

Trends in Income and Wage Inequality in Egypt (1988-2023)

Mona Elsayed, May Gadalla and Mariam Hagag

Trends in Income and Wage Inequality in Egypt (1988-2023)

Mona Elsayed, May Gadalla and Mariam Hagag

Working Paper No. 1752

November 2024

We acknowledge the financial support of the International Labour Organization through the Government of the Netherlands and the Swedish International Development Cooperation Agency, the World Bank Poverty and Equity Global Practice supported by the UK-funded Strategic Partnership for Egypt's Inclusive Growth trust fund (SPEIG TF), and World Bank MENA Chief Economist office, Agence Française de Développement (AFD), Ministry of Planning, Economic Development and International Cooperation, Egypt, and UNICEF for the Egypt Labor Market Panel Survey 2023, on which this paper is based. We appreciate the comments of discussant Dr. Racha Ramadan in the "Egypt Labor Market Panel Survey First Drafts Discussion Workshop."

Send correspondence to:

May Gadalla
Cairo University and ERF
mgadalla@erf.org.eg

First published in 2024 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2024

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

First published in 2024 by
The Economic Research Forum (ERF)
21 Al-Sad Al-Aaly Street
Dokki, Giza
Egypt
www.erf.org.eg

Copyright © The Economic Research Forum, 2024

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

Abstract

This paper examines the dynamics of income, wage levels, and distribution in Egypt, particularly emphasizing income inequality and diversification. This analysis is particularly crucial in light of the numerous shocks that hit the Egyptian economy in recent years. Drawing upon data from the 1988, 1998, 2006, 2012, 2018, and 2023 waves of the Egypt Labor Market Panel Survey (ELMPS), this paper studies the evolution of income and wage levels and distributions over time, including the trend in the shares of income sources and real wages. Additionally, we examine trends in income diversification, given that it is considered an integral tool for coping with economic shocks and reducing vulnerability. Finally, we explore trends in income and wage inequality relying on different inequality measures such as the Gini index, the general entropy at (1) and (-1), and different percentile ratios (e.g., 10/50, 90/50, and 90/10). We also conduct an inequality decomposition by income source to identify the key factors contributing to income disparities and changes in their contribution over time.

Keywords: Wage, Income, Inequality, Egypt.

JEL Classifications: D31, J31, O15, O53.

ملخص

تبحث هذه الورقة في ديناميات الدخل ومستويات الأجور والتوزيع في مصر، مع التركيز بشكل خاص على عدم المساواة في الدخل والتنوع. هذا التحليل مهم بشكل خاص في ضوء الصدمات العديدة التي أصابت الاقتصاد المصري في السنوات الأخيرة. استنادًا إلى البيانات من موجات 1988 و 1998 و 2006 و 2012 و 2018 و 2023 من المسح التتبعي لسوق العمل في مصر (ELMPS)، ندرس في هذه الورقة تطور مستويات الدخل والأجور والتوزيعات بمرور الوقت، بما في ذلك الاتجاه في حصص مصادر الدخل والأجور الحقيقية. وبالإضافة إلى ذلك، ندرس الاتجاهات في تنوع الدخل، بالنظر إلى أنه يعتبر أداة متكاملة لمواجهة الصدمات الاقتصادية والحد من قابلية التأثر بهذه الصدمات. أخيرًا، نستكشف الاتجاهات في عدم المساواة في الدخل والأجور بالاعتماد على مقاييس مختلفة لعدم المساواة مثل مؤشر جيني، والانتروبيا العامة عند (1) و (-1)، ونسب مئوية مختلفة (على سبيل المثال، 50/10، 50/90، و 10/90). نجري أيضًا تحليل لعدم المساواة حسب مصدر الدخل لتحديد العوامل الرئيسية المساهمة في التفاوتات في الدخل والتغيرات في مساهمتها بمرور الوقت.

1. Introduction

The topic of income inequality has become an important priority in the global discourse, particularly due to the substantial increase in income inequality in the 1980s—even in high-income countries—contradicting the predictions of the Kuznets inverted-U hypothesis (Ali, 2023). Recent estimates reveal that on a global scale, the bottom 50 percent of the world’s population receives only eight percent of global income, whereas the top 10 percent of the world’s population receives 52 percent.¹ Although the average income in the MENA region represents 112 percent of the world average income (at Purchasing Power Parity), which places it in the fourth best position after North America (315 percent), Europe (215 percent), and East Asia (117 percent), the region has the highest income gap between the top 10 percent and bottom 50 percent, with the top 10 percent in the region receiving 32 times more in income than the bottom 50 percent (Chancel et al., 2022).

Inequality could have negative implications on economic growth and overall economic development, which are fostered by several transmission channels. First, high inequality may increase fertility rates and impair human capital accumulation, given that the poor are more likely to have more children and invest less in their children’s health and education (Berg et al., 2018; Topuz, 2022). Second, inequality could also limit the access of the poor to credit markets and productive assets, which limits social mobility and reduces current and future growth levels (UN, 2020). Third, when inequality is severe, countries become more prone to greater social and political instabilities due to increasing strikes, criminality...etc., which leads to economic instability and growth stagnation (Dabla-Norris et al., 2015). Fourth, inequality could be negatively linked to growth through its impact on the quality of institutional functioning, as inequality is considered a fertile ground for corrupt institutions that favor the interest of the rich at the expense of the poor (Mdingi and Ho, 2021).

In Egypt, overall expenditure inequality was found to be relatively stable over the 1988 to 2023 period and was below the income inequality level of many countries at the same stage of development. Recent data for the Gini index in Egypt show that it reached 31.9 in 2019, which is lower than its level in many lower-middle-income countries such as India (32.8 in 2021), Bangladesh (33.4 in 2022), Jordan (33.7 in 2010), Tunisia (33.7 in 2021), and Morocco (39.5 in 2013) (World Bank, 2024a). However, aggregate inequality figures can mask potential developments in income inequality when data are disaggregated by groups (e.g., location, region, gender, education, etc.) or by income source (e.g., wage income and non-wage income).

This paper studies wage and income distribution and inequality trends in Egypt, drawing upon data from the Egypt Labor Market Panel Survey (ELMPS) from 1998 to 2023, in addition to the

¹ In Chancel et al. (2022), income is defined as all income, before taxes, received by residents in a country over a year, which includes both labor income (e.g., wages and salaries) and income generated from individuals’ wealth (e.g., interest and dividends).

October 1988 special round of the Labor Force Survey. In both cases, results are disaggregated by population groups to highlight possible disparities in wage and income distribution and inequality trends. Many methodologies are applied in addressing wage and income inequality, such as the Gini index; the general entropy index at (1) and (-1); decile ratios 10/50, 90/50, and 90/10;² and the proportion of total income earned by the top and bottom 10 percent of the population. The Lerman and Yitzhaki (1985) approach is also applied to decompose income inequality by income source to identify the key sources contributing to income inequality and changes in their contribution over time.

The paper is structured as follows. Section 2 details the data and methodologies adopted in the paper. Section 3 provides a background of the Egyptian economy and income inequality. Section 4 discusses overall wage distribution and trends, the incidence of low-wage earners among wage workers, and wage inequality by different subgroups. Section 5 examines income distribution and its trend, the coverage of each income source among households, the extent of income diversification, and the relative importance of each income source to total income by the same subgroups. It also investigates developments in income inequality and its decomposition over time, both overall and by location. Section 5 provides the concluding remarks of the paper.

2. Data and methodology

This paper draws on all rounds of the ELMPS from 1998 to 2023, as well as the October 1988 special round of the labor force survey (ERF, 2012, 2018, 2023).³ The 2023 wave marks the fifth round of the ELMPS, a nationally representative longitudinal survey. The panel design, initiated in 1998, tracks households and individuals across consecutive waves. To address attrition and loss of observations, each wave includes a refresher sample and a set of weights that adjust for attrition to keep the sample nationally representative. The ELMPS surveys feature two main questionnaires: a household questionnaire and an individual questionnaire. The household questionnaire gathers data on topics like housing characteristics and household income from various sources, including agricultural and non-agricultural enterprises, capital income, domestic and international remittances, pensions, and transfers. The individual questionnaire collects data from each household member aged six and older on various aspects, including education, employment and key labor market characteristics, wages and earnings, marriage, and attitudes, among other topics (ERF and CAPMAS, 2012, 2018, 2023).

While wage data is provided at the individual level, self-employment or employer income data are provided at the level of household enterprises, including both agricultural (farming or animal

² The income decile ratio 90/10, for example, is the ratio of the income of the top decile of the income distribution to the income of the bottom decile.

³ The data are publicly available from the Economic Research Forum Open Access Microdata Initiative (OAMDI): www.erfdataportal.com.

husbandry) and non-agricultural enterprises. Additionally, income from capital (through rent or interest) and income from transfers (including remittances, pensions, and social assistance) are also collected at the household level.⁴ Thus, for analyzing individual wages, cross-sectional and panel data from the various rounds from 1988 to 2023 are utilized. However, due to changes in the modules covering certain income sources, such as household enterprises, remittances, and transfers across different rounds, the analysis of household income is limited to the 2012, 2018, and 2023 rounds and considers the household the unit of analysis.

The number of wage workers in the sample,⁵ aged 15-64 and included in the wage analysis, began at around 4,600 workers in 1988 and reached around 12,000 workers by 2023, whereas the household sample size grew over the years from approximately 12,000 households in 2012 to 15,700 households in 2018 and reached 17,800 households in 2023. This comprehensive information on the receipt and amount of these different income sources enables us to identify the main sources of income, the number of income sources, and the income diversity for Egyptian households over the years. Additionally, it allows us to examine income inequality and the decomposition of income inequality by income source. Furthermore, using data from the six rounds conducted between 1988 and 2023 allows us to observe changes in individual wages and wage inequality based on key demographic and job characteristics.

We employ various inequality measures to estimate inequality across various parts of the distribution. First, we calculate the Gini coefficient based on the Lorenz curve, which calculates the cumulative percentage of the population versus the percentage of total income earned. Second, the general entropy at (1) and (-1) is used to reflect sensitivity to inequality at the right and left tails of the distribution (of income or wages). Third, decile ratios 10/50, 90/50, and 90/10 are also used as a sensitivity analysis to examine and compare income at different points in the income/wage distributions. Finally, the proportion of total income earned by the top and bottom 10 percent of the population is computed in this paper.

Further to the inequality measures, it is important to analyze income inequality by income source. Inequality decomposition by income source measures the contribution of the various income components—such as labor income, non-labor income, and transfers—to total income inequality. In this regard, we rely on Lerman and Yitzhaki (1985) to estimate each income source's contribution to the Gini coefficient, its share in total income, and its correlation with total income (Lerman and Yitzhaki, 1985).⁶ This approach is also used to quantify the impact of the change in the income sources on inequality by estimating the marginal effect, which is interpreted in terms of both magnitude and sign. The higher an income source's contribution to inequality relative to

⁴ For more details about the definition of each income source, check Appendix A.

⁵ Using the prior three months as a reference period.

⁶ The Lerman and Yitzhaki (1985) approach has been used in a number of other studies. See De Silva (2013); Giangregorio (2024); Nguyen et al. (2020); and Pandiella and Gabriel (2017).

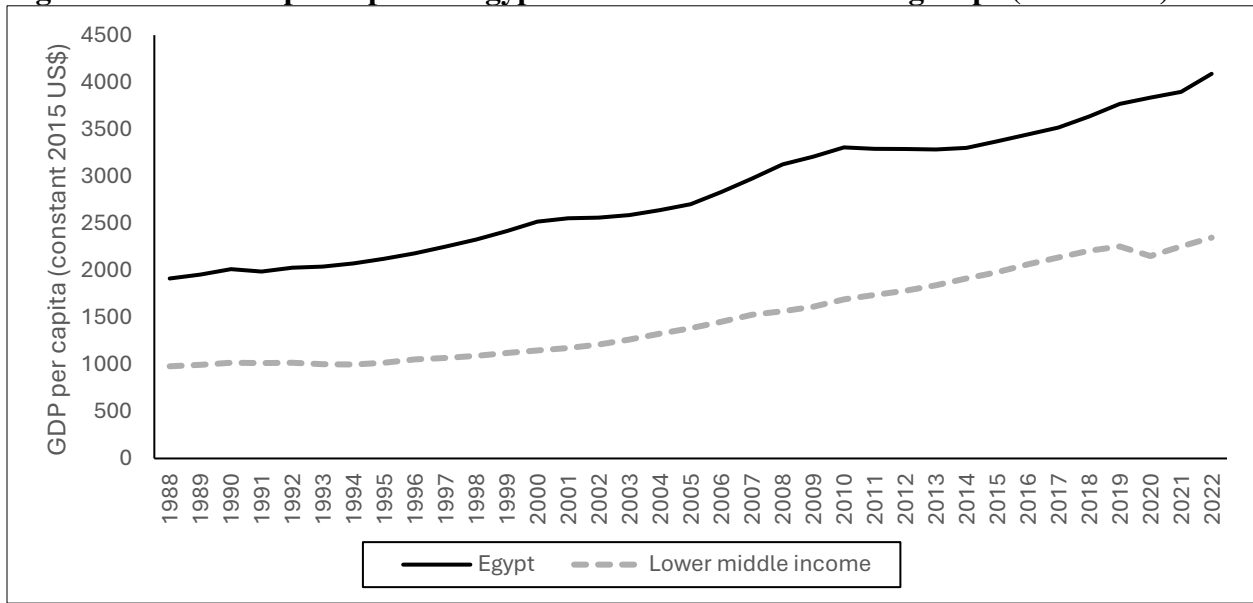
its contribution to income, the larger the impact on the inequality of marginal changes in the income source. If the income source has a negative marginal effect (or smaller concentration than the overall Gini), this indicates that this income source has an equalizing effect, and vice versa (Lerman, 1999; Urban, 2024).

3. Background on the Egyptian economy

Throughout the period under consideration (1988-2022), Egypt witnessed many macroeconomic imbalances due to internal and external shocks, which necessitated the implementation of several economic reform and stabilization programs that were implemented in partnership with international financial organizations like the World Bank and the International Monetary Fund (IMF). These programs focused mainly on liberalizing the economy, maintaining overall macroeconomic stability by reducing the state's welfare spending, and enhancing the role of the private sector in economic activity. It is argued that some reform efforts that aimed to achieve these broad goals resulted in negative distributional consequences on vulnerable groups (e.g., downsizing public sector employment, cutting subsidies, and devaluating the national currency) (Alashaal, 2015; Alissa, 2007; El-Haddad and Gadallah, 2021; Nassar, 2011).

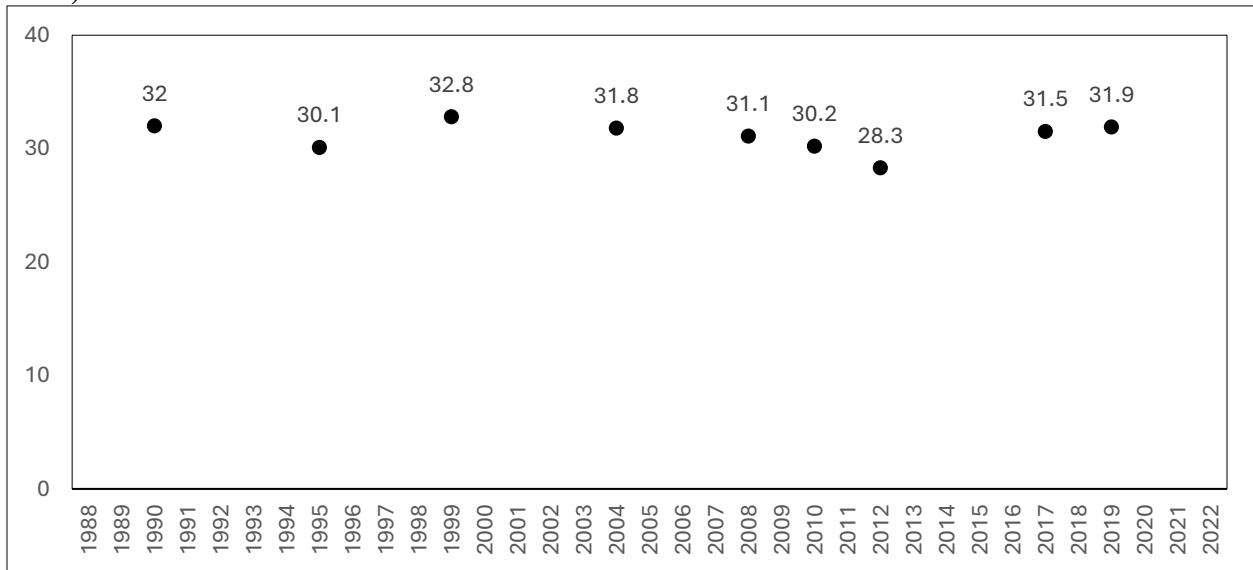
Egypt performs well in terms of real GDP per capita. The real GDP per capita more than doubled throughout 1988-2022, increasing from USD 1,913.1 to USD 4,088.9 in constant 2015 US dollars (see Figure 1). Egypt's GDP per capita was consistently higher than the average for lower-middle-income countries (World Bank, 2024a). Despite that, the income gap between the top 10 percent and the bottom 50 percent of the population is considered sizable in Egypt and has not experienced substantial improvements. The income share received by the top 10 percent of the population averaged 48.1 percent over the same period compared to an average of 15.5 percent for the bottom 50 percent (Chancel et al., 2022). The evolution of the Gini index of expenditure inequality in Figure 2 also confirms this overall stability in income inequality, which ranged between 32.0 and 31.9 between 1988 and 2022.

Figure 1. Real GDP per capita in Egypt and lower-middle income groups (1988-2022)



Source: Authors' calculations based on the World Bank's World Development Indicators Database.

Figure 2. Gini index and income shares of the top 10 percent and bottom 50 percent (1988-2022)



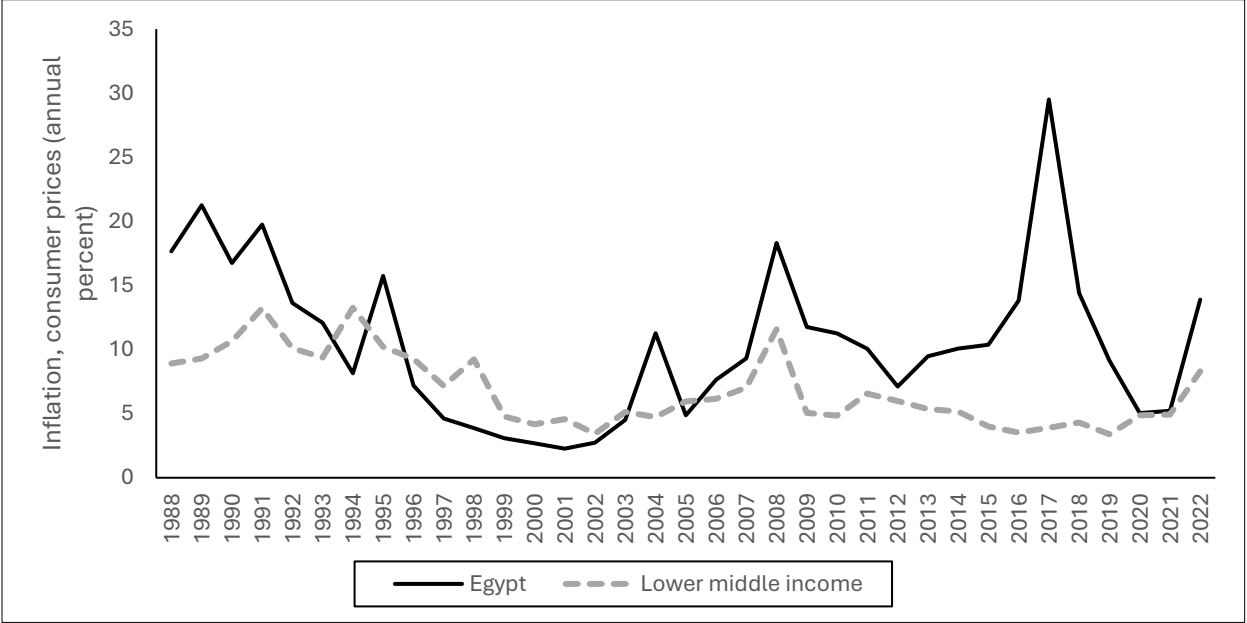
Source: Authors' calculations based on the World Bank's World Development Indicators.

The inequality problem in Egypt has been exacerbated by increasing inflationary pressures. Inflation has strongly impacted the living standards of the poor at the lower end of the income distribution, especially since it is considered a primary determinant of poverty through its effect on real wages (El-Laithy et al., 2011). Figure 3 illustrates that starting from the mid-2000s,

inflation showed an overall increasing trend and became consistently higher than the average for the lower-middle income group of countries. One of the key stimulators of the inflation rate during this period was the series of substantial currency devaluations that Egypt implemented as part of its reform program.

The largest and most significant happened in late 2016 when the exchange rate skyrocketed from EGP/USD 10.0 in 2016 to EGP/USD 17.8 in 2017, which made the inflation peak at 29.5 percent in 2017. While the exchange rate appreciated slightly from EGP/USD 17.8 in 2017 to EGP/USD 15.6 in 2021, other considerable upward shifts in the exchange rate also took place to EGP/USD 19.2 in 2022 and EGP/USD 30.6 in 2023, leading to another rise in the inflation rate, which reached 13.9 percent in 2022 up from 4.9 percent in 2021 (World Bank, 2024a). It is noteworthy that from January 2024 to June 2024, the exchange rate witnessed a remarkable shift from EGP/USD 30.8 to EGP/USD 48.0, driving the monthly average inflation rate over these six months to an unprecedented level of 31.2 percent (CBE, 2023).

Figure 3. Inflation rate in Egypt and lower-middle income groups (1988-2022)



Source: Authors' calculations based on the World Bank's World Development Indicators Database.

Over the study period, Egypt implemented many policies to mitigate the negative social consequences of different economic reforms on its population. The most important policy centered on the introduction of the minimum wage policy in the public sector in 2012, which raised the public sector minimum wage to EGP 700 per month in 2012 from EGP 35 per month before that. It increased to EGP 1,200 per month throughout 2018 and then to EGP 3,000 per month in July 2023 (Abouleinein, 2021; SIS, 2024). While the minimum wage policy was first confined to the public sector, it was extended to the private sector in 2022. The private sector minimum wage was

set initially at EGP 2,400 per month in January 2022 (Selwaness and Barsoum, 2023), but it has been subject to regular raises similar to what happened in the public sector, reaching EGP 6,000 per month in both the public and private sectors in 2024 (SIS, 2024). Nevertheless, as will be seen later, the nominal minimum wage levels have typically failed to fully keep up with inflation, especially in 2018, exposing workers to reductions in their real wages. Moreover, most workers in Egypt are informally employed, representing 48.6 percent of total wage employment in 2023 (42.2 percent among men and 25.9 percent among women), which implies that they are effectively not covered by the minimum wage provisions.

Egypt has a long history of food subsidies, which are an integral part of its social protection system to support the income of vulnerable groups. The food subsidy system takes the form of the *Baladi* bread subsidy and food ration cards, benefiting about 79 and 69 million people,⁷ respectively, and together consisting of around six percent of total government expenditure (Roman, 2021). Since the 1990s, the system has undergone major reforms to rationalize the state's expenditure and to ensure that subsidies are targeting deserving beneficiaries. These reforms include offering lower subsidy ratios for higher-income beneficiaries, reducing the number of subsidized foods consumed mainly by higher-income groups, controlling the rise in the number of new beneficiaries, adjusting the prices and quantities of a particular subsidized food...etc. (Al-Shawarby and El-Laithy, 2010).

In addition to the food subsidy system, social safety nets also play a key role in supporting the income of the poor. The most important programs introduced in 2015 were *Takaful* and *Karama*, which are cash transfer programs implemented by the Ministry of Social Solidarity and co-financed by the government of Egypt and the World Bank. The cash transfers target poor families with children under the age of 18, poor elderly above the age of 65, people with disabilities, and orphans. While the *Takaful* program—which targets poor families with children—is conditioned on school attendance and regular visits to healthcare units, the *Karama* program—which targets the elderly and disabled—is unconditioned (Roman, 2021, 2023). By December 2023, the program covered 4.67 million vulnerable households, comprising roughly 17 million individuals, 50 percent of whom are women. In 2024, the program's dedicated budget line in the national budget increased to EGP 41 billion (0.4 percent of GDP in 2023) from EGP 3.6 billion in 2015 (0.1 percent of GDP in 2015) (World Bank, 2024b).

⁷ These numbers represent 72.3 percent and 63.2 percent of the total population in Egypt in 2021, respectively.

4. Wages⁸ in Egypt (1988-2023): Distribution, Trend, and Inequality

4.1. Wage distribution and trends

The box plot for the real hourly wage distribution from all jobs over time in Figure 4 suggests that it tends to be skewed to the right, indicating that most wages are concentrated at the relatively lower end of the wage distribution, especially among female workers. However, wage compression can be observed whenever there is a fall in the median hourly wage. While men tended to receive higher wages than women in the first three rounds, this trend was reversed in the last three rounds. This could be explained by the fact that the minimum wage level started to witness a major revision in the public sector in 2012, where women's employment is typically concentrated, reaching EGP 700 per month, equivalent to a real⁹ hourly¹⁰ wage of EGP 23.7. This increased to EGP 1,200 per month throughout 2018, corresponding to a real hourly wage of EGP 17 and then to EGP 2,700 per month in early 2023, with a real hourly wage of EGP 19.3 (Abouleinein, 2021; SIS, 2024).¹¹

The evolution of the median real hourly wage over time shows almost the same trend among men and women. The sharpest drop throughout the period occurred in 1998 when the median wage declined from around EGP 22.7 in 1988 to EGP 16.4 in 1998, despite the considerable containment of the inflation rate. This could be attributed to the contraction of public sector employment since the early 1990s and the expansion of informal employment where wages are substantially lower (Assaad et al., 2019; Barsoum and Abdalla, 2020). The median real wage recovered gradually until it reached its initial 1988 level (EGP 21.9) in 2012. Nevertheless, it dropped again in 2018 and 2023 to EGP 19.1 and EGP 17.3, respectively, due to the inflationary pressures brought about by a series of currency devaluations, the largest of which was in late 2016, as indicated earlier. The year 2023 also reveals some disparities in the median real wage trend between men and women. While it increased among women from EGP 19.3 in 2018 to around EGP 20.1 in 2023, it declined slightly among men from around EGP 19.1 to around EGP 16.8 between the two years (See Table C-1).

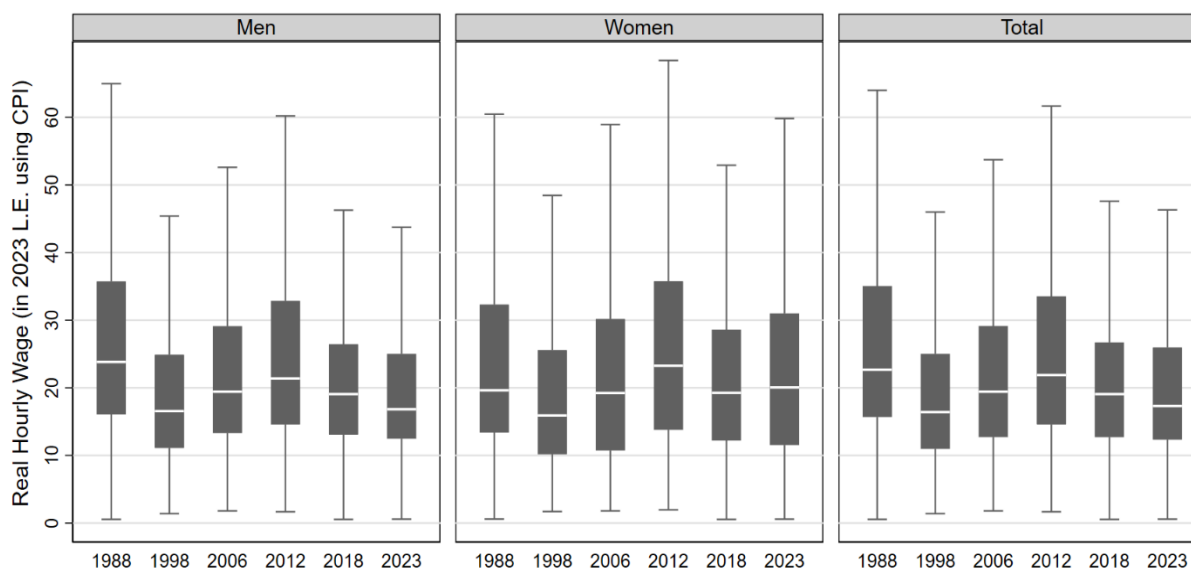
⁸ 21 observations were excluded in the cleaning process.

⁹ Using the consumer price index of October 2023 as the base year.

¹⁰ To calculate the minimum hourly wage, the minimum monthly wage was divided by 140 hours as the number of weekly working hours in the public sector is 35 hours.

¹¹ Based on the ELMPS 2023, women employed in the public sector comprised almost 59 percent of total women's employment, compared to a share of 26 percent for their male counterparts.

Figure 4. Distribution of real hourly wage (in constant October 2023 Prices) (primary and secondary jobs)



Source: Authors' calculations based on the ELMPS (1988-2023).

The trend of median real hourly wage by different groups in Figure 5 indicates that, as expected, and regardless of gender and time, median wages are relatively higher for older age groups than younger age groups; for high-educated than low-educated workers, for high-skilled workers than low-skilled workers; for public and formal private sector workers than informal private sector workers; and for urban workers than rural workers. Disparities in median wages among subgroups are also more pronounced among women than among men, which confirms the previous conclusion of Figure 4 of a relatively higher incidence of wage inequality among women. Another important note that could be implied from the figure is that women who belong to more vulnerable groups tend to receive relatively lower wages than men, while those who belong to more advantaged groups tend to receive similar wages as men, if not higher.

The wage trends among different subgroups also do not generally differ from the overall trend highlighted in Figure 4, and this holds for both men and women. However, some subgroups have a comparatively improving wage trend, especially in 2023. This applies to highly educated workers, workers in high-skilled occupations, and public sector workers, regardless of gender. In contrast, the median wage dropped heavily among other groups such as low-educated, low-skilled, and informal workers, especially among men. Additionally, women in some subgroups are more likely to encounter a stronger improvement in median wage over time than their male counterparts. Examples include women in the (25-34) age group, women with secondary education, women in the public sector, and women in rural and urban areas.

Figure 5. Evolution of real median hourly wages (in constant October 2023 prices) (primary and secondary jobs) by different subgroups

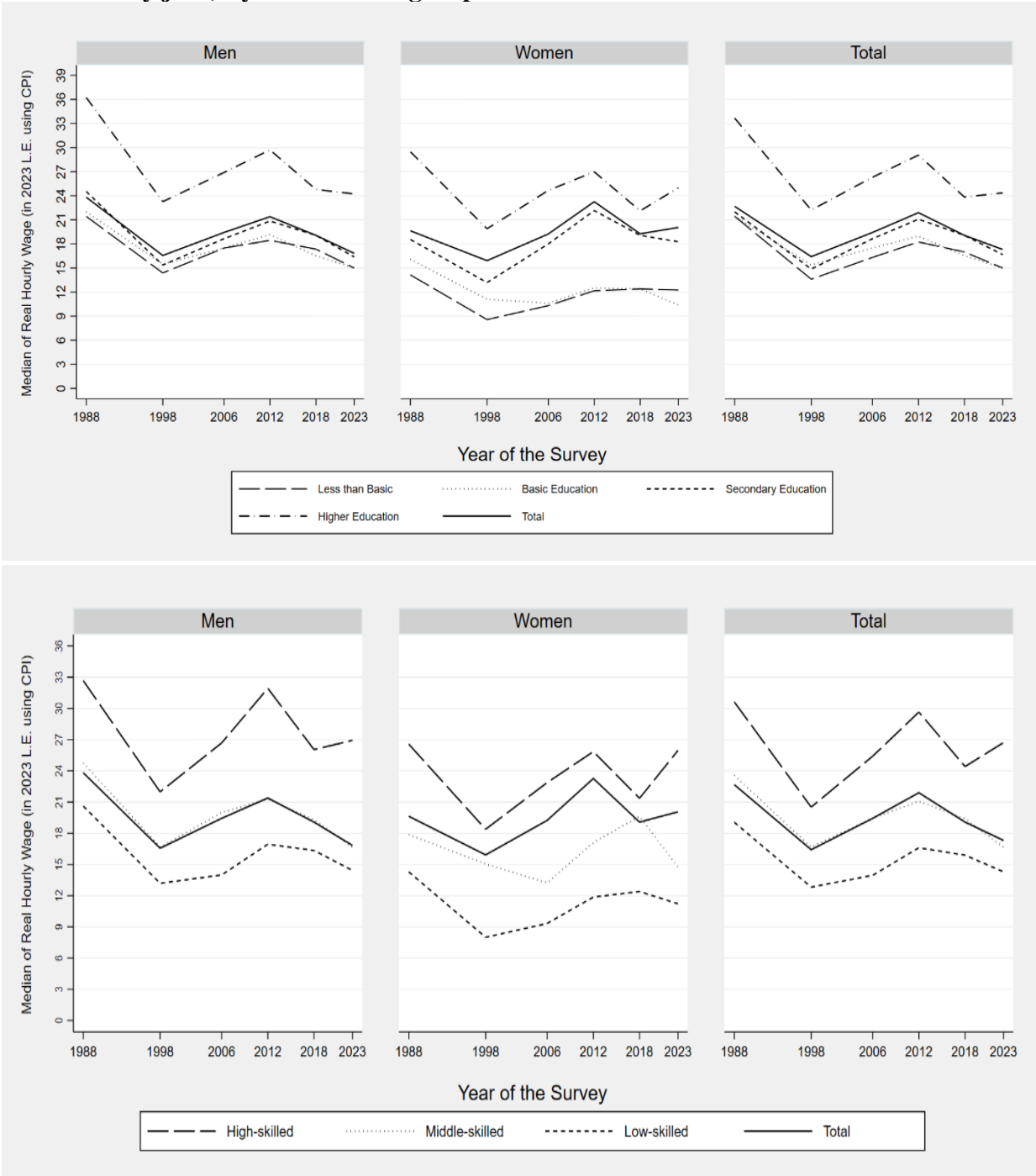


Figure 5. Evolution of real median hourly wages (in constant October 2023 prices) (primary and secondary jobs) by different subgroups (continued)

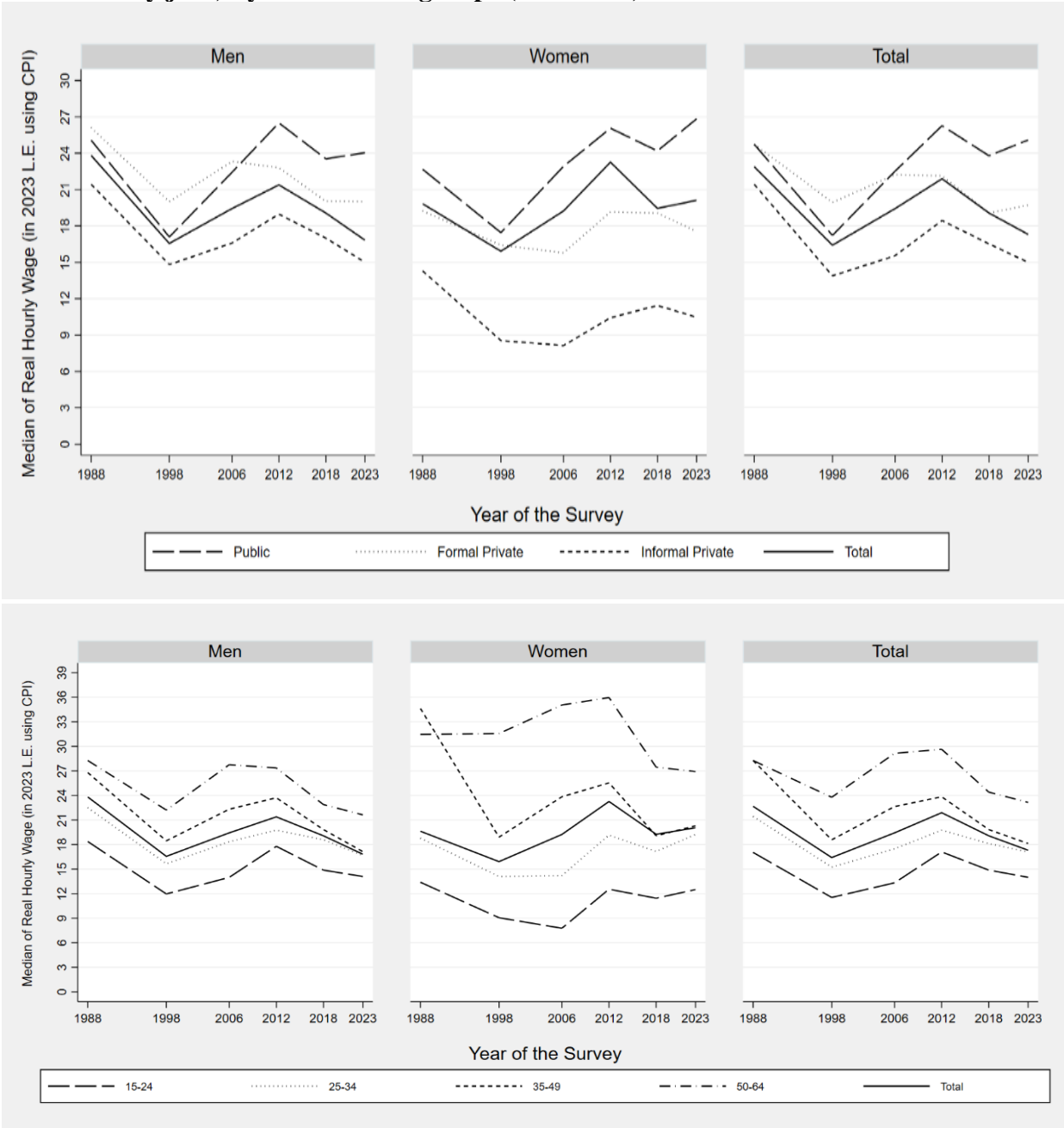
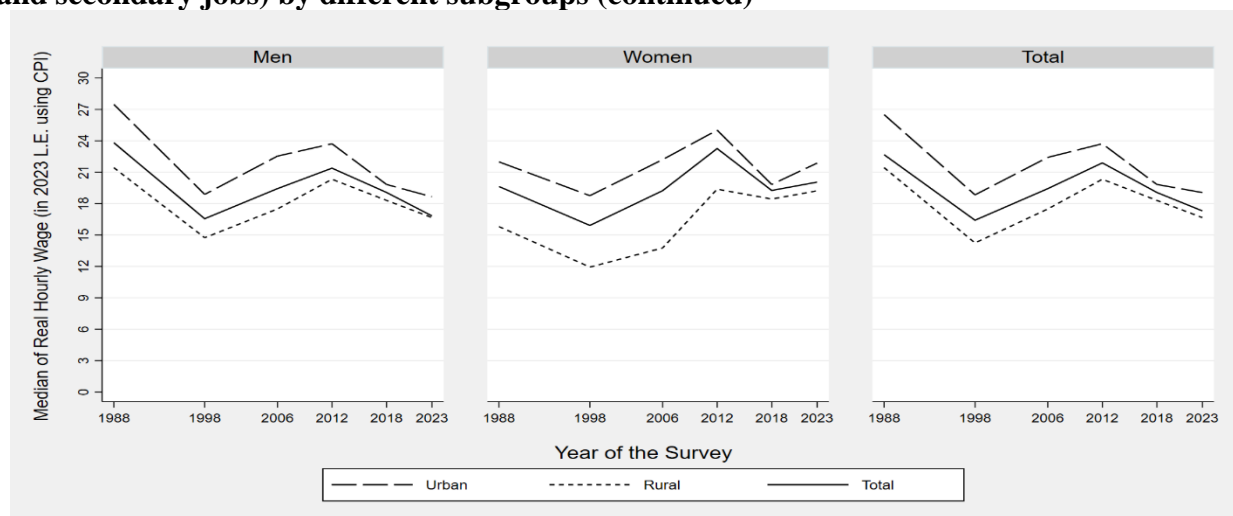


Figure 5. Evolution of real median hourly wages (in constant October 2023 prices) (primary and secondary jobs) by different subgroups (continued)

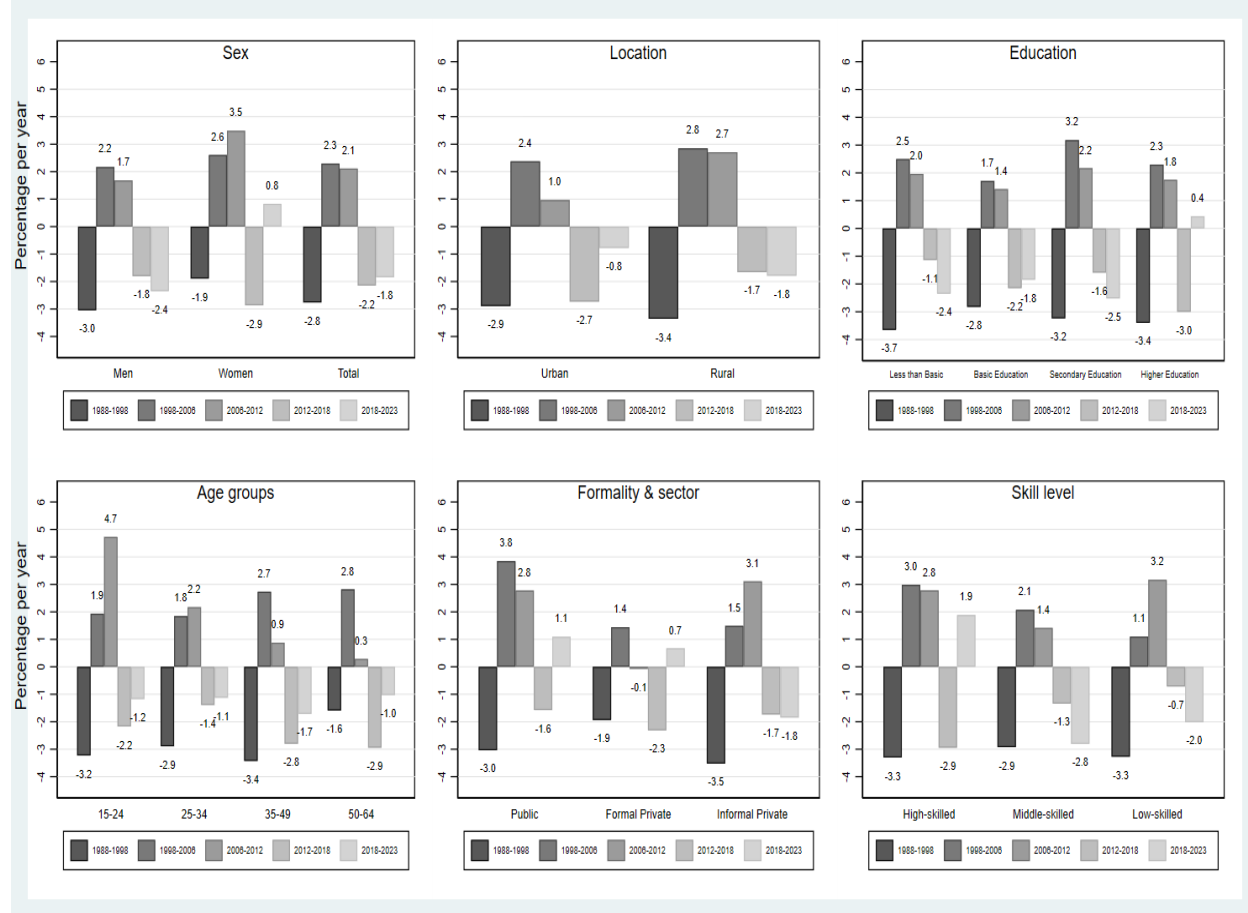


Source: Authors' calculations based on the ELMPS (1988-2023).

Notes: Occupational skill levels are defined as follows: High: Managers, technicians, and associate professionals. Middle: Clerical support, plant and machinery, and craft and trade workers. Low: Agricultural, service and sales, and other elementary occupations.

The representation of the growth rate in the real median hourly wage in Figure 6 wage growth was mainly confined to the 1998-2006 and 2006-12 periods. Wage growth during these periods was particularly higher among women (2.6 percent and 3.5 percent, respectively), rural workers (2.8 percent and 2.7 percent, respectively), those with secondary education (3.2 percent and 2.2 percent, respectively), young workers in the 15-24 age group (1.9 percent and 4.7 percent, respectively), public sector workers (3.8 percent and 2.8 percent, respectively) and informal private sector workers (1.5 percent and 3.1 percent, respectively), and workers in high-skilled occupations (3.0 percent and 2.8 percent, respectively). The rest of the periods witnessed major wage drops, with the sharpest drop occurring in the 1988-98 period among most subgroups. However, the wage decline in later periods, brought about by the inflationary pressures, was also considerable for almost all subgroups. In 2018-23, only women, high-education workers, workers in high-skilled occupations, and public and formal private sector workers managed to have a positive wage growth.

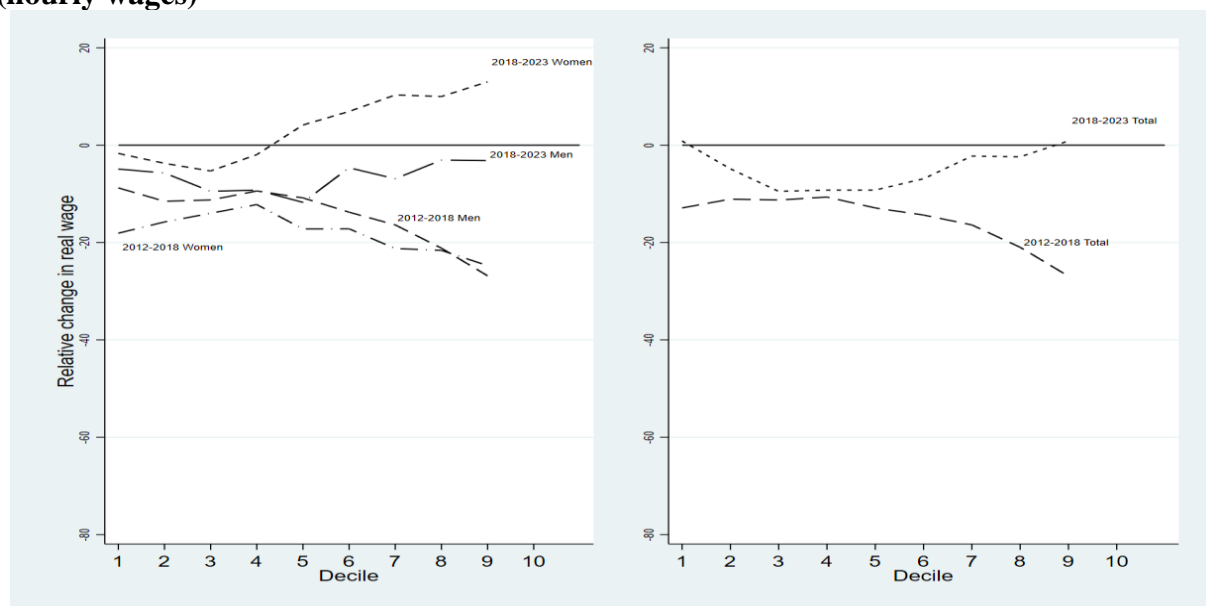
Figure 6. Growth rate of real median hourly wage (in constant October 2023 prices) (primary and secondary jobs) by different subgroups (continued)



Source: Authors' calculations based on the ELMPS (1988-2023).

Changes in real hourly wages between 2012-18 and 2018-23 by wage deciles, illustrated in Figure 7, indicate that in the first period (2012-18), all wages experienced a decline, and this was more severe among relatively higher wage earners compared to lower-earning groups, suggesting again that wage compression occurs in Egypt in times of declining wages. In the following period (2018-23), slight improvements in wages happened mainly in the lowest and highest wage deciles relative to middle-wage deciles (from the second to the ninth wage deciles). While the wage decline was stronger among women than men in 2012-18, women managed to attain a positive change in wages in 2018-23 starting from the fifth wage deciles upward, unlike men whose wage changes were negative at all wage deciles, but more so for the middle deciles.

Figure 7. Relative change in real wage (in constant October 2023 Prices) by wage deciles (hourly wages)¹²



Source: Authors' calculations based on the ELMPS (1988-2023).

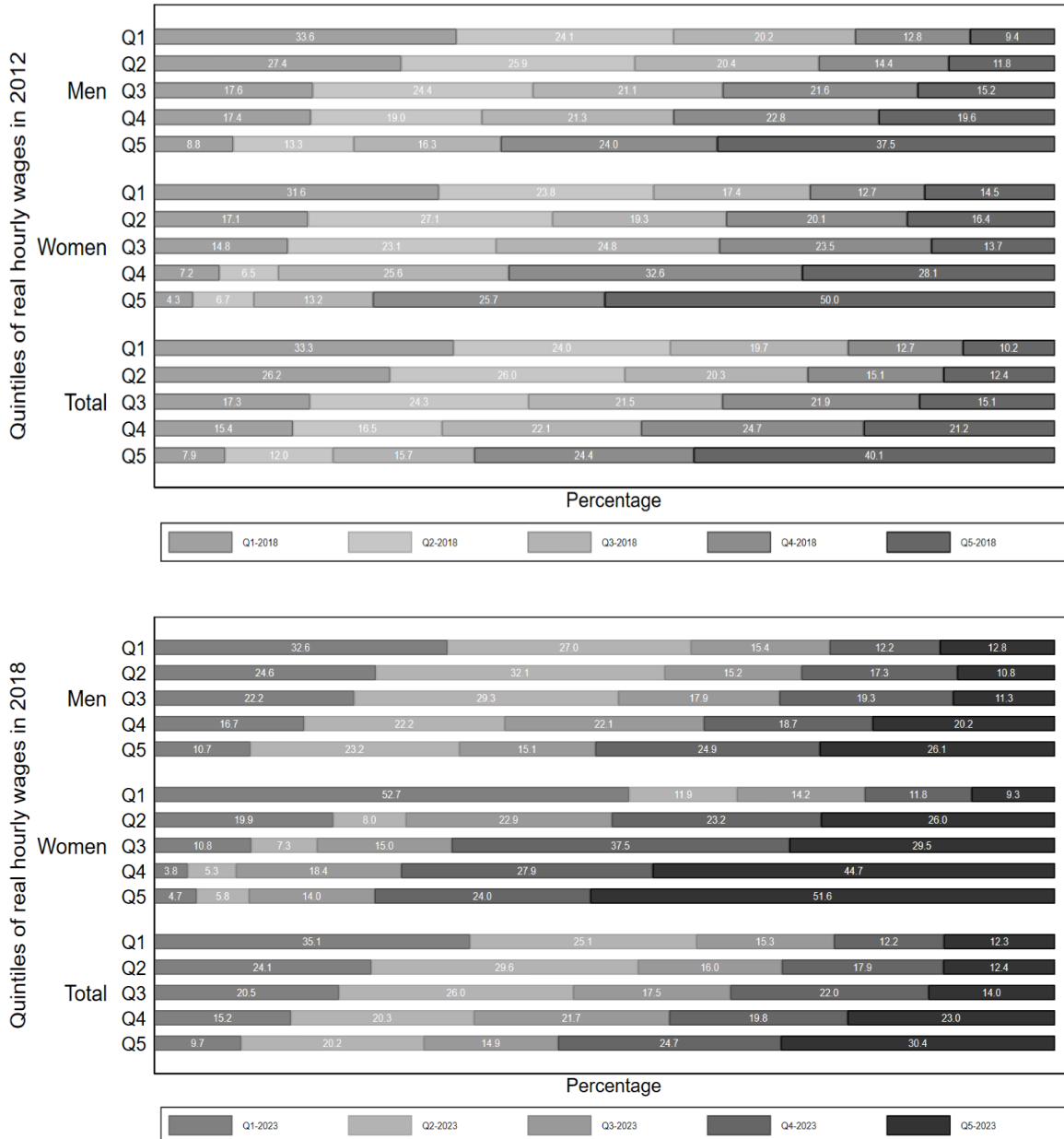
Tracking changes in the quintile position of the same wage workers observed in both the start and end years of each period, Figure 8 illustrates that remaining in the same wage quintile is more common among those in the lowest and highest wage quintiles (Q1 and Q5) compared to the middle quintiles (Q2-Q4). This tendency to persist in the same quintile was higher among those initially in the highest (40.1 percent) than in the lowest (33.3 percent) wage quintile in 2012, whereas it was higher among those initially in the lowest (35.1 percent) than in the highest (30.4 percent) wage quintile in 2018. In both periods, the wage upgrade is prevalent across all wage quintiles, mostly to the nearest quintile, but it is limited. It is also more common among lower-wage quintiles compared to higher-wage quintiles.

Comparing women's movements to men, women in the highest wage quintiles are less likely to encounter a wage downgrade compared to men over time. In 2018 and 2023, around 50.0 percent and 51.6 percent, respectively, of women who were initially in Q5 remained in the same quintile compared to 37.5 percent and 26.1 percent for men. Except for the year 2023 in which around 52.7 percent of women initially in Q1 remained there compared to 32.6 percent for men, women in lower-wage quintiles are also more likely to encounter wage improvements compared to men. This could be attributed to the notable decline in labor force participation among women, especially

¹² Wage deciles are computed in each round separately by splitting wage workers into 10 equal groups based on their real wages. The real wage, below which 10 percent, 20 percent ..90 percent of the target group earns are computed in each round. Then, the relative change in wages per decile between any two years is calculated by subtracting the previous wage of a particular decile from its current wage and dividing it by its previous wage. Finally, this ratio is multiplied by 100 to get the percentage change.

those with secondary education who are typically found in the middle and low wage quintiles. Thus, the decline in their participation makes them unrepresented in the panel.

Figure 8. Changes in real (in constant October 2023 prices) median hourly wage quintile position of workers during 2012-18 and 2018-23 (panel data)¹³

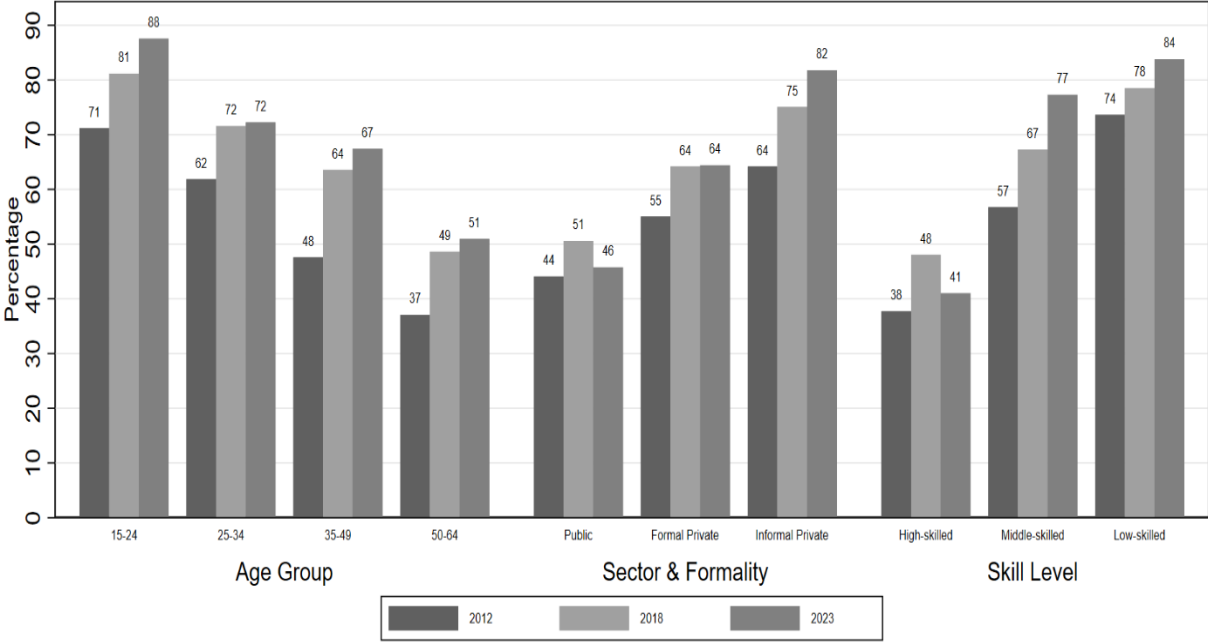


Source: Authors' calculations based on the ELMPs (1988-2023).

¹³ The number of panel observations used was 5,679 for the 2012-18 period and 5,955 for the 2018-23 period, including individuals who remained wage workers between the ages of 15 and 64 after data cleaning.

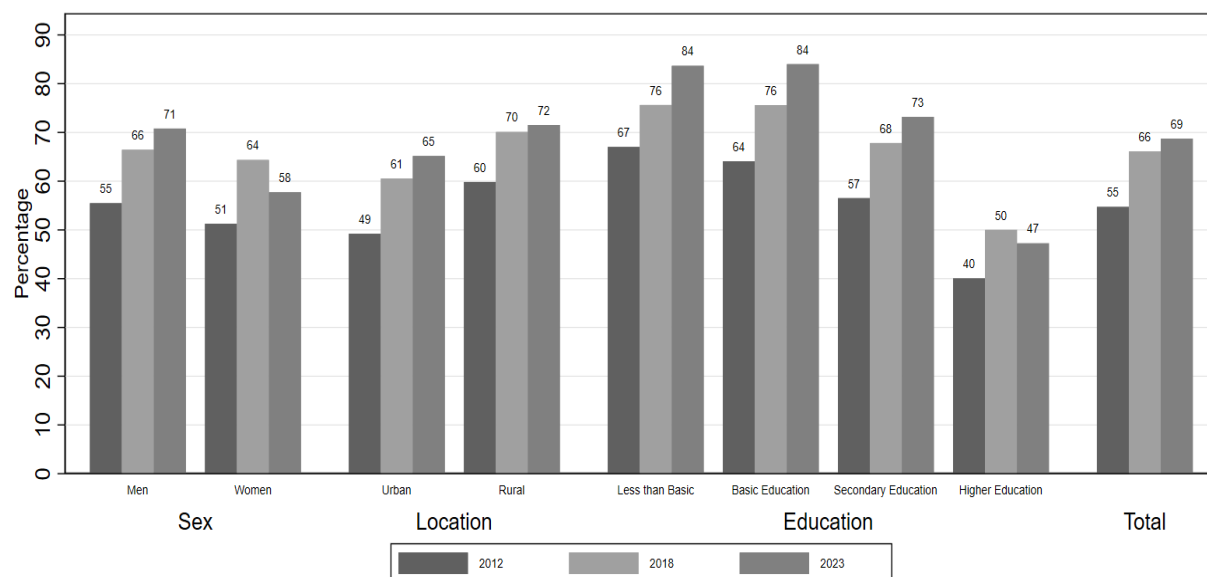
After displaying the wage distribution and trend over time, it is also useful to shed light on the share of wage workers whose monthly wages are below the minimum wage level. The year 2012, when the minimum wage level was EGP 700 per month, is considered the base year upon which the corresponding minimum wage levels for 2018 and 2023 are calculated by multiplying this value by the ratio between the Consumer Price Index (CPI) in the target year and the base year. Based on this transformation, the corresponding minimum wage levels for 2018 and 2023 become EGP 1,674 and EGP 3,320 per month, respectively; these are equivalent to EGP 12 and EGP 23.7 per hour. These values are above the official minimum wage levels prevailing in those years, which were EGP 1,200 and EGP 2,700 per month, respectively; these are equivalent to EGP 8.6 and EGP 19.3 per hour. This underlines that minimum wage adjustments do not fully account for inflation costs, especially in 2018, exposing workers to reductions in the purchasing power of their wages.

Figure 9. Percentage of workers receiving hourly wage below the minimum wage level – the low-wage share¹⁴



¹⁴ Only wages from the primary job are considered.

Figure 9. Percentage of workers receiving hourly wage below the minimum wage level – the low-wage share (continued)



Source: Authors' calculations based on the ELMPS (1988-2023).

As illustrated in Figure 9, workers receiving hourly wages below the minimum wage level constitute more than one-half of all wage workers, and their share increases steadily over time (55.0, 66.0, and 69.0 percent in 2012, 2018, and 2023, respectively). We will refer to this as the low-wage share thereafter. This could imply a high incidence of poverty, given that most workers in Egypt are wage workers¹⁵ and that wages are considered the main source of income for most of the population,¹⁶ as will be discussed later. The increasing trend in this share is pervasive across all subgroups, reflecting the notable effect of currency devaluation in late 2016 and its associated inflationary pressures on wages.

On the one hand, the low-wage share improved slightly for some subgroups in 2023 compared to 2018, especially among public sector workers (from 51.0 to 46.0 percent), high-skilled workers (from 48.0 to 41.0 percent), and workers with higher education degrees (from 50.0 to 46.0 percent). On the other hand, the share continued to increase considerably for workers with low levels of education (76 compared to 84 percent for workers with less than basic education and basic education, respectively) and middle-skilled workers (57 in 2012 compared to 77 percent in 2023). The figure also underlines large differences in the low-wage share among subgroups; namely, it is considerably higher among vulnerable working groups (i.e., early entrants to the labor market,

¹⁵ Around 64 percent of employed individuals are waged workers, based on the ELMPS 2023 data within the three months reference period.

¹⁶ Wages are considered the main source of income for around 50 percent of households in the ELMPS 2023.

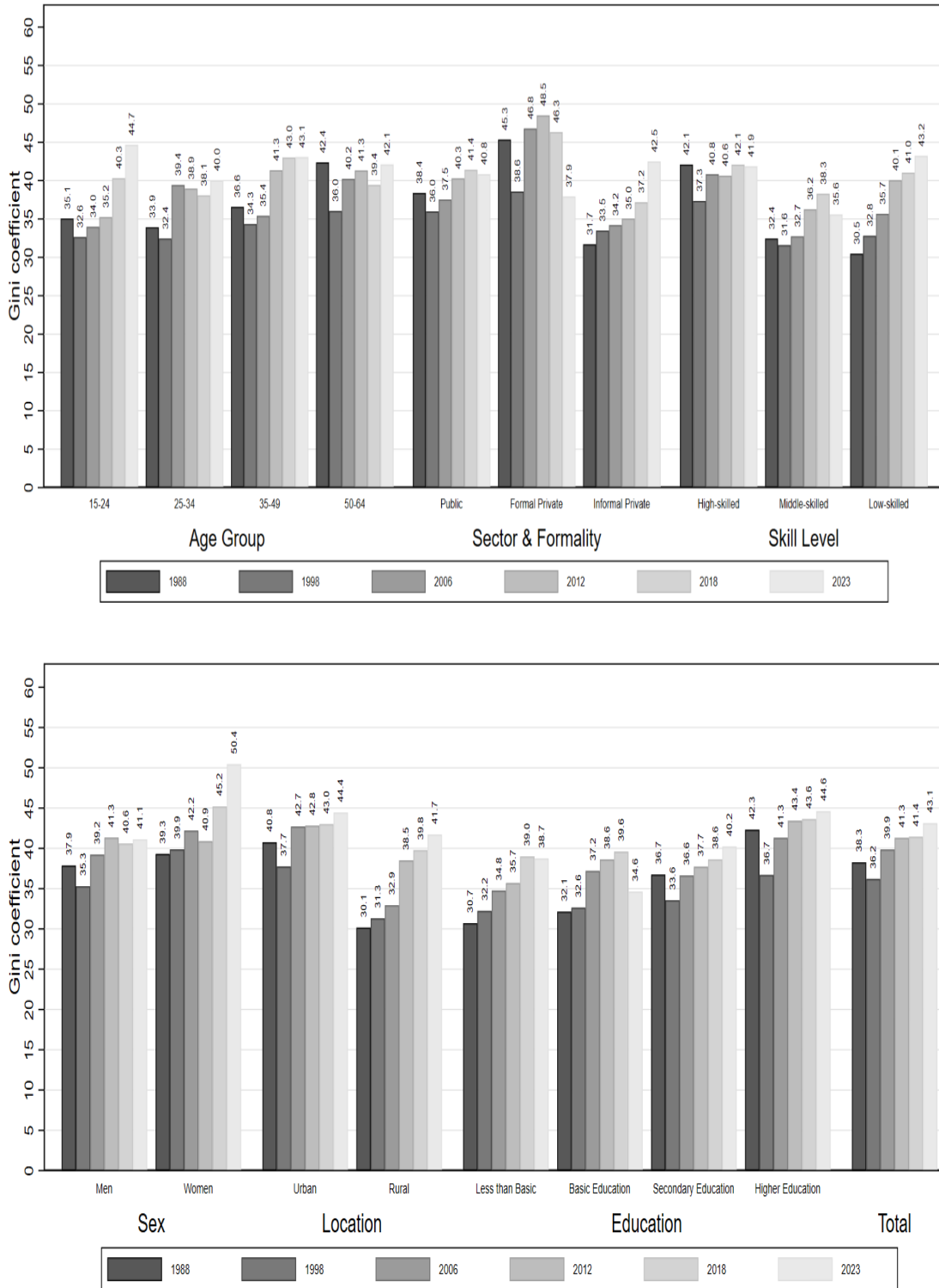
low-educated workers, workers in low-skilled occupations, informal private sector workers, and rural workers).

4.2. Wage Inequality

Overall hourly wage inequality, as measured by the Gini index,¹⁷ shows an almost uniformly increasing trend over time from 38.3 in 1988 to 43.1 in 2023 (see Figure 10). This increasing trend holds for almost all subgroups. However, inequality witnessed slight improvements in 2023 among particular subgroups, such as public and formal private sector workers, high-skilled and middle-skilled workers, and those with less than basic and basic education workers. The level of wage inequality differs considerably among subgroups. Across all survey years, the Gini index was generally higher among formal private sector workers, highly educated workers, women, urban workers, and middle and high-skilled occupations. While a substantial difference in wage inequality is apparent among some subgroups (e.g., women and men), a convergence is found among others (e.g., urban and rural workers).

¹⁷ The Stata module “ineqdeco” by Jenkinson (1999) is implemented in the analysis.

Figure 10. Gini coefficient for wage inequality by subgroups (hourly wage)



Source: Authors' calculations based on the ELMPs (1988-2023).

The Gini coefficient for monthly wage indicates that between 2018 and 2023, inequality witnessed a slight decrease from 43.4 to 42.4 rather than an increase. This implies an increasing gap in working hours among groups between the two years. This could be attributed to either more relatively high-paid workers opting for fewer working hours or more relatively low-paid workers working more hours. The proportion of those working excessive work hours (more than 49 hours per week) between the two years increased substantially among formal and informal private sector workers where wages are relatively lower, compared to public sector workers who enjoy higher wages. Namely, working hours per week increased from 19 to 34 in the formal private sector, from 59 to 71 and from 37 to 50 in informal private sector workers inside and outside establishments, respectively, and from 19 to 34 in the public sector (Assaad and Mahmoud., 2024). In fact, changes in the median working hours per week by wage decline based on data from ELMP for 2018 and 2023 (not shown) generally indicate that—except for the lowest wage decile that did not witness any change—the median working hours by wage decile increased notably among lower deciles (e.g., from 56 to 60 hours/week for the second decile and from 49 to 56 hours/week for the third decile) compared to higher ones, which witnessed almost no change.

5. Income distribution¹⁸ and trend

Income per capita disparities by household head characteristics show that the median income was higher among female-headed households than male-headed households in 2012 and 2018. It also tended to move monotonically with education, wealth, and urbanization levels in all years. Median income was also consistently higher among households headed by the top highest age groups (45-54 and 55+) than the top lowest age groups (<25 and 25-34) and higher among both than the middle age group (35-44). Households headed by public and formal private sector workers consistently have the highest median income across all years compared to the rest of households. In third place came those headed by employers. Those headed by informal private sector workers had the lowest median wage, particularly in 2012 and 2023. Regarding the income trend, the median real monthly income per capita¹⁹ decreased between 2012 and 2018 from EGP 1,395 to EGP 992 in constant 2023 prices, and then recovered slightly in 2023, reaching EGP 1,009 (see Table 1).

The overall income trend also applies to almost all subgroups, but divergence does exist. The period 2012-18 witnessed a pervasive decline in median income across all subgroups but with varying degrees. The decline in the annual growth rate was the highest among male-headed households (4.7 percent); households headed by those with higher education (6.5 percent); households headed by those in the <25 age group (5.1 percent); households headed by non-working and non-wage workers (i.e., self-employed/unpaid family worker by 5.7 percent, non-working by 5.1 percent, and employers by 4.6 percent), households in the wealthiest quintile (7.0 percent); and urban households (5.5 percent). While the period 2018-23 experienced a general recovery in the

¹⁸ The distribution's analysis excludes zero income and income above the 999th percentile.

¹⁹ The analysis for the income per capita uses the households' weights multiplied by the household size.

income trend, some subgroups continued to experience a strong income decline compared to their counterparts in the same group. These subgroups include women (0.9 percent); those with basic (0.5 percent) and higher education (0.3 percent); those in the <25 age group (6.8 percent), the 35-44 age group (0.2 percent), and the 45-54 age group (0.2 percent); and those in the lowest (0.4 percent) and two highest income quintiles (0.1 and 0.9 percent).

Table 1. Median real monthly income per capita (in constant October 2023 prices) by subgroups (2012-23)

Wave of the Survey (Year)	Main Characteristics	2012	2018	2023	Growth Rate Per Year 2018-12 ²⁰	Growth Rate Per Year 2023-18
Sex of Household Head	Men	1382	992	1011	-4.7%	0.4%
	Women	1424	1047	1000	-4.4%	-0.9%
	Illiterate	1185	913	971	-3.8%	1.3%
Educational Attainment of Household Head	Reads and Writes	1233	992	1000	-3.3%	0.2%
	Basic Education	1318	962	938	-4.5%	-0.5%
	Secondary Education	1304	978	1000	-4.2%	0.4%
	Higher Education	2283	1388	1370	-6.5%	-0.3%
Age of Household Head	<25	1423	992	655	-5.1%	-6.8%
	25-34	1199	992	1000	-2.9%	0.2%
	35-44	1167	841	833	-4.7%	-0.2%
	45-54	1446	1031	1019	-4.8%	-0.2%
	55+	1755	1322	1375	-4.1%	0.8%
Work Status for Household Head	Public Sector Waged Worker	1648	1256	1278	-4.0%	0.3%
	Formal Private Sector Waged Worker	1581	1190	1250	-4.1%	1.0%
	Informal Private Sector Waged Worker	1138	915	875	-3.3%	-0.9%
	Employer	1393	1006	1218	-4.6%	4.2%
	Self-Employed/Unpaid Family Worker	1276	841	1000	-5.7%	3.8%
	Non-Working	1423	992	917	-5.1%	-1.5%
Quintiles of Household Wealth	1 st Quintile	949	773	758	-3.1%	-0.4%
	2 nd Quintile	1138	833	857	-4.5%	0.6%
	3 rd Quintile	1265	928	1011	-4.4%	1.8%
	4 th Quintile	1581	1173	1167	-4.3%	-0.1%
	5 th Quintile	2609	1520	1450	-7.0%	-0.9%
Urban/Rural	Urban	1779	1190	1218	-5.5%	0.5%
	Rural	1186	898	917	-4.0%	0.4%
Total		1395	992	1009	-4.8%	0.4%

Source: Authors' calculations based on the ELMPS (2012-23).

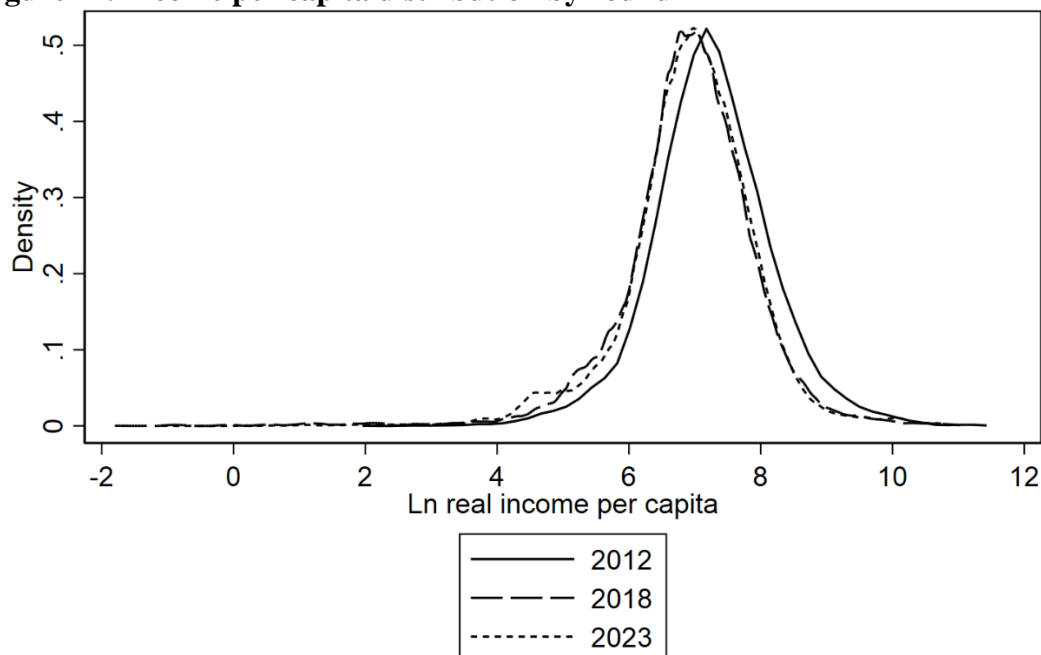
The real per capita income distribution, demonstrated by the kernel density estimation, is presented in Figure 11. The curve displays a notable leftward shift in the whole income distribution between the years 2012 and 2018, indicating a reduction in the income per capita level across all income

²⁰ Annual growth rates for the median income are calculated using the formula:

$$\left(\frac{\text{Median income in current round} - \text{Median income in previous round}}{\text{Median income in previous round}} \right) / \text{Number of years between the two years}$$

levels in 2018. However, the overall income distribution improved in 2023. This could be depicted by the slight shift in the kernel density to the right.²¹

Figure 11. Income per capita distribution by round



Source: Authors' calculations based on the ELMPS (2012-23).

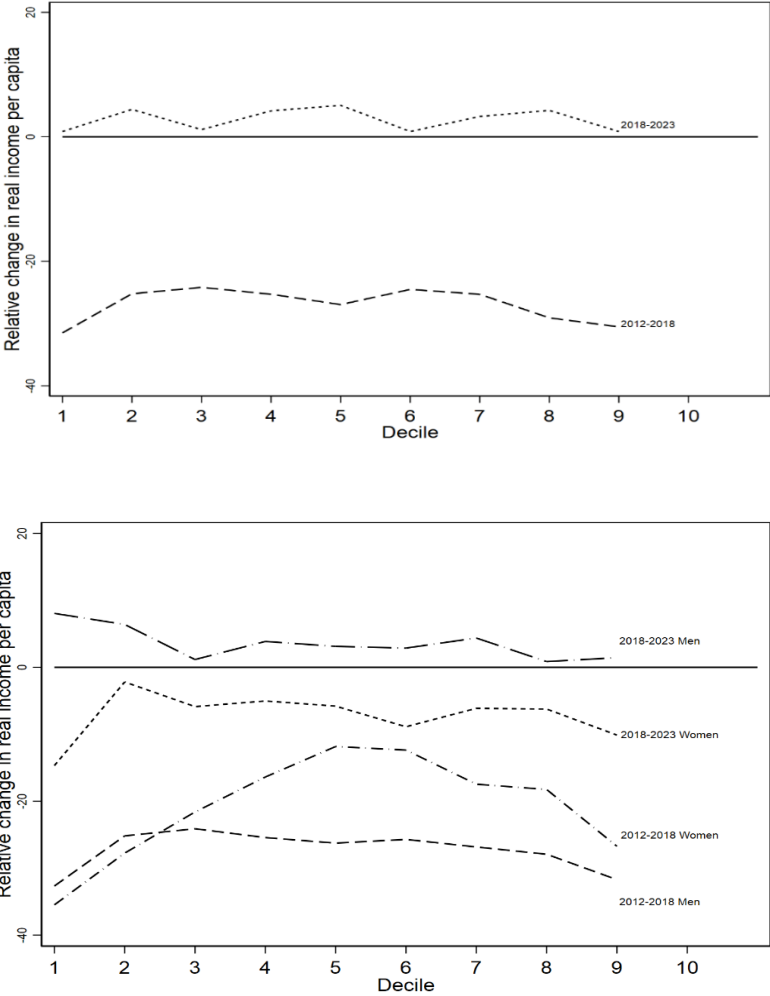
The relative change in per capita income per income decile observed in Figure 12 varies considerably from the relative changes observed for wages in Figure 7. The period 2012-18 witnessed wage and income drops among all wage and income deciles, but the patterns of these drops were different. While wage declines were notably sharper among the highest wage deciles, income decline was almost the same across all income deciles, with slightly stronger declines in the lowest and highest income deciles. For the following period (2018-23), wage improvements in all wage deciles did not reach the level that led to a wage increase, especially in the middle-wage deciles that witnessed a relatively higher decline than lower and higher deciles. This is unlike the case for income, which became higher in 2023 than in 2018 in all income deciles. This could be linked to the documented rapid increase in own-account workers—including the self-employed and employers—between 2018 and 2023 and the substantial increase in income received by households headed by own-account workers, as evidenced by Assaad and Mahmoud (2024).

Disaggregating changes in income growth by gender in the same figure reveals greater disparities between both subgroups. While the income drop was more pronounced among men than women during 2012-18, especially starting from the second income decile, the reverse happened during

²¹ Households with zero income are excluded.

2018-23. During the latter period, women witnessed an overall income drop across all income declines, while men encountered wage increases. The income drop for women and increase for men were strongest among the lowest income deciles. It is noteworthy that the relative changes in income suggest a relatively improving position of female-headed households to male-headed households over the period 2012-18, but the reverse is true for the period 2018-23. This could be attributed to the sharp decline in the prevalence and income share of many income sources that women typically rely on. For instance, remittances and capital income declined sharply among female-headed households between 2012 and 2023 as prevalence and share of income as well. While relying on contributory pensions (again, as prevalence and share of income) increased for female-headed households, the inflationary pressures of 2023 could also have limited the positive impact of this increase on real income change for female-headed households.

Figure 12. Relative changes in real (October 2023=100) income per capita by income decile²²



Source: Authors' calculations based on the ELMPS (2012-23).

²² Income deciles are constructed the same way as wage deciles, as explained in Footnote 12.

*5.1. Income source prevalence and diversification*²³

The presentation of the coverage of different income sources—both overall (in Figure 13) and by gender and location (in Figure 14)—reveals that wages (both public and private) are the income source received by the largest portion of households in all years. However, its incidence decreased from 72 percent in 2012 to 68 percent in 2018 and 60 percent in 2023. The predominance of wages compared to the rest of income sources does not differ by gender or location, except that they consistently came in second place after contributory pensions for female-headed households. This could be attributed to the fact that women are more likely to be entitled to pensions (e.g., because of being widowed). Overall, wages tend to decline over time, regardless of gender and location groups.

Informal private sector wage was the most prevalent in all years among all wage categories, however, its prevalence first increased from 31 percent in 2012 to 35 percent in 2018 then decreased to 29 percent in 2023. This also holds when data are disaggregated by gender or location. The public sector wage followed the informal private sector wage, both overall and for gender and location groups. Still, the share of households receiving it decreased from 28 percent in 2012 to 22 percent in 2018, and 18 percent in 2023, reflecting the shrinking of the public sector. The decline in the share of households receiving public sector wages is pervasive among all gender and location groups. The lowest portion of households received the formal private sector wage among all wage categories, with relative stability in household shares over time compared to the rest of the wage categories (13, 11, and 13 percent in 2012, 2018, and 2023, respectively).

Contributory pensions come in second place after wages, with an increasing contribution from 22 percent in 2012 to 26 percent in 2018 and 29 percent in 2023. Their prevalence differs considerably by group. Namely, they are far more important among female-headed households than male-headed households and among urban households than rural households. This could be linked to the fact that households entitled to pensions are more likely to be headed by widows and exposed to formal sector work in the past. However, the share of households receiving them increased steadily over time across all subgroups. For instance, between 2012 and 2023, their household share increased from 15 to 20 percent among male-headed households and from 50 to 58 percent among female-headed households. It also increased from 30 to 35 percent among urban households and from 15 to 24 percent among rural households.

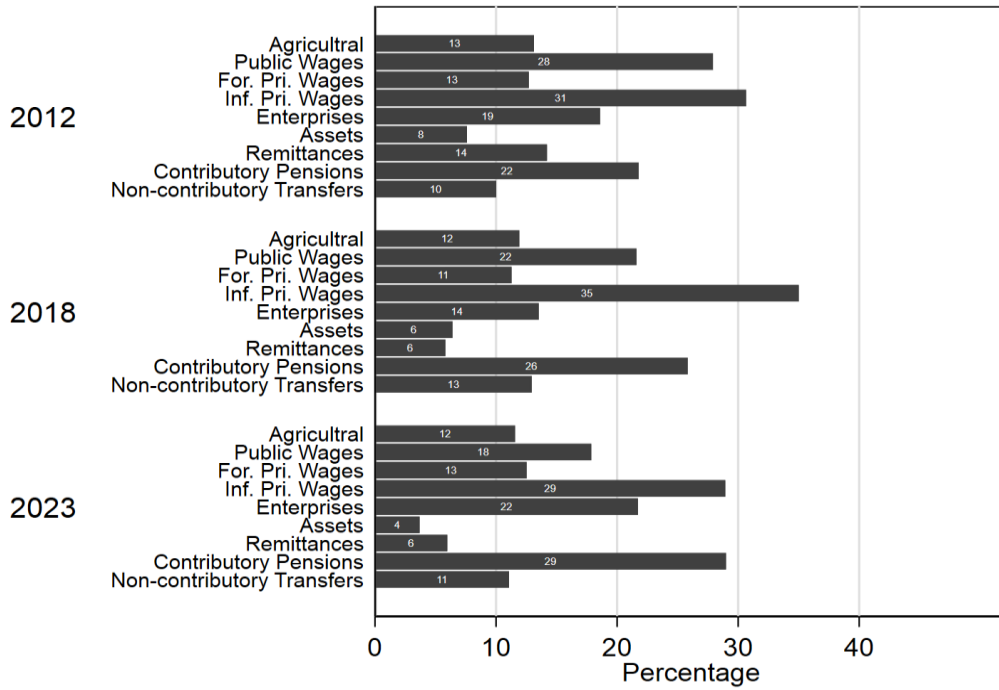
In the third position comes enterprise income. Its prevalence decreased from 19 percent to 14 percent between 2012 and 2018, but it increased again to 22 percent in 2023, attributed to the increase in the share of own-account workers noted earlier. This income source is received commonly by male-headed and urban households. While the gap in the share is more than double

²³ The households' weights are used in the analysis of this section.

between the two gender groups in all years, it is very small between the two location groups. However, the overall trend in household share per group is similar to the overall trend. While remittances directly followed enterprise income in 2012 with a household share of 14 percent, its prevalence dropped substantially in 2018 and 2023, reaching six percent in both years, and this drop was also observed among all gender and location groups. This decline in the prevalence of remittances is consistent with the decline in the importance of remittances to GDP in Egypt from 6.9 percent in 2012 to 4.9 percent in 2023 (World Bank, 2024a). Female-headed and rural households are more likely to rely on remittances than male-headed and urban households. For instance, in 2023, the household share reached three percent among male-headed households compared to 16 percent among female-headed households. It also reached three percent among urban households compared to eight percent among rural households.

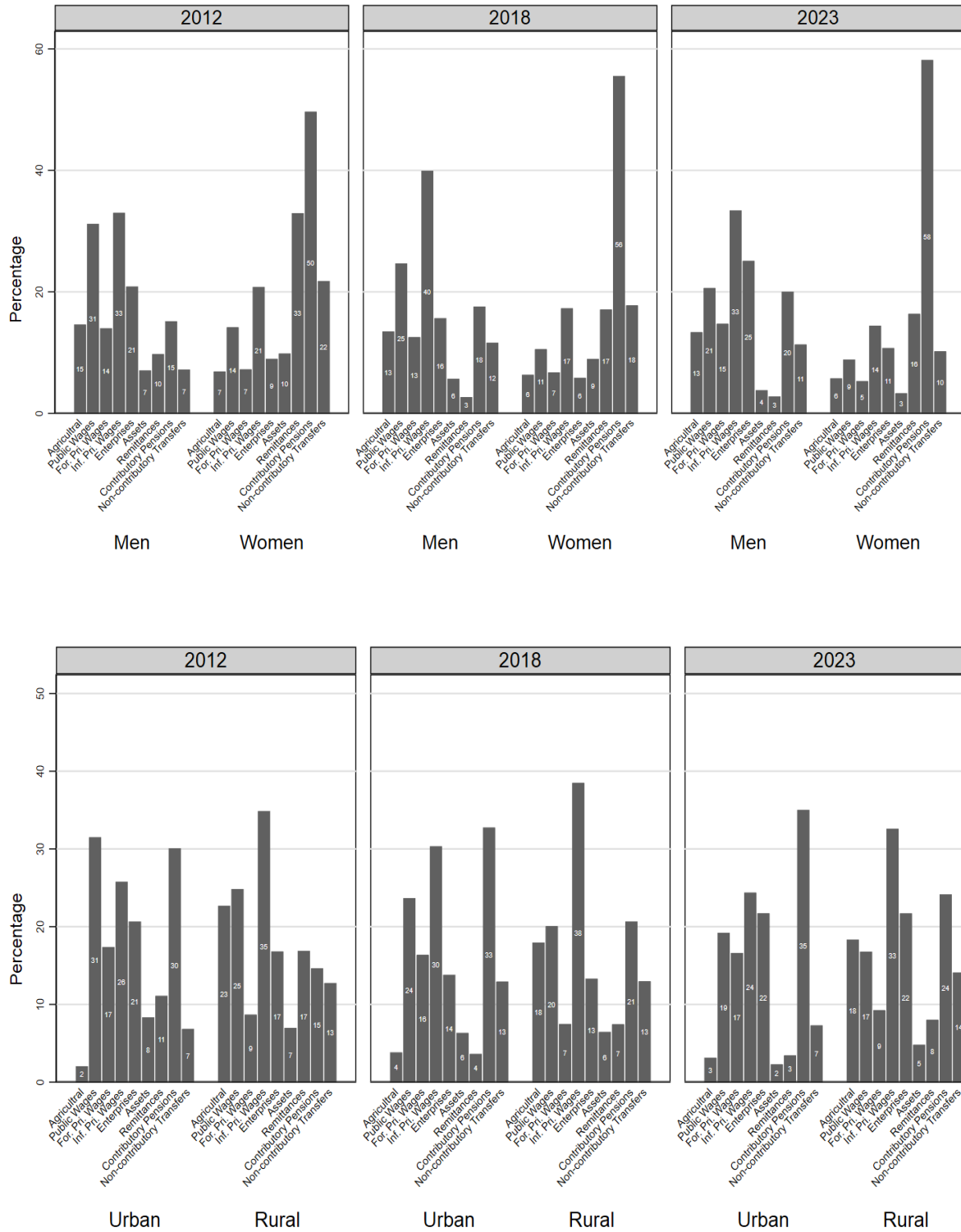
Agricultural income, noncontributory transfers, and assets are the least prevalent income sources. The household share declined for both agricultural and assets income from 13 and eight percent, respectively, in 2012 to 12 and four percent in 2023. This decrease is also observed regardless of gender and location groups. However, for noncontributory transfers, the household share first increased from 10 to 13 percent between 2012 and 2018 then decreased to 11 percent in 2023. While the same trend is also observed for male-headed and urban households, the share of households receiving noncontributory transfers decreased steadily for both female-headed and rural households. Notable differences are also observed in the relative prevalence of these income sources per group. Agricultural income is more prevalent among male-headed households than among their female-headed counterparts, and more prevalent among rural households than among their urban counterparts. On the contrary, noncontributory transfers are more prevalent among female-headed households than their male-headed counterparts, but only before 2023. They are also more prevalent among rural households than their urban counterparts. This is because those groups have been targeted by the *Takaful and Karama* programs.

Figure 13. Percentage of households receiving each income source by round



Source: Authors' calculations based on the ELMPS (2012-23).

Figure 14. Percentage of households receiving each income source by gender and location



Source: Authors' calculations based on the ELMPS (2012-23).

Overall, and regardless of location, sex of household head, and wealth quintile, income sources are not diversified in Egypt. As suggested from Figure 15, the share of households with no income source is minor but has a consistent tendency to increase over time overall and across all subgroups, especially between 2012 and 2018. The vast majority of households (more than half) rely on only one income source, and this share increased slightly from 55 percent in 2012 to 56 percent in both 2018 and 2023. Less than one-third of total households have access to two income sources, with a declining share from 31 percent to 29 percent between 2012 and 2023. Those with three income sources constituted only 10 percent of total households, decreasing to eight percent in both 2018 and 2023. The share of households with five income sources is very modest and constant at two percent across all years. This implies that the vast majority of Egyptian households are not sufficiently resilient against various internal and external shocks, which makes them prone to the risk of experiencing severe income reduction. The analysis by subgroups portrays that income diversification was initially stronger among female-headed than male-headed households, however, the situation was reversed by 2023. Rural households also have consistently better income diversification than urban households. Nevertheless, no large variances are identified across household wealth quintiles.

Figure 15. The number of income sources received by location, sex of household head, and wealth quintiles

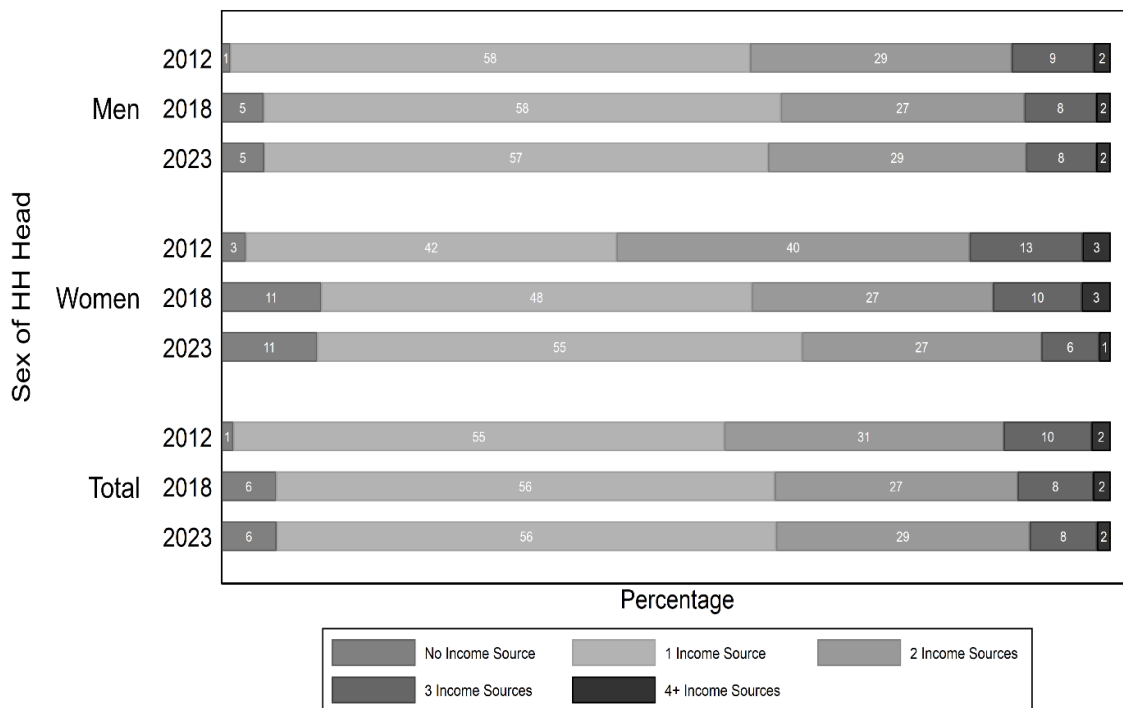
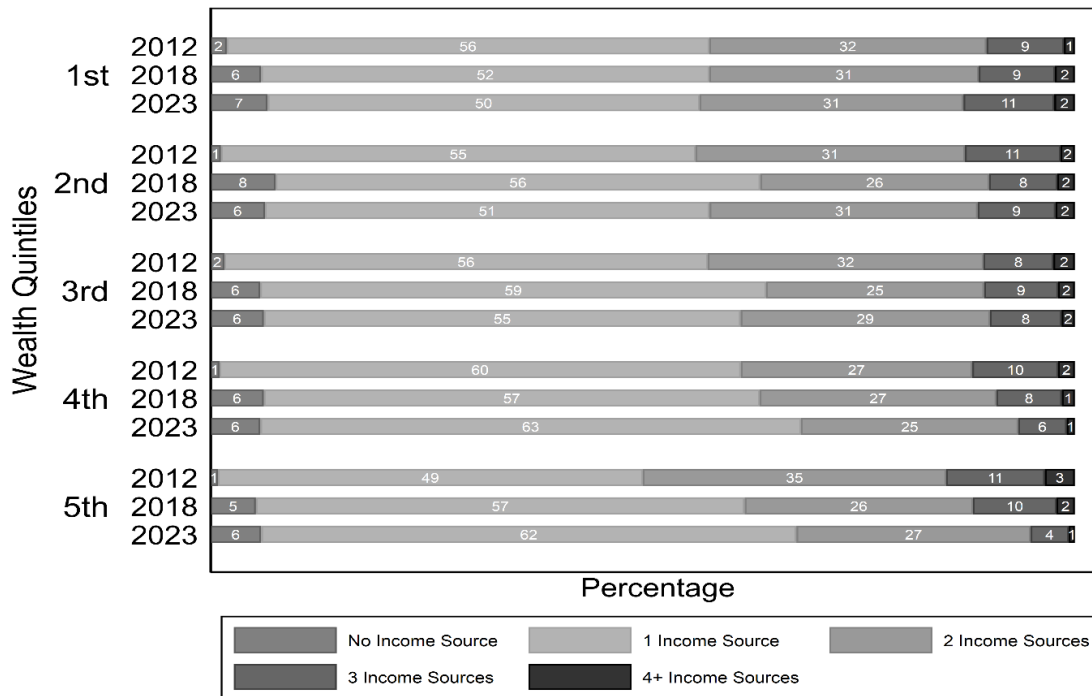
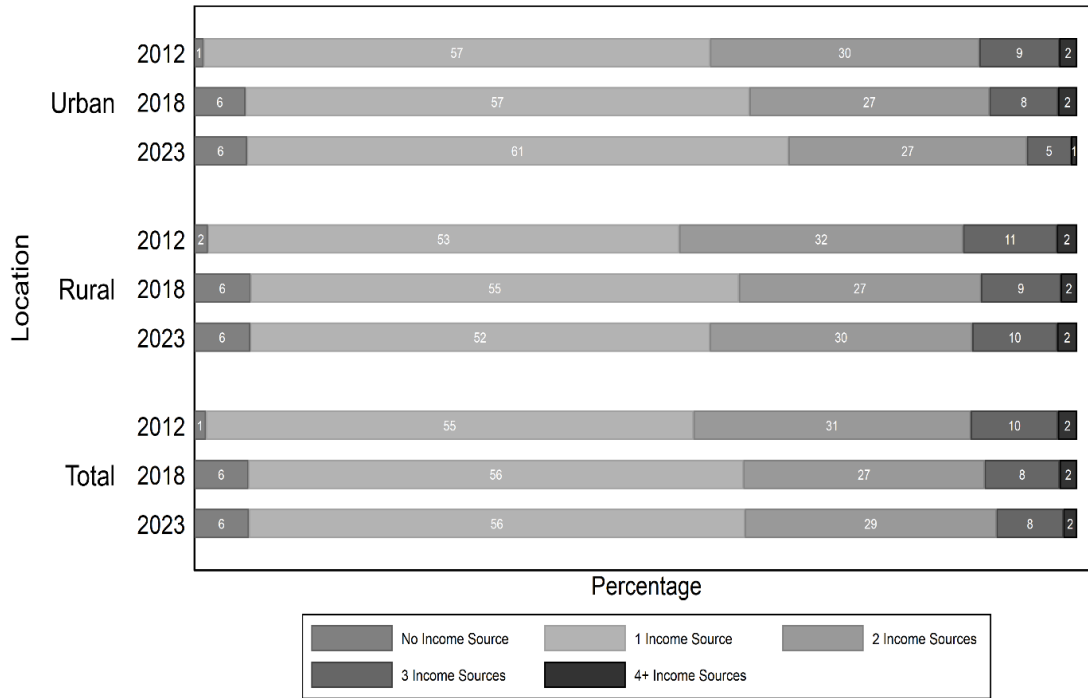


Figure 15. The number of income sources received by location, sex of household head, and wealth quintiles (continued)



Source: Authors' calculations based on the ELMPS (2012-23).

Figure 16 below presents the income share of each income source to total income overall and by sex of the household head, location, and wealth quintile. As illustrated in the figure, wages are the most important income source. While their share in total income increased from 52 percent in 2012 to 63 percent in 2018, their share decreased again to their 2012 level in 2023. In line with the results of Figure 14, the importance of wages as an income source is stronger among male-headed households than female-headed households in all years. Wages were also more important in urban households than rural households in 2012, but the gap between the two disappeared over time. The importance of wages was also predominant across all wealth quintiles. The trend in wage importance by different subgroups follows the overall trend observed for overall wages.

Among wage categories, the relative importance of different wage categories is similar among both female- and male-headed households. Namely, informal private wages are considered the most important wage category, followed by public sector wages, then formal private wages. However, the importance of wage categories also differs among location groups. For instance, public and formal private wages are more important sources among urban households than rural households that mainly rely on informal wages. The relative importance of wage categories by wealth quintiles also shows a dominant reliance on public and formal private wages among households in relatively wealthier quintiles. Households in relatively poorer quintiles tended to rely heavily on informal wages.

Household enterprise income followed wages, and its share reached 17 percent in 2012, decreasing to 13 percent in 2018 and increasing again to 20 percent in 2018. Enterprise income is higher among male-headed households than female-headed households, among urban than rural households, and among wealthier quintiles than poorer quintiles. Contributory pensions come next, with a steadily increasing contribution from 10 percent in 2012 to 16 percent in 2023. The share of contributory income to total income is higher among female-headed than male-headed households. They are also higher among urban households than rural households. Nevertheless, no major differences exist in their share across different wealth quintiles.

Agricultural income, capital income, remittances, and noncontributory income respectively came afterward, with minor contributions. Nevertheless, data by subgroups suggests a non-negligible contribution of agricultural income, especially among rural households, male-headed households, and lower wealth quintiles compared to their counterparts in the corresponding groups. Remittances are also relatively more important among female-headed households—albeit decreasing over time—than male-headed households, and among rural households than urban households, with no notable differences among wealth quintiles.

Figure 16. The share of each income source to total income by sex of household head, location, and wealth quintiles

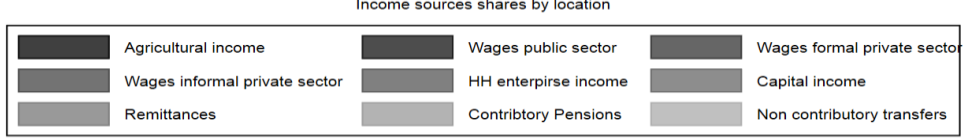
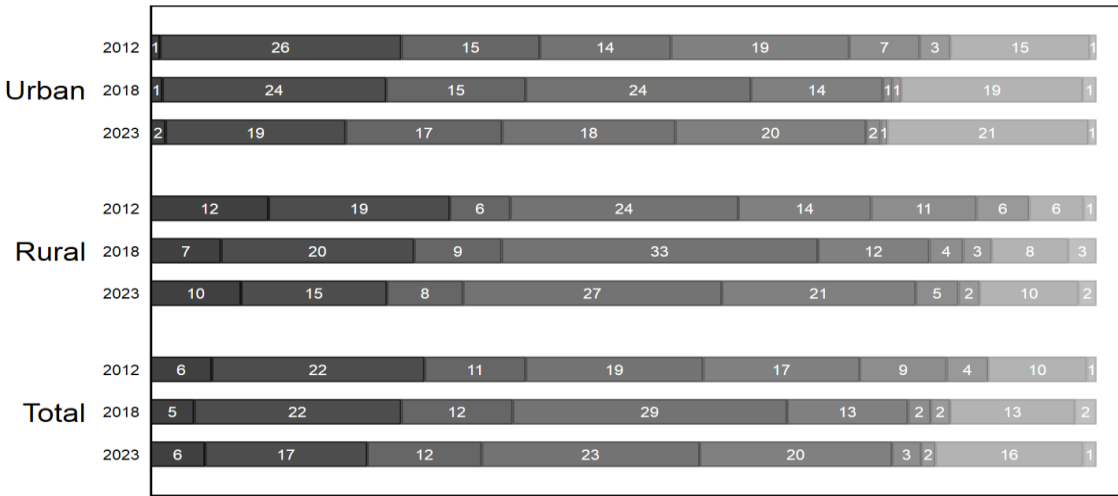
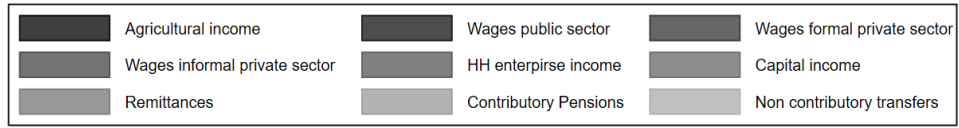
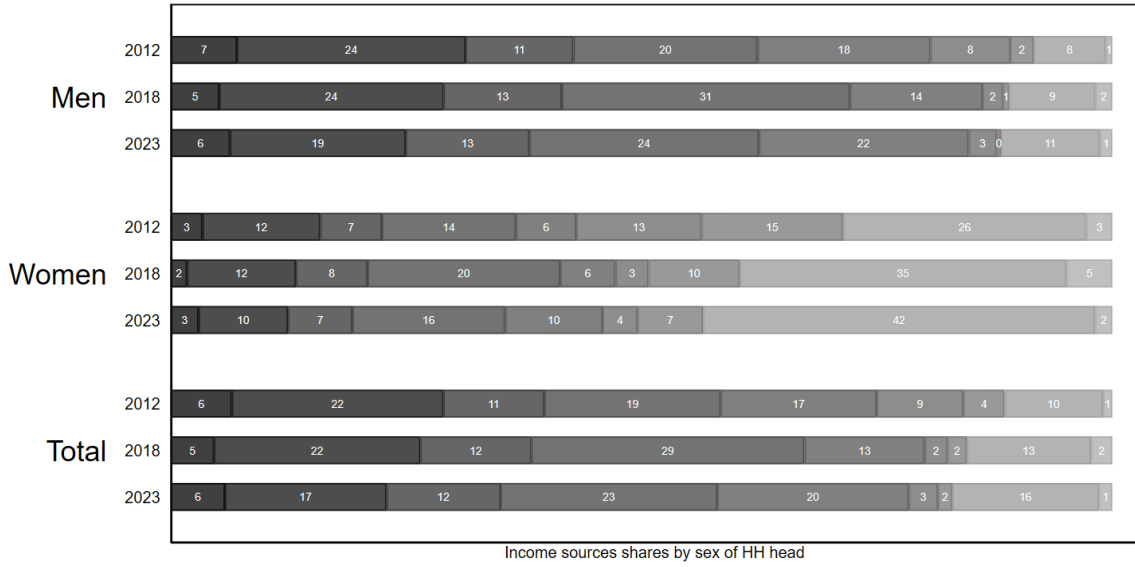
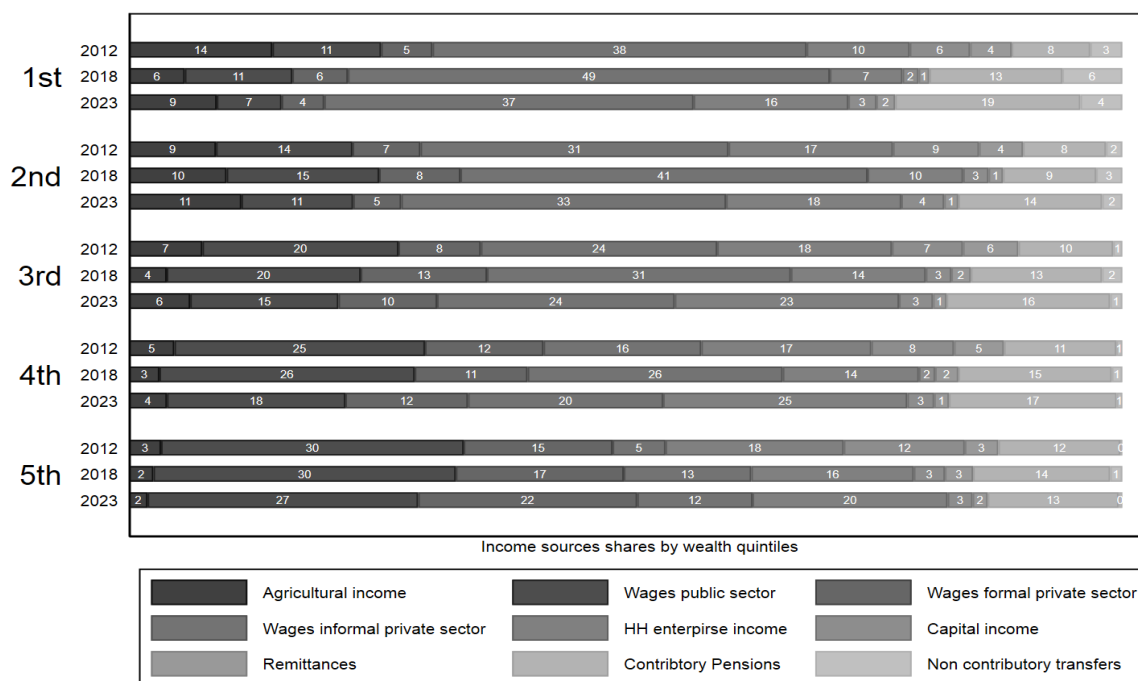


Figure 16. The share of each income source to total income by sex of household head, location, and wealth quintiles (continued)



Source: Authors' calculations based on the ELMPS (2012-23).

5.2. Income inequality and its decomposition

The income shares²⁴ of different population percentages highlight the severity of income inequality in Egypt, as indicated by the large gap between the bottom and top income earners (see Table A-4). For instance, the top 10 percent and the upper-middle 40 percent of the population respectively received 48 and 37 percent of total income in 2023. Conversely, the bottom 10 percent and the lower-middle 40 percent of the population respectively received less than 0.5 percent and 14 percent of total income in the same year. Except for the top 10 percent, all population percentages witnessed major drops in their income shares in 2018 due to the sharp decline in real income caused by inflationary pressures; however, the situation improved slightly among all income percentages in 2023, except again for the top 10 percent of population.

The Gini coefficient of income inequality derived from the Lorenz curve, in Table A-5 in the Appendix, reveals a high but relatively stable inequality level, decreasing from 50.4 percent in 2012 to 49.8 percent in 2018 and increasing again to 50.1 percent in 2023. Between 2012 and 2018, the decreasing trend of income inequality was pervasive among all subgroups, except for urban households where inequality increased slightly from 48.8 to 49.0 percent rather than decreased. For the period 2018-23, male-headed and urban households witnessed an increase in

²⁴ The Stata module “pshare” by Jenn, B. 2015 is implemented in the analysis.

inequality, while female-headed and rural households encountered a decrease in the inequality level.

The general entropy $G(-1)$ and $G(1)$ provide insight into the level of inequality among the lower-income and higher-income segments of the population. The results indicate that households at the lower tail of the income distribution are substantially more prone to the negative consequences of inequality than those at the higher tail of the distribution. This situation also tends to deteriorate over time both overall and among subgroups, especially between 2012 and 2018. As indicated in Table A-5, the $G(-1)$ rose substantially from 0.8 in 2012 to 14.9 in 2018 before it dropped to a still higher level than its initial one (3.7).

The percentile ratio (P9010) is also presented in Table A-5 and indicates that the income gap between extremely rich and poor populations is almost constant, increasing slightly from 8.87 in 2012 to 9.00 in 2018 and 2023. The income of the extremely poor has also not kept up with the growth of income that occurred in the middle of the distribution, as illustrated by the decrease in the P1050 from 0.34 in 2012 to 0.32 and 0.31 in 2018 and 2023, respectively. The only apparent improvement occurred at the median percentile whose income gradually accelerated, narrowing down the income gap between them and the highest income percentile. The P90/P50 decreased from 3.03 in 2012 to 2.88 and 2.77 in 2018 and 2023, respectively.

Another crucial and highly relevant dimension to studying inequality is to assess the contribution of each income source addressed earlier to overall income inequality. As highlighted in Section 2, the Lerman and Yitzhaki (1985) approach²⁵ is used in this respect to estimate each income source's contribution to the Gini coefficient, its share in total income, its correlation with total income, and the marginal effects (elasticity) of various income sources on overall inequality (Lerman and Yitzhaki, 1985).

The decomposition results presented in Figure 17 (see also Table A-6 in the Appendix) suggest that wages are the major driver behind income inequality in all years and that their contribution is increasing over time across all wage categories. The wage contribution was the highest in 2018, reaching 59.8 percent, compared to 42.7 percent in 2012 and 48.9 percent in 2023. Among wage categories, public sector wages consistently have the highest contribution to inequality across all years. In 2023, its contribution reached 18.7 percent compared to 13.7 and 16.5 percent for formal and informal private wages, respectively. While the contribution of formal private wages was higher than that of informal private wages in 2012 (11.5 compared to 8.9 percent, respectively), the situation is reversed starting from 2018.

²⁵ The paper applied the “sgini” Stata module for the Lerman and Yitzhaki approach by Van Kerm (P. 2020).

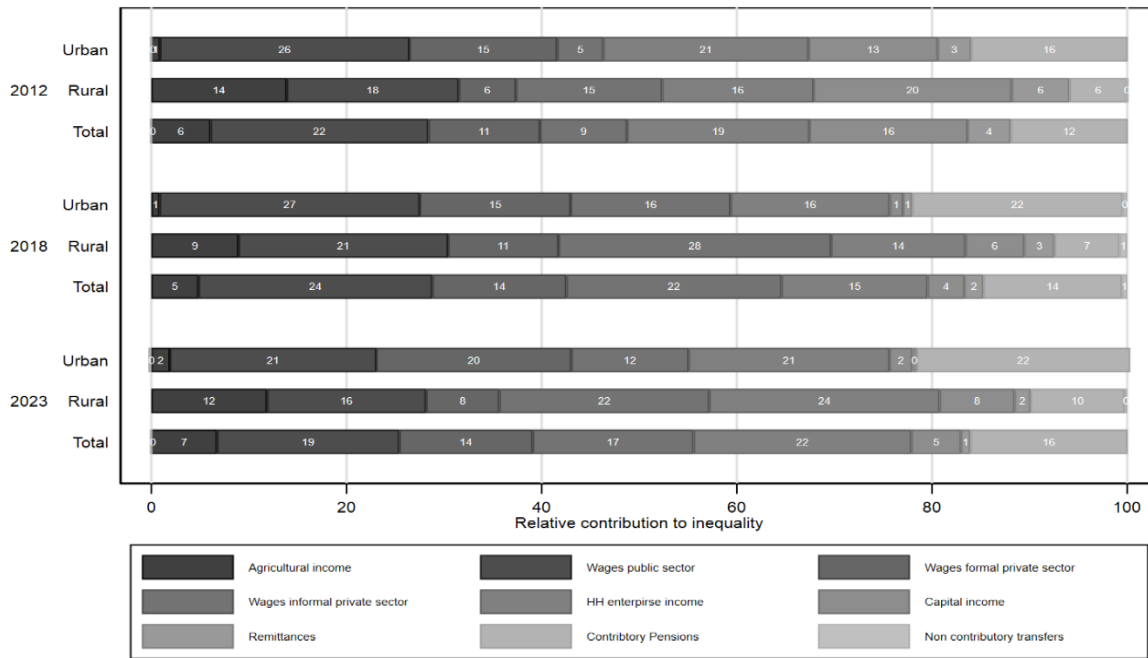
Enterprise income comes second in terms of income inequality contribution, which decreased first from 18.7 to 15.0 percent between 2012 and 2018 and then increased to 22.3 percent in 2023. The contribution of assets directly followed enterprise income in 2012. The contribution of both decreased in 2018 and increased again in 2023. Starting in 2018, agricultural contribution became more important than assets' contribution, reaching 6.7 percent and 5.1 percent, respectively, in 2023. Contributory pensions, remittances, and noncontributory transfers have the lowest contribution to income inequality across all income sources and all year, with the contribution reaching negative values for the latter income source in 2012 and 2023.

Table A-6 details the contribution elasticity of each income source across the three waves. As suggested in the table, the highest equalizing effect is consistently played by informal private wages which have the highest, though declining, negative elasticity across the rest of the income sources (-0.098, -0.070, and -0.065 in 2012, 2018, and 2023, respectively). Following informal private wages come noncontributory transfers, which also played a consistently equalizing effect. While agricultural income and public sector wages had an equalizing effect in 2012, their effect turned out to be a disequalizing one in 2012 and 2023.

Concerning income sources that have a disequalizing effect, assets came first among those sources in 2012, with an elasticity value reaching 0.07. However, its disequalizing effect decreased to 0.014 in 2018 and increased again to 0.020 in 2023. Enterprise income comes second as a disequalizing factor with almost constant elasticity across the three waves (0.021 in 2012, 0.022 in 2018, and 0.020 in 2023). Afterward come contributory pensions with a decreasing disequalizing effect over time from 0.015 in 2012 to 0.005 in 2023. At the end of the list come formal private wages and remittances. While the disequalizing effect of formal private wages increased from 0.007 to 0.02 between 2012 and 2018 and decreased to 0.015 in 2023, the effect of remittances turned out to be increasingly equalizing over time (-0.001 in 2018 and -0.006 in 2023).²⁶

²⁶ For more details about the decomposition results by household location, see Tables A-7 and A-8 in the Appendix.

Figure 17. Relative contributions of income sources to overall income inequality



Source: Authors' calculations based on the ELMPS (2012-23).

6. Conclusion

This paper examines income and wage inequality trends in Egypt, drawing upon data from all rounds of the ELMPS from 1998 to 2023, as well as the October 1988 special round of the Labor Force Survey. The paper starts by providing a background of the Egyptian economy, laying the context of macroeconomic policies since the late 1980s and identifying how they impacted income and wage distribution inequality. The paper then moves on to discuss income and wage distribution as well as inequality. While wage data is provided at the individual level, income data is analyzed at the household level, as many income sources are collected at this aggregate level. Thus, cross-sectional data from the 1988 to 2023 rounds and panel data from the 2012 to 2023 rounds are utilized for the analysis of wages, while cross-sectional data from the 2012, 2018, and 2023 rounds are utilized for the analysis of income.

In terms of wage distribution, it is skewed to the right, indicating a relatively high inequality level, especially among women. However, a wage compression could be observed whenever there is a fall in the median hourly wage. Median wages are relatively higher for older age groups than younger age groups; for high-educated than low-educated workers, for high-skilled workers than low-skilled workers; for public and formal private sector workers than informal private sector workers; and for urban workers than rural workers. Wage inequality is also more pronounced among women than men. While women in vulnerable groups tend to receive relatively lower wages than men, the reverse is true for those in advantaged groups.

Concerning wage trends, the median real hourly wage witnessed the sharpest drop in 1998 when the median wage declined from around EGP 22.7 in 1988 to EGP 16.4 in 1998. The median real wage recovered gradually and almost reached its initial 1988 level (EGP 21.9) in 2012. The inflationary pressures brought about by currency devaluations starting in late 2016 led to another drop to EGP 19.1 in 2018 and EGP 17.3 in 2023. A comparatively improving wage trend is typically observed for highly educated workers, workers in high-skilled occupations, and public sector workers. The median wage dropped heavily, however, among other groups such as low-educated, low-skilled, and informal workers, especially among men. Also, women in some subgroups are more likely to encounter a stronger improvement in median wage over time than their male counterparts such as those in the 25-34 age group, women with secondary education, women in the public sector, and women in rural and urban areas.

Wage inequality, as measured by the Gini coefficient, suggests a steady increase in wage inequality over time from 38.3 in 1988 to 43.1 in 2023, and this increase was evident among almost all subgroups. The level of wage inequality differs considerably among subgroups. Across all survey years, the Gini index was generally higher among formal private sector workers, highly educated workers, women, urban workers, and middle and high-skilled occupations. While a substantial difference in wage inequality is apparent among some subgroups (e.g., among women and men), a convergence is found among others (e.g., urban and rural workers).

Pertaining to income, the median real monthly income per capita decreased from EGP 1,394.6 in 2012 to EGP 991.6 in 2018 using constant 2023 prices. Then, it recovered slightly in 2023, reaching EGP 1,009.0. However, it continued to decline in 2023 among particular groups, namely households headed by individuals with the following characteristics: women; those with basic and higher education levels; <25, 35-44, and 45-54 age groups; informal private sector workers and nonworking individuals; and the lowest and two highest wealth quintiles. Median income per capita was also consistently higher among female-headed households than male-headed households till 2018, among households in the highest wealth quintiles than in the lowest wealth quintiles, and among urban than rural households. It was also notably higher among those with a higher education level, the eldest age group (55+), and public sector workers.

Data for income sources suggest that income is not diversified in Egypt, as the vast majority of households rely on only one income source, regardless of location, sex of household head, and wealth quintile. Wages are found to be the most important income source in Egypt among all subgroups, yet their shares are declining over time. While public sector wages were initially the most important wage income, informal private wages became the most dominant by 2023. This reflects the considerable shrinking of the public sector's role in the economy, accompanied by a stagnation in formal private wages. In second place comes both enterprise income—particularly in light of the increase in the share of own-account workers in total employment—and contributory pensions, which have a generally increasing trend over time. While enterprise income is more

common among male-headed and urban households than female-headed and rural households, contributory pensions are more common among female-headed and urban households than male-headed and rural households.

Agricultural income, capital income, remittances, and noncontributory income are the least important income sources. However, their relative importance also varies considerably by subgroups. For instance, agricultural income is more important among rural households, male-headed households, and lower wealth quintiles compared to their counterparts in the corresponding groups. Remittances are also relatively more important among female-headed households than male-headed households. However, they witnessed a sharp decline over time, which partly explains the relatively less advantaged position of female-headed households in terms of income change between 2018 and 2023 compared to their male-headed counterparts. Remittances are also more important among rural households than urban households, with no notable differences among wealth quintiles.

Despite being high, income inequality showcases a stable trend over time, with the Gini coefficient values decreasing from 50.4 percent in 2012 to 49.8 percent in 2018, before rising again to 50.1 percent in 2023. Wages, particularly from the public sector, were the primary drivers of inequality across all years. While the contribution of formal private wages was higher than that of informal private wages in 2012, the situation reversed starting in 2018. In the following place come enterprise income, assets, and agriculture. Contributory pensions, remittances, and noncontributory transfers have the lowest contribution to income inequality across all income sources and all year. While informal private wages have the highest equalizing effect among all income sources, assets and enterprise income have the largest disequalizing effect.

References

- Abouleinein, S. (2021). Overview Egypt Human Development Report 2021—2. Economic Reform in Egypt: Paving the Way for a Development Shift. Ministry of Planning and Economic Development and United Nations Development Programme.
- Alashaal, M. (2015). The Structure of the Economy of Egypt and the Portentous Impact of External Crises (SSRN Scholarly Paper 2596628). <https://doi.org/10.2139/ssrn.2596628>
- Alissa, S. (2007). The Political Economy of Reform in Egypt: Understanding the Role of Institutions. CEIP: Carnegie Endowment for International Peace. <https://policycommons.net/artifacts/977261/the-political-economy-of-reform-in-egypt/1706389/>
- Al-Shawarby, S. and El-Laithy, H. (2010). Egypt's Food Subsidies: Benefit Incidence and Leakages (57446). World Bank.
- Assaad, R., AlSharawy, A., and Salemi, C. (2019). Is the Egyptian Economy Creating Good Jobs? Job Creation and Economic Vulnerability from 1998 to 2018. In Working Papers (Working Paper 1354). Economic Research Forum. <https://ideas.repec.org/p/erg/wpaper/1354.html>
- Assaad, R. and Mahmoud., E. (2024). Evolution of the Structure and Quality of Employment in Egypt, 2012-2023. Economic Research Forum (ERF).
- Barsoum, G., and Abdalla, D. (2020). Still the Employer of Choice: Evolution of Public Sector Employment in Egypt (Working Paper 1386; ERF Working Paper Series). Economic Research Forum (ERF). <https://erf.org.eg/publications/still-the-employer-of-choice-evolution-of-public-sector-employment-in-egypt/>
- Berg, A., Ostry, J., Tsangarides, C., and Yakhshilikhov, Y. (2018). Redistribution, Inequality, and Growth: New Evidence. *Journal of Economic Growth*, 23(3), 259–305. <https://doi.org/10.1007/s10887-017-9150-2>
- Central Bank of Egypt (2023). Statistics [Central Bank of Egypt]. <https://www.cbe.org.eg/en/economic-research/statistics>
- Chancel, L., Piketty, T., Saez, E., and Zucman, G. (2022). World Inequality Report 2022. World Inequality Lab.
- Dabla-Norris, E., Kochhar, K., Suphaphiphat, N., Ricka, F., and Tsounta, E. (2015). Causes and Consequences of Income Inequality: A Global Perspective (Discussion Paper SDN/15/13; IMF Staff Discussion Note). International Monetary Fund.
- De Silva, I. (2013). Inequality Decomposition by Population Subgroups and Income Sources in Sri Lanka. *Journal of Economic Studies*, 40(1), 4-21. <https://doi.org/10.1108/01443581311283475>
- El-Haddad, A. and Gadallah, M. (2021). The Informalization of the Egyptian Economy (1998-2012): A Driver of Growing Wage Inequality. *Applied Economics*, 53(1), 115-144. <https://doi.org/10.1080/00036846.2020.1796917>
- El-Laithy, H., Abou-Ali, H., Al-Shawarby, S., and Marotta, D. (2011). Poverty in Egypt 2008-09: Withstanding the Global Economic Crisis (60249-EG). World Bank.
- Economic Research Forum (ERF) and Central Agency For Public Mobilization and Statistics (CAPMAS) (2012). ERF and CAPMAS Egypt Labor Market Panel Survey, ELMPS (2012), Version 3.0 of the Licensed Data Files (Version 3.0) [Dataset]. Economic Research Forum and Central Agency For Public Mobilization and Statistics. <http://www.erfdataportal.com/index.php/catalog>

- ERF and CAPMAS (2018). ERF and CAPMAS (2018), Version 2.0 of the Licensed Data Files (October 2019), provided by the Economic Research Forum [Dataset]. Economic Research Forum and Central Agency For Public Mobilization and Statistics. <http://www.erfdataportal.com/index.php/catalog>
- ERF and CAPMAS (2023). ERF and CAPMAS (2023), forthcoming, provided by the Economic Research Forum. [Dataset]. Economic Research Forum and Central Agency For Public Mobilization and Statistics. <http://www.erfdataportal.com/index.php/catalog>
- Giangregorio, L. (2024). Welfare Type and Income Inequality: An Income Source Decomposition Including In-Kind Benefits and Cash-Transfers Entitlement. *International Tax and Public Finance*, 31(2), 367-403. <https://doi.org/10.1007/s10797-022-09772-8>.
- Lerman, R. (1999). How Do Income Sources Affect Income Inequality? In J. Silber (Ed.), *Handbook of Income Inequality Measurement* (pp. 341-362). Springer Netherlands. https://doi.org/10.1007/978-94-011-4413-1_13
- Lerman, R. and Yitzhaki, S. (1985). Income Inequality Effects by Income Source: A New Approach and Applications to the United States. *The Review of Economics and Statistics*, 67(1), 151-156. <https://doi.org/10.2307/1928447>
- Nassar, H. (2011). Growth, Employment Policies and Economic Linkages: Egypt [Working paper]. https://www.ilo.org/employment/Whatwedo/Publications/working-papers/WCMS_166293/lang--en/index.htm
- Nguyen, H., Doan, T., and Tran, T. (2020). The Effect of Various Income Sources on Income Inequality: A Comparison Across Ethnic Groups in Vietnam. *Environment, Development and Sustainability*, 22(2), 813-834. <https://doi.org/10.1007/s10668-018-0221-0>
- Pandiella, A. and Gabriel, M. (2017). Deconstructing Income Inequality in Costa Rica: An Income Source Decomposition Approach. OECD. <https://doi.org/10.1787/77759015-en>
- Roman, H. (2021). Overview Egypt Human Development Report 2021—3. Social Protection: Towards a More Inclusive and Empowering Social Contract in Egypt. Ministry of Planning and Economic Development and United Nations Development Programme.
- Roman, H. (2023). Prospects and Challenges of Social Protection and Poverty Alleviation in Egypt: Towards an Integrated Approach (Policy Perspective 43; IDSC Policy Perspective). Information and Decision Support Center (IDSC).
- Selwaness, I. and Barsoum, G. (2023). When Formality is Costly and Informality is Legal: Social Insurance Design Woes at a Time of Economic Crises (Working Paper 1661; ERF Working Paper Series). Economic Research Forum (ERF). <https://erf.org.eg/publications/when-formality-is-costly-and-informality-is-legal-social-insurance-design-woes-at-a-time-of-economic-crises/>
- State Information Service (2024, April 7). Egypt to Increase Private Sector Minimum Wage to LE 6,000. State Information Service. <https://www.sis.gov.eg/Story/192380/Egypt-to-increase-private-sector-minimum-wage-to-LE-6%2C000?lang=en-us>
- Topuz, S. (2022). The Relationship Between Income Inequality and Economic Growth: Are Transmission Channels Effective? *Social Indicators Research*, 162(3), 1177-1231. <https://doi.org/10.1007/s11205-022-02882-0>
- United Nations (2020). *World Social Report 2020: Inequality in a Rapidly Changing World*. United Nations.
- Urban, I. (2024). Two Classical Decompositions of the Gini Index by Income Source: Interpretation of the Contribution Terms.

World Bank (2024a). World Development Indicators. <https://databank.worldbank.org/source/world-development-indicators>

World Bank (2024b, May 28). Promoting Inclusive Human Capital Development and Building Resilience in Egypt through Cash Transfer Programs. World Bank. <https://projects.worldbank.org/en/results/2024/05/28/promoting-inclusive-human-capital-development-and-building-resilience-in-egypt-through-cash-transfer-programs>

Appendix

Table A-1. Median of real hourly wages over rounds

		1988	1998	2006	2012	2018	2023
Total		22.7	16.4	19.4	21.9	19.1	17.3
Sex	Men	23.8	16.6	19.4	21.4	19.1	16.8
	Women	19.6	15.9	19.2	23.3	19.3	20.1

Source: Authors' calculations based on ELMPS (2012-23).

Table A-2. Prevalence of each income source among households²⁷ (%)

Household Income Source	2012	2018	2023
Agricultural Income	13	12	12
Public Wages	28	22	18
Formal Private Sector Wages	13	11	13
Informal Private Sector Wages	31	35	29
Enterprises	19	14	22
Assets	8	6	4
Remittances	14	6	6
Regular Pension	22	26	29
Takaful and Karama	—	5	9
Other Social Programs	10	13	11

Source: Authors' calculations based on ELMPS (2012-23).

Table A-3. Income sources share by detailed social protection programs (%)

Sex of Household Head	2012			2018			2023		
	Men	Women	Total	Men	Women	Total	Men	Women	Total
Agricultural Income	7	3	6	5	2	5	6	3	6
Wages Public Sector	24	12	22	24	12	22	19	10	17
Wages Formal Private Sector	11	7	11	13	8	12	13	7	12
Wages Informal Private Sector	20	14	19	31	20	29	24	16	23
HH Enterprise Income	18	6	17	14	6	13	22	10	20
Capital Income	8	13	9	2	3	2	3	4	3
Remittances	2	15	4	1	10	2	0	7	2
Contributory Pensions	8	26	10	9	35	13	11	42	16
Non-Contributory Pensions	1	3	1	2	5	2	1	2	1
Total	100	100	100	100	100	100	100	100	100

Source: Authors' calculations based on ELMPS (2012-23).

²⁷ Smart food card (ration card) was not covered in 2012 and hence is excluded in the analysis in 2018 and 2023.

Table A-4. Shares of total income by population percentage

Population Percentage	Share of Total Income %		
	2012	2018	2023
Bottom 10%	1	<0.5	<0.5
Lower mid 40% (10%-50%)	16	10	14
Upper mid 40% (50%-90%)	40	27	37
Top 10%	44	63	48

Source: Authors' calculations based on ELMPS (2012-23).

Table A-5. Inequality measures for monthly income per capita

Inequality Measures			2012	2018	2023
Gini Index	Sex of	Men	50.0%	49.5%	50.1%
	Household Head	Women	52.4%	50.3%	49.7%
	Location	Urban	48.8%	49.0%	48.2%
		Rural	49.8%	49.4%	50.8%
	Total		50.4%	49.8%	50.1%
GE(1)	Sex of	Men	0.53	0.54	0.57
	Household Head	Women	0.53	0.52	0.48
	Location	Urban	0.67	0.52	0.50
		Rural	0.72	0.54	0.59
	Total		0.53	0.54	0.55
GE(-1)	Sex of	Men	0.70	16.38	3.99
	Household Head	Women	1.11	3.26	1.72
	Location	Urban	0.47	4.45	1.29
		Rural	0.55	19.34	4.87
	Total		0.75	14.93	3.65
P1050			0.34	0.32	0.31
P9050			3.03	2.88	2.77
P9010			8.87	9.00	9.00

Source: Authors' calculations based on ELMPS (2012-23).

Table A-6. Income sources decomposition

Variable	2012 %			2018 %			2023 %		
	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity
Agricultural Income	0.065	0.061	-0.004	0.046	0.048	0.002	0.057	0.067	0.010
Public Wages	0.225	0.223	-0.002	0.219	0.240	0.021	0.172	0.187	0.015
Formal Private Wages	0.107	0.115	0.007	0.118	0.137	0.02	0.121	0.137	0.015
Informal Private Wages	0.188	0.089	-0.098	0.290	0.221	-0.070	0.230	0.165	-0.065
Enterprises	0.166	0.187	0.021	0.128	0.150	0.022	0.203	0.223	0.020
Assets	0.092	0.162	0.07	0.024	0.038	0.014	0.031	0.051	0.020
Remittances	0.044	0.044	0.001	0.021	0.019	-0.001	0.015	0.009	-0.006
Contributory Pensions	0.104	0.120	0.015	0.132	0.142	0.010	0.156	0.161	0.005
Non-Contributory	0.01	-0.001	-0.011	0.023	0.005	-0.017	0.014	-0.000	-0.015
Total	1	1	0	1	1	0	1	1	0

Source: Authors' calculations based on ELMPS (2012-23).

Table A-7. Income sources decomposition (urban)

Variable	2012 %			2018 %			2023 %		
	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity
Agricultural Income	0.01	0.009	-0.001	0.012	0.009	-0.004	0.016	0.019	0.003
Public Wages	0.255	0.256	0.00	0.237	0.267	0.030	0.190	0.212	0.021
Formal Private Wages	0.146	0.151	0.005	0.147	0.155	0.007	0.165	0.200	0.035
Informal Private Wages	0.139	0.047	-0.091	0.238	0.164	-0.074	0.183	0.120	-0.063
Enterprises	0.189	0.21	0.022	0.140	0.163	0.024	0.201	0.206	0.004
Assets	0.074	0.132	0.058	0.010	0.014	0.004	0.015	0.023	0.008
Remittances	0.033	0.034	0.002	0.009	0.009	0.000	0.007	0.004	-0.003
Contributory Pensions	0.147	0.16	0.013	0.192	0.216	0.024	0.212	0.219	0.007
Non-Contributory	0.007	-0.001	-0.007	0.015	0.005	-0.010	0.009	-0.003	-0.012
Transfers	1	1	0	1	1	0	1.00	1.00	0.00

Source: Authors' calculations based on ELMPS (2012-23).

Table A-8. Income sources decomposition (rural)

Variable	2012			2018			2023		
	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity	Income Share	Contribution to Inequality	Elasticity
Agricultural Income	0.125	0.139	0.014	0.074	0.089	0.015	0.096	0.118	0.023
Public Wages	0.192	0.176	-0.015	0.204	0.215	0.011	0.154	0.163	0.009
Formal Private Wages	0.064	0.059	-0.005	0.092	0.113	0.021	0.081	0.075	-0.005
Informal Private Wages	0.241	0.15	-0.091	0.334	0.279	-0.055	0.274	0.215	-0.059
Enterprises	0.14	0.155	0.015	0.118	0.138	0.020	0.205	0.236	0.031
Assets	0.112	0.203	0.092	0.036	0.060	0.025	0.045	0.077	0.032
Remittances	0.056	0.059	0.003	0.030	0.031	0.001	0.023	0.016	-0.006
Contributory Pensions	0.057	0.059	0.002	0.081	0.067	-0.014	0.104	0.097	-0.008
Non-Contributory Transfers	0.013	0.000	-0.013	0.030	0.008	-0.022	0.019	0.003	-0.017
Total	1	1	0	1	1	0	1.00	1.00	0.00

Source: Authors' calculations based on ELMPS (2012-23).