



Investigating the Gender Wage Gap in the Nigerian Labour Market: A Distributional Approach

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Abstract

This study investigates the gender wage gap in Nigeria by extending the focus of the existing literature in two ways. First, we apply an extension of the Oaxaca-Blinder decomposition that relies on recentred influence function (RIF) regressions to analyze the gender wage gap at all points along the wage distribution. Second, we investigate changes in the gender wage gap between 2003/2004 and 2018/2019. The results unambiguously show that there is a significant gender wage gap in favour of men in Nigeria. This gap is statistically significant at all points of the wage distribution. Over time, we find that most of

the wage difference is significantly accounted for by the wage structure effect, while the composition effect accounted for the wage gap at the lower end of the wage distribution during 2018/19. We also found a general decline in the gender wage gap along the entire wage distribution. In 2018/19, the gap is bigger at the bottom than at the top of the wage distribution, which is evidence in favour of a sticky floor in the Nigerian labour market. In terms of the contributions of individual covariates, we found that urban residence, unionization, education, public sector employment, and wage employment in agriculture has a significant reducing effect on the wage gap in favour of women. To address the gender wage gap in Nigeria, policy should focus more on ways to improve human capital among women and ensuring women are not segregated in top positions at the workplace.

Introduction

The issue of gender equality has become an important discourse that has shaped plans, policies and actions of governments and private organizations all over the world. Owing to this importance, the United Nations made it one of the 17 Sustainable Development Goals, with Goal 5 aiming to ensure that there is no discrimination against girls and women anywhere. However, the reverse seems to be the case in Nigeria as statistics show evidence of some gaps between males and females across some sectors of the economy. For example, Nigeria ranked 38th globally and 11th in sub-Saharan Africa (SSA) in the economic participation and opportunity sub-index of the global gender gap index. According to the World Economic Forum (WEF, 2021), Nigerian women represent 65% of skilled professionals but account for only 30% of senior corporate leadership positions. Also, the educational attainment for women in Nigeria is lower when compared with males. There is also a gender gap in school enrolment rate with more male pupils being enrolled than females (NBS, 2021). Yet, some African countries such as Rwanda, South Africa and a few others have attained almost equal enrolment of both sexes in schools. Nigeria falls below these countries on this index (WEF, 2021).

Essentially, interest in the magnitude, pattern and causes of the gender wage gap has been growing, especially over the past two decades, both within and across countries, including in African countries (Ntuli and Kwenda, 2020). While labour unions across the globe have continued to push for higher wages, the issue of gender differences in earnings in the same country, occupation, industry and with similar characteristics (Metcalf, 2009; Mamiko, 2021) has continued to be of great interest to researchers, gender activists and international organizations. The results of the analysis of gender disparity in labour markets in Africa are dominated by sharp contrasts and have remained a serious challenge in many countries (ILO, 2019). The International Labour Organization, among others, argues that most African men still earn more than their female counterparts even though the number of women in paid employment and non-

agricultural sectors has increased by more than 3.5% over the past decade (ILO, 2019). Moreover, it has been observed that the gender pay gap is 30% in Africa, compared to 24% globally including both the formal and informal sectors. In sub-Saharan Africa, women opt to work in the informal sector mainly to have more time for their care responsibilities, and more than 89% of women work in the informal economy (United Nations, 2023). This makes the labour market in Africa, just like other economic and social institutions, a source of gender imbalances, but could also be a solution for it if good policies are put in place.

In Nigeria, the constitution discourages any form of gender disparity in the workplace regardless of gender, ethnicity, political affiliation, religion, and region, among other characteristics. However, there are concerns that the Nigerian labour market exhibits significant gender wage disparities (for example, Temesgen, 2008; Ajefu, 2019) and not much is known about how this inequality is distributed across the wage strata. Thus, the question of whether the glass ceiling or sticky floor is more relevant in explaining observed gender wage gaps in Nigeria has received limited attention among researchers. "Glass ceiling" is a labour market condition where females are pushed down to the lower cadre of an organization, and it seems difficult for them to attain the highest position in an organization. The "sticky floor" concept emphasizes the challenges women encounter at the lower levels of the job hierarchy, making it difficult for them to progress and earn higher wages.

Reports from The World Bank (2014) and the National Bureau of Statistics (NBS, 2019) have shown that opportunities for women to participate in paid jobs have continued to increase in Nigeria. NBS (2019) data also show that certain professions like teaching and health have a higher proportion of women (68% and 69%, respectively) compared to men. Conversely, traditionally risky occupations such as the military and plant machine operators are predominantly held by men (over 90% male-dominated). There are also some professions where the gender split is relatively equal, such as desk-bound jobs and hospitality and craft work, where men and women have roughly equal representation. In addition, improvements in women's human capital endowments (i.e., higher education attainment) have been registered over the past two decades. Thus, Nigerian women's participation in economic activities and human capital endowments have continued to show new dynamics. Yet, little is known about how these developments have shaped wage differentials between men and women in Nigeria.

The existing literature on labour market disparities in Nigeria has extensively examined gender wage gaps, often using mean decompositions as the primary analytical approach (e.g., Okpara, 2004; Oyelere, 2007; Nweke, 2014; Oginni *et al.*, 2014). Some studies have also explored broader macroeconomic factors influencing labour markets, such as gender disparities in education and income, and have assessed gender pay gaps and workplace variations by considering data from both private

firms and government institutions in Nigeria (e.g., Agu and Evoh, 2011; Aderemi and Alley, 2019). These investigations have consistently revealed the existence of gender gaps in the Nigerian labour market. For example, in a study conducted by Oyeleré in 2007, it was found that in the period after the transition to democracy, men tended to have higher average incomes compared to women. This difference in income was most noticeable among individuals with lower levels of education. In simpler terms, men earned more than women, especially those with less education, during the post-democracy period. While previous studies are informative about the gender wage gap in Nigeria, there is limited knowledge of the nature of the gender wage gap at various points of the earnings distribution, the factors underpinning it and how these have evolved over time.

To close these gaps, our paper contributes to the existing literature in three ways. First, previous studies on the gender wage gap in Nigeria concentrated on measuring and decomposing the gender wage gap at the mean. This provides an incomplete picture of the nature of wage disparities across the earnings distribution. Therefore, this study departs from analysis at the mean by considering the entire wage distribution using the approach by Firpo *et al.* (2009). Indeed, evidence from other countries shows that the gender wage gap may vary along the wage distribution. For example, Chi and Li (2008) found a wider gender gap in favour of men at the bottom of the distribution (“sticky floor” effect) in China. Conversely, Albrecht *et al.* (2003) and Arulampalam *et al.* (2007) found a strong “glass ceiling” effect in Sweden and Europe, respectively. This means that at the upper end of the wage distribution, male workers have higher earnings relative to their female counterparts. Knowledge provided by this research should prove highly valuable for Nigeria in informing labour market policies and institutions aimed at fostering gender equality and reducing gender wage disparity. Our findings can be utilized by government agencies tasked with formulating labour and employment policies to develop targeted measures that effectively tackle wage disparities across various income brackets. Moreover, labour unions and advocacy groups can utilize this data to advance their efforts in promoting equitable remuneration and equal prospects for women within the labour market. Through a comprehensive understanding of the intricate dynamics surrounding the gender wage gap and the specific demographics that bear the brunt of its impact, policy makers and institutions can collaboratively endeavour to establish a labour market that fosters inclusivity and fairness within the Nigerian context. Second, to the best of our knowledge this is the first study in Nigeria that provides a temporal analysis of the gender wage gap. To this end, we utilize the 2003/2004 and 2018/2019 Nigeria living standards surveys. Third, this paper sheds light on the factors underpinning observed gender wage gaps by decomposing the gender wage gap into “price” and “composition effects”. The composition effect, also called the endowment effect, shows how labour market characteristics of individuals influence the gender wage gap (Oaxaca, 1973). The price or wage structure effect explains how pricing or utilization of individual

characteristics affects the gender wage gap (Blinder, 1973). We further investigate how the gender wage gap has changed over time and if this change can be attributed to changes in the underpinning factors. Accordingly, this study seeks to answer the following research questions:

- Are there significant gender differences along the wage distribution (i.e., is there any evidence of glass ceilings or sticky floors) in the Nigerian labour market?
- How do individual characteristics explain the gender wage gap at various points of the wage distribution?
- How has the gender wage gap and factors underpinning it changed over time in the Nigerian labour market?

The corresponding research objectives of the study are to:

- ascertain if there are significant gender differences along the wage distribution in the Nigerian labour market.
- examine how individual characteristics explain the gender wage gap in various parts of the distribution; and
- determine how the gender wage gap and factors explaining it have changed over time in the Nigerian labour market.

Background: Nigerian labour market

The labour market in Nigeria consists of the formal and large informal sectors. Available statistics from the NBS (National Bureau of Statistics, 2019) show that the informal market is made up of about 65% of Nigeria's workforce and dominates most of the activities in the economy even though it is characterized by low wages. The Nigerian labour market is also characterized by a high rate of unemployment, which has been exacerbated in recent years by high population growth, poor infrastructural development, and poor economic growth performance. According to the NBS (2019), Nigeria's rate of unemployment rose to 22.6% in 2018 from 10.6 % in 2012. Furthermore, an NBS (2021) report shows that considering the number of fully employed and underemployed in the labour force, females accounted for 40% and 45.9% respectively, in 2020. Furthermore, Nigerian labour force statistics as of 2019 show that out of the labour force population of 62,447,230, women make up a total of 45.57% (i.e., 28,457,207), while 54.43% are men. An analysis of the trend of the female labour force in the last ten years shows that it has not experienced any significant growth, while the total labour force of Nigeria has seen a growth rate of 28% in the same period (NBS, 2021).

In terms of human capital development, the percentage of the male working-age population with intermediary education is 71.86%, while that of the male population overall is 66.18% (ILO, 2019). Intermediate education comprises upper secondary or post-secondary non-tertiary education. Conversely, for the labour force with advanced education, the percentage for the male working-age population is 74.76%, while it is 73.68% for the female population (ILO, 2019). Advanced education comprises short-cycle tertiary education, a bachelor's degree, a master's degree, a doctoral degree, or the equivalent education levels (NBS, 2021). From the above statistics, one may argue that the gender differences across various levels of education may have contributed to the female unemployment rate being higher at 31.6% than that of the male unemployment rate at 22.9% in quarter 2 of 2020. This supports the argument of Bergmann (1984) who asserted that the gender wage gap can be explained through human capital factors, work patterns, past education, experience, and the labour market structure. However, the study also argues that returns to education can be seen mainly through labour force participation.

Furthermore, despite the global awareness to promote gender equality in all human spheres, there is still a wide gap between the level of men's and women's participation in politics, trade unionism and decision making in both private and public organizations in Nigeria. Most of the political institutions and pressure groups in Nigeria are largely dominated by men who determine the trends, goals, and rules. This glaring imbalance of men's domination over women has attracted comments from scholars and researchers, especially women who seem to have been marginalized within the political arena. With the increasing recognition of women's seeming historic exclusion from the structures of power among the international community, domestic and global commitments are now being made to redress the gender imbalance in politics. Women's enhanced participation in governance structures is viewed as the key to redress gender inequalities in society (Imhonopi and Urin, 2011; Adetunmbi *et al.*, 2022).

Over the years, labour market policies in Nigeria have also been centred around how to address the problem of minimum wage policies. Salaries and wages have been featured in government policies to improve the welfare of workers. Based on these objectives, the determination of sectoral wages and salaries in the public sector has been the responsibility of the Salaries and Wages Commission and administrative arms of the government. Whereas in the private sector, wages are largely determined by the forces of demand and supply and, to a minimal extent, also influenced by wage levels in the establishments and parastatals of government (Fapohunda, 1979; Aminu, 2010 and Yusuf *et al.*, 2018). Concerning wage determination some scholars, such as Aminu (2011) and Oginni *et al.* (2014), have argued that productivity changes play a lesser role than changes in the cost of living for the urban sector.

Furthermore, constant agitations for higher pay due to rising inflation and falling standards of living, as well as a phenomenal rise in the number of the working poor in Nigeria, have led the federal government to review the minimum wage upwards about eight times since 1974. These are the 1974 minimum wage adjustment to N60 per month, the 1981 minimum wage of N125, which was reviewed upwards to N250, and N363 in 1991 and 1993, respectively. Starting in 1998, the minimum wage adjustment was different for federal and state workers. The minimum was raised to N3,500 for federal workers and N3,000 for state workers in 1998, and again to N7,500 and N5,500, respectively, for federal and state workers in 2000. By 2011 and 2019, the minimum wage was raised to N18,000 and N30,000, respectively. While almost all states complied with the N18,000 minimum, some did not agree to pay N30,000 (NBS, 2019). However, the overall impact of these minimum wage adjustments on gender wage gaps is still a subject of debate because of inflationary pressures and other macroeconomic shocks in the system.

Other labour market policies that were directed at gender parity in Nigeria include the Gender Equality Duty Act 2007, which was designed to be implemented by all government ministries, agencies, and departments. Moreover, the Federal Government of Nigeria created the Ministry for Women Affairs and Social Development to address the special needs of women. With the support of the United Nations Development Programme (UNDP), the government also crafted a developmental policy roadmap entitled “Growth and Equality” and an Equality Act 2010 (UNDP, 2010). Perhaps these were all designed to reduce the perceived gender differences in the labour market. Several key indicators were tracked over the years to assess the impact of these developments on the labour market. The working-age population has consistently grown, reaching around 46.5% in 2013, and slightly declined to 43.9% in 2019 (ILO, 2022). However, female labour force participation rates have shown fluctuations, ranging from approximately 46.5% in 2013 to 43.9% in 2019 (ILO, 2022), highlighting the variability in women's participation in the workforce. Employment rates by sector suggest progress in women's diversification into formal sectors like education, healthcare, and services, indicating improvements in gender equality in specific industries. However, unemployment rates have remained a persistent challenge for both genders, with fluctuations observed over the years. Female unemployment rates ranged from 3.38% in 2013 to 12.48% in 2019, while male rates varied from 3.62% in 2015 to 9.25% in 2019 (ILO, 2022). Significant adjustments to the minimum wage policy were made during this period. In 1998, the minimum wage was raised to N7,500 for federal workers and N7,000 for state workers. By 2011 and 2019, further increments raised the minimum wage to N18,000 and N30,000, respectively. However, compliance with the N30,000 minimum wage was not universal among states, potentially influencing gender wage disparities across different regions (NBS, 2019). Understanding these developments jointly allows for a comprehensive assessment of their impact on the gender wage gap and the

distribution of wages in Nigeria's labour market. These systematic and gender-disaggregated accounts of Nigeria's labour market developments reveal progress in some areas, such as improvements in working-age population and female labour force participation. Nevertheless, some challenges, including unemployment rates and variations in minimum wage compliance, underscore the need for continued efforts to achieve gender parity in the labour market.

However, these developments in the labour market over the past two or more decades may have affected the gender wage gap or its distribution. Christofides *et al.* (2010) argued that the “glass ceiling” is a key feature of gender wage differentials in many developing countries, but this remains a subject for empirical verification in the case of Nigeria.

Data source

As stated in the background of this paper, Nigeria's labour market is characterized by high unemployment for both males and females. As a result, labour force participation is far higher compared with the number in wage employment, and as noted by Bhorat and Goga (2013) the subsample number of wage earners is not representative of the participation rate. Also, many empirical studies (see, for example, Bhorat and Sumayya, 2013) used sample correction, especially the methodology suggested by Heckman (1976), to correct for the bias due to selection in the labour force and employment. The Heckman approach models earnings as a function of the characteristics of wage earners conditional on the fact that these earners are a subsample of all the employed which is, in turn, a subsample of potential participants whose wages cannot be determined. However, as Bhorat and Goga (2013) point out in their study, this approach has shortcomings that may introduce some bias in the gender wage decomposition. These include: difficulty in identifying the exclusion restrictions appropriately; the measurement of the error problem; the presence of heteroscedasticity; and the identification and validity of the assumptions that underlie the distribution. We also tried to correct for selection bias, but our results were consistent with those of other studies (Bhorat and Goga, 2013, among others) that applied this approach and did not find the correction term statistically significant. In light of these limitations and data constraints this study found a strong justification to apply sample correction procedures. However, in order to control for the index number problem, we normalized the dummy variables in the estimations and interpreted the results directly.

We use the 2003/2004 and 2018/2019 Nigeria Living Standards Surveys (NLSs) for this study. In the 2003/2004 living standards survey, a total of 92,000 responses of individuals were captured; 68,500 of these individuals were in the labour market while 15,888 were in paid employment. The 2018/19 survey is the most recent survey

in the country, with a total of 116,320 individuals; 49,780 of these individuals that were included were in paid employment. The sample for our analysis was restricted to individuals aged 15–65 years in paid employment with full information on key variables. This leaves a sample of 7,835 in 2003/2004 and 6,067 in 2018/2019. Notably, the sampling frame and information collected were the same across surveys, which allows for comparisons over time.

For the key variable, wages, respondents indicated the frequency of payment, i.e., daily, weekly, biweekly, monthly, quarterly, or annually. To facilitate comparability, we converted all wages to reflect monthly income. This is consistent with the structure of the labour market Nigeria where, except for labourers who are remunerated on a daily or piecemeal basis, the majority are paid on a monthly basis. In order to facilitate the comparison of wages over time, and using 2009 as the base year, we deflated the nominal wages by the consumer price index to obtain real wages.

Conclusion and policy implications

Previous studies have tried to examine the gender wage gap in Nigeria using different methods and survey data sets. However, to the best of our knowledge no study has applied an extension of the Oaxaca-Blinder decomposition that relies on recentered influence function (RIF) regressions to analyze gender wage gap at all points along the wage distribution, and over time. In addition, previous studies mostly relied on the mean decomposition and could only ascertain detailed decomposition for factors that explain the gender wage gap at the mean. This canonical approach, rooted in the framework developed by Oaxaca-Blinder (1973), is sensitive to whether male or female is used as the reference point. But our study was able to obtain a detailed decomposition that can measure the marginal effects of each of the covariates in terms of the composition effect and wage structure effect without being sensitive to the choice of the reference group. The only study that is close to our own is Aderemi and Alley (2019) who used data at one point in time to conduct a static analysis of the gender wage gap using quantile regressions. Our study conducted a temporal analysis using different waves of household surveys to understand how the gender wage gap had changed over time. We could not correct sample selection due to some limitations associated with the previous literature. While our findings corroborated the findings of other studies on the existence of the gender wage gap, especially at the mean wage, we made some new findings as far as extant literature in Nigeria is concerned.

Our key results are as follows: First, based on the first objective, which is to ascertain if there are significant gender differences along the wage distribution in the Nigerian labour market, we found a considerable gender wage gap in Nigeria both at the mean and at all points on the wage distribution. That is, apart from the mean wage gap that is corroborated by previous studies in Nigeria and other sub-Saharan African countries, the

gender wage gap in Nigeria is also prevalent among the lower, middle, and upper wage earners. This finding is novel compared to what we already know about wage inequality in Nigeria. Second, on whether there is glass ceiling or sticky floor, another novel finding is that for the 2003/2004 period, contrary to some of the studies (Landmesser, 2019, among others), the wage gap showed an inverted U-shape. That is, the wage gap was bigger in the middle of the distribution than at the bottom or the top, which is evidence against sticky floors or glass ceilings in Nigeria. However, as time progressed the dynamics of wage inequality changed such that since the 2018/2019 period the gaps have been bigger at the bottom than at the upper end of wage income. In other words, a more recently sticky floor has appeared in the distribution of the gender wage gap in Nigeria. This suggests that when women are in low-paying jobs, men earn much more compared to when they are in top-paying occupations.

Third, to ascertain how gender wage gap and factors explaining it have changed over time in the Nigerian labour market, our findings showed that over the previous 15 years or more, there had been a general decline in the gender wage gap in Nigeria, especially among high-income earners. This means that women in top public sector employment, administrative, executive, and professional positions and other high-paying jobs experienced less pay disparity compared to their male counterparts. This may be due to improvements in women's education, a shift into more professional and technical jobs, and greater unionization. All this contributed to reducing the gender wage gap.

Fourth, another finding related to the second and third objectives is that most of the gender wage gap is explained by the wage structure effect rather than the composition effect over the two periods. However, more recently, as depicted by the 2018/2019 results, the composition effect partly accounted for why there was a bigger gap at the bottom of the wage distribution than at the top. Its contribution to the gender wage gap was significantly different from zero, between the 10th and 50th quantile, thereby reinforcing the positive effect of the unexplained component. This implies that it was the returns to characteristics that explained the wage gap over the entire distribution in the 2003/2004 period and not the characteristics of the sexes. Conversely, for the 2018/2019 period the characteristics became a significant component of the wage gap, especially at the lower income. It may be that women at the bottom of the wage distribution have inferior endowments compared to those at the top. For the two periods, we found the constant terms associated with the wage structure effect statistically significant and large. This can be interpreted as a measure of wage discrimination in line with Bhorat and Goga (2013), among others.

On the second objective, the detailed decomposition results showed that factors such as age, urban residence, marital status, education level, especially above secondary level, union membership, public sector employment and occupational factors cannot be ignored, as they exert significant influence on the wage gap. While possessing certain attributes may help women to find well-paying jobs in the labour market in

Nigeria, attributes such as education level above secondary, age (which may also serve as a proxy for experience), union membership and location, also increase their negotiating power in the labour market. Some characteristics such as urban residence, marital status, higher education, and union membership have remained consistent over time with how they affect gender wage gap, especially through the wage structure effect.

These findings have important implications for the design of effective gender-sensitive policies in Nigeria, especially as it concerns pay differentials at the workplace. The finding that education above the secondary level has been having a significant reducing influence on the gender wage gap through both the composition and wage structure effect since 2003/2004 suggests that efforts should be geared towards promoting higher education qualifications for women, even when they are already in the labour market. In recent years, there has been an increase in the admission of girls and women into degree programmes, and even higher degrees, to Nigerian universities. This level of education can be achieved by making education affordable and the learning environment conducive, with no interruptions, to enable them to complete their studies on time and join the labour market. Women should be encouraged to go into technical and professional and wage employment jobs in agriculture, as well as in the public sector. The private sector should try to implement gender-sensitive policies in the workplace so that the extent of discrimination can be reduced.

Further, women should be given more opportunities in urban employment where wages are higher, and the gap is lower. Invariably, there is a need to promote policies that would reduce urban unemployment for women. Union membership is another important factor in reducing the gender wage gap in Nigeria. This, therefore, suggests that women had continued sustaining the momentum seen since 2005 in joining labour unions at the workplace. Finally, based on our findings that certain types of occupation appear to propagate the gender wage gap, policies could aim to increase women's access to high-paying occupations in the public and private sectors.

Our study has made novel findings about the gender wage gap in the Nigerian labour market. However, there are still areas that need to be studied to shed more light on the nature of gender inequality. For example, as richer data sets become available researchers can control for sample selection bias. In addition, statistical agencies should collect labour market data that is more comprehensive (e.g., panel data sets and data that include information on work experience and firm size) to allow for an in-depth analysis of the gender wage gap. Furthermore, the study identified factors that decrease and increase the gender wage gap in Nigeria. Hence, further research is needed to unravel why women are disadvantaged as a result of some of these factors that tend to narrow the wage gap. Finally, future research should focus on why there is gender wage heterogeneity across sectors such as agriculture, manufacturing, public sector, and professional and technical occupations.

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Mission

To strengthen local capacity for conducting independent, rigorous inquiry into the problems facing the management of economies in sub-Saharan Africa.

The mission rests on two basic premises: that development is more likely to occur where there is sustained sound management of the economy, and that such management is more likely to happen where there is an active, well-informed group of locally based professional economists to conduct policy-relevant research.

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