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**Gender Economics and
Gender Pay Gap**
Trends and Explanations

Edited by Feyza Bhatti



Gender Economics and Gender Pay Gap - Trends and Explanations

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Volume 32

Aims and Scope of the Series

Transforming our World: the 2030 Agenda for Sustainable Development endorsed by United Nations and 193 Member States, came into effect on Jan 1, 2016, to guide decision making and actions to the year 2030 and beyond. Central to this Agenda are 17 Goals, 169 associated targets and over 230 indicators that are reviewed annually. The vision envisaged in the implementation of the SDGs is centered on the five Ps: People, Planet, Prosperity, Peace and Partnership. This call for renewed focused efforts ensure we have a safe and healthy planet for current and future generations.

This Series focuses on covering research and applied research involving the five Ps through the following topics:

1. Sustainable Economy and Fair Society that relates to SDG 1 on No Poverty, SDG 2 on Zero Hunger, SDG 8 on Decent Work and Economic Growth, SDG 10 on Reduced Inequalities, SDG 12 on Responsible Consumption and Production, and SDG 17 Partnership for the Goals
2. Health and Wellbeing focusing on SDG 3 on Good Health and Wellbeing and SDG 6 on Clean Water and Sanitation
3. Inclusivity and Social Equality involving SDG 4 on Quality Education, SDG 5 on Gender Equality, and SDG 16 on Peace, Justice and Strong Institutions
4. Climate Change and Environmental Sustainability comprising SDG 13 on Climate Action, SDG 14 on Life Below Water, and SDG 15 on Life on Land
5. Urban Planning and Environmental Management embracing SDG 7 on Affordable Clean Energy, SDG 9 on Industry, Innovation and Infrastructure, and SDG 11 on Sustainable Cities and Communities.

The series also seeks to support the use of cross cutting SDGs, as many of the goals listed above, targets and indicators are all interconnected to impact our lives and the decisions we make on a daily basis, making them impossible to tie to a single topic.

Meet the Series Editor



Usha Iyer-Raniga is a professor in the School of Property and Construction Management at RMIT University. Usha co-leads the One Planet Network's Sustainable Buildings and Construction Programme (SBC), a United Nations 10 Year Framework of Programmes on Sustainable Consumption and Production (UN 10FYP SCP) aligned with Sustainable Development Goal 12. The work also directly impacts SDG 11 on Sustainable Cities and Communities. She completed her undergraduate degree as an architect before obtaining her Masters degree from Canada and her Doctorate in Australia. Usha has been a keynote speaker as well as an invited speaker at national and international conferences, seminars and workshops. Her teaching experience includes teaching in Asian countries. She has advised Austrade, APEC, national, state and local governments. She serves as a reviewer and a member of the scientific committee for national and international refereed journals and refereed conferences. She is on the editorial board for refereed journals and has worked on Special Issues. Usha has served and continues to serve on the Boards of several not-for-profit organisations and she has also served as panel judge for a number of awards including the Premiers Sustainability Award in Victoria and the International Green Gown Awards. Usha has published over 100 publications, including research and consulting reports. Her publications cover a wide range of scientific and technical research publications that include edited books, book chapters, refereed journals, refereed conference papers and reports for local, state and federal government clients. She has also produced podcasts for various organisations and participated in media interviews. She has received state, national and international funding worth over USD \$25 million. Usha has been awarded the Quarterly Franklin Membership by London Journals Press (UK). Her biography has been included in the Marquis Who's Who in the World® 2018, 2016 (33rd Edition), along with approximately 55,000 of the most accomplished men and women from around the world, including luminaries as U.N. Secretary-General Ban Ki-moon. In 2017, Usha was awarded the Marquis Who's Who Lifetime Achiever Award.

Meet the Volume Editor



Dr. Feyza Bhatti is a mixed-methods social science researcher with substantive experience and interest in gender studies, particularly focusing on understanding the gendered nature of workplaces, gender inequalities, and the social and work experiences of women, men, and marginalised groups in developing countries. After completing her BA and MS in Economics, she earned her Ph.D. in Sociology from the University of Edinburgh in Scotland. She is currently the Vice Dean of the Faculty of Business, Director of the Centre for Gender Studies, and Director of the Institute of Graduate Studies and Research at Girne American University, Cyprus.

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Preface

Gender Economics and Gender Pay Gap – Trends and Explanations result from an enduring quest to understand the persistent gender inequalities in labour markets worldwide, with a focus on gender gaps in earnings. The book brings together scholarly research on theoretical developments and empirical research on the status and position of women in labour markets, as well as gender differences in employment and earnings from various parts of the world.

The nine chapters of the book highlight the issues relevant to gender wage gaps and investigate the reasons for these gaps, as well as the impact of national and local efforts to improve women's socioeconomic status. A key message of the book is the need for future studies to adopt an intersectional and interdisciplinary approach, focusing on traditional gender roles and their impact on economic outcomes and gender pay gaps for women at local, national, and regional levels.

Chapter 1 provides a brief overview of the extent of gender pay gaps and the most common explanations for these gaps, also focusing on the changing nature of factors that affect gender pay gaps, from individual characteristics of women and men to the role of traditional gender roles and how they continue to create and maintain the gender pay gaps.

Chapter 2 focuses on redefining gender equality by measuring not only rights and access to resources but also opportunities for advancement and growth. It introduces the concept of axial institutions, which include family, labour market, education, science, and governance, to analyze gender inequality. The chapter emphasizes the need for a comprehensive index that captures the equality of opportunities across these institutions, particularly highlighting the role of unpaid labour and horizontal segregation.

Chapter 3, while exploring monopsony and its impact on gender-related outcomes in the workplace, highlights how monopsonistic power can influence various aspects of women's labour market experiences, including wage setting, labour mobility, occupational segregation, job quality and discusses how market frictions disproportionately affect women as caregiving responsibilities and cultural expectations can hinder women's labour market participation and mobility, thereby limiting their opportunities compared to men.

Chapter 4 addresses the motherhood penalty by exploring the cultural norms and societal expectations that contribute to the motherhood penalty faced by working mothers, including discriminatory hiring practices, limited career advancement, unequal pay, and inadequate support systems.

Chapter 5 investigates the gender disparities across various socioeconomic outcomes, including income, employment, health status, life satisfaction, financial satisfaction,

and job satisfaction in the Maltese Islands. While it reveals that significant gender disparities exist in Malta across key socioeconomic outcomes, particularly in income, employment, health, and job satisfaction, it suggests a need for policies that promote wage transparency and redistribute unpaid domestic work to address gender disparities effectively.

The remaining chapters are country-specific studies. Chapter 6 examines the significant socioeconomic changes in Saudi Arabia that aim to integrate women into the workforce, driven by the Vision 2030 initiative. It highlights the historical context of the Saudi economy and the challenges women face in achieving equality in education and employment.

Chapter 7 investigates how working women in urban Zimbabwe navigate economic challenges to achieve financial independence and address gender income disparities. It highlights the impact of economic conditions on women's roles as breadwinners and their involvement in both formal and informal income-generating activities, as well as how working women are redefining their roles within households and society. This demonstrates that they can be both employees and entrepreneurs, thereby challenging long-standing gender inequalities.

Chapters 8 and 9 focus on the impact of local programs within agricultural sectors. Chapter 8 focuses on the gendered impact of a local irrigation program in South Africa and explores the profitability and productivity of Women's Smallholder Agricultural Enterprises. The last chapter, discussing how the industrialization of the milk sector in northern Senegal led to the marginalization of women, shows how a local project that facilitated the reintegration of women into the industrialized milk sector can significantly improve women's socioeconomic conditions through increased economic power, enhanced access to resources, and strengthened agency, self-esteem, and family recognition.

The book will appeal to students, teachers, researchers in the social sciences and humanities, as well as professionals, employers, and practitioners working on gender issues.

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Section 1

Gender Inequality and
Differences in Pay:
Explanations

Chapter 1

Introductory Chapter: Gender Wage Gaps – Extent and Causes

Feyza Bhatti

1. Introduction

Despite notable progressions in gender equality in education and health, inequalities in labour markets persist across the world in varying degrees, and advances have been rather sluggish over the last two decades [1]. Gender wage gaps, the difference in earnings between women and men, remain a major concern in labour markets globally. Both result from and contributing to gender differences in the labour market, and gender wage gaps create a continuous loop that perpetuate gender inequalities and is challenging to break.

Historically, women's participation in the labour market has been shaped by several factors including individual, regional, demographic, cultural, legislative and institutional factors, as well as wider economic developments such as the transformations in country's employment structures and the impact of economic crises and the neo-liberal adjustment programmes. In many societies, traditional gender roles relegated women to domestic duties, limiting their access to education and employment opportunities. The industrial revolution marked a turning point, as women began entering the workforce in larger numbers. However, they often faced discrimination, receiving lower wages than their male counterparts for similar roles. The feminist movements of the twentieth century played a crucial role in advocating for equal pay and labour rights. Since mid-1900s, equal pay for equal work has been a major hurdle to overcome, as equal remuneration is not only a fundamental human right, but also a crucial factor for sustainable economic growth and social well-being of individuals and communities.

Fight against the gender wage gaps dates back to a century since the principle of equal pay gained traction in 1919. Various legislative measures and monitoring mechanisms have been introduced to address the earnings differences at local, national and global levels since mid-1900s. **Table 1** details the key international instruments that provide a framework for countries to enact policies and legislation aimed at closing the gender wage gap and promoting equal pay for all workers. Yet, gender pay gaps represent one of today's greatest social injustice. According to the World Economic Forum's Global Gender Gap Report [1], it will take approximately 134 years to close the global gender gap in economic participation and opportunity if current trends continue. The scale and pace of progress are inadequate to achieve Sustainable Development Goals in gender equality by 2030, highlighting the need for ongoing research and action.

This introductory chapter aims to provide an overview of the gender wage gap, contributing factors and implications for society.

Universal Declaration of Human Rights (1948)	Article 23: States that everyone has the right to work, to free choice of employment, and to just and favourable conditions of work, including equal pay for equal work.
ILO Equal Remuneration Convention (No. 100) (1951)	The convention mandates that member states ensure equal remuneration for men and women for work of equal value, promoting pay equity in labour markets.
ILO Discrimination (Employment and Occupation) Convention (No. 111) (1958)	The convention addresses discrimination in employment and occupation, including wage disparities based on gender.
Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) (1979)	Article 11: Emphasizes the need for equal remuneration for work of equal value and calls for measures to eliminate discrimination against women in the workplace.
Beijing Declaration and Platform for Action (1995)	Adopted at the Fourth World Conference on Women, this document calls for governments to take action to eliminate the gender wage gap and promote women's economic empowerment.
Sustainable Development Goals (SDGs) (2015)	Goal 5: Aims to achieve gender equality and empower all women and girls, including the commitment to ensure equal rights to economic resources and access to basic services.

Table 1.
Key international instruments addressing gender wage gap and employment rights.

2. Gender wage gaps: The extent and key explanations

Gender differences in the labour market are notable. Globally women are substantially less likely to participate in the labour market, and when they participate, they are more likely to be unemployed and they tend to have unequal employment status: males are more likely than women to be entrepreneurs; more women than men are categorized as unpaid family workers; and more women than men frequently, though not always, engage in informal jobs. Additionally, women typically put in fewer hours at work than men do due to unequal division of labour within the household. While the analysis of gender pay gaps needs to be placed within this wider context of women's unequal position in the labour market, the closing gender gaps in education could only reduce the gender pay gaps rather than eliminating it, and in 2018 on the average women were earning 20% less than men [2]. **Figure 1** shows that in 2023 gender pay gaps continue to remain a persistent form of inequality between working women and men across the world, with varying degrees.

Gender wage gap results from a variety of factors, such as disparities in work experience and educational attainment between men and women, lower wages in industries and professions where women are concentrated, that is segregation, differences in the percentage of women who work full-time versus part-time, which are influenced by women's caregiving responsibilities as mothers, and pay discrimination between men and women who perform equal or equal-value work.

2.1 Work experience and education

Differences in work experience and educational attainment can influence earnings that have been one of the compelling explanations of gender gaps in earnings. Contemporary research on the other hand indicates a little or almost no role of education on earnings gap: in high-income countries education contributes

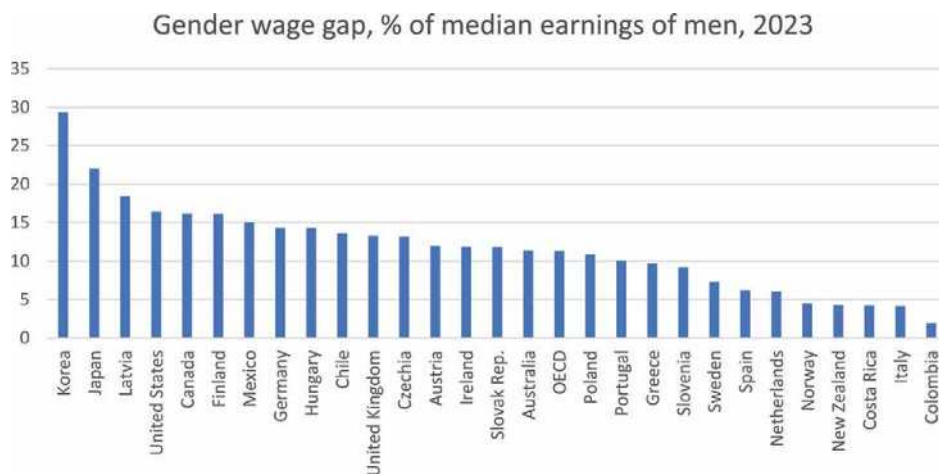


Figure 1.
Gender wage gap, 2023. Source: Organisation for Economic Co-operation and Development [3].

less than 1% of the wage gaps and in low- and middle-income countries lower educational attainment levels fail to explain the gap [2]. Additionally, the arguments on women tend to pursue degrees in fields that are less lucrative, further contributing to the wage gap, which have also been controverted by the studies that show gender earnings gaps can also exist in science, technology, engineering, and mathematics (STEM) [4, 5]. In the private sector for high-achieving men and women, academic credentials and other traits that are valued in men are far less valued in women leading to earning differentials too [6]. These indicate that different fields of study or more advanced degrees might not be enough for eliminating the gender wage gaps in addition to the arguments about educational or skills differences that are unable to explain most of the contemporary gender wage gaps [7]. On the other hand, while women have made significant advances in education, interruptions in their careers due to family responsibilities can affect their overall experience and advancement opportunities rather in the form of child or motherhood penalty. Research indicates that women are more likely to take career breaks for caregiving, which can hinder their long-term earnings potential and career advancement [8–13].

2.2 Occupational segregation

Research suggests that industrial and occupational segregation is a major contributor to gender wage gap [14, 15]. Women and men often work in different industries and occupations, with traditionally female-dominated fields typically offering lower wages. While it is argued that this might be due to occupations dominated by women pay less due to their ‘female-typical’ working-time arrangements [16], segregation limits women’s earning potential and reinforces existing disparities. The decline in occupational segregation has been a major contributing factor to women’s increased real earnings since 1980s, although both women and men are penalized for working in female-dominated occupations [17]. While the role of sticky floors (horizontal segregation) or glass ceiling (vertical segregation) cannot be ignored, more recent studies suggest for gender-based wage discrimination having a stronger effect on wage gaps between men and women than the segregation itself [18].

2.3 Gender-based discrimination

Given that a large part of the gender wage gap remains unexplained by individual characteristics and occupational segregation, gender-based discrimination at the firm level plays a significant role in wage disparities [19], particularly during the early and late careers of women [20]. Studies have shown that women may be offered lower starting salaries, receive fewer promotions and face barriers to leadership positions compared to men. Women are less likely to be hired for high-paying jobs compared to equally qualified men [21]. The discrimination accounts for a significant portion of the wage gap, even after controlling for factors such as education and experience [22]. While gender blind or joint-hiring practices have proven to decrease gender-based discrimination practices at the individual level [23], gender wage transparency measures at the country level have shown positive results in improving gender wage gaps [24], also indicating the possible solutions for gender-based discrimination in employment and subsequently gender wage gaps.

2.4 Gender roles and work-life balance

The traditional gender roles and expectations for women to balance work and family responsibilities can impact their work status and career progression [25]. Wage gaps due to having children; that is, motherhood wage penalty has become a key component in labour markets, but its size and roots are still being debated. Motherhood penalty might be caused by employment interruptions, preference for convenient working conditions and high involvement in unpaid domestic work, but not by mothers' lower productivity [26] or by lower career enthusiasm of women [27]. Part-time work, often chosen to accommodate family needs, naturally comes with lower wages, fewer benefits and career advancement opportunities [28, 29]. Additionally, workplace cultures that prioritize full-time jobs, and constant availability can disadvantage women, who may face societal pressures to fulfil their caregiving roles.

3. Conclusions

The implications of the gender wage gap extend beyond individual earnings. A persistent wage gap can lead to broader economic consequences, including reduced household income, increased poverty rates among women and diminished economic growth. Additionally, the wage gap can perpetuate gender inequality, affecting women's social status and opportunities for advancement in both personal and professional spheres.


The gender wage gap is a multifaceted issue rooted in discrimination, occupational segregation and societal norms. Addressing these causes through policy changes and workplace reforms is essential for promoting gender equality and economic fairness. Understanding the complexities of the gender wage gap and the differences in the labour market is essential for developing effective policies and strategies to address this issue. This introductory chapter serves as a foundation for further exploration into the causes, consequences and potential solutions to the gender wage gap, setting the stage for a deeper analysis in the subsequent chapters.

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Chapter 2

Where Inequality Is Born? Axial Institution Index

Sofia M. Rebrey

Abstract

Gender equality is the equality of rights and opportunities; however, all the gender indexes measure either the equality of rights or the equality of access to resources, thus missing the dimension of opportunity. Present research develops innovative approach to measuring the equality of opportunities using index of axial institutions. Axial institutions present an axis that form and exploit agency. Those institutions are family and labor market, education and science, and state and corporate governance. The pioneering approach rests on, firstly, including family as a core institution where gender inequality is born through the allocation of family duties and particularly paid and unpaid labor. Secondly it measures horizontal segregation in labor market and education. Thirdly, it includes science institution and measures not only the share of women—researchers, but also the share of women in academia governance. Thus, the research results in hexagon that has the equality of opportunities in each axial institution.

Keywords: gender inequality, equality of opportunities, axial institution index, time use, unpaid domestic labor, women in science, women in decision-making

1. Introduction

Modern understanding of equality is based on Amartya Sen's equality of opportunities [1]. This approach significantly widens the focus of economic analysis from concerning only income as a key feature of well-being to including other characteristics of population, such as education and health. Moreover, this approach includes not only institutions but also agencies.

According to Sen, agency is a capacity and a will to set a goal, to choose methods to achieve, and to finally achieve it [2]. Agency has a collective aspect—as people of the group (e.g., gender) see positive or negative examples among peers and rely on this experience in their decision-making. When a group has a strong agency, it adjusts institutions to its needs and demands and the other way around—when a group has a weak agency, it adapts.

Gender equality has two key definitions that support each other. At first, gender equality was perceived as an equal access to resources, such as financial, human, and social capital. Later, gender equality included not only equal rights, but also equal opportunities. However, gender indexes continue to be focused only on the former, missing out the equality of opportunities. Present research suggests a set of indicators

that measure gender inequality of opportunities as well as access to resources across axial institutions. Axial institutions represent the ax, that agency is built upon on the one hand, and where agents exercise their capabilities and bring changes, thus conditioning agent's opportunities. Axial institutions are family and labor market, education and science, and state and corporate governance.

In family domain, gender equality is measured through the gender gap in time allocated on unpaid labor as it presents the core reason of gender inequality and conditions how women participate in paid labor.

In labor market, the equality of access is measured through gender gap in labor force participation rate and the equality of opportunities through gender pay gap and the index of horizontal segregation, that is measured as the average gender gap in participation in various types of economic activities.

In education, gender equality in access is measured through enrollment gap in the secondary school and the equality in opportunities through the index of horizontal segregation measured as the average gender gap in participation rate in different fields of study.

Science (as well as family) is usually omitted in gender indexes, and hence, women's role in knowledge production seems irrelevant. There is available data on the share of female researchers; however, there is no international database of women in academia decision-making.

State and corporate governance is measured through the share of women in parliament and ministers and the share of firms with female CEO or female ownership.

Further each axial institution is explored including literature review and theoretical foundation, methodology, and indicators analysis (international comparisons, dynamics, etc.)

2. Family and time use

In mainstream economics family was traditionally perceived as a core cohesive unit that has no any disagreements between its members. However, feminist economists argued that this approach oversimplifies the reality and hides inequality in decision-making within household, and it creates a solid base for inequality to prosper in other institutions [3]. Bargaining power in the household matters not only on strategic decision-making like family planning or budgeting, but also in everyday matters like housework and care.

Unpaid domestic labor has been researched since women entered academia in economics. One of the first and the most profound analysis of domestic labor was conducted by M. Reid in early 1930s [4]. However, it had no any impact on mainstream economics unless G. Becker tried to connect decision-making within household and at the labor market and concluded that the most effective model for a family was a working father and a housewife, because each spouse improve their competitive advantages getting more and more experienced and effective in their domain [5, 6]. Even though his conclusions contradicted the reality: 1960s witnessed dramatic increase in female labor force participation. Why would more and more families choose a dual earner model if it is not effective?

As feminist economics developed, more and researchers came to different conclusion—actually sharing domestic chores and earning responsibilities is more effective than dividing it between spouses. Not only it doubles the workforce and their capacity to produce but also increases GDP [7, 8]. It also increases family income [7] and their

financial stability during economic recessions [9]. Amid low economic dynamics in developed economies together with deflation and no increase in real wages, dual earner families became a backbone of middle class. Sharing chores and care responsibilities is a logic consequence of sharing paid labor; however, it not always follows. Unpaid domestic labor remains female domain in most countries and has become a focus of feminist analysis.

Feminist researchers have advanced greatly in measuring unpaid domestic labor using time budgets. A massive breakthrough was achieved with the adoption of the Beijing Declaration and Platform for Action that called for the development of classification of activities for time use statistics in 1995 [10]. Since 2000s the UN supports national statistical agency in time use data production and gather international statistics on time allocation.

Time use data is based on time diaries. Respondents fill in special diaries where they cover all their activities every ten minutes during a weekday and a weekend [11]. Time use data appeared to be an extremely valuable source of information of economists and social scientists, however, still deeply underappreciated and underused. It not only shows the gender differences in participating in paid and unpaid labor, it also gives insights on wellbeing of population, including health, education, social capital, etc. [12–21] and on decision making mechanisms and bargaining power determinants [18, 22]. Balanced gender time allocation on domestic chores and care leads to both stronger marriages, which in turn has a positive impact on fertility [23, 24], and economic and financial stability within the family [9, 25]. Gender gap in time spent on domestic labor correlates strongly with all the gender indexes. It also strongly correlates with adolescent marriages (0.82), national poverty (0.78), index Gini (0.56), wealth of nation measured through GDP per capita in PPP terms (−0.31) and other very important socio-economic indicators [26].

Gender gap in time spent on unpaid domestic labor basically epitomizes the very core of gender stereotypes that gender equality is blamed on. Why spouses choose to allocate their household responsibilities the way they do and why gender is very important in this matter? Often this division is characterized as a traditional one; however, it is not exactly true. The division of paid and unpaid labor on male and female domains accordingly develops only in industrial, urbanized societies. In traditional agrarian society paid and unpaid labor were closely intertwined, and both spouses were usually involved in both or at least men were involved in unpaid labor and particularly in childcare, as fathers were responsible for moral guidance and teaching their children [21].

Early industrialization widely exploited female labor force, particularly of girls or young women. As industrialization developed, more and more complicated machines needed more educated workforce and that workforce was male, while women were struggling to get access to education and had very limited opportunities on labor market [27]. Urbanization resulted in nuclearization of families that left women solely responsible for childcare. On the other hand, as social and natural sciences advanced, the standards of a clean house evolved significantly. Technical progress made some chores easier but also created many new ones. Care standards also improved significantly, so that modern child is to be fed 3–5 times a day, with nutritious healthy diet, to be educated and developed, socialized, and so on.

To increase female labor force participation, childcare services were introduced. In the USSR where women were an important force of industrialization kindergarten were introduced. Those facilities not only provided women with free time but also applied scientific approach in child rearing (even though most of that practices are now viewed as evil). However, USSR experience shows that high level of female

labor force participation does not necessarily result in increased male domestic labor participation. It results in double burden of female population that decreases health of women and their children and limits their career opportunities. The more women work for free at home, the less their labor is valued at the labor market.

The family, as the primary institution of socialization, plays a key role in the formation of agency and the distribution of gender responsibilities.

In countries with high levels of gender equality (Sweden, Norway, and Canada), women spend 25–30% more time on unpaid work than men, while in countries with the lowest levels (Cambodia, Mali, and Pakistan) women spend 10 times longer (Figure 1).

International statistics on time use are available in the SDG, UN, World Bank, and national statistical offices databases. The SDG indicators include the proportion of time spent on unpaid care and housework, by gender, age, and location. The UN provides data in the form of time spent by women and men on unpaid domestic work, with the possibility of disaggregating data by type of work (domestic services or childcare), place of residence (urban/rural), and age (not for all countries). Data is collected from national sources, which explains the discrepancy between years and makes both international comparisons and trend analysis difficult. Thus, as of 2024, the latest available data for Russia on the portal is 2014, although more recent statistics have been available for 5 years—since 2019.

The World Bank reports data as the share of time spent on unpaid domestic work by women and men, and the gender gap as a difference (percentage points), which can make the indicators difficult to comprehend. For example, in Russia it turns out that women spend 10% more time on unpaid domestic work.

National statistical services provide a richer selection of indicators based on time budgets, including disaggregation by type of occupation, marital status, weekend or weekday, age, etc. Eurostat, Korean, Chinese, and Japanese statistical services, along with time costs, also provide the level of participation in unpaid work (as well as household services and childcare) and duration of participation. The rate

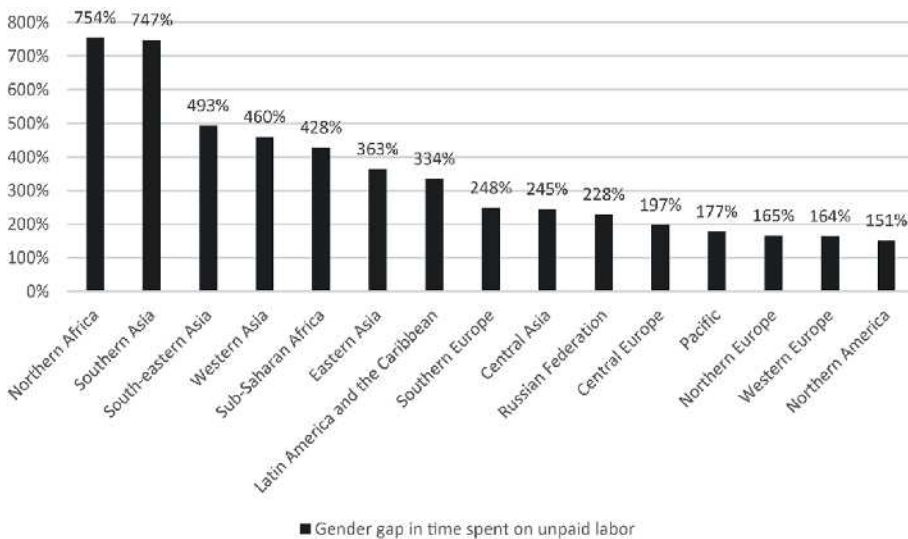


Figure 1. Gender gap in time spent on unpaid domestic work. Source: UN DESA Time-use. URL: <https://unstats.un.org/UNSDWebsite/demographic-social/time-use/>

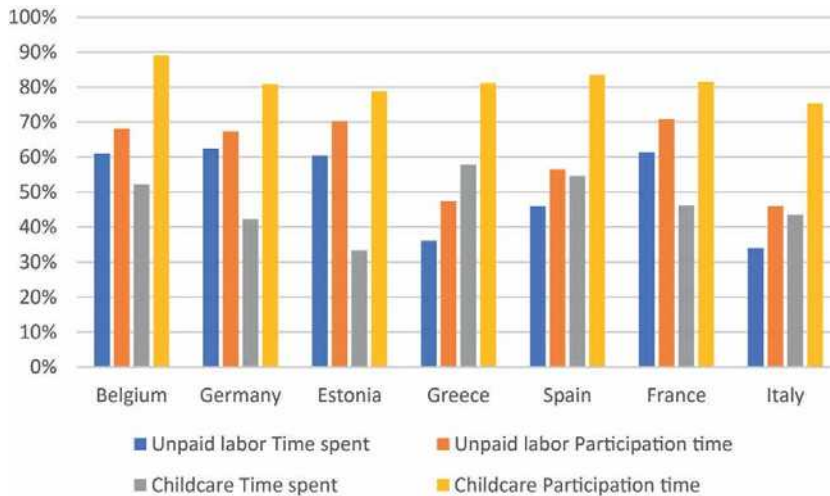


Figure 2. Reversed gender gap in time spent and participation time on unpaid domestic labor and childcare in EU countries, 2010. Source: Eurostat. URL: https://ec.europa.eu/eurostat/databrowser/view/tus_00age__custom_8010763/default/table?lang=en

of participation in unpaid work is measured as the proportion of those who spent 1 or more minutes per day on household work, and the duration of participation is the arithmetic average of those who participated in household work (that is, spent 1 minute or more). The domestic labor participation rate and the inverse gender gap (that is, the ratio of the proportion of men to the proportion of women) also help assess the extent to which men and women are involved in household labor (**Figure 2**). The duration of participation shows values closer to reality. For example, the level of participation in childcare in Belgium is low and amounts to 12.5% for men and 20% for women, which is explained by the small share of children in households and which results in extremely low time costs (7 and 16 minutes per day, respectively), while the duration of participation will be significantly higher (54 minutes and 1 hour 20 minutes respectively). Thus, the use of three indicators more accurately shows the distribution of household workload and the possibility of disaggregation by age, marital status, employment, and other characteristics (available in the Sample Observation of the Use of Daily Time Fund by the Population, conducted by Rosstat) makes it possible to more accurately determine both the most vulnerable groups of the population and the relationship between gender gaps and women's opportunities in the labor market and the distribution of household workload between spouses.

Thus, the most accurate measure of the balance in the distribution of household unpaid work includes the average of four gender gaps: in the level of participation and duration of participation in domestic services and childcare. This approach allows childless households to be excluded from the analysis of childcare distribution and to focus on participation gaps.

3. Labor market

The labor market determines the level of wages and for many the level of income. It also represents a platform for applying the capabilities, talents, and inspirations

of agents. The gender equality in access to labor market is measured by the gender gap in labor force participation (**Figure 3**). The largest gender gap is typical for the Middle East and North Africa (27%), especially for Iraq, Iran, and Pakistan (16, 25, and 27%, respectively). The smallest gender gap is found in the Nordic countries (90%), indicating low levels of inequality. However, in Sub-Saharan Africa the gap is even smaller, which most likely indicates that the majority of men are employed in the informal sector. Moreover, this indicator does not characterize gender differences in working conditions, wages, and career opportunities.

The most used indicator of gender inequality is the wage gap. The ILO calculates it as the ratio of the average hourly nominal wage of women and men according to the ISCO-08 classification. However, this approach leads to unexpected results: in some developing countries, especially in Southeast Asia, Latin America, and Sub-Saharan Africa, there is a reverse gender wage gap. It contradicts the real wage distribution and indicates men’s employment in the informal sector.

The OECD uses a relative approach and compares the median wages of women and men in two employment groups: full-time employment and self-employment. This approach estimates the gender wage gap in the middle class, which solves the problem of the negative values that appear when calculating the arithmetic average. However, women account for the majority in the poorer segments of the population (the feminization of poverty). And concerning top deciles, the wage gap increases sharply (**Figure 4**). Such statistics are also provided in OECD databases, but gender indices do not use them.

Regarding the inclusion of two types of employment, there are also advantages and disadvantages. Among the advantages is the availability of data on the self-employed, which led to an understanding of why women are less willing to open small businesses: an important factor was the significant wage gap for entrepreneurs (**Figure 4**) [28]. A weakness of the OECD approach is the omission of temporary and part-time work, the most common form of women’s employment in many countries.

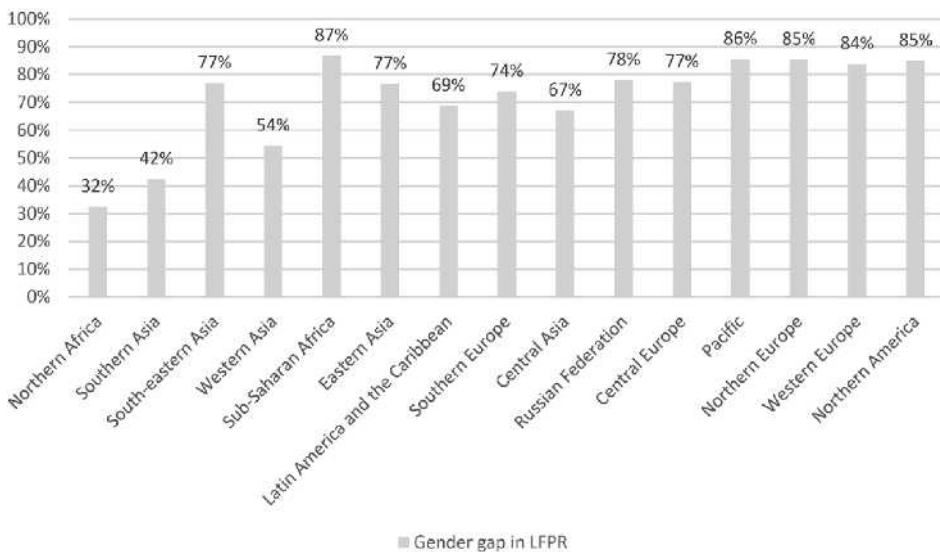


Figure 3. Gender gap in labor force participation rate per world regions. Source: ILO database.

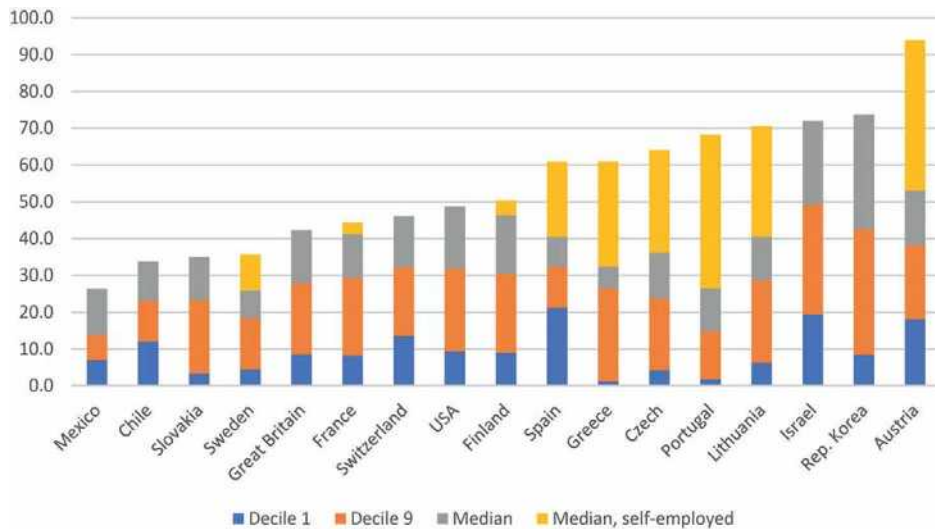


Figure 4. Gender pay gap according to OECD methodology: decile 1 and 9, median for full-time employment and median for self-employed for 2021 or latest available. Source: OECD Stat. [https://data-explorer.oecd.org/vis?df\[ds\]=dsDisseminateFinalDMZ&df\[id\]=DSD_EARNINGS%40AGE_WAGE_GAP&df\[ag\]=OECD.ELS.SAE&df\[vs\]=1.0&pd=2000%2C&dq=.S_PA_WP...MEAN_T&ly\[rw\]=REF_AREA&ly\[cl\]=TIME_PERIOD&to\[TIME_PERIOD\]=false&vw=tb](https://data-explorer.oecd.org/vis?df[ds]=dsDisseminateFinalDMZ&df[id]=DSD_EARNINGS%40AGE_WAGE_GAP&df[ag]=OECD.ELS.SAE&df[vs]=1.0&pd=2000%2C&dq=.S_PA_WP...MEAN_T&ly[rw]=REF_AREA&ly[cl]=TIME_PERIOD&to[TIME_PERIOD]=false&vw=tb), <https://www.oecd.org/gender/data/gender-wage-gap.htm>

As a result, gender indices do not use gender wage gap, replacing it with composite or subjective indicators. Subjective indicators include a sub-index of wage equality for similar work, based on a survey of corporate management, used by the WEF in the Global Gender Gap Index (GGI) [29]. The focus on firm data (albeit subjective) is explained by the fact that the intra-firm wage gap is the most significant, exceeding inter-firm and inter-industry gaps by several times [30].

More complex, also used by the WEF, is the gender estimated income gap, a comprehensive indicator of the gender income gap developed by the UNDP ([31], pages 6–7), designed to assess “what share of a country’s economic resources is held by women” [30]. It consists of the following variables:

1. the share of women and men in the economically active population (ILO). According to the ILO methodology, the economically active population is the entire employed and unemployed female and male population. Employed people are defined as those who produce goods and services, both for sale and for their own consumption [32]. The size of this population category is estimated using data on the number of employed and unemployed (ILO), is also supplemented by population size, age, and gender structure (UN), rural population share (FAO), and number of schoolchildren (UNESCO), and also takes into account the size of GDP, pension system, etc [33].
2. gender wage gap according to ILO methodology
3. GDP PPP (IMF);
4. share of female and male population (WB).

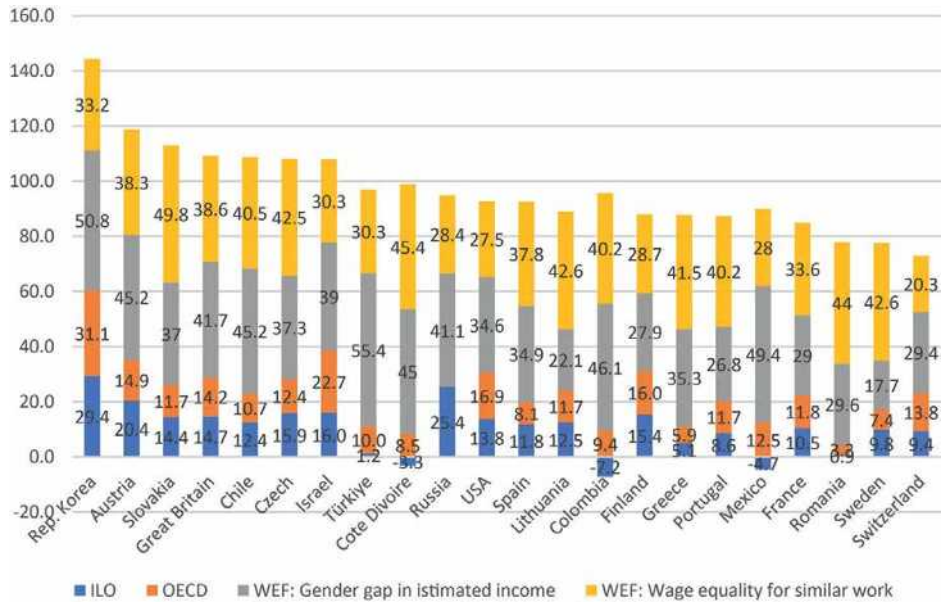


Figure 5. Gender wage and income gap according to the ILO, OECD, and WEF. Source: OECD <https://www.oecd.org/gender/data/gender-wage-gap.htm>, ILO <https://ilostat.ilo.org/topics/women/#>, WEF <https://www.weforum.org/publications/global-gender-gap-report-2021/in-full/economy-profiles>.

The average gap in estimated income in 2021 was 0.49, which is 2.5 times higher than the gender pay gap calculated using the ILO methodology (**Figure 5**).

Horizontal segregation in labor markets is expressed in its division into male and female segments (**Figure 5**). Moreover, female segments of labor market are characterized by lower wages (e.g., in Russia this is education, where women make up 82%). Present research proposes to measure horizontal segregation as the average gap in gender distribution by type of economic activity. For Russia, it is 1.37 (calculated by the author based on data from Women and Men in Russia, employment structure by type of economic activity for 2019). However, such statistics are not available internationally.

4. Education

Education is a secondary institution for the socialization of agents, transmitting a system of knowledge to the next generation, including gender norms and stereotypes in society. Gender indices measure inequality in education solely through its accessibility, despite the fact that in most countries there is a reverse gender gap in education (including higher education); that is, more girls complete school and university in many countries, but this does not lead to equal wages (**Table 1**).

This is due to the fact that education provides different opportunities for girls and boys as a result of the penetration of gender stereotypes into the curriculum, into the organization of the educational process, and other factors [34, 35].

An objective indicator of the gender segregation in education is horizontal segregation in education that results in major gender gap in the share of students in different specialties. Usually, the vast majority in the humanitarian fields are girls, and

Primary	Secondary	Tertiary
0.99	1.009	1.297

Source: Gender Data Portal World Bank.

Table 1.
Gender gap in education enrollment, world average.

in the technical fields are boys. In Russia, the share of girls enrolled in the technical bachelor's degree is 39.1%, and in the humanities—70%.

In the digital economy, a small share of girls in STEM becomes a burning issue due to many reasons. First, technical jobs tend to pay higher wages, exacerbating the gender pay gap. Secondly, the low participation of women in the IT amid rapid digitalization contributes to the AI biases, and the more areas that artificial intelligence captures, the deeper bias against women penetrates into new digital institutions. And the fewer women involved in creating digital products, the greater the scale of the problem. Therefore, the proportion of women receiving education in technical fields (STEM, IT) attracts special attention from researchers, and similar indicators are available in international organizations.

5. Science

Science, as an institution that produces knowledge, plays a special role in shaping the agency of women and men. Understanding the collective experience of humanity creates the basis for the distribution of gender roles in society and, accordingly, the opportunities of women and men. Science is a social institution, and hierarchy and power play an important role in the process of knowledge production, which greatly complicates the penetration of women's and gender studies into the general scientific discourse, leaving them on the periphery of science [36, 37]. A striking example here is the economic sciences. The bibliography of women's economic thought includes "more than ten thousand articles, monographs, and pamphlets written on economic topics by more than 1700 women and published from 1770 to 1940" [38]. However, the scientific school of economics of gender began to take shape due to the development of women and later gender studies in other humanities and a powerful socio-political demand, but not due to the consolidation of feminist economists per se [39]. Nevertheless, gender analysis provides economics with the answers to many pressing questions and opens up new prospects for the development of economic sciences and improvement of socioeconomic policy. Such issues include the demographic crisis of post-industrial economies, where the most striking examples are Japan and South Korea, the search for work-life balance, poverty and inequality, etc.

The status of women in science is usually measured as the proportion of women among researchers (by job or degree). Although this indicator is not included in any indexes, data is available for most countries of the world (**Figure 6**). According to UNESCO, in many countries women make up half or more of researchers. However, these countries have low prestige of working in scientific institutes and the correspondingly low level of salaries.

Thus, the share of women in science does not fully characterize their weight in knowledge production decision-making. A qualitative characteristic is the participation of women in academia decision-making. Such statistics are available for EU countries (**Figure 7**).

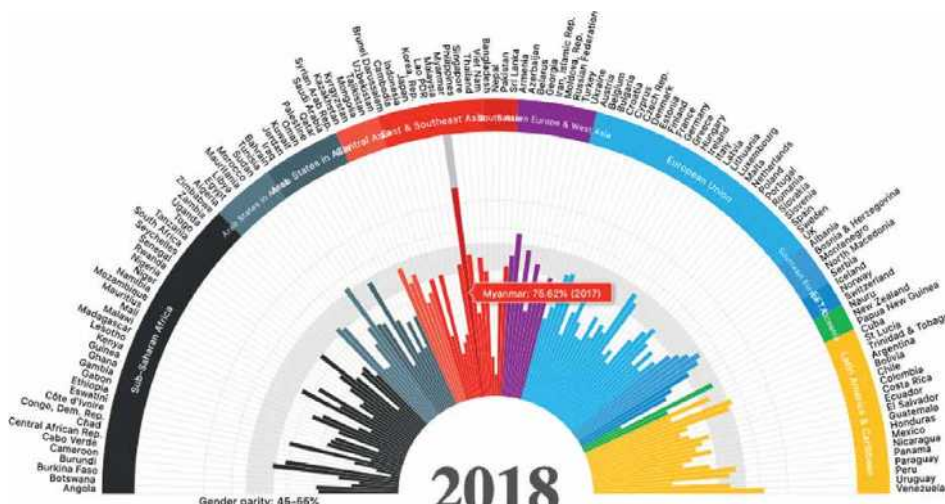


Figure 6. Share of women among researchers, 2018. Source UNESCO. URL: https://www.unesco.org/reports/science/2021/en/dataviz/share-women-researchers-radial?TSPD_101_Ro=080713870fab20006bcdac2162bc31b5c998bc95f57af0bb7d46902e3b6a04c0c66941fc7c4082a5089dfe1f9c1430009f04b16e80469a9165ee323d75447ee212349243baebbb165252f8c19abcd2b47c5ae06ee6574b4ad12cd7c150d045#:~:text=Globally%2C%20women%20make%20up%2033.3,covering%20the%20years%202015-2018.

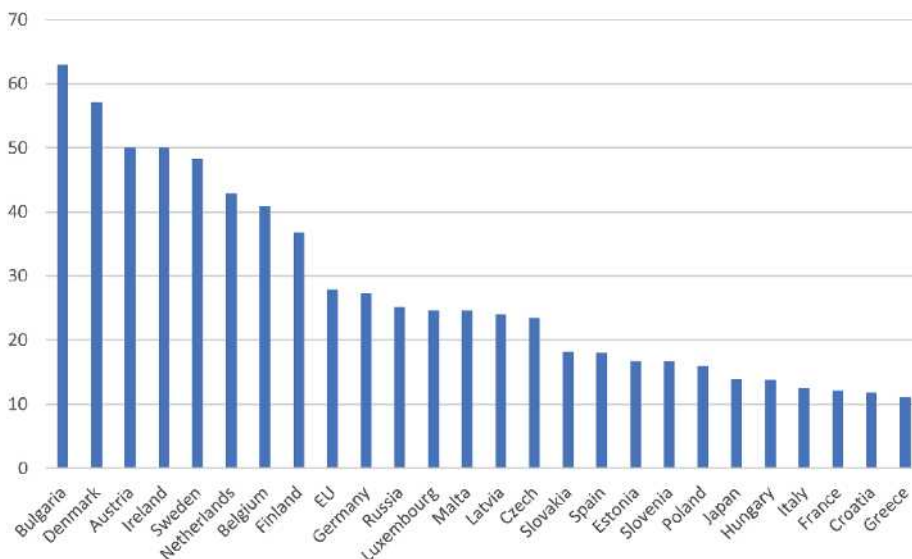


Figure 7. Share of women in academia decision-making. Compiled from data: Eurostat.

Measuring horizontal segregation in science highlights gender differences in the opportunities in science. According to the Ministry of Science and Higher Education, in the graduating class of 2022, girls made up 39% in technical fields and 50% in humanities.

6. Corporate and state governance

Management acts as the macro-level of axial institutions, since it directly creates and maintains formal institutions. Women's participation in governance contributes to the representation of women's and children's interests in the economy and society and is an integral element of women's empowerment [40]. Concerning equality of opportunity, equal representation of women in power indicates the overcoming of vertical segregation—the most persistent form of discrimination, and is usually achieved as a result of quotas.

In gender inequality indices, women's participation in state governance is measured as the proportion of women in parliament, cabinet (GII, GGG) and as leader of the nation over the past 50 years (GGG). In Russia, the share of women in parliament is 25%, and according to Matvienko, it will be increased to 40% by 2024. However, without the introduction of special tools for achieving equal opportunities, namely electoral quotas, such a forecast seems unlikely. In the cabinet of ministers as of 2023, out of 20 ministers, there is only 1 woman (Minister of Culture), that is, 5% of women.

Women's participation in corporate governance is measured only as a sub-index of the labor market. To trace the vertical segregation WEF uses the gender gap in

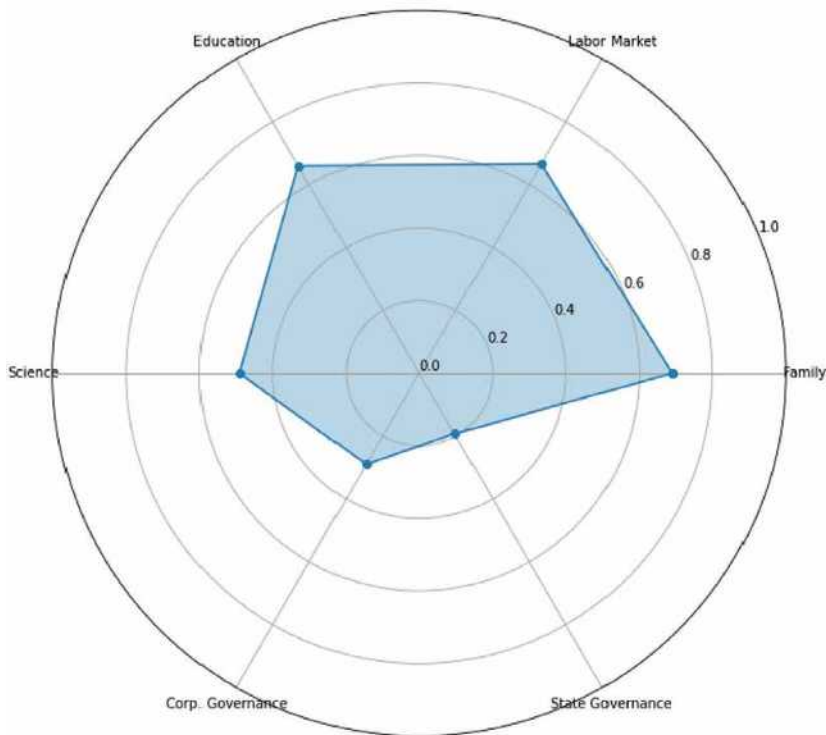


Figure 8. Axial institution index, Russian Federation, 2023*. Source: calculated by author using indicators from **Table 2**. Data for family institution is calculated on the latest available time use survey, which is 2019.

participation in corporate management (top and middle management) by calculating the ratio of women and men occupying leadership positions according to the ILO ISCO 08 classification. On the one hand, this indicator allows us to identify the degree of vertical segregation in labor markets and the opportunities for women in corporate management. On the other hand, the inclusion of middle management distorts the balance of power.

Institute	Indicator	Method	Source	Note
Family	Time spent on domestic chores and childcare	Reversed gender gap	UN DESA	
	Participation rate in domestic chores and childcare	Reversed gender gap	National statistical services	Unavailable on international level
	Participation time in domestic chores and childcare	Reversed gender gap	National statistical services	Unavailable on international level
Labor market	Labor force participation rate	Gender gap	ILO	
	<i>Estimated income</i>	Gender gap	WEF	
	<i>Median pay</i>	Gender gap	OECD	Unavailable on international level
	<i>Horizontal segregation index</i>		National statistical services	Unavailable on international level
Education	Secondary school enrollment	Gender gap	UNESCO	
	<i>Horizontal segregation index in technical and humanitarian fields, bachelor</i>		National statistical services	Unavailable on international level
Science	Share of women in research	Gender gap	World Bank	
	<i>Share of women and men in academia decision-making bodies</i>	Gender gap	Eurostat, National statistical services	Unavailable on international level
	<i>Horizontal segregation in PhD</i> Share of women and men in technical and humanitarian PhD studies	Gender gap	National statistical services	Unavailable on international level
State Governance	Share of women in parliament	Gender gap	World Bank	
	Share of women in minister's cabinet	Gender gap	World Bank	
Corporate Governance	Share of companies, with female board members	Gender gap	World Bank	
	Share of companies, with female CEO	Gender gap	World Bank	

Table 2.
Axial institutes indicators.

One of the available indicators is the proportion of firms with female top managers and the proportion of firms with women on the board of directors. For Russia, these indicators are 34 and 24.3%, respectively. However, research shows that significant changes (e.g., sharp increases in management effectiveness) begin in companies with at least three women on the board of directors [41]. Other studies find positive changes (in the form of higher long-term company growth rates) in companies where women make up half or more of the top management. Therefore, indicators of women's participation in corporate governance need further refinement and the search for an optimal indicator, for example, the proportion of firms with more than three women on the board of directors or half of the management team. Particular attention should be paid to management in the least gender-inclusive industries (like IT) and in the most highly paid ones.

As a result, the resulting picture can be depicted in the form of a hexagon (hexagon), where 0 is complete inequality, and 1 is complete equality (**Figure 8**). The set of indicators is collected in **Table 2**.

7. Conclusion and recommendations

Measuring gender inequality is a burning issue, and the number of indicators is growing rapidly. However, due to the weak theoretical foundation of the topic and weak links between the feminist economics and international and national statistical services, there are still significant gaps in both data collection and processing. This is especially true for the institutions of family, education and science, and corporate governance.

The axial institution approach offers a set of indicators to measuring gender inequality of opportunities, taking into account the system-forming factors of agency. It measures both equality of opportunity and equality of access to resources and benefits. Thus, the main indicator of the opportunities is free time, and the uneven distribution of unpaid domestic labor leads to a double burden effect. Therefore, the first axial institution considered is the family, and the indicator is the gender gap in the time, participation time, and participation rate in unpaid domestic labor. This indicator so deeply and accurately embodies the essence of gender inequality, gender relations in the modern world, and the role models that future generations learn and determines the conditions for women's participation in paid employment, including the level of wages, which alone is in principle sufficient to assess the level of gender inequality in the country. Other indicators show the full range of factors that hinder the achievement of equality. In the family domain, bargaining power is also impacted by who owns housing and other significant property. In economic analysis, property rights are seen as the basis for the distribution of resources and power, and women's rights, limited over many centuries, are considered one of the main causes and instruments of gender inequality. Research on domestic violence reveals a strong correlation between apartment ownership and levels of domestic violence. This probably also affects the distribution of household responsibilities. However, in time budgets there is no data on who owns the property.

Family and labor policies impact the distribution of responsibilities in the family, especially the reimbursability and duration of parental leave and/or the availability of exclusive paternity leave, its reimbursability and duration, as well as the share of fathers on such leave. The first indicators are available in the World Bank database, and they show equality in access to benefits, while equality of opportunity would be

more likely to be described by the last indicator—the proportion of fathers on parental leave. This indicator is important to monitor both nationally and globally.

The labor market has the largest set of indicators offered by the ILO, WB, WEF, and other organizations; however, these indicators mainly characterize equality of access to labor markets through such indicators as the gap in participation in the economically active population and equality of access to financial resources (through wage gap or through the gap in estimated income, which characterizes the level of female poverty much more accurately), rather than equality of opportunity, which is proposed to be compensated using the index of horizontal segregation in labor markets, which is calculated as the average gap in gender distribution by type of economic activity.

In education, equal access is measured through the gender gap secondary education enrollment and equality of opportunity through the index of horizontal segregation in technical and humanitarian areas of undergraduate education.

In science, the position of women is measured by three indicators: the gender gap in participation in science, in science management, and by the horizontal segregation index (among graduates of graduate schools in technical and humanities fields).

In public administration, measuring the representation of women in government institutions is not a problem: indicators such as the share of women in parliament and the cabinet of ministers (in the case of the index, the gender gap in participation) are widely used.


In corporate governance, international indicators have also been developed that weigh the role of women in business ownership and management, but this only applies to companies listed on stock markets, for which data is therefore available.

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Chapter 3

The Gender Differences in Pay in Monopsonistic Labor Markets: Could Market Frictions Explain These Differences?

Brian William Sloboda

Abstract

Monopsony has gained new momentum in recent years as a potential factor influencing gender-related outcomes in the workplace. This chapter provides a comparative analysis of monopsony in the context of labor markets and examines its implications for gender disparities. Monopsonistic power, exercised by employers in monopsonistic labor markets, can affect women's labor market outcomes through various channels, including wage setting, labor mobility, occupational segregation, and job quality. Evidence suggests that monopsony power can contribute to gender-based wage discrimination, as employers can suppress wages below competitive levels. Moreover, monopsony can exacerbate occupational segregation, concentrating women in low-wage jobs. A growing body of literature shows that market frictions in labor markets refer to obstacles or inefficiencies that prevent the labor market from operating equitably and could affect the elasticity of labor supply. For women, these market frictions can manifest in several ways, e.g., caregiving responsibilities and being a trailing spouse. These market frictions create barriers that hinder achieving equal opportunities and outcomes compared to men. In other words, understanding the relationship between monopsony and gender is crucial for policymakers to promote effective policies and interventions for gender equality in the labor market.

Keywords: gender, market frictions, wages, monopsony, labor market discrimination, personality traits

1. Introduction

Do gender differences in job mobility explain gender differences in pay? Various theories have been proposed to explain the differences in pay by gender, which appear to have identical productivity characteristics. These include theories based on prejudice (e.g., works of Becker [1, 2]) and statistical discrimination (e.g., works of Arrow et al. [3–5]). Joan Robinson, in 1933, formulated labor monopsony [6] and posited that a monopsony employer lacks competition from other firms. The measure of monopsony power is related to the wage elasticity of labor supply or the likelihood

that workers respond to a lower wage by leaving the market. A firm faces a labor supply of infinite wage elasticity in competitive labor markets. If the firm decreases wages below the market, workers will quit and look for a job at a higher-paying firm. The approach by Robinson was at odds with the standard assumption of competitive labor markets. Consequently, the monopsonistic model largely remained dormant until recent years. Some recent inquiries reinvigorated the application of monopsony to provide reasons why larger firms pay more than smaller firms, why similar-ability workers are paid different wages, and why race and gender are correlated with compensation.

Manning established an analytical framework for estimating the wage elasticity of labor supply [7]. He combined methods for analyzing worker transitions to and from jobs over time with the monopsony rate of exploitation introduced by Robinson. Delving into job mobility is relevant to the gender earnings differences because female workers are paid less than male workers in many countries worldwide [8]. More importantly, women workers may face more significant market frictions that could prevent workers from obtaining new jobs. Also, female workers may have greater familial and house responsibilities, so they may devote less time to conducting job searches or have concerns about obtaining a new job (e.g., being more risk-averse). Moreover, many women workers face gendered cultural constraints and often select more flexible occupations. In contrast, male workers often have fewer cultural constraints and earn more because they do not need to worry about these constraints, as faced by women workers [5].

Webber found a similar finding using US data because women workers are likelier to work in firms with lower labor supply elasticities [9]. Hirsch et al. used Manning's empirical framework and linked employer-employee data in Germany to estimate labor supply elasticity and found a lower elasticity for women than men [10]. Barth and Dale-Olsen showed that gender elasticity differences accounted for 70–90% of the gender wage gap for lower-educated workers [11]. Webber estimated the individual labor supply elasticities facing every US firm and found that a 1-% increase in elasticity was associated with wage gains of 5–16%, with significant variability across firms [12]. A meta-analysis concluded that the average estimated elasticity is lower for women than men [13].

Through this literature survey, this chapter identifies and outlines the breadth of explanations for the gender gap in outcomes that occurs with monopsony. This chapter first summarizes the existing literature on monopsony, including how monopsony is measured in labor markets. Section 3 outlines the general analytical framework of monopsony. Section 4 describes the impacts of market frictions on monopsony and gender. Section 5 concludes the chapter by summarizing the main findings and discussing additional points.

2. The existence of monopsony in labor markets

As mentioned earlier, recent problems in labor markets restored the concept of monopsony in the labor market. Such interesting research questions would include the analyses of job-to-job flow using search theory [7, 14], which has established that every single firm or establishment has its labor supply curve. The latter means that new hires must replace workers when they quit. More specifically, the higher the wage, the fewer the quits, making it easier to attract new hires to the employer. Several conditions must be met for the model of monopsonistic discrimination to be present.

- Employers should be able to distinguish between men and women in the wage-setting process. Barth and Dale-Olsen argued that in the absence of pure wage discrimination—unequal wages for equal work—employers may distinguish between jobs with uneven gender composition [11]. It has been shown that female-dominated occupations pay less than male-dominated occupations [15]. Throughout the literature, it can be concluded that gender differences arise across jobs, occupations, and within establishments [7, 8, 11].
- The labor supply curve of women must be less elastic than men's. However, the latter has been ignored because the female labor supply seems equal or more wage-sensitive than men's. Manning wrote about gender discrimination in the labor market and gender differences in the elasticity of worker turnover concerning wages that “the gender differences that we have identified in previous sections do not show up in these estimated elasticities. Whether this is because this approach to estimating elasticities is not very informative or because the total effect of the gender differences in constraints and motivation is small, it is an issue that deserves further consideration” ([7]:208).

As mentioned earlier, imperfect competition could lead to a gender wage gap that dates to the original proposition by Joan Robinson's 1933 book, *The Economics of Imperfect Competition*. Women may earn less than men may if they are, on average, less willing to leave their employer in response to changes in firm and market conditions [16]. The latter may happen if women have less information about employment opportunities or face higher commuting costs to reach their jobs [17, 18]. More importantly, without exogenous variation in the wages provided by a single firm to test whether these elasticities would differ by gender, it becomes difficult to check for monopsony. However, the latter ignores childcare costs on women's earnings.

2.1 Measurement of monopsony power in labor markets: Market concentration

Various measures can be used to quantify the level of market concentration in a monopsony. The appropriate measure of market concentration may depend on the specific context and characteristics of the monopsonistic market being analyzed [7, 19, 20].

- Concentration ratio: The concentration ratio is calculated as the sum of the market shares of the top “n” firms or buyers. For example, a four-firm concentration ratio (CR4) measures the combined market share of the top four firms or buyers. A higher concentration ratio indicates a more concentrated market, with fewer firms or buyers having a larger market share.
- Herfindahl-Hirschman index (HHI): Another measure of market concentration that considers market shares for all firms. It is calculated as the sum of the squared market shares of all firms or buyers which ranges from 0 to 10,000, with higher values indicating higher concentration. An HHI close to 10,000 indicates a monopoly (or monopsony) market, where a single firm or buyer has 100% market share.
- Lerner index: The Lerner index measures market power calculated as the difference between the price and marginal cost of a good or service divided by the

price. In the case of monopsony, the Lerner index can measure the degree to which the monopsonist exercises market power in setting wages. A higher Lerner Index indicates higher market power and greater ability of the monopsonist to influence wages.

Soares et al. posited a reliable estimate of the causal effect of market power on wages because confounding variables could lead to biased estimates [21]. Concentrated labor markets might reflect lower local productivity, which lowers pay, making wage markdowns look larger. Concentration might result from expanding productive firms, implying higher productivity and wages, which, if uncontrolled, could suggest that concentration causes higher wages [22, 23].

2.2 Measurement of monopsony power in labor markets: Labor supply elasticity

How is monopsony power determined in labor markets? Labor supply elasticity affects workers' response to wage changes in a monopsonistic labor market. In a competitive labor market with many employers and workers, labor supply elasticity may not significantly affect wages as workers have more options. However, in a monopsonistic labor market, the employer has more bargaining power and can influence wages [7, 24].

If the labor supply curve is inelastic, meaning that workers are less responsive to wage changes, the monopsonist employer has more control over setting workers' wages. The monopsonist can lower wages without fear of losing too many workers, as workers cannot easily find alternative employment. These wages would be lower than the prevailing in a competitive labor market, resulting in higher profits for the monopsonist.

On the other hand, if the labor supply curve is elastic, meaning that workers are highly responsive to wage changes, the monopsonist employer has less control over setting wages. If the monopsonist lowers wages, workers may be more likely to leave and find alternative employment elsewhere. Consequently, there is upward pressure on wages, as the monopsonist needs to offer higher wages to attract and retain workers, leading to reduced profits.

Labor supply elasticity, therefore, affects the bargaining power of workers and the monopsonist employer in setting wages in a monopsonistic labor market. Higher labor supply elasticity gives workers more bargaining power, leading to higher wages and reduced profits for the monopsonist. Conversely, lower labor supply elasticity gives the monopsonist more bargaining power, allowing them to pay lower wages and increase profits.

In the literature, many empirical studies attempted to proxy labor market power at the firm level by estimating labor supply elasticities. From the perusal of the literature, the estimates vary wildly, with a mean estimate reported in the literature of 3.75 (and a standard deviation of 36.9), which means that a 10% decrease in wages would lead to a 37.5% reduction in the labor supply. The researchers have no consensus on what magnitudes would delineate the competitive or monopsonistic labor markets. Furthermore, several findings in the literature are often inconsistent with the monopsony model and instead suggest "monopsonistic competition," in which firms can freely enter but hold local market power because of workers' heterogeneous preferences and job search frictions [21].

3. An analytical framework of monopsony in labor markets

Manning delved into a monopsony model that described the behavior of a single buyer or employer in a labor market with imperfect competition [7]. The model typically involves the following equations: labor supply and labor demand.

The labor supply equation represents how workers decide how much labor to supply at different wage levels. It is typically represented as:

$$L_s = f(w) \quad (1)$$

$L_s = f(w)$ where L_s represents the quantity of labor supplied, w represents the wage rate, and $f()$ represents the labor supply function that describes how the quantity of labor supplied changes in response to changes in the wage rate.

The labor demand equation represents how the monopsonistic employer determines the labor required at different wage levels. It is typically represented as:

$$L_d = g(w) \quad (2)$$

where L_d represents the quantity of labor demanded, w represents the wage rate, and $g()$ represents the labor demand function that describes how the quantity of labor demanded changes in response to changes in the wage rate.

The monopsony power equation represents the extent of the employer's market or bargaining power in the labor market. It is typically represented as:

$$M = L_d / L_s \quad (3)$$

where M represents the monopsony power, L_d represents the quantity of labor demanded, and L_s represents the quantity of labor supplied. A higher value of M indicates a greater degree of monopsony power, implying that the employer has more control over the wage rate and employment level.

The equilibrium condition represents the point where the labor market balances labor supply and labor demand, and the monopsonist sets the wage rate and employment level. The equilibrium condition is typically represented as:

$$L_s = L_d \quad (4)$$

where L_s represents the quantity of labor supplied, and L_d represents the quantity of labor demanded. Considering the employer's monopsony power, the wage rate and employment level at this equilibrium point are determined by the intersection of the labor supply and labor demand functions.

These are some of the analytical details of the monopsony model, which analyzes the behavior of a single employer with market power in a labor market. The specific functional forms of the labor supply and labor demand functions, as well as the monopsony power equation, often vary depending on the assumptions and specifications of the model, which answers specific research questions.

4. Can market frictions explain some of monopsony in the labor markets for women?

4.1 Market frictions faced by women workers

The earlier literature on gender and monopsony suggests that monopsony power in the labor market can contribute to gender disparities in wages, occupational segregation, labor market mobility, and opportunities for women. Policies that promote fair labor market practices, e.g., minimum wage laws and anti-discrimination policies, may help mitigate the impact of monopsony on gender disparities in the labor market. However, a growing body of literature shows that the differences between women and men in labor can be attributed to greater market frictions. More importantly, there is no single example of market friction, but there are several different types of market frictions that exist in the labor markets:

- *Wage gap*: On average, women earn less than men for similar work attributed to discrimination, industry or occupation differences, and career trajectory interruptions, which can influence this wage gap [25, 26].
- *Career interruptions*: Women are more likely to experience career interruptions due to caregiving responsibilities, whether for children, elderly relatives, or family members. These interruptions can affect long-term career progression and earnings [25–27].
- *Hiring bias*: There is evidence of bias in hiring practices, where women might be less likely to be hired or promoted than their male counterparts. This can be influenced by stereotypes or assumptions about their commitment and capabilities [28].
- *Promotion and advancement*: Women often face barriers to advancement within organizations. Even when hired into similar roles, they might be less likely to be promoted to higher levels than men [26, 28].
- *Workplace culture*: Gender-based discrimination can affect women's job satisfaction, performance, and retention [29].
- *Representation*: Women are underrepresented in many high-paying occupations, limiting their earning potential and hindering career growth [30, 31].

Given the market frictions women face, they have less time for job search, and household responsibilities may occupy the same hours (e.g., they can mind children and submit an online job application simultaneously). Detailed microdata, e.g., the American Time Use Survey (ATUS), could show this. Another consideration would be the price of childcare relative to women's earnings as a significant determinant of elasticity across the wage distribution.

4.2 Some literature on market frictions

Earlier in this chapter, it was mentioned that women face greater search friction than men. Yet, most of the gender gap in labor supply elasticity is 0.15 points higher

for men, leading to 3.3% lower earnings for women [9]. However, the literature provides convincing evidence about a monopsony and monopsonistic gender wage gap. A growing body of literature shows that this can be partially explained by marriage and child penalties. In another way, women workers may encounter greater market friction than men in the labor market, as highlighted in Section 4.1 [32, 33].

Household duties, as mainly performed by women, may prevent them, more than men, from deciding whether to supply labor solely based on the wage to an employer [34]. Although some couples had more time, parents may have had to unexpectedly homeschool and care for children who could not attend school or childcare. The homeschooling and household responsibilities burden disproportionately fell on mothers, as couples often reverted to traditional gender roles during this time [35].

In addition, women were more likely to reduce work hours, withdraw from the labor market, or apply for furlough. As a result, the association between changes in employment status and relationship quality may differ by gender. In addition to the household duties, what affects the number of children? Detilleux and Deschacht empirically estimated the effect of the number of children on female and male labor supply elasticities to the firm [36]. From their empirical results, female labor markets become less competitive as the number of children increases. On the other hand, male labor markets become more competitive, meaning that monopsonistic gender wage increases as the number of children increases. Employers from more productive firms, e.g., with higher wages, high sales, or capital, could discriminate against women with children if the employer believes they will be less productive right after childbirth and a few years beyond [25].

Fanfani estimated a model where wage differences between men and women arise from taste-based discrimination, monopsonistic behaviors, and gender differences in compensating wage differentials [37]. The author showed how preferences against women affect heterogeneity in firms' pay policies via an imperfect labor market with non-wage amenities and developed an empirical application to test for taste-based discrimination of men and women workers in the Italian manufacturing sector. The empirical results showed that workplace preferences for more flexible schedules significantly determine the gender wage gap between men and women. As for the taste-based discrimination, it is statistically significant, albeit by a small amount. The empirical analysis follows the AKM model devised by Abowd et al. [38].

Earlier research studies were limited to individual factors for the nursing shortage in Canada. They did not consider contextual variables such as hospital market share, labor market size, or union membership. Then, the prior research was integrated with market share and the factors mentioned earlier. As a result, it was concluded from these results that the labor market for nurses is a monopsony, which depressed wages for nurses, which could explain the nursing shortage in Canada. However, the empirical approaches were limited to determining if the labor market is a monopsony [39]. Ariste and Bejaoui integrated the personal and contextual variables to explain nurses' hourly wages. Following the monopsony model, they hypothesized a negative correlation between hourly wage and the level of market share [39]. Their empirical results did not support the monopsony model's explanation of Canada's nursing labor shortage.

4.3 Personality traits as market frictions by gender in labor markets?

A growing body of literature has examined how differences in preferences and personality traits explain gender differences in the firm's wage elasticity of labor supply.

That is, theories about the effect of preferences on monopsony in the labor market could explain how these parameters change the effect of wage levels on job separations.

There is a growing literature regarding risk preferences and their influence on monopsony. Prior research has shown that men are more inclined to take more risks than women do. Women are generally more risk-averse than men because women tend to be less wage-sensitive and less competitive in the labor market [40]. Eckel and Grossman argued that explicit framing could eliminate or, in some cases, reverse the usual gender differences [40]. Pondorfer et al. believed that culture-specific stereotypes might be more important than preferences in determining gender differences. That is, women may be willing to take greater risks than men may if the right circumstances exist for women [40, 41].

5. Conclusions

Overall, the current research on gender and monopsony suggests that monopsony power in the labor market can contribute to gender disparities in wages, occupational segregation, labor market mobility, and fewer opportunities for women. However, some of the impacts of market friction could also influence monopsony behavior in labor markets for women.

As mentioned earlier, women workers may face greater market friction, such as the need for temporal flexibility to accommodate caregiving responsibility, re-entry into the workforce after caring for a family member, and trailing spouses.

As revealed by the literature in this chapter, they exhibit greater risk aversion, lower levels of competitiveness, and less desire to negotiate. We must remember that there is no conclusive evidence on whether these differences are inherent or societal. However, some studies in the literature seem to advocate that it may be societal. In addition, from the literature, further research is needed to determine a clear link between the traits discussed in this chapter do match the complexities of the modern world.

In brief, further research on the impacts of market frictions is needed to understand better the nuanced relationships between gender, monopsony, and labor market outcomes. These outcomes could inform evidence-based policies and interventions to promote gender equity in the workplace.

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Conflict of interest


The author declares no conflict of interest.

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Chapter 4

Motherhood Penalty, a Silent Phenomenon: Unveiling the Challenges and Inequalities Working Mothers Encounter

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Abstract

The motherhood penalty is a global issue that affects working mothers due to workplace norms, social biases, and systemic hurdles. This “silent phenomenon” results in discrimination and inequality for working mothers, often leading to stigma, guilt, and unrealistic expectations. The chapter explores the hidden challenges working mothers face, including cultural norms, and societal expectations. It also reveals structural barriers, such as discriminatory hiring practices, limited career advancement opportunities, unequal pay, and inadequate support systems. It discusses the emotional and psychological costs of the motherhood penalty, which include guilt, anxiety, self-doubt, mental health strains, and the sacrifices women must make to overcome this challenge. The chapter emphasises the motherhood penalty across countries and among industry players, comparing cultural perceptions to find potential remedies and best practices. It also explores how discrimination based on race, ethnicity, socioeconomic class, and sexual orientation interacts with the motherhood penalty, highlighting the overlapping identities that exacerbate the difficulties faced by working mothers. The chapter offers policy proposals to make workplaces more inclusive and supportive of working mothers, emphasising the importance of empowerment and support. The chapter ends with a call to action, encouraging readers to speak against the motherhood penalty and support legislative changes.

Keywords: challenges, motherhood, reduced pay, social inequality, stigma

1. Introduction

Today’s society often glorifies and embraces the concept of motherhood, yet beneath the surface lies a grave, global issue that affects countless women: the motherhood penalty. This systemic problem, often called a ‘silent phenomenon,’ results in discrimination and inequality for working mothers due to workplace norms, social biases,

and systemic hurdles. Understanding the motherhood penalty is about acknowledging a problem and gaining a deeper insight into our society's complex dynamics [1]. This chapter takes a deep dive into the motherhood penalty, adopting a comprehensive approach to explore the numerous issues it raises. We aim to illuminate the concealed challenges working mothers confront and the profound impact on their lives, jobs, and well-being. We bring these issues to life through a narrative review of existing evidence, inviting readers to step into these women's shoes and understand their struggles. We delve into the causes of the motherhood penalty and its consequences on women mothers, including the emotional and psychological costs that working mothers bear due to the motherhood penalty. It explores the feelings of guilt, anxiety, and self-doubt that frequently arise when balancing parenthood with career obligations.

The chapter compiles evidence from articles to truly grasp the daily challenges of working mothers, using verbatim quotations to support the evidence.

We bring on board potential remedies and best practices that can be used to lessen the motherhood penalty through social programmes and cultural perceptions. Through increasing consciousness, confronting ingrained prejudices, and pushing for legislative changes, we aim to establish a fairer and more welcoming community for women who work. We believe this chapter will serve as an invaluable resource for individuals, organisations, and legislators alike, aiming to promote a future where working mothers receive respect, encouragement, and the necessary tools to succeed personally and professionally.

2. Methodology

This section outlines the methodology for reviewing the literature on the motherhood penalty, including the challenges and variations that working mothers face. The literature is divided into three sections: causes, consequences (economic cost, career path and advancement, and psychological and emotional cost) the intersectionality of the motherhood penalty and the challenges that marginalised women groups face in low- and middle-income countries (LMICs) and high-income countries (HICs). This is a narrative review, not a systematic review. The literature was primarily gathered from academic databases and sources such as Google Scholar, JSTOR, Web of Science, and related books and reports, before expanding to other relevant publications by reviewing the bibliographies of significant studies. The search terms included “motherhood penalty”, “gender wage gap”, “career progression”, “maternal employment”, and “work-family conflict”. The emphasis was on understanding the nature, causes, and consequences of the motherhood penalty and its intersectionality with marginalised women groups across socioeconomic strata, rather than counting each article as done in a systematic review. However, the inclusion of articles was as thorough as possible, as it took into account reviewed articles, books, and reports published in the past two decades that focus on the motherhood penalty in a variety of contexts, including different countries, industries, and socioeconomic groupings. Quantitative and qualitative studies including empirical evidence on the motherhood penalty were reviewed. The cited articles were mostly from socioeconomic and public health journals. Data extraction was carried out using a standardised form to capture significant information from the studies, such as key results and conclusions. The gathered data were then organised thematically to highlight common patterns and themes. The synthesis was written in a narrative approach, emphasising the relationship between various studies and how they contribute to a greater understanding of

the motherhood penalty. This technique enabled the integration of findings from many disciplines and methodological approaches, resulting in a comprehensive understanding of the topic.

3. The motherhood penalty

The transition to motherhood is a profound and life-changing experience for many women; however, it can come with a significant cost. Motherhood penalty refers to the negative impact that having children can have on a woman's career advancement and earnings, creating disturbing disparities between women with children and their counterparts without children and male colleagues [2]. This phenomenon creates societal and workplace biases that perceive mothers-to-be lazy, less committed, unproductive, and unambitious compared to their counterparts. This bias can be manifested in several forms including reduced hiring opportunities, fewer promotions, and lower compensation. Many studies have documented the extent of the motherhood penalty, with studies indicating that mothers can earn an average of 5–10% less per child than women without children, irrespective of their educational background, experience, and hours of work.

4. The causes of motherhood penalty

4.1 Legislation

The legislative and institutional frameworks that do not do enough to encourage women to enter the workforce serve to solidify these norms further. For example, insufficient maternity leave regulations and a dearth of reasonably priced daycare alternatives intensify the difficulties women who work encounter [3]. Institutional regulations and employment practices also greatly impact women's work experiences. These processes frequently have systemic drawbacks because they do not consider the special difficulties that mothers encounter.

For mothers to successfully manage work and family commitments, flexible work arrangements like flexible hours are essential [4].

Despite improvements in work-related issues, Van Niel et al. [5] stated that maternity leave rules differ greatly between countries, with some providing significant assistance and others providing little to none. Inadequate maternity leave can cause women to return to work early or abandon the workforce entirely, affecting their career trajectory and earning potential.

Again, employment rules and practices significantly impact whether the motherhood penalty is mitigated or exacerbated. Women frequently suffer prejudices in hiring, promotions, and salary negotiations around the world. According to research, employers are less inclined to hire or promote women of childbearing age based on beliefs about their future family plans [6]. For example, anecdotal evidence indicates that in the military, any woman recruited as a regular staff is prohibited from marrying or giving birth in the first three years of appointment. Furthermore, mothers frequently desire part-time and flexible hours to reconcile work and family duties, but they are undervalued and poorly compensated. In LMICs, the formal employment sector is underdeveloped, and many women work in informal settings with few or no labour rules and protections [7]. Employment practices in these settings

are frequently skewed, with few options for women suffering discrimination. Furthermore, a lack of transparent recruitment and promotion processes exacerbates gender discrepancies, denying many talented women opportunities for advancement. Implementing blind recruitment procedures and providing transparency in promotion criteria can help to reduce these biases [8, 9].

4.2 Institutional and economic systems

Gender disparities reflect larger societal injustices. Women are underrepresented in high-paying professions and leadership roles globally. The gender pay gap, which denotes the difference in incomes between men and women, is still a significant problem in gender economics [10]. This disparity reflects historical and current injustices and is visible in several organisations and countries. These differences are also influenced by work environments that favour men and create gender biases in performance reviews. Gaining insight into the patterns and causes of the gender pay gap necessitates a multidisciplinary approach that considers policy, social, and economic viewpoints. Despite research suggesting a reduction in the gender pay gap in recent decades, notable differences remain [1]. According to Harvey [11], the World Economic Forum estimated that in 2021, women earned about 37% less than males worldwide. Accordingly, data from the United States Bureau of Labour Statistics indicate that women in the country make approximately 82 cents for every dollar made by men. These numbers demonstrate enduring disparities even as more women engage in the labour workforce and attain higher educational qualifications [12].

Segregation in the workplace is another result of gender bias [13]. Working mothers earn less than their non-mothers' peers due to prejudices present in compensation negotiations, promotion decisions, and performance reviews. Indeed, mothers frequently face obstacles when looking for possibilities for promotion, including mentorship, networking, and access to training and development programmes [14]. This phenomenon includes a range of obstacles. Implicit biases, rooted in societal stereotypes, might give rise to presumptions that working mothers are less capable or dedicated because of their parenting duties. Because of this prejudice, working mothers may miss out on prospects for job progress [14]. Additionally, many companies still do not fully support flexible work schedules that meet the needs of working mothers [15]. Furthermore, schedule conflicts or a lack of company support may make it difficult for working mothers to access training and development programmes [15].

Gender gaps are particularly noticeable in LMICs, for example, because of the combined effects of poor institutional frameworks and cultural norms. Compared to men, women in these countries experience higher unemployment rates, lower incomes, and fewer prospects for professional advancement [16]. For many women, these discrepancies are made worse by the confluence of gender with other variables, including socioeconomic status and ethnicity, which results in multiple layers of disadvantage.

This has been described as the structural disadvantages that women experience in the job as a result of their mothering responsibilities. The rigidity of traditional employment arrangements may disproportionately impact maternal workers. Gauci et al. [17] reiterated that women may face discrimination in recruitment, promotions, and wage decisions due to employers' presumptions that they are less committed to their work or incapable of handling demanding positions. This discrimination hinders women's job advancement and maintains the gender wage disparity. Many organisations' strict work schedules and locations are unsuitable for mothers' needs.

These penalties stem from widespread gender inequality, employment practices, and cultural norms that differ significantly according to the area. “Motherhood penalty” is a widespread and urgent issue that corresponds with gender differences in the workforce. Traditional gender roles, prejudices and stereotyping, cultural norms, recruitment procedures, and institutional barriers are essential factors that influence the motherhood penalty [2].

4.3 Cultural barriers

Even though most women of today are working to contribute their quota towards the economic drive of their families, the gendered roles and expectations still remain the same [18, 19]. Working mothers contend with this reality and its associated complexities. Mothers are torn between the expectation of becoming an “ideal worker” (focused on work above everything) and fulfilling the “intensive mothering role”, which is child-centred, thus showing dedication to their children [20–22].

Traditional gender roles where men are viewed as the breadwinners and women as caregivers, remain entrenched in many communities. Men and women may defy social norms, but for women, leaving the domestic and supportive role that they have been socialised into requires a change in identity. This goes against the internalisation of the cultural notion that men, not women, are the most suited for leadership roles [23]. Males are associated with the stereotypical image of a manager or leader, epitomised by the expression “think manager, think male”, because women are perceived as being supportive, nurturing, and caring, while men are perceived as aggressive, decisive, and assertive [24, 25]. Because science, technology education and mathematics (STEM) fields are typically associated with men, girls do not pursue them as much in school as boys do [26]. This is only one example of how the male stereotype has an early impact. Because fewer men are in these fields, women predominate numerically in caring professions like nursing and childcare, especially with younger children. Women are alleged to hold management roles in human resource management (HRM), which is perceived as a softer role in business [27]. This contrasts with the perceived harder, more masculine areas such as marketing and Information Technology, where women hold 43 percent and 27 percent of management roles, respectively. In the workings of the British Parliament [28], the culture of financial firms in the City of London (House of Commons, Treasury Committee 2018), and in the management and leadership levels of Universities [29], male domination of senior levels of leadership is underpinned and maintained by a masculine culture, including male networking. Even in secondary schools, where female teachers predominate but do not hold leadership positions, the staffroom culture, particularly in the past, has the potential to be strongly masculine [30].

Women are under pressure from society to put family before career, which might result in job interruptions, part-time work, or lower-paying positions. As a result, women have fewer options for financial independence and career growth [31].

Once more, prejudices about women’s abilities and dedication exacerbate gender differences.

In this regard, cultural standards worldwide play a crucial role in determining how society views and treats women, particularly mothers. These norms frequently assess the distribution of labour within households, the value placed on women’s labour, and women’s roles outside the home. Gender roles and expectations are greatly influenced by cultural norms, which also shape women’s experiences in both public and private domains. Around the world, established tradition frequently dictates that women

should handle household chores and parenting, restricting women's professional choices. This assumption, therefore, upholds negative perceptions about women's work ethic [32]. "*Once a woman has a child, there is a perception that she will not be able to carry out her role as fully as before, and therefore she may not be given as many opportunities: 'assumptions are made about women who have children'*" [30, p. 245].

Historical and socioeconomic issues are closely linked to cultural standards in the context of LMICs. Many LMIC civilisations are dominated by patriarchal norms, which perpetuate the idea that women should spend most of their time at home.

Given these barriers, it is worth noting that tackling the cultural norms and employment procedures that perpetuate gender inequities necessitates thorough and multifaceted methods.

The motherhood penalties women face reflects deep-rooted cultural norms, flawed employment procedures, and pervasive gender disparities. Thus, it has a lot of multifaceted issues shaped by cultural conventions, employment practices, and structural gender inequities.

5. The consequences of the motherhood penalty

The motherhood penalty has dire consequences in various forms. Working mothers encounter various obstacles and prejudices that negatively impact their earning potential, career progression, and access to advancement opportunities. Among the consequences are economic costs, career path and advancement issues, and psychological costs.

5.1 Economic costs

Studies regularly show that working mothers make less money than their colleagues, non-mothers, and fathers [22]. Many factors, such as gender biases, occupational segregation, reduced work hours, and career disruptions from maternity leave, might be attributed to this salary gap [1, 33]. Mothers may earn less than their male colleagues or non-mothers, a factor in the gender pay gap. This upholds the structural inequity that working mothers experience. When working mothers face obstacles to their career advancement, organisations lose out on the variety of viewpoints and expertise these people may offer. This may stifle creativity and make it more difficult for the company to adjust to shifting market conditions.

Occupational segregation is the concentration of women in particular businesses and occupations typically linked with caring or lower pay. Occupational segregation restricts women's professional options and prospective wages due to reduced work hours, which perpetuates the motherhood penalty. Many mothers find that to fulfil their caring obligations, they must reduce their work hours [34]. This decrease in hours frequently results in a drop in overall pay and constricts workplace advancement prospects. These factors hinder women's ability to maintain their earning potential and career trajectory, particularly during maternity leave, which adds to the "motherhood penalty" [35].

5.1.1 Career paths and advancement

The motherhood penalty significantly impacts working mothers' career paths and advancement. Many women experience decreased job prospects, fewer

leadership responsibilities, and fewer opportunities for advancement when they become mothers [14]. Despite advancements in gender equality, societal and organisational factors contribute to these obstacles and impede the success of working mothers [36]. Social standards frequently force women to prioritise caring for others above their jobs, which distorts assessments of their dedication and skill in the workplace [37]. Lack of a conducive working environment for mothers, especially pregnant and lactating mothers, to lessen their burden at work impact their career paths and advancement [35]. Anita, a participant in a study on balancing motherhood and work in the formal sector in Ghana [35, p. 33]. said: *"It's not conducive because a few of the international organisations, like MTN, they have baby rooms, so even after three months when you must come back after maternity leave, you have a place to keep the baby. They call it a baby nursery... so after every 2 hours, you can go and breastfeed the baby, and they see it as normal to help the nursing mothers. However, the out-and-out government organisations don't have; some offices will not allow you to keep your kids there."* (Director, Civil Service).

Furthermore, workplace norms and prejudices alongside home responsibilities impede working mothers' job advancement by limiting their access to leadership positions and influencing the distribution of worthwhile projects, training opportunities, and promotion decisions [38]. This segregation restricts women's access to better-paying employment and prospects for career progression [36]. Women who choose professions that fit with society's expectations of providing care, including education, healthcare, or social work, frequently may have lower pay and fewer prospects for advancement [38]. Reduced work hours can also lead to a loss of knowledge and skills relevant to the job, making it more difficult for working mothers to re-enter the workforce at a comparable level. The additional demand that comes with promotion at work and the expectations of a woman as a wife and mother causes a dilemma for which some mothers opt to decline promotion to concentrate on their home duties, impacting their career pathway and advancement. A qualitative study on the factors influencing the career advancement of female managers in the Turkish banking sector shows that some women prioritise family responsibilities over their career advancement. A participant in the study, Tanem narrated:

"I was offered a promotion in another city, but I didn't accept because I had to think about my husband and children. Similarly, I can't accept a promotion which requires a lot of travel." (Tanem, 44, mid-level manager in Istanbul) [39, p. 157].

Maternity leave is an important requirement to support the well-being of mothers and their children. Nonetheless, women's earning potential may be negatively impacted for some time by the interruptions to their careers that come with maternity leave [14]. Long-term absences from the workplace can lead to skill loss, fewer networking opportunities, and worse employment prospects upon return.

Mentorship is essential for career development since it offers direction, encouragement, and growth possibilities. However, working mothers could have trouble finding mentors who can relate to their struggles and provide meaningful guidance [38]. One of the most important components of career advancement is networking. However, due to time constraints or competing obligations, working mothers may find it difficult to attend networking events or cultivate professional relationships [40]. Working mothers' access to possibilities for promotion is restricted, which substantially impacts their professional development [14]. Working mothers may experience a slower rate of job advancement due to the maternity penalty, which may limit their chances of advancement and higher-level positions. They may also experience a decline in career satisfaction because of a loss of networking, mentorship, and

training opportunities. Their motivation to succeed in their occupations and general well-being may suffer due to this unhappiness.

5.2 The psychological and emotional costs of the motherhood penalty

Working mothers suffer severe psychological and emotional consequences because of the “motherhood penalty”, which can take many different forms, including difficulties juggling work and personal obligations, shame, and social disapproval. These emotional effects significantly impact moms’ psychological health and overall quality of life. These psychological costs are dependent on social setting, and cultural expectations.

Working mothers in HICs feel guilty because of their inability to follow the cultural demands of an ideal mother [41]. This is due to the lack of family support policies and the notion that childcare is a private responsibility. Generally, women juggle coordinating home and childcare activities coupled with meeting work activities. The premise is that there is never an equilibrium if one wants to satisfy both expectations. Mothers are always in a dilemma on maintaining such a balance and their sanity. In China, mothers in academic libraries encounter difficulties in balancing work and home than mothers who are not librarians [42]. Factors resulting in the imbalances pertain to the age of children, important events, family burdens and personal career expectations. The quotations below show how mothers spend their time and how their schedules change based on the children’s situation. *“If the child is faced with an important moment, my schedule must be based on the child.” “Before the child was 3 years old, most of my energy was focused on taking care of the child, and this job is irreplaceable”* [42, p. 4]. Depending on how mothers manage or envisage their dual role, at any point in time, one dimension gains more attention than the other based on demand.

Guilt and social criticism are some of the many psychological issues affecting working mothers. Guilt is a common phenomenon among working mothers [43], especially in highly paid jobs that are also demanding. Guilt is associated with negative feelings like worry, wrongdoing, and regret [44]. Working mothers may feel guilty because of societal norms and internalised pressure to perform well in their professional and caregiving capacities [45]. Gender also poses some amount of guilt for women, most especially in the context of differences in the wage gap between men and women [46, 47] and privileges associated with masculinity in the workplace and even at home. Also, the motherhood role is embedded with guilt in that most mothers feel unworthy when they apportion more time for work rather than to care activities at home. According to research, mothers experience work and family conflict. This imbalance leads to tension, feelings of inadequacy and guilt [43]. The psychological burden of guilt may vary from one country to the other based on the flexible or stringent nature of gendered norms. Aartnzen et al. [48] revealed that mothers in a traditional gendered context, such as UK, Bulgaria, Portugal, Hungary, and Finland, experience more guilt when working long hours than those in egalitarian roles context, which are Germany, Sweden, Spain, and the Netherlands.

A reviewed qualitative study exhibited the guilt mothers contend with. The following quotes are from Latina Mothers in the United States who align with strong gendered beliefs. *“I actually do certain things that I’m not proud of at all because I feel like instead of doing something good, I’m doing something bad. One of the things is that they want toys. So, let’s go to the store and let me buy you a toy, or you know, I want to have pancakes for breakfast. I want to have cereal for breakfast instead of something healthy. So that I don’t feel guilty, I say, okay, let me give you that, so that I’m not fighting with them.*

Like, that's what I don't want is to be fighting with them because, as it is, I'm not with them one hundred% of the time. So let me do something that makes them happy. That's not really good for them, but hey, at least they're happy." [49, p. 158].

This shows that the mother could not exercise her moral upbringing rights on the child but indulged in her bad behaviour. Though the woman knew it was not right, she allowed her children. The authors mentioned that it could result in the child being spoilt, amounting to the mother's stress. If such a child churns out badly, the mother, who is the caretaker, is blamed.

The study further revealed that no matter the effort of a mother, her gendered role is assumed as the suprema. This can be very demoralising, leading to feelings of unworthiness and possible depression. *"My mom, she's like, 'Hey, even though you [work, you] still have to take care of your children. You still have to bathe them. Your responsibility is still the house"* [49, p. 161]. This kind of utterance from a close relation who should understand and be supportive could add to the stress and pressures on these mothers. It is, therefore, not surprising that some mothers would rather opt out of work to maintain some sanity at home as evident in a study from Ghana where a mother who happens to be a facility manager had to quit her work to take care of home. *"motherhood is very important because once the foundation of a child is jeopardised, it cannot be repaired, and the Bible says to train up a child the way he should go, and when he grows, he will not depart from it. So, if you neglect a child as a mother and concentrate on your work, business, and money, you will earn the money anyway, but you will come home and don't have a home, you don't have children, you will be proud of. I can say I am really proud of my children because of how I have brought them up by the grace of God"* [35, p. 19].

Clearly, cultural ideologies, societal judgements/criticism, and comparisons to unattainable ideals can all intensify this guilt and shame. The mother's behaviour did not conform to society's implicit and explicit expectations. Mothers are prey to unfavourable assessments, prejudices, and preconceived notions regarding their dedication, skill, and priorities over work.

Racial discrimination and stereotyping also exist with the concept of the good white mother (a mother who stays at home) as against an excellent black mother (being a breadwinner and in a paid job) [50]. The assumption is that employers perceive black women as single mothers who are hardworking because of their breadwinner role and the need to support their families. In contrast, others perceive them to be distracted from work by their care role.

Social criticism can cause psychological pain, low self-esteem, and isolated sentiments. Additionally, it may limit professional opportunities and create obstacles to job advancement. The ongoing guilt can have a severe negative effect on a mother's well-being and self-esteem. Identity conflict prevails when mothers are torn into two opposite directions. Mothers question their self-worth, which is emotionally draining for their health. Mothers who work might be more susceptible to signs of anxiety, sadness, and general psychological discomfort. The ongoing stress and emotional strain may impact their general mental health. Li [51] identified that mothers assume the role of worriers in the family, carrying a mental load due to the differences in the expectations of an ideal mother and the actual practice of an ideal mother.

Mothers encounter stress both at home and the workplace in their quest to maintain a healthy balance [52]. The stress is linked to their dual role identity, which conflicts with space and time. According to Kelly et al. [53], mothers with older children above 19 years manage better than those within the crucial age bracket (under five years). Other stressors include family conflict, discrimination, cultural conflict, and marginalisation, which may lead to poor psychological health [54, 55]. Some of

the poor mental health attributes are anxiety, depression, and sleep disturbances; notwithstanding this variation, most mothers face the challenge of managing family relationships, which requires emotional labour. The cumulative consequences of the motherhood penalty can lead to emotional weariness, burnout, elevated stress levels, and a depletion of emotional resources. These impact negatively on the mental health of the mother.

6. Intersectionality of the motherhood penalty and challenges of marginalised women

The motherhood penalty exacerbates the difficulties experienced by marginalised groups, including women of colour, low-income moms, and single parents, by intersecting with other facets of identity [56–59]. These overlapping identities exacerbate the disadvantages of these groups, creating additional obstacles to economic stability and career success. It is postulated that the population of women incarcerated globally has increased by 50% with America having the largest proportion [60]. In Africa, Qhogwana [61], mentioned the steady increase in female prisoners in South Africa. Although females still form the minority of people in prisons, their voices need to be heard because of their peculiar issues. As mentioned by Haney [62], in some cases, motherhood has become a punishment for mothers who were imprisoned. Haney [62]’s case study of mother/child in prison proposed reforms that aimed at bringing the child of an imprisoned mother to prison to maintain the bond between them rather than turning motherhood into a punishment. For example, any action a mother takes in prison based on her child’s behaviour, is used to judge her mental status and to diagnose her for treatment *“If a mother yelled at her children, she was diagnosed with “anger” issues. If she spanked them, she had “control” and “violence” issues. If she did not hold her child enough, she was plagued with “intimacy” issues. Most of all, if she expressed any maternal ambivalence, she had “bonding” issues. All of these diagnoses required inmates to do more therapeutic work.”* [62, p. 122]. These mothers had to endure whatever they were due in prison with the added burden of caring for their children. There is the tendency to inflict pain on the child out of frustration from prison punishment. According to the United Nations Handbook on Women and Imprisonment [63], there is a high probability that women in prison were the breadwinners and caretakers of their children before they were imprisoned, as well as a background of working in low-paying, entry-level jobs.

The confluence of race and gender exacerbates the obstacles that women of colour encounter in the workplace. Research consistently demonstrates that women of colour face more discrimination and pay inequality than white women and men of colour [2, 64–68]. The motherhood penalty further compounds these disparities, as stereotypes and biases about motherhood intersect with racial stereotypes, leading to even greater economic and professional marginalisation [2, 64–68]. This double bind often forces women of colour into lower-paying positions with fewer possibilities for promotion, which feeds the cycle of inequality and poverty.

Low-income mothers face additional hurdles due to the intersection of socioeconomic status and motherhood. They are more likely to work in precarious, low-wage jobs with little to no benefits, making it challenging to balance work and caregiving responsibilities [69, 70]. Financial limitations may restrict their access to benefits like flexible work schedules, paid parental leave, and high-quality daycare. These women

often lack access to affordable childcare, paid family leave, and other support systems, enabling them to remain in the workforce and advance their careers [53, 57, 71]. As a result, they are disproportionately pushed into poverty and face heightened financial instability, further perpetuating intergenerational cycles of poverty.

Mothers make up most single parents and suffer the most from the motherhood penalty [1, 69, 70]. Without a partner's assistance, juggling the demands of employment and caring may be very difficult, especially when racial and socioeconomic disparities are added to the mix [56–58]. Single mothers are more likely to struggle to support their families on a single income, work numerous jobs, and experience higher levels of stress and burnout [72]. Parry's [73] findings showed that most participants (n = 16) were the main caregivers of their families. They take care of their environment, yet these voluntary activities were dismissed as incidental and part of the role that women were expected to play, and they were regarded as women's work. "*For Albie, the obligation of caring for her children and keeping the house in order was more than a responsibility*" [73, p. 281].

Another participant Noma in Parry, [73] was reported as saying:

"...domestic violence, abandonment by her mother, overwhelming caregiving 286 responsibilities, and her own mental illness had played a role in her final act of abandoning motherhood and had led to her incarceration: I grew up without my mother so I always, um, had this space in my heart... So, like, to me my boyfriend was everything... but he left... and I decided... it's going to be me, me and my kids... because I thought, okay, I did not have a mother, I don't have anyone. So, if I just kill myself, what will happen to my kids... and I think of street kids... I see street kids; I don't want to see my kids going through that. And then, I decided that... I'm going to kill myself with my kids. I wanted to kill myself, but... when I thought of my mother also, like, I had that picture that my mother left me when I was young and everything... So, in me, in my mind, I thought no, I don't want to be like my mother. I won't leave my children alone. I won't leave them to suffer..." [pp. 286–287].

In Ghana, for example, many young women head potters called "Kaayaye" carry heavy loads and sometimes cross busy streets amid vehicular traffic. Others carry these loads with their children at their backs and climb higher footbridges only for a token for food. These potters are burdened with caring for their children by relying on a low income, which is unsustainable for even a day.

In a review, Torres et al. [14] mentioned that across countries, studies have shown a reduction in postpartum moms' employment participation. After giving birth, 24% of women typically leave the workforce within the first year. Additionally, because of their caring duties, employers may perceive them as less devoted or trustworthy, exposing them to workplace stigma and prejudice [74, 75].

According to Torres et al. [14], analysis most barriers mothers face in their career progression may be internalised rather than structural. Societal pressures and expectations create conflicts in these mothers' lives. Therefore, they need to balance their career and family life to enjoy motherhood.

7. Recommendations

To address this challenge, we must work together to enact laws or modify existing ones in favour of mothers, for example, create supporting employment legislation, change societal norms, and foster inclusive workplace cultures.

7.1 Legislation formation

Governments can pass and enforce laws that prohibit discrimination against mothers and mothers-to-be at work. First, governments and organisations should promote gender-neutral parental leave policies to encourage men and women to share parenting duties. When parental is extended to fathers, it will allow them to take on more of the childcare burden. Lessons can be learnt from the situation with parental leave in Norway and among economists in Norway. Since 1978, parents in Norway have been entitled to split parental leave between them, but for a very long time, very few fathers took time off. Four weeks were set aside just for the father in 1993. The father's allotment was progressively increased, and it currently makes up 15 of the 49 weeks of paid parental leave available. A comparable portion is set aside for the mother (plus an additional three weeks before delivery). One can divide up the remaining weeks however the parents would like. Even if the child is in daycare, the father's quota may be broken up into segments or taken part-time in addition to his employment until the child turns three [30].

Thébaud and Pedulla [76] suggest that this method can challenge traditional gender norms and minimise the stigma connected with caregiving leave.

Due to the overwhelming problems that mothers confront, organisations should have flexible job regulations that allow for various work arrangements, such as remote work, flexible hours, and part-time options. These regulations can assist mothers in advancing their careers while also caring for their children. To assist working mothers in striking a better work-life balance to lessen the motherhood penalty's negative effects, organisations can use several strategies and programmes. A robust multi-pronged strategy targeting this multilevel problem requires changes to state and federal law and workplace policies and practices to effect change in the culture and attitudes of organisations and individuals.

7.2 Societal and organisational cultural shift

Stakeholders must also foster an inclusive and supportive workplace and community cultures necessary to eliminate gender disparities. This includes training managers on unconscious prejudice, encouraging diversity and inclusion initiatives, and offering mentorship and support networks to women. These approaches and rules that promote equal chances for all employees, such as open promotion systems and equitable pay practices, are essential. Organisations should regularly examine and alter their rules to address gender disparities in recruitment, remuneration, and promotions [77]. Iceland's regulations, which include mandatory pay audits, can serve as a model for other countries [1, 78]. An inclusive working environment and the support of parent workers, particularly mothers, should be promoted by employers. Organising training and awareness programmes can help to address the unconscious biases against mothers at the workplace. Additionally, it is indispensable to implement such performance evaluation and promotion processes that are transparent and equitable. They should in no way penalise an employee for taking parental leaves or using flexible work arrangements. Providing mentorship and leadership development training for working mothers to unravel the challenges they face and get promoted is crucial. Also, encouraging role models and a supportive work environment can aid women in advancing in their careers. Role models can accelerate women's advancement, with 67% of 5000 women leaders in the USA surveyed by KPMG in 2015 gaining valuable leadership lessons from other women. Workplace cultures that promote

women in leadership positions include mentoring and training programmes, work-family balance, and unconscious bias training. Structural reforms like Norway's 40% female representation on boards and the UK's FTSE 350 companies' quotas benefit women in leadership [30].

Fathers should be encouraged to be involved in family activities such as childcare and household duties. A system of benefits given to fathers who take parental leave and actively participate in child-rearing will relieve the father of the burden.

7.3 Empowerment and support

Working mothers should be empowered by their employers and be given the support they need to support shared caring roles. Governments can also address family obligations by providing adequate childcare options including affordable and high-quality daycare centres and after-school programmes to relieve working mothers and allow them to continue on their career paths. For example, governments should provide tax credits or other financial incentives for employers who offer family-friendly policies and benefits.

Career development and coaching programmes specifically designed for working mothers, as well as flexibility in work schedules, can help others address the challenges they face. Mentorship and networking opportunities for mothers to meet and learn from other successful working mothers are also part of the community building and support of each other. Introducing re-entry programmes that help women who have taken a career break to care for their children transition back into the workforce can also be advantageous. The theory of human capital can help address issues of depreciation and inadequate human capital. The maternity penalty and human capital are related, highlighting the challenges mothers face in the workforce. Policies can reduce the "motherhood penalty" by encouraging mothers to enter the workforce and increase their human capital. Research shows that improved education and training can improve earnings and employment prospects. Part-time work for mothers also impacts job experience, skill development, and maternity pay.

By implementing well-thought-out plans that tackle the motherhood penalty from various perspectives, such as policy alterations, organisational culture reshaping, encouraging paternal involvement, and mothers' empowerment, societies can strive for a more just and inclusive setting for working mothers. This inclusive concept can bring about a situation where mothers would not be discriminated against or confronted with problems in the work sphere; thus, it would be an easier way to achieve gender equality and empowerment among women.

8. Conclusion

The motherhood penalty is a complex phenomenon that has severe negative psychological, emotional, and financial effects on working mothers, particularly on those from vulnerable communities. We call on all stakeholders to adopt a holistic approach that subverts societal norms, puts supporting policies and practices in place to promote inclusive work settings to eliminate the maternal penalty. By appreciating and honouring the contributions of working mothers, promoting work-life balance, and dismantling barriers and prejudices, we can build a more just and inclusive society that fosters the success and well-being of all mothers, eventually benefiting families, workplaces, and communities at large.

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Section 2

**Bridging the Gender Gaps:
Outcomes and Solutions**

Chapter 5

The Relationship between Gender and Socioeconomic Outcomes: Evidence from the Maltese Islands

Shania Duca and Jonathan Spiteri

Abstract

This chapter analyzes the existence and magnitude of gender disparities across several important socioeconomic outcomes, namely income, employment, health status, life satisfaction, financial satisfaction, and job satisfaction. We utilize detailed, individual-level data from the Maltese Islands using the European Union's Survey on Income and Living Conditions (EU-SILC), which enables us to control for several observable variables as well as unobservable, individual-level factors to isolate the relationship between gender and the various socioeconomic outcomes assessed in this chapter. The results show a statistically significant link between gender and income, employment, health status, and job satisfaction, with female respondents on average being worse off in each instance relative to their male counterparts. By contrast, we find no evidence of a gender gap in relation to life and financial satisfaction in our sample. We discuss these findings in light of the growing interdisciplinary literature on the implications of such gender disparities on individual and societal outcomes, together with relevant policy initiatives that should seek to address these gaps.

Keywords: gender disparities, gender wage gap, employment, health, life satisfaction, Maltese islands, survey data

1. Introduction

The extent and persistence of disparities in socioeconomic outcomes across genders continues to attract significant attention from policymakers, academia, and society at large. Indeed, despite an unprecedented increase in female participation within the labor force over the last decade across major developed countries globally [1], coupled with elevated rates of female tertiary education graduates [2], the evidence continues to indicate the existence of unequal outcomes between genders across a wide variety of socioeconomic indicators and sectors.

The gender wage gap has, by some distance, generated the greatest level of scrutiny in both academic and public spheres. In a comprehensive review of the relevant literature, Kunze [3] documents the extent to which gender wage gaps have persisted across developed countries globally, albeit with significant heterogeneity both in terms of their overall trajectories and underlying causes. A variety of potential

determinants have been proposed within the literature to explain the persistence of gender wage gaps, even in the face of improved human capital outcomes among women. For example, Masso et al. [4] find that firm-level factors like individual wage bargaining can explain up to 40% of the gender wage gap in Estonia, which points toward the role of institutions like trade unions in mitigating these factors. In turn, Matteazzi and Scherer [5] find that women's involvement in household work negatively impacts their income while boosting their partners' earnings, thus exacerbating the gender wage gap. On the other hand, Sloane et al. [6] report evidence that indicates that women on average pick university majors and occupations with lower earning potential relative to the choices made by their male counterparts, which contributes substantially toward existing wage disparities across tertiary-educated men and women.

Nonetheless, gender-based differences have also been observed across other notable socioeconomic outcomes. The study of individual well-being and its correlates has garnered significant attention across a wide variety of academic disciplines, with more recent literature focusing on gender differences in this regard. For example, Batz and Tay [7] provide a comprehensive review of the literature related to gender differences in subjective well-being and life satisfaction across the globe. They report that although the results from across different studies have been mixed, some key factors that determine gender differences include structural factors like access to economic, political and educational resources, social factors like norms and expectations, and physiological/biological factors. Etheridge and Spantig [8] find that young females experienced significantly worse mental well-being during the COVID-19 pandemic relative to other cohorts even after controlling for various potential confounders including personality traits and family composition.

This chapter analyzes the relationship between gender and a number of socioeconomic outcomes, including income, employment, and individual well-being. To this end, we use detailed survey-based data from the EU's Survey on Income and Living Conditions (SILC) [9] for the Maltese Islands, exploiting both the richness of the responses coupled with repeated waves of the survey across the same households to control for a variety of individual observable and unobservable factors that may distort this relationship, thus isolating as much as possible the linkage between gender and each of the socioeconomic outcomes analyzed.

The Maltese Islands provide an interesting backdrop for this analysis. Despite being the smallest EU member state, Malta's economic performance in recent years has consistently exceeded the EU average, both in terms of gross domestic product (GDP) growth and employment creation. In fact, between 2014 and 2019, just prior to the global outbreak of COVID-19, Malta's average annual GDP growth was 6.7% in real terms, against an average rate of 1% for the EU-27, with growth recovering post-COVID to reach 6.9% and 6.1% in 2022 and 2023, respectively, the highest growth rates within the EU [10]. Similarly, employment growth has been buoyant, with the employment rate expanding from 63.9% in 2014 to 78.2% in 2023, exceeding the EU average by over 8 percentage points [11]. This performance has been complemented by various active labor market policies aimed at boosting labor market participation amidst growing tightness, with the provision of free childcare services to working parents in 2015 considered to be the flagship policy in this regard. Although causal links have yet to be fully established, Malta's female participation rate has gone from just 54% in 2014 to just over 75% in 2023, exceeding the EU average of approximately 70% [12].

Nonetheless, despite these developments, very few studies have attempted to uncover or assess the relationship between gender and socioeconomic outcomes

Indicator	Male	Female
Mean monthly salary	€1905	€1747
Employment rate	84.5%	70.7%
Tertiary education attainment	27.6%	34.0%
Very good/good self-perceived health status	79.5%	73.8%
Healthy life years	68.9 years	68.5 years

Table 1.
 Key socioeconomic indicators for the Maltese Islands, 2023 (Sources: [9, 11, 12]).

within the Maltese context. [13] finds no evidence of gender-based discrimination at the recruitment stage for vacancies within the financial services sector in Malta, based on a field experiment based on the distribution of randomized resumes in response to different job postings. On the other hand, Azzopardi [14] discusses the persistence of the gender pay gap in Malta despite increased female labor participation, with various potential factors proposed, including the take-up of lower-wage jobs and part-time work, family responsibilities, a patriarchal culture, and a lack of pay transparency at work. **Table 1** provides a snapshot of the gender divide in Malta across key socioeconomic data relevant to this study, including income, employment, and health. As seen below, women on average consistently fare worse than their male counterparts within the economic sphere, despite reporting a higher rate of tertiary education attainment, with this disparity also evident within both self-perceived health status and healthy life years.

Therefore, this chapter seeks to fill the considerable void of academic research within the Maltese Islands in relation to gender-based differences in socioeconomic outcomes while contributing to the sizable international academic literature on this topic via the use of extensive, granular survey data that allows for a more targeted assessment of this relationship.

2. Methods and data

2.1 Econometric models

In this chapter we estimate two broad types of econometric models, based on the availability of data. The first model is a panel data model that utilizes longitudinal data across individuals surveyed across various waves of the EU-SILC in Malta, covering the years 2010–2020. This model has been used to estimate the relationship between gender and three key socioeconomic outcomes, namely income, employment, and health, controlling for a number of observable and unobservable factors. The econometric model employed is specified below:

$$Y_{it} = \beta_0 + \beta_1 Gender_{it} + \beta_2 Age_{it} + \beta_3 Agesq_{it} + \beta_4 Citizen_{it} + \beta_5 Marital_{it} + \beta_6 Part_{it} + \beta_7 Educ_{it} + \beta_8 Work_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

Where Y = Socioeconomic outcome
 Gender_{it} = Gender
 Age_{it} = Age

$Agesq_{it}$ = Age squared

$Citizen_{it}$ = Citizenship

$Marital_{it}$ = Marital Status of respondent

$Part_{it}$ = Participation in formal education and training

$Educ_{it}$ = Educational attainment

$Work_{it}$ = Number of years spent in paid work

μ_i = Unobservable effects specific to each respondent

ε_{it} = Random error term

As shown above, our independent variable of interest is gender, which for the purposes of this study has been coded as a binary variable taking a value of 1 if the respondent in question identifies as female and 0 otherwise. The other explanatory variables have been included in line with various other studies that have identified significant relationships between each variable and the different socioeconomic outcomes used in this chapter (e.g., [15–17]). The longitudinal nature of the dataset also allows us to control for unobservable heterogeneity across individual respondents, with different panel data estimation techniques accounting for such factors in different ways. Following the computation of a Hausman test, it was determined that the random effects model (REM) is the most appropriate technique for our purposes based on the data and model employed. The REM is a panel data technique that treats respondent-specific unobservable factors as random and uncorrelated with the other explanatory variables included in the regression model. Furthermore, robust standard errors clustered at the individual level are used across each of the three panel data regression models, which account for both heteroskedasticity across individuals as well as serial correlation over time for each individual respondent.

The second category of regression models estimated is a cross-sectional model, which has been employed for the purposes of three other socioeconomic outcomes, namely overall life satisfaction or well-being, employment satisfaction, and satisfaction with one's financial situation. In each instance, cross-sectional models are employed since data pertaining to these variables are not collected on a regular basis within the SILC but rather are ad-hoc, with the most recent data being for 2018. The econometric model used is described below, where the explanatory variables are the same as those used in the panel data regression model described earlier. Note that in this instance we are unable to control for unobservable heterogeneity across individuals. Furthermore, heteroskedasticity-robust standard errors are used for each of the cross-sectional regressions.

$$Y_i = \beta_0 + \beta_1 Gender_i + \beta_2 Age_i + \beta_3 Citizen_i + \beta_4 Marital_i + \beta_5 Part_i + \beta_6 Educ_i + \beta_7 Work_i + \varepsilon_i \quad (2)$$

The variables were categorized as follows:

- The age ranges were included under 11 groups, starting from an employment age of 16–19, followed by 20–24 years, and so on, going up to 65 years and over.
- Citizenship was coded as a dummy variable, with 0 being Maltese and 1 being other citizenship.

- Gender was coded as a dummy variable, with males assigned a value of 0 and females assigned a value of 1.
- Marital status was coded as a dummy variable, with 1 being married and 0 other.
- Education participation was coded as a dummy variable, with 1 denoting yes and 0 denoting otherwise.
- Education levels were coded from 1 to 7, ranging from ISCED 1 to ISCED 7–8.
- The number of years of work experience ranged from 1 year to 65 years.
- Gross wage is the Euro value of each respondent's income in that particular year.
- Self-perceived health status was coded from 1 to 5, with 1 being very bad and 5 being very good.
- Employment was coded as a dummy variable, with 1 being employed and 0 being otherwise.
- All three variables relating to satisfaction, namely life satisfaction, financial satisfaction, and job satisfaction entail a 10-point scale whereby respondents ranked their individual satisfaction from 1 being not satisfied to 10 being most satisfied.

2.2 Data

The data used for this study was derived from the EU Statistics on Income and Living Conditions (EU-SILC). This survey was developed to gather data on structural measures of social cohesion, including the rate of those at risk of poverty and the gender pay gap. This survey is unique because it covers data from all EU member states as well as Switzerland, Iceland, Norway, and Serbia. It is a cross-sectional and longitudinal sample survey, as there are two data scopes. The cross-sectional data analyzes several variables such as income and poverty, lifestyle conditions, and social exclusion during a fixed period of time [18]. On the other hand, the scope of longitudinal data relates to changes that happen to individuals over a number of years. An average of 90% of the variables used in the data collection are annual, while the remaining modules are either collected every three to six years or whenever relevant to policy requirements [9]. The running of the survey at the national level is subject to legal restrictions, and the output presented must be standardized in conformity with Eurostat's specifications to ensure reliability and comparability. Further to this, Eurostat had set out a minimum sample size to guarantee consistent statistical power for cross-sectional as well as longitudinal components. The sample size for the former is 135,000 households, and for the latter, 101,500 households are required. Following the elimination of incomplete responses, a total of 75,328 observations were used as part of this chapter, covering a representative sample of the Maltese population.

3. Analysis and discussion

3.1 Panel data analysis

We begin by presenting the results from the panel data analysis, wherein eq. (1) above is estimated using a random effects model. **Table 2** below shows the panel data regression results, with each column pertaining to each of the socioeconomic outcomes of interest in the column heading. We start with wages. As seen below, female respondents on average earn €4600.79 less per year than their male counterparts, even after controlling for key confounders like age, education, and work experience. Given that average gross income in Malta is estimated at €28,000 per year, this corresponds to a gender wage gap of 16.4%, somewhat above the 13.2% estimated within the Euro Area [19]. Thus, the results underscore both the existence and magnitude of the gender wage gap in Malta across a large sample of 75,328 respondents and over the period 2010–2020. Other notable correlates of income include age, whereby older respondents tend to earn higher incomes, up to a certain point beyond which incomes start to dip as reported by Growiec and Growiec [20]. Similarly, Maltese citizens on average earn more than foreign workers, as do respondents with higher levels of education and work experience. By contrast, people who are actively participating in education and training on average earn less, which is in line with prior expectations given that participation would likely come at the temporary expense of work commitments.

We now turn to employment. Once again, female respondents are 7% less likely to be in employment relative to men, which may in part help to explain the wage disparity reported earlier. This finding indicates that despite controlling for educational outcomes, age, and even work experience, women are less likely to be gainfully occupied than men, which perpetuates existing income gaps. This finding aligns

Variable	Gross wage	Employment	Health
Gender	−4600.788***	−0.07***	−0.030***
Age	5656.876***	0.166***	−0.124***
Age squared	−479.421***	−0.019***	
Citizenship	2645.901**	0.074***	0.225***
Marital status	148.1735	0.039***	0.140***
Participation in education	−2438.552***	−0.287***	−0.027**
Education level	3875.769***	0.057***	−0.073***
Years of work	96.881***	0.007***	−0.004***
N	75,328	75,328	75,328
R-squared	0.354	0.5242	0.274
Wald	8388.84***	29504.66***	16956.48***

*Significant at the 10% level;

**Significant at the 5% level;

***Significant at the 1% level.

Notes: Robust standard errors, clustered at the individual level, are used in each case.

Table 2.
Panel data regression results.

with the aforementioned study by Azzopardi [14] regarding the unequal burden of non-work responsibilities, coupled with the presence of patriarchal cultural norms, which contribute toward lower female employment. Other findings are largely in line with prior expectations, with similar patterns of correlation observed across the other control variables as those reported for gross wages, which is unsurprising given the interrelated nature of the two socioeconomic outcomes.

Finally, we consider the relationship between gender and self-reported health status. As shown below, women on average report being in a slightly poorer health status when compared to men. Although this finding may reflect greater awareness of health among women (e.g., ref. [21]), other studies have shown that women are more likely to contract disabling, non-lethal conditions and self-report poorer health relative to men [22]. Such health outcomes may be exacerbated by income disparities, which in turn further perpetuate these entrenched inequalities. As expected, older respondents typically report being in worse health, as do those with higher levels of work experience. Curiously, respondents with higher levels of education also report being in poorer health, which may be indicative of greater awareness of health as reported in several studies (e.g., ref. [23]).

3.2 Cross-sectional analysis

The second set of regressions pertains to the cross-sectional data derived from the 2018 vintage of the EU-SILC, covering life satisfaction, financial satisfaction, and job satisfaction. The results for Eq. (2) are shown in **Table 3**. As seen below, we find no gender differences in relation to life satisfaction, with the coefficient obtained not statistically significant. This indicates that despite the aforementioned disparities in terms of income, employment, and even self-perceived health status, overall life satisfaction is broadly similar across genders. This reflects the somewhat mixed evidence

Variable	Life satisfaction	Financial satisfaction	Job satisfaction
Gender	-0.097	-0.102	-0.293*
Age	-0.028*	0.035*	-0.970***
Citizenship	0.242	0.295	0.972**
Marital status	0.432***	0.379***	0.892***
Education Participation	-0.286*	0.075	5.171***
Education level	0.079**	0.213***	0.559***
Years of work	0.007*	0.010**	0.103***
N	4468	4468	4468
R-squared	0.016	0.032	0.384
F	7.86***	18.75***	594.77***

*Significant at the 10% level;

**Significant at the 5% level;

***Significant at the 1% level.

Notes: Robust standard errors are used in each case.

Table 3.
 Cross-sectional regression results.

observed in the literature on individual well-being and life satisfaction across genders. For example, while Joshanloo and Jovanović [24] find that women have a higher self-reported level of life satisfaction, potentially reflecting societal expectations placed on men as primary breadwinners in certain parts of the world. Della et al. [25] report similar levels of life satisfaction across genders in the UK, albeit with significantly more variation across women. We find that older respondents report a lower level of life satisfaction in our sample, in line with findings reported by Chen [26], as do those who are currently engaged in education and training, potentially due to the lower income levels reported earlier in **Table 2**. By contrast, respondents who are married, have higher levels of education, or who have several years of work experience are generally more satisfied with their lives, once again potentially reflecting the more positive work and financial outcomes reported in **Table 2**.

Indeed, these results are largely mirrored in the second set of regression results, which focus on financial satisfaction. Once again, we observe no gender differences in this regard, which denotes that despite the significant gender wage gap estimated earlier, this does not seem to translate into higher or lower levels of financial satisfaction across male and female respondents in Malta. This contrasts somewhat with the majority of findings within the literature, with the likes of Fan and Babiarez [27] and DePianto [28] reporting lower levels of financial satisfaction among women. As expected, respondents who are older, married, have higher levels of education, or who have more work experience are generally more satisfied with their financial situation, which aligns with our earlier findings since such cohorts are also more likely to have higher levels of income.

Finally, we consider self-reported levels of job satisfaction. As seen below, we do observe a statistically significant (albeit at the 10% level) difference between genders, with women on average reporting lower levels of job satisfaction when compared to men. This contrasts with several other studies within the literature (e.g., refs. [29, 30]), all of which report higher levels of job satisfaction among women despite the lower levels of pay and grade relative to men, although more recent evidence has challenged these claims (e.g., ref. [31]). This finding may thus also go some way toward explaining the income, employment and potentially health disparities described in **Table 2**, particularly in light of the findings reported by Azzopardi [14] in relation to culture, the take-up of lower-paying or part-time work and even lack of wage transparency, which may all result in lower levels of job satisfaction for women relative to men.

Interestingly, older respondents on average report lower levels of job satisfaction relative to younger respondents, despite their higher earnings, which suggests that older workers are motivated by other factors beyond financial gains, including the ability to successfully contribute toward and complete meaningful tasks or projects [32]. By contrast, Maltese respondents are on average more satisfied with their jobs relative to foreign workers, in line with another Malta-based study that reports that non-Maltese workers are generally less satisfied with their current jobs since they feel that they do not able to utilize their skills, suggesting overqualification [33]. Another noteworthy finding is that those currently involved in education and training are also more satisfied with their current jobs, which relates to another study conducted in Malta by Sacco [34], who finds that those engaged in employment while studying within the public sector are more satisfied with their jobs as it provides them with valuable work experience while improving their time management and social skills. Similarly, respondents who are married, with higher levels of education and with more work experience are also on average more satisfied with their jobs, which confirms previous findings within the literature (e.g., refs. [35, 36]).

The results from our panel and cross-sectional analysis indicate significant disparities between men and women in Malta when it comes to a plethora of key socioeconomic outcomes, namely income, employment, self-reported health status, and job satisfaction, with female respondents significantly worse off in each instance. The implications of these findings are extremely vast. Firstly, if we consider the gender wage gap, then this study provides evidence that confirms both the existence and extent of this gap, even after controlling for several observable and unobservable individual factors like work experience and educational background. The deleterious impacts associated with the persistence of such wage disparities have been well-documented within the literature, both at the individual level and for society at large. For example, Aizer [37] finds a causal link between the gender wage gap and violence against women within the household. Similarly, Platt et al. [38] report that a significant portion of the gender wage gap can be explained by structural discrimination at the workplace, which in turn contributes toward a higher incidence of mood disorders among women relative to men. Both of these findings tally with our results regarding the disparity in self-reported health status and job satisfaction across genders, which may be at least partly explained by the persistence of such factors. On a more macro level, Wolszczak-Derlacz [39] finds that the existence of income disparities across genders is negatively correlated with economic growth within different sectors of the manufacturing industry across 18 OECD countries. These impacts are further exacerbated by the second result reported in this study, where we find a disparity in employment across genders. Indeed, Klasen and Lamanna [40] find that gender disparities in education and employment have a significant negative impact on economic growth across the globe.

4. Conclusion

This study has sought to examine the existence or otherwise of significant gender disparities across a wide array of key socioeconomic outcomes, including income, employment, health, and life satisfaction. To this end, we employed detailed individual-level data from the Maltese Islands derived from the EU-SILC, which enabled us to control for several observable and unobservable individual-level factors and variables. The results provide evidence for the existence of a statistically significant disparity across genders in relation to income, employment, self-reported health status, and job satisfaction, with no significant gaps observed for life and financial satisfaction.

A number of important limitations are worth noting. One potential limitation relates to the fact that even though the most important variables like income, living conditions and health are analyzed, other factors that could impact the various socioeconomic outcomes under consideration have not been included, including one's intelligence level, motivation, and parental outcomes. However, many of these individual factors are highly correlated with our other control variables, notably education, which means that such effects would be subsumed within the existing modeling framework. Similarly, the use of random effects in our panel data regression further enables us to control for such unobservable factors. Another limitation of this study is that we cannot conclude that the statistically significant gender disparities underlined in this study are causal in nature. Nonetheless, given the sample size involved and by controlling for several key correlates in the regressions, including the use of random effects in the panel data regression, we have sought to maximize the reliability of the

results obtained and to minimize any potential endogeneity issues that may plague such regression results.

Nonetheless, beyond these limitations, our results underscore the existence of various gender disparities across socioeconomic outcomes within the Maltese Islands. In light of the earlier discussion regarding the implications of these findings, it is imperative that effective policy is mobilized rapidly to address these gender gaps given their pernicious economic and social impacts. A key initiative in this regard would be to enhance wage transparency within firms and organizations, since this has repeatedly been shown to effectively reduce the potential for gender-based discrimination (e.g., ref. [41]). Another important policy would revolve around encouraging greater female participation in the workforce and, in particular, equal access to improved job opportunities. This entails actively incentivizing the redistribution of unpaid work and domestic work across both genders [42] to ensure a more equal share of the load via more flexible and rewarding parental leave structures, coupled with widespread education to recalibrate societal expectations and norms.

Conflict of interest


The authors declare no conflict of interest.

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Chapter 6

Joining the Workforce, Saudi Women and Vision 2030

Aljawhara O. Almutarie

Abstract

This chapter describes the recent fundamental socio-economic changes achieved in Saudi Arabia to include women in the workforce in the face of a culture that traditionally excluded them from the public arena. It shows how this change is being achieved through Saudi Arabia's Vision 2030 and how these changes have acted as a force that potentially empowers Saudi women. The historical background of the Saudi economy is briefly outlined before focusing on the feminization of the workforce and the challenges that this has faced and continues to face. Patriarchal attitudes and the barriers to women's equality in education and employment are considered before discussing how these challenges are being addressed in Saudi Arabia, in particular how the controversial lifting of the requirement for permission from a women's male guardian for a range of public activities has contributed to women's empowerment and their participation in the workforce. The chapter concludes that the recent changes enacted as part of the Vision 2030 initiatives have gone some considerable way toward encouraging women into the workforce, but that there is still some way to go before the Saudi gender gap is closed. The chapter uses a range of secondary sources to illustrate the each of the points made, and has selected recent, peer-reviewed research published in reputable journals.

Keywords: vision 2030, female empowerment, Walayah (male guardianship system), patriarchy, gender roles, oil, diversified economy, education, employment, sexism

1. Introduction

Once a nation reliant on a single resource – oil - Saudi Arabia is profoundly transforming. Vision 2030, an ambitious national plan, is propelling the country toward a diversified economy and a more vibrant society. This chapter outlines the ancient traditions and the ambitious spirit that is reshaping this land, its economic engine and the changing lives of its people.

In the past 5 years, the Kingdom of Saudi Arabia, a rising nation, has made substantial progress in developing economic, social, political and human capital. Saudi Arabia is establishing itself as a crucial participant in the emerging knowledge-based global economy by being a member of the world's top 20 economies. Saudi Arabia's economy plays a crucial role in the international energy market. In 2018,

Saudi Arabia, a prominent oil exporter, held an astounding 16.1% share of global oil exports, valued at \$182.5 billion [1]. Also, Saudi Arabia is the world's second-largest oil producer, directly behind the US, and it has the second-largest proven oil reserves [2].

The Arabian Peninsula is where Arabs first settled, and is home to a primarily Arab population, with a significant number of its citizens deriving their lineage from various Arab communities [3]. Yet, the Kingdom also incorporates a diverse ethnic composition [4], and this range of backgrounds contributes to the nation's cultural diversity.

The legal and governmental systems of Saudi Arabia are based on the fundamental principles of the Holy Quran and Sunnah, and Saudi Arabia is an Islamic state [5]. All regulations, rules and governance practices must therefore be consistent with this fundamental identification [6]. The population primarily comprises Sunni Muslims, with an estimated 85–90% Sunni [3]. Shias are a minority group and the official religion is Sunni Islam [7]. The workforce is primarily Muslim, with a small number of Christians, Hindus and Buddhists.

The Kingdom of Saudi Arabia is governed by the Al-Saud family. The ultimate decision-making power is held by the King, who is accompanied by a council of Ministers and is governed by Islamic principles [8]. After the nation's unification, King Abdulaziz Al-Saud instituted Islamic Sharia law as the primary legislative and governmental framework [9]. The political landscape of Saudi Arabia is profoundly entrenched in a centuries-old harmony between government and religion. This unbreakable connection has its roots in 1765, when Muhammad Al-Saud, the sovereign of the central region of the Arabian Peninsula, established a critical partnership with Islamic religious authorities [10].

2. From humble beginnings to oil dependence: A brief overview of the Saudi economy

The story of the Saudi economy is a tale of dramatic transformation. Generations of Saudis experienced hardship and a perpetual struggle to satisfy their fundamental needs because they lived in a region that lacked easily accessible natural resources [11]. However, the Saudi economy experienced a significant transformation whereby the economy changed from a predominantly agricultural one to one based on oil [12].

The early 1930s signaled the discovery of oil in the Gulf Cooperation Council (GCC) geographic area, which was a historic turning point for the countries that were part of the GCC, including Saudi Arabia [13]. The commencement of oil production in Saudi Arabia within 6 years of the initial discovery initiated an uprising in the nation's economy and generated immense wealth. A modernization initiative encompassing economic and infrastructure development was stimulated by revenue generated from hydrocarbon production and exports. This newfound wealth served as the impetus for the execution of five-year economic strategies that were strategically devised to achieve economic diversification and development [12]. The Kingdom has experienced consistent economic growth as a result of these strategies and Saudi Arabia has been able to achieve ambitious infrastructural projects [14]. Nevertheless, although oil has been the foundation of the Saudi economy, there is a substantial vulnerability involved in the excessive dependence on a single natural resource. The exhaustion of natural resources is unavoidable at some point in the future, as they are

finite, and oil prices are subject to fluctuations determined by global economic and political factors [15, 16].

In addition, the employment opportunities for an expanding workforce are restricted because the oil sector utilizes a relatively small portion of the population. Diversification can establish a more inclusive and robust labor market. Saudi Arabia has initiated a highly ambitious diversification of economy strategy, Vision 2030, in recognition of these constraints. This initiative prioritizes investment in emerging sectors, promoting the growth of industries such as renewable energy, technology, and tourism. The objective is to foster a more resilient and well-balanced economy. Vision 2030 also endeavors to increase women's participation in the workforce and to establish the foundation for a more diversified, sustainable, and knowledge-driven future by investing in new sectors, empowering women and fostering innovation.

3. Beyond oil: Women and work in Saudi Arabia

3.1 The need for a more diverse workforce in Saudi Arabia's transformation

A critical component of Saudi Arabia's Vision 2030, a roadmap for economic transformation, is a workforce with a wider variety of talent and new skills. The government has correctly acknowledged the importance of women's contributions to the nation's progress, and compared to previous decades, the Saudi labor market demonstrates advancements in female participation [11]. However, gender inequality continues to pose substantial obstacles. Although participation rates have increased, barriers remain deeply rooted [12].

When women engage and succeed in the workforce, they encounter many obstacles. Their choices are constrained by inadequate employment prospects, and sexism establishes an unequal playing field. Women may be discouraged from seeking careers due to social norms and cultural standards. Furthermore, female participation is further deterred by unequal work practices, such as lower salaries compared to men. Additionally, women's capacity to contribute is influenced by factors that are not always gender-specific, including age, marital status, ethnic background, level of education, and access to familial support [14].

Addressing gender inequality is imperative to establishing a national development strategy that is both successful and truly inclusive. A workforce with varied educational backgrounds and experiences promotes innovation and creativity [13]. This "cross-pollination" of ideas is indispensable for a knowledge-based economy. Furthermore, a diversified workforce enables Saudi Arabia to more effectively comprehend and address the demands of a broader spectrum of international clients and partners, fortifying the nation's global market position.

The Kingdom can unleash the maximum potential of its female population by tackling the difficulties of gender inequality and cultivating a supportive environment. However, there is a need to understand what Saudi women require to fully realize their potential as equal members of the Saudi workforce.

3.2 Saudi Arabia: Women on the rise

Economic underdevelopment, poverty, illiteracy, nationalistic struggles, conflicts, East-West relations, terrorism, and other issues frequently take precedence over issues affecting women in numerous Arab countries. The connection between

economic development and the prioritization of women's causes is infrequently observed. Consequently, the marginalization of women's rights is inevitable as a result of the constant prioritization of "other things." In the Arab Gulf countries, women have historically constituted a minor percentage of the workforce; and women have been the first to be eliminated when oil prices decrease or when an economic crisis arises: "Women perceive that there is a tacit official consensus that men should be prioritized and that women should be discouraged from working in positions where men could potentially replace them" [15]. Kuwait [16], Qatar [17], and the United Arab Emirates (UAE) [18] are among the countries in the region where women have been performing exceptionally well in recent years, with participation rates consistently increasing over the past two decades [19]. Saudi Arabia exhibits a distinctive level and type of female participation in the labor force despite its close geographical proximity to the aforementioned countries. According to certain statistics, the private sector employs only a small proportion of Saudi women. Nevertheless, they have a substantial presence in the public sector workforce, particularly in health and education [20]. These are situations in which women are socially acceptable to work due to the limited interaction between them and males [21].

The Arab region has the widest gender gap in economic activities, even though Arab women have higher levels of education than males [22]. This dearth of engagement impedes economic growth and represents a substantial reservoir of unengaged talent [23]. Numerous scholars underscore the significance of bolstering female representation in leadership positions [24]. Saudi Arabia continues to grapple with inadequate female representation in management despite its initiatives to advance educational equality. Although over 50% of university pupils are female, less than 1% of them are in positions of authority [25]. This is in spite of the qualifications and potential for leadership positions that Saudi women possess [26].

Saudi Arabia nevertheless experienced a positive transformation in recent years. The number of women entering the workforce has increased significantly. The female participation rate in 2021 exceeded the 30% objective established by Vision 2030 [27]. Furthermore, the appointment of Princess Reema bint Bandar as the first female Saudi ambassador to the United States is a significant historical milestone [28].

The situation for Arab women in the workforce remains complex, characterized by both challenges and progress. Although cultural norms and social structures are influential, the region's future is more inclusive and prosperous, with more opportunities for education and leadership roles.

4. Closing the gap: Empowering women in Saudi Arabia's workforce

In recent decades, as the global conversation around women's empowerment has gained traction, international organizations like the World Bank and the United Nations (UN) have implemented tangible measures to promote women's empowerment. The World Bank has identified women's empowerment as a crucial factor in alleviating poverty, while the United Nations has recognized the principle of women's empowerment as essential for attaining its sustainable development goals (SDGs) [29]. The collective endeavors of international development organizations, authorities, academics and activists have significantly advanced the recognition and understanding of women's empowerment in philosophical, practical and political contexts [30].

Promoting women's empowerment and participation in economic growth have become essential requirements for achieving the development goals in the Kingdom of Saudi Arabia. This is being pursued through various development policies and programs. The Kingdom has implemented gender-inclusive policies and laws at a local level by the 2030 Vision. These measures aim to provide women with equal rights and opportunities in all disciplines and sectors without any discrimination based on gender. The active involvement of women in the economic sector is crucial for policy-makers and decision-makers at all levels. The current scenario has made it imperative to prioritize women's economic empowerment since involving them in sustainable development efforts is crucial. This aligns with global trends and recommendations from the Institute of Arab Countries [31].

According to the United Nations, seven principles indicate women's empowerment. The United Nations Entity for Gender Equality and the Empowerment of Women [32] outlines several key actions to promote gender equality in corporate leadership. These actions involve fostering equal opportunity and non-discrimination in employment, guaranteeing the safety and health of employees, promoting professional growth and education for women, encouraging women's entrepreneurship and autonomy, recommending equality through community initiatives, and publicly reporting progress toward gender equality.

Legislation and regulations that improve the position of Saudi women in society have expedited their journey toward empowerment by bridging the divide between a culture of seclusion, marginalization, and prejudice and a culture of active involvement and gender parity. In 2024, Saudi Arabia amended its labor legislation, and these changes included extending maternity leave for women from 10 to 12 weeks, with paternity leave, however, remaining at just 3 days. The amendments also introduce new employer obligations to not discriminate in appointing staff and ensuring equal opportunities for women [33]. The integration of women into economic activities and increased participation in the workforce have several economic advantages. For instance, employment ensures a steady income for women and maximizes the utilization of human resources at various levels, particularly at the national level. This contributes to targeted economic growth rates and enhances the competitiveness of women in employment, aligning with market economies, privatization, globalization requirements and reducing unemployment. Hence, the involvement of women in companies at various levels has a beneficial impact on enhancing national economies [34].

Over the past few years, women's participation in entrepreneurial endeavors has grown, significantly stimulating the economy. To attain sustainable development for Saudi society, it is imperative to enhance the empowerment of Saudi women, establish a favorable atmosphere for their growth, and actively promote their involvement in various entrepreneurial pursuits.

5. Challenges faced by women in the Saudi workforce

The labor market in Saudi Arabia continues to present substantial obstacles for Saudi women despite recent considerable progress. The societal perspective on women's roles and professions is a critical factor influencing female participation [35]. These perspectives are strongly rooted in the ideology of culture and conventional Sahwa practices [36]. Not only do these cultural beliefs impact how society perceives women, but they also impact women's self-perceptions [37] and, in turn, their career path.

Gender stereotypes persist as a substantial hurdle to workplace equality despite the increasing number of women in the workforce [38]. Heilman [39] describes a gender stereotype as an exaggerated belief about a group that frequently has a detrimental effect on the professional opportunities of women. This is especially true in societies with conservative gender roles, where women are primarily responsible for domestic responsibilities [40]. Women's career advancement is impeded, and an unfair advantage is established due to the difficulty of balancing work and family life [41]. In Saudi Arabia, women frequently face obstacles and disruptions in their careers, which are frequently the result of deeply entrenched gender stereotypes surrounding the division of labor [31]. The frequency and nature of these interruptions can differ based on a woman's upbringing and conditions [42]. In their 2020 study, Ud Din et al. [43] propose a potential framework for comprehending these interruptions. This framework divides a woman's profession into three phases, each presenting its obstacles.

Early career stage: During this initial phase, a woman's career path can be substantially influenced by factors such as motherhood, marital status, and other life circumstances.

Mid-level career stage: Career interruptions are frequently precipitated by marriage, childbirth, and caregiving obligations during this intermediate phase.

Late-level career stage: As women progress to senior positions, they may prioritize career vacations or flexible work arrangements to provide care for aging partners or grandchildren. In comparison to other Middle Eastern countries, Saudi society has always been profoundly rooted in gender inequality, as evidenced by lower participation rates in the labor market and higher levels of education [44, 45]. The lower ranking of Saudi Arabia in regional gender equality indices may be partially attributed to the relative lack of economic pressure for reform [46].

However, there has been a change in the past few years. Vision 2030's ambitious objectives, including the increase of female workforce participation to 30% (from 22%), are a substantial stride toward increased gender equality (Vision 2030, 2016) from Khan [47]. The General Authority for Statistics [48] has reported that this initiative has already succeeded, with an estimated 500,000 women entering the workforce within a year of the plan's introduction. The government has further facilitated women's economic participation through initiatives such as mandating segregated workspaces for women in certain organizations and "feminizing" specific sectors [37]. Saudi Arabia is experiencing a period of transformation in women's economic empowerment. Recent reforms and initiatives present optimistic prospects for increased female participation in the workforce despite the persistence of long-standing challenges. The long-term impact on women's economic empowerment in the Kingdom will be determined by the success of Vision 2030's objectives.

While Vision 2030 aims to increase women's workforce participation, Saudi Arabia's Labour Force Participation Rate increased to 61.7% in March 2023, compared with 61.5% in the previous quarter. Based on the estimates of the General Authority for Statistics' Labor Force Survey, In Q4/2023, Among Saudi female youth (15–24 years), the employment-to-population ratio rose slightly to 14.0%, indicating a growing number of young women entering the workforce. The unemployment rate declined for both female youth and core working-age women (25–54 years), suggesting improved job market conditions. However, there is still room for improvement. Though higher than in previous years, the current female labor force participation rate remains relatively low compared to global standards. Creating separate workspaces for women in certain organizations may also lead to occupational segregation and potentially lower wages.

To further enhance women's economic empowerment, Saudi Arabia should consider implementing additional measures such as Strengthening legal frameworks by enacting laws that protect women's rights in the workplace, including equal pay, maternity leave, and anti-discrimination provisions. Also, education and skills training should be promoted by investing in programs that equip women with the necessary skills and qualifications to compete for higher-paying jobs. Moreover, providing childcare support by establishing affordable and accessible childcare facilities alleviates the burden of childcare responsibilities on working women. And foster a culture of gender equality by promoting awareness and understanding of gender equality issues through public education campaigns and workplace training.

Vision 2030, Saudi Arabia's ambitious economic and social reform plan, has made significant strides in increasing women's participation in the workforce. Key initiatives include legal reforms by amendments to labor laws that have granted women equal employment rights, including equal pay, maternity leave and protection from sexual harassment. Also, Childcare support, the government has invested in expanding childcare facilities to make it easier for women to balance work and family responsibilities.

Further, we have to mention that programs have been established to develop women's leadership skills and prepare them for senior positions.

Despite these efforts, challenges remain. The availability of affordable childcare, particularly in rural areas, remains a concern. Additionally, cultural attitudes and stereotypes continue to impact women's career advancement.

To further accelerate women's economic empowerment, Saudi Arabia should continue to invest in education, skills training and childcare facilities. Addressing cultural biases and promoting a more inclusive work environment are also essential. By building on the progress achieved through Vision 2030, Saudi Arabia can create a more equitable and prosperous society for all its citizens.

6. Patriarchal attitudes and gender roles

Saudi Arabia is a captivating example of a nation that is concurrently trying to diversify its economy and implement social reform, all while struggling with a deeply ingrained patriarchal system. This system, which is distinguished by its steadfast application of Sharia law, tribal influences and absolute monarchy [49], severely restricts the participation of women in the workforce, as demonstrated by the high unemployment rate of 30.2% in comparison to Western societies.

However, the economy is being transformed into a knowledge-based system as a result of recent endeavors to modernize and develop the nation, particularly the bold "Saudi Vision 2030" plan established in 2016 [50]. This vision recognizes the necessity of gender equality in the workplace and establishes specific objectives to elevate the proportion of women in the workforce from 22–30% [50].

The entrenched patriarchal order is in direct opposition to this reform movement. According to Choi et al. [51], patriarchy is a social structure in which men possess more power than women, a phenomenon that is evident in society as a whole [52]. This system, which has its origins in economic, social, and academic institutions [53], has traditionally assigned women the roles of working at home to serve family needs [54], thereby restricting their involvement in public spheres [55]. This elucidates the inadequate representation of women in the social, economic, and political landscape of Saudi Arabia [56].

Saudi Arabia has made substantial progress in the field of women's education over the past 60 years, despite these constraints [57]. Even so, this advancement has not been reflected in the proportion of female employment that has increased [58]. The ability of women to secure employment outside the home is impeded by the persistence of conservative norms regarding their family responsibilities [59]. This results in a situation in which a highly educated female population is primarily excluded from the workforce, thereby limiting the state's ability to realize the advantages of its education investment.

Social change is afoot, albeit slowly. Although the right to initiate divorce is primarily held by males, restrictions on divorce have been relaxed [60]. However, this frequently results in divorced women struggling economically, particularly if they do not have the support of their families [61]. As [61, 62] have discussed, this change in the social contract presents a dilemma for adolescent women. Although education becomes preferable for self-reliance, even though there have been changes in the law for women and government support empowerment, social traditions limit this empowerment.

Saudi Arabia's progress toward a more inclusive and diverse economy is contingent upon its capacity to confront the profoundly ingrained patriarchal system. Although promising, the ongoing reforms face substantial obstacles due to deeply ingrained social norms and religious interpretations. The intersection of precarity and gender inequality in Saudi Arabia and how these factors contribute to the specific challenges faced by women require further research, as suggested by Aldossari and Chaudhry [33].

7. Women's education

Women were prohibited from pursuing an education in Saudi Arabia until 1956. Despite the king's endeavors to expand education, schools for girls were not fully incorporated into the kingdom's educational system. The education of women was entirely distinct from that of males. Education was intended to train them with the skills necessary to become responsible spouses, as per Sharia law and the holy Quran. The prevailing view was that the principal roles of a woman were that of a mother, caregiver, and housewife [54]. The exclusion of women's education was pervasive in Saudi culture until the 1950s when a group of educated middle-class males petitioned the government to build schools for girls. These men believed that educated spouses would enhance the family and the marriage's tranquility [8].

In 1960, the first government-funded school for women was established. Girls poured into these schools, determined to demonstrate to the world that they had been denied a significant opportunity for an extended period of time. The governing body established the General Directorate of Girl's Education and established girls-only schools to ensure its control over curriculum design and staffing, as [63] notes. Conversely, curricula development before accessing the classroom does not necessarily indicate that pedagogy is fully developed. The government gave great attention to women's education, diversified academic subjects, and introduced some of the courses that had long been absent from girls' education, such as music and sports. It also opened the field of foreign scholarships for girls in various specializations that supported the empowerment of women in the labor market and no longer required the presence of a man (Mahram) with women outside of Saudi Arabia. Education should be modified by the identification of individual learning methods. Course material is typically substantially less extensive for girls than males, although the curriculum has traditionally been comparable to that for boys.

Progress has been made in closing the gender divide in education since the first government school for girls was constructed in 1964 [64]. However, integrating girls into the public school system has been complex and arduous. The admission of girls to education was postponed by stubborn social stereotypes for 20 years after public schools were made accessible to boys [65]. Public education in Saudi Arabia is free at all levels and mandatory for boys and girls between the ages of six and 14 [66]. According to the 2010 Gender Gap Index, 84% of girls are enrolled in primary education, while 85% of boys are [67]. However, females now outnumber males at secondary level schools, with 76% of girls registered in high school compared to 70% of boys [67]. In Saudi Arabia, women are the majority at university level, with 37% of women achieving tertiary level, as opposed to 23% of men [67]. Riyadh University, subsequently renamed King Saud University, was founded in 1957 as the first university not dedicated to religious studies. Since then, higher education has substantially expanded [68].

Saudi women surpass their male counterparts in terms of graduates from secondary institutions and universities, with 121,000 and 44,000, respectively, graduating annually [37]. Women account for 79% of Ph.D. awards annually [37]. Saudi women continue to encounter discrimination in the pursuit of their desired courses of study, accessing the education system, and receiving quality instruction despite the significant progress made in school enrollment and the establishment of new facilities [69].

7.1 Women's employment

The actuality of Saudi women's participation in the labor market remains limited by social and cultural factors, despite the growing attention to women's issues that Saudi society has been experiencing and their level of education. This is because some Saudi women continue to suffer from poverty and widespread unemployment. In 2007, the unemployment rate among female citizens in Saudi Arabia was approximately 26.6%. This rate increased to 26.9% in 2008 and continued to rise in 2009, reaching 28.4%. This rate is four times the rate of adolescent unemployment, which was 6.9% in 2009 [70]. This may be because most socialization methods and attitudes emphasize the woman's singular role within the family, failing to acknowledge her multifaceted roles in the community and within her family. This lack of recognition harms women, whether psychologically or socially, resulting in their departure from work [71]. The high birth rate, low employment opportunities, illiteracy, and traditions that deny women's work are among the primary factors contributing to the reduction of women's role in the labor market. Other sources of unemployment among women include the refusal of a considerable number of men to complete assignments if they have to work with women and their objection to women's work, which is motivated by disparaging reasons [72].

Arab societies are deeply rooted in tradition and influenced by Islamic values and customs [73]. Scholars such as Gause III [74] have argued that religion has unquestionably impacted the region's social fabric. According to Andersson and Togelius [75], "in the case of Saudi Arabia, it appears that the cultural and religious claims merely serve as a rationalization for an institutional oppression of women."

However, Arab countries have experienced accelerated transformation in the past few decades [76]. The demand for skilled laborers has been generated by opening doors to foreign investment due to economic reforms and globalization [77]. This has affected the status of women in the workforce. According to Metcalfe's research [78], job opportunities and entrepreneurship among women have increased.

Social and economic advancement necessitates investment in human resource development (HRD) [79]. The United Nations Development Programme [80] reports that Saudi Arabia has experienced a substantial increase in its HRD index, which indicates positive developments. Nevertheless, there are ongoing apprehensions regarding the increase in female labor participation, which has increased from 10% in 2005 to 33.2% in 2022 [81]. According to critics [82], these reforms can emphasize appearance rather than empowerment.

Saudi Arabia and Kuwait are the most improved countries in the region this year compared to 2021, according to the 2022 Global Gender Gap Report published by the World Economic Forum. Saudi Arabia was identified as one of the most improved countries in 2022 in terms of reducing the gender gap, with a score of 63.6 percent (+3.3 percentage points) [83].

In summary, the Arab workforce's representation of women is a tale of advancement and adversity. Economic shifts, government policies, and cultural traditions contribute to this phenomenon. The continued development of these countries will depend on the attention given to the requirements of female workers.

8. The male guardianship system (*Walayah*)

Saudi Arabia is characterized by a profound historical tradition of religious devotion, significant economic success, and a devout adherence to Islamic culture. The extensive historical background has given rise to several regulations, statutes, and provisions that challenge women and young individuals to lead their ordinary lives and express themselves in manners that facilitate their educational and healthcare advancement.

Until very recently in Saudi Arabia, a woman's life was governed by a man from the moment she was born until she died. Every woman needed to have a male guardian, typically her father or husband, but in certain situations, her brother or even her son, who possessed the authority to make important decisions on her behalf. According to numerous Saudi women who spoke to Human Rights Watch, the male guardianship system was the main obstacle to achieving women's rights in the nation. This system essentially treated adult women as legal minors, preventing them from making important decisions on their own.

According to the male guardianship system, a father or spouse, and sometimes a brother or son, was crucial in making decisions regarding women's education, employment, family planning, and healthcare [84]. Women were required to comply with the decisions made by their guardians on important matters, such as marriage, as well as seemingly trivial ones, such as going on vacation [85]. These criteria applied to all females, regardless of socio-economic status [84].

The male guardianship system was widely recognized, both domestically and globally, as a hindrance to women's access to employment [85]. Certain individuals viewed it as a constraining system [86]. Specifically, in Saudi Arabia, women experienced significant hardships due to this system. Restrictions included:

- Being prohibited from attending educational institutions or pursuing advanced studies without the consent of a guardian.
- Being forbidden from traveling abroad without the authorization of a guardian. In the absence of a guardian, a woman's father, spouse, brother, or son was required to assume the role of her guardian.

- Being prohibited from working without the explicit consent of a guardian.
- Being prohibited from taking an automobile they owned outside the country without obtaining authorization from either the Minister of the Interior or the Governor.
- Entry to restaurants or cafés being restricted to individuals accompanied by a mahram.
- Compulsory approval of a guardian, particularly for gynecological operations, which could not be performed without it.
- Mandatory consent of a guardian in order for a woman to enter a hospital for childbirth. Similarly, a woman could not be released from a hospital or prison without the signature of a male guardian.
- Being prohibited from completing the registration of her baby's birth notification. A newborn child could only be registered by the father or a male relative who was at least 17 years old.

Multiple research and statistical data emphasized women's challenges due to this system [87]. Although it had a significant impact, Sharia was not responsible for the criticism it receives. Instead, it was the result of misconceptions and misunderstandings about the system. An inherent problem with the male guardianship system was the tendency for men to abuse this privilege, possibly driven by a thirst for dominance. In Saudi Arabia, male guardians possessed the power to either grant or deny authorization for women under their supervision to engage in employment. In addition, women encountered challenges when attempting to appeal if they were denied permission without justification or if they faced abusive behavior. The conditions surrounding the court to which women could appeal presented an additional obstacle. For instance, because of the lengthy duration required for a woman to legally pursue a mahram, it was probable that she would forfeit the job opportunity, especially if there were any delays in the local court's examination of the case. Therefore, the absence or postponement of legal actions did not protect women's employment rights. Men were granted unrestricted authorization to exercise this power without formalizing or restricting its application solely to women; this had a detrimental effect on the system and Sharia law as a whole.

Today, the Vision 2030 initiative, introduced by Saudi Crown Prince Muhammad bin Salman, aims to transform this rigid Islamic system. The project aims to integrate Sunni Muslim beliefs while advocating for human rights, encompassing religious freedom, healthcare accessibility, and women's rights. Projects of this nature are crucial in maintaining Saudi Arabia's position as a leading nation in terms of both economic and religious leadership.

9. The transformation of Saudi Arabia: A nation redefined by vision 2030

Saudi Arabia and other oil-producing nations were significantly affected by the decline in oil prices in 2014. The country encountered a significant USD 100 billion budget deficit by 2015, necessitating a 26% reduction in government

spending [88]. The dangers of relying exclusively on crude revenues for the nation's income were exposed by this financial crisis. As a result, the government acknowledged the pressing necessity of diversifying its natural assets beyond oil [89]. This realization resulted in the implementation of an aspirational national development plan in the spring of 2016. Vision 2030's primary goal was to shift the nation's economy and society from its conventional dependence on oil revenue, thereby cultivating a more globally engaged society and diversified economy [90]. The Vision delineated three interdependent pillars: a forward-thinking nation, a dynamic society, and a robust economy. The realization of Vision 2030's objectives was contingent upon implementing numerous strategic objectives and programs within each pillar.

Nevertheless, the successful implementation of this vision is contingent upon the widespread involvement of all sectors and all individuals within the country. Therefore, Vision 2030 prioritizes promoting equal opportunities for women in the labor market, recognizing their value as assets [91] and advocating for their active participation [92]. The unexpectedly positive results of the concerted efforts to ensure women have equal labor market opportunities were realized. In 2023, The Ministry of Human Resources and Social Development [93] reported that women's participation in the workforce had not only surmounted the initial target of 30% by 2030 but had already surpassed that mark, standing at 31.8% by the end of 2020. Women held 30% of senior positions, and their representation in the civil service was 41.02%. This is extremely impressive. Since the establishment of the Saudi Vision 2030, Saudi women have exhibited exceptional leadership abilities in various government positions, including as diplomats, government officials, executives, specialists, and pilots.

The women's file received significant attention from the government of the Kingdom of Saudi Arabia and, as a result, from the relevant authorities, including the Ministry of Human Resources and Social Development, due to the Kingdom's plan and its programs. These authorities allocated one of the vision's objectives to ensure an increase in women's participation in the labor market, accelerating Saudi women's progress toward empowerment. It has become an effective partner in national development in all sectors, including economic, social, scientific, and cultural, due to the issuance of numerous decisions, legislations, and regulations that have bolstered its position in society. This has occurred at all levels. Mosly [94] declared that "The GCC is promoting female empowerment and gender equality in the workforce through national reforms and initiatives." The World Economic Forum's 2022 Global Gender Gap Report identifies Saudi Arabia and Kuwait as the region's most improved countries this year compared to 2021. Specifically, Saudi Arabia was identified as one of the most improved countries in 2022 in terms of reducing the gender gap, with a score of 63.6 percent (+3.3 percentage points) [83]. The Saudi Vision 2030 demonstrates the government's dedication to the empowerment of Saudi women, who have been marginalized for far too long due to ultra-conservative traditions and social norms.

Religious matters, customs, and the culture of some regions were what prevented the mixing and presence of women, until the government recently created a law that protected women from these customs and traditions. A decline in statistics below what was expected is anticipated, but the presence of women now in leadership positions and their possession of a good percentage of the percentage of women working in the labor market contributes to the demand for better progress in this field.

10. Conclusion

Perhaps the focus must also be on changing the role of men in Saudi Arabia. In their work on Saudi women's precarity in the workplace, Aldossari and Chaudhry [33] concluded that it was necessary to raise Saudi women's awareness about their rights and to challenge traditional ideas about male and female roles in order to establish workplace equity [52]. Arguably, it is equally important that men's mindsets are changed and that changes such as extending paternity leave would signal that men are important as carers in the children's lives and not just as providers. Men's attitudes to their female colleagues also need to be challenged. A study that interviewed Saudi women workers about their experiences found that Saudi government policies about the empowerment of women and their participation in the workplace were not reflected in the women's experiences of workplace challenges, which ranged from sexual harassment and bullying to being passed over for jobs or promotion, especially if they were mothers [80]. The author suggests that Saudi women should be educated to best understand how to "recognize, negotiate and navigate the contextually relevant empowerment they need to advance" (p. 415). However, it also seems that men need to be educated about working comfortably and respectfully with women. Saudi Arabia's journey toward women's empowerment has been marked by significant progress, particularly in recent years. The abolition of the male guardianship system, a longstanding institution that restricted women's freedoms, represents a major milestone.

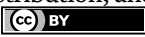
The Vision 2030 initiative, launched by Crown Prince Muhammad bin Salman, has played a pivotal role in driving these reforms. By prioritizing gender equality and women's economic participation, the government has created a more enabling environment for women to pursue their aspirations. However, challenges remain. While the male guardianship system has been abolished, societal attitudes and cultural norms continue to impact women's experiences in the workplace. Addressing these issues requires ongoing efforts to promote gender equality and create a more inclusive environment for all.

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Bridging the Gap: Urban Employment and Informal Income-Generating Opportunities among Working Women in Gweru, Zimbabwe

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Abstract

The persistent disparities between wage employment and expenditure have shaped women's everyday economic life into a hand-to-mouth existence. The fluctuations in the economic activities of men, who have traditionally been considered breadwinners, have altered women's environments. As women shifted into areas of responsibilities formerly catered for by men, they seized both legitimate and illegitimate informal income-generating opportunities to cushion themselves from the added financial demands. Shortages on the home front brought increasing pressure on working women to supplement wage employment through membership in women's associations, petty capitalism and moonlighting. This study focused on how working women have navigated the rough economic terrain to realize economic independence and reduce the income and wealth accumulation gender gaps at household level. Findings revealed that working women have narrowed the gender-based wealth inequality and income gaps through informal income-generating opportunities sustained by credit and savings institutions.

Keywords: income, gaps, working women, breadwinners, informal, urban, men

1. Introduction

The introduction of the Economic Structural Adjustment Programme (ESAP) in Zimbabwe in 1991, witnessed the deterioration of the economy to an unprecedented level. The program, which coincided with a severe drought, dismally failed to catalyze the intended goals of economic recovery and sustainable growth. Budgetary austerity measures drastically reduced life-sustaining resources, consequently compromising the delivery of social services. The Zimbabwe Programme for Economic and Social Transformation (ZIMPREST), aimed at resuscitating the economy between 1996 and 2000, failed to reverse the negative effects of ESAP. The Fast Track Land Reform Programme (FTLRP), initiated by President Robert Mugabe in 2000, also contributed

to the decrease in agricultural production. Although land redistribution to the black majority was a noble cause intended to address colonial injustices, the chaos that characterized its conduct disrupted commercial farming activities. The Government of National Unity (GNU), which ruled between 2009 and 2013, temporarily spurred Zimbabwe's economic growth by ushering in new economic reforms, among which was the multiple currency regime. The disputed elections of 2013 extended Mugabe's tenure. The economic conditions again started to steadily deteriorate. Galloping inflation eroded the purchasing power of household incomes. Urban destitution became evident due to the high levels of unemployment. Zimbabwe's sluggish economy continued to deteriorate further after the 2017 military coup, which ended Mugabe's 37 years of unbroken rule and brought President Mnangagwa into power.

The rampant practice of "wage theft" in Zimbabwe negatively impacted the lives of urban employees. "Wage theft" is a situation where the employer takes, withholds or keeps money meant for an employee for their own use [1]. The adoption of the multi-currency regime in 2009 provided that wages and salaries could be paid in US dollars. Although the scarcity of foreign exchange made it difficult for all companies to quickly dollarize and remunerate employees accordingly, by 2009, companies were paying wages and salaries in US dollars. The arrangement was unsustainable, and by the middle of 2012, companies were delaying the payment of wages and salaries. By 2013, companies were in the habit of either paying their workers late, laying them off without back pay or paying employment termination packages. The dysfunction was attributed to crippling cash flow and liquidity problems. Workers were impoverished, suffered humiliation, lost dignity and were now desperate and unable to make a living for their families. The non-payment of wages pervaded both the private and public sectors and affected both male and female employees. In situations like this, women and children became more vulnerable than men [2]. To confirm that women bore the brunt of wage theft, in October 2013, 100 women gathered at the office of the manager at the state-controlled Hwange Colliery, demanding wages owed to the men [1].

It is crucial to mention that even if people went without wages, employers still expected them to report for duty. Without money for transport, people resorted to walking long distances to and from work. Rental, electricity and water bills had to be paid. Families could not afford decent meals. Children dropped out of school. Some families lost property because they could not afford to pay back loans they had secured from financial institutions. Survival and compensation for lost earnings made it mandatory for families to come up with coping strategies. With husbands, who were considered to be breadwinners, going without pay, both working and non-working women had to scavenge for "additional" income to make a living. This study, however, focuses on how working women responded to the challenge of financial inadequacies within their households and risen to be primary wage earners in a society where the official ideology designates men as the principal breadwinners. A brief historical perspective on the female migration into towns is given to demonstrate and confirm women's resilience against discrimination through stigmatization, marginalization and violence from both the colonial and post-colonial gender-biased structures of power and governance. Gender segregation in employment was also reinforced by stereotypes of incompetent and morally wicked women who had to be treated with disdain. Despite such adverse circumstances, this chapter shows how working women generated stable incomes and were able to maintain their households. Some women's participation in paid work and their initiative to finance their income-generating projects through informal financial institutions in the form of savings and credit associations enabled them to achieve a modicum of economic independence.

2. Methodology

The qualitative was conducted between the years 2020 and 2023. Qualitative research is a process of inquiry undertaken to understand a human problem or phenomenon. The phenomenological approach was adopted to solicit information about 24 participants' lived experiences and quality of life with a deliberate alignment toward their habits and lifestyles before and after embarking on informal income-generating projects and joining women's associations. Data-gathering techniques such as in-depth interviews and oral narratives were extensively used because of their flexibility and room for probing. The interviews were supplemented by observations that entailed visiting stalls and business units and viewing some materials or properties acquired using financial gains from membership of associations. Focus Group Discussions (FGDs) encouraged a range of responses, which provided a greater understanding of the attitudes, behaviors, opinions or perceptions of participants. Three FGDs, each with a population of eight people, were conducted, two for members and one for non-members. These were not difficult to organize since the researcher arranged to hold the discussions on the day that participants were having their business meetings. Within the focus groups were male non-members of associations who participated in the study.

The target population was comprised of married working women aged between 28 and 50 who were members of Internal Savings and Lending (ISAL) and Rotating Savings and Credit Associations (ROSCA) groups. Participants in the study were purposively sampled to cover those employed as teachers, nurses, bankers and administrators with the Zimbabwe Electricity Supply Authority (ZESA) and the Zimbabwe Revenue Authority (ZIMRA). Through purposive sampling, participants were handpicked on the basis of the researcher's judgment of their typicality. The participants were assured of the privacy and confidentiality of all the information they volunteered. Anonymity was guaranteed through the use of pseudonyms. This enabled participants to share their experiences in a free environment.

The target area for the research was Gweru city, located in the Midlands Province of Zimbabwe. Besides the centrality of the city, which has made it a point of convergence for business, Gweru's surrounding communities have had vibrant microfinance initiatives.

This study, being qualitative, was not subjected to a mathematical process of interpretation of findings. As a result, findings were presented as descriptive thematic narratives. Material gathered through the interviews, observation and FGDs was triangulated and conclusions were drawn.

3. Working women in an urban setting

The changing lifestyles of working women have not received scholarly attention compared to the lives of women in rural areas. Any attempt to distinguish between "working women" and "non-working women" has also been considered misleading, largely because of the "two-person career" pattern, where women perform support functions for their husbands without receiving a direct financial income [3]. "Working women" is an ambiguous term that can refer to four different categories of women, namely: those in paid employment; women who earn income through self-employment and contribute toward the income-earning capacities of their husbands; women who partake in the running of family businesses but do not earn individual wages and women who perform household chores without any remuneration. In this

study, the term “working women” is synonymous with “women in paid employment” who have received formal education and have distinguished themselves by attaining high positions within their chosen professions. In Zimbabwe, the stereotyping of socially destructive African women, which came to be associated with urban women during the colonial period, continues to prevail. Consequently, women do not take up certain jobs to avoid being socially stigmatized. What limits the geographical mobility and personal autonomy of both married and unmarried working women is the misplaced label that they are prostitutes or social climbers obsessed with modernity. A line of demarcation has continued to distinguish between acceptable or respectable and unacceptable or unrespectable urban women. During the colonial period, the ruthless enforcement of vagrancy laws was meant to curb the influx of young rural women into town because they were considered the hub for the evil of urban immorality. These women attracted social reproof and were rejected with disdain, given that they were branded as prostitutes. The fate of women in urban areas in Zimbabwe during (and even after) the colonial era was permanently associated with their ability to beguile men into relationships. Zimbabwe has witnessed “clean-up” campaigns in which women have been rounded up for loitering and arrested for “prostitution.” Operation Clean-up of 1983, Operation Chipo *Chiroorwa* (Chipo Get Married) of 2005, and Operation Restore Order (*Murambatsvina*) of 2005 were interventions by the state to curb, among other vices, the proliferation of prostitution. In 1986, the Ministry of Home Affairs’ Operation *Chinyavada* (The scorpion has struck) witnessed the unleashing of the police force to clean-up the capital Harare in time for the Non-Aligned Movement conference to spare Zimbabwe from being dubbed the whoring capital of Southern Africa. It is beyond doubt that both working and non-working women have suffered the wrath of exploitation due to the negativities associated with rapid urbanization.

In both urban and rural areas of all societies, work is cardinal to the survival of humankind. With industrialization, the types of occupations for women and men have become distinguishable. Even though literacy and education profiles for males and females in Zimbabwe are not remarkably distinct, female participation in technical vocational education training (TVET) is significantly lower than male participation and firmly biased toward certain trades such as hairdressing, office administration and clothing [4]. Sectoral sorting has also shown that the construction, mining and transport industries are dominated by men, while nursing, teaching and secretarial fields are dominated by women. Inadequate education and a lack of requisite skills are not only barriers to employment but normally contribute to the existence of sexual harassment and a considerable gender pay gap. The double barriers of education and skills have discriminated against women in many types of occupations and activities, even in circumstances where skills are exchangeable between women and men, the so-called women’s occupations command significantly low wages. With Zimbabwe’s economy in dire straits in the 2000s, formal jobs were scarce and where jobs were available, earnings were too low to cushion people from the hyperinflationary environment. Pay hikes were no longer a reliable guarantee for survival [5].

3.1 Working women and self-employment

Over and above-paid employment, working women have engaged in “secondary self-employment” to supplement the income of husbands whose incomes are not only very low but also react slowly to the cost of living adjustment resulting from fluctuations in inflation. In the majority of cases, the self-employment opportunities are

within women's professional fields, which are extensions of women's domestic roles (cooks and domestic servants); mothering and nurturing roles (teachers and nurses); or supportive roles (secretaries, assistants and typists) [6]. Teachers would conduct extra tuition at private educational institutions or provide tuition within their own backyards (using vehicle garages as meeting points with students). Nurses made themselves available for hire by private medical institutions. In these cases, payment was commensurate with qualifications and experience. Those in the secretarial sector provided typing, printing and photocopying services for students and other members of the community. Some women also chose home-centered activities, which allowed them to make money while taking care of their children. Such activities included baking cakes for weddings and other delicacies for sale or providing tailoring services. Where women were willing to work for lower wages than men, it was not always the case that their actual financial needs and their opportunity costs were lower than those of men. Indeed, there were certain occupations that provided room for them to do more lucrative business in the informal sector.

3.2 Wage-earning women and informal income opportunities

In Africa in general and Zimbabwe in particular, the informal sector has become a major player in poverty alleviation, especially in urban areas. According to Sassen [7], income-generating activities that are considered informal are "those occurring outside the state's regulatory framework that have analogs within that framework." The activities are not under the direct legal control of policy measures within the state and the operators do not have the legal status to run the activities. Sassen [7], however, acknowledges that the informal economy is not a clearly defined sector because it is not a fixed set of activities undertaken solely for survival. Instead, the configuration of the informal sector evolves according to the opportunities created and restrictions imposed by the formal sector. The bid to precisely define the informal sector has resulted in the emergence of various labels like "underground economy," "parallel economy," "hidden economy," or "second economy" [8]. The fulcrum of the study was to demonstrate how women's groups and associations have changed women's statuses by positively adjusting their income and wealth, accumulating gaps in society. The women's strategy of judiciously combining formalization and informalization of work catapulted them to positions as breadwinners in many households. The women who participated in this study were employed as senior administrators, nurses, teachers and bankers. The changes in working women's environments seemed to have escaped the attention of researchers, who have largely focused on rural women. The traditional belief that men were naturally the breadwinners for their families has been and continues to be overturned by socio-economic imperatives, which are shifting masculinities within the patriarchal social order. The earthly concerns and secular interests of men and women are complementary. Regardless of divisions along sex lines, shifts in one realm affect the other. Against the background of inequalities in wages, the impact of wage theft and the harsh economic environment, working women upgraded themselves from marginal statuses, surpassing men in contributing toward household income.

The urban environment offered individuals or groups access to legitimate and illegitimate informal income opportunities for social and economic advancement. Among the legitimate were primary and secondary activities, tertiary enterprises, small-scale distribution and other varied services, as opposed to the illegitimate, which include drug trafficking, smuggling, burglary and armed robbery [9]. Working women would not opt for illegal or illegitimate informal income opportunities

because they had jobs to protect. An informant derided any engagement in criminal activities because this tarnished one's image and did not display the comportment or dignity expected of a senior banker [Informant A]. The general feeling was that a respectable woman should prefer temporary impoverishment [as she finds something degrading to do] to jobs that are demeaning. Being imprisoned for the love of money brought shame to the husband and family. The above sentiments, though, would not exonerate all working women from engaging in illegal activities in pursuit of monetary gains. Outside of formal employment, working women ventured into large-scale market gardening projects, trading, which involved cross-border trading, and many other activities. The destruction of informal market stalls, followed by the hike in license fees for areas designated for vending, drove women out of business. Many vendors were forced to operate from pavements because formal requirements to operate effectively from allocated sites were prohibitive [Informant A]. The strict enforcement of regulations, coupled with the payment of bribes to the police to evade arrests, made it unsustainable for women to continue in business [10]. Most women had to sublet their stalls. Working women capitalized upon such developments to penetrate the informal sector, either buying out or getting into partnerships with previous owners [Informant B]. As this study revealed, some of the opportunistic working women approached the city council to occupy underutilized stalls [Informant A, Informant B]. After working hours, working women engaged in informal trading in the Central Business District (CBD). They braved the running battles with law enforcement agents, who at times impounded and destroyed the second-hand clothing they sold. However, what gave them leverage were the informal financial institutions, which provided the capital base for all activities.

3.2.1 The informal financial institutions (IFIs)

Seibel [11] says that “attributing the origin of microfinance to recent initiatives misses not only the historical depth and scale of microfinance but also centuries of experience, which means learning from trial and error, failure, and success.” The informal financial institutions that operate under different names in different countries, like Accumulating Savings and Credit Associations (ASCRA), Cooperative Credit and Thrift Societies (CCTSs), Rotating Savings and Credit Associations (ROSCAs), Internal Savings and Lending (ISAL), Women Development Savings and Credit Union (WDSCU), Self Help Development Company (SHDC) and the Collective Self Finance Scheme (CSFS), whose origins Seibel [11] traced to eighteenth-century Europe, are not a new phenomenon in Zimbabwe. During the colonial period, burial societies or friendly associations were developed by migrant workers to mitigate funeral costs and, to a limited extent, provide financial assistance for businesses. The combination of political and legal restrictions by the colonial system, coupled with poor organizational skills and a lack of collateral security, made it difficult for these institutions to make a significant impact [12]. The history of microfinance in Zimbabwe stretches back to 1963, when a Catholic missionary, Brother Waddilove, started the first savings club in Chishawasha [12]. The Zimbabwe Informal Sector Association (ZISA), which was launched in Harare in 1995/96, coordinated the activities of the sector by registering operators and assisting them to enhance their skills through training. The savings and credit associations largely operated in rural areas under the supervision of the Ministry of Small and Medium Scale Enterprises and various non-governmental organizations (NGOs) like the German Technical Cooperation-Zimbabwe (GTZ), which partnered with the government to

form the Informal Sector Resource Network (ISTARN). In urban areas, both formal and informal microfinance institutions continued to co-exist, providing services to a varied clientele base. Despite the variations in size, these institutions shared in common certain key features concerning membership drive, structure and goals.

The voluntary, informal financial associations among working women surfaced in Gweru around 2000 because of the success stories of rural associations that filtered into the city [Informant A]. The associations did not register success because of the unstable economic environment until 2016. The honeymoon was short-lived as the COVID-19 pandemic set in in 2018. While the lockdowns and restrictive policies either required people to work from home or forced companies to lay off workers, the pandemic had a different impact on men and women. The gender employment gap increased because the education, health and informal sectors, where women were over-represented and made up the bulk of the workforce, were the worst affected. The challenge of striking a balance between household chores and the lockdown-induced home-based work was more stressful for women [Informant A, Informant B]. On the front lines of fighting the disease were the “essential” health worker women who risked infection. Brooks et al. [13] established that the loss of “the normal” due to changes in the working environment, business bankruptcy, unpaid bills and a lack of necessities were sources of irritation, anxiety and rage, which compounded the psychological stress among women.

Although the COVID-19 pandemic had more negatives than positives for many women, it opened an avenue for some who had facilities to tap into the uncharted waters of manipulating technology to interact with business associates and alter their environments [Informants A, B and C]. Through the work-at-home policy and the assistance they rendered to children who were doing their lectures virtually and assignments online, some women gained new knowledge, expertise and business practices and were able to establish business networks at home and abroad. “Without any boss monitoring you and loading you with work, there was more time to interact with people from other circles in a free environment than would have been the case at the offices” [Informants B and D]. The recovery from the pandemic in 2020 witnessed the revival of associations and the adoption of new business ideas, which changed the status and lifestyles of some women in Gweru. Working women’s level of innovation was astounding, especially by capitalizing upon the restrictions, constraints and stressful moments induced by the COVID-19 pandemic to open new lines of business. Placing orders and importing goods *via* the Internet, which was popularized by working women, pervaded the business world. “Working women are now handling large sums of money that cannot be concealed under the pillow” [Informant C]. Without recourse to high-interest loans from banks, these women scaled up and diversified their businesses, moving away from traditional income-generating activities like poultry.

3.2.2 Rotating savings, credit and lending schemes

Both ROSCAs and ISALs are groups of persons who voluntarily came together to form a revolving savings and credit association. The rules for entering the group were flexible. These could be discussion-oriented, whereby the assessment and vetting of aspiring members was based on recommendations from other members who knew the prospective member, followed by group consensus [Informant A]. The strength of membership was based on mutual trust that a member would be able to make regular savings and repay loans. Membership could be denied on the grounds of mistrust by the group members. Being a member of the group also depended on one’s ability to

pay the monthly subscription [Informants A, B and C]. Thus, some working women belonged to more than one association linked to the church and workplace. A general pattern emerged that working women shunned groups with a membership largely made up of more non-working women. The working women alleged that groups made up of non-working women contributed small amounts of money toward the savings; they were too large and more fragile due to the greater mobility of families [Informants C, E and G]. The situation in which non-working women seasonally migrated into and out of urban areas fractured the continuity of their association membership, which resulted in unceremonious departures and, hence, high numbers of defaulters on loan repayments. The migration of women was also associated with family break-ups as men indulged in extramarital affairs during the temporary absence of their wives. Where an association rotationally disbursed money to an individual on a monthly basis, a member's departure would break the cycle, unnecessarily heightening tensions and uncertainties. This explains why most non-working women were into the *mukando wemagaba*, or "tin savings" [Informant D]. In this type of saving, members agreed to deposit money in a sealed tin through some small opening on a daily or monthly basis. Records of deposits were taken, and when a member decided to leave, the tin was opened in the presence of all the members, and money was shared according to one's total deposits. Small amounts were realized in such groups at a time when elite working women looked at opportunities to acquire what they considered to be high-priority obligations, like cars and houses, upon sharing their contributions [Informant B]. The gaps between the different income groups shaped the perceptions of people and ultimately defined one's group destination. The strategy of *tanha dzaunosvikira* [translated: pluck that which is within your reach] slots people into groups that are in tandem with the conditions and expectations required for membership [Informants B and 18]. The magnetism of belonging to an appropriate group lay in the cushioning of members from losing out through unsanctioned withdrawals from associations.

In the majority of cases, the meticulous selection of members through democratic mechanisms guaranteed the recruitment of well-trusted and faithful members who would not want to usurp that trust. Pressure from group members and fear of bringing shame, isolation by the community, and reprisals from the spouse and the whole family played a significant role in encouraging the members to meet their obligations [Informants B, C and E]. However, there were isolated cases where members failed to submit their subscriptions or repay their loans on time. This explains why associational recruitment on the basis of religion became highly desirable. Church-initiated associations proved to be very popular because the religious organizations provided a common identity and a basis of solidarity [Informant G]. Religious associations' emphasis on self-improvement, thrift and industry became a vital integrative catalyst consistent with urban values. Participants were associated with different institutions like the Roman Catholic Church (RCC), Zimbabwe Assemblies of God Africa—Forward in Faith (ZAOGA-FIF), the Apostolic Faith Mission (AFM) and the Methodist Church. In all cases, the systems of beliefs and codes of morality within each church organization served as a means of social control and encouraged self-improvement. With many women bearing the burden of providing economic support for their families, the gospel of prosperity, with its emphasis on improving the standard of living through widening the economic opportunities of women, pervaded all church organizations.

The different organizations had defined goals explicitly for women and had no links with men's associations. The associations were meant to motivate women

to empower themselves and ensure the survival of their families when faced with economic hardships. Church organizations, through associations, became modernizing agents by exposing women to various strategies for economic empowerment. Besides fixed monthly subscriptions, more money was accumulated from interest charges for money lent out to members and fines charged for failure to attend meetings [Informants D and G]. The money collected did not lie dormant. Members were encouraged to borrow and pay back their loans through installments at an agreed-upon interest rate. After some agreed period of time, ranging from 4 months up to a year, members shared money accumulated from savings, interest earnings and fines [Informants B, D and G]. Membership therefore became a mark of success achieved through attaining greater wealth and status. In addition, these associations also expanded their purpose to cover financial obligations surrounding groceries. Meetings turned into platforms for the demystification of female stereotypes, which have denied women access to business.

4. Of “hats” or “necks” and closing gaps

According to the Global Gender Gap Report [2], gender gaps are prevalent in multiple areas like labor force participation, founding businesses, leadership in industry, political representation, wealth accumulation, tertiary education, lifelong learning and skills prioritization, income and stress levels where women remained victims. Given that the reasons for some of the gaps were structural and were related to employment, level of education and work experience, they needed close and constant monitoring because they were being eroded by other forces. In light of advances in women's economic empowerment, the income and wealth accumulation gaps in Zimbabwe could be shrinking.

The patriarchal social order created a situation whereby men, as heads of families, ruled while women assumed subordinate roles. Patriarchy, as a familial-social system, anchored in tradition, determines the place of women within the household in which the female is everywhere subsumed by the male. However, historical ideals supporting rugged notions of patriarchy may not fit contemporary socio-economic conditions. Male aggressiveness toward women is proving dysfunctional [Informant E]. The economic crises that Zimbabwe went through ushered a revolution in gender-role norms that questioned the traditional patriarchal values of yesteryear. The demands of life inflicted upon men due to a lack of employment, wage theft and hyperinflationary environments made them adjust to the realities of changing socio-economic situations. As men diplomatically abdicated from the patriarchal throne, women subtly invaded their space by formulating strategies to flex their financial muscle within households. Men have ceased to be “breadwinners” because of incessant unemployment, redundancy, meager pay and job or income insecurity [Informant G]. Men can no longer be judged by how much money they make or the status of their jobs because the occupations that have been negatively affected by the economic crisis are those defined as more suitable for men than for women. The service industry, especially the health, education, banking and retail sectors, which accommodated more working women, remained fairly robust compared to the blue-collar trades where men dominated.

The patriarchal, traditional sources of disempowerment were gradually giving in to the winds of social change. The traditional norms of husbands' unquestionable authority in domestic environments and dominant images of masculinity that

suppressed and exploited women were waxing and waning [Informants E and G]. As some proponents of gender equality or feminine emancipation might think, men no longer considered educated women as irksome, castigatory, difficult, disobedient and irresponsible to their husbands and children. In a few cases, women still needed their husbands' permission to acquire household items because they worked out their household budgets together. There was a transformation in men's attitudes toward women's associations upon realizing that women's savings were not avenues against male domination but sources of income for the survival of families and "safety nets" during emergencies like illnesses and funerals [Informants B and D]. As a result, there was no suspicion between spouses concerning sharing knowledge of business dealings or keeping their husbands ignorant of their profits. Working women were the guardians of the bulk of household money because of their ability to resist the temptation of spending money outside of the family.

At their club and association gatherings, women satirically declared that the status of their relationships with their husbands was that of the "hats" or "necks" and the "head." While the head of the household is the father, the "hats" would always be there to cover the heads, while the "necks" keep the heads afloat and control directions to face or follow. The majority of women were, in fact, major providers for most of the daily needs of their households. A study by Mupedziswa and Gumbo [8] confirmed the increasing importance of women's informal contributions in cash and kind to the survival of families. Working women's roles in decision-making increased due to their significant contributions to household income. As "hat" and "necks," they participated in deciding what movable and immovable assets to acquire. For the majority of women, having "power" seemingly meant having economic resources. Urban working women contended that under harsh economic circumstances, the city provided more opportunities to improve their status, which made them less dependent on men [Informants B and D]. Working women have been able to accumulate substantial savings and pay household bills and children's education in private schools where fees are paid in foreign currency. They also commanded some level of respect, which enabled them to make independent decisions about the use of their income. This type of economic intervention not only improved women's incomes but was a milestone in the gradual erosion of gender inequalities. Working women assumed positions as breadwinners through participation in money-saving and lending schemes, which gave them an impetus to engage in big business.

The dynamic and well-resourced working women no longer had restrictions on their mobility. They advanced themselves in education, becoming visible and influential in their communities. In the business arena, they made inroads into areas that used to be male domains. The financial discipline that evolved from borrowing, paying back loans and handling large sums of money improved women's self-confidence and financial management skills [Informants C and E]. While the bulk of women's economic activities seemed to take place in the informal sector, it was observed that those who were in wage employment were equally active in the informal sector. Women under wage employment also owned stalls in the open market, employed people in their shops, hired the services of vendors and sponsored women to go on business errands within and outside the borders of the country [Informants A, D and G]. They were not only employees but also employers. Some of the working women were contemplating leaving their jobs because their projects had transcended into family businesses. Church organizations remained the pillars of success for women's associations. Churches were points of convergence for women from different ethnic divides and the unity and solidarity they promoted also boosted women's social capital.

5. Conclusion


While gender gaps in the workforce, wealth accumulation and unequal access to and control over wealth-building resources are motivated and altered by time-honored structural barriers, the economic shocks coupled with technological transformation and educational advancement of women have distorted the pessimism surrounding their imminent closure. A lot of undercurrents are closing some gaps. To consider urban working women as totally subordinate is a misconception that projects a misrepresented portrayal of the oppressive African man and the deprived African women. The breadwinning or provider role has ceased to be a heroic task executed by husbands alone. Working women have sought to advance themselves and deal with the forces that aggravate gender-based wealth inequality and unequal income trajectories through the income-generating opportunities offered by urban environments.

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Chapter 8

An Investigation of the Productivity and Profitability of Selected Field Crops of Women Smallholder Agricultural Enterprises in the Vhembe District of Limpopo, South Africa

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Abstract

Using a semi-structured household questionnaire and facilitation, this study sampled 294 Women-Youth-led Smallholder Agricultural Enterprises (SHAW-YE) within the smallholder irrigation schemes at the Madimbo corridor. The study's objective was to assess the productivity and profitability of women SHAW-YE, mainly under irrigation. The study revealed that SHAW-YE has, on average, 0.75 ha under maize, 1.61 ha under dry beans, and 0.53 ha under sweet potato. The potential for SHAW-YE in the formal market was projected at R76 924,109 for maize, R1 856795.03 for dry beans, and R3 283924.53 for sweet potato. The fact that women-led agri-enterprises cultivated most field crops in the chosen fields for selling indicates that while SHAW-YE is market-oriented, its value chains are relatively loose. Despite widespread knowledge about mineral fertilizer use, the number of SHAW-YE households implementing fertilizer remains limited. Hawkers were found to be heavily relied upon, attributed to their lesser organization and poor market development in terms of the availability of buyers. These figures demonstrate the significant market potential for SHAW-YE, offering a promising economic opportunity for smallholder women farmers. However, to fully realize this potential, it is crucial to implement empowerment programs for women and extension and literacy support through training and input assistance for SHAW-YE.

Keywords: maize, dry beans, sweet potato, gender, agricultural entrepreneurs

1. Introduction

Women- and youth-led smallholder agricultural enterprises (SHAW-YE) have been well known for their power to drive economic growth in poor, rural communities [1]. A team of researchers [2] further indicated that most SHAW-YE produces traditional food crops for local markets compared to growing improved varieties of vegetable and field crops. In the Vhembe district, maize, sweet potato, and dry bean are not just any field crops; they are regarded as the most important due to their nutritional content and dietary benefits. These crops were selected as the top 3 of the 6 most crucial field and vegetable crops by smallholder agricultural entrepreneurs [3].

Of the three field crops, maize is a staple, and sweet potato and dry beans are protein-rich. According to Statistics South Africa (Stats SA) [4], the total production of maize in South Africa amounted to 10.51 million metric tons for human food consumption. According to the latest information available, South Africa is responsible for approximately 10.51 million metric tonnes of maize production per annum, with the Free State being a dominant player in maize production, contributing about 4.07 million metric tons. In contrast, Limpopo contributes some 200,000 metric tons [4, 5]. The maize industry is becoming increasingly important, and thus, it is currently an important foreign exchange earner through the export of maize and maize products [6]. Since maize is the dominant staple crop in South Africa, it could substantially impact smallholder farmers' livelihoods and food security. This was corroborated by Zuma et al. [7], who underscored the urgency of addressing the challenges and opportunities in maize production for smallholder farmers.

For the rural poor in South Africa, Dry Beans is an accessible and nutritious crop for households. According to DAFF [8], the country produces only 75% of the dry beans consumed, with 25% imported. The average yield has increased from 0,6 tons/ha obtained in the early seventies to approximately 1,2 tons/ha in the eighties [8]. At a viable market, the farm gate value for good grades of dry beans is between R12 000 and R14 000 per ton if sold to traders who clean and package the seed. Under dryland production systems, the average production is between 1,8 tons/ha and 2,2 tons/ha of salable seed [9]. The economic implication is that farmers can earn about R26 000 per hectare. Such income is comparable to other dryland crop production opportunities [9]. A continuous effort is being made to obtain higher production yields in irrigated smallholder agricultural production areas to increase profitability and meet the ever-increasing demand for food. On average, the SHAW-YE produces dry beans on 1.61 hectares, which produces about 1.2 tons/ha and fetches a lower price of R9000.00 at the informal markets. The price at informal markets is about R7.50 per kilogram. The most common crop for the poor is sweet potato. Though rural households and farmers did not cultivate the crop in large pieces of land, they produced it on any piece of land available in the home garden. Sweet potato is grown in home gardens for consumption and income generation [10].

The study conducted by Laurie et al. [11] showed that (a) the informal marketing and sales are very irregular, (b) the size of the storage was limiting, and (c) it is dependent on the place of sale and type of customers. On average, farmers harvested the crop for home consumption, with excess sold to the local market. Prices of sweet potatoes were reported [11] to range from 50 cents – R1 per kg to R3 per kg in diverse climatic areas. Rural households fetch an income of R1.11 per kg, which is the average of all the provinces of South Africa [10]. The South African sweet potato production statistics [12] indicate that the industry is comparatively small. The average annual

production was recorded at 51,000–56,000 tons in 2005. The 2005 sales of sweet potatoes in the fresh produce market totaled 26,938 tons, valued at R 30,076,072, resulting in an average price of R 11271 per ton. It has been reported that the informal sweet potato sector in South Africa produces large quantities and is marketed informally [10]. This sector's total land under cultivation was projected to be 2000–3000 hectares with an average yield of 5–10 tons per hectare. The average yield within the commercial sector was 40 tons per hectare, with land parcels of about 30 hectares [10, 13].

Socio-economic factors are critical in shaping the production levels and the type of field crops planted [14]. In 2005, the World Bank stated that approximately 78% of the world's poorest individuals, earning less than USD 1.25 per person per day, resided in rural areas and were predominantly involved in agriculture. Despite declining poverty rates in various regions, rural areas in sub-Saharan Africa and South Asia still encountered significant difficulties, with a considerable portion of the population living in extreme poverty and depending on small-scale farming [15]. Establishing SHAW-YE played a crucial role in enhancing food security and household incomes. The continued development and improved functioning of ISAEs positively impacted the lives of the impoverished by augmenting food availability and farming incomes, often influenced by the types of crops cultivated. Scholarly research [16–18] has determined that to support crop producers, it is crucial to thoroughly investigate their production practices and demographics to understand their needs. The main objective of this study was to evaluate the productivity and profitability of selected crops (sweet potato; *Ipomoea batatas*, dry bean; *Phaseolus vulgaris* and maize; *Zea mays*) in SHAW-YE targeting women as priority beneficiaries of these technologies in the Vhembe district.

2. Materials and methods

2.1 Site description

This study was the output of a research project on smallholder irrigation schemes at the Madimbo corridor and upper Mutale valley. While the Madimbo corridor is in Musina municipality, the upper Mutale valley lies under Thulamela municipality. These municipalities are located around Vhembe district, which is situated in Limpopo province, South Africa.

The agroecological conditions at the Madimbo corridor are semi-arid, whereas the upper Mutale valley is sub-humid.

2.2 Sampling procedure

Stratified sampling was used to obtain a representative sample of Madimbo corridor villages and households for an interview [19]. Two-stage random sampling was conducted using the SAS SURVEYSELECT procedure. PROC SUREVEYSELECT can help with probability-based random sampling. Sampling within the strata or classes is based on the number of units in each class, like villages for the Madimbo corridor and households for those sampled within each village. Two-stage samplings were conducted, whereby in Stage 1, villages from the corridor were sampled randomly. SHAW-YE from the sampled villages in Stage 1 were randomly selected in Stage 2 [3, 20].

2.3 Data collection

A household questionnaire in a semi-structured format was utilized to conduct a survey focusing on SHAW-YE. Data were collected between October and December of the year 2022. Demographic variables such as gender, age, education, income, field crop production, water resources, and governance were among the data collected. Inferential statistics included chi-square analyses [3, 20, 21]. A total of 294 SHAW-YE individuals were interviewed, with a response rate of 75 percent. The participants included 71 young adults aged 18–35, comprising 56 females and 15 males, and 223 females, among whom 153 were adults aged 36–59, and 70 were pensioners aged 60 or older [3, 20]. Women did the majority of the SHAW-YE farming.

2.4 Data analysis

The analysis of quantitative data were conducted using SPSS version 22, a software commonly used in the social sciences. The descriptive statistics involved creating frequency tables and calculating measures of central tendency.

3. Results and discussion

Field crops are staple foods produced by irrigated smallholder agricultural enterprises in Limpopo province (LP), mainly in the Vhembe district. Special attention should be paid to improving the productivity and profitability of these field crops. The irrigated smallholder production area must raise agricultural productivity to overcome the challenges of poverty and food insecurity.

3.1 The potential for producing selected field crops by SHAW-YE

The typical size of maize production per farmer was 0.75 hectares, and the estimated yield was around 800 kg per hectare. This suggests that the crop is more geared toward ensuring food security for households rather than for the market.

The average earnings from production amounted to R3,200.00 in an informal market where the price was R4.00 per kilogram. The potential in the formal market for SHAW-YE showed a decline due to a reduced price offering of R2.88 per kilogram, resulting in a lower income of R2,304.00.

The average size of cultivated dry bean fields was 1.61 hectares. Farmers typically achieve an average yield of 1200 kilograms per hectare. Dry beans are consistently sold locally for R7.50 per kilogram across informal and formal markets. The average earnings from production totaled R9000.00. The average area of land cultivated with sweet potatoes using irrigation was 0.53 hectares per farmer. The production potential was 2.5 tons/ha with an average income of R10 000.00 in an informal market priced at R4.00 kg. The potential for SHAW-YE in the formal market would be projected at R16 800.00 with an improved price of R6.72/kg.

3.2 The objective of cultivating selected field crops

Table 1 indicates the uses of selected crops (maize, dry beans and sweet potatoes) cultivated in the SHAW-YE in the Vhembe district of Limpopo province. Farmers'

Gender	Variable	Winter		Summer	
		No	Yes	No	Yes
Male	Count	9	6	2	13
	Expected Count	12.6	2.4	4.8	10.2
	% Within the Gender of the respondent	60.0%	20.0%	13.3%	86.75%
	% Within seasons crop: Maize	3.5%	12.5%	2.1%	6.5%
	% of Total	3.1%	2.0%	7%	4.4%
Female	Count	237	42	92	186
	Expected Count	233.4	45.6	90.2	188.8
	% Within the Gender of the respondent	84.9%	15.1%	33.3%	66.7%
	% Within seasons crop: maize	96.3%	87.5%	97.9%	93.9%
	% of total	80.6%	14.3%	31.6%	63.3%
Total	Count	246	48	95	199
	Expected count	246.0	48.0	95.0	199.0
	% Within the gender of the respondent	83.7%	16.3%	32.3%	67.7%
	% Within seasons crop: maize	100.0%	100.0%	100.0%	100.0%
	% of total	83.7%	16.3%	32.3%	67.7%
		$\chi^2 = 0,628,$		Not Significant	
		$p = 0.730$			

Table 1.
Uses of selected crops (maize, dry beans, and sweet potatoes) produced in Irrigated Smallholder Agricultural Enterprises in Vhembe District of Limpopo Province.

maize average area per household (sublocation) was 0.75 ha, and the production potential of maize was about 800 kg/ha. It indicates household food security more than the ability to market that commodity. The average price received for production was R3,200.00, with an informal market price of R4.00 kg. The potential of the SHAW-YE in the formal market usually decreases with a lower price (R2) offer. 88/kg would then provide a reduced income of R2 304.00.

Maize serves as a primary food source for around 200 million people and is commonly consumed as a breakfast cereal [5]. During winter production, most participants (83.3%) primarily grow maize for the purpose of selling. Among those who cultivate beans, 63.9% do so mainly for sale, while for sweet potatoes, the majority (90.6%) cultivate them for sale. In the summer, most smallholder farmers who irrigate their crops mainly grow maize (68.3%) for selling. Those cultivating beans (61.5%) and sweet potatoes (84.6%) also primarily do so for sale (Table 1).

3.3 Seasonal variation in fertilizer use for cultivating selected field crops

According to Siambi et al. [18], soil fertility management has become the primary constraint in management and is responsible for the low yields observed in Africa. During the 2004/05 season, Insiza District recorded a higher percentage of households (58.3%) using manure, followed by Gwanda (31.6%) as per [18]. The study's findings revealed that most SHAW-YE employed a combination of manure and chemical

fertilizers during the winter, with rates of 72.9% for maize, 86.6% for dry beans, and 79.2% for sweet potatoes. Summer saw minimal changes, with rates of 79.9% for maize, 61.5% for dry beans, and 88.5% for sweet potatoes (Table 2). From the results of SHAW-YE, we recognize that households are notoriously aware of potential fertilizer applications.

Yet, these findings indicate that mineral fertilizer is still not commonly used among the treatable population. For example, in South Africa, most households acquired knowledge about using manure from neighboring farmers and their references [18]. Due to the high price of chemical fertilizers, SHAW-YE, which is mainly rainfed, may use other less expensive materials (e.g., manure) for fertilizing. Nonetheless, manure might only be possible if available in surrounding communities.

3.4 Seasonal variation in the market share of selected field crops

Theorists argue that marketing is a significant instrument in promoting food security, poverty alleviation, and establishing sustainable agriculture, particularly relevant to small-scale farmers in most countries during the economic transition [22]. According to Makhura [23], small-scale producers face obstacles in marketing, including poor infrastructure, distance from markets, lack of resources and transportation, and inadequate market information. The main challenge for vegetable production is the inability of small-scale farmers to improve their access to markets and actively participate in the market.

The primary marketing approach appears to be the farm gate market opportunity. During the predominant winter season in the study area, 56.3% of the maize sold was

Gender	Variable	Winter		Summer	
		No	Yes	No	Yes
Male	Count	13	2	15	0
	Expected count	10.1	4.9	14.3	7
	% within the gender of the respondent	86.7%	13.3%	100.0%	0.0%
	% within season crop: dry beans	6.6%	2.1%	5.3%	0.0%
	% of total	4.4%	7%	5.1%	0.0%
Female	Count	184	95	266	13
	Expected count	186.9	92.1	266.7	12.3
	% within the gender of the respondent	65.9%	34.1%	95.3%	4.7%
	% within season crop: dry beans	93.4%	97.9%	94.7%	100.0%
	% of total	62.6%	32.3%	90.5%	4.4%
Total	Count	197	97	261	13
	Expected count	197.0	97.0	281.0	13.0
	% within the gender of the respondent	67.0%	33.0%	95.6%	4.4%
	% within season crop: dry beans	100.0%	100.0%	100.0%	100.0%
	% of total	67.0%	33.0%	95.6%	4.4%

Table 2. Types of fertilizers used for selected crops (maize, dry beans and sweet potatoes) produced in Irrigated Smallholder Agricultural Enterprises in Vhembe District of Limpopo Province.

Type of market	Winter						Summer					
	Maize		Dry beans		Sweet potatoes		Maize		Dry beans		Sweet potatoes	
	f	%	f	%	f	%	f	%	f	%	f	%
Farm gate	27,0	56,3	39,0	40,2	39,0	73,6	86,0	43,2	4,0	30,8	37,0	71,2
Fresh produce	2,0	4,2	3,0	3,1	2,0	3,8	13,0	6,5	2,0	15,4	0,0	0,0
Contracts	6,0	12,5	0,0	0,0	0,0	0,0	1,0	0,5	0,0	0,0	0,0	0,0
Hawkers	0,0	0,0	14,0	14,4	1,0	1,9	38,0	19,1	2,0	15,4	6,0	11,5
Export	0,0	0,0	25,0	25,8	0,0	0,0	26,0	13,1	3,0	23,1	0,0	0,0
Non-response	13,0	27,1	16,0	16,5	11,0	20,8	35,0	17,6	2,0	15,4	9,0	17,3
Total	48,0	100,1	97,0	100,0	53,0	100,1	199,0	100,0	13,0	100,1	52,0	100,0

F = Frequency

Table 3. Market share of selected crops (maize, dry beans and sweet potatoes) produced in irrigated Smallholder Agricultural Enterprises in Vhembe District of Limpopo Province.

Production indicators	Selected agronomic crops		
	Maize	Dry Beans	Sweet Potatoes
¹ Estimated mean cultivated area (ha)	0.75 Ha	1.61 Ha	0.53 Ha
² Estimated mean output (kg)	(10 bags × 80 kg) 8 00	(15 bags × 80 kg) 1200	(100 Crates × 25 kg) 2500
³ Estimated mean income from agronomic crops (rand)	350 Rand PER 80 kg R4.00/kg	600 Rand PER 80 kg 7.50 rand/kg	100 Rand PER 25 kg 4.00 rand/kg
⁴ Estimated adjusted income based on mean output	R3 200	R9000 00	R10 000
⁵ Estimated proportion of ISAEs cultivating the stated agronomic crop	0.66	0.09	0.02
⁶ Estimated total area (ha) cultivated in the Vhembe district by ISAEs	37,940	692	5180
⁷ Adjusted total area (ha) cultivated with selected crops	25040.4	62.28	103.6
⁸ Estimated total output (kg) adjusted cultivated area in Vhembe	26709.760	46,419. 875	488679.245
⁹ Informal market price	R4.00/kg	R7.50/kg	R4.00/kg
¹⁰ Estimated total value earned by ISAEs in Vhembe district (rands)	106839040.00	348149.06	1,954,716. 98
¹¹ Market Price	R2.88/kg	R12/kg	R6.72/kg
¹² Estimated total value earned by ISAEs in Vhembe using market price (rands)	R76 924,109	R1 856795.03	R3 283924.53

¹Estimated mean cultivated area (ha) = estimated from data analysis mean cultivated area.
²Estimated mean output (kg) = number of kg multiplied by the weight of kg.
³Estimated mean income from agronomic crops = informal market price.
⁴Estimated adjusted income based on mean output = (2) × (3).
⁵Estimated proportion of ISAEs cultivating the crop out of total in Vhembe (ISAEs = 230,000).
⁶Estimated total area (ha) cultivated in the Vhembe district = estimated from crop suitability model.
⁷Adjusted total area (ha) cultivated in the Vhembe district = Estimated to be the proportion (5) × estimated area (ha) in Vhembe (6).
⁸Estimated total output (kg) adjusted to cultivated area in Vhembe district = [(2) × (7)]/(1).
⁹Informal market price.
¹⁰Estimated total value earned by ISAEs in Vhembe district (rands) = (8) × (9) (informal market price).
¹¹Market price.
¹²Estimated total value earned by ISAEs in Vhembe district (rand) = (8) × (11) (market price).

Table 4. Estimates of productivity and income levels for selected Field crops produced by SHAE-YW in the Madimbo Corridor and Mutale Upper Valley.

at the farm gate, followed by 40.2% of dry beans and 73.6% of sweet potatoes. After the farm gate, hawkers were the most common market channel, with maize (43.2%), dry bean (30.8%), and sweet potatoes (71.2%) sold through hawkers, respectively (**Table 3**). Marketing agricultural produce posed a significant challenge for most farmers, especially the food plot-holders. The findings suggest that reliance on hawkers may be due to the general lack of organization and poor market development regarding buyer availability.

3.5 The seasonal impact of three specific field crops on the SHAE-YW and informal economy of the area

3.5.1 Indicators to produce chosen field crops

Table 4 displays the output and income level approximations for chosen field crops grown by SHAE-YW in the Madimbo Corridor and Mutale Upper Valley. Maize is an important grain crop in South Africa and is the country's most crucial feed grain and a staple food to many of the South African population [5, 24]. Due to its high protein content and potential for improving the nutritional status of vulnerable groups in developing countries, the dry bean is considered an important field crop in South Africa. The annual leguminous food crop most critical for dry seethe is the dry bean [8]. Sweet potatoes are grown in tropical and warm-temperature regions with adequate water to support their growth. The primary production areas include the Northern Cape, Western Cape, Limpopo, Free State, Eastern Cape, and Gauteng. Sweet potato is also a significant global food crop. In South Africa, Limpopo (Hoedspruit, Marble Hall, Burgersfort, Levubu), Mpumalanga (Nelspruit), KwaZulu-Natal, and Western Cape are the main areas for sweet potato production [3, 20, 25, 26].

The average area of sweet potatoes irrigated was 0.53 hectares (as shown in **Table 4**). The average overall production was 100 crates (25 kg each). The low productivity of these field crops can be attributed, among other factors, to unproductive farming practices. It is important to consider increasing the land area per smallholder farmer with irrigation to ensure that farming generates enough household income. Improving the productivity of field crops could potentially raise household income and enhance food security. This aligns with a study by the International Food Policy Research Institute [27], which concluded that agriculture contributes to the income of many households in the Peddie district, both in dryland and irrigated environments, but is not often the primary source of livelihood [3, 20, 28, 29].

4. Conclusion

The study showed that the SHAW-YE profile is characterized by small land areas for cultivating maize, dry beans, and sweet potatoes. The purpose of the selected field crops, grown by women smallholder agricultural entrepreneurs, was essentially toward sale, thus reiterating that SHAW-YE is, in fact, market-oriented, albeit with loose value chains. Promoting market channels and access for SHAW-YE is essential to facilitate the sale of field crops to informal, fresh produce, and retail markets. In exchange, young farmers should assist in transferring technology and information to older farmers. SHAW-YE should be market-oriented, and access to the market channels needs to be promoted as it is the only way for them to earn money from formal markets.

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Conflict of interest

The authors declare no conflict of interest.

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Strengthening the Traditional Role of Women in the Industrialized Milk Sector as a Lever for Their Socio-Economic Empowerment in Senegal: Case Study of the ASSTEL Project Intervention in the Dagana Department

Dre Oumoul Khairry Coulibaly and Aminata Ly

Abstract

Analyzing qualitative and quantitative data collected using mixed methods and an experimental approach, this article proposes, firstly, to demonstrate how the establishment of the “Laiterie du Berger” (LDB) factory in northern Senegal has called into question the traditional distribution of gender roles in the milk sector and led to the marginalization of Peul women from this sector. This has had negative socio-economic repercussions for them and their households. It then compares the situations of women beneficiaries and non-beneficiaries of a local project, called ASSTEL, to promote their socio-economic empowerment. It examines how this project has encouraged the reintegration of all local women, beneficiaries and non-beneficiaries alike, into this now industrialized sector. The article shows that, thanks to the specific support provided to beneficiaries, they experienced a significant improvement in their socio-economic conditions and those of their households, compared to their non-beneficiary counterparts. This increase in their economic power leads to their socio-economic empowerment, helping to increase their access to and control over resources, and reinforcing their agency, self-esteem and family recognition.

Keywords: dairy sector, women, gender roles, industrialization, empowerment, Senegal

1. Introduction

In Senegal, as everywhere else in West Africa, we are witnessing a gradual industrialization of the dairy sector. The new milk collection models implemented by collection

units, mini dairies or dairy industries reflect technological innovations and institutional transformations promoted by sector development policies and projects. However, the implementation of this new system disrupts the traditional social organization of this livestock sector and contributes to a defeminization of this sector [1]. Indeed, dairy production occupies an important place in the social organization of rural Fulani households in the north of the country and in their means of existence. It is marked by a very clear distribution of tasks between men and women in this Fulani society, where gender inequalities are more significant than in other rural areas of Senegal. Traditionally, the patriarchal structure of this society is based on a double hierarchy of status and responsibilities: first between men and women, then between elders and younger ones.

For women, these same hierarchies intervene in occupations as well as in the economic management of production and goods. Fulani women are often the owners of a large part of the herd of cattle, which they receive from their husbands as a dowry and from their parents by inheritance [2, 3]. However, they have few rights to freely dispose of livestock, including their own animals, because it is controlled by men.

However, Fulani society traditionally guarantees mechanisms recognized by all which grant certain rights to women. The customary system in fact recognizes women's right to own and raise animals in the same way as their brothers [4, 5]. Likewise, it plays a predominant role in the breeding of small ruminants, poultry and dairy animals. However, it is mainly the activities of milking cows, artisanal milk processing and marketing of dairy products, such as raw milk and derived products such as curdled milk and liquid butter [6], which are vested.

However, the establishment in 2005 of the "Laiterie du Berger" (LDB), in the commune of Richard-Toll, located in the department of Dagana, region of Saint-Louis,¹ profoundly modified this traditional distribution of gender roles and questioned the customary rights of women. Indeed, the installation of this factory, first, and then, its partnership with European multinationals (Danone, Sodiaal), which provided it with a greater financial base and made it possible to increase milk collection (Tournaire, op. cit.; [7, 8]), have contributed to the weakening of the socio-economic position of women in this sector [9]. This situation has led to a loss of income for women to the benefit of men and the questioning of their contribution to the livelihood of their families.

Because it is men, who dominate the public sphere, the dialog with institutional actors, who have been the main beneficiaries of this new milk collection system, women have thus been ousted from this activity, which is traditionally reserved for them.

It is from this observation that the non-governmental organization (NGO) "GRET"², through its project "Access to Services and Structuring of Family Livestock Farms" (ASSTEL), has given itself the mission of promoting repositioning women in this industrialized dairy sector to promote their socio-economic empowerment.

This article proposes, on the one hand, to analyze the defeminization of the milk sector with the establishment of the LDB and the dispossession of women from milk income, the basis of the daily economy of rural Fulani households, for the benefit of men.

On the other hand, it will attempt to understand to what extent the support of these women by the ASSTEL project has favored their integration into this dynamic

¹ The Saint-Louis region is located at the mouth of the Senegal River, in the northwest of the country, 264 km from the capital, Dakar.

² GRET is a non-governmental international solidarity organization founded in 1976 whose objective is to improve the living conditions of the most vulnerable populations and promote social justice.

of socio-economic transformation and how this repositioning can constitute a lever for their socio-economic empowerment.

This will specifically involve analyzing the bridge going from access to economic opportunities, through the repositioning of women in the industrial milk marketing circuit, capacity building and financial support to diversify the activities, up to increasing the financial autonomy of women and strengthening their agency.

2. Methodology

This article is based on the analysis of data collected during experimental research carried out in 2023 in the department of Dagana, the area of intervention of the ASSTEL project and implementation of the LDB.

2.1 Collection and analysis methods

This research adopted mixed methods, combining qualitative and quantitative methods. The quantitative survey covered a sample of 391 women, divided into an experimental group, with 291 women beneficiaries of support from the ASSTEL project, and a control group, composed of 100 non-beneficiaries women.

The beneficiary population of the ASSTEL project includes 1200 women, divided into forty (40) Women's Promotion Groups (GPF), each with 30 members. To determine the sample size, the Krejcie and Morgan method was used.

It is based on the following formula: $S = \frac{X^2 NP}{d^2(N-1) + X^2 P(1-P)}$.

S = required sample size; X^2 = value of the chi-square table for 1 degree of freedom at the desired confidence level (3.841); N = total population size; P = proportion in population (assumed to be 0.50 since this would provide the maximum sample size); d = degree of accuracy expressed as a proportion (0.05).

By applying this formula to a total population of 1200 people, we obtain a sample of 291 women, constituting the experimental group.

As for the mother population of non-beneficiary women, it concerns all other women in the Dagana department. Given its large size, we favored the purposive sampling method. The sample size of non-beneficiary women, which constitutes the control group, is thus 100 people chosen based on main criteria such as being in a household where they are involved in the marketing of milk, not being beneficiaries of the ASSTEL project and residing in the villages targeted by the project, among others.

As for the qualitative investigation, it had two categories of targets, on the one hand, institutional informants, members of the ASSTEL project team, and on the other hand, women beneficiaries and non-beneficiaries already interviewed during quantitative surveys to better understand their differentiated experiences and especially their feeling and conception of their own empowerment. In total, 10 individual semi-structured interviews were carried out.

The analysis of quantitative data was done using the bivariate descriptive analysis method. For qualitative data, thematic content analysis is favored here.

2.2 Analytical framework

The data analysis mobilizes different theoretical and empirical approaches and different concepts to assess the effectiveness of ASSTEL's intervention on the economic empowerment of women and the strengthening of their capacity to act (agency).

2.2.1 Economic empowerment

There is a plurality of definitions of empowerment in the literature, as shown by Ibrahim and Alkire [10], who made a comprehensive review reflecting multiple experiences and visions of economic empowerment. Among them, it is the perspective of the development economist Naila Kabeer [11] that we retain. It defines three dimensions of economic empowerment, which include (i) women's access to economic opportunities and their ability to generate resources, in a sustainable manner, so that they can meet their needs and those of people at large their responsibility, (ii) ensure their autonomy and their development within their family and their community through the strengthening of their power to act (agency); (iii) have a savings capacity to reinvest in their economic activities and deal with emergency situations (achievements) [12, 13]. Kabeer [11, 14] also shows that economic empowerment also means that women have the capacity to make decisions regarding the benefits that result from their economic activities.

2.2.2 Agency

The concept of agency occupies a central place in the work of Judith Butler [15] and expresses the capacity of an individual to define goals and to act in a way that is considered autonomous or independent to achieve them. Agency is thus an essential dimension of women's empowerment. This concept is used here in its feminist approach and its performative meaning to designate the capacity of the women beneficiaries to be able to influence, or even thwart, the power relations exerted over them without extracting themselves from these relations. Still based on Kabeer's conceptual framework, the strengthening/development of agency constitutes one of the three dimensions of empowerment.

In this article, this concept makes it possible to think dynamically about power relations within households and in the Fulani community and to analyze, thus, the strengthening of women's decision-making power but from their "feeling of capacity to act" [16].

2.2.3 The emic/etic approach to grasp women's conception of their empowerment

As empowerment is closely linked to context and varies from one woman to another, from one group to another, it is important to understand its meaning from the perspective and the own words of the women in our sample. Therefore, the emic approach, centered on the collection of cultural meanings linked to the point of view of the actors [17], seems particularly relevant to us for this study.

2.2.4 Ethical principles

Ethical principles were well respected in this research. We ensured that our respondents gave their informed consent. To this end, we provided them with all the necessary information concerning the objectives of the project and, consequently, of the survey. They were also informed of their right to opt out and to participate voluntarily. Similarly, the confidentiality of the data collected and the identity of interviewees was guaranteed, ensuring that all information collected was anonymized. In addition, we have taken into account the principles of intellectual integrity by correctly citing all sources used in our work in order to give credit to the original authors.

3. The integration of Fulani women into the industrial dairy sector, a lever for socio-economic empowerment of Fulani women

The analysis here focuses on results linked to the reintegration, repositioning, of women in the sector and how this situation, combined with other actions implemented by the ASSTEL project, contributed to the improvement of empowerment economic status of women and strengthening their capacity to act, particularly within their families.

3.1 Industrialization, a cause for questioning the traditional distribution of gender roles in livestock farming

The impact of industrialization of the dairy sector in Africa has been studied from various angles, such as economic policies, the challenges faced by smallholder farmers and the impact of industries on the African economy. But there are few studies that focus on the impact on the traditional place of women in this sector and which gave them an important position in the livelihoods of rural Fulani rural households.

3.1.1 “Milk was women’s power”: Exclusion of women from the industrial dairy sector

The results of the qualitative and quantitative surveys show that before the implementation of the LDB, the role of women in the dairy sector was essential. It was at the same time social, cultural but also economic. Historically, women are the pillars of the production and marketing of raw milk. They are in fact responsible for milking the cows, their feeding and the care provided, thus ensuring quality production. Women are also responsible for transforming milk into by-products, thus giving value to dairy products.

The results presented in **Table 1** show that it is exclusively the women of the family who produce and market milk.

The results confirm the fact that the sale of dairy products was exclusively carried out by women, particularly daughters-in-law. Indeed, 77% of women in the control group and 73% of those in the experimental group were themselves responsible for marketing dairy products to their in-laws.

Note that for those who declare selling milk at the same time as their mother-in-law (10% among beneficiaries and 14% among non-beneficiaries), these are distinct herds, the mother-in-law and the daughter-in-law each own his own flock. Furthermore, some women entrust this activity to their daughters, mainly single, (4% among non-beneficiaries and 7% among beneficiaries) so that they can supplement them and/to introduce them to this activity and so that they are seasoned. as soon as they are married.

This activity is in fact traditionally passed down from mother to daughter. In fact, women introduce young girls to cattle and sheep trafficking very early on. They also take them to markets and/or other places of sale, especially when there are several containers to carry. They thus transmit traditional know-how to them to guarantee the transmission of the ritual associated with this activity, which favors the perpetuation of this practice and the sexual division of labor in this sector. Because more than an economic activity, the milking and marketing of dairy products has a sociocultural and symbolic dimension.

Status	Who was responsible for selling milk in the family before the LDB?					Total
	My mother-in-law	Myself	Myself and my mother-in-law	My daughter	Others	
No Beneficiaries	3%	77%	14%	4%	2%	100%
Beneficiaries	6%	73%	10%	7%	4%	100%

Source: Surveys by the authors, 2023.

Table 1. Responsible for the sale of dairy products before the LDB, by group.

These results, highlighting the important place of women in this activity before the implementation of the LDB, are confirmed by the qualitative data. As evidenced by the following comments: “Before the arrival of the factory, I was responsible for selling milk. Most of the time, I marketed the production in the weekly markets, but sometimes I also went door to door.” (Non-beneficiary woman, 33 years old, Dagana, 2023).

But the establishment called into question this distribution of gender roles and the place of women in this sector. Because it is now men who have taken power in the sale of milk, but only through the industrial and formal circuit, as **Figure 1** shows: These results are confirmed by the quantitative survey, which clearly highlights the extent of the phenomenon among the women interviewed, beneficiaries and non-beneficiaries alike, as evidenced by **Figure 1** below.

This graph highlights the exclusion of women from this sector with the development of the sector. Indeed, it appears from the graph that after the installation of the LDB, it is mainly men who now market milk at this factory. Specifically, before ASSTEL’s intervention, 68% of those registered at the factory as milk sellers were men in the families of women beneficiaries, compared to 64% among the families of non-beneficiary women.

Whereas before the installation of the factory, no man was involved in the marketing of milk and its derived products. Which confirms the exclusion of women from this sector.

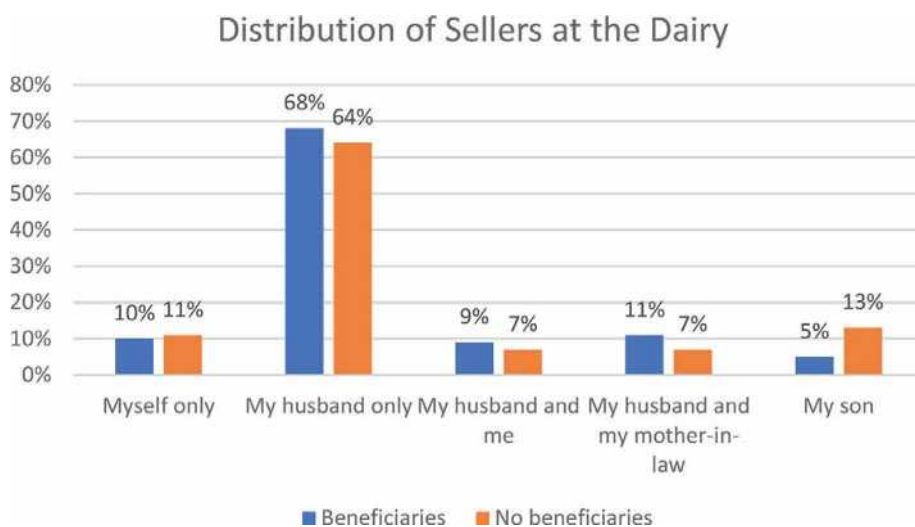


Figure 1. Takeover of power by men in the industrial sector, by group. Source: Surveys by the authors, 2023.

In this sense, one of the women beneficiaries declares *“Before the arrival of the dairy, women had the exclusive right to sell our milk production, but since it was installed, we women no longer sold the milk. milk nor its derivatives such as callused milk and butter.”* (Woman beneficiary, 45 years old, Dagana, 2023).

Only 10% of women in the experimental group and 11% in the control group claimed to be registered as sellers with the LDB before the intervention of the ASSTEL project.

They are generally heads of households and especially women leaders in the community capable of asserting themselves in front of a man and defying cultural norms to claim their rights. As these words attest: *“It was out of the question that my husband would be the only one to register at Laiterie du Berger as a salesman, I imposed myself from the start to sell too and be head of the can.”* (Beneficiary, 43 years old, Dagana, 2023).

The income that women earned from the sale of dairy products marketed informally before industrialization played an important role in the financial security of families. They were in fact the basis of the daily economy of the Fulani household. Thanks to this activity, women allowed their families to meet their needs, particularly food. As this woman beneficiary of the support of the ASSTEL project declares *“Every time I finished selling my dairy products at the market, I bought the products necessary for the daily diet of my family”* (32 years old, Dagana, 2023). It is in fact through the informal circuit, notably in daily and weekly markets, roadsides and/or door-to-door [18], that women traditionally market milk and its derived products.

This daily activity thus gave them an important position both in the nutritional intake of dairy products for families and in the formation of family income. This contributed to the enhancement of the status of women as full economic actors in the traditional Fulani production system [19]. Thus, although gender relations are strongly marked by the subordination and domination of women, they traditionally played an important role in the livelihoods of rural Fulani households.

But despite its interest, the industrialization of the milk sector has had perverse effects on women because it has called into question this entire socio-economic system and has accentuated female poverty.

The results also show that the low level of education of women and the lack of information, in addition to their weak decision-making power, constitute other factors which contributed to their exclusion from this circuit at the start of this industrialization process.

Most of the women interviewed, beneficiaries and non-beneficiaries, say that at the beginning, they did not fully understand how this factory worked, unlike the men.

Likewise, the low mobility capacity of women due to social norms, which do not always allow them to travel to the headquarters of the dairy, located in the town of Richard-Toll, and their daily domestic occupations constituted other obstacles upon their registration with the LDB.

Thus, the misunderstanding of the functioning of this new industrial system and gender constraints contributed to the exclusion of women at the start of the development of this sector.

And even for these 10% of beneficiaries and 11% of non-beneficiaries who were registered from the start, all these constraints meant that they had little control over the income earned from the sale of milk to the LDB. Because it was the men, especially their husbands, who went to the dairy to collect the money from the sale. In this sense, one of them declared, *“At the end of each month, it was my husband who went to the dairy to collect the money. It happened that he came back with provisions like rice and*

oil or with nothing, it all depended on his moods” (Woman beneficiary, 32 years old, Dagana, 2023).

Women’s lack of control over income from the sale of milk was accentuated with the implementation of the LDB. Women had thus lost both their place in the sale of milk and their main source of income, essential to the family economy.

3.1.2 Reintegration of Fulani women into the dairy sector

Thanks to the intervention of the ASSTEL project, the Fulani women of Dagana have integrated the industrial circuit of milk sales as “head of can³”. They have thus regained, and consolidated, their place in milk marketing. This allowed them to improve their income, their contribution to their family’s livelihood and the development of their decision-making power, reveal the results of our research.

The ASSTEL project is implemented by the NGO GRET in the six communes of the Dagana department from 2012 to 2023. Its objective was to improve the food and nutritional security of pastoral family farms in this area. One of its objectives focused on understanding gender issues and taking this dimension into account. However, let us emphasize that it was only during the second phase of his intervention, which began in 2016, that this issue entered his actions in this Fulani community. Indeed, it was following the evaluation of phase 1 and the diagnosis before the implementation of phase 2 of the ASSTEL project that the NGO GRET realized the negative effects of the implementation of the LDB on the economic activities of Fulani women. It is as a member of the Milk Innovation Platform (PIL), which brings together decentralized and decentralized public services, pastoral cooperatives, and organizations defending the rights of breeders as well as the industrialist LDB, that GRET-led advocacy within this multi-actor body to consider the specific needs of women and make this sector a lever for their empowerment.

It was following this plea and with the agreement of the PIL that the LDB revised its contractual conditions with pastoral families by allowing several members of the same family to register to sell milk to them. Because until now, only one person per family farm had the possibility of registering as a milk supplier called “can head” at the LDB to resell the family milk. This is how most men, as heads of household, registered in place of women.

At the same time, the NGO is carrying out awareness-raising and community social dialog activities so that men accept that women, particularly their wives, can register with the LDB as “bottle bosses”, but without this harming the men already registered “bottle heads”.

It is thanks to advocacy within the PIL, awareness-raising at the community level and the partnership established between the project and the LBD that the number of women “can leaders” has increased considerably. This situation benefits all Fulani women in the department who produce and sell raw milk, both beneficiaries and non-beneficiaries of the ASSTEL project, as shown in the following **Table 2**:

Analysis of the table shows a clear increase in the percentage of women who became “can heads”, going from 10 to 53% among beneficiaries in the experimental group and from 11 to 34% among non-beneficiaries in the control group.

³ This is the name given to women and men who benefit from a contract with the Berger dairy to sell their milk.

Status	Current milk sellers at the LDB			
	Me only	Myself and my husband	My husband only	My son
No Beneficiaries	18%	34%	36%	10%
Beneficiaries	21%	53%	21%	5%

Source: Author's surveys, 2023.

Table 2.

Increase of number of women who have become “head of can”, by group.

As for the percentage of men, it is in clear decline in both categories, because from 68% in the experimental group before the intervention of the ASSTEL project, it rose to 21% after the intervention. In the control group, the percentage of men also decreases, even if it is lower than in the experimental group, going from 64 to 36%.

These statistics are confirmed by qualitative data, as evidenced by this extract: “It is thanks to the intervention of the ASSTEL project that we were considered by the dairy, we are valued because we are considered as heads of cans, like the men. Most of the women here now sell their milk to the dairy” (Woman beneficiary, 25 years old, Dagana, 2023).

In addition to raising awareness at the community level, the LDB had also put in place safeguards to prevent men from registering in place of women. In this sense, one of them declares: “When my husband left to register at La Laiterie du Berger, we asked him to call his wife because she also must register. This is how I became a bogus chef” (Woman beneficiary, 28 years old, Dagana, 2023).

To further reduce gender constraints linked to women’s low mobility capacity, which excluded them from collection transport to transport milk from production areas to the factory, the LDB set up a system of collectors who go to collect the milk from suppliers.

Likewise, the terms of remuneration of “can chef-fe-s” are also changed by the LDB because suppliers are no longer obliged to travel to collect their money at the factory. It is sent to them directly via the telephone payment system, Orange Money and Wave. In addition to facilitating access to their income, this method allows women to receive their money directly and prevent men from confiscating it. Thus, the sale of milk at the dairy constitutes an interesting outlet for women and facilitates marketing for them [6].

Therefore, the difference between women beneficiaries and non-beneficiaries here is linked to the fact that the former are members of women’s promotion groups (GPF), having benefited from additional and specific support from the ASSTEL project, whereas the latter have not benefited from this support.

Indeed, in addition to advocacy within the PIL and community dialog, the women of the GPF supported by the ASSTEL project have benefited from several other activities such as capacity building through literacy and professional training sessions to diversify their activities economic, financial and material support to set up other income-generating activities (AGR) in addition to the sale of milk to the LDB and the structuring of the GPF into Village Savings and Credit Association (AVEC), which constitutes an endogenous system allowing women to save a portion of their income according to their means and to be able to benefit from credit if they wish.

3.2 Contribution of the reintegration of women into the dairy sector to their economic empowerment

The literature [20] has already widely analyzed the potential for the empowerment of women in the dairy sector and shows that the strengthening of their traditional role

in this sector constitutes a factor in access to the economic opportunities necessary for their economic autonomy and the strengthening of their community leadership.

3.2.1 Improving women's economic prospects and income

Through their integration into the dairy sector and the diversification of their economic activities and, consequently, their source of income, the ASSTEL project promoted the access of Fulani women of Dagana to economic opportunities and contributed to the improvement of their ability to make economic and family business choices “*in a context where this ability could not be exercised*” [11].

3.2.1.1 Access to the industrial cycle and the improvement of the selling price of the milk

“The repositioning of women in this dairy sector has favored a significant change in the dynamics of milk marketing by reintegrating them into this sector but also by allowing them to improve their financial well-being” [21]. It allowed them to integrate a market from which they are excluded and marginalized by giving them concrete means of earning a living in decent and fair conditions. Not only have they massively integrated this industrialized circuit, which reduces the burden of transport to the factory and sales in the markets, but it also allows them to have regular and greater income.

The results indeed show an improvement in women's income, which varies on average between 10,000 and 100,000 Franc CFA⁴ per month, with most beneficiaries earning more than 30,000 Franc CFA. These incomes are higher during the winter season when milk production is abundant.

The increase in the price of milk per liter by the LDB has further improved women's income. Indeed, in 2018, shortly after the Senegalese government announced the VAT exemption on pasteurized milk made from local milk and at the request of supplier breeders, the LDB increased the purchase price of milk. This saw an increase of 42%, going from 225 FCFA to 320 FCFA per liter. Note that this increase was carried out in anticipation of the official application not yet being in force [6].

By promoting their reintegration into the dairy sector, the ASSTEL project offers women the opportunity to actively participate in the formal labor market and benefit from fair and regular remuneration.

Note that although the LDB has taken a more capitalist orientation since its partnership with European multinationals, it finds its foundations in the “social business” approach, put forward by the Bangladeshi economist Muhammad Yunus, aiming to reconcile social impact and economic profitability.

3.2.1.2 Capacity building and financial support to increase women's access to economic opportunities

In addition to integration into the industrial dairy sector, the ASSTEL project has also set up training sessions to expand opportunities for women to diversify their

⁴ The CFA franc (Financial Community in Africa) is a common currency, the official currency of the eight member states of the West African Economic and Monetary Union (UEMOA), including Senegal. It is divided into one hundred cents. Its ISO 4217 code is XOF.

activities and improve their income, develop their knowledge and skills, and, consequently, their agency.

The results of the quantitative survey show that 96% of women in the experimental group, compared to 24% of the control group, benefited from training. However, it is the former that has benefited from a greater number and greater diversity of types of training. As shown in **Figure 2** below.

Among the women in the experimental group who received training as part of the ASSTEL project, 58% of beneficiaries benefited from at least three (3) training sessions, 2 for 30% of them. Better 8% have benefited from between 5 and 6 training courses. The cross-analysis of the data between the number of training courses followed and the position within the GPF reveals that it is mainly women leaders, presidents, secretaries and/or treasurers who have followed 5 to 6 training courses.

On the other hand, a significant percentage (86%) of women in the control group did not follow any training.

The types of training followed by the women beneficiaries of the experimental group are literacy, sheep fattening, saponification, market gardening and poultry techniques.

Indeed, in addition to the literacy sessions common to all beneficiaries, each GPF, depending on its needs, benefited from other types of specific training to diversify their activities and their sources of income.

Women in target groups also benefited from financing and the establishment of an endogenous savings and credit system with the support of ASSTEL. The project helped these GPFs to restructure into Village Savings and Credit Associations (VSLAs). These training courses allowed them to diversify their economic activities, increase their income, develop knowledge and their ability to act and strengthen their self-confidence.

3.2.1.3 Diversification of economic activities and higher incomes

In addition to advocacy and partnership to integrate women into the industrial milk chain, the Asstel project has set up a range of activities to support the socio-economic empowerment of women beneficiaries.

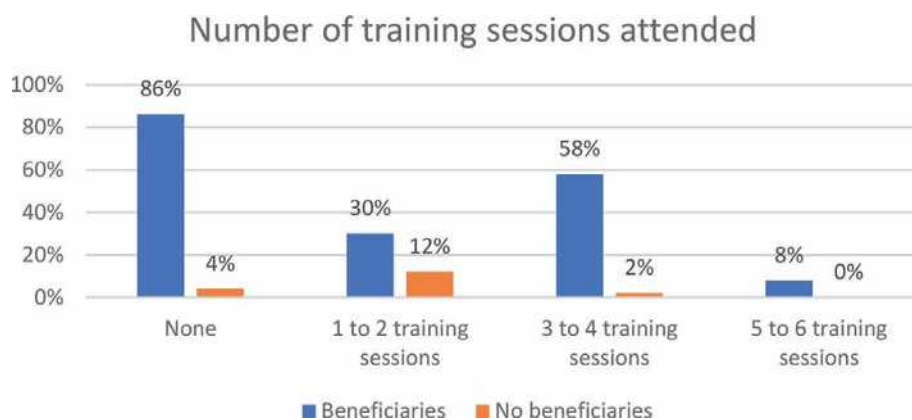


Figure 2. Number of training courses followed by group. Source: Author surveys, 2023.

These activities are combined with milk sales to further improve women’s access to economic opportunities and income.

In their work, Kabeer [22] and Chant [23] have shown how the diversification of income-generating activities is a powerful lever for women’s empowerment.

The quantitative survey revealed that most women in the experimental group had several income-generating activities, which they combined with selling milk to the LDB. The following **Table 3** compares the number of activities carried out by women in the experimental group with those in the control group.

51% of the women in the experimental group surveyed combine three (03) income-generating activities, selling milk at LDB, trading and fattening cattle or poultry. Better still, 26% of them combine four (04) activities, market gardening with the three mentioned above. Only 7% of female beneficiaries engage in just one economic activity, generally limited either to selling milk at the dairy or continuing with the traditional method. These activities enabled the beneficiaries to increase their monthly income.

Whereas the majority (79%) of women in the control group had no more than two activities, generally selling milk at the LDB and petty trading. It should be noted, however, that 10% of them combine three (03) activities, i.e., the above-mentioned combined with market gardening, generally.

The key role played by the ASSTEL project in the diversification of activities and sources of income by the women in the experimental group is also apparent from the qualitative survey. A woman in the experimental group said: *“It’s thanks to the ASSTEL project that I’ve been able to diversify my sources of income. Before that, I only sold milk. The money I saved in the AVEC fund enabled me to start trading. I also took a training course in cattle fattening and benefited from ASSTEL’s support to carry out this activity.”* (28 years old, Dagana, 2023).

This shows that, in addition to the funding and equipment provided by the ASSTEL project, the setting up of AVECs has helped the women in the experimental group to diversify their activities.

Similarly, the women in the groups who also received training in poultry farming, market gardening and fattening were provided with full equipment and funds to start up these activities.

The ASSTEL project also helped the women to set up Village Savings and Credit Associations (VSCAs), and provided them with follow-up coordinators, based on one for every 10 GPFs. For the duration of the project, the latter were responsible for helping the women to organize the collection of contributions and to share the money as each AVEC’s fund came to the end of its term.

In this sense, one of them declares:

“I was responsible for monitoring 10 groups; every week, I went out to meet the GPFs and check on the progress of contributions, the amount in the fund, and the status of

Status	Number of income-generating activities			
	1	2	3	4
Beneficiaries	7%	16%	51%	26%
No Beneficiaries	31%	59%	10%	0%

Source: Author’s survey, 2023.

Table 3.
Number of activities carried out by women, by group.

loans and repayments made. I distribute the accumulated funds myself at the time of the annual sharing. I have distributed funds of one million FCFA (1,000,000); two million FCFA (2,000,000) and even three million FCFA (3,000,000). Every year I've noticed a good evolution" (Dakar, 2023).

The combination of all these actions enabled the majority (52%) of women in the experimental group to significantly improve their incomes and make a greater contribution to meeting their families' needs. The following **Figure 3** shows the greater improvement in the income of beneficiaries compared with non-beneficiaries.

Analysis of the data reveals that most women in the experimental group (51%) earn between 50,000 and 75,000 FCFA. Most women in the control group (79%) had incomes of no more than 50,000 CFA francs. 11% of female beneficiaries have incomes of between 75,000 and 100,000 CFA francs per month. Better still, 4% earn more than 100,000 FCFA.

The increase in income made possible by the diversification of activities, and consequently sources of income, enables beneficiary women, plus non-beneficiaries, to contribute to meeting family expenses.

3.2.1.4 Women's contribution to family expenses

Contribution here summarizes the efforts women make to channel resources from their activities into the household to meet needs, such as consumer spending, health and education, and any other type of expenditure. It also refers to the satisfaction of their own needs, as well as savings and realizations from their activities.

In these households, where incomes are marked by great irregularity, those derived from women's activities play an important part in survival, access to basic social services and household well-being. Thus, contrary to popular belief, which places the entire burden of providing for the household on the man, the results of this research confirm the importance of women's contribution to the survival of these rural Fulani households, despite the constraints linked to their gendered status and role.

Table 4 below compares the expenditure items in which beneficiaries and non-beneficiaries reinvest their income.

The table shows that both beneficiaries and non-beneficiaries contribute significantly to meeting their families' needs. Similarly, there is little difference between

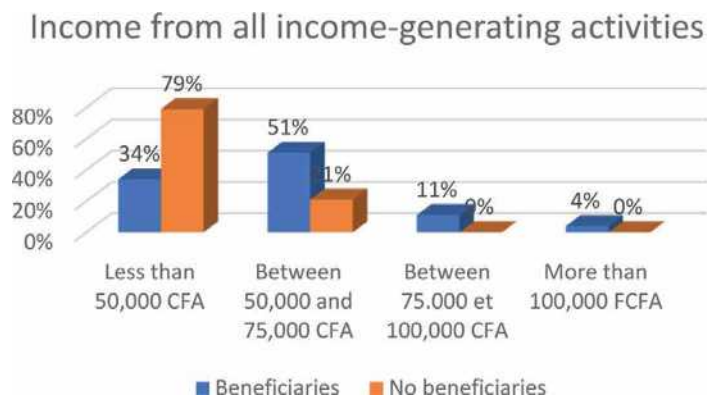


Figure 3. Comparison of income of beneficiaries and non-beneficiaries. Source: Authors' surveys, 2023.

Expense items	Beneficiaries	No. beneficiaries
School expenses for children	86,65%	85%
Food expenses	81%	67,38%
Income-generating activities (AGR)	88,33%	31%
My personal needs	67,87%	53,67%
Savings in the fund "AVEC"	100%	3,30%
Health care	66,66%	53%

Source: Authors' surveys, 2023.

Table 4.
Level of women's contribution by expense item per group.

beneficiaries and non-beneficiaries when it comes to reinvestment of income in education, at 86.65% and 85%, respectively.

However, in general, beneficiaries reinvest their income more in food needs, 81% versus 67.38% for non-beneficiaries; to further develop their IGAs, 88.33% versus 31%; and 66.66% versus 53% for health care for family members.

The literature [24] has already shown that women's income, particularly in rural and disadvantaged urban areas, has a greater impact on family food security than that of men.

But it's when it comes to savings that the difference in behavior between the experimental and control groups is most marked. For 100% of beneficiaries versus only 3.3% of non-beneficiaries claim to put part of their income into this endogenous savings and credit system. This difference can be explained both by the support provided to women in structuring AVEC and by the greater number of pluriactivity activities carried out by the beneficiaries, which enable them to have a higher income to be able to save, but above all to contribute more to meeting their family's needs.

The literature has shown how women's pluriactivity provides a safety valve for their activities and their families' livelihoods. Indeed, thanks to this practice, Senegalese rural and peri-urban women can diversify and increase their sources of income, thereby contributing more to their household members' access to food and social services [25].

Pluriactivity, which is well established among these women, is essentially a matter of individual career paths for women, and rarely for men, and constitutes a professional strategy that is part of a social context [26].

In addition to their economic and gender-specific dimensions, they also have a social dimension, insofar as they highlight women's know-how and organizational creativity in combining different activities.

In addition to saving through AVEC and making an economic contribution to family expenses, women beneficiaries, more so than non-beneficiaries, also reinvest their income in goods such as home furnishings, especially for their bedrooms, household electrical equipment, and, sometimes, in permanent construction. However, women invest more in personal goods and small equipment.

Another key finding shown by this table is the importance of satisfying personal needs for both beneficiaries and non-beneficiaries, although the percentage is higher among the former. In fact, 67.87% of female beneficiaries in the experimental group, versus 53.67% of non-beneficiaries in the control group, declared that they also used their income to satisfy their personal needs.

Although the satisfaction of family needs takes precedence in the use of income, women also give an important place to the satisfaction of their personal needs.

The fact that satisfying family needs takes precedence over satisfying their own can be explained by the socialization of sacrifice [27] in Senegalese women, and especially Fulani women, who are only valued for their dedication to the well-being of their loved ones. This devotion to their families fulfills a social function associated with their role as mothers.

3.2.2 From economic power to women's empowerment

Women's participation and empowerment in economic life help to strengthen their rights and capabilities, enabling them to exert influence within their families and, often, their communities.

3.2.2.1 Strengthening decision-making power

Although it is difficult to make a direct correlation between women's contribution to their family's livelihood and the strengthening of their agency, the results do reveal a link between these two dimensions for the women studied, particularly those in the experimental group (see **Table 5**).

The table shows that both beneficiaries and non-beneficiaries are involved in decision-making. Only 6% of the former and 22% of the latter claim not to be involved in decisions taken within their family. However, most female beneficiaries (55%) say they are consulted and play an active role in family decisions, compared with only 19% of non-beneficiaries. Similarly, most female beneficiaries (51%) claim to have little influence on decisions, compared with only 28% of beneficiaries in the experimental group.

The results are confirmed by the qualitative survey, which also shows a strengthening of self-esteem and a feeling of greater consideration on the part of those close to them. This is borne out by the words of a female beneficiary who, speaking of her husband, declares: *"It's normal that he considers me more, because when he needs financial help, I'm the first person he turns to."* (29 years old, Dagana, 2023).

Women's economic contribution to household livelihoods thus strengthens their agency and influence within the family. This is in line with the analysis made by the German sociologist Georg Simmel, who, in his work *Philosophy of Money*, demonstrates the "emancipatory virtues of money".

Status	Involvement in decision-making			
	I am not involved in the decisions	I make the decisions myself	I am consulted and I have an active role in decisions	I am sometimes consulted but do not really have any influence on decisions
No Beneficiaries	22%	8%	19%	51%
Beneficiaries	6%	11%	55%	28%

Source: Authors' surveys, 2023.

Table 5.
Involvement in decision-making by group.

According to Ibrahim and Alkire [10], the development of the ability to act is both the process of increasing agency and other capabilities and the result of this process. Analysis of the effects of stabilized and increased income, enabling them to contribute more to the satisfaction of household needs, shows that this situation has a positive effect on the process of strengthening the agency of women beneficiaries in the experimental group, more so than for non-beneficiaries.

Although it is sometimes difficult to establish a direct correlation, the relationship between women's contribution to family expenditure and their increased decision-making power is widely studied in the literature [11, 24, 28]. The authors find that when women's contribution to family expenditure increases, they are more likely to participate in decision-making within the family, particularly in the areas of children's education, family health and food, among others. This enhances their social status and their ability to influence family choices.

However, very few women—11% of beneficiaries and 8% of non-beneficiaries—claim to make independent decisions on family matters. A study of their socio-demographic characteristics shows that they are mainly women of advanced age, widowed or divorced, and therefore heads of household, or women whose husbands are present but ill and therefore unable to make decisions.

The low percentage of women reporting that they make decisions independently may be explained by the fact that, as gender relations are highly codified in the Fulani social context, men hold the ultimate power to make decisions on both family affairs and women's economic activities, as well as the income derived from them. Women have limited decision-making power, little control over the factors of production, even though they own a large proportion of the livestock [29], and relative autonomy in the use of household income.

Consequently, although the strengthening of their economic power and, consequently, the increase in their contribution to their family's livelihood offer an opportunity to reconfigure gender relations [30], the decision-making power of these women in the experimental group should not be overestimated, even if the effects of the project are undeniable.

This raises the question of whether the increased income generated by the project simply increases women's responsibility for household survival, especially as satisfying the needs of their loved ones takes precedence over their own. Women's greater share of the productive roles assigned to men is increasing, while unpaid reproductive activities remain unequally distributed within the household. Women are replacing men in their "male breadwinner" gender roles, while continuing to assume their own "caregiver" roles.

So, although the status of women beneficiaries in the experimental group has improved, access to economic opportunities and increased decision-making power do not significantly alter their place in the family hierarchy.

Consequently, rather than redefining gender power relations, this situation reveals a greater feminization of responsibilities within the domestic organization [31, 32], which contributes to maintaining the gender order.

In addition to reinforcing decision-making power, albeit to a limited extent, the results also point to a strengthening of self-esteem.

3.2.2.2 Development of self-esteem

Both beneficiaries and non-beneficiaries feel that their self-confidence has increased, as shown in the two **Figure 4** below.

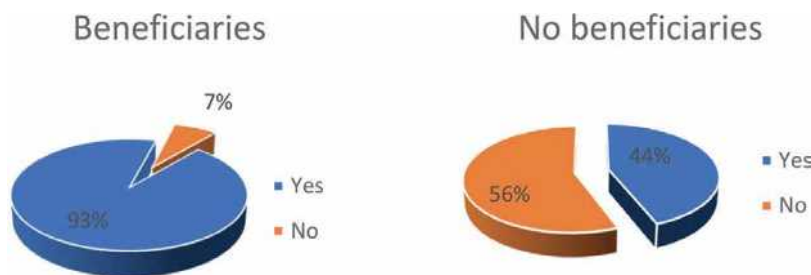


Figure 4. Appreciation of self-esteem enhancement by group. Source: Author's survey, 2023.

However, these results reveal a clear difference between beneficiaries and non-beneficiaries, even though they have all become “bidon leaders”, which has enabled them to generate a stable income. Indeed, most beneficiaries (92%) versus a minority of non-beneficiaries (44%) declare that their self-confidence has increased. This is in line with Kabeer’s analysis that women’s participation in economic activities influences their personal autonomy.

Thus, thanks to the stabilization and increase in income from the sale of milk, now marketed through the industrial circuit, the diversification of IGAs, enabling women beneficiaries to earn more; the increase in their contribution to their family’s livelihood and the strengthening of decision-making power “power to” induced by this situation, women beneficiaries, more than non-beneficiaries, have thus increased their “inner power”, which refers to self-confidence and self-esteem.

As a result, women’s increased income and bargaining power translate into greater investment in food, schooling and health, which is a source of long-term economic growth. At the same time, it strengthens their personality, which includes skills such as self-confidence. This strengthened self-confidence gives them a greater capacity to believe in their future and to consider further diversification and expansion of their activities. As evidenced by the words of this female beneficiary who plans to expand her business and declares “*I plan to stop selling my merchandise on a stall and open a store and increase my stock*” (Dagana, 2023).

This boost in self-confidence also encourages some of these women to consider playing a more active role in the management of their community’s affairs, particularly in politics. The results of the quantitative survey show that 65% of female beneficiaries claim to be more involved in community activities, compared with 27% of non-beneficiary women. What’s more, 22% of women in the first category, versus 2% of those in the second, claim to play a more active role as women leaders and influencers in community affairs.

It should be noted that the training sessions, particularly in literacy, contributed to boosting women’s self-esteem and their decisions to become more involved in the political affairs of their community. Indeed, 82% of female beneficiaries versus 8% of non-beneficiaries received training in the Fulani language, their mother tongue, to enable them to read and write. And as Reder and Morrow show, successful literacy is not just about being able to read a written text, but also about being able to understand the world around us, communicate effectively with others and participate actively in our society.

The results of the qualitative survey confirm the effect of literacy on personal development and civic awareness; as this woman puts it: “*Beyond learning to read and write, the trainer succeeded in raising our awareness effectively by awakening our*

conscience and encouraging us to adopt civic behavior. In particular, he encouraged us to take an interest in community affairs” (Beneficiary, 33, Dagana, 2023).

However, 7% of female beneficiaries stated that their self-esteem had not improved despite ASSTEL’s support. These are mainly women who combine fewer activities and earn less. They have a monthly income of less than 50,000 CFA francs, all activities combined.

Although their percentage is very low, compared with that of women who declare greater self-confidence, the situation of these women is a reminder of the “intersectional” nature of power and, in particular, the way in which different factors - linked to position within the GPF, family situation, size of the family herd, position in local social hierarchies, etc. - articulate, reinforce and create inequalities within groups of women, and thus differentiate their experiences and levels of empowerment. Feminist studies have already shown how institutionalized empowerment programs benefit less the least marginalized women and more the leaders within these women’s organizations.

4. Conclusion

The installation of the Laiterie du Berger initially disrupted the social organization of Fulani society in the Dagana department and contributed to the dispossession of women from their economic activities and sources of income. This situation requires us to question the social implications of such innovations to minimize their effects. The integration of women into this new industrial circuit of milk marketing, by considering the gender dynamics taking place in these societies, can constitute a lever for their socio-economic empowerment. The intervention of the ASSTEL project confirms this situation. The repositioning of women in this industrial dairy sector and especially the additional support it provided to women in the experimental group further promoted access to economic opportunities and resources for them. This support allowed them to increase their financial autonomy, to contribute more to covering their family’s expenses, and to exercise the power of action and decision-making. Strengthening their economic power strengthens their self-esteem and allows them to participate and contribute to the affairs of their community.

Compared to non-beneficiaries, beneficiaries have greater access to economic resources and opportunities, participate more in the financial management of the household and strengthen their social position within their family and community.

The pathway from strengthening women’s traditional role in the industrial milk collection circuit to their economic empowerment is influenced by several factors, including access to economic opportunities as “can bosses”, capacity building and access to financing that has made it possible to diversify their activities and sources of income, personal development and self-esteem, strengthening their capacity and power to act as well as access to an adapted savings and credit system to their needs and constraints, like VSLAs.

The bridge is thus made up of different interdependent elements, the strengthening of their economic power, the contribution to the livelihood of families, the development of agency and decision-making power as well as recognition from their loved ones.

However, we should not overestimate the impact of the integration of women in the industrial milk sector on gender relations in these localities of the Dagana department.

Likewise, economic empowerment is not limited to simply providing means to access the economic opportunities created by the implementation of the LDB. But it also aims to create a conducive environment where they can develop their skills and reach their full potential professionally.


So, although the women in the experimental group have seen their incomes rise and their contribution to meeting family needs has increased, it cannot be said that they have achieved empowerment. Empowerment is a broader process that also involves tackling structural inequalities and gender discrimination. To make such a process effective, projects must give women the levers to break down the root causes of structural gender inequalities and intersectional vulnerabilities.

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*Usha Iyer-Raniga,
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