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The Utopia of the Kenyan Labor Market: A Decomposition Analysis of Gender Pay Gaps and Occupational Segregation

Theses of the PhD Dissertation

Szeged, 2025

University of Szeged

Faculty of Economics and Business Administration

Doctoral School in Economics

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1. Background and Motivation

At the midpoint of the 2030 Agenda, global progress on the 17 Sustainable Development Goals [SDGs] is alarmingly off track. The 2024 SDGs Report[1] highlights that only 17% of the targets are on track, nearly half show minimal or moderate progress, and over a third have stalled or regressed. Among these challenges, gender inequality (SDG#5) in the labor market remains a persistent and formidable obstacle to sustainable development (World Bank, 2011; Barnat et al., 2020). From a global standpoint, the 2023 Global Gender Gap Report states that the Global Gender Gap Index stands at 68.4%, reflecting a mere 0.3 percentage point improvement from 2022 and leaving 31.6% of the gap unclosed. Although the Global Gender Gap has been decreasing over time, progress has been sluggish, with only a 4.1 percentage point increase in gender parity since 2006 (World Economic Forum [WEF], 2023). This worrying trend seems to reflect, albeit partially, the profound disproportionate impact of the COVID-19 pandemic on women's labor market outcomes, often referred to as the "*she-cession*," which severely disrupted women's labor market outcomes compared to men's (Alon et al., 2020; Dang & Nguyen, 2021; Alwago, 2023).

In the recent decades, efforts to address gender inequalities in the labor market have made progress, yet significant disparities persist globally. The gender pay gap—defined as differences in average gross earnings between men and women in the same job, occupation, and industry (Metcalf, 2009)—remains a pressing issue in both developed and developing economies (Blau & Kahn, 2017). As of 2023, women globally earn, on average, 14.1% less than men, a slight improvement from 17.5% in 2022 (WEF, 2023). This gap stem from factors such as differences in human capital traits, women's disproportionate unpaid care responsibilities, labor market discrimination, and individual preferences (UN Women, 2023b).

Classical economic accounts identifies two primary causes of gender pay discrimination. The first, *taste discrimination*, occurs when economic agents exhibit preferences for certain groups and employers are willing to incur costs to avoid hiring marginalized groups. The second, *statistical discrimination*, stems from imperfect information about workers' abilities. In this case, employers may associate gender, race, or ethnicity with productivity, leading to differential treatment (*see* Becker, 1957, 1964). Empirical studies seek to determine whether the gender pay gap stems from gender differences in observable factors, such as human capital (Firpo

[1] https://unstats.un.org/sdgs/report/2024/

et al., 2018; Borrowman & Klasen, 2020), and to what extent it remains unexplained after accounting for these characteristics. The *unexplained* portion serves as a proxy for potential earnings discrimination (Machado & Mata, 2005; Firpo et al., 2009, 2018), though it may also reflect other unobservable factors. While some studies attribute earnings inequality primarily to labor market discrimination against women (e.g., Ahmed & Maitra, 2010), others emphasize the role of women's significantly lower human capital endowments compared to men's (e.g., Lechmann & Schnabel, 2012; Tverdostup & Paas, 2017). And a growing body of evidence generally highlights that gender differences in occupational and industrial distribution significantly contribute to aggregate earnings differentials (e.g., Orraca et al., 2016; Ismail et al., 2017; Khitarishvili et al., 2018).

Studies in Sub-Saharan Africa [SSA], particularly in Kenya, consistently show that men earn higher wages than women. However, authors of studies on Kenya remain divided on whether the gender pay gap is driven primarily by the unexplained component or the explained component (Agesa et al., 2013; Abdiaziz & Kiiru, 2021; Omanyo, 2021). Moreover, most studies in the SSA region have focused on the gender pay gap at the conditional mean level, addressing unequal pay for equal work across the whole labor market (e.g., Kim, 2020). However, there has been limited exploration of the gender pay gap across the entire unconditional earnings distribution and within specific employment sectors in Kenya. Current evidence on the public-private sector gender pay gap in Kenya is primarily drawn from Omanyo (2021), using 2015/2016 data, and Agesa et al. (2009), using 2005/2006 data. While the gender pay disparity between formal and informal sectors is documented, the underlying causes remain unclear. Additionally, these studies (e.g., Kabubo-Mariara, 2003; Agesa et al., 2013; Abdiaziz & Kiiru, 2021) do not account for occupational segregation between men and women, assuming instead that occupational choices, status, and structures are exogenously determined. As well, they fail to examine the subtle patterns of the gender pay gap between highly educated and low-educated workers or across different age cohorts.

2. Actuality and Justification of the Study

Kenya's pursuit of equal rights, initiated in the early 1990s, has achieved remarkable progress. For a long time, Kenyan women faced societal and informal discrimination, limiting their full participation in the labor market. Since 2002, successive governments have implemented measures to foster gender equality and women's empowerment through a national legal

framework. A landmark development is the gender-transformative Constitution of Kenya 2010, which enshrines women's rights as human rights, encompassing dignity, economic, social, political, and cultural protections (Republic of Kenya, 2010). Precisely, the Employment Act 2007 officially prohibits workplace discrimination, while the Employment and Labor Relations Court Act and the Labor Institutions Act of 2007 are designed to promote gender neutrality in the labor market (Republic of Kenya, 2010). However, structural inequities rooted in socio-cultural norms, institutional inertia, and labor market segmentation continue to hinder gender parity.

Kenya's dualistic labor market structure—comprising a regulated formal sector (15.9% of total wage employment) and a huge informal sector (84.1% of total wage employment)—exhibits divergent wage-setting mechanisms. The formal sector employs structured frameworks such as collective bargaining agreements [CBAs] and statutory minimum wages, while the informal sector remains unregulated, relying on market-driven negotiations. Notably, CBAs cover only 24% of formal wage employees and 3.7% of total employment, with stark sectoral disparities: education and public administration account for 44% of covered workers, compared to 3.5% in manufacturing (Kenya National Bureau Statistics [KNBS] *Economic Survey*, 2023). This imbalance reflects institutional gaps in enforcing labor rights, particularly in male-dominated industries like manufacturing, where unionization is fragmented.

The public sector, governed by administrative pay grades and the Salaries and Remuneration Commission [SRC], has marginally better gender parity in managerial roles (49.6% women in senior/middle management). However, overlapping mandates between the SRC and county governments create jurisdictional conflicts, undermining cohesive wage determination (KIPPRA, 2018). Conversely, the private formal sector ties wages to productivity and market dynamics, which often disadvantage women due to occupational clustering in low-productivity roles (e.g., 66.2% of women in household employment). These sectoral dynamics justify the thesis's focus on comparing GPG trends across sectors (formal and informal), as structural inequities in wage governance and enforcement mechanisms likely exacerbate disparities in the informal sector.

Kenya's pronounced youth bulge—with individuals aged 15–34 constituting 35% of the population and 80% under 35—presents both opportunities and challenges for equitable labor market outcomes. The country's demographic transition, marked by a declining age dependency

ratio (69% in 2022), signals potential for a demographic dividend, yet systemic barriers persist, particularly for young women. Annual labor market entries exceed 800,000 youth, but only 15% secure stable employment, with most relegated to informal, low-wage roles lacking social protection. This structural mismatch is compounded by a 20% NEET rate (24% for women vs. 15% for men), reflecting gendered disparities exacerbated by caregiving responsibilities and cultural norms. Thus, analyzing GPG across age cohorts (15–34 years vs 35+) is critical to unravelling how human capital elements—such as education, vocational training, and sectoral participation—differentially influence earnings over the life course. Younger cohorts, despite policy-driven gains in educational access, face overqualification in informal sectors and systemic biases in male-dominated industries, while older workers contend with entrenched occupational segregation, motherhood penalties, social expectations, and structural barriers.

Kenyan government rolled out a 100 percent transition policy, alongside free primary education in 2003 and free day secondary education in 2008, to increase girls' and women's enrollment in secondary and higher education. This initiative was intended to ensure girls' enrollment and completion of education, particularly in rural, semi-arid, and informal urban areas. As a result, the transition rate from primary to secondary school rose from 83.3 percent in 2018 to 95 percent by early 2020 (KNBS, *Kenya Economic Survey*, 2021). Affirmative actions and gender mainstreaming in education have led to increased female enrollment at primary, secondary, university, and TVET institutions. Now, more women are enrolling in STEM courses (Commission for University Education, 2018). While women's educational attainment has improved—with female net enrollment rates surpassing males at secondary levels—returns to education remain gendered. Highly educated women are underrepresentation in high-productivity sectors (e.g., 17.2% in electrical jobs) despite constituting 50% of managerial positions (KLMP, 2024; World Bank, 2025). Conversely, low-educated women are trapped in informal, low-wage roles (86% informal employment rate), with 24% of women aged 15–24 neither employed nor in training (KLMP, 2024). This bifurcation aligns with the thesis focus, positing that educational stratification perpetuates hierarchical gender pay gaps and occupational sorting—shaped by systemic biases—accounts for significant earnings differentials.

More than a decade after the promulgation of the 2010 Constitution, prohibiting gender discrimination, Kenyan women continue to experience unequal pay in the labor market. Despite

progress in women's economic participation, employment, and educational attainment, the interplay of Kenya's labor market structures, socio-cultural dynamics, and institutional frameworks creates a complex landscape where gender pay gaps persist. This thesis contributes to the expanding discourse on gender pay gaps by engaging with contemporary research on labor market inequalities in SSA, including seminal works by scholars such as Nordman et al. (2016), Kim (2020), and Danquah et al. (2021). Focusing on Kenya, I seek to illuminate the structural and institutional mechanisms underlying gender pay gaps by analyzing disparities across Kenya's formal (public and private) and informal sectors, as well as within distinct age cohorts. I further evaluates how educational attainment influences these inequities and examines the role of occupational and industrial segregation in perpetuating gendered earnings differentials. While building on foundational studies in Kenya by Kabubo-Mariara (2003), Agesa et al. (2009, 2013), Abdiaziz and Kiiru (2021), and Omanyo (2021), this thesis addresses critical gaps in Kenya's empirical literature, which often overlooks the interplay of sectoral dynamics, demographic heterogeneity, and systemic segregation.

While acknowledging the contributions of existing studies, I introduce four critical yet often overlooked dimensions of analysis. First, I examine the baseline determinants of earnings between men and women by employment sectors and age cohorts. To account for the potential double-sample selectivity bias—arising from the non-random nature of employment and sectoral choices by men and women—I employ the Mincer OLS model alongside the Heckman two-step model and the BFG model (Bourguignon et al., 2007).

Second, I examine the gender pay gaps between Kenya's formal (public and private) and informal sectors and across distinct age cohorts. Here, I argue that the choice to work in either sector is an endogenous process determined by prior factors. To analyze the conditional mean gender pay gap, I employ the standard Oaxaca decomposition and its variants. And to decompose the gender pay gap into composition effects (differences in characteristics) and wage structure effects (differences in returns to characteristics) across the unconditional earnings distribution by sector of employment and age cohorts, I use the reweighted Oaxaca-RIF decomposition (Firpo et al., 2009, 2018), accounting for endogeneity. This approach allows me to assess the partial contribution of each covariate to both wage structure and composition effects, and thereby identify

the covariates with the most significant impact on the size of the gender pay gap across the unconditional earnings distribution.

Third, I investigate whether highly educated women confront a significant *glass ceiling* effect, while low-educated women experience a *sticky floor* effect. To my knowledge, no prior empirical studies have decomposed the gender pay gap by education stratification in Kenya. Using the Machado and Mata (2005) procedure, I decompose counterfactual and observed gender pay gaps at various deciles of the earnings distribution into components attributable to differences in characteristics and returns to productivity-related characteristics.

Fourth, I construct a dissimilarity index to objectively measure differences in occupational and sectoral structures/distribution between men and women. Next, I treat occupational and industrial structures of workers as endogenous processes, using observable characteristics of men and women to model occupation selection. This allows me to simulate a predicted occupational distribution for female workers, assuming they face the same occupational choices as their male counterparts i.e., I calculate a female predicted distribution using actual female characteristics and the actual male coefficient estimates. Afterwards, I analyze the distinct effects of *intra*— and *inter*—occupational gender differences by applying the BMZ decomposition technique to assess the impact of occupational segregation on the gender pay gap.

3. Objectives, Questions and Hypotheses of the Study

This thesis comprises three interconnected studies: (1) the gender pay gap across employment sectors and age cohorts; (2) the gender pay gap by education stratification; and (3) the role of occupational and industrial segregation in Kenya's gender pay gap. The unifying theme across all the chapters is the exploration of the underlying causes of gender pay disparities, grounded in human capital theory and labor market segmentation and discrimination theories.

The thesis focuses on the following specific research objectives:

i. To examine the sources and magnitude of the gender pay gaps in Kenya's formal (public and private) and informal sectors and across different age cohorts.
ii. To assess whether highly educated women confront a significant *glass ceiling* effect, while low-educated women experience a *sticky floor* effect.

iii. To evaluate the role of occupational and industrial segregation in driving gender pay differentials in Kenya.

In line with these specific objectives, the thesis seeks to address the following leading research questions:

1) Is the public sector more financially rewarding? Is gender pay discrimination distinct across age cohorts and between formal and informal sectors, given that sectoral choice is typically a predetermined endogenous process?
2) How does the GPG manifest itself across the earnings distribution for low-educated and highly educated workers? To what extent do disparities in observable characteristics versus discriminatory returns to these traits drive the GPG by education stratification?
3) What is the extent of divergence in occupational, industrial, and sectoral structures between men and women in Kenya? To what extent do gender differences in occupational and industrial structures contribute to the earnings disadvantage faced by women?

Accordingly, to address these research questions, I formulated the following hypotheses:

- $\boldsymbol{H_1}$: The gender pay gap can primarily be explained by the human capital elements, with significant varying effects across employment sectors and age cohorts.
- $\boldsymbol{H_2}$: Highly educated women confront a significant glass ceiling effect, while low-educated women experience a sticky floor effect.
- $\boldsymbol{H_3}$: Occupational status and structures of men and women significantly accounts for the gender pay gap.

4. Empirical Strategy

For earnings decomposition, I begin with Mincer's (1974) theoretical framework, which estimates earnings based on individuals' productivity-related characteristics and control variables for firm-specific attributes. The Mincer semi-logarithmic earnings equation for individual i can be expressed as follows:

$$lnW_i = \beta 0 + \beta_i X_i + \varepsilon_i, \quad (1).$$

where

- lnW_i is the natural logarithm of earnings of individual i (observed only for waged workers),
- X_i represents the vector of observable characteristics including job characteristics and human capital elements (e.g., education, age, potential work experience, household head, marital status, employment sectors, occupations, industry, urban/rural location, etc.)
- β_i is the coefficient of each of the individual characteristics X,
- α_i is the coefficient of the firm- specific control variables, and
- ε_i is the stochastic term which has zero expected value.

To analyze the first and second objectives, I estimate the gender pay gap and its sources at different percentiles of the earnings distribution, moving beyond the mean (Chernozhukov et al., 2013; Firpo et al., 2007, 2009, 2018). Next, I use a reweighting method to address the parametric limitations of the standard Oaxaca-Blinder decomposition (Firpo et al., 2007). Then, I normalize the coefficients of categorical variables to avoid issues arising from omitted reference groups (Gardeazabal & Ugidos, 2004; Yun, 2005). Lastly, I use the reweighted Oaxaca-RIF decomposition (Firpo et al., 2018) to analyze the gender earnings gap across the entire distribution. This method relies on unconditional quantile regression, and it is implemented in two stages. First, a counterfactual distribution is created through a reweighting procedure to decompose the earnings gap into aggregate composition effects (differences in characteristics) and aggregate wage structure effects (differences in returns to characteristics). Second, the contribution of each explanatory variable to these effects is assessed using a detailed reweighted Oaxaca-RIF decomposition (Firpo et al., 2009, 2018; Rios-Avila, 2020).

Next, OLS regressions of the corresponding RIF on observed characteristics are estimated for males, females, and the counterfactual. The overall decomposition at the τth quantile can be expressed as:

$$\hat{q}_\tau(W_m) - \hat{q}_\tau(W_f) = \{\bar{X}_f(\hat{\beta}_c - \hat{\beta}_f) + \hat{R}_\tau^S\} + \{(\overline{X}_m\hat{\beta}_m - \bar{X}_f\hat{\beta}_f) + \hat{R}_\tau^c\}, \quad (2).$$

where $\hat{q}_\tau(W_m) - \hat{q}_\tau(W_f)$ represents the gender pay gap at the τth quantile, while $\bar{X}_f$ and $\bar{X}_m$ are the average covariates for female and male workers, respectively. The coefficient $\hat{\beta}_c$ represents the counterfactual coefficient, assuming female workers have the same distribution of characteristics as males. The gap $(\hat{\beta}_c - \hat{\beta}_f)$ measures the male and female differences in returns to productivity-related characteristics, while $\bar{X}_f(\hat{\beta}_c - \hat{\beta}_f)$ captures the wage structure effect, reflecting differences in returns to productivity-related characteristics while $(\overline{X}_m\hat{\beta}_m - \bar{X}_f\hat{\beta}_f)$ represents the composition effect, capturing differences in labor market characteristics. The magnitudes $\hat{R}_\tau^S$ and $\hat{R}_\tau^c$ are approximation errors for the wage structure and composition effects, respectively (Firpo et al., 2009, 2018),

The counterfactual coefficient $\hat{\beta}_c$ assumes female workers have the same returns to characteristics as males. Regarding wage structure effects, when $\hat{\beta}_c > \hat{\beta}_f$, it suggests there is a positive wage structure effect, indicating potential discrimination against women. Conversely, when $\hat{\beta}_f > \hat{\beta}_c$, it implies a negative wage structure effect. For dummy variables, the estimates show contributions relative to the base group. The composition effects, $(\overline{X}_m\hat{\beta}_m - \bar{X}_f\hat{\beta}_c)$, captures gender differences in productivity endowments, assuming equal returns for both genders.

To analyze the third thesis objective, I adopt the BMZ decomposition framework, which treats occupational choice as endogenous and decomposes the gender pay gap into *inter—occupation* and *intra—occupation* gender differentials. The BMZ framework further breaks down these components into differences in observable productivity characteristics, and differences in estimated coefficients. The *inter—occupation* component estimates the impact of occupational segregation on the gender pay gap (Ismail et al., 2017; Khitarishvili et al., 2018). Hence, the BMZ decomposition can be expressed as follows:

$$\overline{lnW}^m - \overline{lnW}^f = \sum_{j=1}^{J} P_j^f \hat{\beta}_j^m (\bar{X}_j^m - \bar{X}_j^f) + \sum_{j=1}^{J} P_j^f \bar{X}_j^f \left(\hat{\beta}_j^m - \hat{\beta}_j^f\right) + \sum_{j=1}^{J} \hat{\beta}_j^m \bar{X}_j^m (P_j^m - \hat{P}_j^f) + \sum_{j=1}^{J} \hat{\beta}_j^m \bar{X}_j^m \left(\hat{P}_j^f - P_j^f\right), \quad (3).$$

where lnW_{ij} is the natural logarithm of earnings for individual i in occupation $j = 1,2,3 \ldots \ldots J$, X_{ij} represent the individual's characteristics, β_j is the vector of earnings coefficients for occupation j. P_j^m and P_j^f are the proportions of male and female workers in occupation j, respectively. The term $\hat{P}_j^f$ is the hypothetical proportion of women in occupation j, assuming they had the same predefined occupational structure or choice as men. The predicted occupational distribution $\hat{P}_j^f$ is derived using female characteristics and male occupational attainment as the benchmark for nondiscriminatory norms. The difference between the actual male distribution P_j^m and the predicted female distribution $\hat{P}_j^f$ reflects nondiscriminatory differences in productivity-related characteristics (Sung et al., 2001).

The first term, *intra—occupation* explained component, reflects wage differences arising from gender disparities in average productivity characteristics within the same occupations. The second term, *intra—occupation* unexplained component, captures the wage effects of vertical or hierarchical occupational segregation within occupations, highlighting unexplained differences in occupational distributions or unobserved factors that influence the representation of certain groups in higher-paying roles (Salardi, 2013). The third term, *inter—occupation* explained, accounts for pay differentials resulting from variations in the gender distribution/shares/proportions across different occupations. Lastly, the fourth term, *inter—occupation* unexplained, represents the wage effects of horizontal occupational segregation between occupations, and it provides insights into unequal access to various occupations for men and women (Liu et al., 2004).

5. Data Description

This thesis utilized data taken from the 2021 Kenya Continuous Household Survey [KCHS-2021]**,** conducted by the Kenya National Bureau of Statistics. The KCHS-2021 is a nationally representative survey covering 17,042 households and 68,677 individuals across national, county, urban, and rural levels. The sample is restricted to waged employees aged 15 to

65 years, aligning with Kenya's working age range. The lower age limit reflects the Employment Act of 2007, which prohibits child labor under 15, while the upper limit corresponds to the mandatory retirement age. After applying these restrictions, the analysis focuses on a sample of 6,653 employed workers. Within the restricted sample, the youth, defined as individuals aged between 15-34 years are 3,414 (2,142 men, 1,272 women) while older workers (aged 35–65 years) are 3,239 individuals (2,068 men and 1,171 women). The sample is further categorized by employment sector, namely a formal sector which comprises a public sector consisting of 1,229 wage employees and private sector consisting of 747 wage employees. The informal sector consists of 4,677 wage employees.

A key consideration in analyzing the gender pay gap by educational levels is to determine the appropriate educational thresholds for categorizing the sample. In Kenya's education system, low-educated individuals are defined as those with a compulsory basic education, while highly educated individuals are those with a higher college diploma, bachelor's degree, or postgraduate qualification. Using the KCHS-2021 dataset, I generated a dummy variable to distinguish between individuals with a university degree (ISCED 5–7) as highly educated and those without as low educated. Based on this categorization, the sample for the second objective includes 1,500 highly educated workers and 5,153 low-educated workers.

For the third objective, I utilized the full sample of 6,653 workers, classified into nine occupational groups as per the Kenya Standard Classification of Occupations (KeSCO-2022, State Department for Labor and Skills Development). Next, the full sample is further divided into 2,903 urban workers and 3,750 rural workers. Sampling weights are applied in the analysis, resulting in a weighted sample size of 5,402,634, comprising 3,459,173 male employees and 1,943,461 female employees.

6. Summary of Key Study Findings

In this thesis booklet, the summary of each study's objectives key findings, and hypothesis testing are presented. In Chapter Five, the findings tell us that women generally experience less favorable employment outcomes than men, with lower overall employment rates for women. The descriptive findings reveal significant gender disparities in Kenya's labor market, shaped by employment sectors, education, and structural inequalities. Women face lower employment rates (73.56% vs. 80.40% for men) and they are disproportionately engaged in unpaid home labor

(12.44% of women), reflecting entrenched gender roles. Wage employment is dominated by the informal sector (73.1% of men and 65.1% of women), with men more likely to secure formal roles in public or private sectors. While women show higher educational attainment at advanced levels, a persistent gap favors men with bachelor's degrees, especially among younger cohorts. Occupational segregation is stark: highly educated women are more likely to hold professional roles (61% vs. 44% of men), but low-educated individuals—especially women—are relegated to low-skilled jobs. Moreover, women earn 89.1% of men's unadjusted average wages, with gaps widening in the private informal sector (71.9% of men's earnings) and among low-educated workers (42.4%). The unadjusted pay gap follows distinct patterns: a U-shaped curve for low-educated workers and an inverted U-shape for highly educated workers.

In Chapter Six, the sources and extent of the gender pay gap in Kenya's formal (public and private) and informal sectors, as well as across different age groups were investigated. At the conditional mean level, the GPG in Kenya is starkest in the informal sector, where women earn 41.8% less than men, compared to a 6.4% gap in the public sector, and 8.3% in private formal sector. This disparity underscores the role of informality, which accounts for 81% of non-agricultural employment and 97% of agricultural work. Women in informal sectors—such as agriculture, domestic work, and petty trade—face a "*sticky floor*" effect, trapped in low-productivity jobs with minimal social protection. Weak enforcement of labor laws, under-resourced labor inspectors (1 per 147,000 workers), and limited unionization (14% in Export Processing Zones) exacerbate structural discrimination. In contrast, the public sector's relatively lower GPG reflects institutional efforts to promote gender parity through standardized pay scales and affirmative action in recruitment. However, biases persist at higher deciles, where male-dominated political appointments for managerial roles perpetuate inequality.

The GPG widens with age, peaking at 16.6% for older workers (35+ years) compared to 9.5% for younger cohorts (15–34 years). For older women, cumulative disadvantages—such as occupational segregation into informal caregiving or subsistence farming and unequal returns to experience—drive this gap. Younger women, while facing a narrower GPG, confront emerging barriers like gig economy precarity and skills mismatches. Notably, 20% of Kenyan youth are NEET (not in education, employment, or training), with women disproportionately hindered by childcare responsibilities and limited access to vocational training.

In the main, the wage structural effect—systemic undervaluation of women's productivity—dominates the GPG, accounting for 70.1% to 113.4% of the gap at the aggregate mean. In the private formal sector, structural biases are pronounced at the lower deciles (50.2%), driven by cyclical wage discrimination and employer discretion. Conversely, the private informal sector's structural effect peaks at higher deciles (46.2%), reflecting unregulated working hours and the absence of collective bargaining. For older workers (35+ years), structural biases dominate, stemming from cumulative discrimination, where older women face unequal returns to potential experience and occupational segregation into low-paying roles such as informal caregiving or subsistence farming, compounded by limited retraining opportunities. In contrast, younger workers (15–34 years) experience structural effects most acutely at the lower deciles of the earnings distribution, driven by emerging labor market challenges like gig economy precarity and skills mismatches.

Education, while reducing the GPG through composition effects (−13%), is undermined by structural undervaluation. For instance, in the private informal sector, gender differences in educational attainment widen the gap by 3.2% at the bottom decile, as men's higher educational endowments are disproportionately rewarded. And while education reduces the GPG through composition effects for both cohorts, its impact is undermined by structural biases, particularly in the informal sector, where men's educational advantages are disproportionately rewarded. These dynamics highlight how age intersects with systemic wage-setting inequities to perpetuate Kenya's gender pay disparities. Kenya's labor market is characterized by weak alignment between education and labor needs. Women constitute 50% of tertiary graduates but remain overrepresented in low-growth sectors like agriculture, where credentials hold little value. TVET programs, though enrolling 643,000 students in 2023, offer only 500–600 annual apprenticeships, limiting pathways to formal employment. Thus, as Kenya continues to pursue foreign investment, particularly in EPZs, it prioritizes cost-cutting over equitable practices, relegating women to low-skilled roles in apparel manufacturing. Therefore, the persistence of Kenya's GPG is not merely a statistical artifact but a reflection of systemic failures.

In Chapter Seven, I analyzed the gender pay gap across different education strata's in Kenya. The gender pay gap in Kenya's labor market manifests itself distinctly across education levels, shaped by systemic undervaluation of women's productivity and entrenched institutional

inequities. The findings revealed that low-educated women face severe earnings penalties, with losses relative to men ranging from 25% to 66.7%. The GPG peaks in median quantiles, driven primarily by structural effects—systemic undervaluation of their productivity characteristics. Even when possessing comparable skills to men, their concentration in Kenya's informal economy (81% of non-agricultural employment) traps them in low-productivity sectors like retail, domestic work, and small-scale agriculture. Here, informal roles lack standardized wages, union representation (only 3.7% coverage), and labor protections, exacerbating discrimination. The TVET programs, though expanding, fail to bridge these gaps due to fragmented curricula and limited industry linkages. Despite reforms, theoretical training dominates, leaving women—86% of informal workers—ill-equipped for upward mobility. Counterfactual decomposition showed that remunerating low-educated women's characteristics at male rates could reduce disparities, but weak labor inspection and informality make this potential solution currently unrealizable.

Highly educated women encounter a pronounced *glass ceiling*, with unexplained pay gaps peaking at the 70th percentile of the earnings distribution. Despite constituting 50% of managerial positions, vertical occupational segregation persists in formal sectors like education and public administration, where cultural biases and discriminatory promotion practices hinder advancement. Even with identical qualifications, women face earnings penalties of 8.3–28.9%, most evident at the top quantiles. Kenya's digital economy typically illustrates these challenges. While sectors like ICT offer opportunities, women in platform-based roles are often classified as independent contractors, excluded from labor protections. Algorithmic management and precarious contracts in the gig economy exacerbate wage discrimination, underscoring the disconnect between advanced skills and equitable remuneration.

While low-educated women face entrenched *sticky floors* exacerbated by informality and age-related precarity, highly educated women confront escalating *glass ceilings* in both formal and informal sectors. Kenya's labor market institutions perpetuate these disparities. Weak enforcement of progressive laws—such as low maternity leave coverage (6.3%) and negligible paternity leave uptake—reinforces gendered care burdens. The brain drain in critical sectors like healthcare intensifies competition, enabling discriminatory practices. For highly educated women, inconsistent adherence to collective bargaining agreements (e.g., 44% coverage in education) fails to counteract biases in wage negotiations.

In Chapter Eight, the thesis explored the role of occupational and industrial segregation in driving gender pay disparities in Kenya, emphasizing that occupational choices and structures are endogenously determined rather than exogenous. The results of the Duncan dissimilarity index revealed that achieving gender-equitable employment distribution would require approximately 37% of women (men) to change occupations, 9% to shift sectors, and 30% to switch industries. These findings underscore the significant role of structural segregation in perpetuating gender pay differentials.

Moreover, the gender pay gap in Kenya exhibits stark disparities between rural and urban areas, shaped by structural inequities and systemic undervaluation of women's labor. The decomposition results revealed a rural GPG of 27.9% compared to a significantly smaller urban gap of 2.9%. This divergence underscores the interplay of occupational segregation, informal employment, and institutional weaknesses in Kenya's labor market. Rural Kenya's GPG is driven by pervasive informality. Women are disproportionately concentrated in low-paying sectors like subsistence farming and elementary occupations, where wages are unregulated and labor protections virtually absent. The result means that while addressing observable productivity characteristics (e.g., education, experience) could theoretically eliminate 306% of the rural GPG, the overwhelming "unexplained" component (403%) reflects entrenched earnings discrimination and vertical segregation. In other words, if women's average productivity traits were equally rewarded like their male counterparts, the gender pay gap would be eliminated. However, the gap widens when considering the returns to these observable characteristics and the occupational distribution of men and women, accounting for 403% of the total GPG in rural areas. This highlights the systemic undervaluation of women's productivity in Kenya's rural labor market. For instance, rural women face unequal returns to their characteristics, compounded by weak unionization and under-resourced labor inspections (1 inspector per 147,000 workers). Climate-induced displacement exacerbates these challenges, as 2.4 million Kenyans have been displaced since 2008—many of them females—enter informal work with heightened exploitation risks.

Urban regions exhibit a smaller GPG (2.9%) but reveal persistent vertical segregation within occupations. Women in urban areas seem to exhibit superior productivity-related characteristics within and across occupations. Observable factors reduce the GPG more significantly in rural areas (-306%) than in urban regions (-136%). In contrast, the impact of returns

to these factors, occupational structures, and discriminatory practices is less pronounced in urban areas (225%) compared to rural areas (403%). Urban areas showed a negative *inter-occupation* unexplained component, indicating fewer barriers for women accessing higher-paying jobs. However, the positive *intra-occupation* unexplained component in both regions pointed to wage structural effects and vertical occupational segregation as key drivers of pay disparities. Women in sectors like education and healthcare earn less than men despite comparable representation, reflecting *intra-occupation* discrimination. While urban women are concentrated in better-remunerated occupations (evidenced by a negative *inter-occupation* unexplained component), they likely face vertical occupational barriers in high-paying roles like STEM fields.

Based on the rural-urban findings, Kenya's labor market dynamics are marked by legislative inadequacies and enforcement failures. Despite progressive policies like the 2010 Constitution and ratified ILO conventions, weak enforcement of anti-discrimination laws and limited social protections perpetuate inequities. Rural women, for example, earn below gazetted minimum wages in agriculture (KSh 10,107 monthly in 2022) with rural-urban migration exposing women to precarious contracts, aligning with the finding that systemic barriers negate women's theoretical earnings advantages.

7. Conclusions

In this thesis, I investigated the sources and magnitude of the gender pay gap in Kenya's formal (public and private) and informal sectors, as well as across different age cohorts. And I assessed whether highly educated women confront a significant "*glass ceiling*" effect while low-educated women experience a "*sticky floor*" effect. Then, by accounting for differences in occupational and industrial structures and distributions between men and women, I evaluated the role of occupational and industrial segregation in driving gender pay disparities in Kenya. Drawing on the findings and discussions presented, I concluded by addressing the relevant research objectives and hypotheses, providing insights into the systemic and structural factors underpinning the GPG in Kenya's labor market.

Regarding the first hypothesis, this thesis examined whether earnings disparities between men and women in Kenya align with the human capital model and how these dynamics vary across sectors and age cohorts. The findings confirmed that women earn significantly less than men, with the gender pay gap most pronounced in the informal sector—particularly the informal economy,

where women earn 41.8% less than men—compared to a narrower 6.4% gap in the public sector and 8.3% in the private formal sector. While the formal sector demonstrates relative progress through standardized pay scales and affirmative action, systemic undervaluation of women's productivity persists, driven by structural inequities and discriminatory practices. Age further stratifies the gender pay gap: Older workers (35+ years) experience a gap of 16.6%, nearly double that of younger cohorts (9.5 percentage). Older women, despite accumulating better productivity characteristics over time, face cumulative discrimination, including occupational segregation into informal caregiving and unequal returns to experience. Younger women, though encountering a narrower gap, grapple with emerging barriers like gig economy precarity and skills mismatches, compounded by childcare responsibilities and limited access to vocational training. Sadly, 20% of Kenyan youth are "NEET", with women disproportionately affected.

The human capital elements mostly explains these disparities. Education, a key component, reduces the gender pay gap via composition effects, as women increasingly match or surpass men in educational attainment due to government-led gender equity initiatives. However, these gains are undermined by wage structural effects—discriminatory returns to productivity traits—which dominate the gender pay gap, accounting for 70.1% to 113.4% of the aggregate gap. This highlights the systemic undervaluation of women's productivity traits and observable qualifications, aligning with labor market discrimination theories—statistical and taste-based discrimination—and the enduring influence of occupational segregation in perpetuating pay disparities.

While wage structural effects are more pronounced in the informal sector, their significant presence in the public sector underscores institutional biases favoring men, particularly in senior leadership roles often tied to political appointments that predominantly benefit male employees. In the informal sector, women face a "*sticky floor*" trapped in low-productivity roles like agriculture and domestic work with minimal social protections. Weak enforcement of labor laws, under-resourced labor inspections, and limited unionization exacerbate these challenges. Conversely, the public sector's institutional frameworks mitigate some disparities but fail to address biases in top managerial roles, often reserved for men through political appointments and structural factors. Furthermore, in the private formal sector, structural biases at lower deciles reflect employer discretion and cyclical wage discrimination. In contrast, the informal sector's

structural effects peak at higher deciles, highlighting unregulated working conditions and absent collective bargaining. Moreover, demographic factors—such as marital status and regional disparities—and job-related attributes like firm size and union affiliation further entrench gender inequities in Kenya's labor market.

The thesis concluded by stating that addressing Kenya's gender pay gap across sectors of employment and age cohorts necessitates a multifaceted approach to dismantle systemic barriers. Critical measures include formalizing informal employment sectors, rigorously enforcing labor laws, and expanding social protections such as NSSF coverage. Aligning TVET programs with labor market demands and implementing regulations to ensure fair practices in the gig economy can mitigate emerging inequalities. While the formal sector serves as a model through unionization and standardized pay structures, equitable wage policies must be uniformly adopted across all sectors, including informal economy. Ultimately, bridging the GPG requires comprehensive reforms that translate women's productivity into equitable remuneration, fostering a labor market grounded in fairness and inclusivity.

Regarding the hypothesis that highly educated women in Kenya confront a significant "*glass ceiling"* effect, while low-educated women experience a "*sticky floor"* effect, the results support this hypothesis. The findings underscore how structural inequities in labor markets interact with educational attainment to shape gendered earning trajectories. For low-educated women, the gender pay gap is most pronounced in the lower to median quantiles of the earnings distribution, potentially driven by horizontal occupational segregation and concentration in low-productivity informal roles such as domestic work and small-scale agriculture. The "*sticky floor*" effect is evident at lower quantiles, where women face significant earnings penalties despite possessing comparable productivity traits to men. Counterfactual analysis revealed that if low-educated women retained their characteristics but were remunerated at male rates, the GPG would decline. However, weak enforcement of labor laws, limited unionization, and fragmented TVET programs—which fail to align skills with market demands—erode these potential gains. Notably, the narrowing GPG at the top quantiles among low-educated workers aligns with Kenya's minimum wage policies, suggesting unionized roles offer some protection, albeit insufficient to overcome systemic undervaluation.

Highly educated women, conversely, confront a pronounced "*glass ceiling*" effect, with the GPG widening at higher quantiles. Potentially, vertical occupational segregation within formal sectors like education and public administration limits their access to leadership roles, despite constituting 50% of managerial positions. Remarkably, 70% of this gap stems from unexplained factors—discriminatory returns to qualifications and biased promotion practices—highlighting institutional failures. Even in Kenya's burgeoning digital economy, platform-based jobs (e.g., ICT and gig work) classify women as independent contractors, denying them labor protections and perpetuating opaque pay structures. Counterfactual scenarios showed that remunerating highly educated women at male rates would invert the GPG at upper quantiles, favoring women, but systemic barriers would still persist. The intersection of age, education, and sectoral stratification further reveals the complex nature of Kenya's GPG. While low-educated women face entrenched *sticky floors* exacerbated by informality and age-related precarity, highly educated women confront escalating *glass ceilings* in both formal and informal sectors.

In the main, structural drivers underpin these disparities. Kenya's informal economy traps low-educated women in unregulated jobs with minimal social protections. For highly educated women, despite progressive labor laws, inconsistent enforcement of maternity leave (6.3% coverage) and paternity leave exacerbates care-related career interruptions. And the brain drain in critical sectors like healthcare intensifies competition, allowing discriminatory practices. Furthermore, TVET reforms, though expanding enrollment, still prioritize theoretical training over apprenticeships (500–600 annually), limiting pathways to formal employment for women. Thus, Kenya's GPG by education stratification reflects not just human capital disparities but systemic failures in labor market structures and institutional enforcement.

Here, the thesis concluded that dismantling these barriers requires a dual focus that translate women's educational and productivity gains into equitable remuneration, fostering inclusive growth across all education levels. For low-educated women, formalizing informal jobs, enforcing minimum wage standards, and strengthening TVET-industry linkages are critical. For highly educated women, regulating digital labor platforms, enforcing anti-discrimination laws, and promoting gender-responsive promotions in formal sectors are essential. Nationally, expanding social protections (e.g., NSSF coverage) and addressing gendered occupational segregation through legislative reforms can help bridge disparities.

Regarding the third thesis hypothesis, the findings affirmed that occupational status and structures play a pivotal role in explaining Kenya's gender pay gap. Gender employment distributions across industries, occupations, and sectors are markedly concentrated, reinforcing systemic disparities. The result showed that if Kenyan women (men) had parity in occupational opportunities and choices, a significant shift toward higher-paying roles—such as legislators, managers, professionals, associate professionals, technicians, service and sales workers, and clerical positions—would most likely occur. However, women remain underrepresented in these sectors, a disparity attributed to employer discrimination and unobserved barriers restricting their access. Conversely, women are disproportionately overrepresented in low-paying occupations, including skilled agriculture, forestry, fishery, and elementary roles. This implies that equitable occupational access would reduce women's concentration in these low-wage sectors, highlighting the need to dismantle structural and discriminatory practices to achieve gender parity in earnings.

The decomposition results revealed that *intra-occupation* disparities—driven by unequal returns to productivity characteristics and occupational structures between men and women—account for the largest portion of the gender pay gap, underscoring pervasive vertical segregation. Rural areas exhibited a pronounced GPG, nearly nine times higher than urban areas. This rural-urban chasm stems from Kenya's informal economy, where non-agricultural and agricultural workers lack formal protection. Rural women, concentrated in low-productivity sectors like subsistence farming, face compounded disadvantages. Here, the explained factors (e.g., productivity traits) could theoretically reduce the entire rural GPG, but *unexplained* components—reflecting discrimination and vertical segregation within occupations—dominate. In other words, if rural women's average productivity traits were equally rewarded, the gender pay gap would be eliminated. However, the gap widens when considering the returns to these observable characteristics and the occupational distribution of men and women. This could be explained by weak unionization and under-resourced labor inspections perpetuating structural inequities, leaving rural women vulnerable to exploitative practices.

In urban areas the gender pay gap is narrower but revealed persistent vertical segregation within occupations. Urban areas show a negative *inter-occupation* unexplained component, indicating fewer barriers for women accessing higher-paying jobs. In other words, while urban women are concentrated in better-remunerated occupations, they face vertical barriers in high-

paying roles like STEM fields. The positive *intra-occupation* unexplained component point to wage structural effects and vertical occupational segregation as key drivers of pay disparities. Women in sectors like education and healthcare earn less than men despite comparable representation. The finding that *intra-occupation* discrimination drives largest share of the urban GPG, highlights how digital labor markets amplify wage inequities in urban regions.

Altogether, the gender pay gap in Kenya is deeply intertwined with occupational segregation and structural inequities, with stark disparities evident between rural and urban labor markets. Although women remain fairly represented in high-paying jobs, they face still structural barriers for upward mobility largely due to systemic bias and unobserved barriers, and they are overrepresented in low-paying sectors. This occupational divide is compounded by systemic factors, including rural informality, weak labor protection and institutional policies enforcements, and discriminatory wage practices, which collectively perpetuate earnings disparities.

While the thesis findings reveal persistent gender pay gaps driven by wage structural effects and occupational segregation, the vision of *a Utopian Kenyan Society* remains one where equitable opportunities, fair compensation, and inclusive policies bridge these divides, fostering a labor market that truly values and rewards the contributions of all, regardless of gender.

8. Policy Implications

This thesis provided insights into the structural and institutional drivers of gender pay disparities, supported by rigorous empirical analyses in chapters six, seven, and eight. These findings equip policymakers with actionable evidence on the sources of earnings inequalities, enabling the design of targeted interventions to advance workplace equity. Based on the findings and conclusions, several important policy implications can be inferred.

1) **Strengthen Labor Institutions and Inspections:** Increase the number of trained labor inspectors from the current ratio of 1 inspector per 147,000 workers and allocate budgetary resources to enforce minimum wage compliance, occupational safety, and anti-discrimination laws in informal sectors. Enforce penalties for wage discrimination, particularly in EPZs and informal sectors. Introduce mandatory wage transparency audits in formal sectors (public/private) and enforce penalties for non-compliance with the Employment Act 2007, such as fines for employers violating equal pay provisions.
2) **Promote Social Dialogue and Unionization:** Integrate gender-responsive clauses into collective agreements, as seen in the Kenya National Union of Teachers' successful negotiation of maternity benefits. Legally recognize informal worker associations and facilitate collective bargaining for fair wages, which calls for amending the Labor Institutions Act to include informal sector representation.
3) **Extend Social Protections**: Utilize the Informal Sector Transformation Unit to extend social protections (e.g., National Social Security Fund) and National Hospital Insurance Fund) to cover informal workers (e.g., *Jua Kali* artisans, gig workers) through subsidized contributions (e.g., tiered payment plans) particularly women in sectors like retail, domestic work, and agriculture. This would mitigate vulnerabilities linked to informality, such as lack of pensions and healthcare.
4) **Reform TVET programs to bridge skills mismatch**: Revise TVET curricula to address sectoral demands, reducing skills mismatches that perpetuate undervaluation of women's qualifications. Partner with industries (e.g., ICT, renewable energy, agribusiness) to redesign TVET curricula, prioritizing competency-based assessments over theoretical training to address the mismatch between training and labor market needs Require TVET institutions to allocate 30% of coursework to apprenticeships, ensuring at least 5,000 annual placements (up from 500–600) for women in high-demand sectors. Also, offer

scholarships and childcare stipends to women enrolling in STEM fields to counter occupational segregation.

5) **Dismantle Vertical Segregation in Formal Sectors**

   Amend the Salaries and Remuneration Commission Act to mandate gender parity in senior leadership roles (e.g., CEOs, board members) across public and private institutions. Introduce quotas requiring 40% female representation in managerial positions by 2030, with annual audits published by the National Gender and Equality Commission (NGEC). Adopt the Kenya National Union of Teachers (KNUT) model, which successfully negotiated maternity benefits into collective agreements, for replication in healthcare and manufacturing sectors.

6) **Certify Informal Skills**: Implement Recognition of Prior Learning programs through the National Industrial Training Authority to validate skills of informal workers, enabling transitions to formal employment.

7) **Expand Parental Leave Policies to Redistribute Caregiving Responsibilities**: Enact legislation to increase maternity leave coverage beyond the current 6.3% to 50% of formal sector workers by 2030 and introduce *paid* paternity leave to redistribute caregiving burdens and retain women in the workforce reducing career interruptions. Subsidize employer costs for parental leave through tax incentives, modeled as Unemployment Insurance Fund (UIF).

8) **Regulate Platform Work:** Reclassify gig workers as employees (e.g., ride-hailing drivers, freelancers) as employees under the Labor Relations Act 2007, guaranteeing minimum wages, overtime pay, and unionization rights and collective bargaining rights. Establish a Digital Labor Task Force under the MLSP to audit algorithmic wage-setting practices in platforms like Uber and Bolt, ensuring transparency and fairness.

9.4 Suggestions for future research

A key limitation of this thesis lies in its cross-sectional analysis of gender pay gaps and occupational segregation at single point in time, which provides only a snapshot of Kenya's labor market dynamics. To build on these findings, future research should adopt longitudinal and intersectional approaches to see how these disparities evolve over time and across demographic dimensions. Critical avenues for investigation include:

1) **Sectoral Evolution of the GPG:** Track longitudinal trends in formal sector disparities, assessing in particular whether gender equity policies (e.g., Affirmative Action) have mitigated structural biases in public sector leadership or exacerbated private sector inequities. The thesis found that while the public sector offers relatively favorable conditions for women, men still dominate top managerial roles—a dynamic requiring temporal analysis to evaluate policy efficacy.
2) **Lifecycle Dynamics of Earnings Disparities:** Investigate how the GPG shifts across women's career trajectories. While older women in the public sector benefit from accumulated productivity traits, future studies should examine whether these gains erode due to career interruptions (e.g., childcare) or retirement transitions, which disproportionately affect women's earnings.
3) **Educational Reforms and Occupational Barriers:** Evaluate the impact of Kenya's Competency-Based Curriculum and expanded TVET programs on reducing the "sticky floor" effect for low-educated women and dismantling vertical segregation for highly educated women. Such a study could clarify whether skill-based reforms have altered occupational mobility or reinforced existing hierarchies.
4) **Urbanization and Digital Economy Impact:** Analyze how rural-urban migration and digital labor platforms (e.g., remote work) reshape occupational access. The thesis found rural women encounter severe penalties due to vertical/horizontal segregation, while urban women benefit marginally from inter-occupation mobility. Future work could assess whether digital opportunities mitigate rural exclusion or perpetuate urban-centric inequities.
5) **Long-Term Policy Efficacy:** Systematically evaluate labor interventions like minimum wage adjustments and union advocacy, especially their sustained impact on low-educated workers. While Kenya's strengthened wage policies narrowed gaps in unionized roles,

horizontal segregation persists—a trend require a decade-long assessment to provide scalable solutions.

6) **Intersectional Frameworks:** Integrate factors such as ethnicity and parenthood into GPG analyses. For instance, ascertain how rural-urban divides intersect with ethnic marginalization or caregiving responsibilities to compound earnings penalties for specific subgroups.
7) **Advanced Methodologies and Data Innovations:** Utilize emerging datasets (e.g., National Social Security Fund records) for cohort-based wage trajectory analyses. Pair this with causal inference methods or machine learning techniques to disentangle discrimination, Job ladder, and policy effects, moving beyond descriptive decomposition to identify actionable incentives for change.

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1. **Alwago, W.O., 2024**. A partial least squares analysis of gender inequality, occupational segregation, and economic growth: Evidence from Sub-Saharan Africa. 2024 Sustainable Development Transformation Forum (SDTF) 29-31 October 2024, Incheon, Republic of Korea.
2. **Alwago, W.O., 2024.** The role of occupational segregation in Kenya's gender pay differential. Program on African Social Research's (PASR) Junior Scholars' Workshop in Lusaka, Zambia, on August 14th and August 15th, 2024.

3. **Alwago, W.O., 2024.** Why women earn less: The role of occupational and Industrial segregation in Kenya's gender pay differential. UNU-WIDER Visiting PhD Fellow, Helsinki, Finland, April-June 2024.
4. **Alwago, W.O 2024.** The Quest for education parity in addressing gender pay differentials. Globalization, integration, cooperation – What is at stake in the current turbulent times? 22-23 March 2024, Szeged, Hungary.
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