city dwellers.
iii) Low income (<670Birr/Month) group comprising 80% of the dwellers, of which 60% is below poverty line (i.e. 300Birr/Month or 35US $ per month).

Table 2: Income status of respondents before and after resettlement

Income Category (in *Birr*)	Condominium				Temporary Shelter				Villa				All type of Dwelling unit			
	Before		After		Before		After		Before		After		Before		After	
	No	%	No.	%	No	%	No.	%	No	%	No.	%	No	%	No	%
< 300	27	40.9	43	65.2	58	84.1	6	95.7	5	33.3	8	53.6	90	60.0	11	78.0
300-670	39	59.1	19	28.8	9	13.1		4.3	7	36.7	7	46.7	55	36.7	-	19.3
671-2000	-	-	4	6.1	2	2.9		-	2	13.3	-	-	4	2.6	4	2.7
>2000	-	-	-	-	-	-		-	1	6.7	-	-	1	0.7	-	-
Total	66	100.0	66	100.0	69	100.0	6	100.0	15	100.0	15	100.0	150	100.0	15	100

Table 3: Number of employed family members before and after resettlement

Employed Family Member	Condominium				Temporary shelter					Villa				All type of dwelling unit			
	Before		After		Before		After			Before			After		Before		
	No.	%	No.	%		No.	%	No.	%		No.	%	No.	%		No.	
No one	17	25.8	30	45.5	11	15.9	31	44.9	4	26.7	5	33.3	32	21.3	66	44.0	
1-2	39	59.0	33	50.0	31	44.9	25	36.3	9	60.0	10	66.7	79	52.7	68	45.3	
3-5	10	15.2	3	4.5.0	19	27.6	12	17.4	2	13.3	-	-	31	20.7	15	10.0	
More than 5	-	-	-	-	8	11.6	1	1.4	-	-	-	-	8	5.3	1	0.7	
Total	66	100.0	66	100.0	69	100.0	69	100.0	15	100.0	15	100.0	150	100.0	150	100.0	

As could be observed from the table, 60 and 78 percent of the respondents had average monthly income of less than Birr 300(about 33USD) respectively before and after displacement. This implies that the majority of the respondents were found to lie below poverty line (i.e. 300*Birr*/month or 35US $ per month). The medium income group represented only 2.7 percent of the surveyed households while there was no one in the high-income group. For these households it would be very unlikely to contribute incrementally to the housing process, not only in terms of income, but also in human resources.

On the other hand, as Table 3 shows 77.3 and 89.3 percent of the respondents had only two or less persons contributing to the household's income before and after relocation respectively.

Time constraints, domestic responsibilities and lesser income can put severe strain on the ability of female-headed households to make an incremental contribution. Although not a significant number of respondents indicated that they were running any income-based activities from their homes, about 13 percent of the respondents reported income-generating activities. Most income based activities from home seemed to be for survival such as selling goods, renting out rooms or backyard shacks, boarding rooms, par time works in their vicinities and other sources.

The layout of housing developments frequently has a negative impact on income generating activities. Given that condominium units usually occur in multi-story forms adjacent to but removed from inner city locations, these settlements could also be poorly linked to the outside market. In addition, local markets are often too small to support income generation. Whole sector development and sustainability are key concepts in the housing policy framework. Nonetheless, from the survey results it appeared that these aspects of the low-income housing policy do not reach women at the grassroots.

3.6 Respondents' Satisfaction with their Housing

The emphasis now shifts towards assessing the levels of satisfaction within the current housing situation. This type of assessment is important as it provides insight into the current dilemmas and preferences in order to ensure that the same mistakes are not made with a new development.

The levels of housing satisfaction were analyzed by means of a 4-point Likert scale[1]. Aspects relating to the housing structure that the respondents had to assess included: roof condition, floor covering, walls, damp conditions during rain, natural light, number of rooms and windows, temperature in summer and winter, ventilation, size of the house and stand, privacy, and safety they felt in the house.

3.6.1. Respondents' dissatisfaction with summer temperature, privacy, rooms and house size conditions

The majority of respondents in condominiums and temporary shelters were dissatisfied with the chilly summer weather, limited privacy in the house, insignificant number of rooms and small size of plot/stand.

Respondents were to a large extent much more dissatisfied with the cooling effect of hollow blocks and temporary shelters in summer season. It should be noted that the summer season is the main rainy season for most part of the country. As Addis Ababa is situated at a relatively higher elevation the summer temperature normally goes down.

Approximately 35, 71 and 6 percent of occupants of condominiums, temporary shelters and villas respectively were dissatisfied with the summer temperature. Quite a large percentage of condominium dwellers (54.7, 56.3 and 26.5 percent respectively) expressed their dissatisfactions with lack of privacy, few rooms in the house and small size of plots. The corresponding percentages for temporary shelters were 49.3, 78.6 and 49.4 percent respectively. The dissatisfaction levels of villa dwellers in terms of the set criteria were 36.2, 56.3 and 49.4 percent in that order. The high dissatisfaction of respondents with the mentioned aspects might be due to the fact that women generally spend more time indoors and around the house and that the problematic aspects of the house have a greater impact on them.

It is noteworthy that condominium and villa dwellers were satisfied with most aspects of the house. Nonetheless, beneficiaries of condominium houses frequently complained about cracks in walls, roof conditions and dampness. Although the issue of better building and adequate quality control is addressed in the housing policy, some respondents complained about the persistence of poor construction. On the other hand, respondents of temporary shelters bitterly explained their dissatisfactions related to overall aspects of the house.

[1] Respondents were required to choose from the following options: very satisfied, satisfied, somewhat dissatisfied and not satisfied at all. For the purpose of analysis, the answers indicating "very satisfied" and "satisfied", as well as those indicating "somewhat dissatisfied" and "not satisfied at all" were pooled. The evaluation of the satisfaction levels was then based on these pooled figures.

3.6.2 Respondents' satisfaction with their house situated in previous location

The vast majority of respondents stated that they were satisfied with their houses located in previous location. A contributing factor to this satisfaction could be the fact that, since the average number of years that the respondents had been staying in previous location was over 28 years, the people were familiar with their neighborhood and community. The satisfaction with the settlement corresponds with other similar studies (Berhanu 2006, for instance) and is further substantiated by a study by Alebel and Genanaw (2005). They concluded that it is an extremely stressful experience for people to be forcibly resettled and could lead to dissatisfaction.

3.6.3 Satisfaction with basic household's services

Quality of services has a direct impact on the extent and burden of household labor and health, and thus women's responsibility in this regard. Nearly 79 percent of the respondents residing in condominium units had water inside the house. Nonetheless, about 15.2 and 6.1 percent of the respondents respectively relied on public pipes and private vendors for water supply. It should be noted that every stand in condominium blocks has pipe water connections. But frequent access to water is a recurrent problem particularly for dwellers occupying upper stories. As the water is pumped upwards against gravity, it loses its power. As a result, most of the upper floors could not get adequate water.

On the other hand, respondents in temporary shelters did not have pipe water either inside the yard or in the house. More than 98 percent of the respondents in temporary shelter use public pipe and private vendors as the sole sources of water. It was also noted that some households use streams and wells for various purposes.

It is important to consider issues of cost, distance and the safety of such water, especially storage for people who live in temporary shelters. The fact that such a larger number of temporary shelter dwellers use public taps/private vendors as water source implies that these people are very poor to the level that they could not even pay the required minimum costs for studio type condominium units.

In order to assess satisfaction levels with regard to sanitation, some selected indicators were considered. These include availability and type of latrine, sewerage facility and solid waste service in the area. Responses regarding the use of latrine indicated that about 88.2 percent of the sample households' in the temporary shelters use shared latrine (dry pit type). At least 12 percent of them use public places such

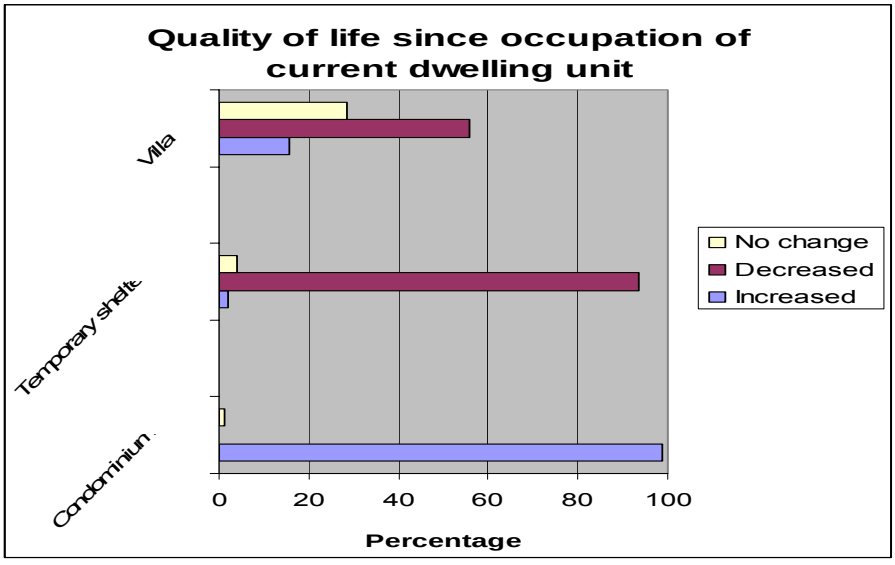
as streets, bushes and streams. For almost half (49.3 percent) of them the toilet facilities are too far from where they sleep.

The distant toilet facilities pose a problem for the elderly who cannot walk far seeking this service. This could be a factor of culture and socialization with its emphasis on privacy that makes older people and women more cautious in their use of toilet facilities, an act largely considered private. On the other hand, the majority (about 89 percent) of households in condominium houses use flush toilet. It was also noted that nearly 11 percent of condominium dwellers reported problem with toilets. Disruption in water supply and weak pumping were sources of the reported problem. Poor sewerage system and solid waste disposal services are major problems for temporary shelter dwellers. About 73 and 69 percent of the respondents mentioned sewerage and solid waste service as problem of the area, respectively.

3.6.4 Quality of life

Respondents were required to indicate whether the fact that they had moved into the current dwelling unit had increased or decreased the quality of their lives. As indicated in Figure 1, the responses were significantly positive for households in condominium units while responses were negative on the part of temporary shelter occupants and to some extent for those in villas.

Figure 1. Condition of Quality of life since occupation of current dwelling unit



Despite minor deficiencies and dissatisfaction with some aspects of their house, the majority of households in condominium units indicated their quality of life had improved since moving into the current housing unit. Overall, 98.6 percent of them felt their quality of life had improved. On the other hand, most of temporary shelter occupants (93.7 percent) and a considerable number of villa dwellers (55.7 percent) felt that they were worse off than before moving into the house.

3.6.5 Respondent's Satisfaction with Compensations

The legal basis for compensation for the displaced households is mentioned in sub-article 40(8) of the Federal Democratic Republic of Ethiopia Constitution. The article can be read as:

The government may expropriate private land for public purposes subject to payment in advance of compensation commensurate to the value of the property.

Bearing in mind the legal basis for compensation, attempts were made to collect feedbacks from the surveyed households concerning their satisfactions with compensations. Table 4 summarizes respondents' responses by type of dwelling unit.

Table 4: Respondent's satisfactions with type of compensations

Type of dwelling unit	Satisfied		Not satisfied	
	No	%	No	%
Condominium	51	77.3	15	12.7
Temporary shelter	6	8.7	63	91.3
Villa	5	33.3	10	66.7
All type	62	41.3	88	58.7

As could be observed from the table, quite a large number of condominium occupants (77.3 percent) revealed their satisfactions with the type of houses they were offered as compensations. Nonetheless, the majority of temporary shelter and villa occupants reported their dissatisfactions with the compensations. Respondents were complaining for government's failure in paying compensations for business interruption and transporting household utensils.

5. Conclusions

The lack of jobs and poverty are emphasized in this study, especially among households residing in temporary shelter. Although addressing unemployment and education does not fall directly within the scope of housing, programs should be

designed to support women with income generation. It is recommended that housing policy be implemented that consider the fact that women occupy a different position in society, mainly in informal sectors, poorer segments and sectors that are more vulnerable. The policy and program should especially be sensitive to women who are the sole providers for their families.

A more specific focus is required on the eligibility criteria of women in the current housing subsidy. It is recommended that the eligibility criteria of meeting the minimum initial payments for condominium houses (which is beyond the financial capacities of poor women) be amended. Specific focus on poor women (divorced and widowed) is necessary to include them as beneficiaries. Since a large number of the surveyed female-headed households have dependants, it is recommended that the affordability of condominium houses be revised.

The Government has long acknowledged that poor quality of houses is a problem. The construction of substandard low-income houses persists. It is doubtful whether the steps taken to address the poor quality sufficiently address this problem. Since poor female-headed households are generally worse off economically than male-headed households, they have fewer resources to improve the quality of their houses. It is recommended that the problems with regard to poor quality of houses be prioritized. Since caring for dependents and the ill is primarily the responsibility of women, it is also recommended that preference be given to the creation of basic services aimed at the dependent population.

Low-income housing policies should take into account the needs of both women and men. However, not enough studies have been carried out to identify gender trends and differences in the low-income housing sector. Gender research is vital in assembling knowledge and experience in order to mainstream gender issues and translate these into urban policy and practice. It is, therefore, plausible to suggest that urban research be subdivided according to gender.

Implementation of constitutional laws and policies remains a huge challenge not only for Ethiopia but also internationally and requires concerted efforts from all levels in order for women's rights to land and property to become a reality. Hence, it is recommended that specialized methodologies and tools be incorporated to monitor and evaluate the implementation of policies. The inclusion of these would make planning processes operational and could lead to the sustainability of projects in the long run.

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MISSED OPPORTUNITY IN ADOPTING HIV/AIDS PREVENTIVE BEHAVIORS AMONG TAXI DRIVERS AND THEIR ASSISTANTS IN ADDIS ABABA, ETHIOPIA

Yihunie Lakew[1]

Abstract

The objective of this study was to examine the determinants of missed opportunity in adopting HIV/AIDS preventive behaviors among male Taxi drivers and assistants ("Weyalas"[2]) in Addis Ababa. The study was cross-sectional by design and conducted in April 2006. A multistage cluster sampling procedure was applied to select 615 individuals for interview. Both bivariate and multivariate statistical analyses were employed as deemed necessary. Overall, 76% and 69.6% of the respondents, respectively, reported that they already had sex at least once in their lifetime and in the year preceding the survey. Nearly 30.7% of the participants had reported casual sex in the last 12 months. About 13% and 7% of the study population missed the opportunity to adopt faithfulness and condom use at last sex, respectively. Multivariate analyses found that age, living arrangement, income, type of work, work experiences, taxi working routes and taxi ownership status significantly shape the likelihood of adopting HIV/AIDS preventive behaviors (e.g. abstinence, and being faithful) of the study population. Besides, HIV risk perception, attitude towards condom effectiveness, self-efficacy, VCT uptake and recreational behaviors such as khat-chewing[3] habits appeared to also influence the adopting of preventive behaviors. This study confirmed that, taxi drivers and their assistants could be undoubtedly categorized at a higher HIV risk group. So this calls for a continuous and strong IEC/BCC intervention programs.

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[2] Weyala is a person who assists a driver of a taxi with a daily based payment and his duty is calling passengers and collecting money from them.

[3] Khat or Chat is a plant indigenous to Ethiopia, Yemen and some other East African countries. It is a stimulant when chewed. Khat has symptomimetic and euphoriant effect.

1. Introduction

1.1 Background to the Study

HIV/AIDS is unique in the history of medicine and human beings in its rapid spread, its extent and in the depth of its economic and socio-demographic impact (UNAIDS and WHO, 2005:13) It creates severe emotional trauma in the life of individuals, families, communities and the society at large (Ibid). Worldwide AIDS has become one of the leading causes of death and one of the most devastating epidemics in recorded history (UNAIDS and WHO, 2005). AIDS has killed more than 25 million people since it was first recognized in 1981 (Ibid). Globally, 40.1 million people are living with HIV/AIDS, and 95 percent of them live in developing countries in 2005. In the same year, there are an estimated 4.9 million people newly infected with HIV, and 3.1 million people died due to AIDS (UNAIDS and WHO, 2005).

Sub-Saharan Africa remains by far the region worst affected by HIV/AIDS epidemic. In 2005 an estimated 25.8 million people in this region were estimated to be living with HIV. In the same year, 3.2 million adults and children became newly infected and AIDS killed approximately 2.4 million people in the region (Ibid).

Ethiopia is one of the Sub-Saharan African countries hardest hit by the HIV epidemic. HIV was first detected in Ethiopia in 1984 (MOH, 2004:1). The first two AIDS cases were reported to the Federal Ministry of Health in 1986 (Ibid). The spread of HIV/AIDS started and was initially localized in major urban areas of the country located along major roads and commercial routes (MOH and HAPCO, 2004:1). However, it has become well established in the general population a few years after its introduction in the country.

The cumulative numbers of people living with HIV/AIDS at the end of 2004 was estimated at 1.5 million, of which about 96,000 were children under 15 years of age. The estimated number of new AIDS cases in the adult population in 2003 was 98,000 while that in children was 25,000. In the same year some 90,000 adults and 25,000 children have died of AIDS (MOH, 2004:7). In relative terms Ethiopia houses the fifth largest population of people living with HIV/AIDS (PLWHA) in the world (MOH and HAPCO, 2004:1).

HIV/AIDS has visible demographic impact in Ethiopia. The cumulative total population lost to AIDS was estimated at 900,000 by 2003 and is projected to reach 1.8 million by 2008 if the present trends continue (MOH, 2004:16). AIDS has a devastating impact on life expectancy, child and infant mortality. HIV/AIDS on average was expected to reduce life expectancy in Ethiopia by 4.6 years in 2003 (Ibid: 18).

Ayana and Melaku (1998:101) noticed that HIV/AIDS destroys family relationships causing social problems in a considerable magnitude. Families are known to have been reduced to absolute destitution because of the illness and death of the breadwinner. Orphaned children are forced to seek their livelihood in the streets in the process of acquiring anti-social and often-criminal behavior patterns. With the advent of the epidemic, an increased number of people living with HIV are requiring care and support. The loss of young adults in their most productive years of life is most likely to affect the overall economic output (MOH, 2004:22).

To address the threats and challenges of this epidemic, the government of Ethiopia has approved a comprehensive HIV/AIDS policy in 1998 (FDRE 1998:23-24). The goal of the policy is to reduce the spread of HIV infection, and to reduce the social and economic impact of the epidemic (Ibid). HIV/AIDS Prevention and Control Office (HAPCO) was established in 2002 under the prime Minister's Office (MOH, 2004:1). This office developed the national strategic framework as a national response to HIV/AIDS. IEC/BCC, condom promotion and distribution, VCT, management of STI, blood safety universal precaution, PMTCT, care and support to the infected and affected, legislation and human rights, surveillance and research are the priority intervention areas implemented in the country to the specific and general population (NAC, 2001:11-29).

Despite the fact that Ethiopia is in the stage of a generalized epidemic, it is crucial to focus on special target groups in order to address the special needs of specific groups through tailored intervention approach (MOH and HAPCO, 2004; 9). Commercial sex workers, truckers, migrant laborers, uniformed people, teachers and students, and out of school youth, PLWHA, orphan and other vulnerable children are identified as the key special target groups in the country (Ibid; 9-10). The 2002 HIV/AIDS behavioral surveillance survey indicated that consistent condom use is low almost in most population groups in the country. Forty-nine percent of taxi drivers had not used condom consistently with non-regular sexual partners. Eight percent of married taxi drivers had not used condom regularly with commercial sex partners. Multiple sexual partners are common in most groups of population. Large proportions of youth have more than one sexual partner. For instance, about 32 percent of taxi drivers had more than one sexual partner and 2.9 percent of married taxi drivers had extramarital sex. Surprisingly, very small proportions of them had taken HIV test; overall, only 7 percent had ever been tested. Misconception, stigma and discrimination are also common within this target group and in the country as whole (MOH, 2002). Identification of such a target group is an important step towards the fight against HIV/AIDS in a comprehensive and effective fashion (MOH and HAPCO 2004:10).The question what determines and how to bring rapid and sustained

behavioral change in a certain specific target group always remains a great challenge. In this regard understanding the behaviors and the factors that drive or fuel the epidemic in a certain population group is also an important step.

1.2 Objective of the Study

General objective: This study examines the determinants of adopting HIV/AIDS-related preventive behaviors in order to generate useful information for any intervention focusing at promoting behavioral change among taxi drivers and their assistants in Addis Ababa.

Specific objectives

(i) To examine the knowledge and awareness of the study population in relation to HIV/AIDS
(ii) To examine the level of risky sexual behaviors and practices of adoption of HIV/AIDS-related preventive behaviors in the study population (for example; abstinence, faithfulness and condom use)
(iii) To examine the socio-demographic and economic factors influencing sexual behaviors and the adoption of preventive behaviors
(iv) To examine the association between VCT uptake and adoption of HIV/AIDS prevention behavior
(v) To assess the prevailing psycho-social constructs in relation to key HIV/AIDS preventive behaviors ("ABCs")
(vi) To assess the association between psycho-social constructs and adoption of safe behavior
(vii) To assess the level of HIV/AIDS risk perception and its association with sexual behaviors

1.3 Methodology of the Research

1.3.1 Unique Features of the Study population and design

Most taxi drivers and their assistants are young and unmarried men. Their work, which involves mobility and meeting many people, put them at a relatively increased risk of HIV infection than any other population, next to sex workers and long distance truck drivers. Furthermore, Taxi drivers are expected to be more exposed to the risky sexual behaviors and HIV as they fail into temptation with some female taxi clients who intentionally stalk them for their money (Steve Tarevella, 2005). Most taxi drivers and their assistants are vulnerable because many of them use Khat (a stimulant they often chew in the afternoons) and most of them are less educated and little informed

about the risk of HIV/AIDS (Ibid). Due to the nature of their work, they form frequent contact (social networks) with students, sex workers operating in the streets and hotels, traders, and the like, which further facilitates the possible risk of indulgence in risky sexual behaviors. This study was based on a cross-sectional design, fielded during the period April 8-17, 2006.

1.3.2 Sampling and Sample Size

The overall process to the sampling techniques was governed by the very nature of the study subjects. A multistage cluster sampling technique was employed to select the required study subjects. In the first stage, 12 clusters (Taxi areas) were identified and selected based on the usual taxi density. The clusters include (1) Piazza, (2) Merkato, (3) Torhailoch, (4) Megenagna, (5) Bole, (6) Kotebe, (7) Mexico, (8) Asco, (9) Wingate, (10) Saris-kaliti, (11) Fernci-legasio and (12) Sidest kilo-Minilik. Assuming that each cluster contains more than two Taxi stations or sites, sample of sites (sources and destinations) of taxi transportation as a unit was listed and selected using a non-probability sampling approach (i.e. a combination of convenient and purposeful sampling). In the third stage, study subjects were selected and interviewed from each selected units (site) via non-probability sampling techniques.

The sample, including a 10% adjustment for the non-response, was estimated at 660 individuals. However, the study achieved a total sample size of 615, yielding a 93.2% response rate. For the determination of sample size the following attributes were considered: (1) an anticipated proportion of taxi drivers and their assistants had sex with casual partners without condom during the most recent sex (~26% was used based on findings of the 2002 BSS); (2) 95% confidence level (3) 3.5% worst acceptable result (precision) and (4) 80% power.

The following formula was used for the computation of sample size.

$$N= \frac{(Z\alpha/2)^2 * p\,(1-p)}{D^2}$$

P is the prevalence (level) of sexual risky behaviors among taxi drivers and their assistants in 2002, D is marginal error between the sample and the study population, Zα/2 is the two-tailed critical value at 95 percent level of confidence (1.96).

1.3.3 Data Collection Instrument and Management

The data was collected using a structured questionnaire. The questionnaire was first prepared in English and then translated into Amharic. The Amharic version of the questionnaire was pre-tested before the actual survey after making the necessary revisions and modifications.

Seventeen interviewers (who were second and third year university students) with prior experiences on data collection made the interviews. A 2-day training was given to the interviewers by the candidate student on the various procedures to be followed in the selection of respondents and on how to conduct the interview. The candidate student and other field supervisors also made supervision. Interviews were often made during the time of off-peak rush hours when the Taxi drivers and their assistants have got some space to breathe (i.e. mostly after 9:00 am in the morning and before 5:00 pm in the afternoon).

1.3.4 Study Variables

Dependent Variables: *Lifetime (primary) Abstinence*: Never had sex in the lifetime (up to the survey time)
Secondary (last year) Abstinence: Never had sex in the year preceding the survey
Faithfulness: Being faithful for a steady sexual partner (e.g. spouse, fiancé, permanent girl friend)
Casual sex: Having sex with someone who is not spouse or steady sexual partner
Condom use in last casual sex: Using condom in the most recent sex with a casual partner last year.

Independent Variables: Several variables were used as covariates in this study. The variables are broadly categorized socio-demographic and economic, risk indicators, psycho-social and others. The selection of variables was guided by literature review, prior knowledge and some educated intuition.

1.3.5 Data management and methods of analysis

Data were entered into a computer using SPSS release11.0. Appropriate statistical methods ranging from simple descriptive statistics to multivariate logistic regression analysis was employed. The logistic regression predicts the log of odds of the dependent variables as a linear function of independent variables. The model is expressed as: -

ln (Pi-/1-Pi) = β0+βxi1+β2xi2+…….+βkxik Where, Pi is the probability that the i^{th} Taxi driver or assistant being abstained, or becoming faithful or used condom; (1-Pi) is the probability that i^{th} Taxi driver and assistant being not abstained, or becoming unfaithful or not using condom. Therefore, (Pi/1-Pi) is the risk or odds of the i^{th} Taxi driver and assistant being abstained, or becoming faithful or using condom. The covariates, X1, X2, X3……Xk, represent a set of independent variables. Estimates of $\beta i's$, the logistic regression coefficients, are obtained using the maximum likelihood method.

2. Review of Related Literature

2.1 Behavior and Behavioral Changes in Relation to HIV/AIDS

Behavior is something we ourselves do and something we experience from others. Behavior is sensuous in that what it is can be experienced through one or more of the senses. Lacking this sensational dimension, whatever the "it" is would not constitute behavior. Second, there are four basic categories. Behavior that we term *conduct* denotes a broad range of activity under the guidance of social-moral norms. Behavior that we term *performance* denotes a range of activity governed by skill repertoires. Behavior we sometimes term *experience* refers to actions and choices of action that maximize comfort or pleasure and minimize discomfort or pain. Finally, there is no particular other term for the very broad range of actions that fall under the heading of *purposive* or goal-driven, behavior that appears dictated by a sense of who we are and what we want to become. In sociology, behavior is considered as having no meaning, being not directed at other people and thus is the most basic human action (Wikipedia, 2007). Human behavior is the collection of behaviors exhibited by human beings and influenced by culture, attitudes, emotions, values, ethics, authority, rapport, hypnosis, persuasion, coercion and/or genetics (Ibid).

Behavior change refers to any transformation or modification of human behavior. Such changes can occur intentionally, through behavior modification, without intention, or change rapidly in situations of mental illness (Wikipedia, 2007). How do positive behavioral changes occur under certain conditions? This question probably has as many answers as there are diverse populations and cultures. Every HIV prevention program, however, is based on those answers- theories about why people change their behaviors. These underlying principles may not be formally recognized as theories, but they focus HIV prevention efforts on the elements believed to be essential for individuals to enact and sustain behavior change (FHI, 2006). A variety of related and overlapping behavioral change theories and paradigms have been

used to inform the development of prevention programs and interventions. In general, these theories and paradigms recognize the complexity of human behavior and the myriad psychological, socio-cultural, and structural factors that play a role. More recently, increased attention has been given to the idea of looking beyond individual behaviors to the contextual factors (conditions*)* that make people vulnerable to HIV infection and that influence behavior. These include, for example, social norms, gender inequalities, and poverty (Ibid).

In HIV prevention, as in other areas of health and behavior, the knowledge-attitude-behavior (KAB) or knowledge-attitude-practice (KAP) continuum is often referred to. It is simply a convenient way to organize the many aspects of knowledge and attitudes that must be present before changes in behavior or practices can occur (Wikipedia, 2007).

Sexual behavior, however, is not easy to change. Simply telling clients that certain behaviors put them at risk for HIV is generally insufficient. For example, a person must know which practices can put an individual at risk (knowledge), must believe that "people like him or her" can be at risk (attitude), and must believe that he or she is at risk (attitude) before that person can take action to change his or her own behavior (practice). Interventions must be in place to address all three levels, and people must know what to do to protect them must feel that they have the ability to effect change, and must have the skills and resources to do so. Most important, people must have willing partners and a supportive environment (Ibid).
The field of research is still searching for a two pronged strategy: finding an effective vaccine and ultimately a cure. However, to date, AIDS has neither a vaccine nor a cure (UNAIDS and WHO, 2005:13). Therefore, in the absence of vaccine or therapeutic cure, the role of *behavioral change* approach in curbing the spread of HIV/AIDS may represent a key ingredient in the socio-cultural and economic vaccine against HIV/AIDS.

The ABC approach to HIV prevention has gained prominence and garnered controversy in recent years, as it has become the policy of the largest AIDS relief plan in the history of the pandemic (CCIH, 2006). Abstinence, faithfulness, and/or use condom correctly and consistently behavior change strategies are central to HIV prevention and are also relevant to family planning needs and practices (USAID, 2005). The ABC approach offers risk reduction as well as risk avoidance, and options for those at various levels of risk. The ABC approach focuses on what individuals can do to change (or maintain) behavior, and thereby avoid or reduce risk of infection. The sexual transmission of HIV can be directly prevented in only three ways: by avoiding the exposure to risk through sexual abstinence; by reducing the risk of

exposure through partner faithfulness and reduction in partners; or by blocking the efficiency of transmission through a barrier like a condom. In other words, by practicing A, B or C. The ABC approach, therefore, addresses the only three ways in which HIV may be prevented from being transmitted sexually. According to a 2004 statement published in *The Lancet* and endorsed by over one hundred public health experts, all the elements of the ABC approach are necessary, "although the emphasis placed on individual elements needs to vary according to the target population. For youth, the first priority should be to encourage abstinence or delay of sexual debut. For adults, the first priority should be to promote mutual fidelity with an uninfected partner. Finally, for people at high risk of exposure to HIV, the first priority should be to promote consistent condom use (CCIH, 2006).

In Ethiopia limited data and studies are available that address the sexual behaviors and determinants of adopting ABCs among Taxi drivers and their assistants. It is also well established that the application of effective HIV/AIDS prevention intervention demands understanding of the sexual behaviors of the population in question and the factors that determine risky behaviors. Therefore, elucidating and documenting the determinants of adopting HIV/AIDS preventive behaviors (ABCs) among taxi drivers and their assistants would undoubtedly serve as an important input for any intervention that aims at promoting behavioral change in this population.

2.2 Evidences of Behavioral Change in Curbing the Spread of HIV/AIDS

Owing to extensive and consistent HIV/AIDS preventive efforts through behavioral change interventions in countries like Uganda, Thailand, Senegal, and also at the capital city of Ethiopia, some encouraging changes have been seen and documented.

For instance, in the early 1990s, Uganda was one of the first countries to recognize AIDS as a major obstacle to its development. Now, it has been presented as the first African "success" story in the fight against HIV/AIDS (Lisa, 2002:10). The national prevalence peaked at around 15 percent in 1991, and had fallen to 5 percent as of 2001 (USAID, 2002:2). Observed consistently overtime and across many different geographic and demographic populations, Uganda's falling HIV prevalence is likely not due to merely measurement bias or a "natural die-off syndrome" but rather mainly to a number of behavioral changes that have been identified in several surveys and qualitative studies (Ibid). USAID has carried out pioneering studies in the area of behavioral change for successful HIV/AIDS prevention, often referred to as the "ABCs" (Annabel and Rob, 2005). This approach was made famous for its success in Uganda (Ibid).

According to Rand Stoneburner (2000 in USAID 2002: 10), the effect of HIV prevention intervention in Uganda (particularly partner reduction) during the past decade appears to have had a similar impact as a potential medical vaccine of 80 percent efficacy. Similarly, Thailand's well-established preventive efforts are yielding decreases in HIV prevalence among both pregnant women and young male soldiers (UNFPA, 1999). This is because of strategies and policies for prevention that were initially based on research and evaluation and then received the necessary level of commitment to implementation and financing. Sexual behaviors have changed significantly with condom use increasing and visits to sex workers decreasing (Wiput, 1998). Thailand's government policy with respect to HIV/AIDS prevention, care, and support has been open, timely and pro-active, at least when compared to its neighbors (Annabel and Rob, 2005).

Senegal also has been hailed as a model for Africa and has successfully stabilized its national infection rate of below one percent since 1997 (Ibid). The program incorporates a dual focus on covering high-risk settings as well as involvement of religious leaders/faith based organizations in reinforcing traditional values around sexual norms (Annabel and Rob, 2005).

Likewise in Ethiopia some favorable changes have been recorded in recent years. Recent surveillance data collected among antenatal care in Addis Ababa suggest a decline in HIV prevalence among young pregnant women of the inner city (Aklilu M, et.al, 2000:238-301). The longitudinal study on the factory workers in Addis Ababa revealed an evidence of changes in risky sexual behaviors among factory workers who received health education and HIV testing and counseling (Yared et al 2005).

2.3 Challenges in the Efforts of Behavioral Change for Sub-Saharan African Countries

Even though there are some encouraging signs in few countries as mentioned above, HIV/AIDS preventive behavioral changes have been quite a challenge in Sub-Saharan Africa. Broadly, this may be due to having strong cultural norms, socio-demographic and economic factors, and overall poverty. Rapid and fast population growth, urbanization, and high level of poverty are common problems in the region. Developing countries like Ethiopia have been heavily challenged due to limited capacities to cope with such devastating epidemic (Yemane, 2003:1). In addition to this, inadequate infrastructure facilities and lack of experiences coupled with socio-cultural and economic constraints have curtailed sufficient progress in prevention and control of the infection of HIV/AIDS (Ibid). Such countries having resource constraint with a combination of heavy and deep-rooted cultural norms cannot easily implement

IEC/BCC programs. So, it becomes no doubt, too difficult to curb the spread of HIV via behavioral change approaches.

UNAIDS (2001, 13-14) suggested that it is a challenge to curb the spread of HIV/AIDS because; First, HIV/AIDS is invisible, silent, and non-debilitating for several years; it is infectious, has multiple mode of transmission and non-discriminating. Second, HIV/AIDS deals with human behavior that often involves interaction between unequal parties, shaped by deep-rooted socio-cultural traditions; its major modes of transmission are private and personal, stigmatized and discriminated by society. Third, efficacious responses to HIV/AIDS involves the adoption of behaviors that are dependent on the availability of products and services; involves adopting behavior today to lower the probability of some future unwanted event; involves benefits that are neither imminent nor clear cut; involves foregoing or reducing pleasure and adventure. Finally, HIV/AIDS deals with populations that are often hard to reach by conventional media channels, often marginalized by society, most vulnerable and powerless, often of a lower socio-economic status and on the move.

Caldwell (1998:186-226) suggested that lifestyle plays a dominant role in determining individuals' chance of infection. He stated that Sub-Saharan African societies are dominated by different lifestyles such as;- high incidence of polygamy, long post-partum period of sexual abstinence which increases the likelihood and frequency of men's extra-marital relations, high desire for children, weak marriage bond, common pre-marital and extra-marital sex, and long-term girlfriends, mistress, "outside wives", femmes libres or champions and admire risk taking. Therefore, campaigns will have great difficulty in increasing the use of condoms outside the most commercial forms of sex, a very important point if the spread of AIDS owes less to foci of infection and more to sexual networking (Ibid)

Ethiopia is also one part of Sub-Saharan African countries which have such dominant cultural norms, high population growth, unemployment and overall poverty. Knowledge, attitude, values, beliefs and culture are behavioral factors for health-related problems including HIV/AIDS. And these factors cannot be analyzed independent of the socio-economic and demographic variables (MOH, 2004; 5). The interaction between behavioral and other factors including resources and people in bringing about the intended behavioral changes is high (Green L.W., and Kreuter M.W, 1991 in MOH 2004:5). Poor communication systems, poor knowledge and attitude, lack of access to health services, and low level of awareness and rate of services utilization are some of the barriers to the intended behavioral changes in Ethiopia (MOH, 2004:5-6). Initially responses were delayed due to denial and

ignorance of the scale of damaging of the epidemic could causes in the country (Yemane, 2003:1).

2.4 Overall Assessment of Factors Related to Sexual Behaviors and Adopting ABC Preventive Behaviors

Recent evidence from a number of sub-Saharan African countries points out that abstinence, and reduction of partners were as important in reducing the overall HIV prevalence rates in Uganda (particularly among adults) and in Zambia (particularly among young people) as were the promotion of consistent and careful condom use (JHU, 2004).

By far the most effective way of avoiding any sexually transmitted disease is not having sex at all. But having sex is something we are hormonally as well as socially programmed to do. On top of that it is often a pleasure, and one for which no particular infrastructure, training, equipment or (generally) wealth, is required (Elizabeth, 2003). She also noticed from White and et al 2000 that, small wonder, then, exhortation to abstain from sex is not always successful. It is not new to any one that adolescence is a time of exploration and discovery. Experimentation with drugs is common among young people and sexual identities and behaviors shaped in this period often persist throughout life. For example, a recent analysis of household surveys of sexual behaviors in three African countries and one Asian site shows a remarkable congruence between sexual risk behaviors over a lifetime. Men who started having sex before they were 15 were up to ten times more likely to have extra marital partners in their lifetime than men who were virgins until they were at least 20. The more premarital partners a man had had the more likely he was to have extra-marital sex later in his life (Ibid).

Age of first sexual debut is also one of the main factors influencing sexual behaviors throughout life. A study in urban Uganda indicated that age of first sexual debut had associations with sexual behaviors among truck drivers in their lifetime (Alex A., and et al 1997). This study also stated that men who migrate from their homes to find work/job can more participate in unsafe sexual practices. Adult rural to urban male migrant has become a feature of life in many developing countries. Such mobile people are often clients of CSWs and an important HIV distributor (Ibid).

It is obvious that most of the time migration is interlinked with income or economic reasons and recently with HIV risk factors. However, a study on HIV infection and risky sexual behaviors in Ethiopian sailors indicated that there was no relationship between HIV infection and income (Amre .D and et.al, 1996). This study also noticed

that there is little evidence that poverty is directly associated with risky sexual behaviors. They reviewed that HIV-infection was found to be common in higher income groups in other African countries. However, people in poor countries (especially poor women) like Ethiopia are slightly less likely to have knowledge on HIV (Ibid).

Knowledge of the way in which HIV is transmitted is critical to the adoption of safe behaviors that can prevent HIV infection. There is no doubt that there have been substantial increases in knowledge of AIDS, how it is spread and how it can be avoided. This is especially true in badly affected countries where any young person having unprotected sex is in imminent danger of HIV infection (Elizabeth, 2003). She also mentioned that there is a disconnection between "knowledge" risk perception and behavior. Young people's behavior is shaped by a manner of forces, and there is no reason to expect that information imparted by HIV prevention campaigns should dominate over other forces in the absence of other skills and services. Young men, sense of social "belonging", their relationship with adults in their family, at school and elsewhere, and their networks of friends and peers can all act as powerful influences shaping their behaviors (Ibid).

Different studies indicated that even in countries where HIV prevalence was high, a majority of men and women considered themselves at a little or no chance of risk. For example a cohort study in Kenya on truck drivers indicated that factors, which have the most significant association with the prevalence of HIV, were perception of personal risk of HIV infection (Bwayo jj, and et al 1997). In Zambia, for example, where 21.5 percent of the population were infected with HIV, six out of ten teenaged men who are already sexually active say they do not feel that they are at any risk of HIV. It seems then, that there is a very likelihood that those young men have seriously underestimated their risk for HIV infection (Elizabeth, 2003). These findings suggest that the perception of HIV risk is culturally conditioned and may involve considerable denial. Misconceptions also persist alongside with correct knowledge, potentially undermining the protective values of that knowledge even where it does exist. For example, in some countries of Africa condom use has been clearly associated with extramarital sexual intercourse (UN, 2002).

High mobility, long period of separation from family, high levels of disposal income (pocket money), opportunity for anonymity, low level of knowledge, high use of alcohol, and common attitude of fatalism are some of the key factors identified for transport workers and make them to be at high risk of HIV infection (JHU, 2004).

A study among young people in poor urban areas in Zambia found that thieves were the most sought after sex partners among young women because “they have a lot of money. In fact, young women related them as nearly ten times as desirable as sex partners compared with their own classmates. Truck drivers, mini-bus and taxi drivers were the next desirable partners, because they have a lot of money and give free rides (Elizabeth 2003 in Fetters 1998). The 1998 Kenyan BSS report also identified that taxi drivers (Matatu) and their assistants (tours) as the potential bridge population. They are considered to be at high risk for contracting HIV because they are likely to have multiple sexual partners. They have “liquid cash “on a daily based which allows them to afford money for CSWs. They also have a tendency to indulge in alcohol and drugs, which put them at a greater risk for engaging in risky sexual behaviors (MOH, 1998).

2.5 An Assessment of Factors Related with preventive Behaviors in Ethiopia

Both personal (internal) and external factors may directly or indirectly determine HIV/AIDS preventive behavior in a given society. Habtamu and Gugsa (1998:119) stated that chronological age alone does not determine sexual behavior, but there are other influences from socio-economic, cultural and sub-cultural aspects of societies for the development of sexual behaviors. Youths are high-risk groups for HIV infection and difficult audiences because of peer pressure as well as the sense of invulnerability (Hailegnaw and Tefera, 1996). Unlicensed erotic video films for economic gain, khat chewing and alcohol consumption, often in combination, provided a fertile environment to engage in sex (Carol Hoolm-Hunsen, 2002). Maintaining relation with partners, for the sake of passionate love, and to overcome loneliness are also identified as an important psycho-social factors attributable to the early commencement of sex (Zelalem, 2001). In a longitudinal study on factory workers in Addis Ababa at Akaki and Wonji;- time, residence, effect of post-test counseling, marital and educational status were significantly associated with low reporting of casual sex and sex with commercial sex workers (Yared and et al, 2005). Widowhood, being Orthodox Christian and having had a higher lifetime number of sexual partners can increase the risk of HIV infection (Ibid). The most common reasons for less use of condoms during sex cited by many investigators are; - lack of adequate knowledge and self-confidence, personal weakness and being careless often times, being too much driven by emotional desires and significant alcohol consumption, fear of reduction for sexual gratification, and misconception of condoms (considering as a family planning services) (Hailegnaw and et al 1996; Carol Hoolm-Hunsen 2002; Zenabu, 2003). In some instances men would get angry if they are required to use condom mainly because they feel that they are insulted and are being suspected of having HIV infection (Hailegnaw and Tefera, 1996).

Socio-economic and demographic factors contributing to the risk of exposure to HIV/AIDS among young people are complex and that may include population growth, migration, urbanization, unemployment, and lack of education and overall poverty. Housing is a major problem in Ethiopia. The shortage of housing in Addis Ababa city posed a tremendous problem on the young generation. Many young men and women are forced to stay with their families and relatives even after completing schools and getting employed. Because of this limitation many young people are discouraged to get married on time (Ibid). Consequently, these people may possibly be forced to have casual sex and multiple sexual partners rather to be monogamous. Conflict between sexual partners and instability of marriage could also be an important factor in determining safe sex (Hailegnaw and Tefera, 1996). There is, therefore, a high possibility that men in the society initiate extra-marital sex. In this investigation a range of socio-demographic, economic and psycho-social factors of HIV/AIDS preventive behavior among taxi drivers and their assistants were examined.

3. Results and Discussion

Almost all of the study subjects have had information about HIV/AIDS. During the study 56.4%, 69.6 % and 75.5 % of the respondents knew and spontaneously mentioned abstinence, faithfulness and condom use, respectively, as the basic HIV preventive methods. Nearly 76.4% and 69.6% of the respondents were sexually active in their lifetime and in the last 12 months, respectively. About 13% of the respondents were unfaithful for their spouse/steady partners in the last year. 30.7% of the respondents had casual sex in the year preceding the survey. Condom use was common, it seems, in this study population (93%).

The mean number of sexual partners in their lifetime and in the last 12 months was 7.1 and 2.2, respectively. About 11.2% of the respondents had had sex practice with CSWs. About 49.6% and 51.7% of participants appeared to have better self-efficacy in adopting condom use and becoming faithful to their partners, respectively. In contrast, only 11.9% of the respondents were categorized as having high self-efficacy to abstain from sex. This shows that abstinence is difficult in the study population.

Expected Key Determinants in adopting ABCs entered in the Model

Socio-demographic and economic variables

(Age, age of sexual debut, marriage, living arrangement, work experience, working route, taxi ownership status, income, religion, and type of work).

Behavioral and psycho-social Factors
(Self-efficacy, Risk perception, attitude towards condom efficacy, alcohol and khat chewing habits, leisure hours per day and VCT uptake)

In the analysis, *income* appeared with a negative association with the likelihood of adopting (primary and secondary) abstinence. It was found that respondents with the lowest income are the participants who were more likely than others to have never had sex in their lifetime and in the last 12 months. As income level increases the chance to abstain decreases. This study found that income has a two-way association in the adoption of preventive behaviors among taxi drivers and assistants. It had a negative association with abstinence and a positive association with the adoption of faithfulness. In this study, *taxi-working route* was found to be one of the most important factors in shaping the adoption of HIV preventive behaviors. Taxi drivers and assistants who were working along the inner city and working everywhere in Addis Ababa were less likely than the others to report abstinence. *Person's living arrangement* was an important factor, which had had significant and independent predictors of adopting (primary and secondary) abstinence. This analysis found that taxi drivers and assistants who were living alone were considered to have a lower chance to adopt abstinence.

Taxi ownership status has also emerged as an important variable among the independent predictors of abstinence in the year preceding the survey. In this analysis, in particular, those respondents who had their own taxis were 2 times more likely than the others to report abstinence in the last year. The analysis further indicated that respondents who were being assistant workers (*as a type of work)* were less likely to abstain compared to those who worked as being taxi drivers. This might be due to the nature of their work and their age, in which they are more frequently met with different people for the exchange of money as compared to drivers. *Work experience* in driving a taxi was found to be one of the independent predictors of adopting faithfulness. Respondents who have higher years of work experience in driving a taxi were more faithful for their partners as compared to those who have less than one-year work experience. This analysis found that the relative importance of individuals' religiosity in predicting sexual behaviors of taxi drivers and their assistants. The adjusted odds' of being faithfulness reported by Protestants, Catholics and Adventists was less likely as compared to followers of Orthodox Christianity to report faithfulness.

Despite the general low level of HIV risk perception in this population, this study noted an inverse relationship between individual's HIV risk perception and the likelihood of adopting abstinence and faithfulness. Taxi drivers and assistants who

were considering themselves at low and medium risk of acquiring HIV were less likely than those who perceived no risk to report (primary and secondary) abstinence. The possible reason for this might be due to the fact that the ways of HIV transmission are wide and complex, even though it is mainly transmitted by heterosexual intercourse. The study found a negative association between attitude towards the efficacy of condom and the practices of adopting primary abstinence. As the perception on condom efficacy increases the likelihood to adopt primary abstinence decreases. This is due to the difficult nature of abstinence Elizabeth (2003). And probably could be due to having higher awareness about condom use in the study population. However, this variable not emerged to predict secondary abstinence.

Multivariate analysis found that taxi drivers and assistants who reported that they had tested for HIV were less likely to adopt primary abstinence than those who did not report HIV test. This suggests a negative association between VCT uptake and adoption of abstinence. Probably this might be, most of the time VCT has been taken either for the purpose of visa or marriage. Attitude towards condom effectiveness has also occurred as one of the independent predictors of faithfulness in the study population. Having extremely higher positive attitude towards condom efficacy reduces the chance of adopting faithfulness as well as abstinence. In the analysis, self-efficacy also appeared to predict the adoption of faithfulness. The adjusted odds' of faithfulness was less likely among respondents who have high self-efficacy as compared to those who have low self-efficacy of adopting faithfulness. This indicates a negative association between self-efficacy and adoption of faithfulness. However, this result has not appeared as expected.

To sum up, this study confirmed that taxi drivers and their assistants are at higher risk group of HIV infection. In the analysis, it was also observed that certain factors appeared to influence (both primary and secondary) abstinence would disappear to influence faithfulness and vice versa. Even though this study population reported a quite high percentage (93%) of condom use with having good information about HIV/AIDS, it was observed that nearly 31% of taxi drivers and their assistants had reported casual sex, and 13% of the participants were unable to be faithful to their regular partner. This shows that a higher proportion of drivers and their assistants were experiencing unsafe sex, which demands a continuous and very strong IEC/BCC intervention programs from any concerned bodies. Most of the taxi drivers and their assistants spent a significant amount of their time on road, which might not be easily accessed at any time for peer group discussion. Therefore, for such mobile people special radio program will be the most appropriate means of intervention to initiate and translate their awareness and knowledge into practice. In this study, the nature of their work, working routes, their sources of income, "liquid cash" and their

work experiences were found to be the most important factors in influencing the adoption of HIV/AID preventive behaviors. So based on this finding interventions should be given priority to the inner and market areas of the city of Addis Ababa, in which most taxi drivers and their clients are concentrated.

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Appendixes

Appendix 1: Bi-variate Analysis Result

Chi-square Results for Some Selected Variables, Women Petty Traders in Addis Ababa.

Demographic and Socio-economic Variables	Favorable/Suitable Work Condition (N=660)				χ^2	P-value
	Yes		No			
	No.	%	No.	%		
Age						
15-29	80	34.6	151	65.4	4.781	0.092
30-64	133	36.6	230	63.4		
65^{+}	15	22.7	51	77.3		
Family size						
1-3	70	43.8	90	56.2	8.053	0.018
4-6	90	30.9	201	69.1		
7^{+}	68	32.5	141	67.5		
Migration status						
Non-migrant	77	46.4	89	53.6	13.750	0.000
Migrant	151	30.6	343	69.4		
Educational level						
Illiterate (no schooling)	118	29.4	283	70.6	12.039	0.002
Primary (1-8 grades)	62	43.7	80	56.3		
Secondary and above	48	41.0	69	59.0		
Market/work place						0.000
Yes	115	46.2	134	53.8	23.956	
No	113	27.5	298	72.5		
Credit service						
Yes	86	43.9	110	56.1	10.738	0.001
No	142	30.6	322	69.4		
Saving						
Yes	93	50.8	90	49.2	29.658	0.000
No	135	28.3	342	71.7		
Initial capital						
1-20	133	39.1	207	60.9	12.238	0.002
21-45	37	23.3	122	76.7		
46^{+}	58	36.0	103	64.0		
Working days (per week)						
3-5	97	28.6	242	71.4	10.847	0.001
6-7	131	40.8	190	59.2		
Market experience						
1 year	23	31.9	49	68.1	6.658	0.036
2-5 years	93	41.2	133	58.8		
6-55 years	112	30.9	250	69.1		
Income						
60-105	53	30.6	120	69.4		
106-140	55	33.5	109	66.5	5.131	0.162
141-170	60	33.1	121	66.9		
171^{+}	60	42.3	82	57.7		

Source: Field Survey, 2006

Appendix 2: Multivariate Analysis Result

Results of Logistic Regression by Some Selected Variables, Women Petty Traders *in Addis Ababa.*

Variables	B	Sig.	Exp (B)
Age			
15-29	RC		1.000
30-64	.867	.001	2.380
65^{+}	.179	.677	1.196
Family size			
1-3	RC		1.000
4-6	-.491	.043	.612
7^{+}	-.465	.089	.628
Migration status			
Non-migrant	RC		1.000
Migrant	-.649	.008	.523
Educational level			
Illiterate	RC		1.000
Primary (1-8 grades)	.472	.049	1.603
Secondary and above	-.287	.358	.750
Market/work place			
Yes	.637	.001	1.890
No	RC		1.000
Credit service			
Yes	RC		1.000
No	-.137	.533	.872
Saving			
Yes	.878	.000	2.407
No	RC		1.000
Initial capital			
1-20	RC		1.000
21-45	-.870	.000	.419
46^{+}	-.403	.073	.668
Working days (per week)			
3-5	RC		1.000
6-7	.700	.012	2.014
Market experience			
1 year	-.065	.853	.937
2-5 years	.300	.177	1.349
6-55 years	RC		1.000
Income			
60-105	.232	.543	1.261
106-140	-.005	.998	.995
141-170	-.550	.039	.577
171^{+}	RC		1.000

Source: Field survey, 2006.

NB: B= Regression Coefficient RC= Reference Category. Exp (B) = Odds ratio.

INTRA-HOUSEHOLD GENDER-BIAS IN CHILD EDUCATIONAL SPENDING IN RURAL ETHIOPIA: PANEL EVIDENCE

Andinet Delelegn[1]

Abstract

Qualitative and quantitative evidence reveals pervasive gender discrimination in many social and economic aspects in least developing countries, including Ethiopia. Investment in child schooling is an important dimension of this discrimination, which has a lasting consequence on both the child and the country's economic development as a whole. The main objective of this study is to uncover if there is any intra-household gender-bias in the decision to enrollment and allocation of resources to child education. Using a panel data set from Ethiopian Rural Household Survey (ERHS), spanning from 1994-2004, we applied a panel hurdle models consisting of random effects probit for the initial decision in enrollment and conditional linear autoregressive model for the proportion spent. We found statistically significant gender-bias during the initial decision to enrollment against girls, especially those corresponding to secondary school cycle. Since the bias occurs inside the household, public investments should not only focus on facilitating access to school but also work towards altering the demand side as parents have differential preference towards siblings' education. Policies that increase returns to girl's education, increasing intrahousehold productivity, legislations that prohibit early marriage, etc. could mitigate the observed level of intra-household gender-bias against girls aged 15-19 years.

JEL Classification: D00; D13; I00; I20
Keywords: Gender-bias, Hurdle models, children's education, rural, Ethiopia.

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1. Introduction

Education is broadly considered as critical in income generation, in altering inequality and it is an essential part of personal welfare (Behrman, 1997). Since the works of Mincer (1974) in labor economics, voluminous works regularly confirm that a return to schooling is associated with higher individual earnings. The return to schooling is also much more significant in economies of considerable liberalization and macro stabilization that have become increasingly integrated into international market (Behrman, 1997). In developing countries, education is also crucial in augmenting earnings and improving survival strategies (Dercon and Krishnan, 1999).

Evidence from developing economics shows the importance of investing in female education, which reduces fertility rate (Cochrane, 1979), ameliorates children's health conditions (Thomas 1990, 1994, Subbarao and Raney, 1995), and changes the patterns of households' consumption with a reduction in income share for adult goods (Rosenzweig and Wolpin, 1988; Haddad and Hodinott, 1995). Nevertheless, still there are significant gender differentials in human capital status. For instance, net enrollment ratio in the year 2000-2005 is 70 % and 66% for primary school while it is 30% and 24% for secondary school in Sub-Saharan Africa, for male and female children, respectively (UNICEF, 2007).

For parents in poor economies, children are both *consumption good* as they gives utility, a *production good* as they help in productive and domestic activities and *insurance good* for parents during old age (Dasgupta, 1993). However, a growing concern for many has been the possibility of increasing inequality as parents have different preferences in allocation of resources to boys and girls schooling. This differential treatment may arise from difference in returns of sibling human capital investment (Rosenzweig and Schultz, 1982; Behrman, 1988) because most of women's work is limited within the family for household survival. Women not only have few opportunities to find jobs because of the low level of economic development and the consequent low labor demand but also because of discrimination in the labor market and wage differential. Parents may prefer a particular type of child irrespective of investment (Behrman, 1988). Variation in the costs of investment among siblings also induces differential treatment of children schooling (Strauss and Thomas, 1995).

Following recent development in intra-household models and availability of data, the literature has attempted to scrutinize individual-level outcomes due to differential treatment by gender in different countries. For instance, Rosenzweig and Schultz (1982) explained the excess female mortality in India to be associated with low

female labor market participation in terms of the reinforcement of productivity difference. Afridi (2005) from India has found that mothers' autonomy has a significant impact on reducing the gap in educational attainment of girls and boys. Hazarika (2000) for Pakistan, Quisumbing and Maluccio (2000) for Bangladesh, Indonesia, Ethiopia and South Africa are also among the most notable empirical studies.

In the literature there are two commonly applied techniques to detect gender bias in the intra-household resource allocation. The first method, based on availability of individual level data, is the direct comparison of expenditure on males and females. The second methodology is to use the Engel curve approach in situations where reliable data is only available at the household level. In most cases, the former method cannot be practical due to absence of such disaggregated survey data. The Engle curve approach has been applied by a number of researchers such as Deaton and Subramanian, 1990 (India), Deaton, 1989 (Thailand and Cote d'Ivoire), Subramanian, 1995 (India), Ahmad and Morduch, 1993 (Bangladesh), Case and Deaton, 2003 (India) and the like.

Using data from rural India and consequently Pakistan, Kingdon (2005) and Aslam and Kingdon (2006) have used a variant of the Engle curve method hurdle models approach to confirm the existence of intra-household gender-bias. According to Kingdon (2005), gender-bias in child educational investment can be explained through two possible channels. First, through positive purchase for males and zero purchase for females. Second, conditional on positive purchases for both, lower expenditure on girl's schooling than boys.

Empirical studies from rural Ethiopia confirm the existence of gender-bias in child education. For instance, a very good work by Tekabe (2005) has attempted to explain differences in the cost of investment in terms of the child's inherent health endowment and their ability to receive education. The result suggests that educational investments are allocated to reinforce initial differences confirming the significance of bias in favor of the able children as they are motivated by return maximization. However, the study doesn't tell us at which stage does this bias occur.
The objective of this study is to identify if there is any intra-household difference in household schooling investment among school age siblings. As there are two different channels of gender bias, bias at the initial stage of deciding on whether to enroll a child and the magnitude of resource allocated among enrolled siblings, we used a panel hurdle model that account for unobserved individual heterogeneity and initial conditions problem. To this end, we have used the Ethiopian Rural Household Survey (ERHS) panel data set spanning from 1994 to 2004 that enables us to control

for a number of observed supply and demand factors as well as unobserved factors. The unique nature of our panel data set enables us to robustly detect the existence and magnitude of intra-household gender bias.

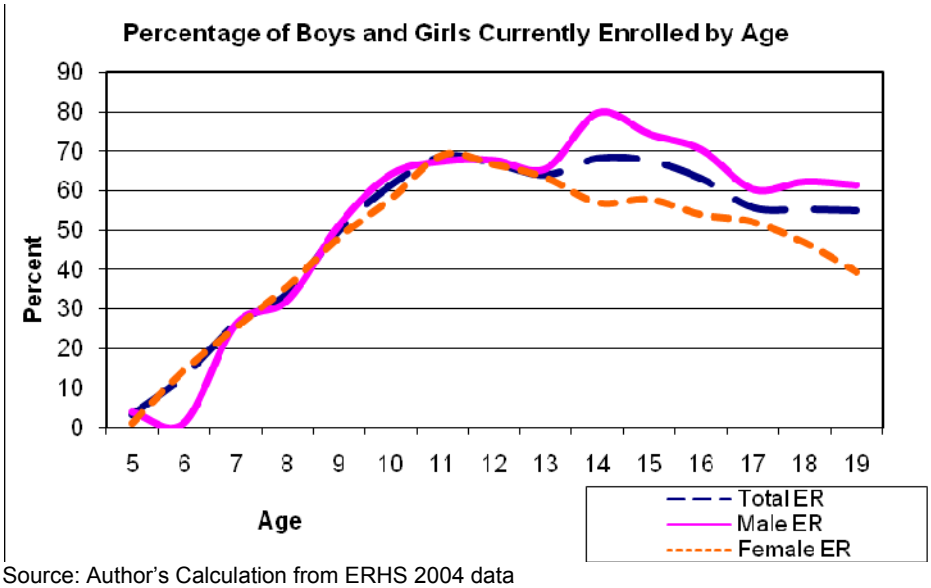
The rest of the paper is organized as follows. In the next section, we briefly present the current education policy and profile in Ethiopia. Section three discusses theoretical underpinning of intrahousehold resource allocation while section four presents the empirical strategies and data used in the study. Having discussed the descriptive and empirical findings in section five, the paper concludes with some policy implications in section six.

2. Background and profile of educational system in Ethiopia

There have been a number of international instruments geared towards gender equality in access to education, which Ethiopia has also ratified. Besides, the country's Education and Training policy aims at providing education on equal basis and in fact attention is given to gender issues through school materials and affirmative actions to girls in educational enrollment. In fact, Ethiopia has made progress in improving access to primary education since the 1990s. For instance, evidence from ERHS shows that it were only 67% of the sampled villages in 1997 that had access to primary school while the coverage has grown to 93% in 2004 (See Table 5).

However, low enrollments, high gender and regional disparity, and low quality of education remained the major challenges of the education system (Chaudhury *et al*., 2006). There is a wide gender gap, both at the secondary and primary level. While the gap is declining for the primary cycle (grades 1-8) from that of 20% in 2000/01 to 16.5% in 2004/05, it is consistently increasing from as low as 4% in 2000/01 to 14.8% in 2004/05 for the secondary cycle (grades 9-12) (See Table 1 in Annex). Trend of both the Gender Gap (GG) and Gender Parity Index (GPI) reflect consistently rising gender gap at the secondary cycle over time. In fact the micro data from the sixth wave of ERHS data (2004) shown in Figure 1 also confirm this claim that the divergence in gross enrollment rate (ER) between boys and girls increases for children 14 years and above, which corresponds with the secondary school cycle.

Figure 1: Percentage of Boys and Girls Currently Enrolled by Age - 2004



Source: Author's Calculation from ERHS 2004 data

There are multitudes of social, economic and cultural factors that deter girls' education. Economic factors like extreme poverty, socio-cultural nuisances such as harassment and violence including rape and early marriage; household discriminations and overburdened with household chores as girls time is close substitute to mothers' time in domestic activities, lack of follow-up and encouragement and unequal treatment compared to boys; etc increase the dropout rate of girls as well as hinder new enrollment (MoWA, 2005).

3. Theoretical model of intrahousehold resource allocation and gender-bias

If women, children, or old people are systematically worse off than other members of the household, the reported social welfare will be overstated (Deaton, 1997). Cognizant, in the development theory of intrahousehold resource allocation, there are different hypothesis as to how resources are allocated within the household. The simplest is the dictatorial/monotonic entities model, where households are assumed to be endowed with preferences as a single individual and the *paterfamilias* decides on behalf of everyone so that consumption behavior of the household will look like the behavior of individual consumer of the textbook. On the other extreme, we have the bargaining model, which considered households as a group of individuals who

bargain with each other over resources (Deaton, 1997). The consequences of these different assumptions have been explored in the literature.

There are different presumptions as to why parents invest in their children human capital, the wealth model and the pure investment model, for instance. The wealth model presumes that parents can and are willing to substitute bequests for human capital investment and vice versa in order to maximize certain level of total life time wealth. The implication from this model is that, given differences in endowment, human capital and bequest of children, human capital investments reinforce initial endowment differences among siblings. The pure investment model, on the other hand, presumes that investments in human capital, like any other assets, depend on their net return. The marginal benefit and the marginal cost determine the level of investment in children, which is less influenced by the distributional consequences it involve (Behrman *et al.*, 1982; Becker 1991, 1993). Depending on genetic endowments and supply of funds, parents influence the shape and the specific position of the marginal cost and the marginal benefit curves (Taubram, 1996 in Tekabe, 2005).

Models dealing with investment in children are mainly based on unitary household models that maximize a single parental utility. They focused on the distribution of parent-provided resources among children. It is deemed that parents care for the distribution of resources, human capital resources and bequests, among their children (Behrman 1997). Under this framework, parents maximize the household utility function with respect to parental consumption, bequests and children's earning's function. If the household is divided into two groups of members, parents (A) and children (B), the decision making rests on parents. Say, q_a and q_b are vectors of consumption goods for parents and children, respectively. The utility functions for the parents is given by $u_a(q_a, z)$. Given efficiency, the optimal choice of parents can be written as the solution to the problem;

$$\text{Max } u_a(q_a, z^*) \text{ s.t. } p_a.q = l_a(p, p_z, y) \quad \textbf{[1]}$$

Where, z* is the optimal choice of public goods available for both groups, p is the price vector for all goods, p_a is the price of goods consumed by parents, p_z is the price vector of public goods, and $l_a(p, p_z, y)$ is the sharing rule function that determines the total amount that parents gets conditional on the prices of goods, and total household resources y. The solution to the maximization problem is a set of demand functions of parents given by:

$$q_{ai} = f_{pi}(x_a, p, g_a, g_b) \text{ and } x_a = l(p, y, g_a, g_b) \quad \textbf{[2]}$$

Where, g_a and g_b are characteristics of parents and children, respectively. The argument x_a is the total expenditure that is allocated to the adults by the sharing rule. As it is discussed in Deaton (1997), this is a well behaved demand function that holds widely for allocations based on bargaining or altruism. Here, children characteristics affect parents demand in two separate ways, through the amount that parents get though the sharing rule (income effects) and directly though the demand functions (substation effects).

Any change in child characteristics, say the addition of a child to the household, result in a reduction of adult consumption through income effect and rearrangements in adult consumption due to substitution effect which is required to feed, cloth or educate the child. If the sharing rule approach works, we should expect to find a greater negative effect on adult consumption of additional boys than of additional girls (Deaton, 1997).

4. Model and empirical strategy

4.1 Empirical strategy

From the theoretical underpinning of the demand function of parents for different household consumption goods, we have the standard Engle curve method appropriate to the problem under investigation. However, as there are different levels of decisions, the empirical model should be specified so as to account for the difference in decision behavior. The rationale behind the Engle curve approach is that household member composition according to different characteristics (sex, age, education, religion, ethnicity, etc) are a variables that exerts an impact on household consumption allocation pattern. In other words, household expenditure allocation to different purchases depends on the individual demand for a specific commodity and hence the household composition. Based on this economic rationale, an additional household member with specific individual characteristics affects the household's expenditure pattern in such a way as to increase expenditure on items of consumption associated with the additional member. By implication, the budget share of a good consumed by children increases as much when additional girl is added to the household as it does when an additional boy is added (Kingdon, 2005).

The Engle curve can be specified using the extended Working (1943) specification:

$$\omega_{it} = \alpha + \beta \ln(\frac{y_{it}}{n_{it}}) + \sigma \ln n_{it} + \sum \delta_k (\frac{n_{kit}}{n_{it}}) + \gamma Z_{it} + \varepsilon_{it} \quad \textbf{[3]}$$

Where, ω_{it} is household budget share of education, y_{it} is total monthly consumption expenditure of the household, n_{it} is household size, n_{kit} is the number of individuals in the *k*th age-gender class within household *i*, Z_{it} is a vector of other household level characteristics, ε_{it} is the error term and t is survey round. α, β, σ, δ_k and γ are parameters to be estimated. The coefficient δ_k captures the effect of household composition on household budget allocations. The difference across gender can be tested using an F-test for the hypothesis that $H_0 : \delta_{kmi} = \delta_{kfi}$. Where, *m, f* and *k* denote males, females and a given age group, respectively.

In many optimization problems corner solutions are common. For instance, amount of life insurance coverage chosen by an individual; family contribution to an individual retirement account; expenditure on some consumption goods like alcohol, cigarette; and firm expenditure on research and development, etc are circumstances of corner solutions. Likewise, we observe a significant proportion of the surveyed households reporting zero educational expenditure resulting in censoring of the dependent variable (See Table 3). Consequently, OLS estimation of equation [3] is not appropriate, which yields biased parameters. First, when $y \geq 0$, $E(y \mid x)$ cannot be linear in x unless the range of x is fairly limited. Second, it also implies constant partial effects. Third, predicted values of y can be negative for many combinations of x and β, which yields downward biased parameters. Although, the tobit model is suggested as an alternative, it is identified only if the assumption of normality and homoskedaticity are fulfilled. In addition, it assumes a single mechanism to determine the choice between $\omega = 0$ versus $\omega > 0$ and the amount of ω given $\omega > 0$. Specifically, $\frac{\partial P(\omega > 0 \mid x)}{\partial x_j}$ and $\frac{\partial E(\omega \mid x, \omega > 0)}{\partial x_j}$ have the same sign (Wooldridge 2002).

Because of the two-tier nature of such a decision of whether to choose a positive ω or a zero ω and the decision of how much to spend conditional on purchasing a positive amount ($\omega \mid \omega > 0$), a Hurdle model is appropriate that allows initial decision of $\omega = 0$ to be separate from the decision of how much ω given positive ω (Wooldridge, 2002). The model can be written as follows:

$$prob(\omega_{it} = 1 | x_{it}) = \Phi(x_{it}\theta) \quad \textbf{[4]}$$

$$\log(\omega_{it}) | (x_{it}, \omega_{it} > 0) \sim normal(x_{it}\psi, \sigma^2) \quad \textbf{[5]}$$

Where, x_{it} is a vector of explanatory variables, θ and ψ are parameters to be estimated and σ^2 is the variance.

We use random effects panel probit model for tier-one decision model and linear panel autoregressive random effects model for the second decision level, the decision on the magnitude of expenditure conditional on positive spending. The underlying specification of the **tier-one hurdle model** can be written as follows:

$$prob(\omega_{it} = 1 | x_{it}, \alpha_i) = F(x_{it}\theta + \varepsilon_{it}) \quad \textbf{[6]}$$
$$\varepsilon_{it} = \alpha_i + e_{it}$$

Where, ω_{it} is budget share of education in the total annual consumption expenditure of household *i* in period *t.* It takes 1 if $\omega_{it} > 0$ and zero, otherwise. α_i captures household and individual specific time invariant and unobserved effects, e_{it} is a transitory error term assumed to be *iid* over time with a distribution $e_{it} \sim normal(0, \sigma_e^2)$.

There are a number of alternative techniques in a limited dependent variable panel data model to estimate equation [6] that controls for the initial conditions problem and unobserved individual heterogeneity. Here, we use a two-step procedure suggested by Orme (1997) and Wooldridge (2005).

The traditional random effects models assumes that unobserved effects term is normally distributed and it is strictly independent from other regressors, i.e., , $\alpha_i | x_i \sim Normal(0, \sigma_c^2)$, which is a strong assumption. As in the linear case, in many applications the point of introducing the unobserved effects, α_i, is to explicitly allow unobservable to be correlated with some elements of x_{it}. Using the Chamberlain's (1980) general specification to allow correlation between α_i and x_{it} and the Mundlak (1978) version, it can be assumed to have the following linear relation:

$$\alpha_i = c_0 + c_1\overline{x}_i + u_i \qquad \textbf{[7]}$$

Assuming $u_i \sim IN(0, \sigma_u^2)$, which is independent of x_{it} and $e_{it} \forall$ *i* and *t*, c_0 is the intercept and $\overline{x}_i$ is a vector of means of the time-varying covariates for household *i* over time. Another problem is the initial conditions problem due to the correlation between ω_{i1} and the unobservable, u_i, which needs to be controlled. It arises simply because the start of the observation period is different from the start of the stochastic process. Following Heckman (1981) and Wooldridge (2002), the reduced form random effect probit model for the tier-one expenditure process can be written as:

$$prob(\omega_{it} = 1 | x_{it}, ...) = F(x_{it}\theta + c_1\overline{x}_i + \delta\eta_i + \sum \varphi_{tv} D_{tv} + \xi_i + e_{it}) \qquad \textbf{[8]}$$

Due to Orme (1997)[2], equation [8] is a two-step estimable equation using standard statistical software, where η_i is the Generalized Probit Error obtained from a probit estimation of the initial observation[3]. We also include regional and time dummies in equation [8].

Tier-two hurdle model

We can specify the positive educational spending Engle curve in panel data setting. In this specification, we allow the error terms to be correlated overtime. The model, which can be estimated using GLS, is written as:

$$\log(\omega_{it}) | (..., \omega_{it} > 0) = \alpha + \beta \ln(\frac{y_{it}}{n_{it}}) + \sigma \ln n_{it} + \sum \delta_k (\frac{n_{kit}}{n_{it}}) + \gamma Z_{it} + \sum \varphi_{tv} D_{tv} + v_{it} \qquad \textbf{[9]}$$

$$v_{it} = \mu_i + \varepsilon_{it}$$

$$\mu_i = c_0 + c_1\overline{x}_i + \zeta_i$$

$$\varepsilon_{ti} = \rho\varepsilon_{it-1} + e_{it}$$

[2] For a detailed discussion and application of a two-step random effect probit model readers can consult Arulampalam et al., 1997.

[3] The correlation $corr(\alpha_i, \eta_i) = \rho$ can be assumed to be linearly related as $u_i = \delta\eta_i + \xi_i$, where, η_i and ξ_i are assumed to be orthogonal to one another. The error term η_i is obtained form $prob(\omega_{i1} = 1 | G_i, ...) = F(G_i\lambda + \eta_i)$.

Where, $e_{it} \sim N(0, \sigma_e^2)$ is orthogonal to μ_i, $|\rho| < 1$, $\zeta_i \sim iid(0, \sigma_\zeta^2)$ and $corr(x_{it}, \zeta_i) = 0$. Like we did for the non-linear model, we allowed the unobservable to be correlated with some of the time varying correlates. All variables are as defined before. Finally, the complete models which can be computed using STATA or any other standard software packages are equation [8] and equation [9]. To better control for observed and unobserved village level factors we have introduced village by round interaction terms, $\sum \varphi_{tv} D_{tv}$. The gain in efficiency of the overall model after the inclusion of these terms is dramatic. Besides, the term control for the role of covariate shocks and any market, infrastructure, political or socio-cultural developments as well as other supply side factors across villages and overtime. In fact, otherwise, gender-bias will be overstated. Since our observation is large, introducing these 14x5 terms should not be a concern to loss of degrees of freedom.

4.2 The data

Our analysis is based on the Ethiopian Rural Household Survey (ERHS) panel data set spanning from 1994-2004 collected by Addis Ababa University, Department of Economics in collaboration with the University of Oxford Center for the Study of African Economies (CSAE) and other institutions like the International Food Policy Research Institute (IFPRI). The survey was undertaken for six waves; 1994a, 1994b, 1995, 1997, 1999/2000 and 2004 consisting of a panel of 1400 households. The sampling was stratified to represent the main sedentary farming system in the country, the plough-based cereals farming system of the Northern and central Highlands, mixed plough/hoe cereals farming system and farming system based on *enset* in the southern parts of the country. Further more, sample size in each village was chosen so as to approximate a self-weighting sample, when considered in terms of the farming system. Fifteen Peasant Associations (PAs) in four regions are included in the panel. The survey is aiming at generating a multi-purpose data set comprising a range of household, community and market variables during each survey period. There are a number of modules included in the questionnaire. The attrition rate was very low, below 7%, attributed to the fact that households in rural Ethiopia cannot obtain land when moving to other areas (Dercon and Hodinot 2004). However, the survey does not cover pastoral areas in the country, which accounts for 10% of the total rural population.

4.3 Description and definition of variables

In this study, we used a household level data to identify intra-household gender-bias in the allocation of educational spending. Although, the ERHS data have information on some individual level variables, we preferred to use household level data to minimize measurement error. The dependent variable is share of spending on education. For the first-tier hurdle model, we used a dichotomous variable taking unity, if household allocate resources on child schooling. While for the tier-two model, we used log transformation of the share of educational spending in the total household consumption budget, conditional on positive spending. As can be shown in Figure 1, this is a valid transformation that reduces noise in the regression. The log transformed share of education (panel 4), after scaling up, is normally distributed than the unconditional and conditional level forms (panels 1 and 2). In the questionnaire, all school related direct expenses such as fees, uniforms, materials like book, contributions and club fees, accommodation and transportation to school are merged under school fees and other educational expenses. It should be noted that for primary cycle, there is no school fee in public schools. Besides, mindful of the indirect costs of sending children to school in rural areas, we included variables that capture the opportunity cost such as land ownership, livestock owned, oxen and the level of welfare of the household.

In the right hand side of our equations, we have the proportion of boys and girls in the household in each age-sex grouped into fourteen categories (below 4, 5-9, 10-14, 15-19, 20-24, 25-60, and over 60 years old) for both sexes as regressors. Age-sex group over 60 years are considered as reference group. Other household level characteristics like sex of the head (dummy=1 if male and zero otherwise), age of the head, level of education of the head, mean age in the household, lagged value of log of consumption per adult equivalent unit, size of land holding in hectare, number of livestock owned, number of oxen owned, and interaction of round by village dummies, over time mean values of time-varying household level variables and first difference of these variables are included. Summary statistics of these variables are shown in Table 3.

5. Discussion of results

5.1 Descriptive statistics

In this section the descriptive part of the analysis is presented. Spending on child education is an important aspect of human capital investment. However, evidences from rural Ethiopia, such as Assefa (2002) show that sending children to school has

an opportunity cost as their labor is needed for domestic, farm activities or activities. As can be shown in Table 3, the percentage of households with one or more school age children (5-19 years) spending a positive amount of educational expenditure is around 21.64%. The worst figure is observed in the case of Ankober in Amhara Region, where the percentage of households who have school age children in the household that allocate positive amount on child education is only 13%.

Of those who allocate resources to siblings schooling, the level of budget share on education is only 1.3% of total expenditure in the survey areas. Conditional on enrollment, from the sample *weredas* households residing in Kedida Gamela spend the highest proportion of their budget, 2%, on child schooling. While households in Ankober spend very small, only 0.6%, proportion of their household budget. It is very interesting to figure out that compared to other regions, households residing in Amhara region (Ankober, Debre Birhan, Enemayi, and Bugna) have the lowest budget share for education, less than 1%, given households have already decided to spend some positive amount on child education. This could be due to a variety of supply, demand and policy factors on the ground. We cannot simply generalize that households in these areas have lower preference to child education and we need to assess all other factors.

Table 4 presents the proportion of children in households with positive educational spending by gender and age. We can observe that, in the three school age categories; 5-9 years, 10-14 years and 15-19 years, it is those households with the highest proportion of boys who incur the largest magnitude of positive educational expenditure.

5.2 Empirical results

5.2.1 Determinants of resource allocation to child schooling

It is imperative to understand the determinants of intra-household allocation of resources to child education. Beside supply side factors, demand side factors are important in determining the level of school enrollment, completion and rate of success. The demand side is determined by a number of factors; social, cultural, economic and household level preference and characteristics. As can be seen from the regression results in Table 6, sex and age of the individual as well as a number of household level factors determine the behavior of household resource allocation to child education investment.

It is appealing to note that the coefficient of male headship is negative but insignificant in the random effects probit regression equation while negative and

significant at 5% on the decision of how much to spend. This implies that male headed households shift away resources from investment in child education. That is, cetirus paribus, male headed households have negative taste to child schooling presumably due to higher preference to adult commodities than children education. It reflects the uneven bargaining power of men and women in the household on intrahousehold resource allocation and reinforces the evidence that women headed households tend to allocate more resources to siblings schooling.

The level of education of the head, on the other hand, has a positive impact on the decision to allocate resources to education and its magnitude. We observe households with higher proportion of pre-school age children, below 4 years, tend to shift away their resources from child schooling, usually to nutrition, health, clothes and other purchases.

Although, in column [1] enrollment increases with the increase in household size, from the coefficient of the squared variable it is shown that very large household size discourages enrollment significantly. Except in Tigray, the coefficient on natural log of household size is positive and significant in Amhara, Oromia and SNNP[4]. However, from the conditional regression, we found a negative and statistically significant impact of household size on the magnitude of share of education in Tigray and Oromia region. The elasticity of share of education to household size is -2.21 and -1.1 implying a 1% decrease in the household size leads to 2.21% and 1.1% increase in the share of educational budget in Tigray and Oromia, respectively.

From the whole sample and Oromia region, we found that having more of both oxen and land have a negative impact on the initial decision to send children to school, which echoes the importance of farm opportunity cost of sending children to school. However, once they have decided to send their children to school, having more land and oxen have positive and statistically significant impact of increasing the magnitude of resource allocated to schooling. This is because the most important rural productive assets are land and oxen. Land is the central source of livelihood while oxen are the major source of traction power and store of wealth. Having more of these assets, increases the capacity of the households to cover school expenditure.
Land ownership has significant and negative impact on school enrollment in Tigray and Amhara regions, again reflecting the opportunity cost of sending children to school. On the other hand, the result from Oromia region is contrary to this finding where owning more of cultivable land increases the probability of child enrollment. Possible reasons may be productivity differences in adult labor and agro-ecological setup as Oromia and SNNP are surplus regions in the country resulting in less

[4] SNNP stands for Southern Nations Nationalities and People

demand for child labor on farm activities. As the number of oxen owned increases by one unit, the probability of allocating positive educational resources is 5%, 3% and 6% in Tigray, Amhara and Oromia regions respectively. Generally, the direction and level of significance of asset holding is mixed across regions and stages of decision.
As it can be shown in column [1], the lagged value of log of consumption has positive sign in both stages of decision and it is significant at 1% in tier-two decision. Households with higher welfare, invest more on education, where doubling the level of consumption (total budget) leads to 10.4%, 25.8%, 15.8% and 12.7% increases in share of educational expenditure in Ethiopia as a whole, Tigray, Amhara and SNNP regions, respectively. This implies that for high income households, children are not needed to engage in income generating or productive activities to augment household income at the expense of their schooling.

5.2.2 Detecting gender-bias

When trying to identify intra-household bias, one has to be cautious not to overstate/understate it since bias may arise due to a number of factors and model specification. A number of factors should be controlled both spatially and overtime. There are observed and unobserved, individual, household and village level effects that may lead to the observed level of gender-bias. For instance, individual talent or intelligence in schooling, behavior, level of effort and success in school and other factors may influence the preference to allocate positive or zero sum of resources to child schooling. Along with deciding on the appropriate empirical model, one has to better suit to panel data set that tracks the same household over a long period of time as it enable us to control for time invariant individual, household and community specific effects. The salient feature of our analysis is to make use of this advantage.
From the probit regression model of the whole sample, we observe that there are positive and statistically significant coefficients on male and female children aged between 5 and 19 years. That is, households with one or more member of this age category tend to allocate resources to education. However the magnitude and level of significance of these coefficients vary among different age-sex groups and regions like in Amhara and Oromia. Except in Tigray, magnitude of the coefficients is larger for boys than girls. For instance, the probability of allocating a positive resource to male children aged 10-14 years is 60.68%, 39.27%, 75.06% and 78.6% as compared to female children whose probability of getting enrolled is 47.99%, 14%, 46.44% and 62.86% for the whole sample, Amhara, Oromia and SNNP regions, respectively. That is, the probability of allocating a positive educational resource is 0.61 for the next boy and 0.5 for the next girl aged 10-14. Likewise, the magnitude of these probabilities in age group 5-9 and 15-19 years are higher for male children.

From regionally disaggregated marginal coefficients of probit estimation, we observe that the direction of most of the coefficients is theoretically consistent. However, it is only in the case of age-sex categories of male_10-14 and female_10-14 for Tigray; male_10-14 for Amhara; male_5-9, male_10-14 and female_10-14 for Oromia; male_5-9, male_10-14, female_10-14, male_15-19 and female_15-19 for SNNP that these coefficients are positive and statistically significant. This implies that an additional child of that specific age category to the household and region has a positive probability of being enrolled to school.

To give statistical validity of our claim over the existence of gender-bias in the intrahousehold resource allocation in child educational investment, we test the hypothesis $H_0 : \delta_{kmi} = \delta_{kfi}$, which can be accomplished by a Wald-test on the marginal effects of the coefficients of interest (school age children; 5-9 years, 10-14 years and 15-19 years). From the probit marginal effects of the whole sample and SNNP, in Table 7, we found that there is statistically significant pro-boy bias in educational enrollment in the age category of 15-19 years. That is households in rural Ethiopia discriminate against girls who are in the age range of 15-19 years. This age category corresponds to the secondary school (secondary cycle). Unlike other regions, households in Amhara significantly discriminated against girls school enrollment compared to boys aged 10-14 years. The risk in this discrimination is that it denies girls their very chance of being enrolled in school. However, except in Oromia, test result from the conditional regression indicates that those households who have initially decided to incur positive school expenses do not discriminate against girls by reducing the magnitude of the resource.

One reason why we couldn't verify pro-boys bias in primary and junior school age children in most of the regions and the whole sample is that in many places there is no school fee at these levels. Besides, in most of the sample areas access to primary schools is relatively better, which will have positive impact by reducing transport cost, allowances, and other expenses. However, when children are promoted to high school, they have to travel to the nearest town. In most cases, they have to stay for a week or more. From Table 5, we can see that it is only 20 % of the sampled villages which have a secondary school in the village and the average distance to the nearest town with high school is about 11km in 2004. In this case, the cost of sending children to school becomes significant. Furthermore, traveling long distance to school in cases where there is no suitable road infrastructure is difficult for girls, which forces them to frequently dropout school.

Households are also reluctant to send their girls far from home fearing abuses and sexual harassment by schoolmates and men teachers. Hence, lack of access to

school infrastructure in the village by itself may induce endogenous bias against sending girls to school. In addition, girls' role in the household is important and their time is a close substitute to mothers' time in domestic activities. This age category also corresponds to girls marriage in most rural areas forcing them to dropout. Parents also may hesitate to invest on their daughters' than their sons' education as they expect low rate of return and low expected transfer to parents during old age. However, as we have observed, if households have found way of sending girls to school, no statistically significant evidence is found to reduce the resource against them. However, it is important to note that once households have decided to incur positive child educational expenditure, there is pro-girls bias in the age category of 10-14 years and significant pro-boy bias in the age category of 15-19 years in Oromia region.

Tigray region is the only exception with no statistically significant gender-bias against girls in both the decision to enroll and the decision on the magnitude of share of budget allocated to child schooling. Interestingly, our finding is consistent with the official macro data, where the Gender Gap and Gender Parity Index is consistently rising at the secondary cycle. Figure 2 also indicates that the enrollment rate for boys diverges significantly from that of girls aged 14 years and above. As we have discussed above, the pro-boys bias is pervasive during the initial decision to enroll children to school (or whether to incur positive educational expenditure or zero) in the age category of 15 – 19 years, which corresponds to secondary school in Ethiopian educational system.

6. Conclusion and policy implications

In this study, we examined whether there is any intra-household gender-bias in household educational resources allocation to boy and girls. Gender-bias may occur at two stages, the initial decision to enroll children to school and conditional on enrollment, whether households discriminate on the amount of the resource based on gender. This is of interest because at the national level, official data reveals the existence of gender gap both at the primary and secondary cycles. The trend shows that this gap is falling for the primary cycle, while it has been rising in the secondary cycle. This bias could be an outcome of a number of multiplicative factors, both from the supply and demand side. Micro evidence from the ERHS 2004 data also reveals divergence in gross enrollment rate between boys and girls for those aged 14 years and above.

The main objective of this study has, therefore, been to uncover if there is any intra-household gender bias on the allocation of resources to child education and during

which stage of decision. Using a panel data set from ERHS, spanning from 1994-2004, we have tried to detect any intra-household gender bias in rural areas. The panel nature of our data set enabled us to control for observed and unobserved effects and initial condition problems. We applied panel hurdle model consisting of two regressions; random effects probit for the initial decision on enrollment and linear autoregressive random effects model on the proportion of the educational resource conditional on enrollment.

From the descriptive results we note that the percentage of households in rural Ethiopia with one or more children who allocate positive amount of resource to their children's education is around 21.64% of the sample. The average budget share of spending on child schooling of these households is only 1.3%. We have also observed that it is those households with the highest proportion of boys who frequently incur positive educational expenditure or send their child to school.

Irrespective of the gender of the child, households with male headship have negative taste to child educational investment. Although, large family size has positive and significant impact on child school enrollment, it has an inversely proportional impact on the budget share allocated to education. Having more of both rural farming land and oxen has negative impact on enrollment signifying the opportunity cost of sending children to school. Nevertheless, once they are enrolled, more of rural productive assets have positive and significant impact on the magnitude of the share allocated to child schooling. Households with high level of welfare allocate higher share of their budget expenditure to schooling.

After controlling for a number of observed and unobserved effects, we found that coefficients on male and female children aged between 5 and 19 years are statistically significant. From the whole sample, the observed probability of an additional school age child getting enrolled is higher if it is a boy as compared to a girl. The Wald-test on the marginal coefficients indicates that there is a significant gender bias during the initial decision against girls in the age range of 10-14 years in SNNP and in the age range of 15-19 years for the whole sample and SNNP. However, significant pro-boy bias in the primary school cycle ages, 5-9 years is not observed. From the whole sample, we couldn't also find gender-bias on the budget share allocated, once households have decided to enroll their child. However, there are mixed results in some places. Such as in Oromia region, we found significant pro-girls bias on the share of education allocated to enrolled children in the age category of 10-14 years and pro-boy bias in the age category between 15 and 19 years. The existence of gender-bias in the secondary cycle age children could be due to the absence of high school in the village that buttressed the gender discrimination in

enrollment and resource allocation against girls in the age range of 15-19 years. The only region that we couldn't detect significant gender-bias during both decisions is Tigray.

The implication of our study is that policies that are geared towards increasing human capital should take into account the existence of significant intrahousehold bias against girl's education, especially among those who are aged 14 years and above. Since the bias occurs inside the household, public investments should not only focus on facilitating access to school but also work from the demand side as parents have different preference towards siblings' education. Gender specific direct and indirect policy interventions are important at correcting the demand side bottlenecks in poor areas. Policies that increase the returns to girl's education in the labor market could increase parents' preference towards daughter's educational investment. Besides other affirmative actions, supply side targeting of girls in through scholarships and incentives could also mitigate the problem. Besides, a broader objective of increasing labor productivity in rural areas it should also consider increasing intrahousehold productivity so as to reduce the overburden of mothers since girls labor could be a close substitute to their domestic activities. This can be accomplished by increasing access to clean water, grain mill, market infrastructure, alternative sources of energy, etc. Legislations that prohibit early marriage could also reduce the incidence of girls' dropout from school.

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Annexes

Table 1: Trends in Gross Enrollment Ratios at Primary and Secondary Education by Sex

	Year	2000/01	2001/02	2002/03	2003/04	2004/05
Primary Cycle (1-8)	Total	57.4	61.6	64.4	68.4	79.8
	Boys	67.3	71.7	74.6	77.4	88
	Girls	47	51.2	53.8	59.1	71.5
	GG	20.3	20.5	20.8	18.3	16.5
	GPI	0.7	0.71	0.72	0.76	0.81
Secondary Cycle (9-10)	Total	14.1	17.1	19.3	22.1	27.3
	Boys	16.1	20.4	24	28.2	34.6
	Girls	12.1	13.7	14.3	15.9	19.8
	GG	4	6.7	9.7	12.3	14.8
	GPI	0.75	0.67	0.6	0.56	0.57

Source: Author's Calculation from ERHS data Note: Values in bracket are Standard Deviations

Table 2 : Educational spending in households with one or more children aged between 5-19 years: 1994-2004

	Wereda	Share of Education in	% of HHs Spending	Share of education in Total
Tigray	Atsbi	0.003	20.12%	0.011
		(0.007)	(.401244)	(0.011)
	Sebhaassahsie	0.004	25.36%	0.014
		(0.011)	(.4356109)	(0.016)
Amhara	Ankober	0.001	12.92%	0.006
		(0.003)	(.3357506)	(0.005)
	Derbe Birhan	0.002	25.77%	0.007
		(0.007)	(.4375416)	(0.011)
	Enemayi	0.003	26.72%	0.009
		(0.008)	(.4430819)	(0.012)
Oromoria	Bugena	0.002	17.48%	0.009
		(0.007)	(.3799863)	(0.015)
	Adaa	0.002	18.73%	0.011
		(0.007)	(.3904634)	(0.013)
	Kersa	0.004	24.24%	0.016
		(0.012)	(.4289108)	(0.019)
	Dodota	0.004	30.22%	0.013
		(0.010)	(.4595619)	(0.014)
	Shashemene	0.008	45.15%	0.016
		(0.014)	(.4980211)	(0.017)
	Cheha	0.004	30.91%	0.013
		(0.010)	(.4627142)	(0.014)
	Kedida Gamela	0.008	37.08%	0.020
		(0.015)	(.4835319)	(0.019)
SNNP	Bule	0.002	13.02%	0.013
		(0.007)	(.3367171)	(0.013)
	Boloso	0.004	25.53%	0.015
		(0.010)	(.441872)	(0.015)
	Daramalo	0.005	31.32%	0.014
		(0.012)	(.4681633)	(0.017)
Whole Sample	Total	0.003	21.64%	0.013
		(0.009)	(.4118043)	(0.015)

Table 3: Summary Descriptive statistics

Variable	Description	Mean	Std. Dev.
Dependent Variables			
Monthly Educ Expenditure-Conditional	Monthly Expenditure on School fees and Other school related expenses	7.220138	24.5932
Share of Education - Unconditional	Share of Monthly Educational expenditure in total consumption expenditure	0.002782	0.0088
Share of Education - Conditional	Share of Monthly Educational expenditure in total consumption expenditure conditional on positive expenditure	0.010845	0.014645
Dummy of positive educ spending	Dummy =1, if the household spends positive expenditure on education	0.216393	0.411804
Ratio of Age-Sex Category to Household Size			
Male_below4	Ratio of number of male children aged below 4 years to total household size	0.043624	0.092472
Female_below4	Ratio of number of female children aged below 4 years to total household size	0.040729	0.088702
Male_5-9	Ratio of number of male children aged between 5-9 years to total household size	0.05847	0.097007
Female_5-9	Ratio of number of female children aged between 5-9 years to total household size	0.059446	0.096026
Male_10-14	Ratio of number of male children aged between 10-14 years to total household size	0.058933	0.102086
Female _10-14	Ratio of number of female children aged between 10-14 years to total household size	0.057296	0.103536
Male_15-19	Ratio of number of male children aged between 15-19 years to total household size	0.0522	0.107183
Female_15-19	Ratio of number of female children aged between 15-19 years to total household size	0.052441	0.108422
Male_20-24	Ratio of number of male children aged between 20-24 years to total household size	0.039464	0.100251
Female_20-24	Ratio of number of female children aged between 20-24 years to total household size	0.041516	0.102122
Male_25-60	Ratio of number of male children aged between 25-60 years to total household size	0.144622	0.15154
Female_25-60	Ratio of number of female children aged between 25-60 years to total household size	0.165181	0.155925

Table 3 continued

Household Characteristics			
Head_sex	Dummy=1, if the household head is male, zero otherwise.	0.769687	0.421061
Head_age	Age in years of head of the household	48.06955	15.56917
Head_agesqr	Age in years squared of head of the household	2491.08	1653.932
Head_primedu	Dummy=1, if the household head 's level of education is primary school	0.151524	0.358583
Head_junedu	Dummy=1, if the household head 's level of education is Junior school	0.028954	0.167688
Head_secedu	Dummy=1, if the household head 's level of education is Secondary school	0.019027	0.136628
Head_teredu	Dummy=1, if the household head 's level of education is Tertiary school	0.004136	0.064185
Household Size	Household size	6.218494	3.122065
ln of hh size	Natural logarithm of household size	1.687668	0.566128
ln of hh size sqr	Natural logarithm of household size squared	3.168691	1.722574
Household_mean age	Mean age in the household	24.41835	10.59169
land	Size of land owned by the household measured in hectar.	1.827598	2.125061
livstk_no	Number of livestock owned, except oxen and bulls	8.941679	11.66209
Oxen_no	Number of oxen and bulls owned	0.946643	1.98277
lncons_lg	Natural logarithm of lagged value of total consumption.	5.797525	1.007634
Regions			
Tigray		0.085153	0.279122
Amhara		0.274199	0.44613
Oromia		0.360171	0.480072
SNNP		0.280477	0.449253

Source: Author's Calculation from ERHS data set

Table 4: Proportion of children in households with positive educational spending

Wereda	Proportion of children 5-9 years		Proportion of children 10-14 years		Proportion of children 15-19 years	
	male	female	male	female	male	female
Atsbi	0.079 (0.113)	0.059 (0.102)	0.085 (0.120)	0.069 (0.103)	0.042 (0.087)	0.058 (0.095)
Sebhaassahsie	0.062 (0.083)	0.081 (0.107)	0.067 (0.108)	0.092 (0.117)	0.052 (0.087)	0.049 (0.095)
Ankober	0.089 (0.103)	0.049 (0.094)	0.069 (0.106)	0.052 (0.085)	0.046 (0.102)	0.022 (0.055)
Debre Birhan	0.073 (0.114)	0.065 (0.099)	0.082 (0.106)	0.078 (0.105)	0.068 (0.122)	0.058 (0.088)
Enemayi	0.062 (0.094)	0.084 (0.098)	0.072 (0.091)	0.069 (0.088)	0.046 (0.088)	0.059 (0.086)
Bugena	0.086 (0.115)	0.089 (0.118)	0.063 (0.099)	0.075 (0.128)	0.053 (0.099)	0.041 (0.115)
Adaa	0.050 (0.075)	0.055 (0.082)	0.075 (0.084)	0.042 (0.061)	0.058 (0.079)	0.046 (0.084)
Kersa	0.090 (0.100)	0.075 (0.094)	0.073 (0.088)	0.072 (0.115)	0.056 (0.076)	0.043 (0.105)
Dodota	0.067 (0.089)	0.061 (0.086)	0.097 (0.112)	0.080 (0.107)	0.079 (0.122)	0.043 (0.077)
Shashemene	0.058 (0.090)	0.055 (0.080)	0.086 (0.110)	0.068 (0.099)	0.075 (0.118)	0.054 (0.089)
Cheha	0.065 (0.099)	0.048 (0.079)	0.087 (0.101)	0.092 (0.137)	0.057 (0.113)	0.073 (0.105)
Kedida Gamela	0.053 (0.084)	0.064 (0.083)	0.081 (0.110)	0.074 (0.091)	0.074 (0.103)	0.062 (0.077)
Bule	0.093 (0.103)	0.078 (0.089)	0.089 (0.108)	0.096 (0.129)	0.067 (0.097)	0.025 (0.055)
Boloso	0.076 (0.097)	0.078 (0.142)	0.100 (0.158)	0.076 (0.131)	0.081 (0.118)	0.061 (0.089)
Daramalo	0.062 (0.104)	0.068 (0.092)	0.082 (0.124)	0.099 (0.129)	0.082 (0.161)	0.061 (0.094)
Total	0.070 (0.099)	0.067 (0.097)	0.082 (0.111)	0.077 (0.111)	0.066 (0.111)	0.051 (0.090)

Source: Author's Calculation based on ERHS data. **Note**: Values in bracket are Standard Deviations.

Table 5: Availability of School and Distance to the Nearest Town with High School: 2004

Region	Wereda	Peasant Association	1997				2004			
			Primary school	Junior School	Secondary School	Distance to the Nearest High School (km)	Primary school	Junior School	Secondary School	Distance to the Nearest High School (km)
Tigray	Atsbi	Harasaw	Yes	No	No	18	Yes	Yes	No	16
	Sebha Selassie	Geblen	Yes	No	No	18	Yes	No	No	19
	Ankober	Dinki	No	No	No	?	Yes	No	No	?
Amhara	Debre Birhan	Debrebirhan	Yes	No	No	10	Yes	No	No	5
	Enemay	Yetmen	Yes	Yes	No	17	Yes	Yes	No	15
	Bugna	Shumsha	Yes	No	No	10	Yes	No	No	9
	Ad'a	Sirbana Goditi	No	Yes	No	15	Yes	Yes	No	10
Oromia	Kersa	Adel Keye	Yes	No	No	7	Yes	No	No	8
	Dodota	Koro Degaga	Yes	No	No	25	Yes	No	No	15
	Shashemene	Tirurife Ketchema	Yes	Yes	Yes	2	Yes	Yes	Yes	0
	Cheha	Imdibir	No	No	No	4	Yes	Yes	Yes	4
	Kedida Gamela	Aze Adebo	Yes	No	No	5	Yes	Yes	No	?
SNNP	Bule	Adado	No	No	No	22	Yes	Yes	No	29
	Boloso	Gara Godo	No	Yes	No	13	No	No	No	12.5
	Daramalo	Doma	Yes	No	No	?	Yes	Yes	Yes	0
Percentage Yes			**66.67**	**26.67**	**6.7%**	**12.69**	**93.33%**	**53.33%**	**20%**	**10.96**

Source: Author's computation from ERHS community data

Table 6: Random effects probit and autoregressive estimates

Variables	Whole Sample				Samples in Tigray Region			
	[1]		[2]		[3]		[4]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Constant	**-2.5904*** **	4.9	**4.0944*** **	7.98	**-4.249*** **	-2.04	2.4443	-1.02
Household Age-sex group ratio								
Male_below 4	**-0.3481*** **	2.7	-0.641671	1.26	**0.077*** **	0.26	-1.2138	0.79
Female_below 4	-0.1639	1.3	0.0466068	0.1	**-0.075*** **	0.23	1.0336	0.51
Male_5-9	**0.2017** **	2.03	0.2845792	0.86	0.0673	0.28	-1.5204	1.29
Female_5-9	0.0195	0.2	0.0060587	0.02	0.1133	0.54	**-2.4023** **	2.09
Male_10-14	**0.6068*** **	6.6	**0.5176797***	1.85	**0.599*** **	2.47	-0.3688	0.33
Female_10-14	**0.4799*** **	5.51	**0.834276*** **	3.11	**0.824*** **	3.55	-0.3573	0.37
Male_15-19	**0.3504*** **	4.1	**0.5807817** **	2.03	0.6172	2.53	-0.7495	0.64
Female_15-19	**0.1535***	1.76	**0.7048582** **	2.17	0.6433	2.68	0.0928	0.08
Male_20-24	-0.0091	0.1	-0.1307145	0.37	-0.0031	0.01	0.1086	0.09
Female_20-24	**-0.2782*** **	2.7	0.1796455	0.44	-0.0639	0.22	-0.9389	0.62
Male_25-60	**0.1323***	1.6	-0.2242455	0.77	0.0328	0.13	-0.0926	0.08
Female_25-60	0.0182	0.22	**-0.5816122***	1.93	-0.0673	0.26	0.8763	0.61

Table 6 cont'd

Variables	Whole Sample				Samples in Tigray Region			
	[1]		[2]		[3]		[4]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Household Characteristics								
Head_sex*	-0.0206	0.8	**-0.180022****	2.11	0.0454	0.71	-0.0775	0.28
Head_age	0.0049	1.47	0.0133734	1.21	0.0032	0.36	0.0481	0.93
Head_agesqr	-0.0001	1.2	-0.0001287	1.31	-0.0001	0.7	-0.0006	1.13
Head_primedu*	**0.1118*****	3.82	0.0116446	0.15	0.0449	0.8	0.0418	0.11
Head_junedu*	**0.1708*****	2.59	0.0261754	0.16				
Head_secedu*	0.0909	1.33	-0.0511498	0.26				
Head_teredu*	**0.2863****	2.18	**0.6051018***	1.71				
ln of hh size	**0.3199*****	3.57	-0.4631516	1.36	0.2123	0.85	**-2.2137***	1.86
ln of hh size sqr	**-0.0433***	1.7	0.0973039	1.05	0.0162	0.21	**0.5578****	2
Household_mean age	-0.0037	1.3	-0.0021751	0.2	-0.0079	1.27	0.0138	0.44
Household Asset								
landXox	**-0.0043***	1.8	**0.0161301****	1.96	-0.0331	0.73	-0.0441	0.26
landXlivskt	0.0004	1.35	0.001195	1.18	-0.0002	0.03	**-0.0551***	1.64
Land	-0.0059	0.6	-0.0264461	0.7	**-0.197*****	1.44	0.9413	1.55
livstk_no	-0.0024	1.2	-0.0084601	1.31	0.0018	0.28	0.0322	1.04
oxen_no	0.0171	1.47	-0.0282252	0.79	**0.047*****	0.85	-0.1328	0.58

Table 6 cont'd

Variables	Whole Sample				Samples in Tigray Region			
	[1]		[2]		[3]		[4]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Household Welfare level								
Incons_lg	0.0155	1.55	**0.104056*** **	3.15	0.0474	2.01	**0.2575*** **	2.84
GPE (Generalized Probit	-0.0444	1.3			0.0407	0.51	-	-
Rho		0.2			0.1917*			
sigma_u		0.49			0.4871			
/lnsig2u		1.4			-1.4388			
number of obs.		4897		1786	545		173	
Loglikelihood		-2383.52			-202.598			
Wald Chisquare		958.56*		606.66	101.65		314.34*	
R-squared - Within				0.21			0.6459	
- Between				0.3			0.4112	
- Overall				0.27			0.5651	
rho_ar (estimated autocorrelation				0.31			0.4319	
sigma_u				-			0	
sigma_e				1.05			0.8658	
rho_fov (fraction of variance				-			0	

Note: Reported constants are from the main regression result coefficients (not the marginal effects). ***=Significant at 1%, **=Significant at 5% and *=Significant at 10%. Over time mean and Change of time varying household level variables are included in the regression but not reported here and they are available at request from the author Village by round dummies interaction terms are included in the regression and most of these terms are statistically significant. However, the coefficients are not reported here. Coefficients on education are dropped due to co linearity in Tigray and Amhara region.

Table 6: Random effects…, cont'd

Variables	Samples in Amhara Region				Samples in Oromia Region			
	[5]		[6]		[7]		[8]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Constant	-3.11***	2.89	1.7489	1.23	-1.2569	1.2	**4.9621*** **	4.17
Household Age-sex group ratio								
Male_below 4	**-0.87*** **	5.21	-1.3622	1.24	-0.4432	1.57	-0.34088	0.36
Female_below 4	**-0.91*** **	5.13	-0.8584	0.79	**-0.5326***	1.97	-0.28585	0.31
Male_5-9	-0.0014	0.01	-0.189	0.29	**0.3909***	1.89	0.797052	1.26
Female_5-9	0.0502	0.41	-0.0746	0.12	0.1347	0.61	0.489877	0.74
Male_10-14	**0.39*** **	3.14	**1.2657** **	2.04	**0.751*** **	3.9	0.074034	0.14
Female_10-14	0.1403	1.2	**0.9963***	1.66	**0.464*** **	2.55	**1.31783** **	2.46
Male_15-19	0.1201	1.14	-0.3841	0.07	0.224	1.28	**1.5102*** **	2.93
Female_15-19	0.058	0.53	0.5492	0.86	0.1283	0.7	0.11024	0.19
Male_20-24	-0.0406	0.3	0.4411	0.56	-0.0803	0.41	**1.10906***	1.8
Female_20-24	-0.0727	0.49	-0.5428	0.66	-0.1855	0.85	0.823557	1.13
Male_25-60	-0.0523	0.4	0.3211	0.43	**0.3351** **	2.06	-0.02867	0.06
Female_25-60	0.1644	1.51	-0.4424	0.67	0.0203	0.11	0.130802	0.24

Table 6 cont'd

Variables	Samples in Amhara Region				Samples in Oromia Region			
	[5]		[6]		[7]		[8]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Household Characteristics								
Head_sex*	-0.0368	0.89	**-0.3852****	2.07	0.015	0.31	**-0.2324***	1.74
Head_age	**0.013****	2.3	0.0078	0.26	-0.0016	0.19	-0.01702	0.69
Head_agesqr	**-0.001****	2.36	-0.0001	0.31	0.00001	0.17	0.000236	1.02
Head_primedu*	**0.099****	2.2	**0.2705****	1.6	0.0315	0.57	-0.03449	0.24
Head_junedu*	0.1225	0.98	-0.1548	0.32	0.2159	1.55	0.273903	0.96
Head_secedu*		-	-		-0.0744	0.72	**0.58932***	1.74
Head_teredu*		-	-		0.2592	1.04	0.440635	0.64
ln of hh size	**0.2873****	2.27	-0.4396	0.59	**0.347*****	1.95	**-1.0738***	1.71
ln of hh size sqr	-0.0592	1.44	0.1696	0.76	-0.0327	0.64	0.245212	1.56
Household_mean age	**0.009****	2.37	-0.0025	0.11	**-0.01*****	1.88	-0.01142	0.6
Household Asset								
landXox	-0.002	0.86	0.0017	0.12	**-0.02*****	3.2	**0.03974****	2.01
landXlivskt	**0.0006***	1.75	**0.0030****	1.97	0.0012	1.52	-0.00122	0.68
land	**-0.0197***	1.73	-0.0494	0.94	**0.0304***	1.63	-0.01635	0.21
livstk_no	**-0.0039***	1.93	**-0.0188****	1.96	-0.0004	0.1	0.014336	1.22
oxen_no	**0.0305****	2.36	0.0494	0.99	**0.0562***	1.87	**-0.235*****	2.69

Table 6 cont'd

Variables	Samples in Amhara Region				Samples in Oromia Region			
	[5]		[6]		[7]		[8]	
	Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effexts after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Coef.	z-value	Coef.	z-value	Coef.	z-value	Coef.	z-value
Household Welfare level								
lncons_lg	-0.0218	1.34	**0.1584****	2.35	0.0019	0.1	-0.02025	0.05
GPE (Generalized Probit error)	0.0381	0.84			**-0.106**	1.59		
Rho	0.2306*				0.1519*			
sigma_u	0.55				0.4232			
/lnsig2u	-1.2				-1.7198			
number of obs.	1674		499		1343		554	
Loglikelihood	-717.77				-608.105			
Wald Chisquare	271.77*		100.53*		298.55*		97.22	
R-squared – Within			0.1757				0.1003	
- Between			0.1708				0.2396	
- Overall			0.179				0.1727	
			0.217				0.2487	
sigma_u			0				0	
sigma_e			1.0766				1.0527	
			0				0	

Table 6: Random ..., cont'd

Variables	Samples in SNNP			
	[9]		[10]	
	Marginal Effexts after RE Probit		Marginal Coefficients from Linear	
	Coef.	z-value	Coef.	z-value
Constant	-1.7185	1.5	3.579831***	3.9
Household Age-sex group ratio				
Male_below 4	-0.418	1.35	**-1.663432***	1.64
Female_below 4	0.3605	1.3	**-1.414165***	1.67
Male_5-9	**0.5332****	2.34	0.4818685	0.76
Female_5-9	0.1542	0.64	-0.0409092	0.06
Male_10-14	**0.786*****	3.98	0.5448037	1.03
Female_10-14	**0.629*****	3.31	0.3615266	0.75
Male_15-19	**0.89**	4.12	0.6904884	1.25
Female_15-19	**0.3924***	1.79	0.3104279	0.46
Male_20-24	**-0.3792***	1.77	-0.9416805	1.43
Female_20-24	**-0.4314***	1.89	0.568111	0.72
Male_25-60	0.0625	0.32	-0.0738633	0.14
Female_25-60	-0.1875	1.03	-0.0612614	0.12
Household Characteristics				
Head_sex*	0.0209	0.32	-0.0703695	0.39
Head_age	-0.0099	1.15	0.0129079	0.73
Head_agesqr	0.0001	1.55	-0.0000709	0.5
Head_primedu*	**0.0986***	1.88	-0.0128374	0.1
Head_junedu*	0.0632	0.66	-0.0713425	0.29
Head_secedu*	0.1408	1.3	-0.1549146	0.6
Head_teredu*	**0.3892****	2.16	0.2540834	0.59
ln of hh size	**0.3495***	1.69	0.4165212	0.67
ln of hh size sqr	-0.0369	0.6	-0.1475452	0.85
Household_mean age	0.0032		-0.0044824	0.2
Household Asset				
landXox	0.0223	1.17	-0.0055352	0.15
landXlivskt	0.0016	0.4	**0.0211251****	2.27
land	-0.0331	1.06	-0.0833169	0.9
livstk_no	0.0062	0.53	-0.0349553	1.21
oxen_no	0.0296	0.55	-0.0240563	0.19
Household Welfare level				
lncons_lg	**0.0461***	1.87	**0.1267691***	1.83
GPE (Generalized	-0.0829	1.11		
Rho	0.16			
sigma_u	0.43			
/lnsig2u	-1.67			
number of obs.	1335			560
Loglikelihood	-552.73			
Wald Chisquare	310.26*			70.13
R-squared - Within				0.11
- Between				0.1
- Overall				0.11
				0.41
sigma_u				-
sigma_e				1.09

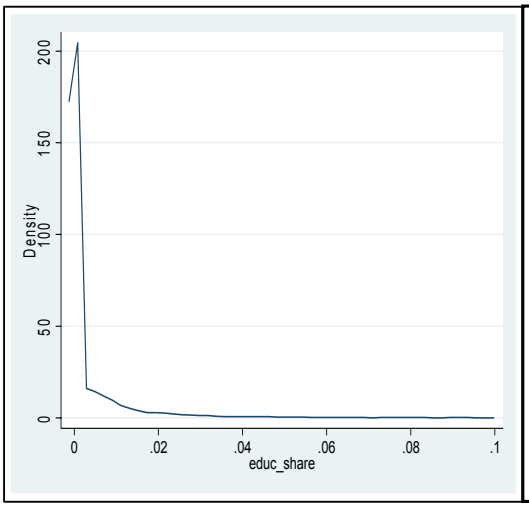
Table 7: Wald-test results on H0: the coefficients for male and female are statistically equal

Age Categories	Marginal Effects after RE Probit Estimation		Linear Autoregressive Model (AR(1))		Marginal Effects after RE Probit Estimation		Linear Autoregressive Model (AR(1))	
	Whole Sample				Samples in Tigray Region			
	Chisqrd	p-value	Chisqrd	p-value	Chisqrd	p-value	Chisqrd	p-value
Age 5-9	2.3	0.13	0.16	0.69	0.03	-0.86	0.57	-0.45
Age 10-14	1.23	0.27	0.69	0.41	0.66	-0.42	0	-0.99
Age 15-19	**2.97***	0.08	0.51	0.48	0.01	-0.93	0.32	-0.57
	Samples in Amhara Region				Samples in Oromia Region			
	Chisqrd	p-value	Chisqrd	p-value	Chisqrd	p-value	Chisqrd	p-value
Age 5-9	0.1	0.75	0.03	0.87	0.94	-0.33	0.14	-0.7
Age 10-14	**2.99***	0.08	0.15	0.7	1.38	-0.24	**3.14***	-0.08
Age 15-19	0.2	0.66	0.65	-0.42	0.16	-0.69	**3.56***	-0.06
	Samples in SNNP							
	Chisqrd	p-value	Chisqrd	p-value				
Age 5-9	1.99	0.16	0.46	-0.5				
Age 10-14	0.39	0.53	0.08	-0.78				
Age 15-19	**3.31***	0.07	0.26	-0.61				

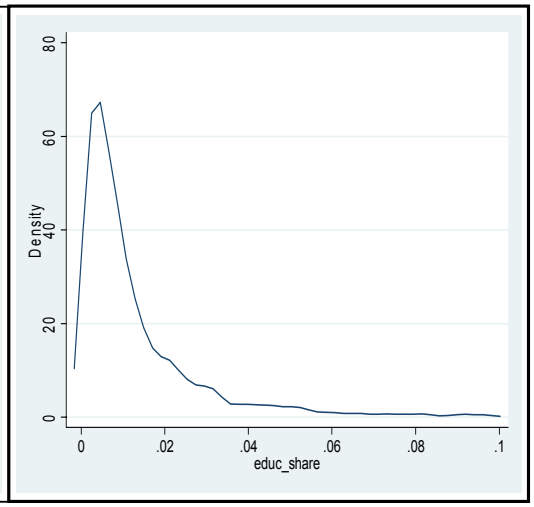
Note: ***=Significant at 1%, **=Significant at 5% and *=Significant at 10%

Figure 1: Kernel Density of educational spending

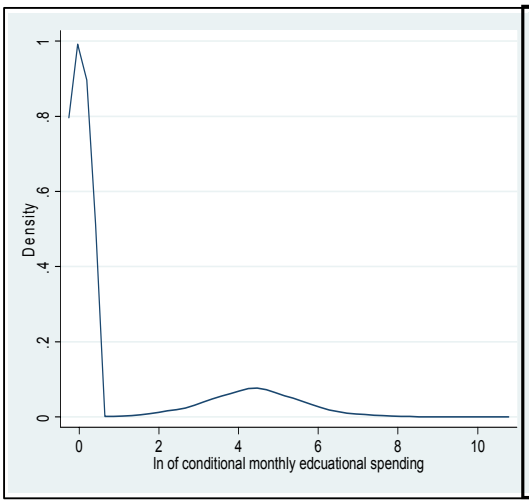
1. Unconditional educ_share



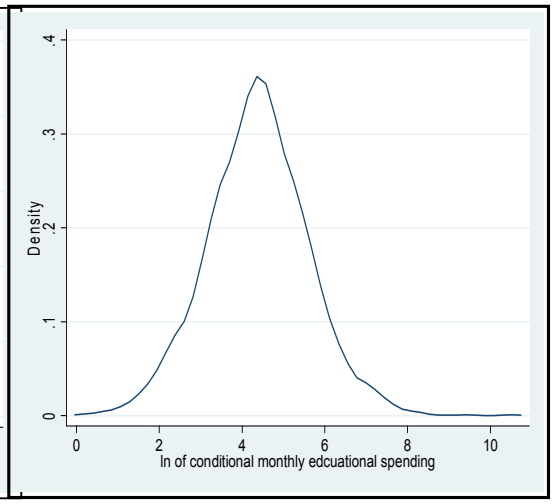
2.Conditional educ_share



3. Unconditional lneshare



4. Conditional lneshare



DETERMINANTS OF CHILD SCHOOLING PROGRESS IN RURAL ETHIOPIA

Degnet Abebaw[1], [2], Andinet Delelegn[2] and Assefa Admassie[2]

Abstract

Despite rapid expansion of primary enrollment in Ethiopia, many children continue to remain behind normal schooling progress. Current national figures indicate that nearly 45% of the children who enroll in grade one drop out from school before completing grade five. In this paper the authors examined the main micro-level determinants of schooling progress of primary school-age (7-14 years old) children using data from rural Ethiopia. Using both demand side and supply side factors, estimation results of the Poisson regression provide various explanations for child education gap. The major demand side factors determining education gap include poverty, parental education, land and non-land asset ownership, village fixed effects and a child's demographic characteristics. On the supply side, differences in the availability of primary and junior schools in the village significantly explain variation in children's primary education achievement. The analysis also shows that the importance of these factors vary between boys and girls. The paper ends by discussing the required government interventions to stimulate child educational progression in rural areas of Ethiopia.

JEL classification: *D13; I21; R21*

Keywords: Demand for schooling; Human capital; Economic development

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1. Introduction

Education plays a key role in enhancing economic progress, improving individual welfare and accelerating social development (Hannum and Buchmann, 2005). Available evidence shows that there are several channels through which these effects may arise. For instance education raises labor productivity (Welch, 1970), increases technological innovation and adaptation (Rodriguez and Wilson, 2000), contributes to better health (World Bank, 1993) and gives greater ability to deal with shocks (World Bank, 2001). As a result, education is to date a basic ingredient for creating a competitive and knowledge- based economy (Hanushek and Kimko, 2000).

In recognition of these multidimensional benefits, governments, the international community and development agencies around the globe have placed an increasingly high attention on education (Pritchett and Filmer, 1997). In fact, the United Nations World Conference on Education in Jomtien, Thailand in 1990, issued a declaration of "education for all" and recalled that access to education is a fundamental human right. In 2000, in New York, the UN summit established the Millennium Development Goals (MDGs) which not only reiterated Universal Primary Education (UPE) as one of the primary goals to be achieved but also re-enforced that there should be gender equality in access to primary education in all countries. In this respect, the summit calls for countries to plan and implement appropriate policies and strategies to ensure UPE for all children by 2015. Achieving the goal of UPE by 2015 requires not only children are in school but also complete primary education. Furthermore, the MDGs require development agencies and developed countries to re-affirm their commitment to provide financial and technical assistance to poor countries to implement these plans.

Notwithstanding the global agreement that ensuring UPE is desirable, there is wide disagreement on how to achieve it. As a recent World Development Report (World Bank, 2004) points out, even though expanding access to school is important it is not enough to ensure that all children from different backgrounds are enrolled and progress is made in the education system. In a recent study on possibilities of UPE for Sub-Saharan Africa, Bennell (2002) has noted that in countries where poverty is deep-rooted and education is *de facto* non-compulsory, the supply of education may not create its own demand. This means that apart from physical expansion of school infrastructure, context specific policy measures are required to create effective demand for education among poor households and individuals (Ray, 2003; Bedi and Marshal, 2002; Al-Samarrai and Reilly, 2000).

In the literature, child schooling has been extensively studied by several researchers using different indicators. Many researchers use either current status of enrollment (e.g. Cockburn and Dostie, 2007; Lire, 2005; Assefa, 2002), number of school days attended in a reference period (e.g. DeGraff and Bilsborrow, 2003; Bedi and Marshal, 2002), or the last completed grade of schooling (e.g. Ray, 2003; Tansel, 2002). However, as pointed out by Behrman and Knowles (1999, p. 2175), relying on these indicators fails to account for "…the age of starting school, grades passed per year in school, and performance on examinations in the last completed grade".

Some recent studies, which have tried to fill this information gap, are found for Honduras (Gitter and Barham, 2007), Peru (Pal, 2004; Patrinos and Psacharapoulos, 1997) and Mozambique (Handa and Simler, 2005). In analyzing cumulative education performance, these studies apply a composite performance index by combining information on official school entry age and a child's current age and his/her actual grade completed. Using this approach the present study aims at estimating the impact of individual, parental, household and community factors on child educational progress in rural Ethiopia.

This paper is organized as follows. In Section 2, the paper presents background information and problem statement. Review of the relevant literature is found in Section 3. In Section 4, the paper outlines the theoretical framework. Data sources and the empirical results of the study are presented in Section 5. In Section 6, the paper presents the descriptive and the analytical results and the discussions. Finally, in Section 7, the paper provides conclusions and draws some policy implications.

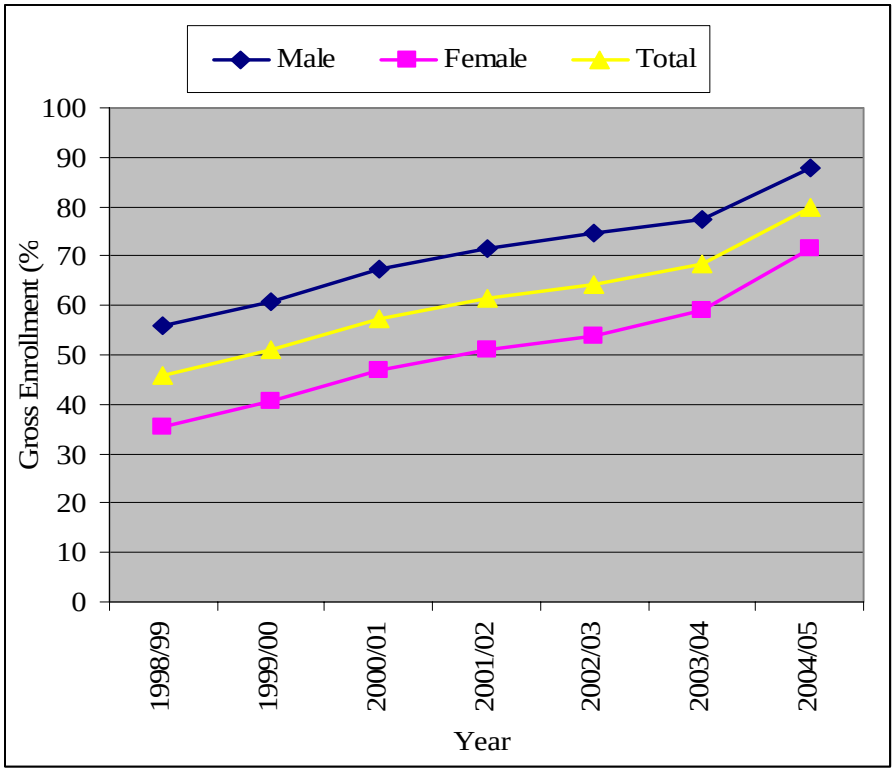
2. Background to Ethiopia's education system and the problem statement

In Ethiopia, as in many other developing countries, education has received an increased government attention. Adopted in 1994, the current education and training policy of the Ethiopian government stresses boosting coverage and ensuring equitable access to education for all. In transferring these policy objectives into action, the government has formulated and adopted a twenty year education sector development program in 1997, with a rolling period of five years. It is also interesting to note that the education sector currently receives the largest share of public spending on pro-poor sectors[3] in the country. For instance, between 2001/02 and 2004/05, the sector received about 18% of the government's total expenditure on pro-

[3] According to Ethiopia's current development strategy, pro-poor sectors include education, health, agriculture and food security, road, and water and sanitation sectors (MoFED, 2006).

poor sectors. As a result of the new education policy environment and increased public budget allocation for the same sector, school enrollment has improved significantly over the last decade. For instance, as shown in Figure 1, between 1998/99 and 2004/05, primary school[4] gross enrollment rate has increased from 56% to 88% for boys and from 35% to 72% for girls (MOE, 2005). These figures indicate that slowly, but incrementally, the gender gap in children's primary school participation in Ethiopia has narrowed significantly.

Figure 1: Trends in primary school enrollment, 1998/99-2004/05



Despite various efforts taken by the Ethiopian government to increase coverage and equitable access to education for all children, the education system still faces several problems. According to UNESCO (2006), about 59% of the country's adult population

[4] The Ethiopian education system has eight years of primary schooling (grades 1 to 8) and four years of secondary schooling (grades 9 to 12), and schooling starts at the age of seven. The primary school has lower (grades 1 to 4) and upper cycles (grades 5 to 8). Likewise, the secondary education has lower secondary level (grades 9 and 10) and upper secondary level (grades 11 and 12) tiers. The current Ethiopia's education system warrants automatic promotion up to grade four.

(15 years and over) is illiterate indicating insufficient access to education in the past. Available evidences also suggest that many children do not get the chance to be in school at an appropriate age at present. For instance, according to the MOE (2005), of the total children who enrolled in grade one in 2004/05 academic year, only about 60% are seven years of age. Given the low enrollment records and lack of access to schools in the past, the remaining (40%) of the current enrollees in grade one are older than seven years of age.

Apart from this, children's primary schooling in Ethiopia encounters high rates of dropout and of grade failures. For instance, according to the official data sources (MOE, 2005), nearly one among four grade-one children drops out of school and about 3% of them repeat grade-one. Moreover, primary education in Ethiopia has low rates of completion with around 43% and 66% of children quitting school before finishing the lower-primary education (grade 5) and the upper-primary education (grade 8), respectively, in 2004/05. The MOE's figures further reveal that whereas dropout rates are higher for boys, girls repeat grades more often than boys.

As noted by Bennell (2002) for many other Sub-Saharan African countries, the high gross enrollment figures in Ethiopia mask the fact that nearly half of the children do not complete the full course of primary education. Moreover, as noted by Bedi, Kimalu, Manda, and Nafula (2004), an increase in gross enrollment rate could be due to a rise in the number of children repeating grades. In fact, the critical educational problem for many countries around the world is not the availability of school facilities but children dropping out or not attending available schools (World Bank, 2004).

3. Literature Review

Research on child schooling is vast and this paper attempts to review only a limited part, which is relevant for developing countries. Previous studies (e.g. Patrinos and Psacharopoulos, 1997; Gitter and Barham, 2007; Jacoby and Skoufias, 1997; Bedi and Marshall, 2002, Gitter and Barham, 2007; Lire, 2005; Assefa, 2002) find several explanations for the inadequate schooling and educational attainments of children particularly in developing countries of Africa, Asia, and Latin America. A common thread running through these studies is that child schooling experience in rural areas is related negatively with household poverty and child age. Regarding the gender effect, most studies mentioned above found that girls are more likely to get less schooling than boys.

Using a panel data from Tanzania, Burke and Beegle (2004), showed that child school attendance is determined by a host of factors including household, child, and

community characteristics. But they also noted that there are important gender differences in the factors influencing child schooling attendance and participation. In their analysis of the determinants of primary enrollment in Kenya, Bedi, Kimalu, Manda, and Nafula (2004) have shown the key role played by child age, parental education, household wealth and school inputs on parents' decision to enroll their children.

In a recent study in Ethiopia, Assefa (2002) provides evidence that while child labor is a common phenomenon in rural Ethiopia, many children are able to combine schooling with work, particularly in the agricultural sector. Similar evidence is obtained by Cockburn and Dostie (2007) who finds that child time allocation decision among schooling, and work in rural Ethiopia is strongly determined by a combination of household income and wealth, family composition and asset ownership. In both studies, extent of child time allocation for these activities has not been explored since they have adopted a categorical dependent variable. Furthermore, these authors focused their attention on current status of child schooling and as such did not analyze schooling progression.

In fact, the economic literature on costs of late-entry to school, grade repetition and delays in grade completion are discussed by several authors (see for e.g. Behrman and Knowles, 1999). The cost of late entry to school equals the difference in the present discounted value of future income with the delay and without the delay. Late school entry is also a deterrent to full school participation (Behrman and Knowles, 1999). A similar finding has been reported by Bommier and Lambert (2000) and Burke and Beegle (2004) for Rural Tanzania, Ray (2003) for Ghana, Bedi and Marshall (2002) for Honduras, and Tan, Lane and Coustere (1997) for the Philippines, to cite but a few examples. The main factor for this effect is that as children grow older they are more likely to participate in the labor market or on farm activities or in the domestic work. On the other hand, failure to complete grades at a proper pace results in two types of costs. In the first place, like delays in schooling, it causes delays in post-school returns. Second, it increases both private costs for parents and internal inefficiency of primary education for the government (Colclough and Al-Samarrai, 2000). Others (e.g. Bedi and Marshall, 2002) also note that low child school progression has a negative influence on final educational achievement. As noted by Binder and Scrogin (1999), poor education performance such as grade failures would induce children to reduce their academic effort and increase the work effort.

4. Theoretical Framework

The economic literature on schooling attainment has its root on human capital theory pioneered by Schulz (1960), Becker (1964), and Mencer (1974). According to this theory, investment in child schooling is justified by taking into account costs and returns of schooling. To put it another way, the level of schooling that parents choose for their children are determined by private marginal costs and benefits.

In Ethiopia, primary education is free and parents are not obliged to pay tuition fees. However, they face various other costs of sending their children to school. These costs include direct outlays for school uniforms, transport, books and school supplies (pen, pencil, and notebooks). Again, in Ethiopia, children participate in different activities on-or off-farm and domestic chores. This implies that children's time spent in schooling has an opportunity cost since it involves forgoing children's contributions to household production and to the labor market. Opportunity costs of schooling may vary from one child to the next depending on the type of activity performed and labor productivity in alternative activities (Song *et al*., 2006). To capture this effect it is essential to use child labor wage in the estimation. However, data on this variable is not available. One means of addressing this limitation is to incorporate variables such as a child's own demographic characteristics (i.e. age, sex) and location and community characteristics into the empirical model as these variables could determine the child's opportunity cost of schooling (Song, Appleton and Knight, 2006; Bedi and Marshal, 2002).

As previously mentioned, schooling benefits include increased future earnings and other social contributions. Since costs of and returns to current schooling decisions occur at different time periods, an individual household invests on education of his/her family member as far as expected returns are greater than costs. Following this notion, many authors have researched schooling investments and its determinants both in developed and developing countries.

From the point of view of the Beckerian proposition, well-functioning markets (e.g. credit, labor, etc) are required for individuals and families to acquire an optimal level of schooling. However, when these markets are absent or malfunctioning, individuals and families may under-invest in education even when its expected returns exceed its costs. In fact, as pointed out by several authors markets in developing countries are imperfect (de Janvry, Fafchamps and Sadoulet, 1991) such that borrowing for human capital spending is often difficult (Gitter and Barham, 2007; Bardhan and Udry, 1999; Jacoby and Skoufias, 1997). As a consequence, financing educational investments

strongly hinges on the households' resource endowments such as wealth and income (Berham and Knowles, 1999).

By embedding human capital within Becker's (1981) household production model, one obtains a theoretical basis to evaluate determinants of investment on child schooling. Assuming that a parent's main objective is to maximize the expected utility of consumption and education over two-periods, subject to a full-income constraints a reduced form schooling demand function can be specified as:

$$V^* = Q(W, \lambda, R, X, Z), \quad (1)$$

where, V^* is number of completed grades by a school-age child in the family, W is a vector of market wages for adults and children, λ is a vector of expected future earnings conditional on current enrollment, R is unearned income, X is a vector of child, parental and household characteristics, and Z is a vector of community and regional factors.

5. Data and Empirical Model

5.1 Data Sources

The data used in this study came from the Ethiopian Rural Household Survey (ERHS) panel dataset collected by the Department of Economics, Addis Ababa University in collaboration with the Center for the Study of African Economies of Oxford University, and International Food Policy Research Institute. The survey has been conducted on rural households for six rounds between 1994 and 2004, i.e., 1994a, 1994b, 1995, 1997, 1999/2000, and 2004, in fifteen villages in Amhara, Oromia, Tigray and Southern Nations Nationalities and Peoples Regional States.

The four regions included in the sample represent the main sedentary faming system in the country. The main farming systems found in the study areas include the plough-based cereals faming system of the Northern and Central Highlands, the Mixed Plough/Hoe Cereals Farming System and *enset* farming system in the southern parts of the country, and cash crop farming such as *Chat*[5] and coffee. The sample size in each village was chosen so as to approximate a self-weighting sample, when considered in terms of the farming system.

[5] *Chat* is an important stimulant cash crop grown in most part of rural Ethiopia. While *Enset* is a 'false banana', which is rich in nutrition.

The survey aimed at generating a multi-purpose dataset comprising a range of household level demographic, consumption, education, health, income, and asset variables on one hand and, community, market and other infrastructural variables on the other hand during each survey period.

More specifically, in this paper, we use data from 2004 and 1997 ERHS. The 1997 survey data were used to specifically control for initial socioeconomic differences affecting child education. In fact, according to Ethiopia's education policy, if a child enrolls in grade one at an official age of seven in 1997, then he/she is expected to be enrolled in grade eight in 2004. Since our main purpose here is to explain child schooling progression in rural Ethiopia, our empirical analysis is based on sample of 1290 primary school-age rural children residing in 622 households.

5.2 Empirical Model and Hypotheses

In this section, we specify the empirical model and identify important explanatory variables for our empirical analysis. As mentioned previously, the main aim of the paper is to identify the key determinants of child schooling progression in rural Ethiopia. Hence, our unit of analysis is a primary school-age child, even though the data used in the analysis were as reported by the child's household head.

The dependent variable, which we want to explain in this paper is education gap, D_i, experienced by the primary school-age rural children in Ethiopia. An increase in value of D_i indicates a decline in a child's schooling progress. As specified below, D_i is measured by matching grades completed by a child to the child's current age (Patrinos and Psacharopoulos, 1997). Let E_i and A_i as the appropriate grade in relation to a child's age and the actual grade completed by a child in a household, respectively. To put it another way, E_i is a desired level of schooling progress and can be computed as difference between a child's current age and official enrollment age as:

$$E_i = \begin{cases} 0 \; if \; \text{age} < 7 \\ (\text{age} - 6) \; if \; 7 \le \text{age} \le 14 \end{cases} \quad (2)$$

Then, the dependent variable, D_i, is constructed as follows:

$$D_i = E_i - A_i . \quad (3)$$

As shown above, the dependent variable stands for count of grades delayed and is a non-negative integer. If a child enrolls at official entry age and keeps up normal progress in school, then the value of D_i will be zero. However, due to a variety of problems such as late entry, drop outs and grade failures, D_i will have a positive integer value indicating that children remain some grades behind the appropriate school level for their age. Thus, modeling this kind of a dependent variable requires the use of count data models (see Cameron and Trivedi, 1998). In the count data analysis, the probability that the i^{th} child is D_i grades behind a desired grade in schooling can be expressed as:

$$P(Y_i = D_i) = \Phi(\beta_k x_{ik}) \tag{4}$$

In specifying such a discrete probability function, a common starting point is to apply a Poisson regression, which is a count data model. The Poisson model can be specified as follows:

$$P(Y_i = D_i) = \frac{e^{-\lambda_i}\lambda_i^{D_i}}{D_i!}, \tag{5}$$

where, $\lambda_i = exp(\beta_k x_{ik})$ is the mean of the distribution, β is a vector of Poisson regression coefficients to be estimated and $D_i = 0, 1, 2, \ldots$. The exponential function has merit in that it restricts the dependent variable to the non-negative range. In the statistics literature, the model is also known as log-linear model since the logarithm of the conditional mean is linear in parameters:

$$\ln \mathrm{E}[D_i \mid x_{ik}, \beta_k] = \beta_k x_{ik} \tag{6}$$

In the Poisson model, it is assumed that the conditional mean, λ_i, of the dependent variable given the exogenous variables is equal to its variance, which is represented as follows:

$$E[D_i \mid x_{ik}, \beta_k] = \lambda_i = Var[D_i \mid x_{ik}] = exp(\beta_k x_{ik}). \tag{7}$$

To test this assumption, Cameron and Tivedi's (1990) regression approach can be used as follows:

$$Var(D_i \mid x_{ik}) = \lambda_i + \alpha\lambda_i. \tag{8}$$

Here it is important to note that a value of α, which is statistically different from zero is a sign of the presence of either over-dispersion $(\alpha > 0)$ or under-dispersion $(\alpha < 0)$ in the data. To relax this limitation, several approaches are proposed in the literature. Among these, a Negative Binomial regression, which allows the conditional mean of the dependent variable to exceed from the conditional variance have been widely used (Cameron and Trivedi, 1998).

In Table 1, we identify the main explanatory variables along with their anticipated impact on the expected number of grades lagged among primary school-age children in rural areas of Ethiopia. Our hypotheses on the sign and impact of the chosen variables have been guided by economic theory, previous empirical studies and field context. As mentioned previously, the explanatory variables are composed of child, household and community characteristics.

In agrarian societies, such as Ethiopia, children are important contributors to family income especially in rural areas where agriculture employs most of the child labor force in the country. Moreover, in the Ethiopian culture, domestic chores are usually performed by women and children. This means that child schooling entails some positive opportunity cost for parents and this costs may vary depending on the age and sex of the child. A study by Patrinos and Psacharopoulos (1997) for Peru indicates that a child's age has a positive and significant effect on his/her schooling progression. A recent case study from Nepal, Peru and Zimbabwe (Lire, 2005) also confirms that child schooling is negatively associated with a child's age. The main mechanism underlying this effect is that as a child gets older, it is more likely that he/she is sent to work than to school. In a similar vein, child age is expected to increase child schooling delay in the present study. Consistent with previous studies (e.g. Patrinos and Psacharopoulos, 1997; Grira, 2004) in this study boys are expected to have more schooling progress than girls.

Previous empirical studies on the effect of the number of children on child schooling provide mixed results. Empirical findings corroborate with two differing arguments. The first is based on resource dilution hypothesis, which says that as the number of children in the household increases, the per capita schooling resources for each child decreases. Consistent with this theory, Dayioglu (2005) finds a direct and statistically significant association between number of children in the family and the incidence of child labor. In a study of Nepal, Peru, and Zimbabwe, Lire (2005) also finds that the probability of child schooling increases with the number of young children. The second argument on the effect of number of children on schooling is based on "specialization" in the family. According to this argument, parents put some children to work, others to education as the number of children increases in the family. Again, this proposition is

supported by empirical evidence from Botswana (Chernichovsky, 1985 cited in Patrinos and Psacharopoulos, 1997). In order to test these competing hypotheses in the present study, two variables, namely, number of young boys and number of young girls in the household, are incorporated into the model, but with no *a priori* signs.

Table 1: Description of explanatory variables and their expected signs

Variables	Type and measurement	Data source (survey round)	Expected signs
Child characteristics			
SEXCH	dummy variable, 1 if child is boy	2004	-
AGECH	age of child in years	2004	+
BOYS7-14	number of primary school age boys	2004	**-/+**
GIRLS7-14	number of primary school age girls	2004	-/+
Household characteristics			
SEXHH	dummy variable, 1 if household head is male	2004	-
AGEHH	age of household head in years	2004	+
POVT	dummy variable, 1 if household was below poverty line, in adult equivalent units	1997	+
PEDUCHH	dummy variable,1 if household head has completed primary education or above	2004	-
PEDUCSP	dummy variable,1 if spouse has completed primary education or above	2004	-
LnDURABLE	log household durables/assets in Ethiopian birr	2004	-
LnLAND	log size of landholding in hectares	2004	+
CREDT97	dummy variable, 1 if household had received credit from informal sources	1997	-/+
REMIT97	dummy variable, 1 if household had received remittance	1997	-/+
Community characteristics			
PRIMSCH	dummy variable, 1 if village has primary school (1-6 grades)	1997	-
JUNSCH	dummy variable, 1 if village has junior school (7 and 8 grades)	1997	-
ENSET	dummy variable, 1 if village resides in an *enset* growing area	2004	-
CHAT	dummy variable, 1 if village resides in a *chat* growing area	2004	-
COFFEE	dummy variable, 1 if village resides in a coffee growing area	2004	+
Regional dummies			
REG1 (base category)	whether village resides in the Tigray Regional State, 1 if yes	2004	-/+
REG3	whether village resides in the Amhara Regional State, 1 if yes	2004	-/+
REG4	whether village resides in the Oromia Regional State, 1 if yes	2004	-/+
REGSN	whether village resides in the Southern Nations, Nationalities and Peoples Regional State, 1 if yes	2004	-/+

As noted earlier, it has been anticipated that household and parental factors play a key role in determining child schooling progress. Education of parents influences child education through a variety of pathways. Educated parents may have more information about advantages of educating their child and thus provide better schooling environment at home such as helping children with their homework. Secondly, educated parents may be more capable to deal with disequilibria when shock exists to the family without dislocating children out of school. Thirdly, educated parents may have higher permanent income or wage, better health and thus better education to their children. Fourthly, and related to one or more of the above mentioned factors, educated parents are more productive and hence need minimal or no child labor. In fact, several empirical studies (e.g. DeGraff and Bilsborrow, 2003; Grira, 2004; Lire, 2005; Gitter and Barham, 2007) concur with these arguments and find a positive and statistically significant effect on child schooling of parental education. As noted by Kurosaki, Ito, Fuwa, Kubo and Sawada (2006), this effect is consistent with the wealth effect hypothesis (educated parents are richer than uneducated parents) and the preference effects hypothesis (educated parents value education more than uneducated parents). As such, this study hypothesizes for rural Ethiopia a similar impact on child schooling of parental education using two proxy variables, namely education of the household head and the spouse.

The literature on the effect of poverty on child schooling and/or labor provides different arguments and mixed findings. On one hand, according to the "Luxury Axiom" of Basu and Van (1998), child labor is expected to decline as a parent's income rises. Along this notion, Edmonds (2005) for Vietnam reports household expenditure has negative and significant effect on the incidence of child labor. On the other hand, according to the "wealth paradox", parents with productive assets to work with are more likely to send their children to work than school. However, this effect again depends on the type and size of assets owned by parents. Thus, it is important to use different variables measuring wealth in empirical studies such as ours. For instance, using survey data from Ghana and Pakistan, Bhalotra and Heady (2003) find the incidence of child labor is higher among land-rich parents, whereas Cockburn and Dostie (2007) and Assefa (2002), both using data from rural Ethiopia, report that child schooling enrollment is influenced negatively by the size of landholding, and positively by other assets such as farm equipment. In fact, the effect of land holding on schooling or child labor depends on availability of competitive markets for land and labor. If labor markets are available and a farmer can use his land as collateral to borrow money from bank to hire in labor, then large holdings would not exert a negative effect on child schooling (Bhalotra and Heady, 2000). However, in Ethiopia, land belongs to the state and farmers cannot use land as collateral. Moreover, labor markets are imperfect and farmers cannot hire in or hire out labor as they need. One way to

reduce the impact of imperfect labor market is to sell out some of the land they have. However, this option is unlikely since farmers do not have the right to sell or exchange the land they cultivate. Therefore, farmers have the incentive to employ their own family labor including school-age children for farm activities.

Consistent with these diverse findings, this study incorporates several explanatory variables related to household poverty and wealth. In defining household poverty status we use household expenditure, measured by an adult equivalent unit. Since this variable may be potentially endogenous, we used its lagged value in 1997. In relation to this, our hypothesis is that child schooling progression is positively related with household expenditure. To capture the wealth effect, we included into our model two variables, namely log of land ownership size and log of value of all household durables, except house, and farm equipment. Our anticipation is that child schooling progression will be influenced negatively by the size of landholding and positively by the value of household durable assets. Because of the lack of government land redistribution during the last ten years on one hand and the absence of land markets in the country, in this study we assume that household land ownership is more or less fixed and it is less likely that land ownership causes problem of endogeneity with recent child schooling behavior. Likewise, in using the *Birr*[6] value of consumer durables and farm equipment as proxy for wealth we assume that child labor is not used as a source of finance for the accumulation of household durable assets.

In addition, we anticipate that parents' access to credit and remittance have a positive effect on child schooling progress. These variables could help relax a resource poor farmer's budget constraint and enable him to finance schooling expenses of his children. A recent study from Honduras (Gitter and Barham, 2007) indicates a positive and significant association between child schooling progress and household access to credit. Likewise, Beegle, Dehejia, and Gatti (2006) show that access to credit has a negative and significant effect on child labor in Tanzania. Regarding remittances, Edwards and Ureta (2003) indicate that children of households who received remittances show significantly lower hazards of leaving school at all grade levels in El Salvador.

Child educational achievement is also influenced by school availability and village characteristics. On this point, Lire (2005) finds evidence that a higher number of schools in a community tends to improve school attendance and to reduce child labor in Nepal. Gitter and Barham (2007) have also reported a negative and significant effect on child educational attainment of travel time to nearest school in rural Honduras. In this regard, we incorporate dummy variables for whether primary and

[6] Birr is a legal tender of Ethiopia. 1USD = 8.70 birr as of 2004

junior schools are available in a child's village and hypothesize that these variables will have a positive influence on a child's educational attainment. A main econometric concern in using the school supply variables here is endogeneity of schools with the child educational gap. In fact, placement of new schools in the villages by the Ethiopia's Ministry of Education is governed by the desire to raise enrollment in school. As such, the supply of schools in a village could become endogenous to child education gap. To avert this bi-directional causality, we used lagged values of the school supply variables in our estimations.

In the literature, one also finds evidence that lack of insurance markets or its close substitutes drives children out of school and work in the labor market (Jacoby and Skoufias, 1997). It is thus important to expect that children residing in different villages face different risk of schooling delay, especially if villages vary from one another in cultivated crops, agro-ecology and farming systems. Thus, we incorporated village level variables to account for village level fixed effects on child educational attainment in rural areas. We have also included state dummy variables to control for regional differentials in labor market availability, school supply and other factors.

6. Results and discussion

6.1 Descriptive results

In this section we describe important individual, household, and community level characteristics of children in our sample. The dependent variable, the educational gap[7], is the difference between the desired number of grades that has to be completed and the actual number of grades, which is actually completed by the child, given age. The higher the gap is the poorer the educational performance.

In our sample about 94% of the children experienced substantial education gap. The education gap, which is facing primary school-age children in rural areas, varies by age and sex of the child (see Table 2). In general, girls start schooling later and also are more likely to be enrolled in lower grades than boys. Our results also reveal that for every age education gap is greater for girls than for boys, but gender inequality in education gap is statistically significant beyond the age of 11.

On average, education gap in our sample is 3 grades: 2.90 for boys and 3.14 for girls. Indeed it is striking that only 6% of the children in our sample are enrolled at the schooling level appropriate to their age. In nearly 70% of the cases the incidence of

[7] Education gap, schooling delay and number of grades lagged /delayed in relation to age are interchangeably used in the text.

education gap ranges from one to four grades (see Figure 2). Taken together, the sample children completed only 2.5 grades. One of the contributing factors to high incidence of child education gap or grade delays is the low level of enrollment. Table 3 describes current enrollment rate and grades completed according to age of children in the sample. In our sample primary enrollment stands at 53%. Nationally, net enrollment rate is 57% for the same age groups in 2003/04 (MOE, 2005). Our findings also reveal that child enrollment is lower for certain age cohorts than others. For instance, the lowest current enrollment rates are observed for children aged 7 (26%) and 8 (34%) year olds suggesting that late school entry is a serious problem in rural Ethiopia.

Table 2: Age-specific education-gap by sex

Child Age	Boys (N = 657)		Girls (N = 633)		Mean difference between boys' and girls' grades completed
	Mean	Std. Dev	Mean	Std. Dev	
7	0.83	0.38	0.88	0.33	0.05
8	1.66	0.61	1.61	0.66	0.05
9	2.31	0.97	2.27	0.99	0.05
10	2.84	1.16	3.0	1.19	0.15
11	3.54	1.48	3.14	1.64	0.41
12	3.74	1.86	4.16	1.8	0.42**
13	4.48	1.99	4.94	2.03	0.46*
14	4.61	2.27	5.39	2.36	0.78**

** and * represent statistically significant means at 5% and 10% level, respectively.
Source: Authors' computation based on the 2004 ERHS data.

Figure 2: Kernel density of education-gap among primary school-age children, 2004

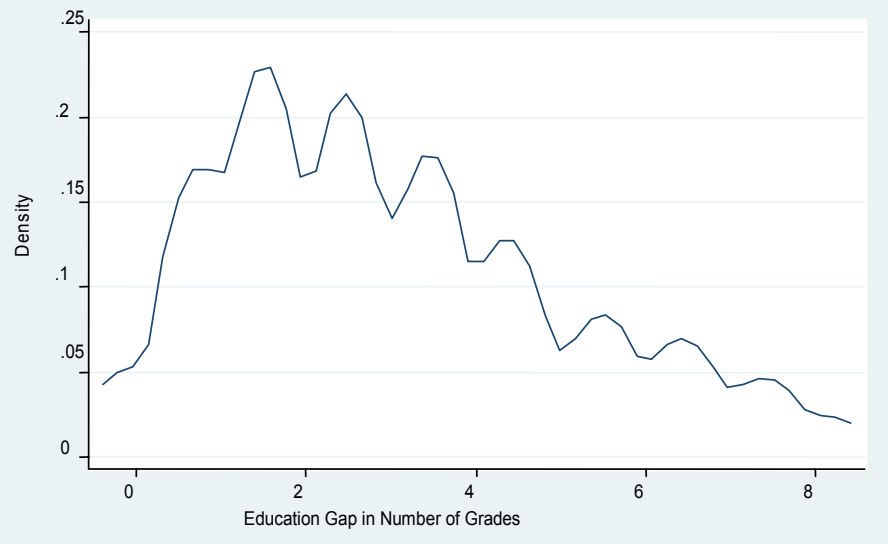


Table 3: Current enrollment and grades attained by primary school-age rural children, 2004

Child Age	Number of Counts	Count Currently enrolled	Enrollment Rate by Age	Average grade currently completed
7	177	40	0.23	0.28
8	178	57	0.32	0.63
9	150	70	0.47	1.08
10	197	117	0.59	1.60
11	106	71	0.67	2.27
12	186	128	0.69	2.69
13	138	93	0.67	2.91
14	158	107	0.68	3.63
Between 7 & 14	1290	683	0.53	1.82

Source: Authors' computation based on the 2004 ERHS data.

The descriptive statistics of these variables are presented in Table 4. The descriptive results indicate that 30% of the children in our sample reside in Amhara, 26% in Oromia, 10% in Tigray and 34% in Southern Nations, Nationalities and Peoples Regional States. On average, a household in the sample consists of slightly larger number of boys (1.25) than girls (1.22), aged between 7 and 14 years old. The average household size in the sample is 7.55.

Most (77.4%) of the sample households are headed by males. On average, the household head is around 50 years old. Regarding illiteracy about 76.74% of the household heads do not read and write in any language. Moreover, 83% of spouses do not have any formal education. In 1997, about 16% of the children's households were regarded as poor.[8]

On average, the households in the sample own around 1.8 hectare. In our study, about 37% of the sample households had obtained informal credit from friends, relatives, neighbors, traders and so on while 13% of them had received remittance transfers in 1997. Again, by 1997, about 66% and 28% of the children's villages had the lower primary schools and the upper primary schools.

[8] The poverty line was calculated based on the cost of basic needs approach, where cost of the bundle of food items required to give around 2300 kcl per day per individual. The adult equivalent unit is based on the WHO 1986 standard.

Table 4. Descriptive statistics of explanatory variables (N=1290)

Variables	Mean	Std.Dev.	Minimum	Maximum
Child Characteristics				
SEXCH	0.509	0.500	0	1
AGECH	10.378	2.312	7	14
BOYS7_14	1.322	0.983	0	5
GIRLS7_14	1.309	0.998	0	4
Household Characteristics				
SEXHH	0.968	0.175	0	1
AGEHH	49.084	12.645	18	90
POVT	0.157	0.364	0	1
PEDUCHH	0.301	0.459	0	1
PEDUCSP	0.184	0.387	0	1
LnDURABLE	5.248	1.103	2.3	8.54
LnLAND	0.825	0.525	0	4.43
CREDT	0.457	0.49	0	1
REMIT	0.133	0.340	0	1
Community characteristics				
PRIMSCH	0.659	0.474	0	1
JUNSCH	0.275	0.447	0	1
ENSET	0.341	0.474	0	1
CHAT	0.098	0.298	0	1
COFFEE	0.208	0.406	0	1
Regional Dummies				
REG1	0.095	0.293	0	1
REG3	0.304	0.460	0	1
REG4	0.259	0.439	0	1
REGSN	0.341	0.474	0	1

Source: Authors' computation based on the 1997 and 2004 ERHS data.

6.2 Determinants of child schooling delay

The estimated coefficients of the Poisson model along with the marginal effects for the statistically significant explanatory variables are given in Table 5. Apart from the pooled regression results, the table presents separate regression results for boys and girls to facilitate comparability between genders. The likelihood ratio test indicates that the empirical model fits the data well. As mentioned previously an important concern in the empirical application of the Poisson model is failure to meet assumption of equality between mean and variance of the dependent variable. Using a α test (Cameron and Trivedi, 1990), we found no evidence to reject the null hypothesis that expected mean and variance of our dependent variable are equal. Estimations were carried with STATA version 9.0.

Our estimation results indicate that a host of factors are responsible for observed pattern of child schooling delay in rural Ethiopia. One of the region dummy variables, namely, REGSN, was automatically dropped from the model due to the problem of high multicollinearity. As described above, the observation units in this study include children from the same household resulting in correlations among unobservable factors influencing child schooling. To accommodate this issue, robust standard errors are estimated by using the CLUSTER option available in the STATA. The first set of factors relate to the child's own demographic features. As expected, the effect of the male gender (SEXCH=1) on the expected number of grades lagged is negative and significant. This suggests that girls receive less schooling opportunities and are more likely to be enrolled in lower grades than boys in rural Ethiopia. Consistent with previous studies, child age (AGECH) has a positive and significant effect on the expected number of grades lagged. In other words, as a child's age increases by one year between 6 and 14, the probability of grades lagged increases by a factor of 0.20. As shown in Table 5, the impact of this variable is stronger for girls' schooling than for boys' schooling perhaps suggesting that girls face greater risk of drop out or grade repetition as they grow. Another worth noting finding of this study is the negative and significant relationship between the number of primary school age boys (BOYS7_14) and girls (GIRLS7_14) in the household and a child's schooling delay. Separate regressions based on gender-disaggregated data indicate that the influences of these variables are significant only for opposite sexes. To put it another way, the number of boys/girls in the same age group raises the educational attainment of girls/boys. In other words, *ceteris paribus*, a girl in household with more boys is relatively better educated than a girl in a household with few boys. There may be two reasons for this effect. One is that boys/girls may contribute economic resources for schooling of one another. Another factor may that a girl/boy in a household with many boys/girls may receive more privileged by her/his parents.

The effect of most of parental and household factors on child schooling are significant and as expected, especially for boys. The negative and significant influence on schooling delay of dummy variable POVRT is consistent with the prediction of Basu and Van's (1998) "Luxury Axiom" and Filmer (2000), who uses cross-sectional data for many countries, and finds evidence that poverty causes low level of educational achievement and high level of gender gaps. Interestingly enough, girls' schooling progress has been less sensitive to household poverty than boys' does. However, the direct and significant effect of household poverty on boys' education gap suggests that households exert more pressure on boys when the household faces a budget constraint. Educational achievements of the household head and of spouse have similar qualitative effects on schooling progresses of boys and girls. However, the results indicate that only education of the household head has a statistically significant positive impact for boys' schooling and less important for girls' schooling. In particular, head's education has a negative and significant effect on boys'

education gap. Since most households in the sample are male-headed, this negative effect suggests a strong support for greater gender bias by fathers than mothers.

Table 5: Determinants of grade delays in children's primary schooling

Variables	Total sample		Boys		Girls	
	Coefficients	Marginal effects	Coefficients	Marginal effects	Coefficients	Marginal effects
Child characteristics						
SEXCH	-0.065**	-0.175				
	(0.031)					
AGECH	0.204***	0.545	0.194***	0.502	0.216***	0.594
	(0.005)		(0.008)		(0.007)	
BOYS7_14	-0.042**	-0.113	-0.031		-0.060**	-0.166
	(0.021)		(0.023)		(0.029)	
GIRLS7_14	-0.038*	-0.103	-0.048*	-0.125	-0.021	
	(0.021)		(0.027)		(0.026)	
Household characteristics						
SEXHH	-0.058		-0.118		-0.025	
	(0.062)		(0.079)		(0.094)	
AGEHH (x100)	-0.025		0.007		-0.095	
	(0.135)		(0.174)		(0.168)	
POVT	0.086**		0.136***	0.373	0.035	
	(0.036)		(0.045)		(0.046)	
PEDUCHH	-0.094**	-0.248	-0.134**	-0.337	-0.043	
	(0.045)		(0.062)		(0.054)	
PEDUCSP	-0.007		-0.035		-0.024	
	(0.051)		(0.072)		(0.064)	
LnDURABL	-0.059***	-0.159	-0.058***	-0.153	-0.063***	-0.172
	(0.016)		(0.021)		(0.023)	
LnLAND	0.058*	0.156	0.084**	0.217	0.023	
	(0.033)		(0.035)		(0.043)	
CREDT	0.002		0.035		-0.027	
	(0.032)		(0.039)		(0.043)	
REMIT	0.074		0.021		0.173**	0.511
	(0.062)		(0.076)		(0.080)	
Community characteristics						
PRIMSCH	-0.135***	-0.369	-0.119**	-0.315	-0.116**	-0.326
	(0.046)		(0.055)		(0.065)	
JUNSCH	-0.081*	-0.213	0.028		-0.165***	-0.438
	(0.050)		(0.064)		(0.071)	
ENSET	-0.163**	-0.425	-0.117		-0.223***	-0.595
	(0.076)		(0.120)		(0.085)	
CHAT	-0.077		-0.068		-0.088	
	(0.061)		(0.077)		(0.088)	
COFFEE	-0.036		-0.076		0.057	
	(0.077)		(0.114)		(0.093)	
Regional dummies						
REG3	-0.030		0.063		-0.098	
	(0.059)		(0.084)		(0.075)	
REG4	0.013		-0.032		0.082	
	(0.067)		(0.095)		(0.083)	
Constant	-0.466***		-0.479***		-0.552***	
	(0.142)		(0.185)		(0.182)	
Number of observations	1290		657		633	
Likelihood ratio test	$\chi^2(20)$ =1719***		$\chi^2(19)$ =752***		$\chi^2(19)$ =1105***	

Figures in the parentheses are robust standard errors.

Note: ***, **, and * stand for the statistical significance at 1%, 5% and 10% levels, respectively.

Source: Authors' estimation results

As expected, the study found evidence of the "Wealth Effect" hypothesis from inclusion of the variable LnLAND[9] in the regressions. Grade deficit increases with the size of land ownership, especially for boys. If the household landholding increases by 1% education gap increases by 16% for children in general and by 22% for boys in particular. This finding confirms our hypothesis that land size reduces available time for schooling since it raises demand for children to work on their parents' land, which is real phenomena in rural Ethiopia (Cockburn and Dostie, 2007; Assefa, 2002). The significance of this effect on boys' schooling and the absence of a corresponding effect for girls may suggest that boys are more responsible for farm work and girls for domestic chores (Assefa, 2002). In contrast, household non-land wealth ownership, which has been measured by logarithm of the Birr value of all durable household assets (LnDURABLE), has a negative and significant effect on education gap. The effect is slightly larger for girls' schooling than for boys' schooling.

Remittance increases the likelihood of a girl to be enrolled in lower grades. While this linkage is contrary to our anticipation, two reasons may account for the effect. In the first place, remittances may have been used for non-education investments which have increased demand for child labor especially for girls. Secondly, remittances may have induced parents to encourage their children to migrate to urban areas rather than to educate them if return to education in migration is low.

As anticipated, we have found evidence that length of child schooling delay in rural Ethiopia is also determined by school availability and other village level characteristics. Controlling for all other factors, the expected number of grades delayed decline with the availability of both a primary and a junior school in the village. This effect suggests that children in villages without a primary school or a junior school are more likely to be in lower grades than otherwise. The effect of a junior school is of particular importance for girls than for boys suggesting that distance has a negative impact on parents' decision to send their daughters to school. Perhaps, this effect may arise out of parents' greater safety concern for girls than for boys. The farming system variables have the expected signs but only the variable ENSET has significant effect on the dependent variable. In other words, compared to cereal growing areas, residing in an *enset* growing area reduces the likelihood that children do not enroll in the appropriate level of schooling by 40 percent. Interestingly enough, girls in the *enset* growing areas have significantly lower education gap. However, the study finds no evidence of regional differences in child education gap among regions included in the study.

[9] Some observations have zero values for land ownership and durable assets (wealth) variables. To avoid the problem of logarithms of zero values we added one to all observations before taking logarithmic values of land ownership and household durable assets.

7. Conclusions

Child education is one of the main forms of human capital formation and is an important instrument for sustainable development and poverty reduction. In this regard, the global community had entered into commitments to ensure universal access to and universal completion of primary education by 2015. As in most developing countries, Ethiopia has taken several policy measures in the education sector to expand schools, raise education budget and get children enrolled throughout the country. However, despite these and other similar policy interventions many children still are not enrolled in the appropriate school level (in relation to age) and as a result experience delayed schooling progress. If this problem persists, it can create a serious problem to achieving UPE, which requires not only children are in school but also are able to complete primary schooling by 2015. In this paper, we used a reduced form Poisson regression model to explain the main micro-level determinants of child education gap in rural Ethiopia.

The regression analyses show that education gap in child schooling is determined by a combination of child, parental, household and village characteristics. Keeping all other factors constant, older children and girls are more likely to face larger education gap. In addition, education gap is strongly associated with number and composition of siblings. In particular, it is of interest to note that the schooling progress of a girl/boy has a direct and statistically significant relationship the number of school-age siblings with the opposite sex.

Household poverty appears to hinder child educational attainment significantly. Interestingly enough, the effect is stronger for boys' schooling than for girls' schooling suggesting that boys are more responsible for generating household income when household falls into poverty. We also find a direct and statistically significant relationship between child educational gap and the size of land ownership. More precisely, the effect is statistically significant for only boys' schooling. The direct effect of land ownership on education gap might suggest larger child labor demand among land-rich households. Increasing the supply of labor-saving agricultural technologies and improving the functioning of rural labor markets may help address this problem. Likewise, advancing rural training and education, which raise adults' labor productivity in agriculture, may reduce demand for child labor and hence increase the probability that children are enrolled in the appropriate schooling levels. In contrast, child educational gap, for both boys and girls alike, has an inverse and statistically significant relationship with value of household durable assets. This implies that policy measures aimed at increasing the formation and accumulation of household assets are helpful to raise child educational attainment in rural areas.

We find strong evidence that household head's education tends to increase the probability that a child is enrolled at the appropriate level of schooling. However, this effect is stronger for boys than for girls suggesting the intergenerational effects associated with poor levels of education of males, who often appear to be head of households in rural areas. The non-significance of spouses' education might be due to low level of education and lack of variation in the sample.

Children, especially girls, residing in households who received remittance are more likely to face greater education gap. Regarding village characteristics, we find evidence that children in *enset* growing areas are more likely to be enrolled at the correct schooling level. Moreover, the effect is generally stronger and more important for girls' education than for boys. Having a primary school and a junior school in village increases the probability that children are enrolled in grades appropriate for their age. More interestingly, girls have more schooling progress or less education gap in villages with a junior school. In this respect, policy makers can spur girls' educational attainment by increasing the supply of junior schools in the village.

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PATTERNS OF PUBLIC HEALTH EXPENDITURES AND EFFICIENCY IN AFRICA: IMPLICATIONS FOR POLICY

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Abstract

In the UN World Summit 2005 assessment of progress done towards the MDGs. Africa particularly Sub-Saharan Africa exhibited a slow pace of progress, particularly in the health goals, towards achieving the MDGs by 2015. Scaling-up interventions to accelerate progress was one of the recommendations to this effect. Fiscal diamond space-increased spending, increased ODA flows, new borrowing, and increased efficiency in public spending- are various options African countries have to scale-up investments. In this paper we give some indications on the efficiency and prioritisation of public expenditure on health. Using data from the WHO, and the World Bank, this study reviews the patterns of public health spending in Africa and explores the efficiency in the utilization of public expenditures in health. The data shows that public health expenditure, as percentages of GDP and as a percentage of total public spending remain low in most of the countries. The analysis shows that some countries have been able to translate the public health expenditures into health outcomes (life expectancy, immunisation against measles, immunisation for DPT and infant mortality rates), in an efficient way. Policy implications can be drawn around the clustering of African countries, with Ethiopia as an illustration, according to efficiency and indicatively contribute to the fiscal space debate.

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1. Introduction

It is widely acknowledged that government should play a major role in the development of human capital, through ensuring adequate allocation and efficient use of resources in the health sector. Adequate and efficient investments in health can directly enhance health outcomes; improve labor productivity and general economic development. The MDGs concerning health goals have exhibited limited average progress in Africa, compared to other developing regions. Inadequate public expenditure on health is one of the leading reasons why progress on the health MDGs has been slow. The Commission for Macroeconomics and Health, 2002, focused on the analysis of the factors hampering the widespread implementation of effective interventions which could significantly improve the health of poor people in a relatively short time. They found that an absolute lack of resources was the major challenge affecting the scaling up of health interventions to ensure that universal coverage is reached and progress towards the MDGs is made. The other constraints they identified included weak overall policy development, presence of inequities to accessing and utilizing health, and poor governance (Hanson et al., 2003).

African countries themselves have made political commitments towards the health MDGs that have not been fully translated into action. African Heads of State and Government pledged to set a target of allocating at least 15% of their annual budgets to the improvement of the health sector at the Summit on HIV/AIDS, Tuberculosis and Other Related Infectious Diseases in Abuja, in 2001. By 2003 only one country, Liberia had achieved this level, although 21 African countries allocate between 10-14.5% of government expenditure to health. Literature has also emphasised that increasing public expenditures in health is a necessary but not sufficient condition. It is also important that the efficiency with which public resources are utilised in health is improved. Increasing the efficiency of public investments in health requires not only improved allocation of public resources to the health sector, but also greater operational efficiency on the part of the government institutions responsible for service delivery and scaling up of prioritized health interventions that have proved to work.

In Africa, public investment in health has hovered around 2% of GDP from the 80s to 2001 and this low rate of public investment is also present in similar forms in infrastructure, a key variable in health access (Roy et al, 2006). This, largely an outcome of the structural programmes, has created a focus on macroeconomic stability and consequent fiscal policies that emphasize fiscal deficits as a sign of sound policies regardless of the composition of expenditures. However, in the context of direct impact of public investments that secure tangible development outcome

there is further need to widen such fiscal space. Besides the need to increase public expenditure and hence expand fiscal space, efficiency of current public expenditures must be taken into account.

This paper reviews the patterns of health expenditures in Africa and explores the efficiency in the utilization of public expenditures in health and provides policy implications that can support the achievement of universal provision of basic health services. The principal source of data is the WHO Report 2006, complemented by the World Banks' World Development Indicators, 2006.

2. Trends in health expenditures in Africa

Public expenditure on health as a percentage of total expenditure on health has been low and varies across the countries (See table 1). As of 2003 only one country, Liberia had achieved the expenditure level of 15% agreed upon by African Heads of States in Abuja, in 2001. Twenty-one African countries were allocating between 10 and 15% of government expenditure to health. On the other hand, 5 African countries allocate less than 5% of Government expenditure to health.

Table 1: Government Expenditure as % of total government expenditure 2003

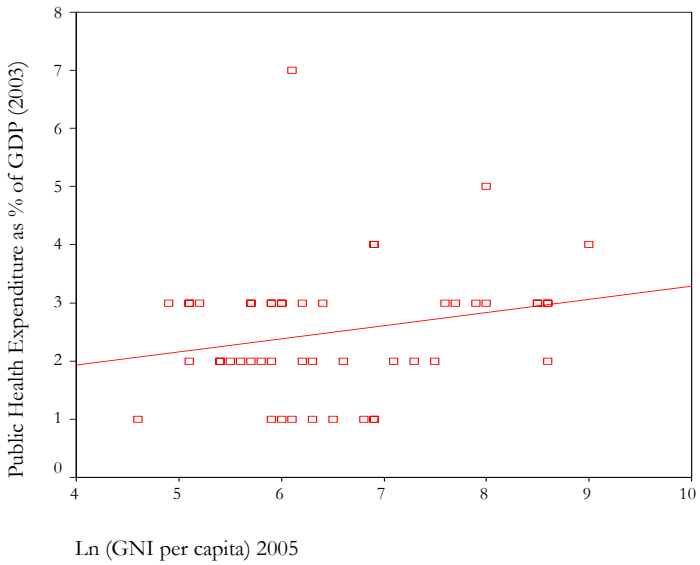
Level of public health expenditure (% total expenditure)	Countries
15% or more	Liberia
10-15%	Mauritania, Gambia, Gabon, Burkina Faso, Central African Rep., Cape Verde, Algeria, Chad, Djibouti, Namibia, Niger, Tanzania, Zambia, Swaziland, Mozambique, Uganda, S. Africa, Seychelles, Sao Tome Principe
5-10%	Ethiopia, Lesotho, Madagascar, Senegal, Togo, Mali, Zimbabwe, Mauritius, Malawi, Sudan, Benin, Egypt, Cameroon, Botswana, Sierra Leone, Tunisia, Kenya, Rwanda, Angola, Equatorial Guinea, Guinea Bissau, Libya, Morocco, DRC, Ghana, Cote devoir
<5%	Congo, Eritrea, Nigeria, Guinea, Burundi

Source: WHO, 2006

Public expenditure on health as a percent of GDP is low in Africa ranging from less than 1% to 7%. Every high-income country spends at least 5% of its GDP on public health care (UNDP, 2003). In 2003 only two African countries (Sao Tome and Principe, and Namibia) allocated more than 5% of their GDP on public health. A

scatter plot of public health expenditures versus per capita GNI shows a weak positive relationship between the two variables (see figure 1).

Figure 1: Scatter plot showing public health expenditures as % of GDP and GDP per capita



Source: Authors calculations based on data from WHO, 2006, and World Bank, 2006.

A few high-income countries spend more public resources on health than low income countries however other high-income countries just allocate similar proportions on health spending as countries with low GNI. Sao Tome Principe in particular stands out as it has a low-medium per capita GNI, but allocates a very high proportion of its national income to health when compared to other countries (see table 2). Overall it is important that countries improve their public spending on health in order to provide the public goods and services in health where the private markets fail to deliver adequately especially primary health care (Musgrove et. el., 2002).

In per capita terms, the countries that are allocating higher amounts to health include Seychelles, Botswana, Gabon, South Africa, Libya, Mauritius and Namibia. Countries contributing less in per capita terms include Guinea, Guinea- Bissau, Eritrea, Togo, Sierra Leone, Liberia, Rwanda, Ethiopia, DRC, and Burundi (See Table 3). Although Liberia achieved the 15% target, its per capita health expenditure is very low amounting to less than US$5. The actual expenditure on health in most African countries falls far short of the costs of a package of minimum necessary health

services, as estimated by the Millennium Project report that suggests that in low-income countries, the current levels of expenditure on health would need to increase to US$24 per capita in 2010 and US$34 per capita by 2015 (UN Millennium project, 2005). This has profound implications for health policy implementation and achievement of the health MDGs in Africa.

Table 2: Government Expenditure as % of GDP 2003

Level of public health expenditure (% GDP)	Countries
>5%	Sao Tome and Principe
>4-5%	Namibia
>3-4%	Seychelles, Lesotho, Djibouti, Cape Verde, Libya
>2-3%	Ethiopia, Swaziland, Algeria, Malawi, Botswana, South Africa, Gambia, Mauritania, Gabon, Mozambique, Zimbabwe, Tunisia, Zambia, Mali, Liberia, Burkina Faso, Chad, Guinea-Bissau
>1-2%	Niger, Tanzania, Angola, Mauritius, Uganda, Egypt, Senegal, Sierra Leone, Eritrea, Benin, Sudan, Madagascar, Morocco, Kenya, Rwanda, Central African Republic
1% or less	Comoros, Ghana, Togo, Congo, Nigeria, Cameroon, Equatorial Guinea, Somalia, Cote d'Ivoire, Guinea, Congo, Dem. Rep., Burundi

Source: WHO, 2006

A more dynamic picture emerges from trends in government expenditure on health that reveal increased public funding to the health sector in most of the African countries over the period 1995 to 2003 notwithstanding inadequate progress towards the MDGs (See Annex 1). However some countries have experienced a decrease in government allocation to health as shown in annex 1. For some countries (DRC, Burundi, Rwanda, Guinea, Guinea Bissau, Comoros) it is worrying that they are experiencing decreases in government expenditure because their per capita health expenditure is already low – averaging less than US$5. This can probably have negative impacts on health outcomes and the achievement of the health MDGs. Apart from a reduction in financial resources for public health expenditure, many countries have also been unable to reallocate resources significantly from tertiary and specialized services to basic health services (Labonte et. al 2004).

The amount of Government expenditure allocated by African countries to the health MDGs is still below what they pledged. In fact, it is important for all countries to improve public spending on health as agreed at the Abuja Summit because all indications are that increased public spending is strongly associated with improvements in health outcomes especially of the poor in low income countries

(Gupta et al, 2001, Victora et al, 2004). This is because poor people benefit more from public resources that are spent on basic health care (UNDP, 2003).

Table 3: Per Capita Government Health Expenditure 2003

>100 US$	50-100 US$	10-50 US$	5-10 US$		< 5US$
Seychelles	Algeria	Djibouti	Benin	Chad	Guinea
Botswana	Equatorial Guinea	Sao Tome-Principe	Burkina Faso	Mozambique	Guinea- Bissau
Gabon	Tunisia	Lesotho	Mali	Tanzania	Eritrea
S. Africa Libya	Swaziland	Egypt	Sudan	Comoros	Togo
Mauritius	Cape Verde	Morocco	Gambia	Nigeria	Sierra Leone
Namibia		Angola	Cote-devoir	Ghana	Liberia
		Zimbabwe	Kenya	Central - African Rep.	Rwanda
		Mauritania		Madagascar	Ethiopia
		Congo		Malawi Uganda	DRC
		Senegal		Niger	Burundi
		Zambia			
		Cameroon			

Source: WHO, 2006

3. Public health spending and health outcomes

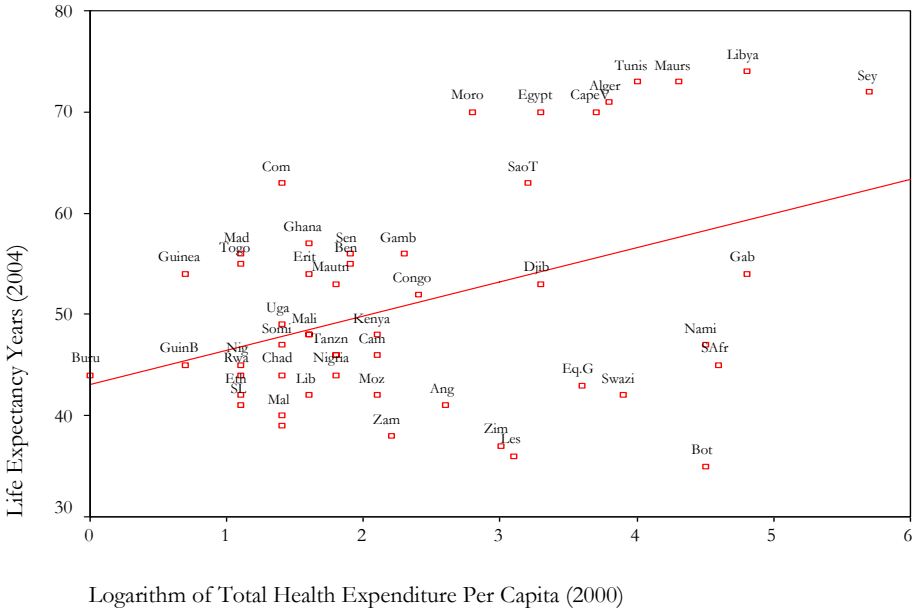
Although health spending can affect health conditions, it is important to note that the efficiency with which countries are able to transform their spending into better health is crucial. The term efficiency is used as the ability to translate public expenditure in the health sector into positive health outcomes, for example resulting in increased life expectancy, decreased infant mortality, improved immunization against measles in children and others. Although a more complete model of health determinants would be necessary to properly make such comparisons, we adopt a very simple approach to illustrate roughly the performance of countries in how they are translating their public spending on health into health outcomes. We closely follow the approach used by Poullier et. al., 2002, and Musgrove et. al., 2002.

First we plot life expectancy with the log of total health expenditure per capita lagged by four years as shown in figure 2. Four distinct patterns emerging from the data show that there are some countries that are (a) high performing who are spending more than US$50 per capita and are achieving high outcomes in life expectancy; these are above the fitted line and include Seychelles, Libya, Mauritius, Tunisia, Egypt, Cape Verde, Sao Tome Principe, and Morocco; and Gabon and Djibouti just below the line; (b) Countries that spend at levels comparable to the others in the upper range but stand out for being substantially below the regression line in terms of health outcomes because they are facing high mortality rates from HIV/AIDS and

these include Namibia, South Africa, Botswana, Swaziland, Lesotho, Zimbabwe and Equatorial Guinea; (c) Countries that are spending less but have relatively high life expectancy; these include Comoros, Ghana, Congo, Guinea, Senegal, Gambia, Eritrea, Uganda, Mauritania, etc. and (d) Countries that spend less and are getting low life expectancies and are therefore below the regression line. These countries include Malawi, Mali, Liberia, Ethiopia, Nigeria, Mozambique, Chad, and others.

In order to more clearly tease out the relationship of translating health spending into health outcome over a period of time, we plot the percentage change in health spending with the percentage change in life expectancy as shown in figure 3. As with figure 2, four broad patterns emerge as countries can be grouped into four different categories. Each category shows a change in public expenditure on health (positive or negative) against a change in life expectancy (positive or negative) (illustrated in figure 3 and table 4).

Figure 2: Public health expenditure and life expectancy

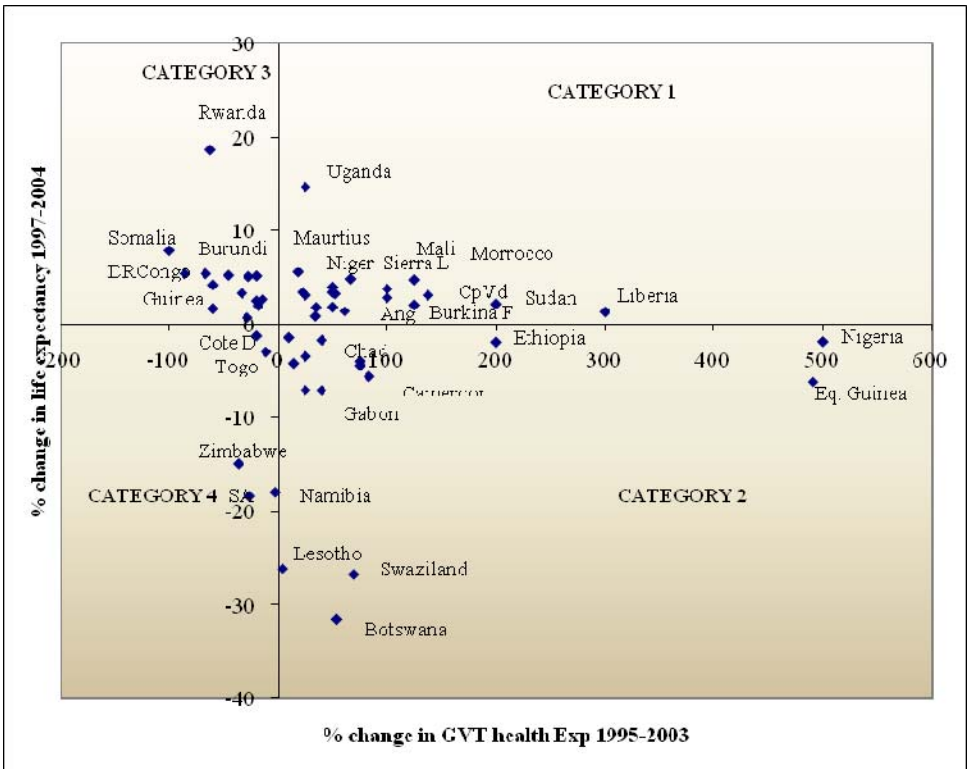


Source: Authors calculations based on data from WHO, 2006.

Countries in category 1 can be termed to be relatively efficient in their use of public funds in the health sector as their increased public outlays on health yielded positive gains in life expectancy. These countries have sought to invest more public funds towards health in an attempt to achieve the MDGs. Although some of the countries in

this group have a low life expectancy rate eg Liberia, Angola and Sierra Leone; the countries have made some progress. This category of countries also includes countries that have managed to maintain a high life expectancy of more than 70 years (these countries include Mauritius, Seychelles, Algeria, Cape Verde, Egypt, and Morocco).

Figure 3: Change in public health expenditure and change in life expectancy



Source: Authors calculations based on data from WHO, 2006.
Note: Full details of countries in each category are provided in Table 4.

Countries in category 2 where an increase in public expenditure was made but still yielded negative changes in life expectancy shows some form of inefficiency. Although public expenditure inefficiencies are not simply caused by allocative or internal efficiency criteria alone, but also by external factors, such as the HIV/AIDS epidemic the need to deliver health goods efficiently is imperative for all African countries. For example, although Botswana and Swaziland have increased expenditure, they experienced worsened life expectancy. The negative impact of the high HIV prevalence in those countries contributed to over stretched health systems.

Evans et. al. 2001, also found that countries with high prevalence of HIV and AIDS were less efficient in utilizing health resources.

Countries that are in category 3 that decreased their public expenditure to health but still experienced a positive growth in life expectancy include some countries that have high public per capita spending such as Libya and Tunisia where the private sector investments are also high. It is important that these countries find ways of sustaining public investments in health so as to ensure that progress towards achieving the MDGs is maintained. The category also includes countries that have experienced huge decreases in public health expenditure that already have very low per capita public health expenditure and have low life expectancy rates. These countries include Guinea-Bissau, Guinea, Burundi, Rwanda and DRC, most of them who are in conflict. The improvements in life expectancy despite the decrease in public sector expenditure can be explained by the large share of private sector expenditure in health accounting for more than 50% of total health expenditures and possible inflow of external resources. It is however important for these countries to increase public expenditure in health and ensure equitable access.

Table 4: Categories for % change in public health expenditure and % change in life expectancy

Category 1 Increase in public health expenditure and increase in life expectancy		Category 2 Increase in public health expenditure and decrease in life expectancy		Category 3 Decrease in public health expenditure and increase in life expectancy	Category 4 Decrease in public health expenditure and decrease in life expectancy
Uganda	Cape Verde	Zambia	Central African	Rwanda	Togo
Mauritanie	Angola	Chad	Republic	Congo, Dem. Rep.	Cote d'Ivoire
Niger	Sudan	Nigeria	Gabon	Burundi	Zimbabwe
Burkina	Mali	Ethiopia	Lesotho	Comoros	Namibia
Faso	Benin	Malawi	Swaziland	Eritrea	South Africa
Egypt	Djibouti	Tanzania	Botswana	Gambia, The	
Sierra	Sao Tome	Kenya		Guinea	
Leone	and Principe	Mozambique		Congo, Rep.	
Algeria	Liberia	Cameroon		Senegal	
Morocco	Seychelles	Equatorial		Libya	
Mauritius		Guinea		Tunisia	
Madagascar				Guinea-Bissau	
				Ghana	

Source: WHO, 2006, and World Bank, 2006.

Category 4 composes of countries that decreased their public expenditure to health and experienced a negative growth in life expectancy indicate that even though their

health systems maybe efficient, the decrease in public funding resulted in worsening of life expectancy and the impact of HIV/AIDS could also have exerted an additional pressure on the life expectancy. Countries in this group include Togo, Cote d'Ivoire, Zimbabwe, Namibia, and South Africa.

An analogous analysis with immunization for measles for children ages 12-23 months, immunization for DPT for children ages 12-23 months, and infant mortality brings out a similar pattern in the efficiency in the use of public investment in health. For example Uganda, Burkina Faso, Mali, Cape Verde, and Sierra Leone have increased public expenditure in health and have shown some improvement, albeit for some of them from a very low initial level. Thus showing that all health outcomes are closely related to public expenditure amounts and efficient use (see Annex 2, 3 and 4).

4. Policy Implications

4.1 General Policy Implications

Countries that have frequently featured in category 1 (i.e. Niger, Djibouti, Mali, Uganda, Sierra Leone, Mauritania, Sao Tome and Principe, Egypt, Morocco, Madagascar, Mauritius, Cape Verde and Seychelles), have yielded improvements in important health outcomes (Life expectancy, immunisation against measles, immunisation for DPT and infant mortality rates). These countries have efficiently translated public expenditure in the health sector into positive health outcomes. Policy implications for these countries are to continue improving spending on health and strengthen efficiency.

Countries that have frequently featured in category 2 (ie. Malawi, Zambia, Kenya, Central African Republic, Nigeria, Gabon, Equatorial Guinea, Lesotho, Swaziland) where increased public expenditure in health has been achieved but has yielded negative changes in health outcomes, indicates some inefficiency in the health system and the negative impact of HIV/AIDS on health outcomes. It is important for these countries to continue focusing on improving public resources to health, but also to find ways of improving the efficiency of health system and addressing the HIV/AIDS epidemic. Important gains can be made in most of these countries by using existing resources more efficiently.

Countries that have frequently featured in category 3 where a decrease in public health expenditure has been associated with improvements in health outcomes indicate that maybe health outcomes are being driven by other sources of funding including the private sector and external resources. It is important that these countries

continue to increase public allocations for health in order to complement the other sources of funding.

Countries that have frequented category 4 where decreased in public health expenditure yielded negative health outcomes such as Zimbabwe and Cote d'Ivoire, are countries where the private sector dominates in providing resources for the health sector accounting for 64% and 72% respectively for total health expenditure. There is need to increase public spending in health in these countries in order to ensure improvements in health outcomes.

Overall, although increased public expenditure through public health interventions are crucial to improving health outcomes, it is important to note that investment in other sectors such as increased access to adequate housing, water and sanitation, education and improved food security, play an important role in contributing to the gains in health outcomes (Evans et. al. 2001, Gupta et al. 2001). It is important that countries address these issues. Several African countries have been or are still involved in conflict, while neighbouring countries are affected by the conflicts because of population movements across international borders. The breakdown in the delivery of most social services, including health care, is a frequent accompaniment of conflict, thus peace and security is also essential.

There is an overall need to increase funding for scaling up interventions in high priority areas that address the health MDGs. Efficient resource allocation requires transparency, and accountability which are important for reducing wastage or leakages. For example Public expenditure tracking surveys (PETS) have been conducted in, Ghana, Tanzania, Uganda, and Zambia and should be replicated in many SSA countries. The main findings have shown that introducing PETS has resulted in a decrease in leakage amounts of drug provision in Uganda by 40 to 94 per cent of total (Ablo & Reinikka 1998, Kanungo P. 2004). Reallocation of resources from interventions that are not so cost effective to those that are more cost effective can also reduce wastage and improve efficiency (Evans et. al. 2001). It is also crucial that the end-users of public health provision are involved in monitoring resource allocation and use. Utilization of the public health resources in a more equitably manner ensuring that all have access can also greatly improve efficiency.

4.2 Policy implications for Ethiopia

Ethiopia *frequented category 1 for immunisation against measles, immunisation for DPT and infant mortality rates and was in category 2 only for life expectancy. This implies that although Ethiopian government spends only US$3 per capita (2003*

figure), it is efficiently translating these resources to yield positive health outcomes. It is important that the government improves its allocation to health and continue to strengthen its efficiency in public health expenditure.

5. Conclusion

Data presented in this paper shows that public health spending in African countries is low, lower than private spending in most countries. Yet increasing the resources for health systems is critical to improving health in poor countries. Although many countries are faced with the challenge of loss of health personnel, conflict situations and the onslaught of the HIV epidemic that affect the efficiency of the delivery of health services, it is crucial that they strive to increase the quantity and quality of resources. Current levels of public health spending cannot cover the recommended cost of the cost effective health package required to achieve universal coverage and attainment of the MDGs. Overall allocation by African states to health expenditure needs to be enhanced and pledges made by donors and recipients converted into action.

In this paper, we have shown that both quantity and quality/efficiency of public health expenditures need to be enhanced in Africa. The analysis highlighted that countries that spend more on health also experience higher efficiencies in the use of the public resources. Given the importance of health in achieving the MDGs in the continent, better and more public expenditure on health, as a compliment to annualized and short term assessments of fiscal solvency and sustainability are necessary. Thus it is necessary to increase fiscal space to accelerate towards the desired health outcomes. Countries are also challenged to spend the public health resources more equitably ensuring that all have access and to use instruments that can help improve efficiency such as public expenditure tracking surveys.

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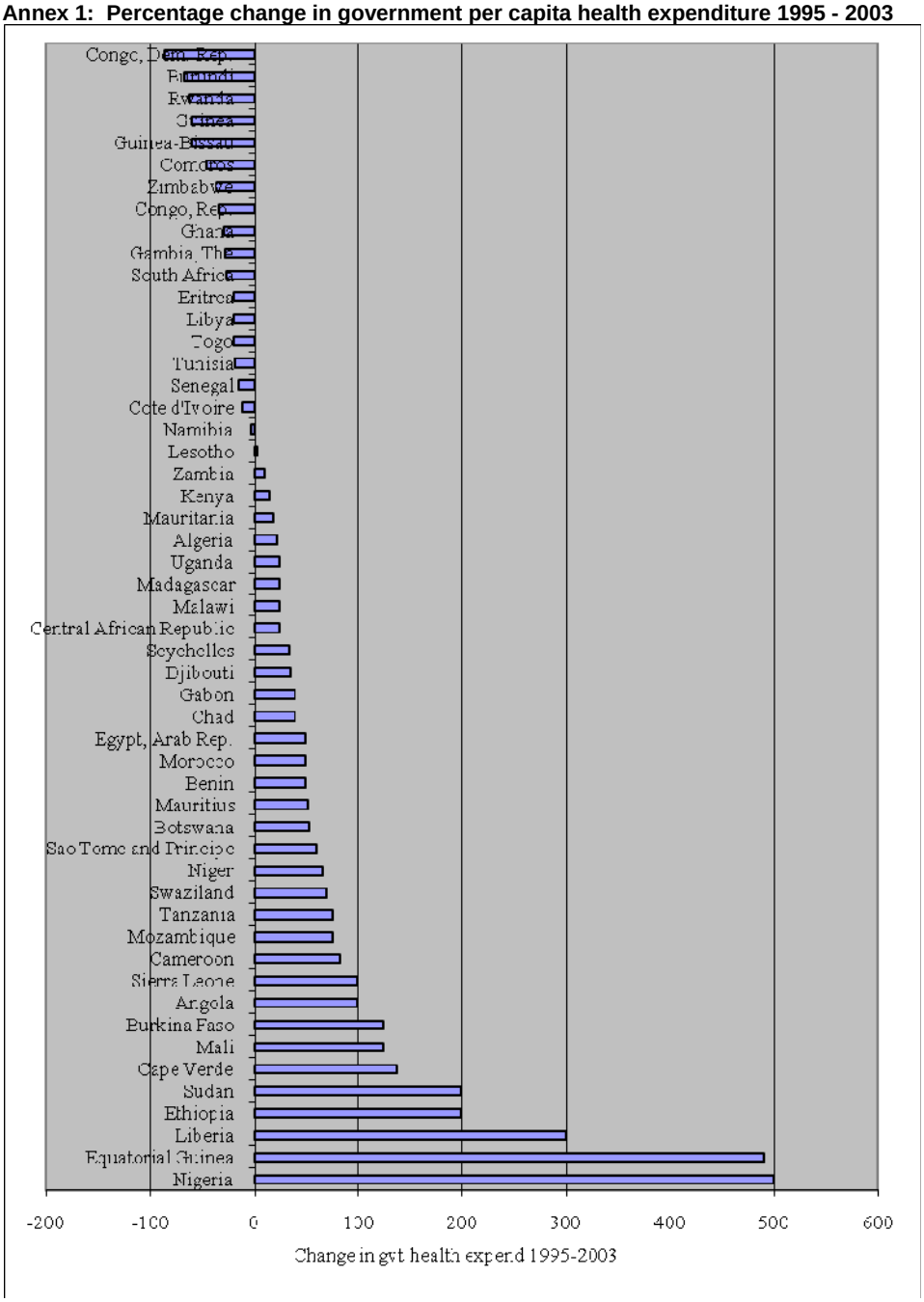
Annex 1: Percentage change in government per capita health expenditure 1995 - 2003



Source: WHO data, 2006.

Annex 2: Categories for percent change in public health expenditure and percent change in immunization for measles for children ages 12-23 months

Category 1 Increase in public health expenditure and increase in immunization for measles		Category 2 Increase in public health expenditure and decrease in immunization for measles		Category 3 Decrease in public health expenditure and increase in immunization for measles	Category 4 Decrease in public health expenditure and decrease in immunization for measles
Chad	Tanzania	**Zambi**a	Central	**Congo, Dem.**	Rwanda
Ethiopia	Sudan	Gabon	African-	**Rep.**	Gambia, The
Niger	Mauritius	Mauritania	Republic	**Guinea-Bissau**	Burundi
Burkina	Egypt	Algeria	Swaziland	**Congo, Rep.**	**Zimbabwe**
Faso	Mozambique	**Malawi**	Equatorial	**Eritrea**	**Cote d'Ivoire**
Uganda	Morocco	**Kenya**	Guinea	Togo	Senegal
Djibouti	Madagascar	Lesotho		**Guinea**	
Mali	Cape Verde	Liberia		**Ghana**	
Angola	Sierra Leone	Nigeria		**Libya**	
Cameroon	Seychelles			South Africa	
Benin	Botswana			**Comoros**	
Sao Tome and Principe				**Tunisia**	
				Namibia	

Source: WHO, 2006, and World Bank, 2006.

Note: Countries in bold have featured in the same category for the other health outcome indicators.

Annex 3: Categories for percent change in public health expenditure and percent change in immunization for DPT for children ages 12-23 months

Category 1 Increase in public health expenditure and increase in immunization for DPT		Category 2 Increase in public health expenditure and decrease in immunization for DPT	Category 3 Decrease in public health expenditure and increase in immunization for DPT	Category 4 Decrease in public health expenditure and decrease in immunization for DPT
Chad	Sao Tome and	Malawi	**Congo, Dem. Rep.**	**Zimbabwe**
Niger	Principe	Algeria	**Guinea-Bissau**	**Cote d'Ivoire**
Burkina Faso	Benin	Zambia	**Eritrea**	Gambia, The
Angola	Tanzania	Lesotho	**Congo, Rep**.	
Cameroon	Sudan	Kenya	South Africa	
Djibouti	**Egypt,**	Central African	Guinea	
Mali	**Morocco**	Republic	Togo	
Uganda	**Madagascar**	Nigeria	Ghana	
Ethiopia	**Mauritius**	Liberia	Namibia	
Sierra Leone	**Cape Verde**	**Gabon**	Senegal	
Mauritania	Botswana	**Equatorial Guinea**	**Rwanda**	
Mozambique	Seychelles		**Tunisia**	
	Swaziland		**Libya**	
			Burundi	
			Comoros	

Source: WHO, 2006, and World Bank, 2006.

Annex 4: Categories for percent change in public health expenditure and percent change in infant mortality

Category 1 Increase in public health expenditure and decrease in infant mortality		Category 2 Increase in public health expenditure and increase in infant mortality	Category 3 Decrease in public health expenditure and decrease in infant mortality	Category 4 Decrease in public health expenditure and increase in infant mortality
Egypt	Uganda	Liberia	Tunisia	Congo, Rep.
Morocco	Benin	Angola	Comoros	Burundi
Mauritius	Djibouti	Sao Tome and	Eritrea	Congo, Dem. Rep.
Mozambique	Ethiopia	Principe	Libya	Ghana
Cape Verde	Burkina	Chad	Guinea	Cote d'Ivoire
Tanzania	Faso	Gabon	Namibia	South Africa
Madagascar	Sudan	Zambia	Guinea-Bissau	Zimbabwe
Algeria	Mali	Central African	Senegal	
Malawi	Mauritania	Republic	Gambia, The	
Nigeria	Sierra	Kenya	Togo	
Niger	Leone	Equatorial Guinea	Rwanda	
Seychelles	Cameroon	Lesotho		
		Swaziland		
		Botswana		

Source: WHO, 2006, and World Bank, 2006.

ENHANCING SOCIAL ACCOUNTABILITY THROUGH COMMUNITY EMPOWERMENT: THE CASE OF CITIZEN REPORT CARD IN ETHIOPIA

Eshetu Bekele[1]

Acronyms

APR	Annual Progress Report
CRC	Citizen Report Card
CSOs	Civil Society Organisations
FGD	Focus Group Discussion
HIPC	Highly Indebted Poor Countries
M&E	Monitoring and Evaluation
MDGs	Millennium Development Goals
MoFED	Ministry of Finance and Economic Development
NGOs	Non Governmental Organisations
PANE	Poverty Action Network of civil society organisations in Ethiopia
PASDEP	Plan for Accelerated and Sustained Development to End Poverty
PRSP	Poverty Reduction Strategy Paper
SDPRP	Sustainable Development and Poverty Reduction Programme
SNNPR	Southern Nations, Nationalities and Peoples Region
UNDP	United Nations Development Programme

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Abstract

The historic adoption of the MDGs has given the global fight against poverty a much needed focus. Countries have become more committed, as expressed by the preparation of Poverty Reduction Strategy Papers (PRSPs) that primarily focus on engaging political leaders and high level decision makers, as well as mobilising civil society, communities, the general public and the media. This process has given more space to civil society organisations (CSOs) in many developing countries.

Apart from providing a highly contextualised road map to address the Millennium Development Goals (MDGs), the Ethiopian PRSP (which is a combination of PRSP and MDGs) has also opened up a vital space for civil society involvement in the design, implementation and monitoring of poverty reduction programmes. The establishment of the Poverty Action Network in Ethiopia (PANE) in March 2004 is a significant step in this direction. PANE, in keeping with the need for monitoring and evaluation of the MDGs/ PRSP at country level, has embarked on the first Citizens Report Card (CRC) study in Ethiopia.

CRC is a simple but powerful tool to provide public agencies with systematic feedback from users of public services. CRCs provide citizens and governments with qualitative and quantitative information about gaps in service delivery and can also measure the level of awareness about citizens' rights and responsibilities.

The findings derived from the CRC study can shed light on the degree to which pro-poor services are reaching target groups, the extent of gaps in service delivery, and the factors that contribute to any misdirection of resources or services. They help identify issues that constrain the poor from accessing and using services, including availability, ease of access, quality, reliability and cost.

This paper aims to show the results of the CRC in selected poverty sectors in Ethiopia, and to identify possible ways to improve service delivery by the responsible public sector. Finally, on the basis of the findings of the study, the author suggests ways forward from the perspective of citizens and puts some general policy conclusions.

1. Introduction

1.1 What is a Citizens Report Card?

The Citizen Report Card (CRC) is the most commonly used instrument for participatory service delivery assessments. It is a survey instrument used to tap information on the basis of user's awareness, access to and satisfaction with publicly provided services. It provides information about the key constraints that the poor face in accessing social services, views of the communities about the availability, adequacy, quality, and access to basic public services. It would also enable to generate valuable information on the details of communities interacting with the service providers and suggestions in improving the services.

The CRC is a simple but powerful tool in providing public agencies with systematic feedback from users of public services. It provides information on availability, access, quality, affordability and degree of satisfaction of services. CRCs obtain feedback information through sample surveys on aspects of service quality, based on user's experience and knowledge, and enable public agencies to identify strengths and weaknesses in their work. It can also provide a way for citizens to directly supervise basic services provided to them.

1.2 Why do we use CRCs?

CRCs are a powerful tool when used as part of a local or regional plan to improve services. It also is very useful for programme revision or reform; new programme design; and monitoring and evaluation (M&E) of sector programmes or service-related projects. CRCs provide an empirical assessment of the reach and benefit of specific reform measures on the basis of the knowledge, experience and perceptions of the local communities. The process serves to identify the key constraints that citizens (especially the poor and the underserved) face in accessing public services; benchmark the quality and adequacy of these services; and highlight the effectiveness of the staff that provide the services. These insights help to generate recommendations on sector policies, programme strategy and management of service delivery in order to address these constraints and strategise reforms that help to improve pro-poor service provision.

Citizen Report Cards can be used in various ways, for instance:

As a ***diagnostic*** tool: The CRC provides citizens and governments with qualitative and quantitative information about gaps in service delivery. It can also measure the

level of awareness about citizens' rights and responsibilities. In light of past experiences in varied contexts, the efficacy of CRC as an effective pointer for diagnosing weak areas in service delivery processes has been well documented. In particular, when conventional monitoring of services and provisions is weak, CRCs are an effective way of highlighting key issues and themes. The richness of the comparative feedback generated by CRCs over time, across locations and sub-groups (gender, economic, social etc.), enables service providers and other stakeholders to identify critical variations and excluded groups.

As an ***accountability*** tool: The CRC reveals areas where the institutions responsible for service provision have not fulfilled their obligations. The findings can also be used to identify and demand improvements in service provision. A clear advocacy point emerging from CRC findings is the possibility of translating findings and interpretations into 'rights-based' advocacy statements and positions.

To ***benchmark*** changes: If conducted periodically, CRCs can track variations in service quality over time. This credible and objective tracking of performance can exert pressure on poor performers to improve the quality of their services.

To ***reveal hidden costs***: A constructive outcome of CRCs is the generation of credible user feedback on hidden costs, such as bribes. The nature of corruption (whether bribes are paid voluntarily or extorted) and the size of payments can be effectively highlighted and tracked. The feedback also allows for the extrapolation of the amount of private resources spent to compensate for poor service provision (e.g. water purifiers, voltage stabilisers, private tuition, etc.).

1.3 Citizens Report Cards in Ethiopia

In the past few years there has been an emerging realisation among CSOs, especially after the emergence of MDGs and PRSP, of the vital importance of involving citizens in development and poverty reduction, as well as government responsiveness to citizens' needs. The first step in this process is to make citizens aware of their entitlements from different agencies, especially CSOs. To this end, Poverty Action Network of civil society organizations in Ethiopia (PANE), which is a coalition of poverty-focused CSOs working with different constituencies around the PRSP and MDGs, emphasises the importance of CRCs as an instrument to empower citizens. The CRC tool enables people to hold service providing agencies accountable and provoke their response where appropriate. In the Ethiopian context, the service providing agencies are mainly government offices at various levels.

The CRC study, conducted by PANE, is the first of its kind in Ethiopia. The study is important in both poverty reduction and development processes, and the aim was to both create wider citizen's awareness about the performance of public services, and to hold service providers accountable. This exercise received financial support from UNDP Ethiopia, with the Public Affairs Foundation, India, providing technical backup. PANE strongly believes in the value of the CRC in building stakeholder awareness and capacity, as well as offering diagnostic pointers to service providers and policy makers to improve service delivery and sharpen policies under the Plan for Accelerated and Sustained Development to End Poverty (PASDEP),

The study covered four regions of Ethiopia, Southern Nations, Nationalities and Peoples (SNNP), Oromiya, Tigray, and Dire Dawa Administration. The first three are large regions that represent the majority of the country's population and land size, while Dire Dawa Administration represents an urban region. Therefore, the findings of the study represent service provision and citizens' satisfaction across the country.

The services that were covered in this pilot CRC include water, health, sanitation, education, and agricultural extension services. These sectors were chosen because of the priority given to them in the country's SDPRP (Ethiopia's first PRSP; a combination of PRSP and MDGs), because of their importance to the wellbeing of citizens, and as services that all governments should provide. The final result of the survey is an assessment of public services in these major sectors from the perspective of citizens.

1.4 Methodology

The study consisted of several components. Firstly, the suitability of CRCs in the Ethiopian context was assessed, in order to select variables through Focus Group Discussions (FGDs) and then to design survey instruments and methods. Trainings were then designed and organised for supervisors and trainers of enumerators in the survey regions. Ten woredas (districts) were selected, using the criterion of distance from the regional centre, and the final woredas were selected randomly from each category in the chosen regions. A sample of 3,900 households was randomly selected for the survey, including focus group discussions. Key informant interviews, a literature survey and participant observation methods were also used as tools to substantiate the survey.

Structured questionnaires were administered to the respondents by the trained enumerators and continuous process audits were conducted to enhance the validity and reliability of the data generated. Finally, the results were categorized and entered

into a data-processing software in order to produce quantitative data analysis for this report.

The second section of the report, following this introduction, briefly presents the policy background. The third section presents the major findings and analysis of the CRC study, and policy implications for poverty reduction and development. The fourth part presents a summary of the study conclusions.

2. Policy background

Ethiopia is a low-income country with widespread poverty. Nearly half (44%) the population of over 70 million live below the poverty line, with very low access to basic services. Despite improvements in service delivery, the country continues to face critical problems in providing basic public services to the poor. Just over 30% of people in rural areas have access to improved agricultural inputs and veterinary services. Only 37.9% have access to clean water and 64% have access to health services, while contraceptive prevalence rate stands at just 23% (PASDEP, 2006).

Although improvements have been made under the PRSP/ MDGs framework, the strong commitment of stakeholders and genuine participation of communities remain critical elements for meaningful change. The central elements of PRSP in Ethiopia are improved governance and the decentralisation of decision-making and transfer of fiscal responsibilities to local levels to include citizens as the main actors and owners of these processes.

The country's second PRSP, which is now called PASDEP, is the continuation of the process begun with the first PRSP, the Sustainable Development and Poverty Reduction Programme (SDPRP), covering the period 2002 to 2005. The initial PRSP was completed in November 2000, which enabled Ethiopia to become eligible for assistance under the enhanced Heavily Indebted Poor Countries (HIPC) Initiative in February 2001. The decision on HIPC was reached in October 2001 and the SDPRP was completed in August 2002.

The stated objectives of PASDEP, the current five year (2006 – 2010) strategic planning framework, can only be effectively realised by empowering local communities to take more responsibility. Since 2001, between 40% and 60% of all government revenues have been transferred to local level, together with full responsibility for managing social services and increasing shares of capital investment. However, sustained pro-poor service delivery, poverty reduction and overall development require sufficient local capacity, enhanced commitment and

ownership by local authorities and communities. The community at local level must be genuinely engaged in planning, implementation and M&E of development plans and programmes designed under the PASDEP.

The PRSP has brought an added opportunity to civil society in Ethiopia by opening up space to engage in policy processes. Since one of the major principles of the PRSP process is civil society participation, PANE and its members have enjoyed their legitimate right to participate in design, implementation and M&E of the PRSP. One of the major ways that CSOs have been involved in the poverty policy process has been through Citizen's Report Cards. The CRC process has helped to empower citizens to discuss issues of services, in terms of availability, access, quality, affordability, etc.

The information generated through CRCs has helped the government, through PANE, to use the results as an input to the PASDEP. As qualitative information is important in measuring poverty, the data is used as a benchmark by many stakeholders to substantiate traditional quantitative data collection and analysis tools. The CRC study further strengthened CSO's partnership with government, donors, and communities, particularly in the PRSP/ MDGs process.

The process has also empowered and strengthened PANE itself, by developing the confidence and capacity to regularly conduct CRC studies in the future. The use of the CRC results in the formulation of SDPRP has encouraged PANE and its members to conduct the study annually, in order to utilise the results in the implementation and M&E of PASDEP.

This paper illustrates the importance of empowering citizens to hold public service providers accountable for poverty reduction and sustainable development, on the basis of the findings of the first CRC exercise in Ethiopia. Participatory tools, such as CRCs, can highlight critical issues related to public service delivery. The 'soft' data resulting from the process is expected to complement the 'hard' data provided by conventional M&E tools, which tend to extract quantitative information. The CRC study has been very useful and important in contributing to the Ethiopian PRSP process, in gauging citizens' perceptions of public services, and by empowering beneficiary communities to assist with social accountability.

3. Major findings and analysis of the study

3.1 General

In rural Ethiopia, government primary schools are the commonly available facility for education. Almost 83% of respondents mentioned that there is a primary school in their kebele. The proportion is lower in SNNP Region, where only 68% of people reported the availability of a primary school in their kebele, and highest in Tigray Region, at almost 99%.

Public health facilities are in short supply. In all, less than one fifth of people reported the presence of government health facilities within their kebele.

Table 1: Availability of critical public services ***(All figures are in percentages)***

	Tigray	Oromiya	SNNP	Rural total	Dire Dawa
Water sources					
Protected springs	18.9	19.9	9.6	17.7	0
Protected hand dug wells	1.1	6.2	5.6	5.7	0.3
Boreholes	4.7	8.1	10.1	8.2	0.3
Public taps	12.9	13.7	20.9	15.1	92.8
Public hand pumps	51	4.3	23.1	11.8	2.2
Health facilities					
Government health post	18.4	10	10.4	10.7	12.6
Government health centre	34.5	19.2	14.8	19.5	0.5
Government hospital/ clinic	1.7	25	8.2	19.7	1.2
Private/ NGO hospital or clinic	0.5	20.6	8.8	16.6	53.4
Education facilities					
Government primary school	98.6	86	67.7	83.9	37
Private/ NGO school	0.1	9.8	9.8	9.1	73.1
N	**838**	**1201**	**594**	**2633**	**595**

Source: PANE, CRC 2006

N= Total Respondents

3.2 Findings on drinking water

The summarised points from the results of this study include the following:

- Nearly three quarters of rural Ethiopians depend on non-potable water sources
- Roughly half the population, in both rural and urban areas, report water scarcity

- Satisfaction scores for public water sources are high in terms of both adequacy and quality
- 62% of rural respondents reported willingness to pay more for better drinking water services

These findings point to the importance of consultation with communities on critical matters. It also shows that communities have the capacity to prioritise, and to participate and contribute to meeting their priority needs.

Table 2: Rates of complete satisfaction with water supply adequacy and quality *(percentage of rural total)*

Source	Adequacy	Quality
River	45.9	21.4
Protected springs	51.9	60.1
Unprotected springs	51.4	24.4
Ponds	10.5	7.6
Hand-dug wells (protected)	37	76.1
Hand-dug wells (unprotected)	11.6	3.6
Public taps	59.3	91.6
Public hand pumps	50	77
Boreholes*	N/A	0.0
Purchased from water vendors*	66.7	100
Tap within the house*	60	100

* Note: Numbers of observations are low in the case of boreholes, water vendors and household taps

Source: PANE, CRC 2006

Lack of access to protected water supply sources and the poor quality of unprotected sources are the critical problems in the water sector. According to the respondents, the following policy points need to be considered by service providers:

- Access to protected water supply sources must be improved
- Specific programmes must be developed to support users during times of water scarcity
- Regional disparities in access and reliability of water supply must be addressed
- Policy makers must carefully analyse respondents' willingness to pay more for improved drinking water

3.3 Findings on health and sanitation

Ethiopia has very low health care coverage, with high incidences of morbidity and mortality. Overall, nearly 60% of rural people reported falling ill and requiring medical attention during the past two years. This percentage is highest in SNNP, where around 68% of people reported having fallen ill during this period, and nearly as high in the urban region of Dire Dawa, at 67%. Tigray experienced the lowest incidence of illness at 49%. In rural areas, malaria is the most common illness; it accounted for 44% of all reported ailments. The prevalence of malaria was highest in SNNP, where it was reported by 98% of the respondents who sought treatment.

- According to the CRC results, 84% of rural children have been vaccinated
- Less than one-third of rural respondents use toilets, with 'no custom of using a toilet' the most frequently cited reason
- More than one-third of rural respondents have to travel further than ten kilometres to reach a health facility
- The majority of rural respondents believe that health and sanitation services have improved over the last two years compared with previously

Table 3: Rates of complete satisfaction with health & sanitation service (*percentage*)

Health Services	Tigray	Oromiya	SNNP	Rural total	Dire Dawa
Time taken to attend	78.5	53.8	57.3	56.7	62.8
Behaviour of staff/ doctors	79.5	55.5	57.7	58.1	59.9
Helpfulness of staff	67.3	53	67.1	57	59.5
Overall Satisfaction	**54.2**	**49.6**	**46.4**	**49.3**	**46.6**
Sanitation services (total)	**57.6**	**45**	**44.8**	**46.7**	**25.8**

Source: PANE, CRC 2006

Access to health facilities is a major problem for the majority of rural communities in Ethiopia. In all the regions more than one third of the people need to travel more than 10 kilometres to reach the nearest health facility. This problem is most pronounced in Tigray, where almost half of respondents need to travel this distance. To reverse this situation, communities have suggested the following points:

- The remoteness of health facilities must be addressed
- Reports about the lack of availability of drugs and wide variations in cost necessitate a review of existing drug policies and related regulations

- Awareness campaigns on personal hygiene and environmental sanitation practices must be stepped up, and existing systems improved

3.4 Findings on education

In line with achieving the MDGs, the Ethiopian PRSP outlines some clear targets, especially targeted towards enhancing the quality of primary education. The surveyed communities have critically analysed access, quality and satisfaction with education services. On the basis of the responses:

- Less than one-third of rural students report the availability of drinking water in school
- The cost of education varies across regions
- More than one-third of parents pay extra to various school authorities; 17% of these payments were demanded
- **Community involvement** in school management is high, although few parents reported membership in parent-teacher committees

Table 4: Rates of complete satisfaction with educational services (*percentage)*

	Tigray	Oromiya	SNNP	Rural Total	Dire Dawa
Quality of teaching	86.5	67.8	75.3	69.6	76
School building	67.5	51.2	58.4	53.9	80.4
Toilet	49.2	58.3	75.3	60.5	69.2
Behaviour of teachers	90.4	70.6	78.1	73	73.2
Overall satisfaction	**41.2**	**59.3**	**55.6**	**53.9**	**71.6**

Source: PANE, CRC 2006

Poor monitoring of attendance (47%), compulsory wearing of uniforms (25%) and poor conduct of teachers (16%) were cited as the major reasons for dissatisfaction with schools in rural areas. In Dire Dawa, poor conduct of teachers (21%), inability to pay school fees (19%) and compulsory wearing of uniforms (18%) emerged as the key reasons for dissatisfaction. The CRC results suggest, among others, to:

- Fulfil essential infrastructure in schools, including ensuring and improving safe drinking water and toilet facilities within school compounds
- Re-examine existing policies and negotiate the basis for fees to rationalise the amount paid for government schools

- Look at low membership in parent-teacher committees and alternative forums, as they are important for monitoring quality of education and continued participation of students

3.5 Findings on agricultural extension services

Given the centrality of agricultural development in poverty reduction strategies in Ethiopia, the SDPRP makes explicit reference to the need to strengthen agriculture extension services throughout the country. Across all the surveyed regions, 91% of farmers reported that an extension agent was available within their kebele. However, a smaller percentage (69%) reported that agents were accessible. The percentage of farmers reporting that they had approached an extension agent is 67% (see details in table 5).

Table 5: Availability and accessibility of extension agents (*percentage)*

	Available within kebele	Accessible	Approached	Minimum N
Tigray	99.8	87.1	84.7	**813**
Oromiya	90.2	72.5	70.2	**1055**
SNNP	90.1	46.7	49.1	**529**
Rural total	**91.0**	**68.5**	**67.1**	**2397**

Source: PANE, CRC 2006
N= Total Respondents

Interesting findings emerged while analysing the frequency of extension agents visits. In almost one-third of all cases, the extension agent was found to visit client farmers more than once a week; while one in five farmers reported that the agent never made a visit.

Table 6: Frequency of visits by extension agents as reported by farmers (*percentage)*

	Once a week	Once in 2 weeks	Once a month	More than a month	Never visited	N
Tigray	49.7	14.1	18.3	14.3	3.7	**811**
Oromiya	32.2	15.4	19	12.2	21.3	**1011**
SNNPR	26.4	11.7	22.5	9	30.3	**511**
Rural total	**32.5**	**14.5**	**19.6**	**11.6**	**21.6**	**2333**

Source: PANE, CRC 2006
N= Total Respondents

According to the responses of communities, the following conclusions have been drawn:

- Roughly one-fifth of farmers have borrowed money for agriculture and related activities
- Formal marketing support is largely absent
- More than half of farmers reported the loss of crops and cattle

The overall satisfaction with agricultural extension services was found to be low. Less than a quarter of farmers are completely satisfied with the service provided by the agricultural extension department overall, with less than 10% completely satisfied in SNNP.

Table 7: Rates of satisfaction with the quality of agricultural extension services *(percentage)*

	Completely satisfied	Partially satisfied	Dissatisfied
Tigray	41.6	40.4	18
Oromiya	24.3	30.7	44.9
SNNP	7.9	26.2	65.9
Rural total	**22.3**	**22.3**	**47.1**

Source: PANE, CRC 2006

On the basis of the results of the CRC, the following policy suggestions are critical to make agriculture work in accordance with the SDPRP:

- Given the critical nature of agriculture in Ethiopia, the expansion of the network of agents should be considered, combined with close monitoring of the services rendered and periodic capacity upgrading and refreshers for the agents
- The present level of support for marketing and access to credit facilities is a critical concern that needs immediate policy action
- The high proportion of farmers reporting the loss of crops and cattle points to the need to introduce insurance schemes in highly vulnerable mixed farming communities

What are the major lessons we can draw from the study?

The concept of citizen feedback surveys to assess the performance of public services is fast gaining wide acceptance internationally. The responses to Citizen Report Cards indicate four main levels of impact:

1. Stimulating reforms: Citizen Report Card studies can clearly bring to light a wide range of issues, both quantitative and qualitative, to send strong signals to public

service providers. The use of a rating scale permits the respondents to quantify the extent of their satisfaction or dissatisfaction with the service of an agency, as well as different dimensions of its service. The inter-agency comparisons permitted by the report cards provide quantification and rankings that demand attention in a way that anecdotes do not. To this effect, PANE has started holding discussions with different stakeholders at intermediate and local levels of government. At macro level, the results of the CRC have been used as inputs for PASDEP formulation.

2. Activating stakeholder responsiveness: Many public agencies have used the Citizen Report Card findings as a diagnostic tool, as they provide indicators that can trigger further studies and strategise internal reforms. The findings have also helped senior managers to monitor the effectiveness of service delivery across wide areas, in a simple and direct manner that is free from technical details. For administrators and planners, CRC findings have provided insights into aspects of service delivery where greater care, supervision and investment may be required. PANE is preparing versions of the CRC in different local languages to generate public sector responsiveness to change, and to encourage citizens to engage in discussion and review, providing a constructive outlet for their needs and aspirations.

3. Raising public awareness: Citizen Report Card findings are placed in the public domain and disseminated widely through the media and other mechanisms. Specific findings and the novelty of the method make it useful and attractive for the media to report the findings. The media, as well other researchers, use the valid and reliable information generated by the Citizen's Report Card as the basis for raising issues and proposing change in public services. Regional consultations have shown that communities and agencies strongly agree with the results, and the majority want CRCs to continue and be extended. Discussions during the study and consultations show that citizen's awareness has increased about the nature of their entitlement to basic services, as well as the problems of provision and access. The tool provides points of discussion for people in the selected communities to converse with each other on the issue of service provision. This has further enhanced their capacity to look closely into the issues of availability, access, adequacy, quality and efficiency of basic services and their providers.

4. Mobilisation of multi-stakeholder partnerships: Seminars and meetings are an integral part of disseminating Citizen Report Card findings, and involve both government officials and representatives of CSOs and NGOs. Citizen Report Cards have given civil society organisations a useful tool for focusing on issues of concern and requesting specific improvements in priority areas from public service agencies. It also provides CSOs with an opportunity to understand the constraints under which

service providers function, and explore options for community problem solving initiatives. The study has also given PANE an added opportunity to create and strengthen partnership among different stakeholders, especially concerning the modalities of working together.

In general, the insights derived from CRCs can shed light on the degree to which pro-poor services are reaching target groups, the extent of gaps in service delivery, and the factors that contribute to any misdirection of resources and services. They help identify issues that constrain the poor from accessing and using services, such as availability, ease of access, quality, reliability and cost. The CRC study has also helped to identify possible ways to improve service delivery by actively seeking suggestions from citizens. Finally, CRC findings help to test some of the policy conclusions reached in other analytical studies from the citizens' point of view.

4. Conclusion

Despite the policy emphasis already given to improving development indicators, the challenge of achieving the MDGs will require significant scaling up in service delivery, particularly at grassroots level, while aiming to develop equity in service delivery. Efforts made to address disparities between groups and in particular across the gender divide need to continue in order to ensure the inclusive development of Ethiopia. Effective service delivery and improved human development outcomes are important both in themselves, and instrumentally to increase productivity, and ultimately to foster the socio-economic transformation that characterises the development process. Including the voices of poor people and activating their active partnership in this process plays a crucial role.

Listening to the opinions of poor people produces a clear and precise picture of realities on the ground, and tells us more about the poverty in their areas than the normative way of measuring income poverty. Communities have the chance to express their priorities, needs and satisfaction or dissatisfaction on the basis of their experience and knowledge, affected by variables such as geographic location, access to social services, community support systems and relations to those in power, including social exclusion, and powerlessness. The engagement of citizens in development and poverty reduction is therefore critical, not only to define priorities, but also to target development needs and interventions. In the context of PRSP, genuine community participation or empowerment means ensuring broader participation and ownership of the entire poverty reduction and sustainable development process at intermediate and local levels. Such direct engagement also enhances social accountability of public service delivery mechanisms.

Social accountability is an approach that relies on the engagement of citizens who participate directly or indirectly in exacting accountability. Social accountability helps to make services work for the citizens, by engaging service providers and holding them accountable to recipients in improving delivery of public services. CRC studies are one of the preferred tools in ensuring and enhancing such social accountability, through empowering people to make their voice heard and creating opportunities for community groups to engage more proactively with local government.

The Ethiopian PASDEP is an operational plan containing identified priority activities. As a framework, it includes very useful elements for growth and poverty reduction, which could be used as a basis for local level planning, prioritisation and implementation. The progress of the SDPRP in meeting the stated benchmarks is institutionally monitored through Annual Progress Reports (APR). Though the APR was designed to capture supply side indicators as key pointers to measure progress against the benchmarks, there is increasing awareness and acceptance of the need for participatory and demand-driven indicators to examine the impact and spread of poverty reduction strategies and reform measures. Using both types of measure is expected to generate wider awareness of the process and to increase community involvement.

It was partly in response to this that PANE conducted the CRC, which has provided critical information on the progress of the SDPRP, especially in terms of indicators that supplement conventional M&E methods and results. It also provided important inputs for the formulation of PASDEP, as well as improving partnership at different levels. The CRC is based on feedback from actual public service users, whose experiences are collected, analysed and disseminated in a systematic and transparent manner. It complements expert analyses and findings from conventional poverty assessment approaches with a bottom-up user assessment of services. CRCs build the capacity of communities to facilitate discussion about service provision among themselves, and encourages dialogue between citizen groups and service providing agencies at community level. Citizen Report Cards clearly reflect the voice of citizens, and indicate the degree of the problem in terms of service delivery and the importance of an immediate response in order to meet the MDGs.

The results of the CRC process indicate that communities can clearly articulate their aspirations and development priorities if they are able to genuinely participate in the process. They have addressed the issues of lack of availability, access, affordability and quality of services, including symptoms and causes. This could help change attitudes towards developing systematic and legitimate community control mechanisms to enhance the efficiency and accountability of service providers.

CRC feedback has gained a positive response from the government towards pro-poor service delivery. The process of drafting the PASDEP, especially the consultative phases, clearly highlight a growing recognition within the higher echelons of government and donors to open up spaces for participation, for the effective implementation of poverty reduction. The recent initiative of MoFED to hold a consultation where PANE and other CSOs could provide feedback on the SDPRP reflects a critical willingness at senior levels in the government to reach out and respond to feedback from citizens through CSOs. This is a potential channel to create pressure for government as a whole to become more responsive to citizen demand.

The CRC provided an opportunity for communities to discuss local problems with the concerned agencies. Many communities may have already been involved in participatory assessment and planning, but have not had the chance to assess performance. Many of the services provided by the government face serious financial problems; the main issues raised by citizens are regarding ease of access and cost. In any dialogue there is a strong likelihood of issues related to quality of service being crowded out by issues of access and cost. Despite this concern, it is useful for communities and service providers to distinguish between the two types of problems and to be able to address them separately.

The custom of the community to speak up on the matters that affect their lives has been strengthened through the CRC tool, as well as their capacity to interact with the modern systems of the state. The strength of processes such as CRCs depends heavily on the willingness of citizens to articulate their feelings on the issues affecting their lives. As part of the scoping mission, FGDs were organised in a rural area to explore whether the community felt free to express their open and honest opinion on issues related to public service delivery. The exercise revealed that communities are open to giving objective and honest feedback on all the key dimension of a typical CRC survey. This finding would definitely be further strengthened if CRC exercises were to be repeated regularly.

The value of CRCs for public bodies is high, mainly due to the credibility and specificity of its findings. At present, the commitments made in the PASDEP point to an increasing focus on indicators and targets, as reflected in the PASDEP policy matrix. The process of institutionalising APRs as a key monitoring tool to review internal operations reflects a strong commitment to systematic monitoring. In this context, including the results of the CRC will in the future add value and quality to the monitoring and review of the PASDEP.

In conclusion, the CRC study in Ethiopia will not be a one-off. It is a useful tool for increasing public awareness and participation, as well as a reliable data source for

monitoring and evaluating the PASDEP as part of the annual review. It has also demonstrated the importance of civil society organisations in playing an active role in citizen's empowerment and capacity building, beyond their traditional role of service delivery. The Citizen Report Card study results are very important for advocacy, campaigning and lobbying around the issue of fulfilling the MDGs through the voices of poor people. Therefore, PANE will make efforts to institutionalise periodic surveys of public service users, as a source of feedback on service provider performance. PANE's members, and other advocacy- and research-oriented organisations, should use results of the study to stimulate public service providers to be more responsive to their customers.

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FOOD AID AND ITS IMPACT IN ETHIOPIA

Abeje Teffera[1] and Zinash Kefale[2]

Abstract

This paper illustrates the historical evolution of food aid, its targeting practices and the impact it has in light of various variables. It also presents a review of food aid and other related policies in Ethiopia. The study was conducted in five regional states: Amhara, Oromiya, Tigray, Southern Nations Nationalities and Peoples and Somali regional states. The study employees survey, key informant, and focus group discussion to general the required data. This study has identified problems related with targeting practices, as well as the impact of food aid at both macro and micro levels. Although the food insecurity problem has been chronic for many years, interventions have been geared towards short-term solutions. Although the national Policy of Disaster prevention adopted in 1992 was designed to link relief efforts with development, by changing the mode of interventions and utilization of food aid resources, it has not been adequately practiced in many food insecure areas of the country and has not been well integrated with other essential polices and measures, such as reducing population growth rates to reduce pressure on agricultural resources.

1. Introduction

The main objective of the Poverty Action Network of Civil Society Organizations in Ethiopia is eradication of poverty by engaging civil society organizations in the policy process: designing, implementation, monitoring and evaluation. The main instruments PANE employees to implement its objective are research, policy analysis, and advocacy.

Accordingly, PANE has conducted a study on food aid with the objective of assessing the impacts that food aid had on production patterns, livelihoods, traditional coping

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mechanisms, informal social protection systems, as well as dietary habits, on the one hand; and to examine the decision-making processes and their implications vis-à-vis the rights of men, women, and children. The purpose of the study was to produce comprehensive information on impacts of food aid, to provide input for policy dialogue and to enrich further research.

Draught and famine are the major drives of foreign food aid inflow to Ethiopia. In addition, due to insufficient food supply from domestic production for the growing population and to overcome recurrent food shortages, the country has been heavily relying on food aid for many decades. The national data on food security profile complied by DPPC over years shows that over a period of two and half decades, the proportion of Ethiopian population affected by draught and famine rose from 4% in 1970s to over 20% during 2002/2003 (EEA/EEPRI, 2004). As a result, recently food aid requirement to mitigate the impacts of drought and famine reached its highest level of 1.4 million metric tons (MT) in 2003 from its level of only 0.4 MT in 1990.

Three types of food aid delivery emerged progressively, i.e. project (as wage), emergency (free) and program food aid (budgeted) in Ethiopia. Similarly the form of food aid distribution also varies i.e. free and food-for-work distribution. Food aid monetisation refers to the sale of food commodities (in part or in full) delivered by donors to the recipient country in order to generate cash required for running costs and for financing development schemes. Therefore, in Ethiopia the form of food aid evolved from direct Food aid through food-for-work to the recent form of cash-for-work.

2. Methodology

The study involves two major components, reviewing the existing literature and conducted a sampled survey of rural food aids beneficiary households and other stakeholders. Different survey instruments were prepared and tested, structured interview questionnaire for households, checklist for key informants and focus group discussions were employed.

For the survey 10 districts were selected from the five regions[3] (considering the agro-ecological diversities, farming system, drought history and food aid practices). While the plan was to interview 1000 households, the total number of those that were finally interviewed was 961. The location of the selected woredas are presented in the figure below.

[3] Amhara, Oromiya, Tigray, Southern Nations Nationalities and Peoples, and Somali regional states

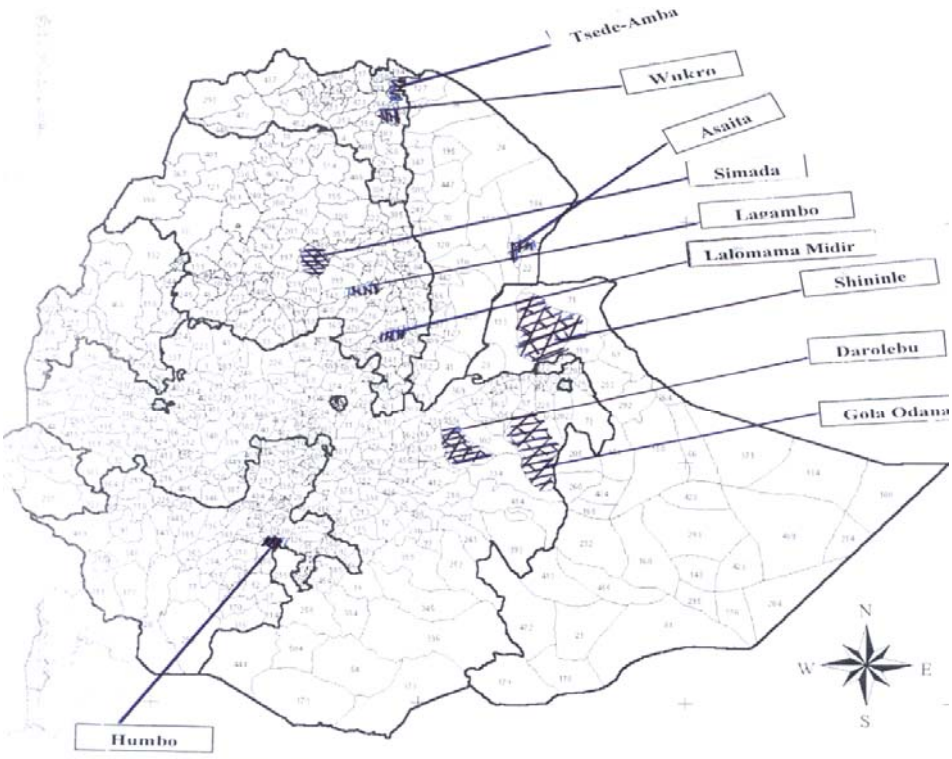

Figure: Map of Ethiopia and location of sample study woredas in different regions

3. The Impacts of Food Aid in the literature

Globally the available literature on the impacts of food aid has been dominated with two concepts. One of these argues that food aid has disincentive effect on domestic production and import, while the other contends that its impact on domestic production is minimal, and that it contrarily helped support the livelihoods of destitute people. The feature that most clearly distinguishes food aid from other income transfer programs is that recipients are generally food producers as well as consumers. Most of the concern about food aid's effects on prices would not exist if recipients were not food producers.

When coming to the Ethiopian context, the relatively limited literature that exists also seems to reflect opposing views about the impacts of food aid. A study conducted by Save the Children-UK (1999), found that for the poor and very poor households, food aid had managed to reduce labor migration outside of the normal migration season,

had prevented whole-household migration, increased dietary energy intake above levels that would have existed without food aid, prevented the sale of animals for grain, allowed households to return to their villages for cultivation after the bad years, and reduced the level of dependence on the consumption of wild foods to a minimal. For middle-class and better-off households, food aid had reduced the burden of redistribution to poorer households, and had provided opportunities to rent out pack animals for transportation and plough purposes.

A study by OXFAM-GB, mainly concerned with assessing the issue of dependency on food aid amongst farmers of the Northeastern highlands, meanwhile concluded that dependency conditions tended to exist when the relief food was mostly supplied freely. Then, the study concluded that free distribution was the main cause of dependency, and that food aid would contribute to development and generate employment if it is based on programs and schemes that would enable farmers to generate incomes.

A study by Fasil (2005) meanwhile, noted that many of the participants in food-for-work programs were only interested in the compensation for their work, and showed little interest in other development programs.

4. The existing food aid policies

The country has rural and agricultural development policies and strategies designed in 2001, and it covers diverse issues related with local developments. A Plan for Accelerated and Sustained Development to End Poverty (PASDEP) is the overarching policy framework, which governs the country's development process. There are also different food security programs and strategies such as the New Coalition for Food Security, Productive Safety Nets Program, Food Security Strategy and the Resettlement Program.

The 1993 National Policy on Disaster Prevention and Management (NPDPM), advocates community participation, by giving priority to the most at-risk areas, coordination of efforts, and edicts that able-bodied person should receive food aid freely without participating in public works aimed at developing the community (TGE 1993a; TGE 1993b). Nevertheless, the policy also specifies that targeted free food aid should be allocated to those who cannot work. On the whole, the overall aim of the policy is to expand work-based food aid to the point where it accounts for 80% of all distributions.

As of the mid-1990s, government policies started to focus more and more on ensuring food security. The Federal Food Security Strategy of 1996 and 2002, for

example emphasize on transforming small-scale agriculture to a more commercial one, namely in those areas that continue to enjoy moisture abundance, while at the same time seeking to put in place mechanisms that could contribute towards building the assets of communities in drought prone and food-aid dependent areas by augmenting production-based entitlements. Specifically, the emphasis on the later places is providing supplementary employment income support schemes, running targeted programs for disadvantaged groups, and strengthening the early warning, surveillance, and monitoring systems to increase the capacity of the Ethiopian Strategic Food Reserve (EFSR) and distribution of food and relief. In further strengthening efforts towards that direction, the Ethiopian government went on to initiate the "New Coalition for Food and Livelihood Security" in 2004, a new scheme intended to strengthening the partnership and collaboration between all stakeholders working on food security in the country. All of course, goes in line with the Ethiopian government's policy of stimulating growth and general transformation of the economy through agricultural-based and rural-centered development.

Of course, while generally aligning their support with the government's policies, the approaches of the agencies of the major donor countries also tend to differ somewhat on how food aid should be used. The Canadian International Development Agency (CIDA) as well as the European Union hold that food aid should be primarily directed towards meeting food needs of targeted groups, and those other financial costs should be solicited from other official development assistance budgets. The UN World Food Program (WFP) maintains a different view that tends to be in favor of using food aid for both developmental and relief purposes. The main rationales are that in-kind distributions made self-targeting practices of the food aid recipients fairer, had minimal effects on production and market conditions, and were much easier to manage and program, and provided lesser incentives for corruption. The US Agency for International Development (USAID) was on the other hand favorable towards the monetization of food aid, which it believed generated financial inputs to development programs, and enhanced income transfer efficiency through cash for work, promoted local and national market development and stabilized food prices.

5. Discussion on the survey results

The following discussions are the summary of the findings from the survey, key informants, and focus group discussion. Discussions with the communities have shown that the amount of food aid delivered to the needy have, on the whole, not been adequate. The response to food shortages has also not been gender sensitive and considerate of vulnerable groups like the disabled, the elderly, children and

female-headed households. Furthermore, local-level authorities had the tendency of sometimes being discriminative in the allocation of food aid, by mainly favoring their relatives and friends.

The other important point revealed by the survey is in relation to targeting food aid. A significant number of the households reported that they did not have knowledge about the beneficiary selection system and process pointing out possible targeting problem. In some cases, food aid targeting did not consider the level of vulnerability of different communities. In Asaiyta (Northeast, lowland pastoral area) food was unequally distributed amongst local administrative units, regardless of the number of needy people. The study evidenced that targeting systems lack sound participation of key stakeholders such as the community representatives, religious leaders, associations, non-government organizations, and community based organizations.

In some places the community members admitted dependency on food aid, while government experts and officials also tended to agree. More importantly the community believed that food aid is simply for saving lives and preventing the migration of people in search of food elsewhere and had no impact on asset creation. In some districts it was found out that food aid, particularly the criteria to select beneficiaries, had negative impact on asset holding. It was indicated that since the main criteria of beneficiary selection was lesser physical asset/property possession, many community members have tended to sell their assets to be eligible to receive food aid. Thus, food aid leave alone helping asset creation, it has even facilitated asset depletion.

It is evident from the study that the impact of food aid on domestic production manifests itself though price disincentives and affecting the working behavior of the recipients. The effect of price disincentive was more pronounced in the crop-dominated farming system while it has an advantage of price stabilization in the livestock based farming.

6. Concluding remarks and recommendations

The discussions in the foregoing sections revealed that enough attention was not given to appropriate support mechanisms to rehabilitate and improve the productive capacity of food aid beneficiaries. There was no also adequate local community participation and awareness raising which is believed to led to targeting problems of food aid. As part of the food security improvement strategy, enough attention must , therefore, be given to appropriate support mechanisms to rehabilitate and improve the productive capacity of food aid beneficiaries. Attention should also be given to

adequate local community participation and awareness raising so that the limited aid resources get allocated for the desired purposes, and reach the really needy ones.

Adequate collaboration and communication between NGOs/food aid agencies and government organs on the one hand and with the community on the other hand is essential not only to avoid the misunderstandings but also to effectively utilize the aid resource and minimize its negative effects that may potentially occur.

The humanitarian assistance alone may not be a suitable tool to bring about improvements in the living of the recipient community. Gradual shift of humanitarian assistance to more alternative ways of building household asset would be the good option. Therefore, enacting appropriate policy, which encourages small business enterprises independent of drought conditions, is very important to increase the income of the community and thereby improve their living standard. The policy should address: the problem of income, asset depletion, vulnerability to shocks, and the problem of marketing.

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SOCIAL ACCOUNTABILITY AND THE ROLE OF CIVIL SOCIETY IN ETHIOPIA

Gweneth Barry[1]

1. Introduction

Internationally there are increasing discussions around how governments can both improve their service delivery for poverty reduction and develop better governance systems through increased accountability. These debates often focus on the workings of government itself but civil society can also be an important factor in this process. In Ethiopia civil society is beginning to look increasingly at focusing on these areas – helping citizens to develop social accountability. However there is some debate around what the exact role of civil society should be and which actors within civil society should be engaged in this.

In order to address such issues, this paper seeks to explore the role of civil society in developing social accountability, focusing on the situation in Ethiopia and concrete functions that civil society is already performing. It will explore what social accountability is in reference to developing better development initiatives and governance. It also considers why this is a pertinent issue for Ethiopia and the focus of the debate. Finally the paper will consider the actual functions of civil society can play in social accountability which show why it has an important role, looking at examples from work in this area in Ethiopia.

2. What is social accountability?

Accountability is described by Melena, Forster and Singh as 'the obligation of power holders to account or take responsibility for their actions'[2]. In terms of governance these power holders will be government officials and representatives, although accountability is also an important concept for civil society and the private sector. This paper however will focus on government accountability due to its important role in the democratic process and poverty reduction. Melena et al argue that in a democracy

[1] Poverty Action Network Ethiopia

[2] Melena, C et al. 2004 p2

the citizens have the *right* to demand accountability and power holders have the *obligation* to provide it. Accountability can focus on both the conduct and performance of government officials[3]- accountability should cover the honesty of officials but also how well they serve the public interest.

This accountability has two sides – there is the "supply side", the internal systems and procedures of government for providing accountability and a "demand side" – citizens demanding greater accountability and responsiveness from their government officials and service providers[4]. Social accountability, as defined by the World Bank, is an approach, 'initiated by civil society or the state, toward building an accountable and responsive government by relying on civic engagement'[5]. This approach accepts that it is not just the state that should ensure the fulfilment of rights but that citizens themselves can have an active role in monitoring their provision and seeking public scrutiny or transparency[6]. Social accountability does not rely on the state to provide accountability itself but helps citizens to engage with state processes so they can demand it. This form of accountability is not reliant on the procedures of government but on citizens engaging with the process and asking for information.

Social accountability has also been developed in relation to the private sector. Similar mechanisms have been used to help citizens hold private companies to account. There is also no reason why social accountability techniques could not be applied to civil society projects where they are involved in service delivery. This has already been practice by Water Aid in Ethiopia who has conducted score cards on some water services they provide. However the purpose of this paper is to look at how civil society can engage in social accountability efforts that particularly look at the state as this is where importance issues of governance come into play and the role of civil society has been questioned in the past.

In order to provide a demand based accountability system different mechanisms need to be developed to help citizens to engage. These have been many and varied around the world. However common building blocks have been identified across different initiatives. An intervention will start as an agency mobilises around an entry point for addressing a priority problem. The next stage is then to build an information or evidence base on this particular topic. This information is shared with the public and then the agency will negotiate or advocate for change[7].

[3] *Ibid* p2
[4] *Ibid* p1
[5] Arroyo, D 2004 p 4
[6] Gaventa, J 2002 p12.
[7] Arroyo, D. 2004 p5

A large part of social accountability mechanisms focus around the budget process as this is a 'fiscal expression of social priorities' and key to policy implementation. Work on the budget could take different forms at different stages of the budget cycle from participatory budgeting in the formulation process, analysis of budget documents as they are approved by the legislature, expenditure tracking and performance monitoring as budgets are implemented and social audits and reviews of audit processes after implementation. However social accountability mechanisms may also be wider than engagement in the budget process – also considering other anti-corruption measures or the quality of service delivery.

Social accountability is important as it can help contribute to key areas for poverty reduction – increased development effectiveness, good governance and empowerment[8]. Spending on development will be more effective when it is monitored to ensure that it is pro-poor and more responsive to social needs. The information gained through social accountability initiatives can help bring problems in service delivery to the attention of their providers and bring momentum for change. This new form of information from those who are using services can also help to inform policy making.

In terms of governance the traditional form of accountability has been elections. However elections are a blunt instrument as citizens can only choose between limited candidates to represent them on all issues. Democracy can be wider than purely parliamentary elections - finding expression through participation in government as well as voting. Social accountability mechanisms allow room for citizens to express their opinions in different interests and at different times. It can therefore help build democratic values by encouraging participation in the process of government and bringing the electorate and the government closer together.

Social accountability can have a specific role in improving governance by making decentralisation more effective. Many governments around the world, including Ethiopia, have been decentralising decision making in an effort to allow officials to be more responsive to local needs. However the process is often difficult due to low capacity at the regional level and a lack of transparency. Social accountability mechanisms can help develop the responsiveness of local level officials helping to increase their effectiveness.

Social accountability mechanisms can also help to empower communities as they provide a way to aggregate the voices of disadvantaged or vulnerable groups and increases the chance that the state will be responsive to their needs. Research has

[8] Plummer and Mussa 2006 p4

shown that poor people's dissatisfaction with government is often related to issues of responsiveness and accountability[9]. By providing a way to give systematic feedback from the poor on government services and processes social accountability can help government become more accountable to the poorest and therefore address this problem.

3. Social Accountability in Ethiopia

There has been an increase in debate in the last year about 'social accountability' in Ethiopia. This is partly due to the introduction of the 4th Component of the Protecting Basic Services Grant. The Protecting Basic Services Grant is a new aid modality in Ethiopia, replacing direct budget support, which focuses assistance to the lower levels of government. In addition to giving money directly to the woredas (districts) in Ethiopia for basic services delivery and health care procurement, the project aims to help increase transparency and engagement in the budget process to ensure communities for whom the funds are intended can be informed of their delivery. Work is being done by the government for this in terms of posting up budgets and conducting surveys on citizens' awareness of the budget process. However the forth component of the grant is focused on building social accountability initiatives with grants being made to civil society to do this.

The Protecting Basic Services brought the term 'social accountability' into the common discourse in Ethiopia but this was not the start of all 'social accountability' work. Civil society organisations had been beginning to develop work in this area in a number of different ways, as it is increasingly looking to move beyond just service delivery and into work to improve the governance environment as a whole. As part of this organisations are engaging in work around the budget process through training on budget literacy and studies in to particular sectors on the budget. Specific techniques have also been developed such as report cards to help citizens feed in their views on services. It could be said that given recent difficulties with the electoral process that social accountability is more important than ever in providing an alternative way for government to respond to citizens. However there has still some debate around the role civil society can play in social accountability measures. An examination of the role that civil society can and should play in social accountability is therefore useful in terms of contributing to this debate.

[9] Melena et al. 2004, p5

4. Role of Civil Society in Social Accountability]

The definition of the term 'civil society' has been questioned in Ethiopia. However producing a definitive definition is beyond the scope of this paper and so will not be addressed here. However for the purposes of this discussion it may be more useful to consider all the possible roles different types of organisations could play rather than trying to exactly define those organisations as civil society or not. For this reason I will take an inclusive perspective of civil society - seeing it as the area of society that is not government or the private sector (organisations concerning profit) but is also wider than the domestic sphere. As social accountability involves mechanisms that are external to the state's systems to develop accountability, civil society has a role in helping citizen's engage as it exists separately to the state. However within this sector there are a range of organisations with different constituencies, abilities and sources of legitimacy. Therefore the roles that different organisations within civil society should play will differ.

In a democratic system the government should be accountable to the citizens who elected it and in many examples of social accountability work in Ethiopia it is the citizens who engage directly with the woreda on accountability issues[10]. However in this direct link may not be possible in all cases and usually needs coordination and so in order to facilitate engagement there are key functions that civil society can play to help develop social accountability.

In engaging in social accountability mechanisms organisations need to think what their particular niche is. Different organisations have different skills and so can bring different things to enhancing social accountability. By working together organisations can share these skills and advantages. Organisations that are community or membership based may be best place to engage with local government on social accountability by providing a way for citizens to engage. However they may not have the skills or knowledge to engage in the new field of accountability work. Therefore NGOs with more capacity can help support those organisations to interface with government and train them in the relevant techniques while international organisations or networks may be best placed to help provide technical support and disseminate information and learning[11].

Although each agency needs to consider its particular niche there are some general functions that civil society as a whole is well placed to carry out - with different organisations engaging in these functions in different ways. This paper will discuss

[10] Plummer and Mussa 2006, p12
[11] See Plummer and Mussa 2006, P18-19 for a model which suggests such a division of labour.

three of these although there are probably more that exist and will emerge. The most immediate three are i) convening and organisation, ii) information sharing and analysis, and iii) building capacity and sharing learning. Below is an examination of each of these with some examples of how civil society had been providing these in Ethiopia.

i)Convening and organisation. In an ideal world every citizen would be engaged with the government – holding them to account for their actions and understanding their programmes. However every individual citizen engaging in accountability would cease to be practical very quickly. Therefore civil society can provide a way to organise and collate the views of citizens and give them a collective voice. This could be done by bringing people together in different forums to discuss with government or by collating the views of citizens and representing them at different levels.

In collating and presenting the views and opinions of citizens it may become necessary to represent those views to the relevant sections of government. When doing this civil society organisations need to consider how far they can effectively represent the views of those citizens – particularly focusing on their legitimacy to do this. This legitimacy can come from different sources depending on whether a civil society organisation is claiming to help people represent themselves, speaking for people, speaking with the people or about the people[12]. Some civil society organisations are made up of members and therefore can speak for those members on certain issues. However even these organisations should consider which issues they have the authority to represent their members. For example a women's organisations may be mandated by the members to speak on behalf of them in matters relating to women's empowerment but maybe not for all political issues. Structures also need to be in place to ensure the representatives of those organisations keep in touch with the perspectives of members so they know they are representing them accurately.

Some organisations, particularly NGOs, may not be made up directly of members but may have close links with communities in which they work. Therefore they can have a source of legitimacy of speaking with people – helping those people they work with present their views. For example Handicap National is forming groups within the Addis Ababa community to focus on budget monitoring and their work with these groups will enable them to help them present their views.

However civil society organisations still could legitimately speak *about* citizens and their views. The legitimacy to do this would be based on different sources. It could be

[12] Silkin, T.2006 p3

the close relationship and long understanding that the organisation has with a community through their work or research that they have conducted. For example if the Poverty Action Network Ethiopia has conducted research into the views of citizens on service delivery this gives them legitimacy to speak in this area.

Therefore there is not one source of legitimacy but several. Restricting the concept to only membership organisations would exclude many organisations that could make valid and important contributions to the accountability debate. However civil society organisations themselves also need to identify the source of their legitimacy. Simply being a civil society organisation itself is not enough to be able to claim to speak for people. Each organisation should be able to identify and articulate from where their legitimacy comes from.

In current initiatives in Ethiopia which are building social accountability civil society has brought the views of citizens to decision makers in different ways which take account of the different issues around legitimacy. At a very local level civil society has been able to convene joint forms where community members can interact directly with government officials. An example of this work is efforts to monitor the SDPRP in Oromiya by Hundee in partnership with Help Age.[13] In Ch'ancha, Hundee has worked with older people in the communities where it was working to form older people monitoring committees. These have then worked with the woreda officials to conduct PRA exercises to determine the needs of the community and compare if the budget for the woreda reflects these needs or not.

However this form of work could only be effective at a very local level. Once initiatives are aimed at reaching regional or national government it becomes impractical to have representatives from each community directly interacting with the service providers or relevant officials. Therefore collection of information is needed. An example of gathering of such information is the PANE Citizens Report Card. This study gathered together the views of citizens on service delivery, collated and analysed them, and presented it at different levels – the woreda, national and regional levels. PANE, as a national network with members working at the local level, was well placed to do this. The presentation of citizens views on service delivery by PANE helped policy makers to understand the challenges in delivering those services and was included in the of the Plan for Accelerated and Sustained Development (PASDEP) (Ethiopia's second PRSP) as part of the assessment on poverty.

[13] This is part of a wider project which also involves other partners such as the Rift Valley Women's and Children's Development Association and Action for Development.

ii) Information sharing and analysis
If citizens are to engage effectively in holding their government to account they need the information and knowledge on particular areas to do this. For example if citizens are going to engage with the government on the protection and fulfilment of rights they need first to understand what those rights are and the government's role in their protection. Similarly if citizens are going to be able to hold government to account over how they utilise the budget they first need to understand the budget process and how to interpret budgets. Government could provide this information but civil society organisations who work with communities are often well placed to do it due to their links with those communities which can be used to channel information. Some civil society organisations also have existing expertise in rights based approaches and budget systems. Civil society organisations in Ethiopia have begun to help citizens become informed on the budget process through budget literacy training. The Basic Education Association Ethiopia and the Network of Ethiopian Women's Associations are providing budget literacy training for their members. Handicap National, a local NGO working with disabled children is also providing budget literacy training for disabled children and their parents, community leaders and their staff to help those groups begin to engage with the budget process and ensure that the needs of disabled children are recognised in the budget.

As an extension of providing information, organisations with a speciality in research or policy work can help provide analysis of budgets or policies which will help citizens further make informed choices. This is particularly important in budget work where the data itself may be difficult to understand and interpret for many. Providing an interpretation of what is happening can help to increase debate in the budget process. Some organisations within civil society might have the specialist skills necessary to interpret and analyse the budget. These organisations are producing reports which help other civil society organisations and citizens understand in more depth how the budget is helping to implement policy. For example the Basic Education Association Ethiopia and Oxfam GB have analysed the funding of primary education in Ethiopia[14] and Save the Children Sweden have looked into the budget and the provision of child rights[15].

iii) Building capacity and sharing learning. One of the key traits of social accountability is the collection of information on which to base the dialogue with government. Social accountability initiatives try to move the debate 'from shouting to counting'. However in order to collect useful information on which to base advocacy, mechanisms for

[14] See *Debt Relief, Development aid and Financing Education* Basic Education Association Ethiopia and Oxfam GB, 2006
[15] See *Good Governance and Budget Tracking from a Child Rights Perspective* Save the Children Sweden, 2005

collecting information on the performance need to be developed. By networking internationally and innovating in pilot programmes many civil society organisations have developed skills in different methods. These include monitoring of budget outcomes, social audits, report cards and citizen's juries. The mechanisms are many and distinct as they are operating in a range of contexts and addressing many different aspects of accountability. However civil society organisations can help train people in these skills and help citizens develop methods of gathering information which suit their particular needs.

For example Water Aid has been developing mechanisms that will help citizens to monitor and keep track of water provision services to ensure that they are maintained and provided well. This is done through score cards on water provision schemes that can be used to monitor both NGO and government provided schemes. Water Aid had brought in this methodology from abroad and adapted it for Ethiopia to help develop accountability in the water sector. They have provided the training for citizens to enable them to use the method thus providing citizens with the necessary skills to effectively build accountability.

Networking between civil society organisations also allows the sharing of techniques such as this and the sharing of learning around the development of accountability. Groups where civil society come together to share, such as the PANE Budget Group, allow ideas to pass between organisations and skills to be shared. The PANE Budget Group for example has provided exchange visits for its members to see how successful projects are working, brought in external expertise for training and helped coordinate efforts.

Without civil society engagement, citizens might not get the opportunities to develop new skills and new ways for engaging in accountability. The interaction of different levels of civil society also allows the flow of ideas from international expertise and different areas of Ethiopia to the local level.

5. Conclusion

Social accountability is an important content in terms of improving efforts to reduce poverty, developing better governance and empower communities. As the concept involves the external demand of accountability on government then it needs outside actors to instigate it – which is why it is key for civil society to be involved. Civil society is not one block of similar organisations and each organisation should consider its advantage in engaging in accountability work and its source of legitimacy. However as a whole the civil society sector can help organise and convene citizens'

engagement, provide information, share skills and build capacity. This helps lead to more effective and informed engagement from citizens and ensures that messages can reach different levels of government.

Civil society therefore has a concrete role to play in the development of social accountability in Ethiopia. Increasing focus is being placed on this area of work – partly driven by donor projects but also by the work of civil society and the initiatives it has already developed. The further encouragement and support for civil society in this area from donors and government will therefore help to strengthen development and build effective governance.

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