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Gender Profitability Differentials (GPD): Evidence from Ethiopia

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ACRONYMS AND ABBREVIATIONS

ETB	Ethiopian Birr
GDP	Gross Domestic Product
GPDs	Gender Profitability Differentials
GPG	Gender Pay Gap
LSMS	Living Standards Measurement Study
MOEs	Men-owned Enterprises
NFE	Non-Farm Enterprises
NGOs	Non-governmental Organizations
WEs	Women Entrepreneurs
WOEs	Women-owned Enterprises

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ABSTRACT

Despite extensive research, understanding the gender gap in business profitability remains unclear. This study compares Men-owned Enterprises (MOEs) and Women-owned Enterprises (WOEs) within Non-Farm Enterprises (NFEs) employing data from 1745 NFEs covered by the 2018 Living Standards Measurement Survey (LSMS). The result revealed significant gender differences in NFE profits. It also identified potential causes for gender profitability gaps, including limited opportunities for women in male-dominated industries, lower unemployment prospects, and total factor productivity disadvantages. WOEs are more impacted by resource and socio-cultural constraints than MOEs, face disparities in sales, profit, experience, and business networks due to location differences. Distinct cost structures for men and women NFEs emerge, and when considered in a full sample-covariates model, gender, owner age, and rural/urban location are statistically significant individual-level factors. Human capital, work-life balance, and segregation are primary causes of lower WOE profit margins. Firm-level characteristics, such as enterprise activities, start-up capital source, age, customer base, seasonality, license, and constraints, significantly influence NFE profitability. Despite reduced sample observations due to data limitations, the study emphasizes the need for a comprehensive new survey to address challenges and expects its findings to shape future research and intervention strategies at both individual and business levels with potential policy implications.

Keywords: Gender, Profit disparities, Constraints, Ethiopia

1. Introduction

Gender is a social construction and codification of sex differences and social relationships between men and women. Historical, ideological, cultural, religious, ethnic, and economic factors which can change dramatically over time influence society's view of gender through political, economic, or cultural influences. Women account for nearly half of the world's human capital, and they have an equal ability to produce and an opportunity to advance the economy as men do (OECD, 2008).

Gender issues have become an important area of concern in national and sub-national economic development in many developing countries, including Ethiopia. Understanding the concept of gender is critical to unpack how different development processes affect gender outcomes.

Ethiopia loses an estimated USD 3.7 billion in economic cost each year as a result of gender gaps in agriculture, business earnings, and employment wages. This cost reflects the effort required to close the gender gap within the economic system (WB, 2019). As Ethiopia strives to maintain its steady rate of development planning, it is becoming clear that economic growth, project efficiency, and social justice all require a new approach to development planning that systematically includes women (Ahmed, Angeli, Biru, & Salvini, 2001).

Ethiopia recognizes the critical role women play in achieving the nation's development goal, as evidenced in its legal, policy, and business environments. However, women's business ownership is still in its infancy and fall far short of their potential, and there is a clear gender imbalance in terms of composition, ownership and decision-making (see for example World Bank Group. 2019). Women farmers, have been found to be less productive than male farmers. Furthermore, numerous constraints exist in Ethiopia that threaten growth, development, and performance of Women Owned Enterprises (WOEs)[3].

Women Entrepreneurs (WEs) in Ethiopia have not received adequate support from stakeholders and the community nor received substantive assistance from the Ethiopian national government in terms of recognition, protection, access to finance, skills, and resources required to operate small businesses. Many economists have argued that promoting women is a necessary condition for overall economic growth and poverty alleviation (Revenga, & Shetty, 2012). However, intervention measures aimed at combating sectoral inefficiency are frequently

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[3] One or more women own, operate, and actively manage at least 51% of the enterprise.

ineffective, haphazard, and woefully inadequate in terms of resource allocation, which is critical for optimal performance (example see: Bahru, 2022).

Over the last few decades, the Ethiopian government has put in place a number of policies to help businesses in general and women in particular. Some of these policies include the provision of production and working shades, as well as the establishment of women-focused microcredit enterprises. However, the number and size of WOEs insignificant. For instance, according to World Bank Enterprise Surveys (WBES) data, nearly 30% of the country's small and medium enterprises are WOE (WBES, 2015). Moreover, Ethiopian women face stereotypical cultural norms, insufficient business networks, biased family duty, and gender discrimination.

Despite the efforts to support WOEs in Ethiopia, the effectiveness of legal frameworks, policies, strategies, plans, and commercial and social environments is uncertain; transition and changes are rare. Various policies and strategies, such as the Industrial Policy, Micro and Small Enterprises Development Strategy, Growth and Transformation Plan, Homegrown Economic Reform Agenda, and Ten-Year Perspective Development Plan emphasize the government's efforts to empower women in Ethiopia, even if they do not effectively reduce the country's existing Gender Profitability Differentials (GPDs). According to Buehren et al. (2019), despite Ethiopia's remarkable economic progress over the last decade, gender gaps in key economic activities - agriculture, entrepreneurship, and wage employment - indicate that barriers to realizing the full potential of women's economic empowerment remain. Women lag men by 36% in agricultural productivity, 79% in business sales, and 44% in hourly wages, according to differences in simple averages.

It is unquestionable that, the contribution and impact of women's participation on Gross Domestic Product (GDP), employment, and foreign exchange earnings paramount. Reducing gender disparities in education and the labor market could boost Ethiopia's annual GDP growth by around 1.9% (Salman, Niklas & Sreelakshmi, 2015). However, WEs are frequently involved in informal and small businesses with low capital intensity and skill levels that limits their potential. Women typically pursue occupations that complement their family responsibilities, such as jobs in the service sector that are driven by the need to survive (World Bank, 2012).

Not only business ownership but also wage disparities persist between men and women. According to Grybaite (2006), women and men are not paid equally for equal work. Women, on average, have lower profit, incomes, wages, and less favorable employment conditions than men. Pay disparities between men and

women, in particular, have an impact on women's labor-force participation as well as their status and power within the household (Grybaite 2006). Gender differences in the workplace become inequity after retirement. Because women are underpaid, their social security benefits are also underfunded. Inequalities in their working lives resulted in lower retirement payments. Other negative consequences are determined by the wage disparity between men and women. Lower wage rates for women may increase women's economic dependence on their male partners, making them more vulnerable to domestic violence.

WOEs who are fruitful can create job opportunities and make profit for themselves and others. They can be used as one type of job-creating machine in society. Furthermore, by participating in businesses, women have the potential to boost economic growth, earn profit, create jobs, and break the cycle of poverty in low-income countries. To that end, Ethiopian laws, legal frameworks, and policy developments cannot achieve their intended goals unless they are informed about women. The constraints, GPD, and costs incurred due to unequal participation of women must also be investigated. Furthermore, in most developing countries, including Ethiopia, the adequate data regarding women WOEs is hardly available. Often times, available surveys do not provide a clear picture of business ownership and representative women samples are difficult to make gender based comparison (Kagy et al., 2022).

The economic discipline has a long history of studying barriers to firm profitability, growth, and entry into new markets. The relatively recent interest in gender inequality has prompted new research into the factors that influence existing GPDs in firm characteristics and performance. As body of evidence on GPDs expands, there is an increasing need for a common framework and rigorous 'stock taking' of what has already been investigated and where the highest value add would be for any potential new work. Existing academic literature reviews of field-based work on firm barriers are broad in scope and pay little attention to gender. Furthermore, empirical evidence on GPD is scarce. As a result, the overall goal of this research is to examine GPDs in Ethiopia. Its specific goal is to look into the magnitude and determinants of GPD in Ethiopia.

As a result, focusing on the GPD in Ethiopia, this study intends to make its own contribution by closing the existing knowledge gap in GPDs and women's constraints. The study's findings can be used as a source of empirical literature, indicators for policy intervention and as input for policy formulation in Ethiopia.

2. LITERATURE REVIEW

Various theories have been proposed to explain the GPD's and its persistence. Though GPD has long been a feature of labor market around the world, the deferential is also evident in a wide range of economic activities. While it has shrunk in some countries, overall progress has been slow and far from reasonable equality. Economic, sociological, and psychological theories explain GPD differently and some of these are summarized as follows.

2.1 Gender Role Theory

This theory explains GPD is a result of embedded social, economic and scatological make of a society. Meaning that, gender roles are established early in life and influenced by much of what happens at home, school, in personal relationships, family life, and workplace (Lips, 2012; Ochsenfeld, 2014; Rubery, 2008). As a result, men and women frequently take different paths in education and employment, resulting in pay disparities. Segregation into traditional gender roles is not always a conscious "choice" made by either men or women. Rather, these choices are influenced by social pressures and expectations, which are passed down from generation to generation.

2.2 Human Capital Theory (Model)

Human capital is defined as the ability and skill that people acquire through education, training, and experience. These abilities are the foundation of their earnings. According to Mincer and Polachek (1974), women choose types of occupations that to minimize losses associated with their more intermittent labor-force participation. Women have less labor market experience than men due to the traditional gender division of labor in the family. Furthermore, because women expect shorter and more discontinuous work lives, they have fewer incentives to invest in labor-market-oriented formal education and on-the-job training. As a result, their earnings will be lower relative to men. Moreover, women's longer hours spent on housework may reduce their effort put into pay jobs compared to men and this reduces their productivity and wages and even their profitability. This theory further implies that wage structure plays an important role in explaining the gender wage gap. If, women have less experience than men, then the higher the return on

experience received by workers, regardless of gender; thus, results in greater the Gender Pay Gap (GPG) (Blau & Kahn, 2000).

According to Becker (1985), women have traditionally been far more likely than men to work part-time and intermittently, partly because they typically withdraw from the labor market for a period of time after having children. As a result, there were fewer incentives for them to invest in education and training that increased their earnings and job skills. However, Becker observed that the situation had changed, with a decrease in family size, an increase in divorce rates, and the rapid expansion of the service sector, where the majority of women were employed. The continuing economic development raising the earnings of women and men alike resulted in increased labor-force participation of women and narrowed the pay gap.

Although most studies suggest that human capital factors, particularly women's less labor market experience, are important in explaining the GPG. Some critics argue that human capital theory is based on broad assumptions and fails to account for the fact that all decisions are made in a normative context in which there are fixed ideas about what men and women should do. Critics of the human capital model argue that women and men cannot be studied as autonomous individuals, and that the various working conditions they face must be placed in a material and social context[4].

2.3   Labor Market Discrimination Theory

The portion of the pay gap that is not due to differences in qualifications between men and women is generally assumed to be due to labor market discrimination. This discrimination occurs when identical workers are paid differently for doing the same job or are given different opportunities for employment or promotion. It is the presence of different pay for workers with the same ability but in different groups, such as male and female[5]. In this context, there are two types of discriminations: distribution and value discrimination. The term distribution discrimination refers to unequal treatment of women in recruitment and promotion decisions. The term value discrimination refers to the fact that jobs performed primarily by women are paid less than jobs performed primarily by men.

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[4] "Highlighting pay differentials between women and men". (2000). Government Offices Sweden.
[5] http://economics.about.com/od/economicsglossary/index.htm. November, 2005.

Wage discrimination is the material foundation for women's subordination and lack of economic equality (Arrow, 1972).

Discrimination in the labor market affects women's wages and occupations. Gary Becker's work is the foundation of the standard economic analysis of discrimination. Becker assumed that some people have a taste for discrimination. A taste for discrimination is more than just a like or dislike; it is a desire to act on that desire. If a person enjoys discrimination, he must behave as if he is willing to pay something, either directly or indirectly in the form of a lower income, to be associated with certain people rather than others (Becker, 1971). Becker's discrimination analysis is embedded within the conventional economic analysis of utility-maximizing individuals and profit-maximizing firms, which frequently constrain their behaviour. According to Becker's model, employees, co-workers, or customers have preferences for gender discrimination, resulting in a segregated workforce. He investigated discrimination sources such as employer discrimination, employee discrimination, and customer discrimination. Employers who are willing to hire women as secretaries may be hesitant to hire them as builders. Men may be willing to work with women in subordinate positions, but they dislike working with women in superior positions. Customers who prefer to buy flowers from women should avoid women who sell cars. Discrimination may occur as a result of various factors, which are modelled as follows.

2.3.1   Statistical Discrimination Model

Edmund Phelps created a statistical discrimination model (Phelps, 1972). He suggests that employers evaluate individual women in terms of the group's average characteristics. Employers are frequently concerned that women do not take their careers as seriously as men, and they anticipate that women will leave their jobs once they have children. As a result, hiring women is riskier and more dangerous than hiring men. If employers believe that women are less productive and less stable employees on average, statistical discrimination against individual women may occur. This is also appliable in business ownership and outcomes.

2.3.2   Crowding Model

Barbara Bergmann's crowding model proposed the hypothesis that because women are denied access to many occupations, they are crowded into a small number of remaining occupations. The existence and progression of occupational segregation

by gender has led some to argue that it is the result of a crowding policy aimed at lowering wages in specific occupations. The basic assumption is that a surplus of female labor leads to low wages wherever it occurs. The overcrowding model is based on evidence that, earnings in predominantly female occupations are lower than earnings in predominantly male occupations ceteris paribus. This theory is useful for understanding gender inequality in the labor market and, as a result, pay disparities (Bergmann, 1974).

Another approach to gender segregation proposed by Bren and Garsia-Penalosa (2002). Individuals in their model have imperfect information about their chances of success and base their career choices on prior beliefs about these chances. Furthermore, past differences in preferences influence current generation beliefs, so career choices differ even when men and women become identical in their current preferences and traits. If crowding is the sole cause of the GPG, there should be no statistically significant difference in the average wages paid to males and females within an occupational except for differences in productivity and other individual traits.

2.4   Undervaluation Theory

The persistence of the GPG suggests the possibility of an occupational feminization stigma - that work done by women is socially and economically undervalued. This theory is most popular in the United States (England, 1992, 2005, 2010), but it is also accepted in the United Kingdom (Perales, 2013). According to the theory, certain types of work are undervalued in society precisely because they are performed by women.

Pay practices are 'socially constructed,' and they contribute to the undervaluation of women's labor in a variety of ways. Pay is heavily influenced by social pressures and norms, as well as the actions of employers, governments, and trade unions. Pay is frequently determined by typically male behaviors such as working long hours, continuously for an extended period of time, and an aggressive negotiating style. Some women lose out because they do not conform to these norms. Women, on the other hand, are still viewed as secondary earners by society, and they are more likely to derive more intrinsic reward for the employer than men, justifying lower wages (Grimshaw & Rubery, 2007). However, given the overall trend of narrowing the GPG in developed countries, the undervaluation theory is becoming less relevant (Jackson, 2008). The fact that the GPG varies by country suggests that devaluation is not universal or uniform (Bettio, 2002; Bettio & Verashchagina, 2009).

2.5   Liberal Feminism and Social Feminism Thoughts

In the literature comparing the performance of WOEs and Men-owned Enterprises (MOEs), two major schools of thought appear to predominate: liberal feminism and social feminism (Black, 1989). Liberal feminism is "rooted in liberal political philosophy," whereas social feminism is "rooted in social learning theory to psychoanalysis" (Fischer et al., 1993). According to liberal feminist theory, in the absence of discrimination, females and MOEs should perform equally well. Similarly, while social feminist theory contends that men and women are inherently different in nature, it does not predict that WOEs will outperform MOEs based on these differences. As a result, it appears reasonable to suggest that both liberal and social feminist theory are potentially consistent with the proposition that firms controlled by women and men should perform equally well. This proposition, however, contradicts much of the established literature, which generally concludes that WOEs outperform MOEs (Klapper and Parker, 2011).

According to Fischer et al. (1993), liberal feminist theory is based on the belief that men and women are equally capable, and thus any observed female underperformance must be due to overt discrimination (e.g., by lenders) and/or other systematic factors that deprive women of important resources (e.g., lack of an appropriate education). Studies that take a liberal feminist perspective appear to assume that WOEs underperform MOEs and then attempt to explain this underperformance through potential discrimination (Ahl, 2006).

In contrast to liberal feminist theory, social feminist theory proposes that men and women are inherently different by nature, and that these differences (rather than discrimination) will cause them to run their businesses differently. For example, women may seek to: take fewer risks (Kepler & Shane, 2007; Watson & Robinson, 2003); grow their businesses more slowly (Cliff, 1998; Morris et al., 2006; Orser & Hogarth-Scott, 2002); and/or achieve (Boden, 1999; Buttner & Moore, 1997; Jennings & McDougald, 2007; Kepler & Shane, 2007). Females may also choose to take different college courses or pursue different majors/degrees when compared to males. They may also be less likely to seek financial assistance from a financial institution (Watson, 2006; Watson et al., 2009). According to social feminist theory, such differences in men's and women's choices do not necessarily imply that WOEs will underperform MOEs, provided appropriate performance measures are used and key demographic differences are controlled for in the analysis. Unfortunately, due to a lack of data, many prior studies were unable to adequately control for important demographic differences, leaving their findings "subject to the limitation that gender

may merely be a proxy for unobserved characteristics that truly account for the differences observed in the data" (Kepler & Shane, 2007, p.3).

2.6   Conceptual Framework

Business outcomes vary not only because of the ownership structure per se rather individual, socioeconomic, political, cultural and working policy frameworks do matter. Figure 1 shows these interactions.

Figure 1: Conceptual framework of the profitability and the characteristics
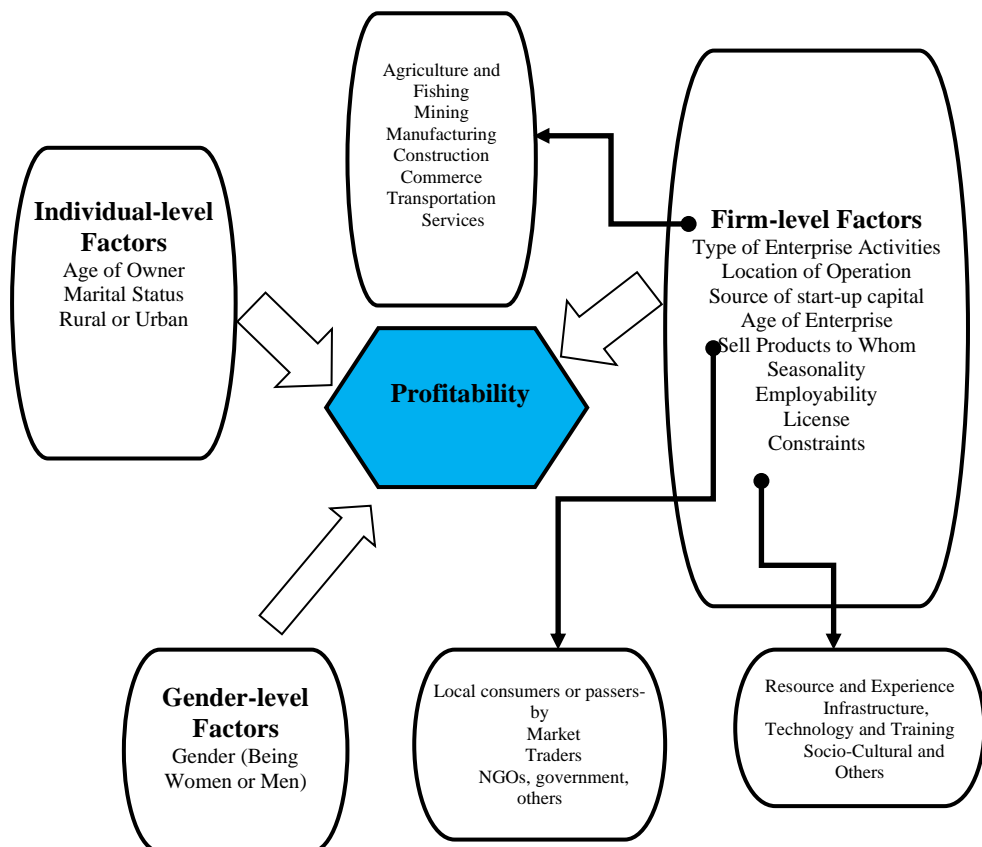
Source: Own construction

According to the monopsony theory, when an employer has a monopoly, the lack of competition results in a low labor price. When a firm is a large buyer of labor relative to the size of a particular market, it gains monopsony power. Warren Farrell

(2004) proposed a controversial approach to the pay gap question in his new book. Based on his research, he concluded that women pay a financial price for pursuing more flexible, less risky, and more fulfilling careers. These positions typically pay less. A librarian with a graduate degree, for example, will earn less than a garbage collector with no education. Garbage collectors are paid more because their jobs are more dangerous and have less pleasant working conditions. According to Warren Farrell, the idea that unequal pay for women is based on bias is largely a myth, and that women are frequently paid less than men not because they are discriminated against, but because they have made lifestyle choices that affect their ability to earn.

He presents concrete ways for any woman to increase her pay in his book. Among his suggestions are that women choose a career with higher financial and emotional risks (i.e., venture capitalist), find a specialty that requires frequent updating - and stay current, seek out more lucrative sub fields (surgeon vs. psychiatrist), get hazard pay without the hazards (i.e., be an administrator in the Air Force), relocate - particularly to undesirable locations at the company's request, and require less job security (Farrell, 2004). He rejects the assumption that women face workplace discrimination and that women's low wages are the result of discrimination.

According to rational choice theory, humans are rational beings who are goal-oriented, concerned with their own welfare, and strive to maximize their utility (Turner, 1974). Individuals act to maximize their own interests while minimizing their own costs. Given an individual's preferences, opportunities, and constraints, actions are optimally chosen (Coleman, 1990). It is argued that men and women face different objective functions.

In contrast to the individualist viewpoint, structuralists believe that the social structure, rather than human capital, determines which positions pay higher wages and who will fill them. Organizations have economic position hierarchies that determine wages. Individual characteristics, rather than income, determine the position that an individual holds. From a structuralist standpoint, dual economy and labor market segmentation theories attempt to explain the wage disparity between men and women.

According to dual economy theory, the labor market is divided into two sectors: monopoly and competitive (O'Connor, 1973; Saint-Pau, 1996). Monopolies have a large market share, the ability to set prices, a high capital-to-labor ratio, and international business, all of which led to higher profits, which can support a higher wage structure. Because of the large amount of capital invested per worker, management is compelled to regulate production and employment in order to avoid

losses through higher wages (O'Connor, 1973). Employees in monopolies earn 1.5 times more than workers in competitive industries. White men dominate the monopoly sector (Coverdill, 1988; Tolbert, Horan, & Beck, 1980).

The competitive sector has a low capital-to-labor ratio, a small market share, is price dependent, is limited to local markets, and thus has low profits, resulting in low wage structures. Per worker, very little capital is invested, and competitive industries are frequently unstable (O'Connor, 1973). The competitive sector's technology is less complex than that of the monopoly sector, and the majority of jobs in the competitive sector are in service or distribution (O'Connor, 1973). According to dual economy theory, women are more likely than men to hold competitive sector positions (Coverdill, 1988 and Reid and Rubin, 2003). Studies attempting to explain structural inequality have discovered that being female reduces one's chances of working in the monopoly sector and that white men have higher returns on education and work experience (Coverdill, 1988; Tolbert, Horan, & Beck, 1980; Reid & Rubin, 2003).

Labor market segmentation is defined as the historical process by which political-economic forces encourage the segmentation of the labor market (Reich, Gordon, and Edwards, 1973). Labor market segmentation emerged around 1890, during the transition from competitive to monopoly capitalism. The primary market is characterized by stable jobs, high wages, high autonomy, and high-skilled positions, whereas the secondary market is characterized by lower wages, high turnover rates, and low-skilled, dead-end positions. Capitalists benefit from segmentation because it prevents workers from banding together against employers and legitimizes inequalities (Reich, Gordon, & Edwards, 1973). The primary market is dominated by white men, while the secondary market is dominated by women and minorities. Secondary-market occupations are frequently 'female' jobs that promote a 'serving mentality' and provide services to others (Reich, Gordon, & Edwards, 1973). Females made up 29.3% of the primary market and 53.9% of the secondary market, according to Tolbert, Horan, and Beck (1980).

The structuralist viewpoint explains more of the variance in the wage gap, but it does not explain differences between men and women in the same economic position. Men, for example, earn higher wages in the primary market and have higher returns on individual attributes such as education (Coverdill, 1988). This finding suggests that even when women have the same level of education and a position in the primary labor market as men, they still earn less than men in the same position, arguing that economic position is not the only determinant of income.

The individualist, structural, gender theories are summarized in Figure 2 hereunder by the alternative model proposed by Wright (1992).

Figure 2: Gander earning gaps explained by individualist, structural and gender theories
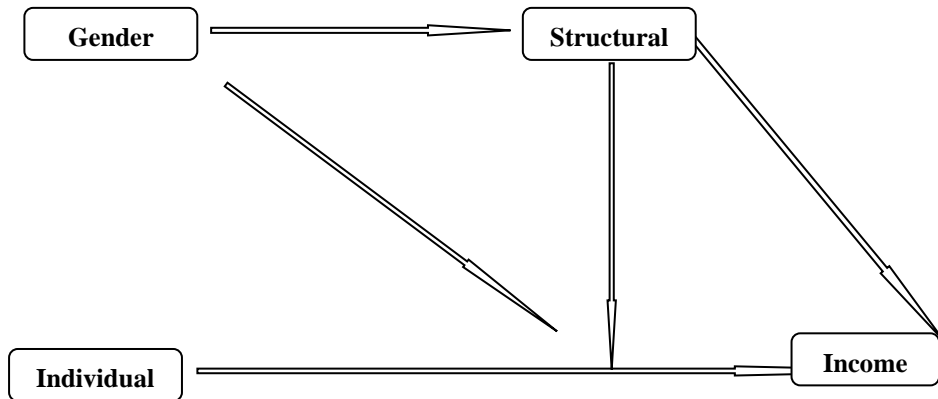
Given income, individualist, structural, and gender perspectives are represented in the income determination model. According to the individualist viewpoint, the amount of income earned is determined by the accumulation of human capital. Human capital, such as education and work experience, is valuable in the labor market, and employers pay higher wages for workers who possess the desired skills. According to the structuralist viewpoint, income is derived from the position that an individual holds, and the structure of the economy determines who will hold which positions. Positions provide varying rates of return on individual attributes. Individuals in higher-ranking positions earn more than those in lower-ranking positions in the position hierarchy. Finally, the gender perspective regards a person's gender as a determinant of income. Women are devalued and assigned to lower economic positions with lower pay. Even when women hold higher positions in the hierarchy, they are paid less than white males. Finally, women continue to do the majority of housework and childcare, which lowers wages.

2.7   Empirical Review

Chang argued that the internet revolution did not revolutionise as much as the washing machine and other household appliances, which allowed women to enter the economic (male-dominated) labour market and effectively eliminated professionals such as domestic service. As a result, the invention of the washing machine enabled women to enter the labour force, freeing them from many of their

household responsibilities. Women's liberation from "household duties" has doubled the workforce, increased productivity, and decreased costs (Chang, 2011).

Differences in human capital may not account for the entire wage disparity. Only a small portion of wage disparities can be explained by factors such as education and work experience. According to Lithuanian data, women are actually better educated than men on average, but they work in low-wage areas more frequently. Work experience is unimportant in this case because Lithuanian women have at least as much experience and tenure as men[6]. The situation is similar in most European countries[7].

Female entrepreneurs in developing countries have low returns. Nonetheless, the few women who enter traditionally male-dominated industries double their profits. Women are more likely to cross over when their parents and husbands support them. They are less likely to do so if they lack information on the earnings potential in male-dominated industries. This suggests a way to encourage WEs to cross over. The difficulties Ethiopian women face in finding work and earning a living stem from a variety of factors. Women face more challenges than men because they lack easy access to finance, land, training, education, and effective business networks. Women in Ethiopia are nearly twice as likely as men to be illiterate, limiting their ability to grow their businesses (Salman, Niklas & Sreelakshmi, 2015).

Essers, Megersa, and Sanfilippo (2020) present empirical evidence on the relative productivity disadvantage of WOEs versus MOEs. Based on a large panel of Ethiopian manufacturing firms, the estimation shows a 12% difference in total factor productivity levels between WOEs and MOEs. The study delves deeper into some of the potential mechanisms underlying the gender-based firm productivity gap, using novel quantile approaches to formally compare productivity distributions. Most WOEs appear to concentrate in less productive subsectors, with only a few succeeding in standing out. Furthermore, lower WOE productivity is linked to a mix of observed firm characteristics and unobserved structural factors that vary depending on a firm's position in the overall productivity distribution.

A research brief by UNICEF[8] on the changing trends in gender equality in Ethiopia shows gap in employment between male and female had narrowed over the

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[6] Department of Statistics to the Government of the Republic of Lithuania (Statistics Lithuania), 2005 http://www.std.lt

[7] EUROSTAT http://www.europa.eu.int/comm/eurostat

[8] https://www.unicef.org/ethiopia/media/2806/file/Changing%20Trends%20in%20Gender%20Equality%20in%20Ethiopia,%20Research%20Brief.pdf

years. Across the country, a notable proportion of women residing in Amhara, Oromia, Addis Ababa and Tigray had title deeds on land and/or house they owned with their names on them. The data shows that legal control over assets was low for both men and women in rural areas, Afar, Gambella, and especially Somali.

The seminal studies on gender differential of business outcomes generally categorize contributing factors in to six broad groups as; capital, labour, capital and labour productivity, market, entry and factor prices. There is inconsistency of findings and gender disparity across regions, industry type, and region of the study.

Capital constraints have been extensively investigated as a source of variation in firm level outcomes. Seminal papers in this regard consider access to credit, source of credit, initial capital, asset of the owner, capital stock, etc as capital constraints that bring heterogeneity among firms. There is also evidence that these variations are also dependent on firm level characteristics such as gender of the owner, type of the business and size of operation (Fiala, 2018; De Mel et al., 2012; Fafchamps et al., 2014)

An experimental study by Fiala (2018) revealed that access to credit has larger and significant effect of sales and profit for male owned micro enterprises than female owned once. Similarly, De Mel et al. (2008) found that a shock in capital stock in the form of a grant has a significant impact on profit of men owned firms. They also argue that a positive capital shock has a significant effect on average real return to capital. According to Fafchamps et al., (2014), access to capital in the form cash or in kind does not yield similar results. Their result indicates that in kind shock sticks in the business and have significant effect on women owned firms than cash given out. However, the effect of both shocks is less robust for men owned enterprise. Using cross-sectional survey, Thapa, (2015) documented gender of the owner has significant variation in sales, profit, and frim growth in Nepal.

Field et al., (2013) studied the effect of repayment schedules on volume of business investment and profit and found that a delay in repayment schedule improves short-term investment and long-term profit of firms. Though they have sampled both men and women owned enterprises the number of men owned firms were not sufficient enough to make a comparison of the outcome by gender of the owner. A study on misallocation of resources (Goraya, 2020) documented size of caste have heterogeneous significant relationship with average revenue of capital of micro, small and medium enterprise in India. The data set used in this study is national sense but heterogeneity by gender of the owner is not investigated.

Comparative experimental evidence from India (Banerjee et al., 2015) documented micro credit utilization yields significant and positive business outcome.

The study revealed that older firms respond instantaneously to capital shocks than those business started with the help of micro finance institutions. The revenue of treated groups was sustainably doubled than the control groups due to the fact that talented entrepreneurs can access either a diminishing-returns technology, or a more productive technology with a fixed cost (Banerjee et al., 2015).

Both in theoretical and empirical literature labor is among the right-hand variables modelled to capture variation in business outcomes. In the theory of the firm, labor is the major factor of production together with capital land and entrepreneurship. Therefore, any shift in the production possibility frontier could be through change in this variable. Though empirical literature mainly on labour constraints is pretty sparse (Hardy & McCasland, 2022), there are scientific studies addressing labor in the form of employment (Alfonsi et al., 2020), owners time (Banerjee et al., 2019; Fafchamps et al., 2014 and Bloom, 2013), and number of employees (Anderson et al., 2018; Brandt et al., 2012; and de Mel et al.,2019).

Hardy and McCasland (2022) documented addition labour assigned as apprentice improves revenue and profit of firms. The experimental evidence also revealed that workers with high cognitive ability led to better business outcomes. The study also documents heterogeneous treatment effects by gender of the owner implying that infusion of labor benefits men owned firms much better those women owned once. Crépon and Premand, (2019) studied labor constraint in the context of subsidized dual apprenticeships. They documented dual apprenticeships stimulates new apprentices to join the labour market and become more productive without crowding out traditional apprentices. In this study the effect of the intervention on firms is indirect; such that treated apprentices will be improving productivity and firms have sustainable access to skilled labor forces. This study is silent about heterogeneity of outcomes by firm characteristics.

3. DATA AND METHODS

3.1   Data Sources

In this study, the annual cross-sectional data from the Living Standards Measurement Study (LSMS) survey for the year 2018 (WB, 2020; CSA, 2020) was used. The World Bank's flagship household survey program, the LSMS survey, focuses on strengthening household survey systems in client countries and improving microdata quality to better inform development policies. The survey is designed to generate relevant data for policymakers and the research community. LSMS as a research project began in 1980. It is a response to a perceived need for policy-relevant data that would enable policymakers to go beyond simply measuring rates of unemployment, poverty, and health-care utilization, for example, to understanding the determinants of these observed social sector outcomes. The program is intended to aid policymakers in their efforts to identify how policies can be designed and improved to positively affect outcomes in health, education, economic activity, housing and utilities, and other areas. The LSMS goals are to improve the quality of household survey data, increase statistical institutes' capacity to conduct household surveys, improve statistical institutes' ability to analyze household survey data for policy needs, and provide policymakers with data that can be used to understand the determinants of observed social and economic outcomes.

The LSMS-Integrated Surveys on Agriculture (LSMS-ISA) project, funded by the Bill and Melinda Gates Foundation (BMGF), was launched in 2009. The project assists governments in Sub-Saharan African countries in producing nationally representative household panel data, with a strong emphasis on agriculture and rural development. The goal of this program is to improve understanding of African development, particularly agriculture and the links between farm and non-farm activities. Therefore, the LSMS survey's sample of 1745 Non-Farm Enterprises (NFEs) for the year 2018 were considered in this study.

3.2   Variables

As indicated in Table 1, the main variables of this study include profit/month, individual-level (socio-demographic) factors and firm characteristics.

Table 1: Description of Variables Identified for the Study

Variable Name	Label	Description
Profit/month	promon	Average monthly profit of the NFE operation.
Cost of Production	cost	Cost of production incurred for salaries and wages, purchases of goods for sale, raw materials, transport, rent and other operating costs.
Individual-level Factors		
Gender	gen	Classified into WOEs versus MOEs if the owner of the NFE is women or men, respectively.
Age of Owner	ageown	Age is a continuous variables measured in years.
Marital Status	marsta	One's marital status, whether single, married, separated, divorced, or widowed. In this study, the marital status was categorized in to 'Never Married' and 'Married'[9].
Rural or Urban	rulurb	Geographical location as rural and urban. It is a dummy variable set to 1 if a firm is located in urban and 0 otherwise.
Firm-level Characteristics		
Type of Enterprise Activities[10] Agriculture and Fishing (01); Mining (02); Manufacturing (03); Construction (04); Commerce (05); Transportation (06) and Services (07)	actent	Type of the income generating enterprise operated in Ethiopia.
Location of Operation	locope	A dummy variable set to 1 if a NFE is located within household premises and 0 otherwise[11].
Source of Start-up Capital	soucap	Start-up capital is often a large sum of money that covers any or all of the company's major initial costs such as inventory, licenses, office space, and product development and is provided by venture capitalists, angel investors, banks, or other financial institutions. In this study the categorical variables are 1 as own-income and 2 is credit[12].
Age of Enterprise	ageent	Age of the NFE since establishment/start operation.

[9] Married (monogamous); married (polygamous); divorced; separated; widowed and co-habiting.
[10] Inspired by International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4, United Nations, New York, 2008.
[11] *Within household premises* includes home; inside residence; home outside the residence and *outside household premises* contains traditional market; shop in a commercial area; roadside; mobile; river/lakes/ponds and construction sites.
[12] *Own-income* comprises agricultural income; non-farm self-employment income; wage or salary income; remittances and sale of assets and *credit* includes bank or cooperative loan; family or friends located in this community; private money-lenders and credit and saving association.

Sell Products to Whom		
Local consumers or passers-by (01); Market (02); Traders (03); Non-governmental Organizations, (NGOs), government, others (04)	sellwho	Refers to the destination which the enterprise mostly sells its products?
Seasonality	seas	The seasonal activities of the enterprise. It is categorical variables as 1 is seasonal and 2 is permanent.
Employability	empl	The characteristics of a person that enable that person to obtain and keep employment. It is a categorical variable with 1 as employed and 2 as not employed.
License	licen	A license is a formal authorization or permit to do, use, or possess the NFE. It is a categorical variable as licensed and registered NFE as 1 or illegal/informal as 2.
Constraints Resource and Experience (01)[13]; Infrastructure, Technology and Training (02)[14]; Socio-Cultural and Others(03)[15]	const	It contains important constraints to NFE operations and growth. These variables denote the severity of challenges faced by NFEs. WBES provides firms with a list of possible constraint and asks them, using a five-point scale, to rate the seriousness of constraint as no constraint, minor obstacle, moderate obstacle, major obstacle and very severe obstacle.

[13] Lack of well-trained and experienced employees; inadequate experience in owning and managing an enterprise; insufficient starting and working capital; uncomfortable working space; raw materials/inputs shortages; financial resources inaccessibility; inefficient credit availability and inflexible collateral.

[14] Interruption of electric power; lack of water supply; lack of improved technologies and unaffordability; poor road and transportation facilities; limited communication services; business location disadvantages, Deficiency of marketing training; lack of customer service training; shortage of national and international entrepreneurship training; lack of planning, financial management and reporting training and lack of technical training.

[15] Disproportionate household responsibility; stereotype toward women business; lack of freedom of mobility from family; deficiency of autonomy to work for extended hours, bias by ethnicity, religion, language and sex; deficiency of land ownership and work premise, high tax and interest rates, insufficient aids and subsidies, ineffective remittance-flow channels; lack of supporting institutions and lack of legal and policy focus; covid-19 outbreak and domestic conflict; high rental price of land and premise; lack of policy prudence and predictability; corruption and embezzlement inside and outside enterprises; scepticism about market potential; lack of access to commercial market; lack of peer network in business plan and new product development and entry; inadequate business network, linkage and market information; lack of motivation; bureaucratic licenses procedures; lack of promotion; deficiency of competitiveness in market structure; product expansion and diversification.

3.3   Model Specification and Analysis

Bivariate and multivariate techniques were applied to show GPD in Ethiopia based on the variables supplied.

3.3.1   Theoretical Model

The key synthesis framework for this profitability gap analysis derives from the broader theory of profit, in which firms' objective function is to maximize profit while balancing various constraints. A profit function, on the other hand, is a relationship that shows the difference between the cost and revenue functions.

The general firm-level maximization problem is written as follows:

$$\pi = \max_{x\ y}[\sum_{j=1}^{m} p_j\, y_j - \sum_{i=1}^{n} w_i\, x_i] \qquad (1)$$

Such that $(x, y) \in T$, and $T = \{(x,y): x \in R_+^n, y \in R_+^m, x\ can\ produce\ y\}$

Where T denotes the technology set. x is an input vector and y are an output vector. The set is made up of x and y combinations in which y can be produced from the given x.

Furthermore, given the optimal input demand, the profit function can be defined as follows:

$$\pi\,(p,w) = \sum_{j=1}^{m} p_j\, y_j(p,w) - \sum_{i=1}^{n} w_i\, x_i(p,w) \qquad (2)$$

$$\pi\,(p,w) = p\, f(x_1(p,w), x_2(p,w)) - w_1 x_1(p,w) - w_2 x_2(p,w) \qquad (3)$$

Where, π is a function of p and w, not x or y. The optimal x and y have already been chosen. The function tells us what profits will be attained (assuming the firm is maximizing profits) given a set of output and input prices.

3.3.2 Basic Model

The model employed in this study contains all the potential variables that affects the profit performance of the NFEs. Then, the deterministic relationship among the dependent and the covariates are expressed as follows:

$$promon_t = \alpha + \beta_1 gen_t + \beta_2 ageown_t + \beta_3 marsta_t + \beta_4 rulurb_t + \beta_5 actent_t + \beta_6 locope_t + \beta_7 soucap_t + \beta_8 ageent_t + \beta_9 sellwho_t + \beta_{10} seas_t + \beta_{11} licen_t + \beta_{12} const_t + \varepsilon_t \qquad (4)$$

Where, $promon$ is profit/month, gen is gender of the NFEs; $ageown$ is age of owner; $marsta$ is marital status; $rulurb$ is the location of the NFE in a rural or urban areas; $actent$ is type of enterprise activities as agriculture and fishing; mining; manufacturing; construction; commerce; transportation services; $locope$ is location of operation as within and outside household premises; $soucap$ is source of start-up capital as own-income or credit; $ageent$ is age of enterprise; $sellwho$ is sell products to whom; $seas$ is seasonality; $licen$ is license; $const$ is constraints as resource and experience, infrastructure, technology and training and socio-cultural and others; and ε is random error term.

3.3.3 Pre and Post-estimations Tests

In this study, the pre- and post-estimation tests were performed to ensure robustness of results. They include tests such as heteroscedasticity test (Pearson 1905; Goldberger, 1964; Johnston 1972) and robust results, the Jarque-Bera normality (Jarque and Bera, 1980) test to check the data distribution; Engle's (1979) and Ramsey's (1969) RESET test for omitted variables and functional misspecification and multicollinearity test of Farrar & Glauber (1967) to measure the degree of correlation among explanatory variables.

4. RESULTS AND DISCUSSIONS

This section presents the findings of a quantitative analysis of the profitability gap levels and profitability determinants. The first section compares the profitability of women and men business owners. The descriptive findings of the study are presented in the second section. The final section presents the findings regarding the determinants of GPDs.

4.1 Descriptive Results of Gender Characteristics

Table 2 shows the gross profitability disparity between men and women-owned businesses. The average monthly profit for MOEs is 384 ETB, while for WOEs it is (-319) ETB, indicating a profitability gap. The results of the two-sample t-test with unequal variances significance level also show a significant mean difference between men and women profit earning in Ethiopian NFEs. Fewer opportunities to women to cross over into men-dominated sectors, total factor productivity disadvantages, and lower employment openings could be possible causes of the gender profitability gaps.

Table 2: A Mean profitability gap between WOEs and MOEs (Profit/Month, in ETB)

Gender	Mean	Std. Dev.
Female	-319.274	16595.434
Male	383.9126	61734.046
Total	37.790778	45494.205

The summary statistics for the variable used in this study are presented in Table 3 below. The table displays the variance, standard deviation, skewness, and kurtosis values. The skewness and kurtosis values, in particular, demonstrate the variables' normal distribution. The employability variable, which is the characteristics of a person that enable that person to obtain and keep employment, has been removed from the rest of the analysis because the skewness, kurtosis, and histogram results show irregularity in data distribution.

Table 3: Descriptive statistics of individual-level factors, firm characteristics and gender

Variables			Women	Men	Total	Variance	Std. Dev.	Skewness	Kurtosis
Gender						.2500836	.5000836	-.0311277	1.000969
Profit						.512291	.7157451	-.0428349	4.821163
Rural or Urban	Rural		244 (28.6)	228 (25.9)	472 (27.2)				
	Urban		610 (71.4)	653 (74.1)	1263 (72.8)	.1981512	.4451418	-1.024481	2.049561
		Total	854	881	1735				
Age of Owner						.0201632	.1419973	-.1041838	3.006246
Marital Status	Never Married		100 (11.7)	151 (17.1)	251 (14.5)				
	Married		754 (88.3)	730 (82.9)	1484 (85.5)	.1238109	.3518678	-2.020269	5.081488
		Total	854	881	1735				
Type of Enterprise Activities	Agriculture and Fishing		4 (0.5)	7 (0.8)	11 (0.6)				
	Mining		1 (0.1)	6 (0.7)	7 (0.4)				
	Manufacturing		159 (18.6)	68 (7.7)	227 (13.1)				
	Construction		1 (0.1)	25 (2.8)	26 (1.5)	1.857315	1.362833	-.4303613	2.685876
	Commerce		449 (52.6)	382 (43.4)	831 (47.9)				
	Transportation		5 (0.6)	78 (8.9)	83 (4.8)				
	Services		235 (27.5)	314 (35.7)	549 (31.7)				
		Total	854	880	1734				
Location of Operation	Within Household Premises		478 (56.0)	324 (36.8)	802 (46.2)				
	Outside Household Premises		376 (44.0)	557 (63.2)	933 (53.8)	.2487181	.4987165	-.1514409	1.022934
		Total	854	881	1735				

Variable	Category							
Source of Start-up Capital	Own income	578 (67.7)	629 (71.4)	1207 (69.6)				
	Credit	276 (32.3)	252 (28.6)	528 (30.4)	.2118325	.4602527	.8505487	1.723433
	Total	854	881	1735				
Age of Enterprise					.0330931	.181915	1.094671	3.740957
Sell Products to Whom	Local consumers or passers-by	636 (74.5)	561 (63.7)	1197 (69.0)				
	Market	163 (19.1)	140 (15.9)	303 (17.5)				
	Traders	30 (3.5)	88 (10.0)	118 (6.8)	.7909217	.8893378	1.690478	4.753411
	NGOs, government, others	25 (2.9)	92 (10.4)	117 (6.7)				
	Total	854	881	1735				
Seasonality	Seasonal	265 (31.0)	273 (31.0)	538 (31.0)				
	Not seasonal	589 (69.0)	608 (69.0)	1197 (69.0)	.2140562	.4626621	-.8211967	1.674364
	Total	854	881	1735				
Employability					.0429604	.207269	-4.392114	20.29066
License	Licensed	159 (18.6)	344 (39.0)	503 (29.0)				
	Not-licensed	695 (81.4)	537 (61.0)	1232 (71.0)	.2059824	.4538528	-.926058	1.857583
	Total	854	881	1735				
Constraints	Resource and Experience	70 (10.0)	53 (7.3)	123 (8.6)				
	Infrastructure, Technology and Training	386 (55.4)	471 (64.5)	857 (60.1)	.3481318	.5900269	-.105358	2.551608
	Socio-Cultural and others	241 (34.6)	206 (28.2)	447 (31.3)				
	Total	697	730	1427				
Cost					.7170804	.846806	-.1668432	3.241923

Table 3 shows the sources of start-up capital, licenses, and constraint characteristics by gender. Own-income is the primary source of capital for both WOEs and MOEs. However, more women rely on credit as a source of income, while more men rely on self-income. On the other hand, in comparison, more women-owned and operated businesses lack a legal operating license. WOEs are being hit harder than MOEs by resource and socio-cultural constraints.

According to Table 3, the majority of NFE owned by women are located within the household premises. WOEs operation, such as at home and in the vicinity of a residence compound, could be one of the possible causes of market constraints. MOEs, on the other hand, are mostly found outside of household premises, such as traditional markets, shops in commercial areas, roadside, mobile, rivers/lakes/ponds, and construction sites. As a result, the differences in location of operation between WOEs and MOEs can result in disparities in sales turnout, profit, experience as a source of knowledge transfer, and business network.

In relation with the type of enterprise activities, WOEs in large degree of proportion engage in the commerce and service activities, 52.6% of it alone taken by the commerce activity. The WOEs participation in the activities such as agriculture and fishing, mining, construction and transportation is very much limited.

Among the individual level factors, as shown in Table 4, women and men were more likely to be 35.5 years old. The age of enterprise, on the other hand, demonstrates that firms owned by women are slightly likely to survive, with an average farm age of 12.3 years, then those owned by men, with an average farm age of 11.9 years.

Table 4: Age of owner, age of enterprise and significance by gender

Gender	Age of Owner		t-test	Age of Enterprise		t-test
	Mean	**Std. Dev.**		**Mean**	**Std. Dev.**	
Female	35.551522	11.517723		12.254098	6.7394884	
Male	36.640182	12.195702	-1.9104a	11.911464	6.3542304	1.0899 a
Total	36.104323	11.875899		12.080115	6.5470467	

Note: a - not significant at 5 % significance level.

The age of enterprise results in Table 4 are broadly consistent with Cooper et al (1994)'s longitudinal study, which found that WOEs were just as likely to survive as MOEs. The findings are also consistent with the findings of Kalleberg and Leicht (1991), who investigated how the survival of small businesses led by men and women was related to industry differences, organizational structures, and the

characteristics of their owner operators. According to the findings of Kalleberg and Leicht (1991), businesses led by women were no more likely to fail than those led by men.

According to the findings in Table 4, based on the mean age of enterprises, women-owned new ventures outperform men-owned new ventures. However, gender differences in significance have not been observed. This result is consistent with Kepler and Shane's (2007) finding that men and women are equally likely to abandon a new venture. Furthermore, the findings are consistent with prior research on established firms in both Australia (Watson, 2002) and Eastern Europe and Central Asia (Sabarwal & Terrell, 2008), which show that women-owned ventures perform equally well as men-owned ventures when performance measures control for scale.

Table 5 shows the costs incurred for production purposes. It depicts the breakdown of costs by gender. MOEs incur a total cost of 14,758.6 ETB on average. WOE's costs, on the other hand, are lower than those of their competitors, totalling 5,034.5 ETB. Moreover, the t-test with unequal variances significance level results in Table 5 also show the fundamental differences in cost structures between men and women NFEs. Women may engage in less expensive activities and are less willing to take risks than men. Women may avoid jobs that require significant investments in skills that are unique to a specific enterprise, according to Blau and Kahn (2000).

Table 5: Cost of production description and significance by gender

Gender	Cost of Production		t-test
	Mean	**Std. Dev.**	
Female	5034.4508	16644.513	-5.9222*
Male	14758.615	45710.722	
Total	9972.1965	34933.236	

Note: * - significant at 5 % significance level.

4.2   Determinants of Profitability Gaps in Ethiopian

There are a number of potential systematic differences between WOEs and MOEs that could explain why WOEs appear to earn less profit than MOEs in many countries, including Ethiopia. In the study different models were estimated such as

the step-wise and full sample-covariates[16,] and independently for men and for women and the results are presented as follows.

The step-wise regression results that as well embrace the full sample-covariates findings of the GPDs has been presented on Table 6. It contains the unconditional profit gap as indicated in column two of Table 6 and then hold additional groups of covariates step-wise. The step-wise addition tells how much the gender gap is explained as more regressors are added. The initial significant unconditional profit gap of 0.376 explained by the gender covariate seems to be decreased to 0.195 as more and more regressors enter into the model. The drivers of the profit gap, with reference to the share of the profit gap explained are presented in Table 6.

Table 6 (last column) displays the results of the full-sample-covariates model. Gender, owner age, and location of NFEs in rural or urban areas were statistically significant individual-level factors. The gender coefficients in the last column of full-sample indicate that men earn a profit that is 0.2 higher than their women counterparts against the unconditional profit gap which indicates a difference of 0.38 between them, but the effect of gender as profit differential variable gets weaker through the step-wise as presented in Table 6. NFEs in urban areas, on the other hand, earn 0.32 percent more than firms in rural areas. As the coefficient in Table 6 (last column) is insignificant, no effect on profitability has been observed whether the person is married or not. The entire step-wise results also consistently shows that the marital status does not hold any differential in profit based on marital status.

Several factors contribute to WOEs' lower profit. Human capital, work-life balance, and segregation may be identified as main causes. According some claims, the gender profit gap was historically primarily caused by women having lower 'human capital' than men - that is, less knowledge, skills, job experience, or decision-making abilities. Women's longer hours spent on housework may reduce their effort put into profitability-related efforts when compared to men, and thus reduce their productivity, wages, and even profitability. Furthermore, because of segregation, women face limitations in making decisions on profitable paths.

The negative value of 0.41 (last column of Table 6) for owner age implies that as the owner's age increases, the profit he makes is likely to decrease, consistently throughout the step-wise results. As a result of work experience, income is expected to rise with age. However, while the income of the NFE is positively related to the age of the enterprise's owner, the profit level might decrease. This could be because the profit that accounts for the NFE's costs is negative, indicating a decrease in profit as age increases.

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[16] Women and men owner of non-farm enterprises included.

Table 6: The full sample-covariates and the step wise results

Profit	(1) Coef./ signif.	(2) Coef./ signif.	(3) Coef./ signif.	(4) Coef./ signif.	(5) Coef./ signif.	(6) Coef./ signif.	(7) Coef./ signif.	(8) Coef./ signif.	(9) Coef./ signif.	(10) Coef./ signif.	(11) Coef./ signif.	(12) Coef./ signif.
Gender												
Male	0.376 ***	0.362***	0.361***	0.363***	0.294***	0.296***	0.29***	0.292***	0.25***	0.252***	0.188***	0.195***
Rural or Urban												
Urban		0.45***	0.457***	0.459***	0.441***	0.442***	0.452***	0.441***	0.423***	0.4***	0.334***	0.315***
Age of Owner			-0.329**	-0.357**	-0.319**	-0.322**	-0.329**	-0.38**	-0.321**	-0.357**	-0.392**	-0.411**
Marital Status												
Married				0.025	0.054	0.054	0.044	0.049	0.034	0.036	0.036	0.045
Type of Enterprise Activities												
Mining					1.022**	1.025**	1.067**	1.057**	0.819**	0.84**	0.789*	0.788
Manufacturing					0.43	0.424	0.447*	0.449*	0.449*	0.449*	0.436*	0.637**
Construction					1.032***	1.032***	1.068***	1.085***	0.986***	0.979***	0.888***	1.114***
Commerce					0.632**	0.635**	0.651**	0.661**	0.669**	0.663**	0.584**	0.838***
Transportation					0.983***	0.988***	1.012***	1.017***	0.96***	0.935***	0.664**	0.935***
Services					0.63**	0.629**	0.653**	0.662**	0.622**	0.62**	0.554**	0.781**
Location of Operation												
Outside Household Premises						-0.015	-0.007	-0.005	-0.018	-0.014	0.036	0.011
Source of Start-up Capital												
Credit							-0.074*	-0.076*	-0.089**	-0.092**	-0.086**	-0.103**
Age of Enterprise								0.193*	0.192*	0.19*	0.17	0.209*
Sell Products to Whom												
Market									-0.142***	-0.147***	-0.121**	-0.118**
Traders									0.316***	0.32***	0.355***	0.38***
NGOs, Government, Others									0.343***	0.348***	0.346***	0.355***
Seasonality												
Not seasonal										0.108**	0.09**	0.11**
License												
Not licensed											-0.398***	-0.349***
Constraints												
Infrastructure, Technology and Training												0.19**
Socio-Cultural and Others												0.177**
Constant	2.918***	2.595***	3.095***	3.3113***	2.453***	2.464***	2.477***	2.348***	2.32***	2.32	2.831	2.398***
Number of obs.	1055	1055	1055	1055	1054	1054	1054	1054	1054	1054	1054	876
R-squared	0.069	0.146	0.150	0.150	0.184	0.184	0.186	0.189	0.217	0.222	0.266	0.281
F-stats	77.966	90.067	61.993	46.492	23.558	21.407	19.887	18.621	17.982	17.369	20.810	16.743

Note: [*** $p<.01$, ** $p<.05$, * $p<.1$]; signif.: level of significance.

Firm-level characteristics such as the type of enterprise activities, the source of start-up capital, the age of the enterprise, sell products to whom, seasonality, license, and constraints were discovered to have a significant level of influence on the profitability of NFEs consistently in the step-wise results. While marital status and location of operation do not have a significant impact on profitability consistently in the entire step-wise results.

Except for the mining activity, which is not significant at the 5% level, all NFEs activities appear to increase business profit (Table 6, last column). However, in the initial step-wise results, the mining activity appear be significantly influence profit and the influence disappears as more covariates are added into the model. The opposite happened with respect to manufacturing activity, it starts with no influence on profit but gradual changes to turn to be influential. When compared to agriculture and fishing, NFEs in manufacturing, construction, commerce, transportation, and services increase profitability by 0.79, 0.64, 1.12, 0.84, 0.94, and 0.78. The age of the business has a positive and significant impact on its profitability level.

NFEs that obtained start-up capital from a credit source such as a bank or cooperative loan; family or friends in this community; private money-lenders and credit and saving associations record a 0.1 profit reduction compared to those who obtain capital by mobilizing their own-income such as agricultural income; non-farm self-employment income; wage or salary income; remittances and asset sale.

Delivering and selling commodities to traders, and NGOs (including the government and others) has a greater impact on profit than selling to local consumers or passers-by. The delivery/sale of products to traders and NGOs (including government and others) adds 0.36 to 0.38 to NFE profit. However, delivery to the market results in a negative 0.12 profit reduction. This could be because NFEs need to transport their products and sell them at the current competitive market price, neither of which can be advantageous to the enterprises. The benefits for NFEs are that they can deliver to either traders or NGOs, includes government and others.

The seasonality of production activity results in 0.1 lower productivity additions. Permanent activities, then, benefit NFEs by ensuring consistent cash and profit flows for the business owner. According to the same analysis, unlicensed business activities reduced profitability by 0.35 when compared to NFEs with formal authorization or permit to produce. Moreover, license and seasonality of the operation factors presents negative correlation. Which signifies the NFEs with no licenses could be collapsed or shut down with a shorter life span.

Another important factor influencing NFE profitability is constraints. When compared to the resource and experience factors, the two constraints, infrastructure, technology, and training, and socio-cultural, have an impact on profit. Empowering and increase accessibility of WOEs to technologies has multidimensional benefits in the country. Chang (2011) argues that the invention of the washing machine enabled women to enter the labour force, freeing them from many of their household responsibilities. Women's liberation from "household duties" has doubled the workforce, increased productivity, and decreased costs.

Table 7: Results for women owned enterprises

Profit		Coef.	t-value	Sig
Rural or Urban				
Urban		.286	4.38	***
Age of Owner		-.625	-2.91	***
Marital Status				
Married		.014	0.14	
Type of Enterprise Activities				
Mining		.376	0.53	
Manufacturing		.141	0.35	
Construction		.81	1.17	
Commerce		.39	0.98	
Transportation		.668	1.38	
Services		.302	0.75	
Location of Operation				
Outside Household Premises		-.01	-0.16	
Source of Start-up Capital				
Credit		-.044	-0.75	
Age of Enterprise		.203	1.39	
Sell Products to Whom				
Market		-.198	-2.77	***
Traders		.356	2.14	**
NGOs, Government, Others		.114	0.40	
Seasonality				
Not seasonal		.268	4.54	***
License				
Not licensed		-.365	-4.60	***
Constraints				
Infrastructure, Technology and Training		.128	1.47	
Socio-Cultural and Others		.13	1.42	
Constant		3.21	5.97	***
Mean dependent var	2.944	SD dependent var		0.632
R-squared	0.254	Number of obs.		449
F-test	7.694	Prob > F		0.000
Akaike crit. (AIC)	769.437	Bayesian crit. (BIC)		851.577
*** p<.01, ** p<.05, * p<.1				

Separate analyses were also conducted for men and women, yielding mixed statistically significant results. As of Table 7, the individual-level factors such as age of owner and location of NFEs in rural or urban areas were found to be statistically significant for WOE. However, Table 8 shows that for MOEs, the location of operation in rural or urban areas variables are statistically significant. The age of the owner has a negative and significant effect on WOE profitability (-0.62), but has no effect on MOE profitability. Nothing has been observed on profitability for either WOEs or MOEs, whether the person is married or not, and depending on the NFEs location within (or outside) the household premises, as the coefficients in Tables 7 and 8 are insignificant.

Table 8: Results for men owned enterprises

Profit		Coef.	t-value	Sig
Rural or Urban				
Urban		.359	4.39	***
Age of Owner		-.231	-0.84	
Marital Status				
Married		.06	0.59	
Type of Enterprise Activities				
Mining		1.304	1.62	
Manufacturing		1.121	2.38	**
Construction		1.57	3.15	***
Commerce		1.254	2.69	***
Transportation		1.393	2.91	***
Services		1.237	2.64	***
Location of Operation				
Outside Household Premises		.049	0.63	
Source of Start-up Capital				
Credit		-.156	-2.11	**
Age of Enterprise		.212	1.13	
Sell Products to Whom				
Market		-.065	-0.70	
Traders		.403	3.76	***
NGOs, Government, Others		.371	3.17	***
Seasonality				
Not seasonal		-.043	-0.61	
License				
Not licensed		-.348	-4.83	***
Constraints				
Infrastructure, Technology and Training		.273	2.14	**
Socio-Cultural and Others		.265	1.99	**
Constant		1.823	2.80	***
Mean dependent var	3.327	SD dependent var		0.723
R-squared	0.234	Number of obs.		427
F-test	6.550	Prob > F		0.000
Akaike crit. (AIC)	859.819	Bayesian crit. (BIC)		940.954
*** p<.01, ** p<.05, * p<.1				

When the foundation is credit, the source of start-up capital only affects the MOEs. The provision of goods and services to traders has a positive effect on WOEs and MOE by 0.36 and 0.40, respectively. However, the market activities of WOEs have a negative impact on profit. In terms of firm-level characteristics, non-seasonality has a 0.27 and -0.35 effect on WOEs and MOEs, respectively. Men are more likely than women to engage in non-seasonal activities to earn a profit. The working environment under licensed business conditions has an impact on the profitability of both men and women-owned businesses. For WOEs and MOEs, unlicensed NFEs earn 0.37 and 0.35 profit returns, respectively. Except for mining, the type of activities contributes to the profitability of MOEs. Furthermore, unlike WOEs, constraints have an impact on MOE profitability.

The heteroscedasticity test and robust results, multicollinearity test, hypothesis test, normality tests and omitted variables, and functional misspecification test performed in this study demonstrate the estimated results' pre and post stability and fitness. The tests are listed in the appendix from Table 9 to Table 12.

4.3   Gender Representativeness of Ethiopian LSMS Data of NFEs!

This study encountered the following difficulties with using the Ethiopian LSMS survey data:

- Important NFEs variables are missing from the survey such as education of the business owner, wealth quantile, hours worked in the business, asset of the NFEs, union membership, goods-producing (or otherwise) industry, type of earning for work (as unpaid, cash only and in-kind), occupational sex-segregation index, type and level of occupation of the NFEs (i.e. white-collar, blue-collar, skilled, unskilled), business owner with children under age 6 (i.e. number of dependent children), engagement of NFEs in household labor (i.e., cooking, cleaning, laundry, childcare, travel with child and childcare), intensity of capital or labor, organizational-specific data, control variables (i.e. migration background, disability status, etc.)

- Due data limitations the sample size of the Ethiopian LSMS survey used for analysis in his study were reduced from 1735 sample units to 876 observations. The analysis excludes missing values, variables with skewed distribution and extreme low and high outliers from part of the discussion. Value with incorrect data entry is also noticed in the LSMS survey.

- Since variables such profit, age of enterprise and age of owner are highly skewed, this study used logarithm scales in part of the discussion.
- The inadequate variables and observation become the reasons not to perform as many analyses as possible in relation with GPDs.
- The LSMS survey used in this study is the 2018's, which might be older enough to reflect the changes up to 2022.

The difficulties mentioned above significantly reduce the total number of sample unit observations. Furthermore, it prevents us from making various estimates on profitability gaps (e.g., quintal approach, composition, structural and performance analysis, randomized evaluation and observational case studies, etc.). A large, comprehensive, and inclusive new survey addressing the aforementioned challenges is required and suggested by this study.

5. CONCLUSIONS AND POLICY IMPLICATIONS

Understanding and reducing gender profit inequality is gaining popularity. Although a body of research has produced a number of explanations for WOEs' lower profit in developed countries and Ethiopia, much less is known about the determinants and what drives these profit disparities. This study compares MOEs and WOEs within the NFEs covered by the LSMS survey and discovers a significant and robust difference in profits between genders in the NFEs. Individual-level (socio-demographic) factors and firm characteristics can both play a role in explaining the differences.

The annual cross-sectional data sample of 1745 NFEs from the LSMS survey for the year 2018 was considered in this study, and the results are as follows. There is a gross profit disparity between male and female-owned businesses. Fewer opportunities for women to enter male-dominated industries, total factor productivity disadvantages, and lower unemployment opportunities are potential causes of gender profitability gaps. Women are more likely than men to rely on credit as a source of income. A greater number of women-owned and operated businesses do not have a legal operating license. WOEs are hit harder by resource and socio-cultural constraints than MOEs. Disparities in sales turnout, profit, experience as a source of knowledge transfer, and business network can result from differences in location of operation between WOEs and MOEs. On the other hand, a significant difference in cost structures was observed between men and women NFEs. This could be because women engage in lower-cost activities and are less willing to take risks than men. Women may avoid jobs that necessitate significant investments in skills that are specific to a particular enterprise.

Gender, owner age, and location of NFEs in rural or urban areas were statistically significant individual-level factors when men and women were considered as a full sample-covariates model. There is no effect on profitability whether the person is married or not. Several factors contribute to the lower profit margins of WOEs. The main causes may be identified as human capital, work-life balance, and segregation. Firm-level characteristics such as the type of enterprise activities, the source of start-up capital, the age of the enterprise, who sells products to, seasonality, license, and constraints were found to have a significant impact on NFEs profitability. While the location of the operation has no significant impact on profitability. Separate analyses for men and women were also conducted, yielding mixed statistically significant results. WOE was found to be statistically significant for the individual-level factors age of owner and location of NFEs in rural or urban

areas. However, for MOEs, the variables of operation location in rural or urban areas are statistically significant. The owner's age has a negative and statistically significant effect on WOE profitability but has no effect on MOE profitability. As the coefficients are insignificant, nothing has been observed on profitability for either WOEs or MOEs, whether the person is married or not, and depending on the NFEs location within (or outside) the household premises. There were numerous limitations encountered while conducting this study. Due to data limitations, the total number of sample unit observations is significantly reduced. Furthermore, it prevents us from estimating various profitability gaps.

A large, comprehensive, and inclusive new survey addressing the aforementioned challenges is required in the forthcoming period. Furthermore, this study believe that the findings will influence future research to focus on gaining a better understanding of some of the key factors and limitations identified. Furthermore, the findings reveal important areas for intervention in respect to the person and business level aspects of WOE, which in turn has implications for policy.

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Table 9: Normality test
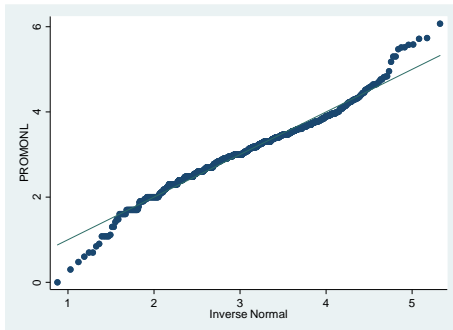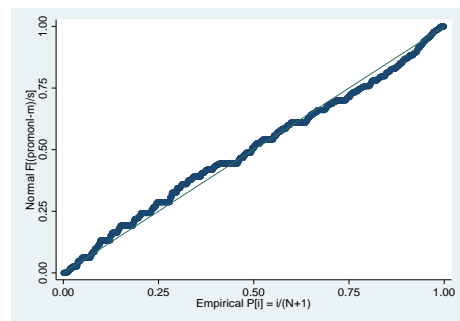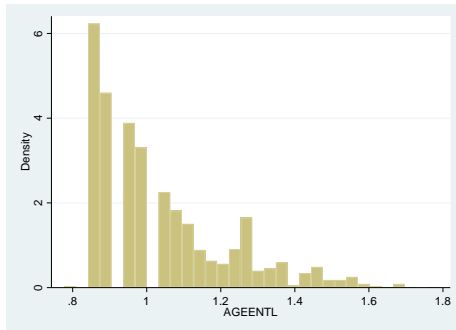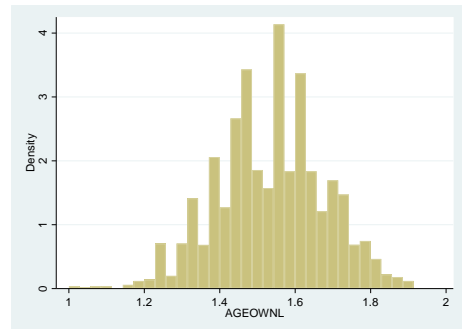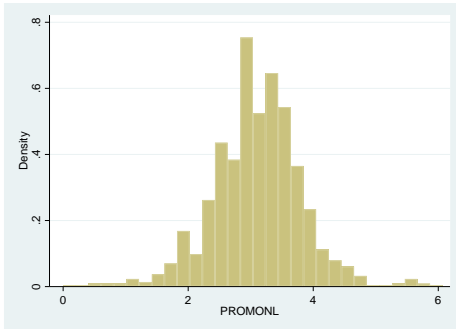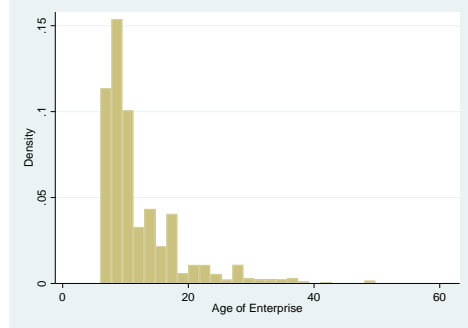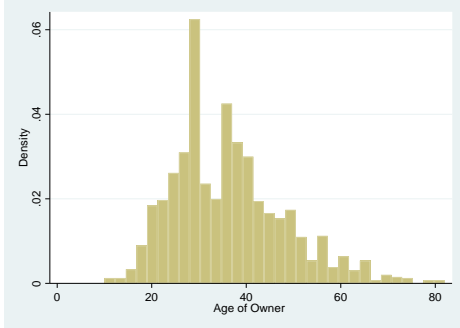
Table 10: Multicollinearity test

Variable	VIF	1/VIF
ageownl	1.29	0.772527
marsta	1.25	0.800547
rulurb	1.16	0.863449
licen	1.12	0.894689
locope	1.08	0.927894
ageentl	1.06	0.943309
actent	1.06	0.944296
seas	1.06	0.946120
soucap	1.05	0.954637
sellwho	1.04	0.961201
const	1.01	0.987477
Mean VIF	1.11	

Table 11: Omitted variables and functional misspecification test

```
Ramsey RESET test using powers of the fitted values of promonl
      Ho:  model has no omitted variables
              F(3, 852) =       0.33
                 Prob > F =      0.8070
```

Table 12: Heteroscedasticity test and robust result

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
        Ho: Constant variance
        Variables: residual

      chi2(1)      =       9.41
      Prob > chi2  =    0.0022
```

```
Linear regression                        Number of obs   =        876
                                         F(20, 855)      =      16.59
                                         Prob > F        =     0.0000
                                         R-squared       =     0.2814
                                         Root MSE        =     .60375
```

promonl	Coef.	Robust Std. Err.	t	P>|t|	[95% Conf. Interval]	
gen						
Male	.1953321	.0458329	4.26	0.000	.1053739	.2852904
rulurb						
Urban	.3146309	.0503002	6.26	0.000	.2159044	.4133573
ageownl	-.4111739	.1580382	-2.60	0.009	-.7213622	-.1009856
marsta						
Married	.0451739	.0661578	0.68	0.495	-.0846768	.1750245
actent						
Mining	.7876301	.7830727	1.01	0.315	-.74934	2.3246
Manufacturing	.6370006	.7701947	0.83	0.408	-.8746933	2.148695
Construction	1.114344	.7898069	1.41	0.159	-.435843	2.664532
Commerce	.8376516	.7691196	1.09	0.276	-.6719321	2.347235
Transportation	.9348926	.7752323	1.21	0.228	-.5866886	2.456474
Services	.7810314	.7715612	1.01	0.312	-.7333445	2.295407
locope						
Outside household premises	.0110772	.0504457	0.22	0.826	-.0879347	.1100891
soucap						
Credit	-.1034023	.0440055	-2.35	0.019	-.1897736	-.0170309
ageentl	.2089046	.109546	1.91	0.057	-.006106	.4239152
sellwho						
Market	-.1176927	.0598224	-1.97	0.049	-.2351087	-.0002767
Traders	.3801514	.0968085	3.93	0.000	.1901414	.5701615
NGOs, government, others	.3554469	.0940318	3.78	0.000	.1708867	.5400071
seas						
Not seasonal	.109581	.0454761	2.41	0.016	.0203231	.1988389
licen						
Not licensed	-.3490996	.0528645	-6.60	0.000	-.452859	-.2453403
const						
Infrastructure, Technology & Training	.1900421	.0626116	3.04	0.002	.0671517	.3129325
Socio-Cultural & Others	.1767881	.0651571	2.71	0.007	.0489015	.3046746
_cons	2.398037	.8115673	2.95	0.003	.8051393	3.990934