

Occupational Segregation and the Gender Wage Gap in Egypt, 1998–2023

Shireen AlAzzawi and Vladimir Hlasny

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Send correspondence to:

Shireen AlAzzawi
Santa Clara University
salazzawi@scu.edu

Abstract

Female labor force participation in Egypt remains low, and wages consistently under-reward women compared to men. This disparity is partly driven by the systematic channeling of women into lower-paying sectors, occupations, and firms, which results in downward pressure on wages. This paper examines the long-term relevance of the occupational segregation hypothesis in Egypt, utilizing labor market surveys from 1998 to 2023. Our findings reveal that women are predominantly concentrated in teaching, nursing, and clerical roles, despite increasing educational attainment in recent years. Occupational segregation significantly contributes to gender wage gaps, especially at the lower end and middle of the earnings distribution, where women face greater wage penalties. We conclude that addressing the gender pay gap in Egypt requires empowering women to access equal opportunities in diverse sectors, firms, and occupations, thus ensuring they can compete on equal terms with men in the labor market.

Keywords: Labor market segmentation; Occupational segregation; Gender wage gap.

JEL Classifications: J2; J42; J7.

ملخص

لا تزال مشاركة المرأة في القوى العاملة في مصر منخفضة، والأجور تقل باستمرار عن مكافأة المرأة مقارنة بالرجل. ويرجع هذا التفاوت جزئياً إلى التوجيه المنهجي للمرأة إلى القطاعات والمهن والشركات ذات الأجور المنخفضة، مما يؤدي إلى ضغط هبوطي على الأجور. تبحث هذه الورقة في الأهمية الطويلة الأجل لفرضية الفصل المهني في مصر، باستخدام المسح التتبعي لسوق العمل في مصر من 1998 إلى 2023. تكشف النتائج التي توصلنا إليها أن النساء يتركزن في الغالب في التدريس والتمريض والأدوار الكتابية، على الرغم من زيادة التحصيل العلمي في السنوات الأخيرة. ويسهم الفصل المهني إسهاماً كبيراً في الفجوات في الأجور بين الجنسين، ولا سيما عند الحد الأدنى وتوسط توزيع الأجور، حيث تواجه النساء غرامات أكبر في الأجور. نستنتج أن معالجة فجوة الأجور بين الجنسين في مصر تتطلب تمكين المرأة من الحصول على فرص متساوية في مختلف القطاعات والشركات والمهن، وبالتالي ضمان قدرتها على المنافسة على قدم المساواة مع الرجل في سوق العمل.

1. Introduction

Egypt has made significant strides in gender equality, particularly in education and political representation. Gender parity in primary and secondary school enrollment has been achieved (UNESCO, 2024), with women's educational attainment often surpassing that of men from similar socioeconomic backgrounds (Krafft et al., 2024). In the political sphere, women now occupy 28% of parliamentary seats (World Bank 2024) and have gained unprecedented representation in governmental and judicial positions. The country has implemented strategic national initiatives aimed at combating violence against women, promoting economic empowerment, and addressing social barriers, including literacy programs and targeted social protection programs that favor women (Zeitoun and Rawlings 2023).

Despite these advancements, significant challenges persist in the labor market. Women's labor force participation rate remains dismal by global standards and middling even by regional standards, while the gender pay gap remains substantial (Said et al., 2022). The explanations for these disparities are multifaceted, encompassing both labor market factors and deeply ingrained social norms and preferences that affect both supply and demand of female labor. Demand-side gender discrimination, manifesting itself as sticky floors, occupational segregation, and glass ceilings (El-Haddad, 2016; Assaad et al., 2020; Said et al., 2022), along with declining employment opportunities in the public sector (Assaad et al., 2018), are primary explanations for these persistent inequalities.

Additionally, supply-side factors contribute to the gender gap in the labor market. Women's willingness to accept wage penalties for full-time jobs and familial preferences regarding women's workplace choices – often manifesting as 'motherhood penalties' – play a role in shaping labor market outcomes (Ehab, 2023; Majbouri, 2023). Furthermore, social norms continue to play a significant role in shaping women's labor market outcomes. Data from the Arab Barometer reveals a complex picture of evolving attitudes. While there is strong disagreement with the notion that university education is more important for males than females (87% of all respondents in 2021), a majority still believe in traditional gender roles within the household. For instance, 61% of all respondents in the most recent wave agreed that "a man should have final say in all decisions concerning the family," although this percentage has been declining over time (from 75% in 2016).

Additionally, women's unpaid care burden presents a significant barrier to their participation in the labor market, particularly in private sector jobs that often demand long hours. This care burden, combined with societal expectations, makes it challenging for women, especially those of childbearing age, to enter and remain in private-sector employment. Together with the declining availability of public sector jobs, these factors contribute to women's concentration in a small number of "female-friendly" occupations, leading to occupational segregation. This segregation, whether driven by supply or demand-side factors, significantly limits women's opportunities in the

labor market. By concentrating a large share of the female labor force in a limited set of occupational categories – particularly those with lower earnings – this segregation further depresses wages in those segments and, consequently, lowers the average wages of women at large. This cycle of segregation and wage depression reinforces gender inequalities in the labor market, creating a persistent challenge for women's economic empowerment.

This paper contributes to the literature on women in the Egyptian labor market by examining the extent of occupational segregation, analyzing its evolution over time and across multiple dimensions such as education, sector of employment, and age cohort. We investigate the relationship between occupational segregation and gender wage disparities over the past 25 years, distinguishing between the public and private sectors. Our analysis decomposes gender wage gaps into two components: one attributable to workers' observed market-valued characteristics, and another capturing differentials in returns to these characteristics, as well as other unobserved factors.

A key methodological approach in this study is the use of unconditional quantile regressions (UQR). Unlike traditional mean-based regressions, which only provide an average effect, UQR allows us to investigate the gender wage gap across different points along the wage distribution. This approach enables us to isolate the effects of occupational clustering at both the lower and upper ends of the wage spectrum. This is particularly valuable in the context of gender wage inequality because it reveals how wage disparities vary for workers at different wage levels. By distinguishing between observed characteristics (such as education and experience) and differentials in returns (i.e., the wage premium associated with these characteristics), we can isolate the unique contribution of gender-based occupational clustering to wage disparities at various points in the distribution.

The rest of the paper is organized as follows. The next section reviews the existing literature examining the most prominent theoretical explanations for gender-based occupation segregation and the available literature on occupational segregation and gender wage gaps in Egypt. We then introduce our analytical approach, detailing our estimation methods and data preparation. Section IV presents our main findings, linking them back to the social and economic factors discussed earlier. Finally, Section V concludes with key policy takeaways, offering recommendations that address both the structural and normative barriers to gender equality in Egypt's labor market.

2. Related literature

Occupational segregation by gender, where men and women are disproportionately concentrated in different occupations, represents a particularly consequential form of labor market inequality. Despite significant progress in women's educational attainment and decades of rising participation in labor markets globally, this form of inequality persists, profoundly shaping individuals' work

experiences and significantly impacting wages, job quality, career mobility prospects, and social status. Moreover, it results in a substantial loss of income for working women and their families, with profound policy implications given the potential positive effects of lifting women's wages on poverty, unemployment, and overall social inequality (Carranza et. al. 2023, McGrew 2016, Zheng and Weeden 2023).

Traditional economic theory once attributed gender-based occupational segregation to “intrinsic differences in comparative advantage” between men and women (Becker 1985). This conventional view implied that segregation patterns would remain stable over time, reflecting gender-specific skills, productivity levels and preferences. However, contemporary economic research has challenged these long-held assumptions, revealing a more complex and dynamic landscape.

Recent studies have shifted the focus away from biological determinism towards an examination of discriminatory practices and social dynamics. This new perspective suggests that occupational segregation is not a natural or inevitable outcome, but rather the result of various societal and economic factors. Evidence suggests that men often exit professions where female participation reaches certain thresholds dubbed “tipping points”, especially in regions where men hold more gender-prejudiced attitudes, consistent with Schelling’s 1971 tipping model (Pan 2015). Others have emphasized the persistence of gender-based stereotypes in hiring and promotion practices as a key factor reinforcing occupational segregation. According to Goldin’s “pollution theory of discrimination”, men tend to underestimate women's capabilities in occupations where women are currently underrepresented (Goldin, 2002). This misperception creates a self-perpetuating cycle: the low representation of women in certain fields fuels discriminatory practices, as men erroneously assume that increasing female representation would negatively impact overall productivity. Consequently, these biased attitudes create barriers to entry and advancement for women, further entrenching occupational segregation.

Others have argued that discrimination in male-dominated fields stems from men's efforts to preserve the “male identity” associated with their professions (Akerlof and Kranton 2000), or to perpetuate biases against others to maintain their economic, political, and social privileges (Darity, Hamilton, and Stewart 2015). In other words, men discriminate not due to doubts about women's qualifications, but to maintain the social power and exclusivity of their “boys' club”.

Occupational segregation by gender may impact wages and contribute to the gender wage gap if higher-paying occupations are predominantly male, while lower-paying ones are predominantly female. In the United States studies have found that about half of the gender wage gap since 1980 is attributed to women working in different occupations and industries than men (Blau and Kahn 2017). Segregation not only keeps women out of the highest-paying occupations but also excludes them from well-paying middle-skills jobs in sectors like IT, logistics, and advanced manufacturing, despite having similar skill requirements (Hegewisch et. al. 2016).

Conversely, successful occupational integration can have a profound impact on both overall economic productivity and individual economic outcomes. Hsieh et al. (2019) found that between 1960 and 2010, the convergence in occupational distribution across gender and racial lines in the United States accounted for 20% to 40% of growth in aggregate market output per person, demonstrating the significant potential of improved talent allocation.

The literature on gender-based wage differentials in Egypt reveals complex dynamics influenced by labor market structures, public sector policies, and societal norms. A stark contrast exists between the public and private sectors. The public sector has been increasingly feminized, offering more egalitarian wage policies and better opportunities for educated women (Assaad and Barsoum 2019; Said 2009, 2015). However, the declining share of public sector jobs has created new challenges for women seeking employment (Assaad 2014; Assaad and Barsoum 2019). In contrast, the private sector exhibits substantial gender wage gaps, with some studies reporting differentials of over 40% (Said 2015).

These disparities are attributed to various factors, including limited geographic mobility (Assaad and Arntz 2005), industry concentration and lack of competition (AlAzzawi 2014), as well as discriminatory practices (Said, Majbouri, and Barsoum 2022; Biltagy 2019) and structural barriers such as the high share of informal jobs (Adair, AlAzzawi and Hlasny 2024). The decline in women's participation rates in recent years is an important consideration, as it may lead to underestimation of the true wage gap if not accounted for in analyses (Assaad and Krafft 2015; Picchio and Mussida 2011).

Methodologically, literature has evolved from simple mean decompositions to more sophisticated approaches. Recent studies employ quantile regression techniques to examine wage disparities across the distribution (Firpo, Fortin, and Lemieux 2009 and 2019), with applications for Egypt revealing both glass ceiling effects in the public sector and sticky floor effects in the private sector (Said, Majbouri, and Barsoum 2022). These distribution-wide analyses, along with corrections for selection bias and consideration of factors such as education levels, provide a more nuanced understanding of the gender wage gap (Picchio and Mussida 2011).

Occupational segregation plays a crucial role in wage inequality, yet existing research on this aspect is limited and dated. Studies from the early 2000s indicate that women's employment in Egypt is concentrated in a few fields, primarily education, healthcare, and certain blue-collar sectors, with data suggesting that between 1988 and 1998 these few limited employment fields for women were being further defeminized (Assaad and Arntz 2005). Increasing occupational segregation was also documented as an increasingly important factor in gender pay differences during the early stages of privatization and public sector downsizing between 2000 and 2004, particularly for professional and blue-collar workers, while white-collar workers faced less severe pay discrimination (El-Hamidi and Said 2014). To our knowledge, more recent comprehensive

studies on occupational segregation in Egypt are lacking, highlighting a significant gap in the current literature.

Our study aims to address this gap by examining occupational segregation in Egypt over a 35-year period, encompassing far-reaching social, economic, and political changes. We first document the extent and evolution of occupational segregation across multiple dimensions, extending the work of Assaad and Arntz (2005) and El-Hamidi and Said (2014). Building on recent methodological advancements (Firpo, Fortin, and Lemieux 2009 and 2019), we decompose the underlying reasons behind the wage gap along the entire distribution, not just at the mean. By doing so, we provide a more comprehensive and up-to-date understanding of the extent of gender-based occupational segregation in Egypt and its impact on gender wage inequalities, contributing valuable insights to inform policy decisions aimed at reducing these disparities.

3. Analytical approach

Gender-based employment segregation involves the unequal distribution of male and female workers across different job types and sectors. This segregation can occur both horizontally, where men and women tend to concentrate in different industries, occupations, and businesses of different ownership and size, and vertically across positions of various statuses, resulting in gender disparities in managerial roles, in contract types, and in prospects for career advancement (Anker 1997). Such occupational segregation is often closely related to gender wage gaps (Barón and Cobb-Clark 2010).

We first provide a descriptive analysis of gender disparities in labor force participation and occupational distribution over the period 1998–2023. We begin by examining trends in labor force participation rates for men and women to understand women's evolving position in the labor market. This is followed by an exploration of gender composition within broad occupational categories, assessing both the concentration of women within occupations and their overall distribution across the labor market. Finally, we analyze the degree of occupational concentration for women compared to men at highly disaggregated occupational categories, highlighting the persistent clustering of women in a few dominant occupations and the relative diversification of men's employment over time. This descriptive foundation sets the stage for deeper analysis of gender wage gaps and representation later in the paper.

The distributional differences between women and men across occupational categories can be evaluated using a widely recognized segregation index. Among the various indices available, the measure formulated by Duncan and Duncan (1955) stands as the most commonly utilized. For consistency with prior research, we adopt this index in our analysis.

The Duncan Index of Dissimilarity (ID) quantifies the dissimilarity between the occupational distributions of women (F_i) and men (M_i) across occupations i , relative to their respective overall employment distributions (F and M). The index ranges from 0 to 1.

Mathematically, the index is expressed as:

$$ID = \frac{1}{2} \sum \left| \frac{F_i}{F} - \frac{M_i}{M} \right| \quad (1)$$

where the summation is over all occupation categories i .

If the share of women in all occupations is the same as their share of all employment, then the segregation index is 0. Therefore, a value of 0 indicates complete integration while a value of 1 indicates complete segregation. The resulting value can be interpreted as the percentage of one group (e.g., women) that would need to change occupations to achieve an equal distribution across occupations as the other group (e.g., men). Note that the extent of occupational segregation is influenced not only by the distribution of genders across occupations but also by the relative size of segregated and integrated occupations within the economy. Consequently, temporal changes in the degree of occupational segregation may result from shifts in the overall occupational composition of the economy, rather than solely from changes in gender distribution within occupations. This is especially relevant for the current study given the changes in occupational definitions over time within the 6 surveys under study. We elaborate further on this issue in the Data section.

We compute the Dissimilarity Index using various levels of occupational disaggregation available in the ELMPS 1998-2023 dataset. This multi-level analysis is useful for understanding the nuanced patterns of gender segregation that may be obscured at more aggregated levels. Comparisons within the same year, from least to highest degree of disaggregation, provide insight into the most granular level of segregation available, allowing us to identify specific occupations or sectors where gender imbalances are most pronounced. While comparison over time is only possible at the most aggregated level of occupational categories (one-digit level) due to the lack of harmonization across all years (except for 2018-2023), this longitudinal perspective remains valuable for tracking broad trends in occupational gender segregation.

To provide a comprehensive understanding of gender segregation dynamics, we examine variations across multiple dimensions. Education levels are analyzed as they play a crucial role in occupational choices and opportunities, potentially mitigating or exacerbating gender segregation (Zheng and Weeden 2023). We distinguish between public and private sectors, as these often exhibit different gender dynamics due to varying policies and cultural norms (McGrew 2016). Main economic activities are considered to identify industry-specific patterns of

segregation. The formality status of workers is examined, as informal work often has different gender implications and can contribute to hidden forms of segregation. Marital status is included in our analysis because it often intersects with gender roles and labor market participation, potentially influencing occupational choices and segregation patterns (Zhu and Grusky 2022, Blau, Brummond and Liu 2012; Becker 1985). Age cohorts (looking at those aged 25-39, 40-54 and 55 to 64) are analyzed to capture generational shifts in gender segregation and to account for life-cycle effects on occupational choices (Blau, Brummond and Liu 2012). Finally, we consider the region of residence to account for geographical variations in labor markets and cultural norms that may affect gender segregation.

Next, we analyze gender wage gaps across several dimensions to better understand the patterns and drivers of wage inequality. Specifically, we examine wage gaps across the wage distribution, within the public and private sectors, and by occupation. We explore the relationship between wages and female representation within occupations, distinguishing between the most prevalent occupations for women (those employing the largest shares of all female wage workers) and occupations where women constitute a significant share of the workforce. By combining wage trends, female-to-male earnings ratios, and the degree of female representation, we provide a nuanced view of how gender wage gaps evolve over time and vary across sectors and occupations. This approach allows us to examine whether higher female representation in specific occupations correlates with lower wages and earnings ratios.

To isolate the effects of occupational segregation from other drivers of wage gaps, and to assess the drivers at different quantiles of the wage distribution, we turn to appropriate regression models. Gender differentials at various wage quantiles are decomposed into portions due to differentials in various endowments and those due to differentials in returns to those endowments (plus a non-attributable residual). The endowment differential is the “explained” part of the wage gaps at various quantiles of the wage distribution, that is associated with the typical differences in the market-valued endowments between the two groups, such as work experience, education, revealed preferred employment type, and residence near employers and markets. The “unexplained” part of the wage gap is related to some latent circumstances which may or may not interact with the respective groups’ stocks of endowments. This decomposition is performed by the means of unconditional quantile regressions (UQR) that have become popular in wage-gap studies for the fact that they relax some restrictive assumptions on the impact of wages. The UQR technique has previously been successfully applied to studying the wage effects of occupational segregation (Barón and Cobb-Clark 2010), and to pay gaps in Egypt (Ramadan et al. 2018; Said et al. 2022).

In this study, men and women are viewed as facing differential economic conditions in regard to their access to resources or attrition of their market-valued endowments (the “explained” part), as well as differential returns on their endowments due to, for example, discrimination and, in relation to our central hypothesis, occupational segmentation in labor markets (the “unexplained” part).

Endowments of five types are evaluated: potential work experience; education; proximity to markets; choice of employer including the owner, main economic activity, institutional sector and firm size, as well as occupation. Potential experience, education, and proximity to markets in the administrative regions and rural/urban areas proxy for workers' human capital endowments. These characteristics are thought to affect wages directly if human-capital markets value them or offer allowances for them. Workers' sector of employment, economic activity, institutional sector and firm size are controlled for under the assumption that these reflect workers' specific skills, choices or luck.¹ Finally, wage effects of the segregation of workers into distinct occupational groups are included to isolate their effects from the wage differentials within occupation types.

3.1. Data

The analysis is based on up-to-date harmonized data from five waves of the Egypt Labor Market Panel Survey (ELMPS) for 1998, 2006, 2012, 2018, and 2023, using all pooled cross-sectional observations, to assess individual workers' occupational and pay trajectories (OAMDI 2024).

An important issue that arises with the use of the occupation data in ELMPS surveys over time is that the coding scheme used by CAPMAS and ERF has changed over time and there is no straightforward consistent way to harmonize these classifications over this 25-year period. The harmonized occupational classification is only available at the most aggregated 1-digit level, which encompasses only 9 occupational categories (excluding Armed Forces). This broad categorization provides only a limited perspective on the degree of occupational segregation, potentially masking finer patterns of gender-based occupational segregation that occur at more detailed levels. Significant differences exist between jobs within these categories, obscuring important distinctions in tasks, skills, and working conditions. Individuals can move between jobs within these broad categories while engaging in vastly different activities, requiring different skill levels and warranting different wages. Consequently, while the 1-digit classification provides a starting point for analysis, it may underestimate the true extent of occupational segregation and limit our ability to detect subtle changes in gender-based occupational patterns over time.

¹ In particular, the regressions control for workers' gender, age, age squared, and binary indicators for: 7 levels of education (illiterate; reads & writes; primary; preparatory; general secondary; vocational secondary; post-secondary), 8 groups of economic activities (agriculture/forestry/fishing; manufacturing; mining and quarrying/electricity, gas, steam, air conditioning/water supply, sewage, waste/construction; accommodation, food service/wholesale and retail trade, repair; transport/storage; information, communication/finance and insurance/real estate/professional, scientific and technical/administrative and support service; education/health and social work/arts, entertainment, recreation/other service/households as employers; public administration, defense/extraterritorial organizations), 5 employer sizes (1–4; 5–9; 10–49; 50+ workers; unknown), 6 administrative regions (Greater Cairo; Alexandria & Suez; Urban Lower; Urban Upper; Rural Lower; Rural Upper), and an urban/rural indicator. An alternative specification also controls for 8 1-digit occupation categories (manager; professional; technician and associated professional; clerical support/service and sales; skilled agriculture, forestry, fishery; craft and related trades; plant, machine operator, assembler; elementary occupations) and 3 institutional wage-work types (irregular; informal private regular; formal private regular).

To address this limitation, we use more disaggregated occupational categories to compare across multiple dimensions within the same year, and over time for 2018 and 2023 - the only harmonized pair of surveys. However, caution should be exercised when drawing strong conclusions about changes over time from the very early period due to potential inconsistencies in the size and distribution of workers within the finer occupational classification levels.

The 1998 survey used the January 1985 Arab Unified Coding Book for Occupations, 2006 survey used the January 1996 CAPMAS occupations codebook; the 2012 survey used a CAPMAS classification based on International Standard Classification of Occupations (ISCO) 1988²; while the 2018 and 2023 surveys used the CAPMAS classification based on ISCO-2008. To provide some level of consistency in the code descriptions used over time before 2012 we followed the following steps: for 1998, we manually checked the Arabic descriptions in the Arab Unified Coding Book for Occupations and translated them into English. To ensure consistency with standard descriptions, we then matched them to their closest English translation in ISCO-88. There were some occupations that did not match well and for these we used the literal translation of the descriptions from the Arab Unified Coding Book for Occupations to avoid making unwarranted assumptions.

For 2006, the CAPMAS occupation codebook provides a concordance to ISCO-88 for most occupations. However, some CAPMAS occupations mapped to multiple ISCO-88 codes, or vice versa. We again relied on the closest translation and sometimes had to combine ISCO-88 code descriptions to match with the original CAPMAS codebook. 2012 data at the 4 digit level and below matches exactly with ISCO-88 and we just matched those to their English version of the descriptions. 2018 and 2023 data at the 4 digit level and below also match exactly to ISCO-08 classifications.

4. Results

4.1. Descriptive analysis

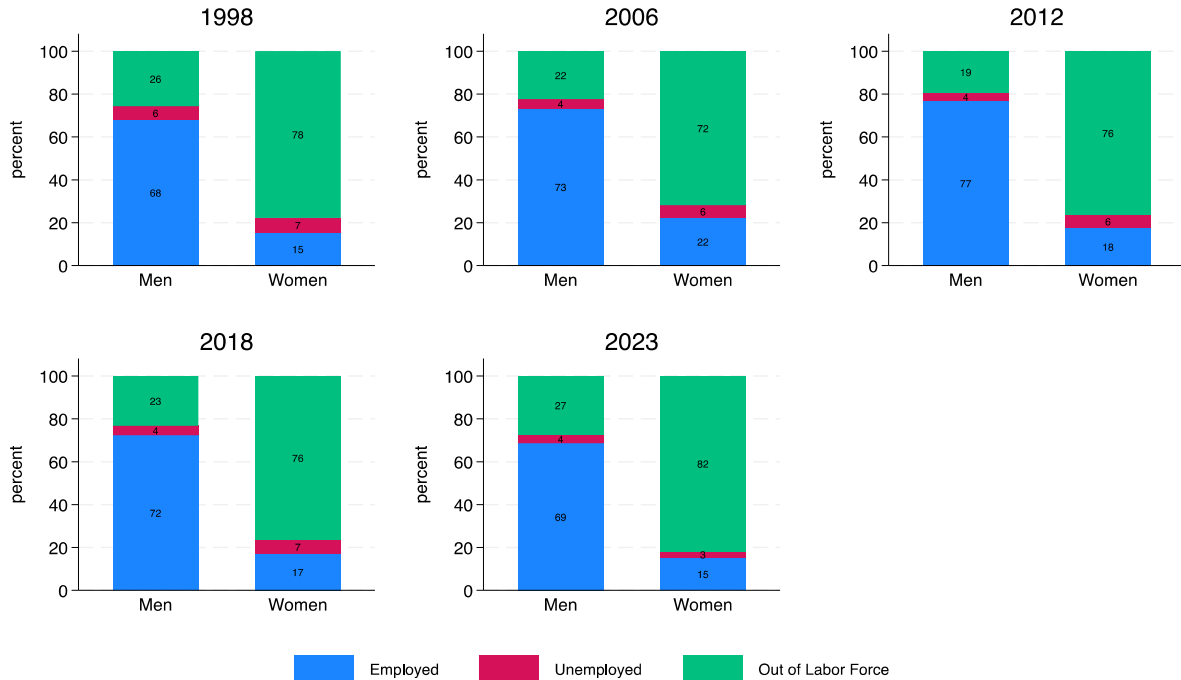
4.1.1. Women's participation and occupational distribution over a quarter century

We begin by examining labor force status by gender over time to better understand women's position in the labor market. Figure 1 shows that men's participation rose from 74% in 1998 to 81% in 2012, but then declined to 73% in 2023, an all-time low over this period. The trend for

² The 2012, and 2018, 2023 CAPMAS classifications are similar but not identical to the ISCO counterparts, particularly at the most detailed 6 digit levels, since CAPMAS sometimes split codes at finer levels of disaggregation or added new ones to match Egyptian occupations that were not necessarily present in the international versions. Most of these categories were at the 4 or 6 digit levels of disaggregation, and resulted in some missing/unknown descriptions of occupations, but these affected only a very small number of observations that were removed from the descriptive analysis.

women however is more stagnant with the vast majority of women remaining out of the labor force all together. There was a short-lived increase in participation between 1998 and 2006, but this trend was reversed since then reaching just 18% participation in 2023. This very low rate of participation (which includes the employed as well as those actively seeking jobs) underscores the remainder of the analysis in this paper.

Figure 1. Work status by sex 1998 to 2023 (15 to 65-year-old)



Source: Authors based on ELMPS 1998-2023

Figure 2a presents the gender composition of broad occupational categories over time, by the relative size of each occupational category.³ Among wage workers, professionals and craft and related trades workers continue to be the most prevalent broad occupational categories in the economy, followed by service and sales occupations. In 2018, service and sales were tied with professionals. Women were a minority of all broad occupational categories in all years. This is more directly illustrated in Figure 2b.

³ In this paper we will focus exclusively on wage workers who are currently employed based on the definition of employment proposed by the 19th International Conference of Labor Statisticians. Limiting the analysis to wage workers did alter the distribution of occupations, their gender composition and the distribution of workers across occupations, especially noticeably with respect to agriculture. Figures encompassing all those who currently work (i.e., both wage and non-wage workers) are in the appendix for reference.

Figure 2a. Gender composition by relative size of 1-digit occupation, 1998-2023

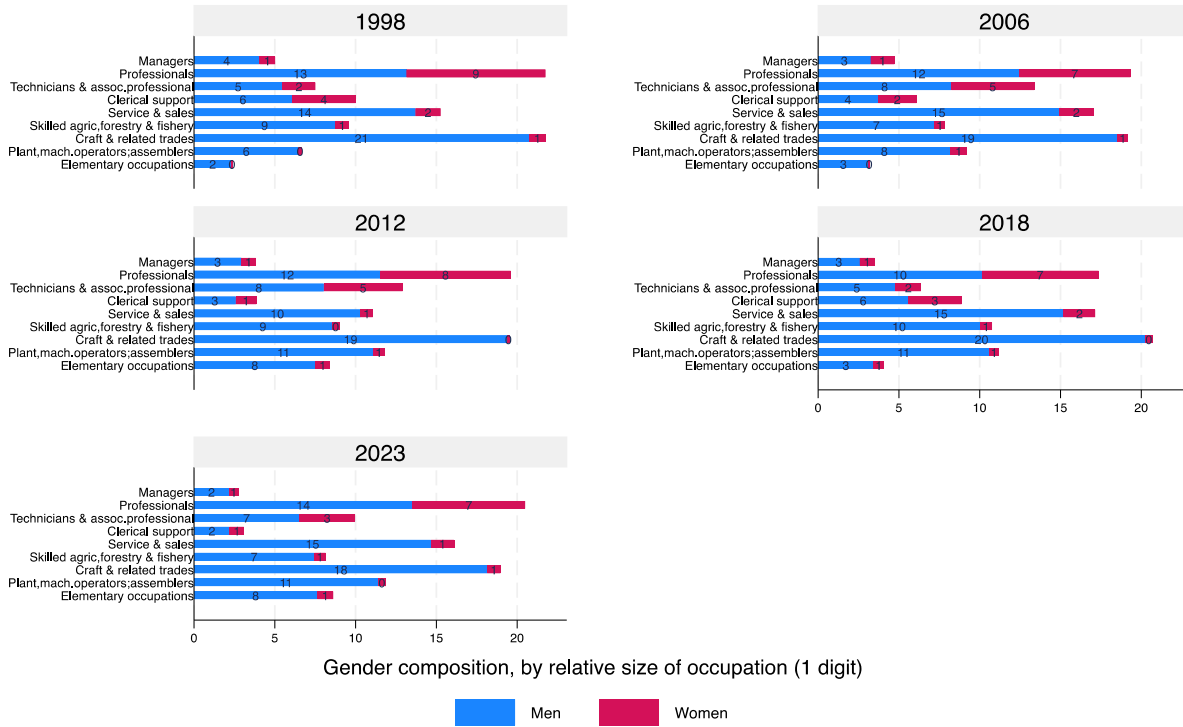
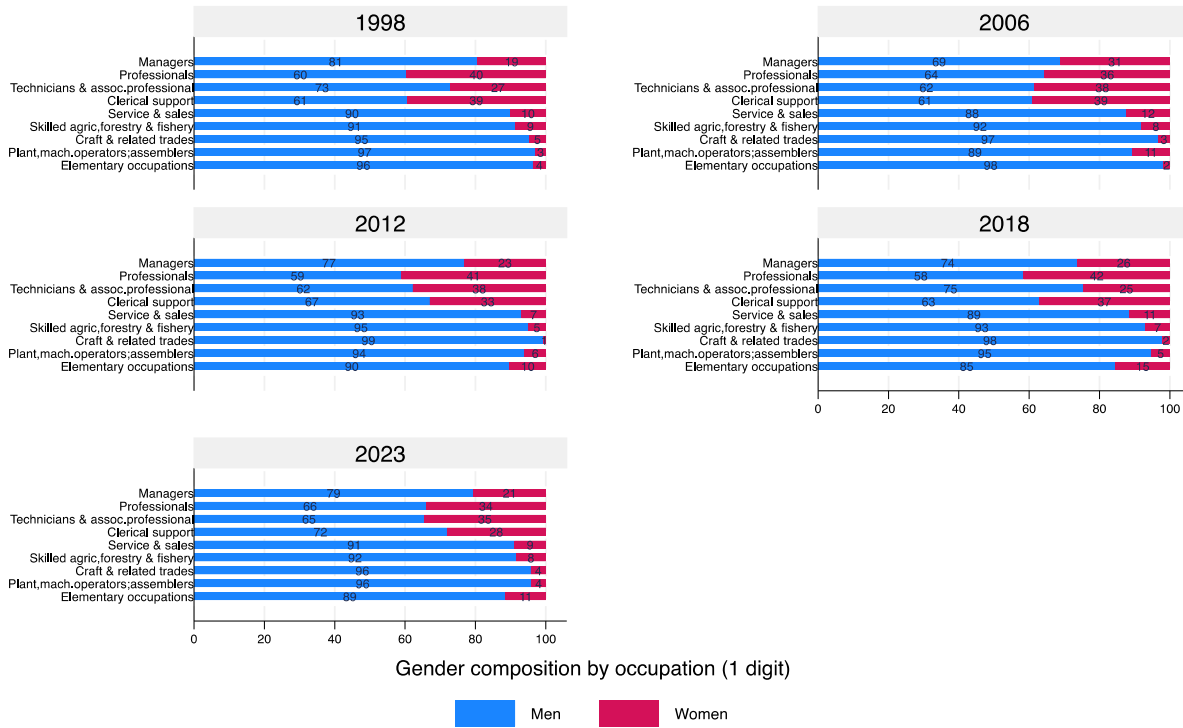


Figure 2b. Gender composition of broad occupational categories, 1998-2023

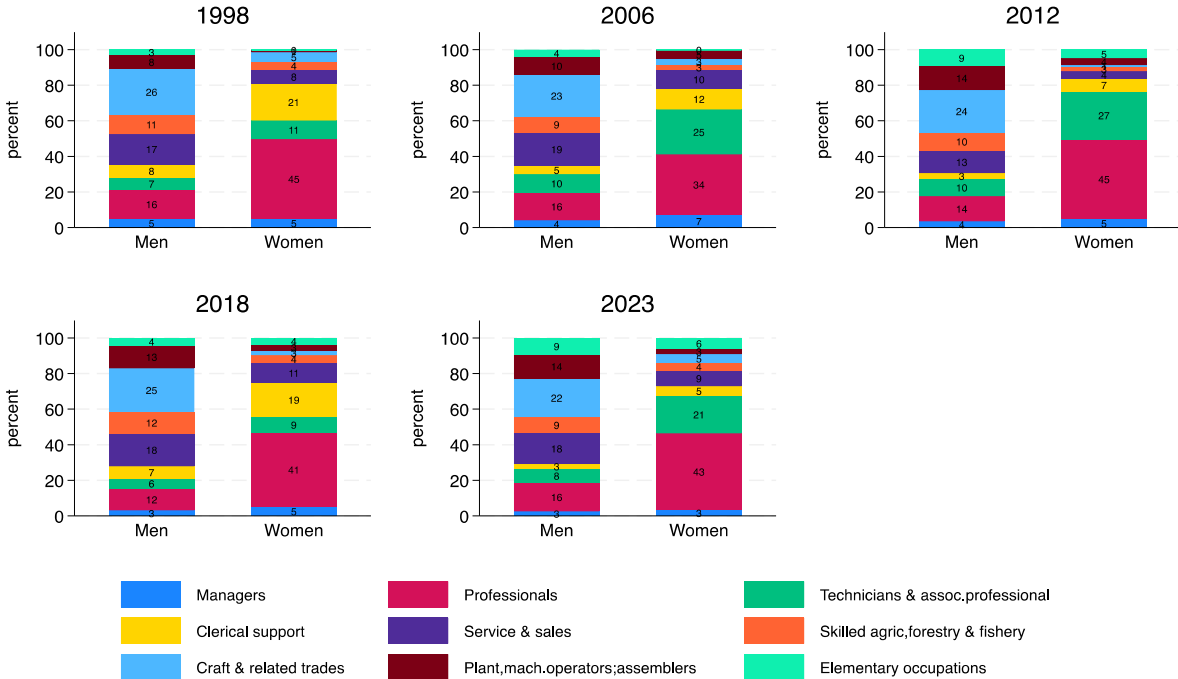


Source: Authors based on ELMPs 1998-2023

Figure 2b presents the proportion of workers in each broad occupational category who are men and women. Women make up less than 50% of workers in each occupational category in all years. In 1998 women made up 40%, 39% and 27% of the professional, clerical support, and technicians and associate professionals categories, respectively. These three categories continued to have the largest concentrations of women (in varying degrees) until 2012. In 2018, 26 % of all managers were women, making it the third largest occupational category with regard to the concentration of women, after professionals and clerical support. In 2023, the technicians and associate professionals category, followed by professional and clerical support, had the largest concentrations of women wage workers, making up 35%, 34% and 28%, respectively, of these occupations.

Figure 3 shows the distribution of male and female wage workers among broad occupational categories. In 1998, 37% of wage working men were in agriculture and craft and related trades. Over time, men have moved away these two categories, and in 2023 their share had fallen to 31%. Over time, men moved towards machine operator and elementary occupations, with these categories almost doubling and tripling respectively, their share of men over time.

Figure 3. Distribution of employed men and women by 1-digit occupational category, 1998 to 2023



Source: Authors based on ELMPS 1998-2023

The distribution of wage working women among broad occupational categories also changed somewhat over this period. In 1998 50% of women were in what are considered highly skilled occupations requiring advanced education and experience (ILO 2012), working as professionals and managers. These two occupations continued to account for 45-50% of wage employed women until 2023, with the exception of a drop to 41% in 2006. The share of women in Professional occupations declined by 11 percentage points between 1998 and 2006 from 45% to 34%, likely as a result of the large scale privatization and public sector downsizing that began over this period, disproportionately affecting women. By 2012 the proportion of women in professional occupations had increased again to 45%, and has continued to exceed 40% since then.

Clerical support occupations absorbed over one fifth of wage working women in 1998, however the share of women in that occupation has steadily declined over time (except for a brief recovery in 2018) to reach just 5% in 2023. The proportion of women technicians and associate professionals has shown the opposite trend over time, almost doubling between 1998 and 2023 (except for a sharp drop in 2018). Recall that these occupational categories had consistently high concentrations of women over the whole period (Figure 2b), but their share of overall women's employment has been fluctuating over time.

Figure 4⁴ presents the proportion of female wage employment in the 20 most prevalent 3-digit occupational categories for all male and female wage workers to illustrate their occupational distribution at a finer level of disaggregation. For women, these top categories accounted for 74% to 87% of all women's employment in all years. For men, however, the top occupational categories accounted for a lower proportion of their employment ranging from 53% to 74%. This reflects the persistently high degree of concentration of women in a handful of narrow occupational categories, while men's occupational distribution became steadily more diverse over time. In most years, women were mostly employed as primary school teachers, administrative associates or secretaries, as nursing and midwifery associate professionals, as well as other types of school and nursery teachers. Large proportions of men were employed in construction related occupations, as salespersons or drivers, and building caretakers, aside from agricultural occupations.

⁴ Note the discussion in the data section above about lack of compatibility of occupational categories at this high degree of disaggregation across years. While occupational categories with similar names over time are likely to have substantial overlap, they are not identical, except for 2018 and 2023.

Figure 4. Proportion of women and men in the largest 3-digit occupational categories as a share of all women and men workers, 1998 to 2023

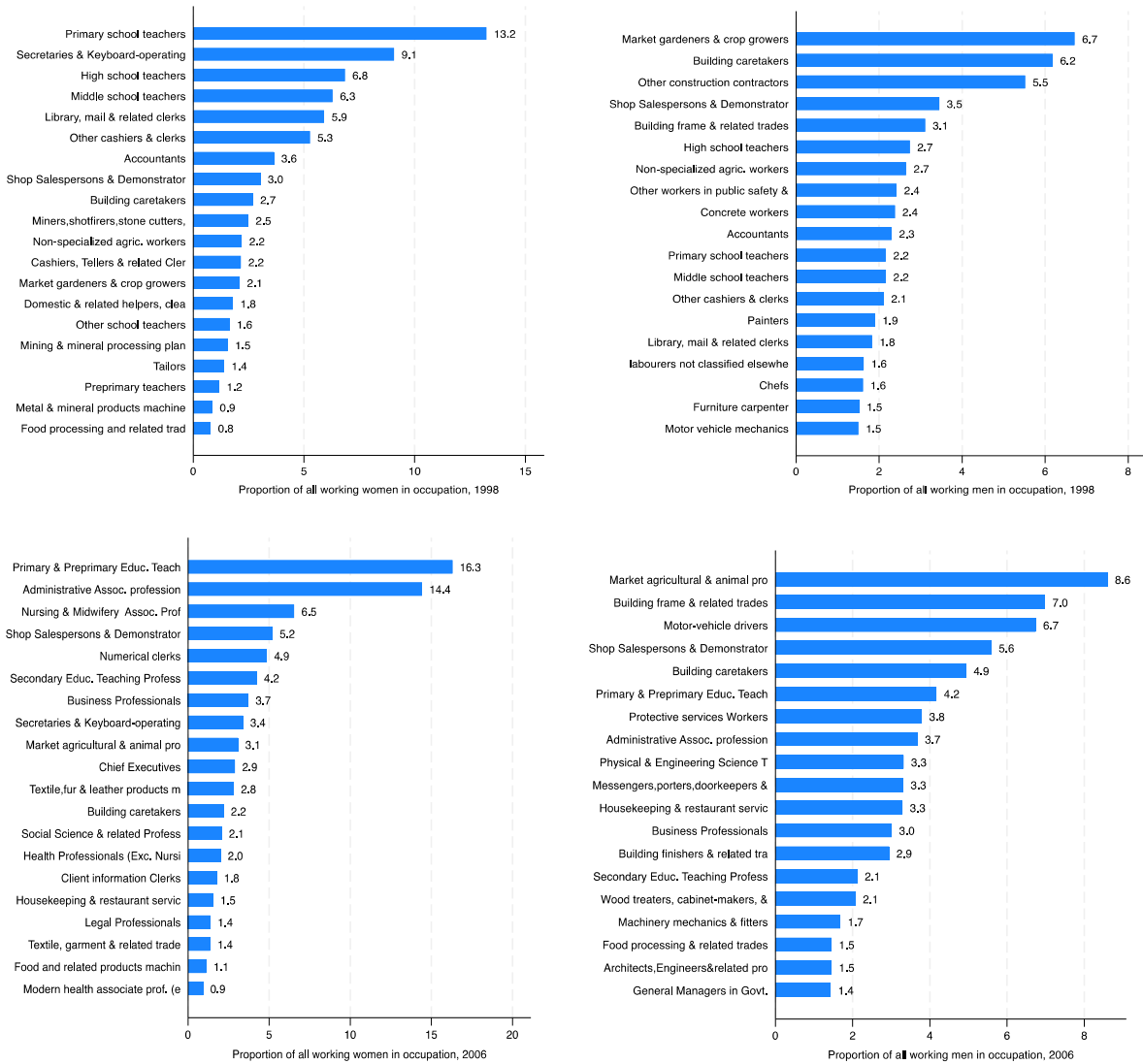


Figure 4. Proportion of women and men in the largest 3-digit occupational categories as a share of all women and men workers, 1998 to 2023 (continued)

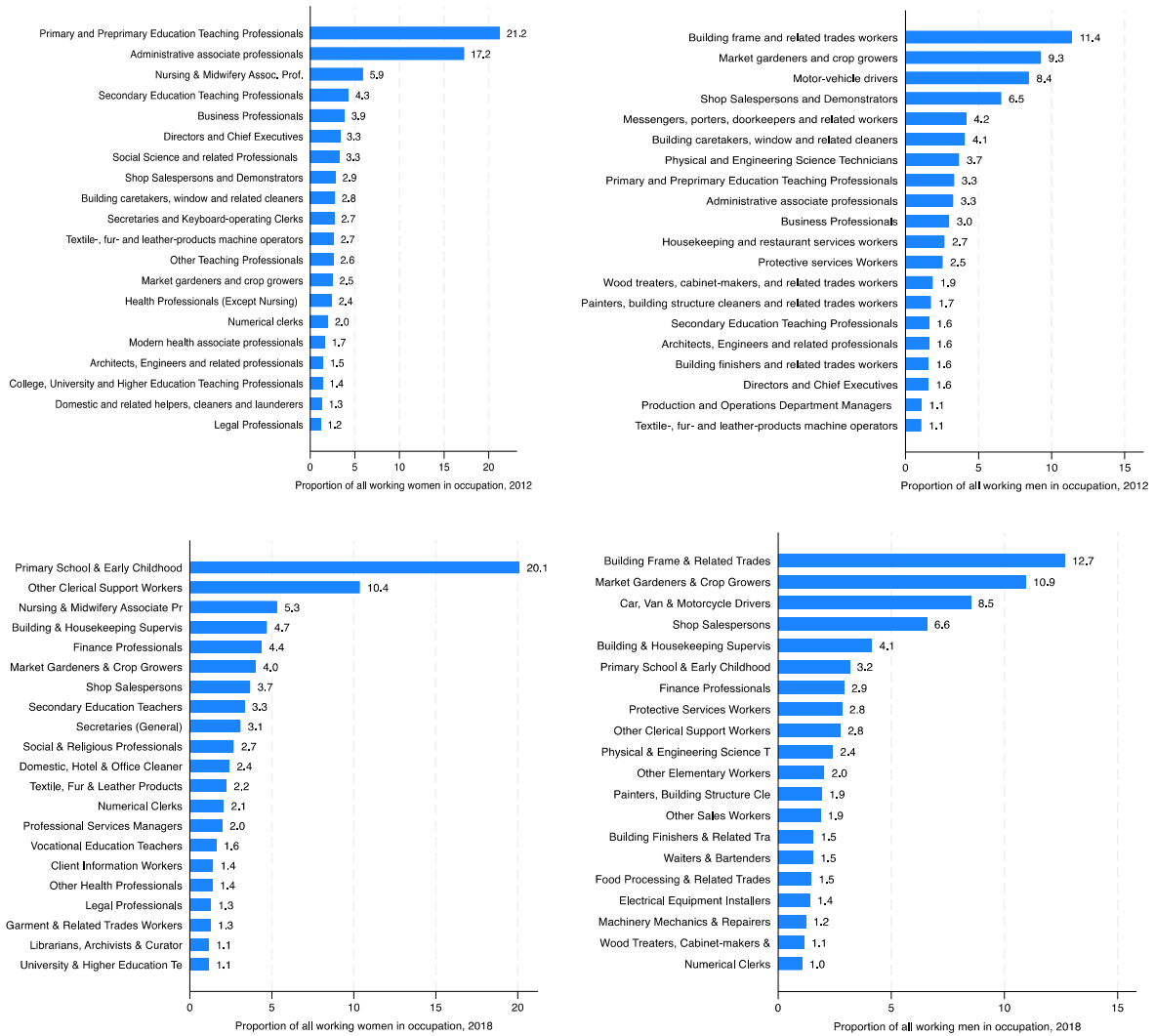
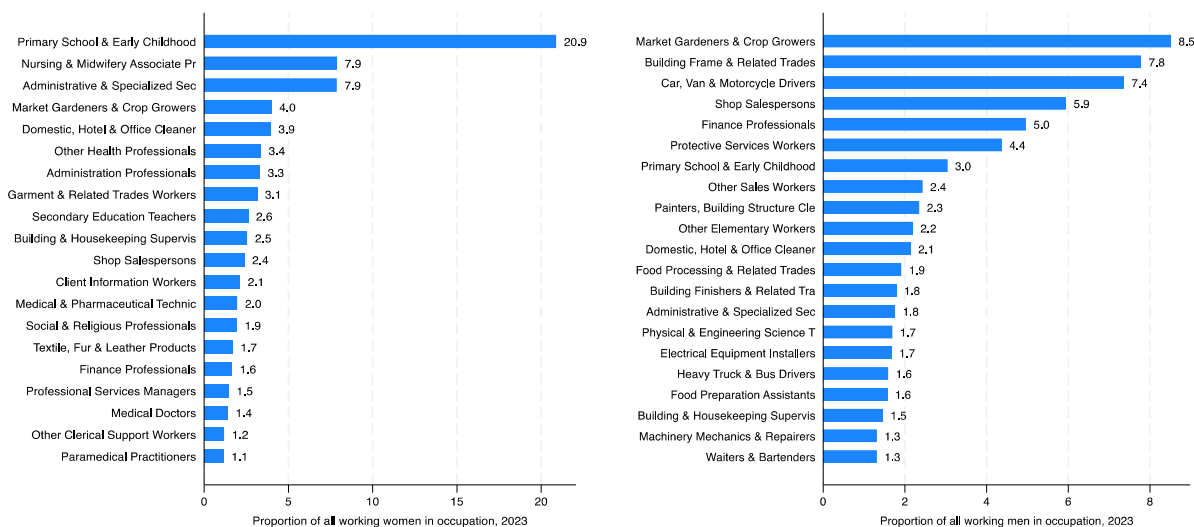


Figure 4. Proportion of women and men in the largest 3-digit occupational categories as a share of all women and men workers, 1998 to 2023 (continued)



Source: Authors based on ELMPs 1998-2023

4.1.2. Occupational segregation by gender

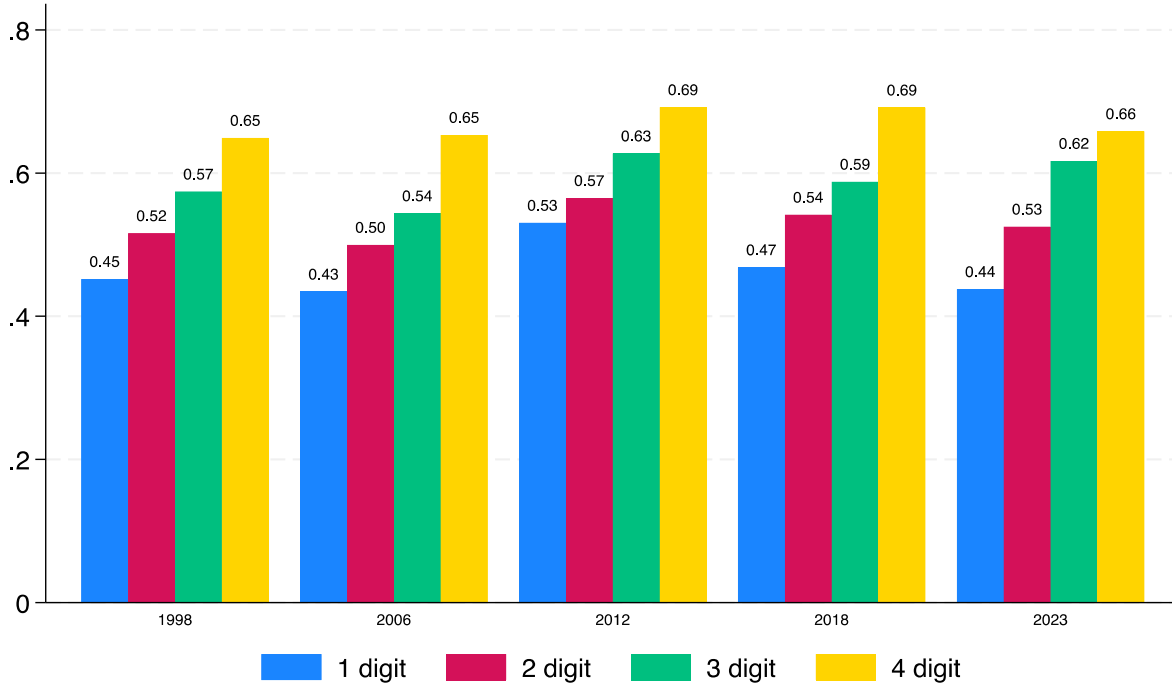
Figure 5 presents the ID values by varying levels of disaggregation of the occupational categories. At the 1-digit of occupational disaggregation (the broadest measure, which is harmonized and therefore comparable over time) occupational segregation increased between 1998 and 2006, but then fell to roughly its initial level by 2023. The index suggests that in 2023, 44% of women (men) would have to move sectors to eliminate their segregation vis a vis men (women). This is somewhat lower compared to other countries. For example, in the United States, gender occupational segregation was still above 50% by 2011 (Hegewisch and Hartmann 2014), except for those with a four year college degree. However, analysis for other countries is typically performed at much higher levels of disaggregation-3 or 4-digit occupations and it is thus important to examine how looking at finer occupational categories may change the results.

Comparing the indices by degree of occupational disaggregation within a single year provides insight into the change in occupational segregation when finer levels of disaggregation are used. Indeed, within each year, the ID rises sharply as the degree of disaggregation rises reflecting the separation of men and women at highly disaggregated occupational categories. For example, using the 4-digit occupational categories, the share of women (men) who would have to move sectors to eliminate their segregation vis a vis men (women) is between 65% and 69% implying a much higher degree of segregation.

As noted above, only 2018 and 2023 are comparable temporally at higher levels of disaggregation, and the results suggest that segregation has been rising over this short period according to the 3-digit classifications, but not according to the 2- and 4 digit classifications, although the differences

over time are minor, overall. This may be due to the smaller number of observations in each occupation-gender category at the higher level of disaggregation.⁵

Figure 5. Indices of occupational dissimilarity by level of disaggregation, 1998 to 2023



Source: Authors based on ELMPS 1998-2023

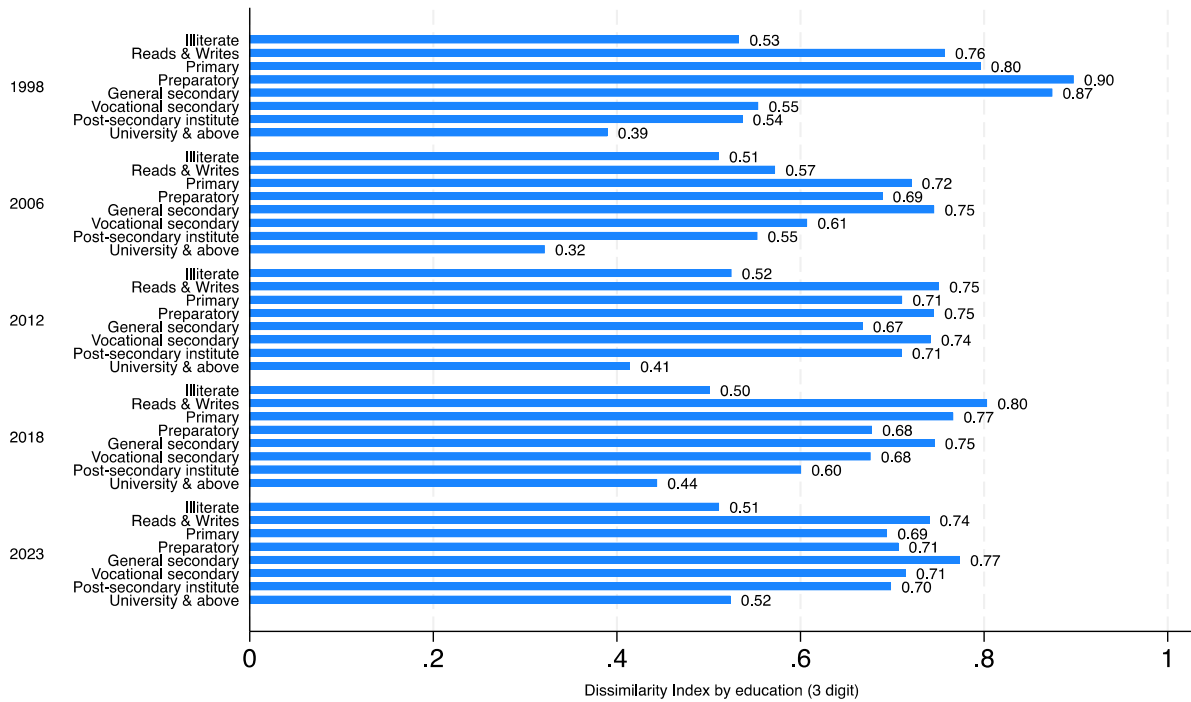
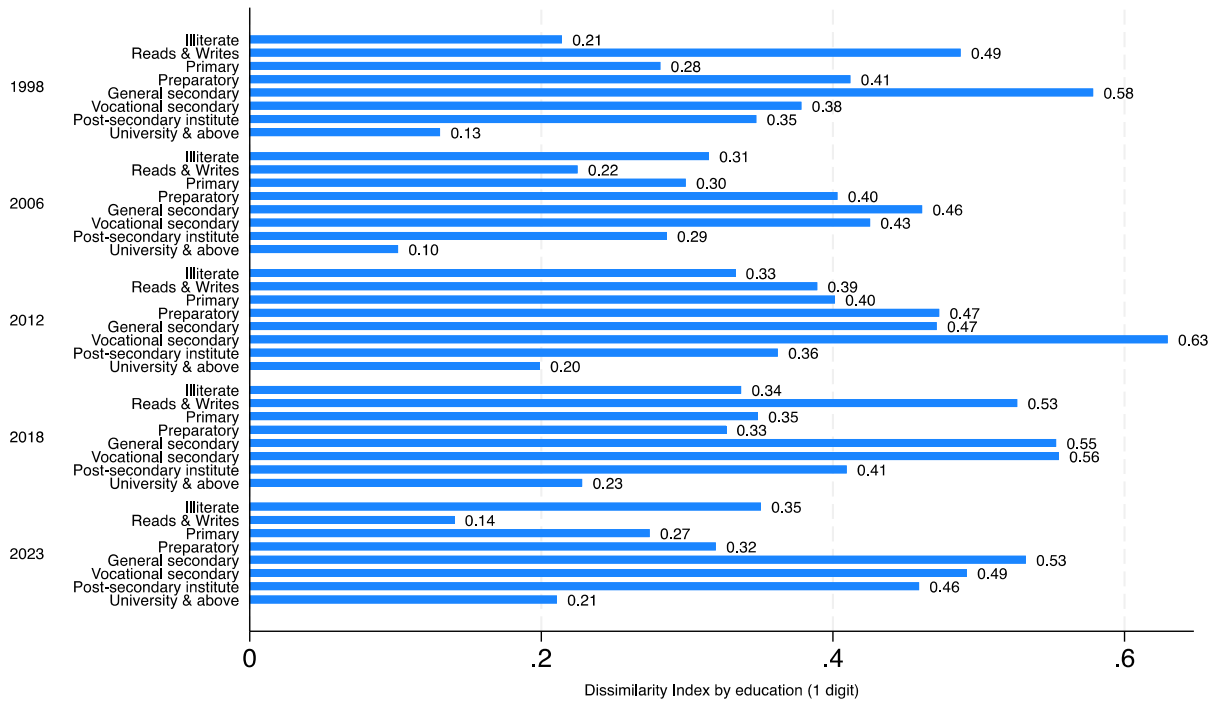
4.1.3. Gender occupational segregation across multiple dimensions

Education level

We next present ID results by education (Figure 6) at the 1-digit (top panel) and the 3-digit (bottom panel). Occupational segregation is lowest for those with university and above education, and highest for those with secondary or vocational education. In most years it is also low among those who are illiterate or can only read and write, likely reflecting a somewhat higher degree of integration in the lowest skill occupations.

⁵ One well-known limitation of the Dissimilarity Index (ID) is that higher levels of disaggregation, such as more detailed occupation-gender categories, can inflate measured segregation, particularly when the number of observations per category is small. To address this, we calculate the ID using 1-, 2-, 3-, and 4-digit occupational classifications in this section. However, for subsequent analyses examining the ID by additional characteristics (e.g., education, sector, formality, age cohort, region etc.), we focus on the 1-digit-which is comparable over time, and at the 3-digit level to avoid biasing the results due to insufficient observations in overly disaggregated categories.

Figure 6. Occupational dissimilarity by educational attainment, 1-digit and 3-digit, 1998-2023

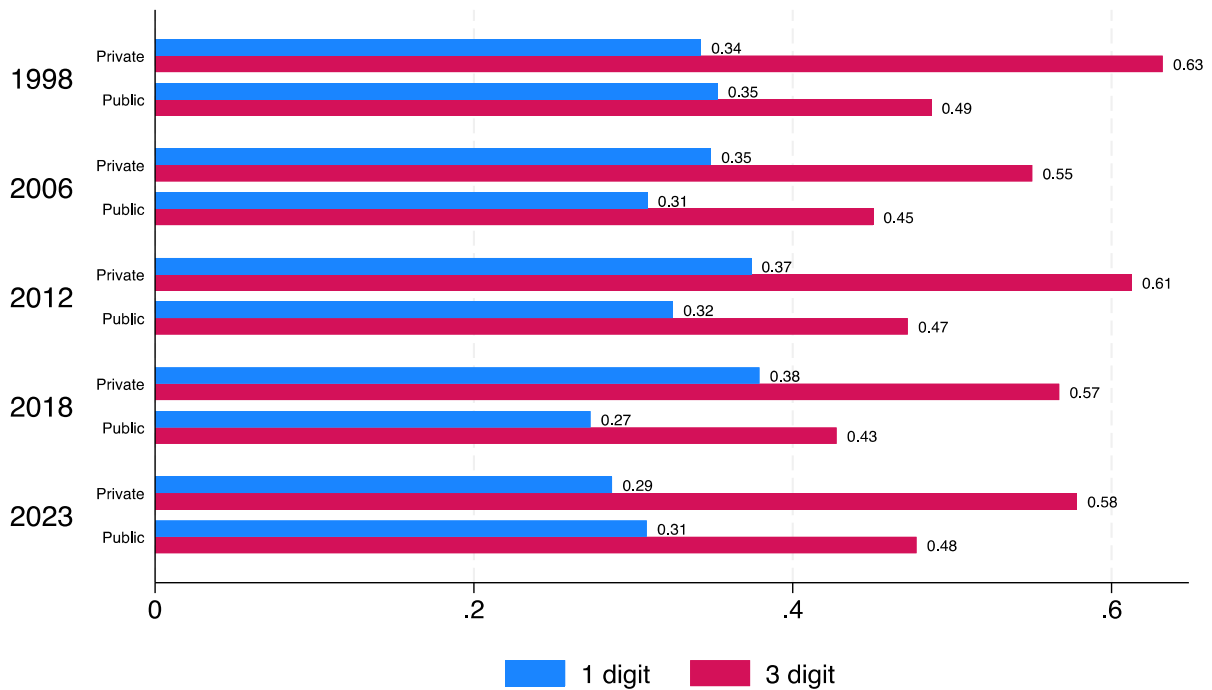


Source: Authors based on ELMPs 1988-2023

Sector of employment

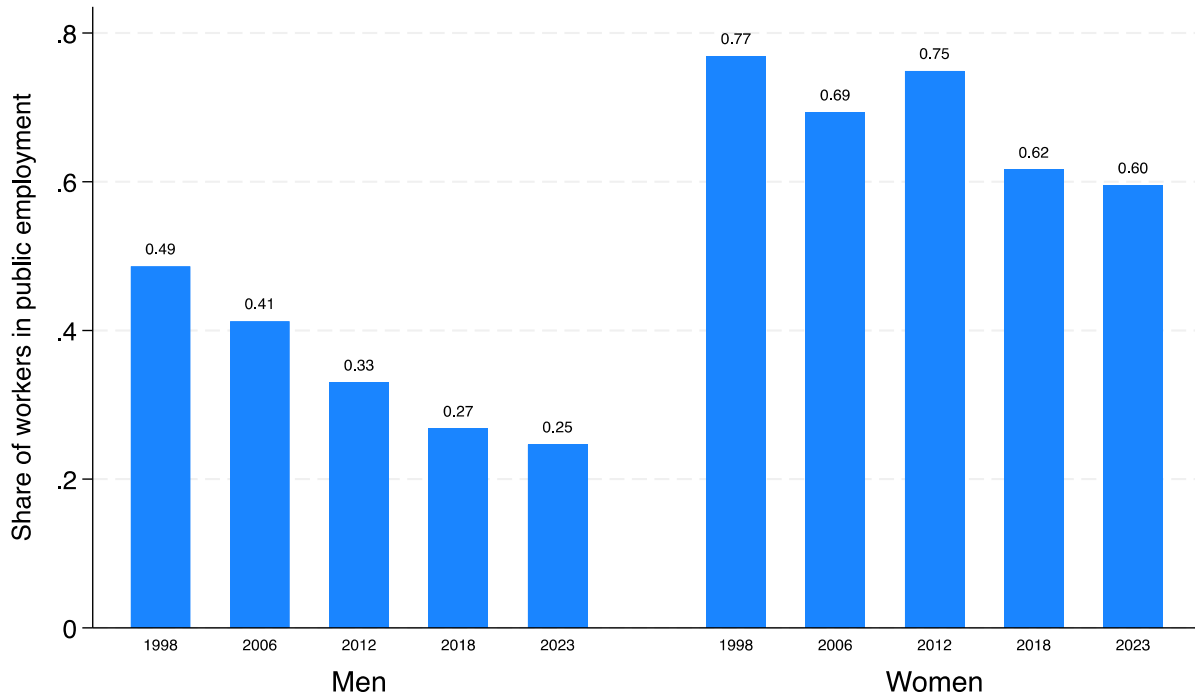
Figure 7 presents the ID by sector of employment, distinguishing between public and private sector employees. The results show a wide gap between segregation by sector especially when using the higher degree of disaggregation of occupational categories, with segregation in the private sector being consistently higher than that in the public sector by the 3-digit classification, although this gap is declining over time with public sector segregation rising between 2018 and 2023. To put these changes in perspective, Figure 8 presents the share of men and women in public employment over time. While men’s share has declined steadily since 1998, that of women increased between 2006 and 2012, and has been falling since then. The proportion of women in public employment in what can be considered highly skilled “white collar” jobs (managers, professionals, and technicians and associate professionals) has been declining steadily over this period (Figure 9), reflecting the dwindling opportunities for women in these higher skilled job categories in the public sector.

Figure 7: Occupational dissimilarity by sector, 1-digit and 3-digit, 1998-2023



Source: Authors based on ELMPS 1998-2023

Figure 8. Share of men and women in public employment over time



Source: Authors based on ELMPS 1998-2023

Figure 9. Share of workers in public employment by occupation and year

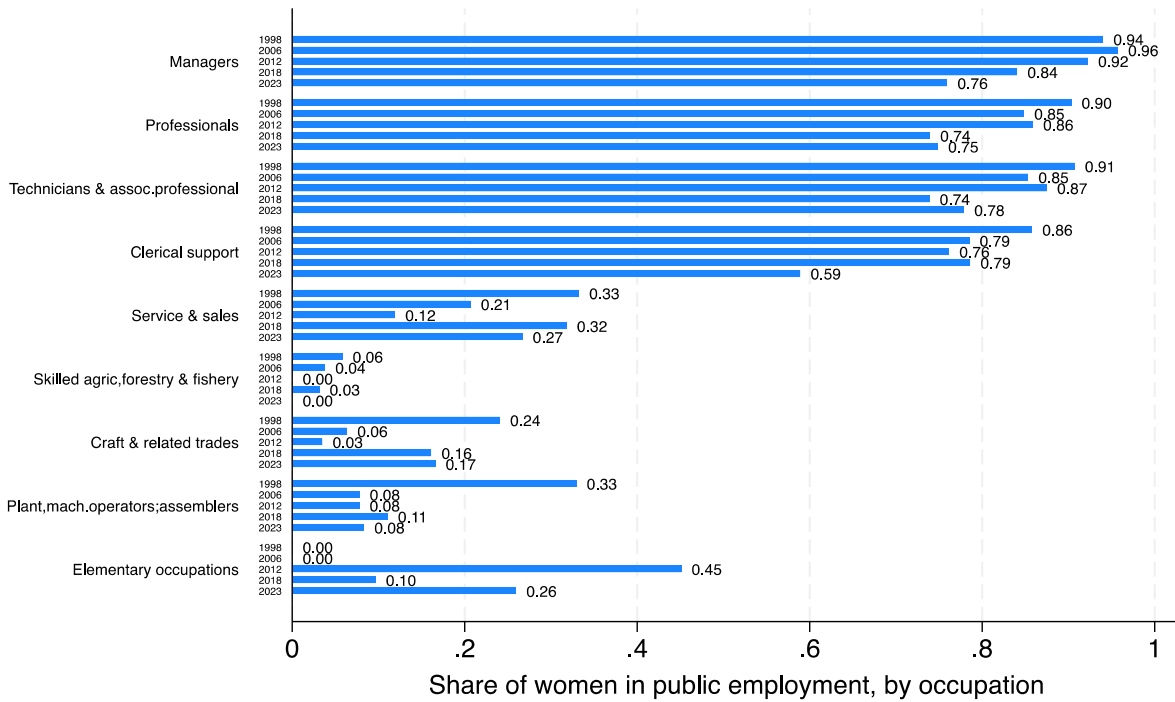
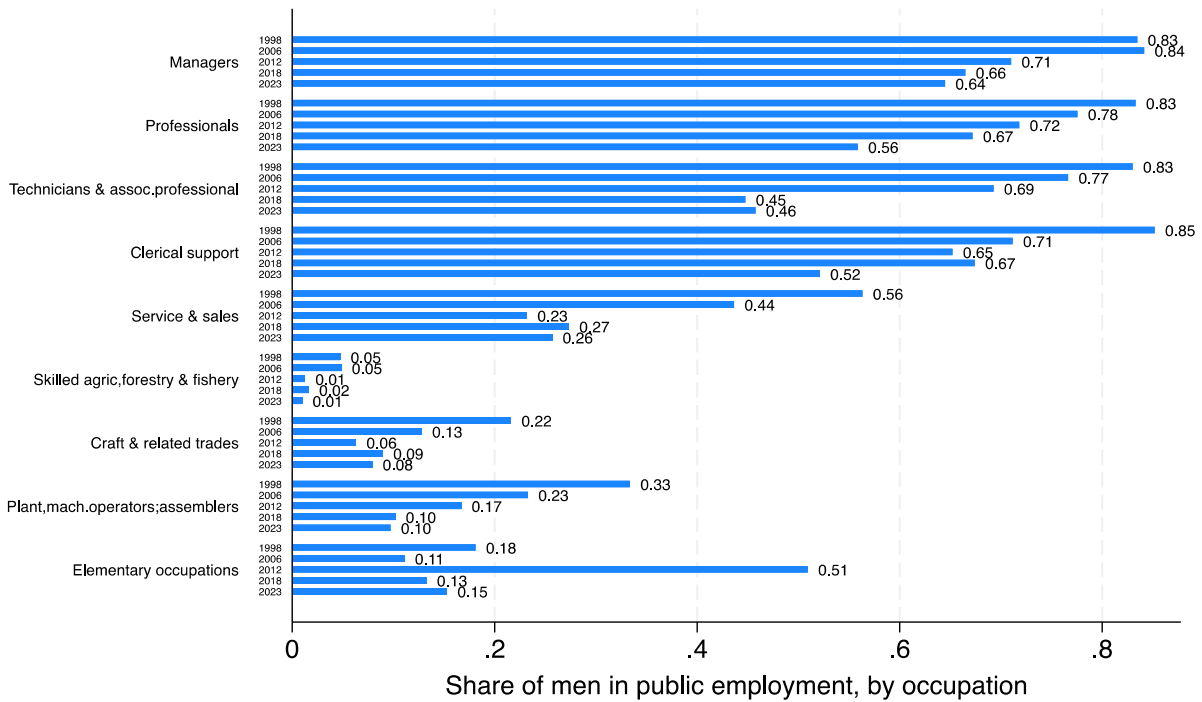


Figure 9. Share of workers in public employment by occupation and year (continued)

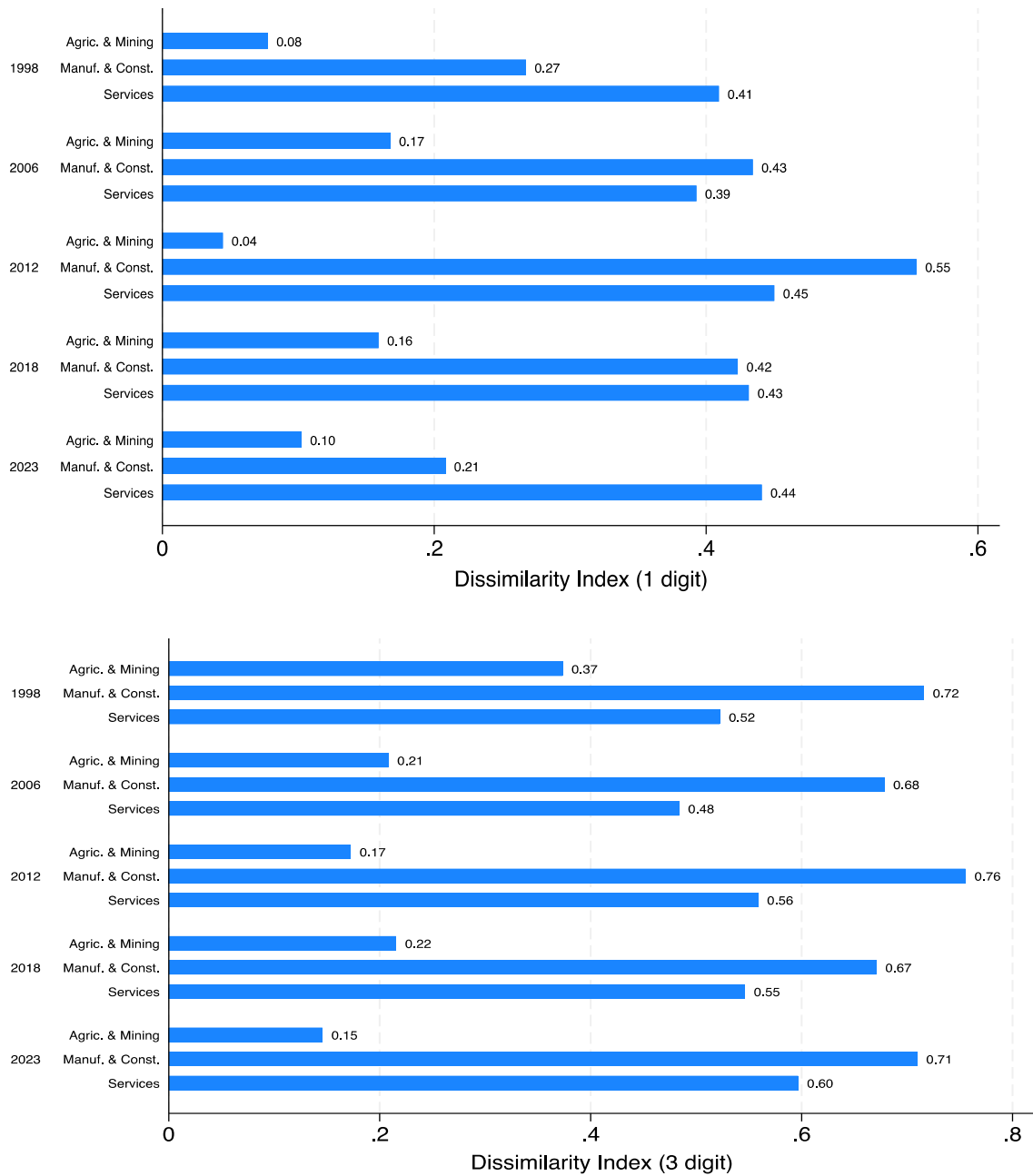


Source: Authors based on ELMPS 1988-2023.

Main economic activity

Figure 10 presents the ID by main economic activity, grouped into three broad categories to ensure sufficient sample size and reflect a widely used classification in similar analyses. The first category includes agriculture, forestry, fishing, and mining, which encompass resource extraction and basic production activities. The second category consists of manufacturing, industrial production, and infrastructure-related activities, including electricity supply, water management, and construction. The third category captures services, covering a broad range of economic activities such as trade, transportation, financial services, education, healthcare, and public administration. In all years by both 1- and 3 -digit occupations, agriculture is the most integrated. Manufacturing and Construction is the most segregated sector by the narrow occupational categories reflecting the high degree of separation between men and women in major economic activities such as construction for example.

Figure 10. Occupational dissimilarity by economic activity, 1-digit and 3-digit, 1998-2023



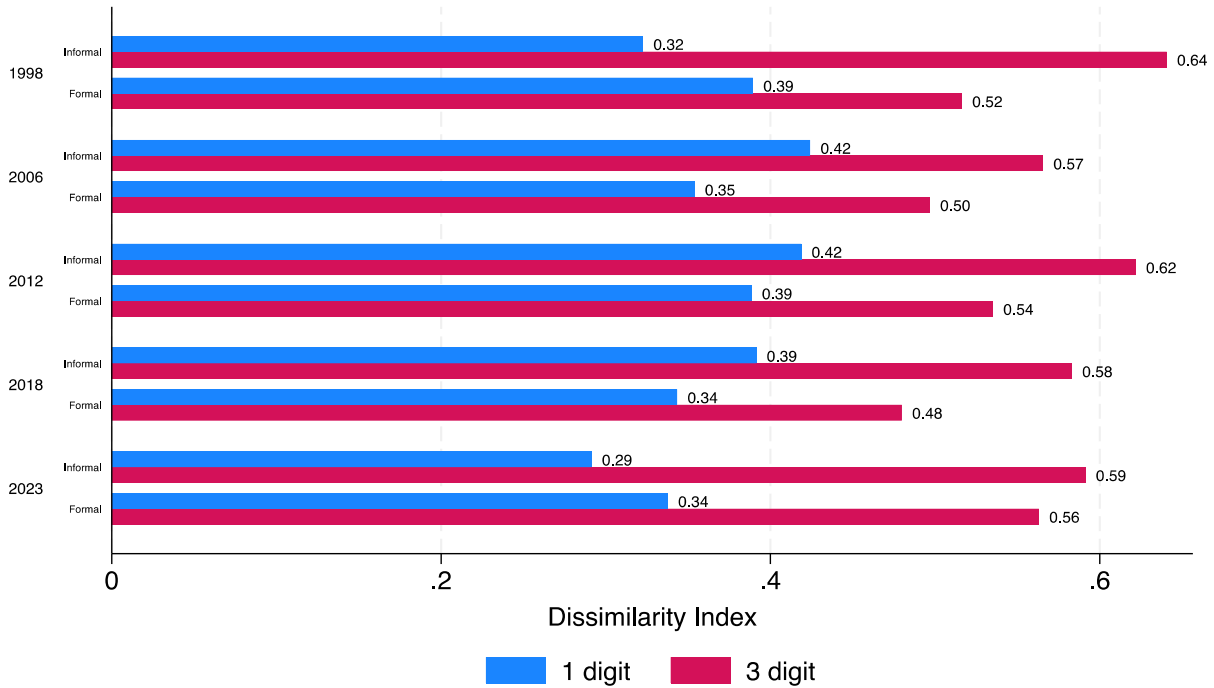
Source: Authors based on ELMPS 1998-2023.

Formality status

Figure 11 presents the ID by formality status. Using the broad occupational classification, informal employment was more segregated than formal employment in all years except 1998 and 2023. Using the more detailed classification shows that informal employment was consistently more segregated than formal employment in all years. The trend between 2018 and 2023 (which are

comparable over time at the 3-digit level) suggest segregation is rising over time in both formal and informal employment, but rising more in the former.

Figure 11. Occupational dissimilarity by formality status, 1-digit and 3-digit, 1998-2023

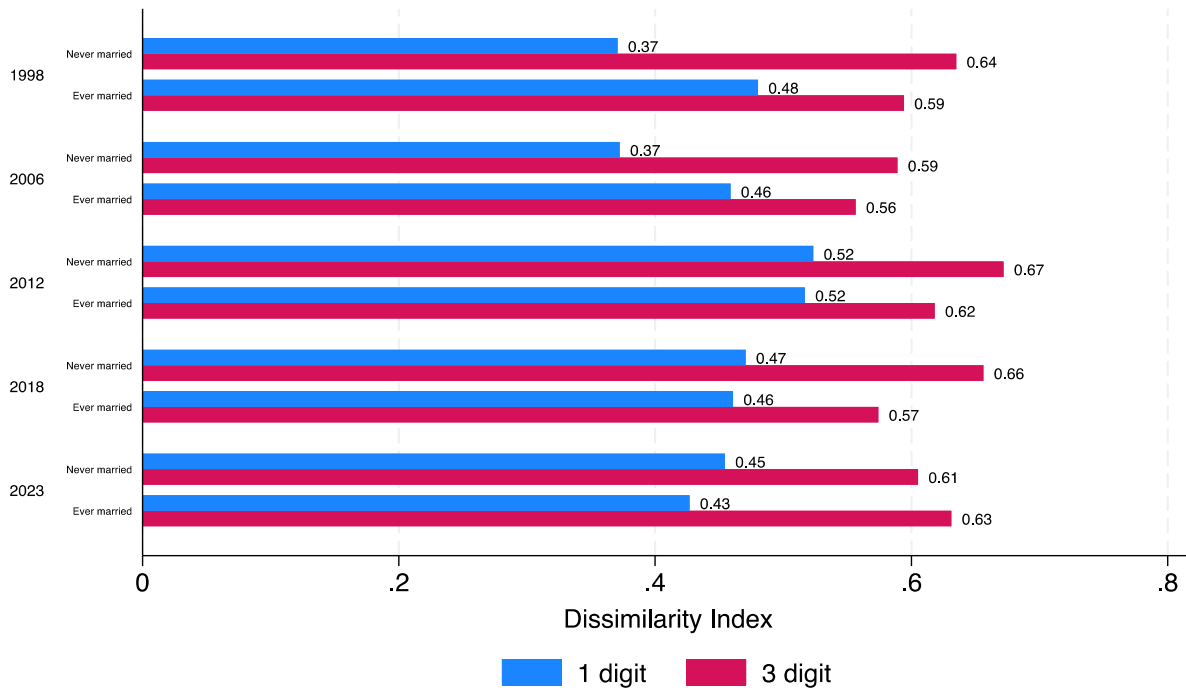


Source: Authors based on ELMPS 1988-2023

Marital status

Figure 12 presents segregation by marital status, distinguishing between those who were never married and those who were ever married (currently married, divorced or widowed). The results by the broad occupation categories suggest that occupational segregation is highest among those who were ever married until 2006. By contrast, the more detailed categories imply that those who were never married were more segregated until 2018.

Figure 12. Occupational dissimilarity by marital status, 1-digit and 3-digit, 1998-2023



Source: Authors based on ELMPS 1988-2023

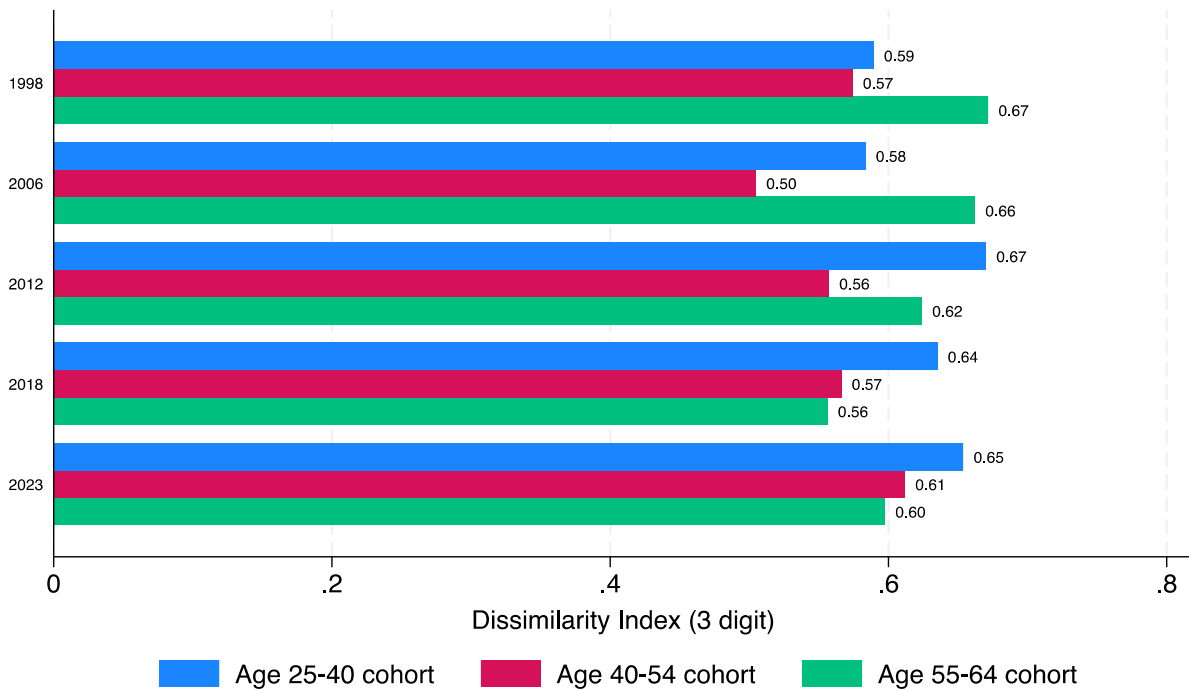
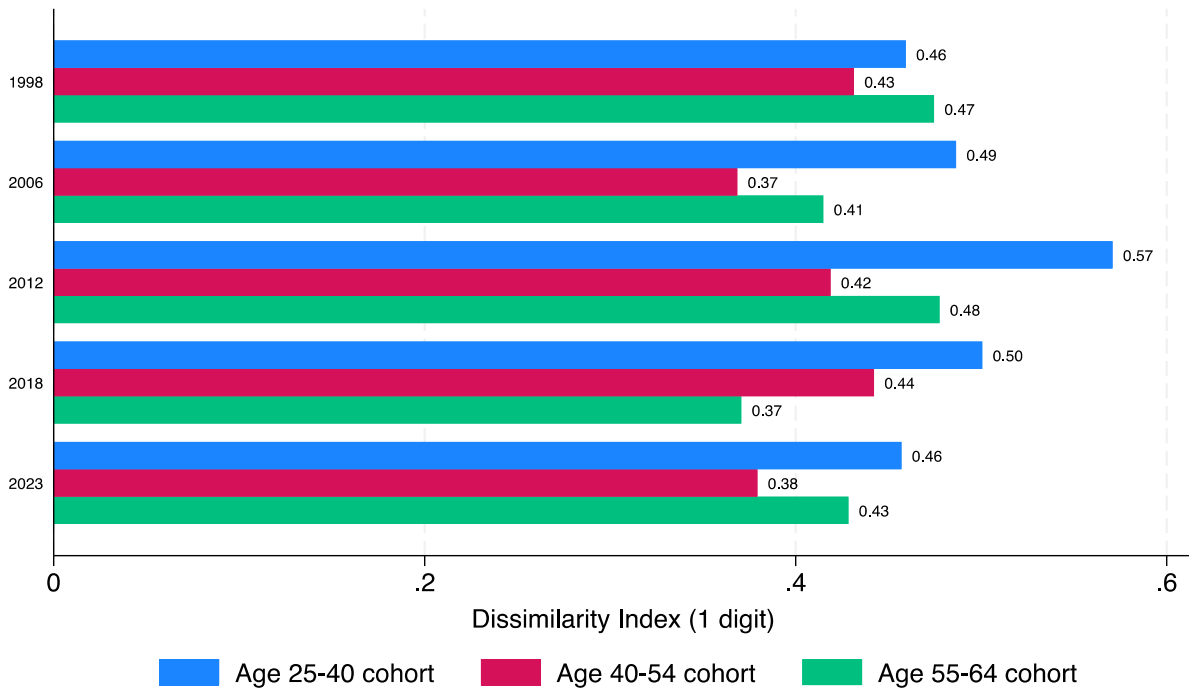
Age cohort

Figure 13 presents ID by age cohort dividing the sample into 3 age groups: 25-39; 40-54; and 55-64. Segregation was lowest for those in their prime working years, aged 40-54, and in many years was highest for the younger age group by both the 1-digit and 3-digit classifications. Notably, the oldest age group (55-64) became increasingly segregated between 2018 and 2023 by both classifications.

Region of residence

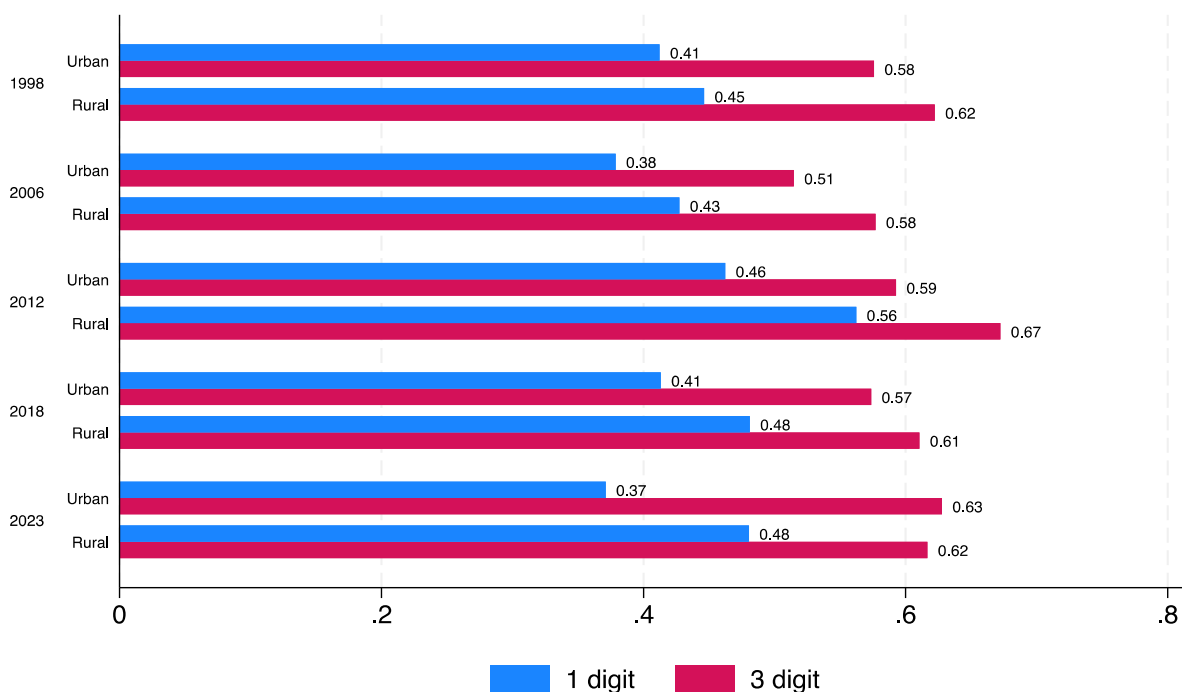
Figure 14 presents the ID by region of residence. Segregation has been consistently higher in rural regions, and rose between 1998 and 2006, but declined back since then. Urban segregation has also been rising over time, and especially between 2018 and 2023 by the more disaggregated classification.

Figure 13. Occupational dissimilarity by age group cohort, 1-digit and 3-digit, 1998-2023



Source: Authors based on ELMPS 1998-2023

Figure 14. Occupational dissimilarity by region of residence, 1-digit and 3-digit, 1998-2023



Source: Authors based on ELMPS 1998-2023

4.1.4. Real hourly wages over time, and across sectors for men and women

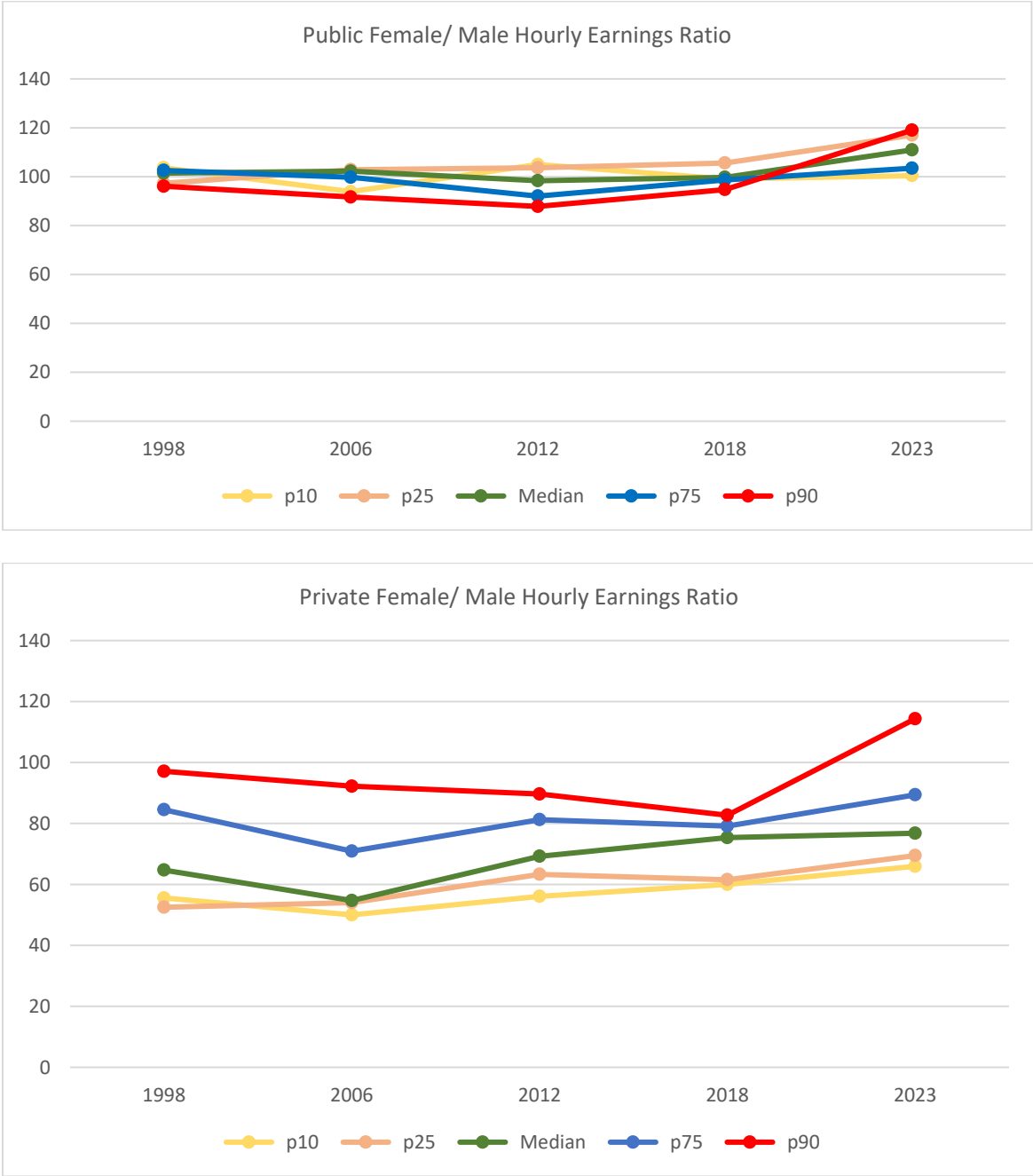
Table 1 presents the real hourly wages of men and women in the public and private sectors over time, adjusted to 2023 prices. The comparison highlights clear gender disparities, with notable differences between the private and public sectors.⁶

In the private sector, men consistently earn more than women at every point along the distribution, with the gaps most pronounced at the lower and middle percentiles. At 10th percentile, representing low earners, men earned 7.7 EGP per hour in 1998, while women earned only 4.3 EGP per hour, about 56% of men’s earnings (Figure 15 shows these earnings ratios directly). By 2023, men’s earnings had increased slightly to 8.3 EGP per hour, while women’s earnings rose to 5.5 EGP per hour, narrowing the gap slightly but still leaving women at only 66% of men’s earnings. At the median, men’s earnings increased from 16.0 EGP per hour in 1998 to a peak of 19.8 EGP per hour in 2012 before falling to 16.3 EGP per hour in 2023. Women’s median earnings started at 10.4 EGP per hour in 1998, peaked at 13.7 EGP per hour in 2012, and declined to 12.5 EGP per hour

⁶ In this section, we focus on real hourly wages to ensure that wage comparisons are standardized and account for differences in work hours, providing a more accurate reflection of pay disparities. For additional context, Figure A3 in the appendix compares earnings ratios based on monthly wages, which may reflect variations in work hours, offering a broader perspective on income differences.

in 2023. In that year, women earned roughly 77% of men’s median earnings, reflecting persistent but moderate inequality.

Figure 15. Female-Male Earnings ratios across the distribution, hourly real wages, by sector 1998-2023



Source: Authors based on ELMPS 1998-2023.

Table 1. Real hourly wages along the distribution (in 2023 EGP), by sex and sector, 1998-2023

round	p10	p25	Median	Mean	p75	p90
Men, Private Sector						
1998	7.7	11.0	16.0	19.3	22.8	33.3
2006	9.0	12.0	17.5	23.3	25.9	36.6
2012	9.5	13.8	19.8	27.6	29.2	42.3
2018	8.3	12.4	17.4	24.9	24.8	33.1
2023	8.3	11.5	16.3	29.5	22.4	31.5
Women, Private sector						
1998	4.3	5.8	10.4	21.7	19.2	32.4
2006	4.5	6.5	9.6	20.3	18.4	33.7
2012	5.3	8.8	13.7	20.6	23.7	37.9
2018	5.0	7.6	13.1	18.3	19.6	27.3
2023	5.5	8.0	12.5	24.6	20.1	36.1
Men, Public Sector						
1998	8.1	11.9	17.3	22.1	26.1	41.2
2006	10.5	14.9	22.4	29.2	32.9	49.9
2012	10.4	17.0	26.5	36.2	41.6	65.1
2018	10.1	15.9	23.5	36.0	33.3	48.3
2023	11.5	16.0	24.2	35.4	34.0	46.2
Women, Public Sector						
1998	8.4	11.5	17.6	22.2	26.8	39.6
2006	9.9	15.4	22.9	27.6	32.8	45.7
2012	10.9	17.7	26.1	33.8	38.3	57.2
2018	10.0	16.8	23.4	32.8	32.8	45.8
2023	11.6	18.8	26.9	35.7	35.2	54.9

Source: Authors' analysis of ELMPS 1998-2023.

At the 90th percentile, representing high earners, the earnings disparity is narrower. In 1998, men earned 33.3 EGP per hour while women earned 32.4 EGP per hour, showing near parity. By 2023, women at the 90th percentile surpassed men, earning 36.1 EGP per hour compared to men's 31.5 EGP per hour. However, this trend of women exceeding men's earnings at the top should be interpreted cautiously, as it likely reflects the impact of declining female labor force participation, discussed in Figure 1, which suggests a high degree of selection, with only the most skilled or high-earning women remaining in the labor market.

In the public sector, wage disparities between men and women are generally smaller, and earnings outcomes are more equitable across the distribution. In 1998, women slightly outpaced men at the lower end, earning 8.4 EGP per hour at the 10th percentile compared to men's 8.1 EGP per hour, as well as at the median (17.6 EGP per hour for women, compared to 17.3 EGP per hour for men). At the 90th percentile, however, gaps were more evident, with men earning 41.2 EGP per hour compared to women's 39.6 EGP per hour. By 2006, both genders saw wage growth, but gaps at the upper percentiles widened slightly. At the 90th percentile, men earned 49.9 EGP per hour compared to women's 45.7 EGP per hour, underscoring a persistent disparity at the top. This trend continued into 2012, with men earning 65.1 EGP per hour at the 90th percentile, significantly outpacing women's 57.2 EGP per hour.

In 2018, wages declined in real terms for both genders, along the distribution, but the decline was more pronounced at the 75th and 90th percentiles. 10th percentile and median wages remained closely aligned, demonstrating parity at the lower end and middle of the distribution. At the 90th percentile, however, gaps persisted, with men earning 48.3 EGP per hour compared to women's 45.8 EGP per hour. By 2023, lower-end wages converged further, with men and women earning nearly identical wages, with women's wages even surpassing men's at all points along the distribution. Notably, at the 90th percentile, women outpaced men, earning 54.9 EGP per hour compared to men's 46.2 EGP per hour, marking a reversal of previous trends at the top. This suggests potential structural changes or shifts in public-sector employment, where women may have gained relative advantages at the top of the wage distribution, but again must be interpreted with caution in light of declining female participation rates (Figure 1) and declining public sector employment for both men and women (Figure 9).

4.1.5. Gender wage gaps and occupational female representation

Table 2 delves deeper by examining gender wage gaps in the 20 most common occupations for women, differentiating between the public and private sectors. As previously noted, the public sector generally exhibits smaller wage gaps, and in several cases, women are paid more than men. Consequently, our discussion focuses on the private sector, where gender disparities are more pronounced.

While no single pattern fully captures the relationship between wages and either the share of women in a given occupation or their representation relative to men, several key trends emerge. The most prevalent occupation for women over the period—primary and early childhood teaching—illustrates this starkly. Women consistently accounted for over half of all workers in this occupation, and it accounted for between one-sixth and one-fifth of all women employed during each year of the study period. In 1998, female teachers in the private sector earned just 51% of male wages. While this ratio improved significantly to 99% (near parity) by 2006, it subsequently plummeted to 30% in 2012, rose marginally to 43% in 2018, and fell further to just 28% in 2023. The sharp and persistent wage gap in this highly feminized occupation suggests worsening job opportunities for women in the private sector, particularly in roles they are most likely to pursue.

Other key occupations, such as nursing, reveal more nuanced trends. In earlier years, nursing—a field dominated by women—exhibited a relatively low wage gap, particularly in the public sector, likely reflecting standardized pay structures. However, over time, the private sector saw a widening wage gap in nursing, pointing to emerging disparities despite women's significant representation in the field. For occupations with high female shares but lower overall prevalence among working women—such as clerical and administrative roles—the private sector also consistently shows substantial wage gaps. Here, women's wages lag significantly behind men's, reinforcing the challenges women face even in traditionally “female-dominated” roles.

Table 2. The gender wage gap in the 20 most common occupations for women by sector, 1998-2023

	Private			Public			Share of women workers in the occup.	Share of women workers in the occup. as a percent of all women workers	Share of men workers in the occup. as a percent of all men workers
	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's			
	Men	Women		Men	Women				
2023									
Primary School & Early Childhood Teachers	31	8.7	28.1	30.8	30.8	100.0	57.1	20.9	3
Nursing & Midwifery Associate Prof	26.9	12.4	46.1	35.3	21.6	61.2	79.5	7.9	0.4
Administrative & Specialized Sec	19.4	14	72.2	28.8	28.4	98.6	46.4	7.9	1.8
Market Gardeners & Crop Growers	15	15	100.0	13.2	.	.	8.3	4	8.5
Domestic, Hotel & Office Cleaner	16	13.7	85.6	16.9	11.6	68.6	26.3	3.9	2.1
Other Health Professionals	17.3	47.3	273.4	24	24	100.0	55.3	3.4	0.5
Administration Professionals	20.2	18.9	93.6	26.9	28.2	104.8	39.9	3.3	1
Garment & Related Trades Workers	12.5	8.7	69.6	60	10.4	17.3	42.3	3.1	0.8
Secondary Education Teachers	23.1	22.1	95.7	31.5	28.2	89.5	44	2.6	0.6
Building & Housekeeping Supervisors	13.7	6.4	46.7	16	9.2	57.5	25.3	2.5	1.5
Shop Salespersons	12.1	8	66.1	21.6	12.8	59.3	7.2	2.4	5.9
Client Information Workers	20.5	14.7	71.7	36.6	17.3	47.3	36.4	2.1	0.7
Medical & Pharmaceutical Technic	11	8.5	77.3	21.4	26.1	122.0	56.7	2	0.3
Social & Religious Professionals	33	38.5	116.7	23.6	23.6	100.0	35.7	1.9	0.7
Textile, Fur & Leather Products	14	12.5	89.3	12.5	1.8	14.4	33.6	1.7	0.6
Finance Professionals	25.6	19.1	74.6	27.9	26.2	93.9	6	1.6	5
Professional Services Managers	39.6	46.2	116.7	28.8	42.3	146.9	31.6	1.5	0.6
Medical Doctors	23.5	.	.	33.7	24	71.2	53.3	1.4	0.2
Vocational Education Teachers	23.1	.	.	32.3	31.7	98.1	47.4	1.4	0.3
Other Clerical Support Workers	28	18.5	66.1	23.1	20.3	87.9	57.5	1.2	0.2
Paramedical Practitioners	28.8	9.5	33.0	33.5	32.1	95.8	72.3	1.1	0.1
Mean of Top 20 Occupations	21.6	18	83.3	27.5	22.5	81.8	41.1	3.7	1.7
	Private			Public			Share of women workers in the occup.	Share of women workers in the occup. as a percent of all women workers	Share of men workers in the occup. as a percent of all men workers
2018	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's			
	Men	Women		Men	Women				
Primary School & Early Childhood Teachers	24	10.3	42.9	28.4	23.4	82.4	57.3	20.1	3.2
Other Clerical Support Workers	24.8	14.9	60.1	21.7	23.8	109.7	44.2	10.4	2.8
Nursing & Midwifery Associate Prof	10.9	9.9	90.8	18.6	18.9	101.6	87.9	5.3	0.2
Building & Housekeeping Supervisors	12.6	11.4	90.5	15.3	7.3	47.7	19.3	4.7	4.1
Finance Professionals	23.8	19.1	80.3	28	21.1	75.4	24	4.4	2.9
Market Gardeners & Crop Growers	17.4	16.5	94.8	12.1	18.3	151.2	7.2	4	10.9
Shop Salespersons	12.7	7	55.1	25.4	16.5	65.0	10.6	3.7	6.6
Secondary Education Teachers	31.7	22.9	72.2	26.7	28.6	107.1	49.4	3.3	0.7
Secretaries (General)	27.5	12.7	46.2	33.7	28.3	84.0	83	3.1	0.1
Social & Religious Professionals	12.7	9.8	77.2	27.6	20.2	73.2	36.3	2.7	1
Domestic, Hotel & Office Cleaner	15.3	11.4	74.5	8.6	8.2	95.3	67.4	2.4	0.2
Textile, Fur & Leather Products	19.1	10.3	53.9	19.8	18.9	95.5	35	2.2	0.9
Numerical Clerks	26.2	19.1	72.9	25.7	28.6	111.3	29.3	2.1	1
Professional Services Managers	50.8	0.5	1.0	33.6	36.6	108.9	40.7	2	0.6
Vocational Education Teachers	36.2	.	.	28.1	22.9	81.5	51	1.6	0.3
Other Health Professionals	23.8	6.4	26.9	32.7	26.3	80.4	63.3	1.4	0.2
Client Information Workers	17.2	12	69.8	22.9	10.6	46.3	30.4	1.4	0.7
Legal Professionals	19.8	18.3	92.4	38.1	30.9	81.1	27.9	1.3	0.7
Garment & Related Trades Workers	15.9	11.9	74.8	38.1	12	31.5	22	1.3	0.9
University & Higher Education Teachers	54.5	57.2	105.0	55.7	34.3	61.6	45.9	1.1	0.3
Librarians, Archivists & Curator	.	.	.	22.2	24.6	110.8	58.9	1.1	0.2
Mean of Top 20 Occupations	23.8	14.8	62.2	26.8	21.9	81.7	42.4	3.8	1.8

Table 2. The gender wage gap in the 20 most common occupations for women by sector, 1998-2023 (continued)

	Private			Public			Share of women workers in the occup.	Share of women workers in the occup. as a percent of all women workers	Share of men workers in the occup. as a percent of all men workers
	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's			
	Men	Women		Men	Women				
2012									
Primary and Preprimary Education	30	9.1	30.3	30.1	25.1	83.4	58.5	21.2	3.3
Administrative associate prof. (except nursing) not classified	24.6	19.2	78.0	30	25.5	85.0	53.8	17.2	3.3
Secondary Education Teaching Pro	9.1	15.2	167.0	22.8	23.7	103.9	94.3	5.9	0.1
Business Professionals	37.1	21.7	58.5	34.2	31.3	91.5	37.1	4.3	1.6
Directors and Chief Executives	30.4	23.3	76.6	35.8	30.4	84.9	22.2	3.9	3
Social Science and related Prof.	31.2	35.6	114.1	41	41	100.0	32.1	3.3	1.6
Shop Salespersons and Demonstrators	547.3	36.9	6.7	25.8	24.9	96.5	65.4	3.3	0.4
Building caretakers, window and Secretaries and Keyboard-operators	15.2	10	65.8	40	14	35.0	8.8	2.9	6.5
Textile, fur and leather-producers	14.6	9.1	62.3	15.6	11.7	75.0	13.1	2.8	4.1
Other Teaching Professionals	20.5	27.4	133.7	36.1	26.5	73.4	61.5	2.7	0.4
Market gardeners and crop grower	18.2	11.4	62.6	20.5	18.2	88.8	35.4	2.7	1.1
Health Professionals (Except Nursing)	27.4	9.1	33.2	35.6	29.2	82.0	48.4	2.6	0.6
Numerical clerks	18.4	14.8	80.4	13.7	.	.	5.7	2.5	9.3
Modern health associate prof.	45.6	27.4	60.1	29.6	26.1	88.2	46	2.4	0.6
Architects, Engineers and relate	23.3	9.1	39.1	26.1	24.7	94.6	35.4	2	0.8
College, University and Higher Educ	18.2	16.4	90.1	21.3	20.9	98.1	39.4	1.7	0.6
Domestic and related helpers, cleaners	48.7	41	84.2	60.9	52	85.4	16.8	1.5	1.6
Legal Professionals	.	36.5	.	70.3	65.7	93.5	56.7	1.4	0.2
Mean of Top 20 Occupations	13.7	29.6	216.1	.	.	.	52.8	1.3	0.3
	31.3	11.4	36.4	31.4	31.3	99.7	19.7	1.2	1
	52.9	20.7	39.1	32.7	29	88.7	39.5	4.5	2.1
	Private			Public			Share of women workers in the occup.	Share of women workers in the occup. as a percent of all women workers	Share of men workers in the occup. as a percent of all men workers
	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's			
	Men	Women		Men	Women				
2006									
Primary & Preprimary Educ. Teach	15.4	15.2	98.7	22.4	22.5	100.4	49.9	16.3	4.2
Administrative Assoc. profession	26	12.8	49.2	19.4	20	103.1	50	14.4	3.7
Nursing & Midwifery Assoc. Prof	11.2	9	80.4	13.9	16.5	118.7	86.8	6.5	0.2
Shop Salespersons & Demonstrator	12.8	6.4	50.0	20.2	18.2	90.1	19.2	5.2	5.6
Numerical clerks	29.6	9.6	32.4	20.5	21.5	104.9	47.1	4.9	1.4
Secondary Educ. Teaching Profess	29.1	79.6	273.5	25.3	25.9	102.4	33.8	4.2	2.1
Business Professionals	35.9	27.3	76.0	32.9	32.3	98.2	24	3.7	3
Secretaries & Keyboard-operating	23.3	13.6	58.4	26.6	23.8	89.5	71.6	3.4	0.3
General Managers in Govt.	94.9	.	.	35.4	37.6	106.2	37	3.3	1.4
Market agricultural & animal pro	15.5	10.9	70.3	16.7	8.4	50.3	8.4	3.1	8.6
Chief Executives	39.9	75.3	188.7	35.2	40.1	113.9	34.6	2.9	1.4
Textile, fur & leather producers	16.1	9	55.9	16.6	19.2	115.7	39	2.8	1.1
Building caretakers	15.4	6.1	39.6	13.5	12.1	89.6	10.1	2.2	4.9
Social Science & related Profess	14.6	23.9	163.7	20.6	22.3	108.3	55.5	2.1	0.4
Health Professionals (Exc. Nursi	25.3	25.6	101.2	27.8	31.2	112.2	35.8	2	0.9
Client information Clerks	14.3	7.2	50.3	20.2	18.7	92.6	40	1.8	0.7
Housekeeping & restaurant service workers	15.5	18.7	120.6	14.9	.	.	10.7	1.5	3.3
292	20.3	13.9	68.5	32.3	29.4	91.0	34.6	1.4	0.7
Textile, garment & related trade	17.9	7.2	40.2	12	13.8	115.0	25.4	1.4	1
827	12	9.3	77.5	22.7	8.4	37.0	34.7	1.1	0.5
351	20.5	6.5	31.7	22.4	22.4	100.0	33.5	0.9	0.5
Mean of Top 20 Occupations	24.1	19.4	80.5	22.5	22.2	98.7	37.2	4.1	2.2

Table 2. The gender wage gap in the 20 most common occupations for women by sector, 1998-2023 (continued)

	Private			Public			Share of women workers in the occup. as a percent of all women workers	Share of men workers in the occup. as a percent of all men workers	
	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's	Median Hourly Wage (2023 EGP)		Women's earnings as a percent of men's			
	Men	Women		Men	Women				
1998									
Primary school teachers	21.9	11.2	51.1	19.7	17.2	87.3	59.4	13.2	2.2
Secretaries and Keyboard-operators	30.8	17.9	58.1	15.4	16	103.9	66.4	9.1	1.1
High school teachers	20.9	25.6	122.5	22.4	19.2	85.7	37.3	6.8	2.7
Middle school teachers	17.1	15.1	88.3	15.9	16.4	103.1	41	6.3	2.2
Library, mail and related clerks	21.2	.	.	12.8	12.8	100.0	43.5	5.9	1.8
Other cashiers and clerks	19.2	55.3	288.0	16.1	16.8	104.3	37.4	5.3	2.1
Accountants	23.1	20.5	88.7	21.2	33.4	157.5	27.4	3.6	2.3
Shop Salespersons & Demonstrators	11	4.5	40.9	12.8	4.5	35.2	17.3	3	3.5
Building caretakers	10	7.3	73.0	12.8	8.6	67.2	9.4	2.7	6.2
Miners, shotfirers, stone cutters	.	24.8	.	13.5	11.8	87.4	95.5	2.5	0
Manager of secretarial activities	41.4	.	.	26.1	29.8	114.2	26.4	2.2	1.5
Cashiers, Tellers and related Clerks	16	19	118.8	11.8	17.1	144.9	29.3	2.2	1.2
Non-specialized agric. workers	15	5.6	37.3	.	.	.	16.5	2.2	2.7
Other Clerks	19	.	.	21.4	11	51.4	31.6	2.1	1.1
Market gardeners and crop grower	13.3	13.3	100.0	.	20.5	.	6.9	2.1	6.7
Domestic & related helpers, cleaners	.	15.4	.	.	4.3	.	100	1.8	0
Other school teachers	.	15.4	.	31	32	103.2	31.9	1.6	0.8
722	10	1.7	17.0	10.6	4.3	40.6	67.9	1.5	0.2
202	85.5	.	.	46.5	44.4	95.5	20	1.4	1.4
Tailors	13.9	7.5	54.0	.	8.7	.	31.6	1.4	0.7
Mean of Top 20 Occupations	23.4	16.2	69.2	21.2	16.9	79.7	46.1	3.5	1.7

Source: Authors' analysis of ELMPS 1998-2023

These patterns underscore the dual impact of gendered occupational segregation and sectoral differences. While the public sector offers comparatively better outcomes for women in terms of wages, the private sector's rising wage disparities, particularly in occupations heavily populated by women, highlight systemic challenges. These disparities are especially concerning in roles like teaching, which are not only prevalent but also integral to women's labor market participation.

The relationships between female representation, median wages and the female to male earnings ratio over time are further illustrated in Figures 16 and 17. Figure 16a shows that in 1998, there was a positive correlation between the share of women in an occupation (as a percentage of all women wage workers) and the real median hourly wage in the private sector. However, over the next 25 years this relationship shifted to a clear negative correlation, indicating a worsening wage outcome for women in occupations where they are more concentrated.

Figure 16b examines the relationship between the share of women in an occupation (as a percentage of all workers in that occupation) and the real median hourly wage in the private sector. While this relationship appears less clear, with the fitted line remaining relatively flat across most years, further insights can be drawn from Table 3. Specifically, median wages in female-dominated occupations (where 50% or more of workers are women) are consistently lower than those in male-dominated occupations. Additionally, the female-to-male earnings ratio is lower in female-dominated occupations across all years. This trend becomes more pronounced in later years, as the earnings ratio in female-dominated occupations declined between 2018 and 2023, while it

improved in male-dominated occupations. These findings highlight a deepening gender disparity over time, particularly in occupations with a higher share of female workers.

Table 3. Median hourly wages in female and male dominant occupations

	Female dominant occupations			Male dominant occupations		
	Median Hourly Wage (Private Sector)		Median F/M earnings ratio	Median Hourly Wage (Private Sector)		Median F/M earnings ratio
	Men	Women		Men	Women	
1998	12.8	11.4	0.6	17.1	14.1	0.9
2006	14.6	10.5	0.6	18.7	10.9	0.7
2012	20.5	17.2	0.7	19.5	15.8	0.8
2018	19.4	10.9	0.7	17.9	12	0.7
2023	25.2	9.5	0.5	19.2	14.4	0.8
Total	19.2	11.7	0.6	18.4	13.3	0.8

Note: A female dominant occupation is defined as one where women make up 50% or more of all workers in that year. Male dominant is the opposite. Table shows medians across occupations defined as either male or female dominant. Authors' analysis of ELMPS 1998-2023.

Figure 16a. Median real hourly wage and share of women in occupation as a percent of all women wage workers (3-digit)

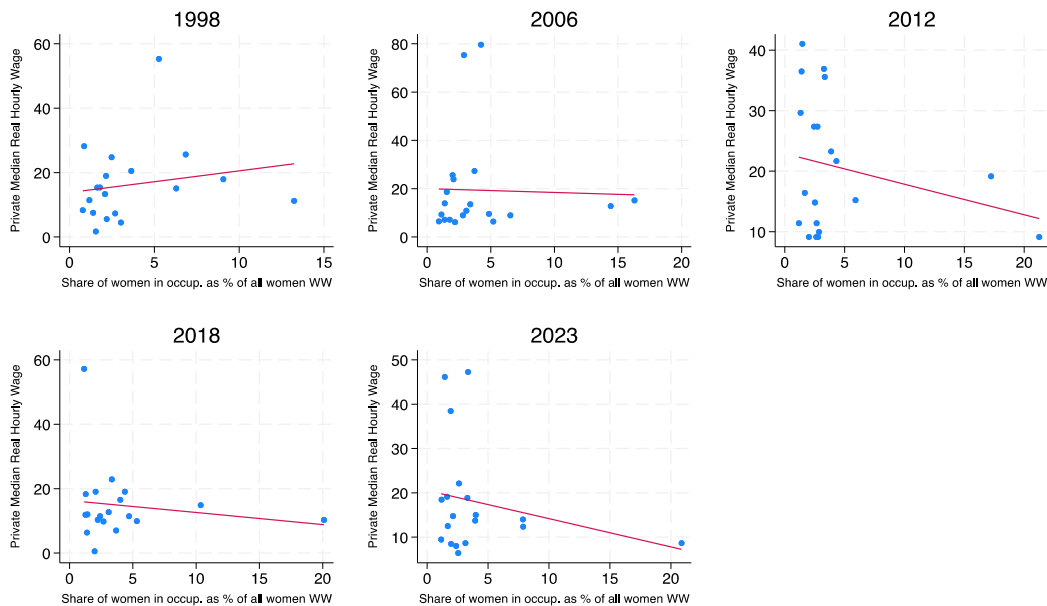
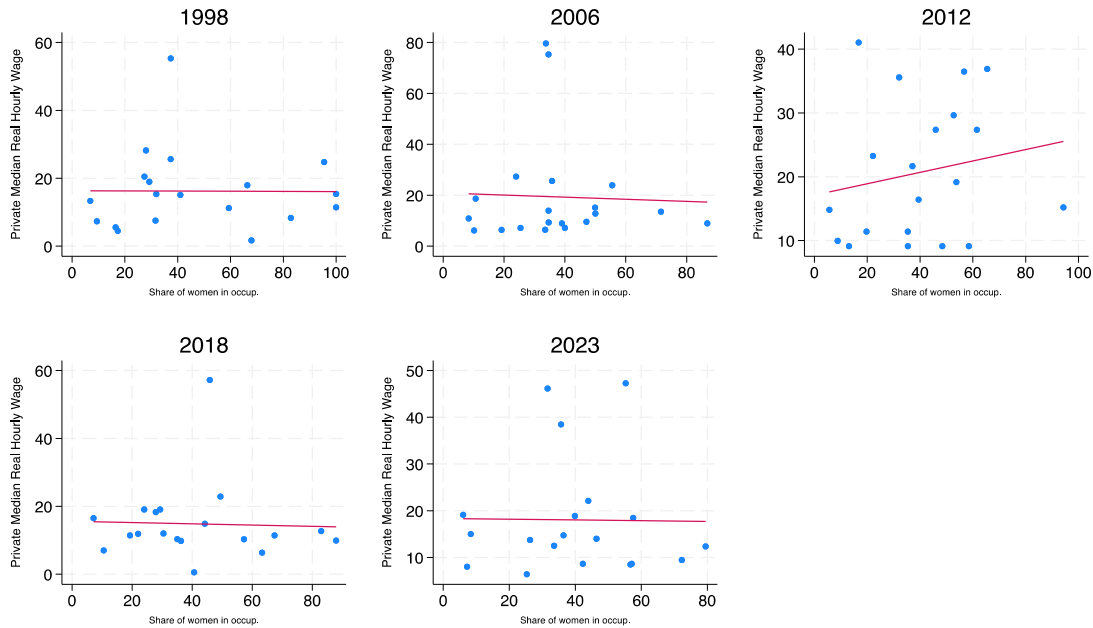


Figure 16b. Median real hourly wage and share of women in occupation (3-digit)



Source: Authors based on ELMPS 1998-2023.

Figure 17a illustrates the relationship between the female-to-male earnings ratio and the share of women in an occupation (as a percentage of all women wage workers). The figure confirms a progressively negative correlation over time, with occupations that employ larger shares of all women workers exhibiting lower earnings ratios relative to men.

Figure 17b further examines the relationship between the female-to-male earnings ratio and the share of women in an occupation (as a percentage of all workers in that occupation). Here, too, a clear and increasingly negative relationship emerges over time, indicating that occupations with larger shares of female workers have lower earnings ratios. This pattern is particularly pronounced in 2023, underscoring the widening wage disparities in female-dominated occupations.

Figure 17a. Female/Male earnings ratio and share of women in occupation as a percent of all women wage workers (3-digit)

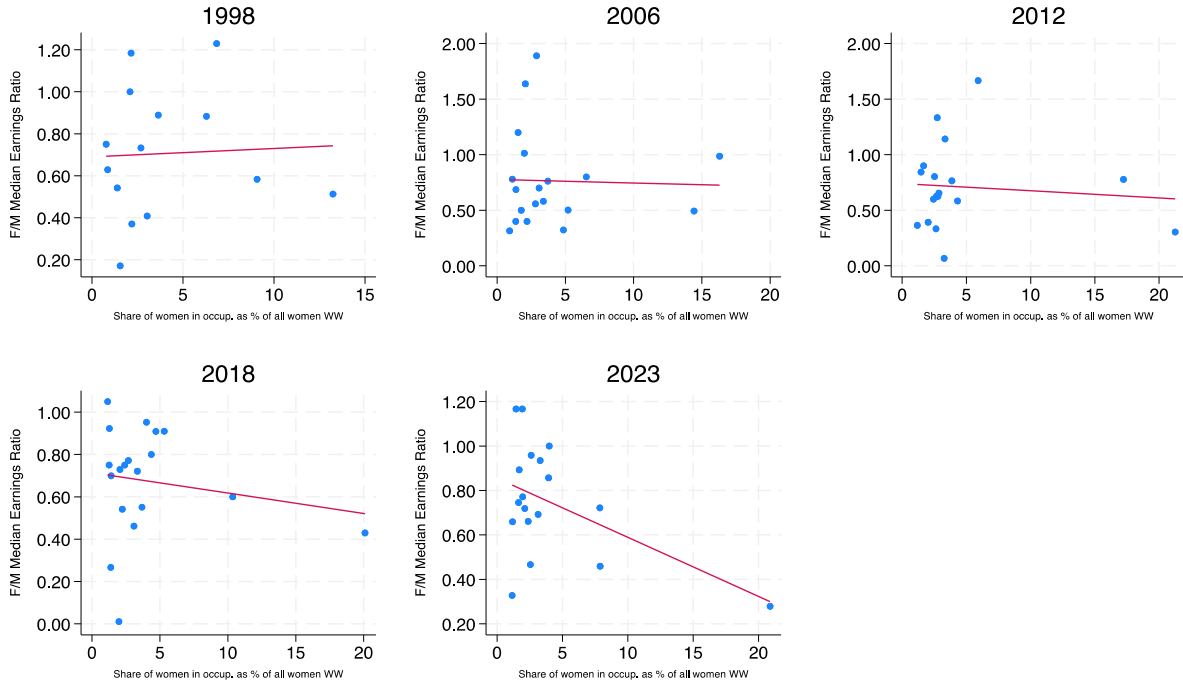
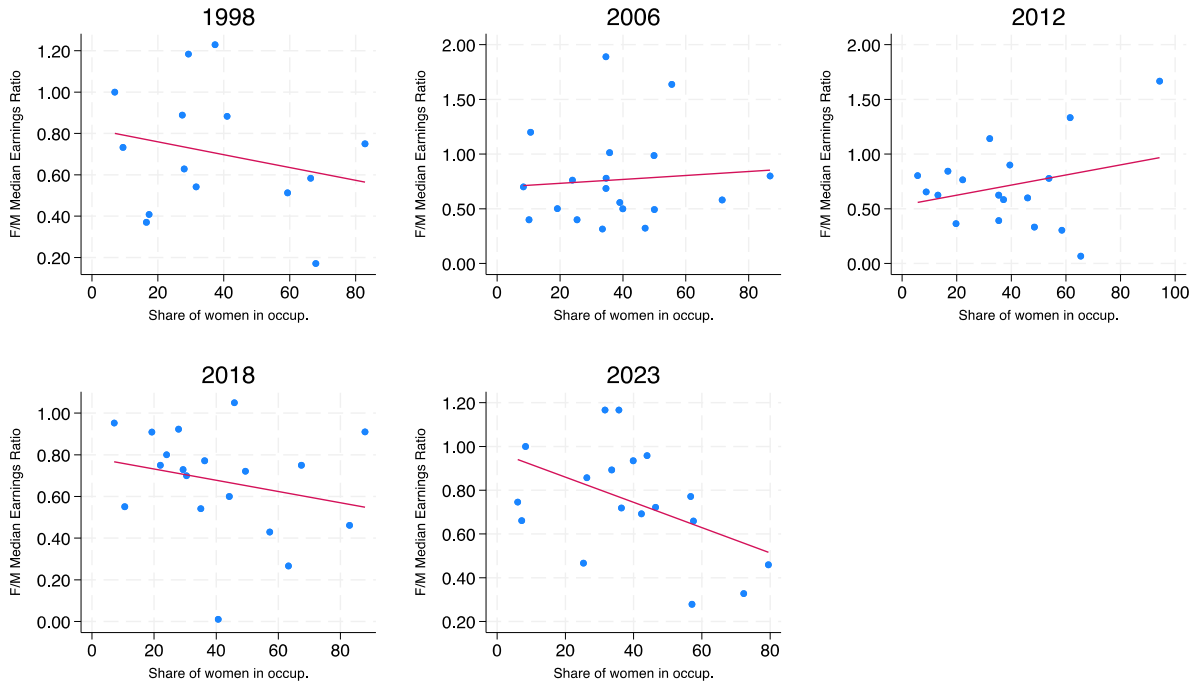


Figure 17b. Female/Male earnings ratio and share of women in occupation (3-digit)



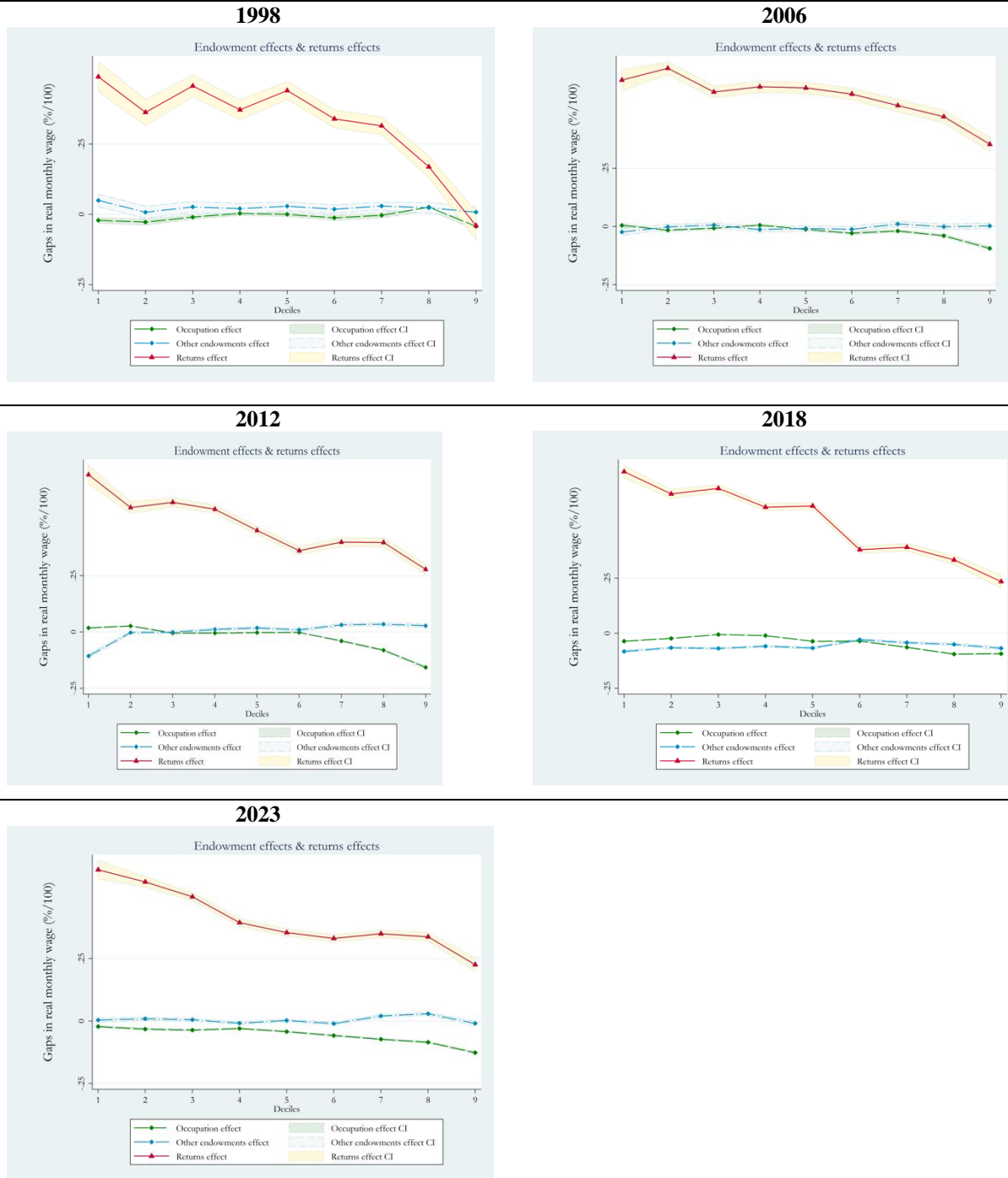
Source: Authors based on ELMPS 1998-2023

4.1.5. Wage gap decomposition using quantile regressions

To examine the drivers of wage gaps across the wage distribution, we use unconditional quantile regressions (UQR) to decompose gender wage differentials into explained (endowment-related) and unexplained components. The explained portion reflects differences in endowments—such as education, potential work experience, proximity to markets, and employment choices (occupation, industry, formality, and firm size)—while the unexplained part relates to differences in returns to these endowments or latent factors, commonly considered to reflect discrimination. Unlike traditional mean-based regressions, UQR relaxes restrictive assumptions, allowing for a clearer and more accurate understanding of wage disparities at different quantiles, capturing how endowments and returns contribute to wage gaps across the labor market.

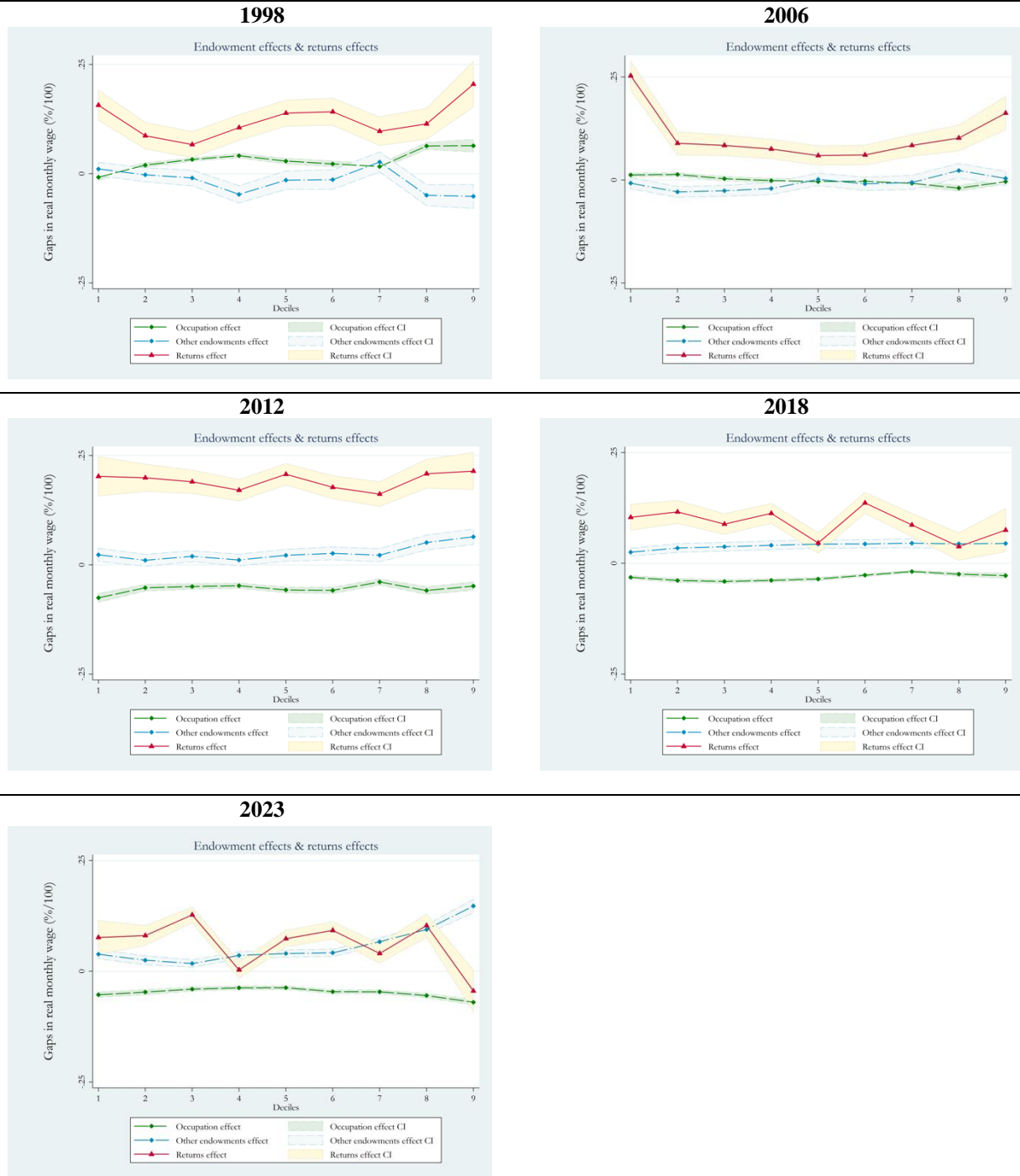
Given the significance of public and private sector differences in occupational segregation and wage gaps, we perform the analysis separately for each sector (Figure 18). Figures 18a and 18b confirm that, when combining the endowment and returns effects, female workers typically receive lower wages than men at the bottom of the wage distribution but outperform men at the top in some years, and especially in the public sector. Endowment effects, including occupational segregation, remain small and close to zero across the wage distribution, except in recent years at the top two wage deciles. However, returns to endowments consistently favor men across the entire wage distribution in both the public and private sectors.

Figure 18a: Gender wage gap decomposition by unconditional wage decile: Returns and endowment effects (controlling for occupation), private sector



Source: Authors' analysis of ELMPS 1998-2023. Population-weighted samples restricted to **private-sector** market-definition wage workers (in 1988, extended definition is used for lack of a relevant indicator). Effects are evaluated on real monthly wage in 2023 L.E. using CPI. Samples in 2006 and 2012 are minorized at the 99th percentile to address outlying values. Confidence intervals computed using the delta method.

Figure 18b: Gender wage gap decomposition by unconditional wage decile: Returns and endowment effects (controlling for occupation), public sector



Source: Authors' analysis of ELMPS 1998-2023. Population-weighted samples restricted to private-sector market-definition wage workers (in 1998, extended definition is used for lack of a relevant indicator). Effects are evaluated on real monthly wage in 2023 L.E. using CPI. Samples in 2006 and 2012 are minorized at the 99th percentile to address outlying values. Confidence intervals computed using the delta method.

In the private sector, observed differences in endowments, including occupation, explain very little of the wage gap, with nearly all of the gap attributable to differences in returns to these endowments. This suggests that wage disparities in the private sector are primarily driven by unequal returns rather than differences in observed characteristics. In the public sector, the role of endowments (other than occupation) in explaining the wage gap increases at higher wage deciles in recent years, while returns to endowments remain the primary driver of wage differences across most of the distribution. These preliminary findings highlight that while occupational segregation plays a limited role in explaining wage gaps, unequal returns to endowments remain a persistent and significant factor, particularly in the private sector. This analysis remains preliminary, and future work will delve deeper into female-dominated occupations, examining both within-occupation and across-occupation drivers of wage gaps. We also aim to analyze the role of various endowments in these occupations to better understand the factors contributing to observed disparities in both the public and private sectors.

5. Conclusion and policy implications

Our analysis provides insights into long-term trends in labor market conditions, pay gaps, and gender composition of occupations in Egypt over a 25-year period characterized by far-reaching social, economic, and political changes. We find that while men's labor force participation fluctuated over time, peaking in 2012 before declining to historic lows in 2023, women's participation, by contrast, has remained stagnantly low, reaching just 18% in 2023. Despite significant progress in empowering women and other vulnerable workers through human capital accumulation, this study reveals that women remain heavily concentrated in a handful of low-paying occupations, primarily as school teachers, nurses and clerical workers, and are effectively excluded from opportunities for career advancement.

Occupational segregation by gender remains entrenched, particularly in sectors like manufacturing and construction, with pronounced disparities in informal employment. Segregation trends vary across demographics, being higher in rural areas, among younger and older age cohorts, and those with secondary education. Wage analysis highlights persistent gaps, particularly in the private sector, where women consistently earn less than men across most percentiles. However, the public sector exhibits smaller disparities and even some instances of parity or female advantage, particularly among lower earners. Despite these findings, narrowing gaps at the top of the wage distribution for high earners may reflect selection effects rather than genuine equality.

The analysis reveals that the persistent gender wage gaps across the wage distribution are driven predominantly by differences in returns to endowments rather than differences in observable characteristics. Using unconditional quantile regressions (UQR), the preliminary decomposition of wage gaps shows that explained factors such as education, work experience, proximity to markets, and employment choices, including occupation and firm characteristics, contribute

minimally to wage disparities, particularly in the private sector. Instead, the unexplained component, often linked to discrimination or latent unmeasured factors, accounts for the majority of the wage gap, with these effects being more pronounced at lower and middle wage quantiles.

The sectoral analysis highlighted distinct dynamics in the public and private sectors. In the private sector, differences in returns to endowments overwhelmingly drive wage disparities across all quantiles, with occupation playing a limited explanatory role. Conversely, in the public sector, endowment effects, particularly those unrelated to occupation, play an increasingly significant role at higher quantiles, while returns to endowments dominate at lower and middle quantiles. This divergence underscores the complex interplay between occupational segregation, sectoral characteristics, and wage-setting mechanisms in shaping gender disparities. These findings suggest that while progress has been made in some areas, significant barriers to gender equality in the Egyptian labor market persist, especially in terms of occupational segregation and access to high-paying jobs.

Policy recommendations

To address gender wage disparities and occupational segregation in Egypt, a comprehensive approach is necessary, focusing on several key areas of intervention. Promoting occupational diversity should be a priority, with targeted training programs and mentorship initiatives to equip women with skills for high-paying sectors. Anti-discrimination policies must be strengthened to ensure women have equal access to diverse occupations, especially in large firms and male-dominated industries. Addressing the work experience gap is also critical. Policies to support work-life balance, such as improved maternity leave and affordable childcare services, will help women maintain continuous employment and better balance family responsibilities.

Combatting workplace bias is another essential area for change. Launching awareness campaigns about gender biases and implementing equal opportunity practices in hiring and promotion processes will help create a more equitable work environment. Additionally, continued investment in women's education, particularly in STEM fields, is necessary for long-term progress. Incentives like scholarships to bolster merit-based admission to elite schools and guidance into high-growth disciplines can support this shift, while leadership development programs will prepare women for roles that can close the gender wage gap in top positions.

Systemic labor market reforms are needed to increase women's economic participation and facilitate their entry into higher-paying leadership roles. Promoting flexible work arrangements, such as remote work and job-sharing, can help break down barriers for women, particularly those with caretaker responsibilities. Improving technology infrastructure and internet connectivity can also enhance flexibility and open up more opportunities for remote and digital work. To reduce structural barriers, investing in safer, more reliable public transportation and increasing access to

childcare services is vital. Expanding these services will support working mothers and reduce constraints on their labor market participation.

Preserving public-sector employment in education and health services is essential, as these sectors have historically provided decent work opportunities for women. Despite trends in public-sector downsizing, maintaining such roles can help ensure women retain stable and fair employment options. Finally, societal change is necessary to challenge traditional gender roles and promote equal opportunities for women across all sectors. Media campaigns and grassroots efforts can shift public perceptions and encourage women's participation in previously male-dominated fields.

Our long-term analysis of occupational segregation and wage disparities in Egypt underscores the complexity of achieving gender equality in the workforce. While progress has been made, persistent barriers continue to limit women's access to diverse and higher-paying employment opportunities. These findings underscore the need for continued policy interventions and societal changes to address occupational segregation, enhance women's economic participation, and promote fair compensation across all sectors. By addressing these issues, Egypt can work towards a more equitable and inclusive labor market, which is essential for sustainable economic development and social progress.

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Appendix

Figure A1a. Gender composition by relative size of 1 digit occupation, wage and non-wage workers employed by the market definition, 1998-2023

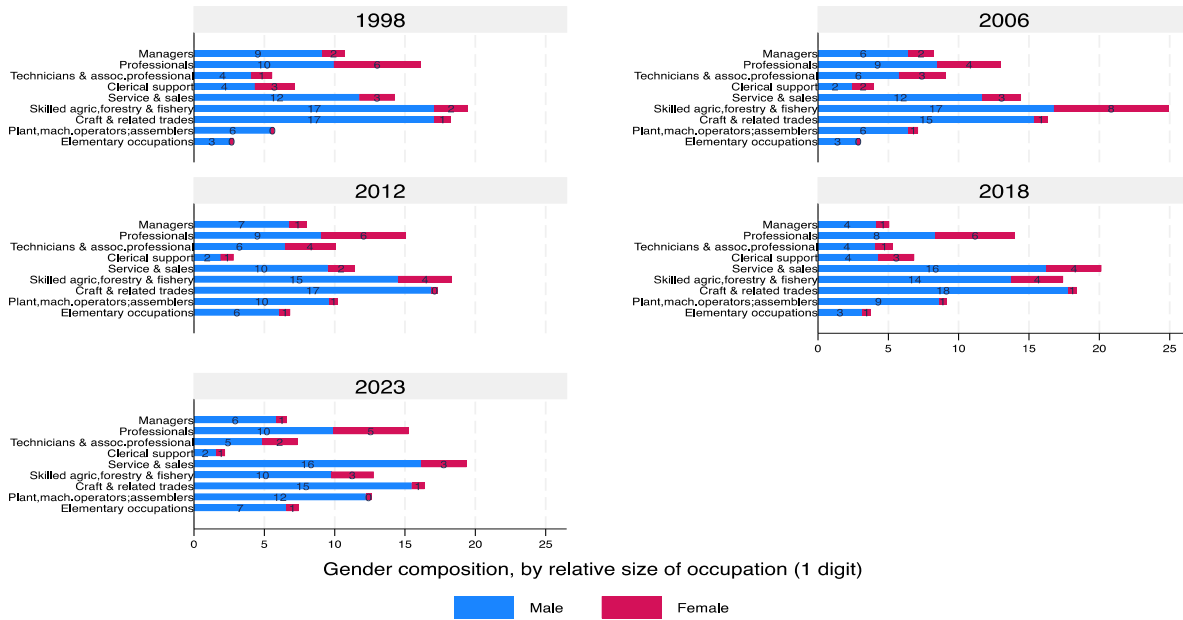
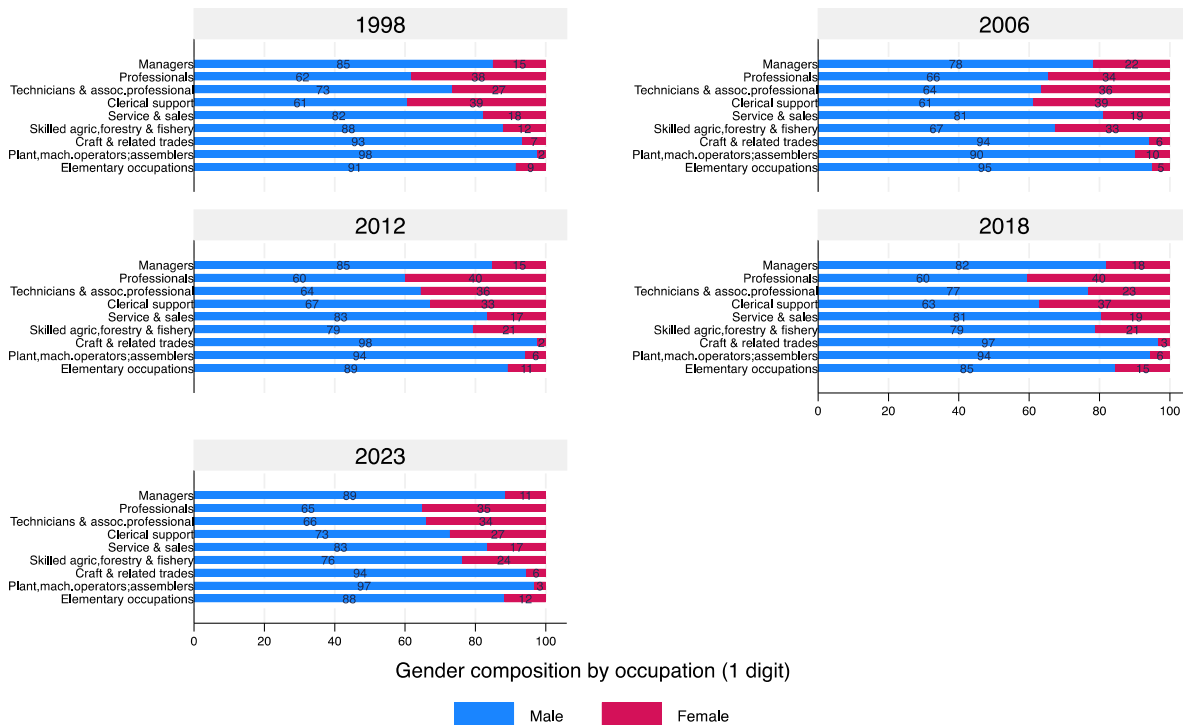
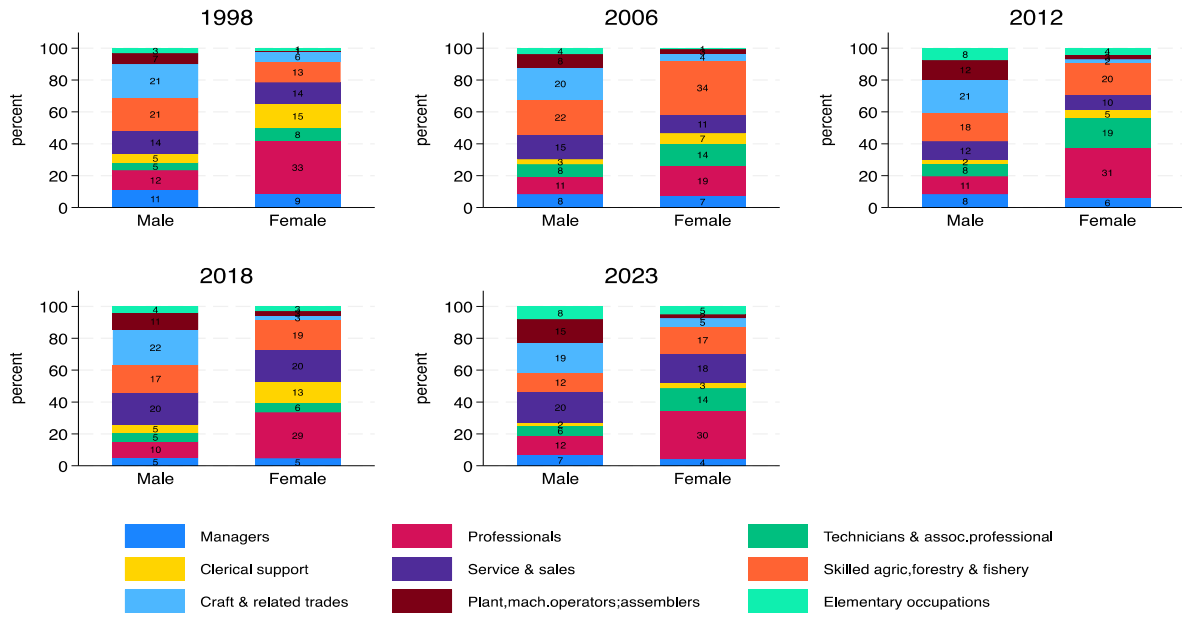


Figure A1b Gender composition of broad occupation, wage and non-wage workers employed by the market definition, 1998-2023



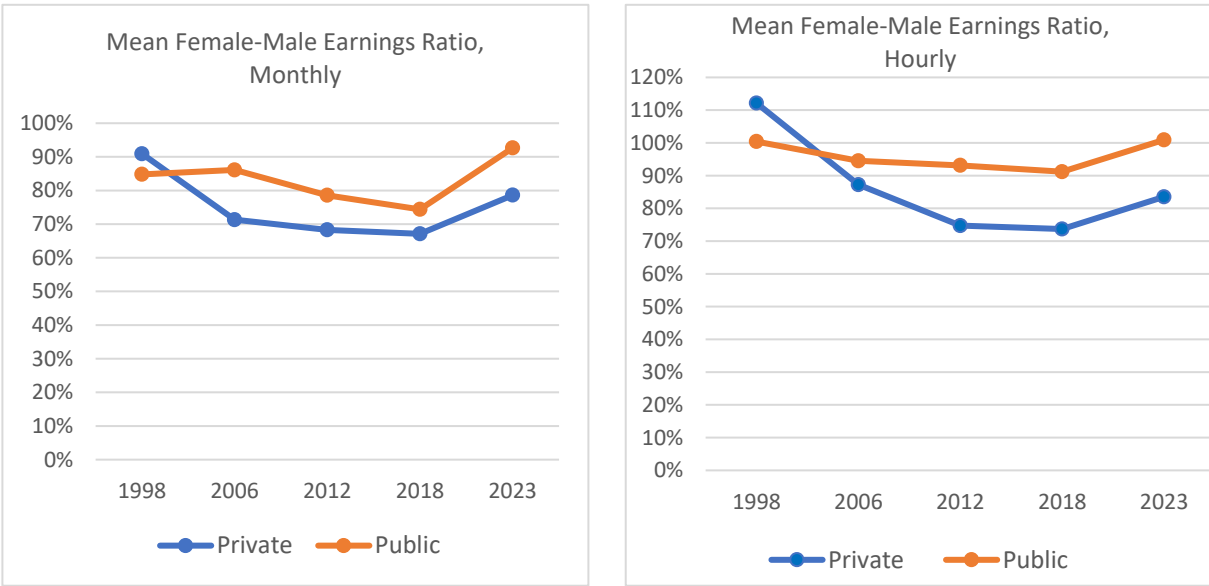
Source: Authors based on ELMPs 1998-2023

Figure A2. Distribution of employed men and women by 1 digit occupational category, wage and non-wage workers employed by the market definition 1998 to 2023



Source: Authors based on ELMPS 1998-2023

Figure A3. Mean Earnings Ratios, monthly and hourly, 1998-2023



Source: Authors based on ELMPS 1998-2023

Table A1. Quantile decomposition of gender wage gaps in the Private Sector, selected deciles, by year, controlling for occupation

	1998			2006		
	10 th ptile	50 th ptile	90 th ptile	10 th ptile	50 th ptile	90 th ptile
Men	7.225*** (0.0296)	8.134*** (0.0185)	8.849*** (0.0282)	7.364*** (0.0237)	8.214*** (0.0138)	8.939*** (0.0168)
Women	6.707*** (0.101)	7.664*** (0.0678)	8.924*** (0.140)	6.753*** (0.0525)	7.640*** (0.0483)	8.677*** (0.0870)
Overall gap	0.518*** (0.105)	0.470*** (0.0703)	-0.0747 (0.142)	0.610*** (0.0576)	0.575*** (0.0502)	0.262*** (0.0886)
Endowments	0.0285 (0.0459)	0.0291 (0.0332)	-0.0346 (0.0501)	-0.0190 (0.0405)	-0.0207 (0.0256)	-0.0913*** (0.0345)
Constant (Unexplained)	-1.358 (2.282)	-1.737 (1.507)	-4.373 (2.741)	-0.449 (2.431)	-1.336 (1.640)	5.495* (2.834)
Returns on endow.+Constant	0.489*** (0.104)	0.441*** (0.0705)	-0.0402 (0.143)	0.629*** (0.0666)	0.595*** (0.0495)	0.353*** (0.0877)
Explained/Endowments	Potential work experience	0.0684*** (0.0236)	0.0530*** (0.0167)	0.0419*** (0.0146)	0.0303*** (0.0104)	0.0278*** (0.00858)
	Education	0.00286 (0.0229)	-0.000148 (0.0137)	-0.0321 (0.0231)	-0.0199 (0.0155)	-0.0207** (0.00903)
	Employer type	0.0456 (0.0367)	0.0238 (0.0219)	0.0373 (0.0352)	0.0119 (0.0392)	0.0304 (0.0221)
	Administr. region	-0.0673*** (0.0207)	-0.0475*** (0.0128)	-0.0392** (0.0181)	-0.0462*** (0.0150)	-0.0457*** (0.00907)
	Occupation	-0.0211 (0.0398)	3.07e-06 (0.0252)	-0.0425 (0.0424)	0.00488 (0.0339)	-0.0124 (0.0200)
	Potential work experience	0.576 (0.795)	1.083* (0.556)	-0.604 (1.079)	2.853*** (0.507)	0.841** (0.395)
Unexplained>Returns	Education	0.740 (1.053)	0.247 (0.703)	1.301 (1.297)	-0.962 (1.309)	1.217 (0.744)
	Employer type	0.271 (1.636)	1.236 (1.041)	4.296** (1.797)	0.395 (0.987)	0.438 (0.753)
	Administr. region	0.522 (0.352)	-0.132 (0.245)	-0.546 (0.475)	-0.362 (0.277)	-0.129 (0.223)
	Occupation	-0.262 (0.578)	-0.256 (0.398)	-0.114 (0.761)	-0.846 (1.805)	0.0524 (1.200)
	Observations		1,860			3,601

Table A1. Quantile decomposition of gender wage gaps in the Private Sector, selected deciles, by year, controlling for occupation (continued)

	2012			2018			2023			
	10 th pctile	50 th pctile	90 th pctile	10 th pctile	50 th pctile	90 th pctile	10 th pctile	50 th pctile	90 th pctile	
Men	7.467*** (0.0212)	8.313*** (0.00952)	8.967*** (0.0121)	7.427*** (0.0147)	8.298*** (0.00863)	9.274*** (0.0156)	7.421*** (0.0191)	8.261*** (0.00777)	9.148*** (0.0140)	
Women	6.859*** (0.0678)	7.848*** (0.0482)	8.819*** (0.0632)	6.810*** (0.0570)	7.822*** (0.0411)	9.199*** (0.0758)	6.834*** (0.0514)	7.947*** (0.0338)	9.059*** (0.0693)	
Overall gap	0.608*** (0.0710)	0.465*** (0.0492)	0.148** (0.0644)	0.616*** (0.0589)	0.475*** (0.0420)	0.0741 (0.0774)	0.587*** (0.0549)	0.314*** (0.0347)	0.0896 (0.0707)	
Endowments	-0.0891** (0.0441)	0.0149 (0.0226)	-0.129*** (0.0318)	-0.118*** (0.0288)	-0.103*** (0.0196)	-0.161*** (0.0326)	-0.0186 (0.0348)	-0.0398** (0.0155)	-0.136*** (0.0280)	
Constant (Unexplained)	0.909 (2.317)	-0.516 (1.549)	0.672 (2.126)	0.101 (1.388)	1.826** (0.858)	3.157* (1.670)	-0.513 (1.721)	-0.0910 (1.055)	2.229 (2.147)	
Returns on endow.+Constant	0.697*** (0.0821)	0.450*** (0.0490)	0.277*** (0.0660)	0.734*** (0.0639)	0.579*** (0.0420)	0.235*** (0.0805)	0.605*** (0.0624)	0.354*** (0.0357)	0.226*** (0.0724)	
Explained/Endowments	Potential work experience	-0.0138* (0.00765)	-0.00885 (0.00571)	-0.00494 (0.00438)	-0.000875 (0.00286)	-0.000723 (0.00397)	0.00199 (0.00416)	-0.00851* (0.00487)	-0.00398* (0.00226)	-0.000479 (0.00173)
	Education	0.000914 (0.0169)	-0.0240*** (0.00807)	-0.0251** (0.00974)	-0.0140 (0.0102)	-0.0183*** (0.00606)	-0.0612*** (0.0118)	-0.00502 (0.0126)	-0.0223*** (0.00580)	-0.0308*** (0.00948)
	Employer type	-0.0957** (0.0453)	0.0637*** (0.0204)	0.0834*** (0.0255)	-0.0435 (0.0268)	-8.73e-05 (0.0158)	0.0231 (0.0283)	0.0550 (0.0336)	0.0390*** (0.0139)	0.0206 (0.0241)
	Administr. region	0.00171 (0.0156)	-0.0129* (0.00779)	-0.0257*** (0.00980)	-0.0237** (0.0103)	-0.0475*** (0.00738)	-0.0320*** (0.0118)	-0.0379*** (0.00941)	-0.0102** (0.00403)	0.00135 (0.00853)
	Occupation	0.0178 (0.0376)	-0.00303 (0.0173)	-0.157*** (0.0265)	-0.0359 (0.0232)	-0.0366*** (0.0137)	-0.0927*** (0.0252)	-0.0222 (0.0220)	-0.0423*** (0.0102)	-0.127*** (0.0175)
	Potential work experience	0.748 (0.754)	0.576 (0.499)	-0.0696 (0.685)	0.534 (0.572)	-0.366 (0.376)	-0.204 (0.754)	1.088* (0.595)	-0.0976 (0.370)	-0.569 (0.755)
Education	-0.384 (0.411)	-0.458* (0.270)	0.547 (0.371)	-0.0295 (0.272)	0.0130 (0.179)	-0.840** (0.360)	-0.130 (0.262)	0.0609 (0.163)	0.160 (0.332)	
Employer type	-0.0461 (1.985)	0.970 (1.346)	-0.0735 (1.852)	-0.872 (0.897)	-0.193 (0.545)	0.220 (1.049)	0.113 (0.519)	0.378 (0.329)	0.354 (0.673)	
Administr. region	-0.165 (0.478)	-0.216 (0.266)	0.208 (0.355)	0.224 (0.657)	-0.608 (0.378)	-1.593** (0.704)	-0.154 (1.462)	-0.349 (0.890)	-3.422* (1.809)	
Occupation	-0.364 (0.840)	0.0932 (0.553)	-1.006 (0.758)	0.777 (0.507)	-0.0929 (0.331)	-0.505 (0.663)	0.203 (0.392)	0.453* (0.244)	1.472*** (0.497)	
Observations		5,665			7,847			7,877		

Notes: Authors' analysis of ELMPS 1988-2023. Population-weighted samples restricted to private-sector market-definition wage workers (in 1988, extended definition is used for lack of a relevant indicator). Effects are evaluated on real monthly wage in 2023 L.E. using CPI. Samples in 2006 and 2012 are minorized at the 99th percentile to address outlying values. The 10th, 50th and 90th percentiles are selected for illustration – other deciles are available from the authors on request. Standard errors computed using the delta method are in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.