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# OCCUPATIONAL SEGREGATION AND THE GENDER WAGE GAP IN EGYPT 1998–2023

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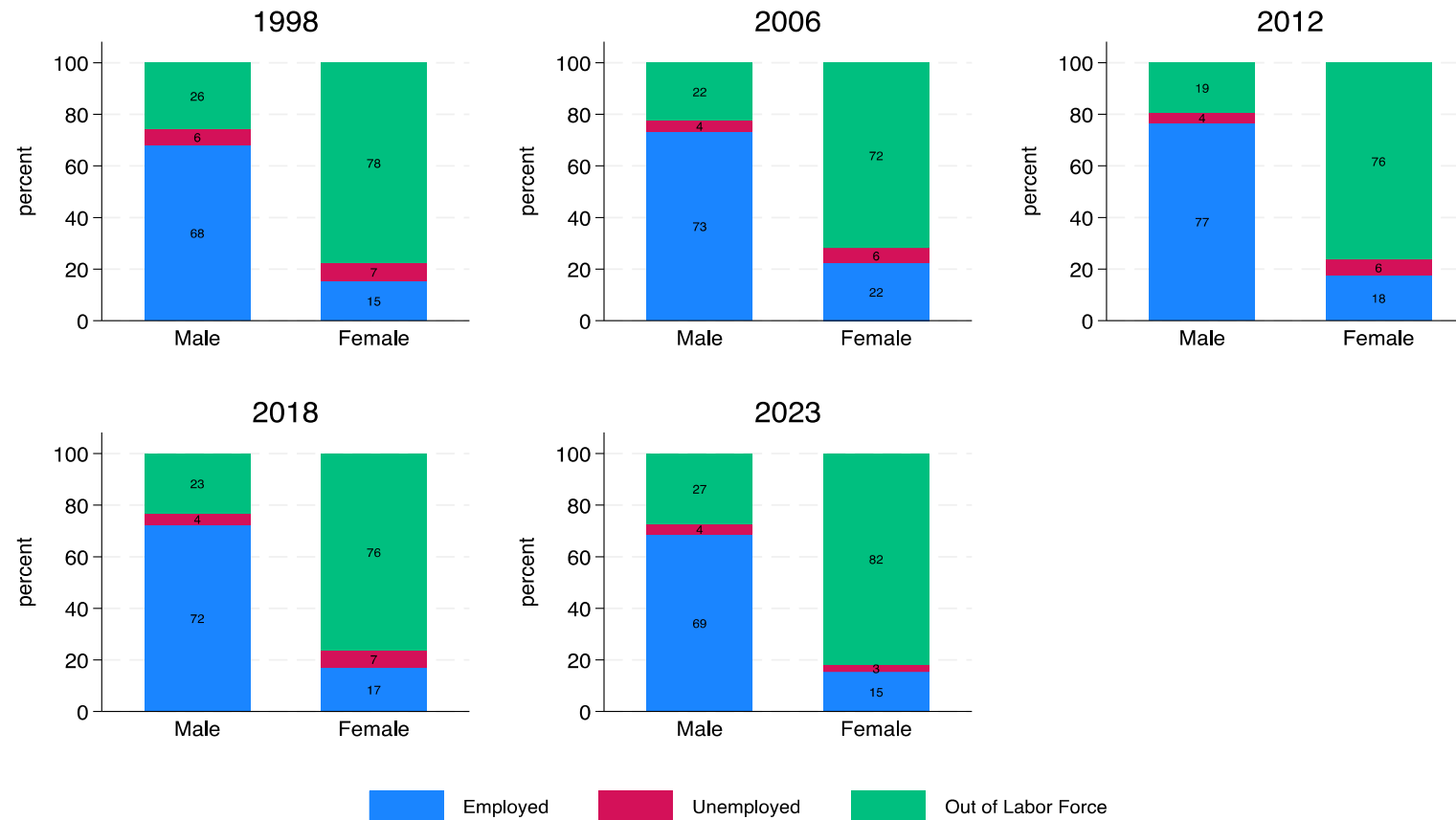
AND

VLADIMIR HLASNY (UNESCWA)

# MOTIVATION

- Egypt has achieved gender parity in primary and secondary school enrollment, with women's educational attainment often surpassing that of men from similar socioeconomic backgrounds (UNESCO, 2024; Krafft et al., 2024). Women also now occupy 28% of parliamentary seats and have gained unprecedented representation in governmental and judicial roles (World Bank, 2024).
- Despite advancements, women's labor force participation remains low, and has been declining.
- There are significant gender pay gaps, especially in the private sector. These have been attributed to both demand-side factors (including declining public sector job opportunities; discrimination) as well as supply-side factors (including 'motherhood penalties'; traditional social norms; heavy unpaid care burden).
- Women have also been increasingly concentrated in a very narrow set of "female-friendly" occupations.
- Our study examines the extent of this occupational segregation across multiple dimensions, and the role it plays in exacerbating wage disparities, reinforcing gender inequalities in the labor market

# WOMEN'S (AND MEN'S) DECLINING PARTICIPATION OVER TIME

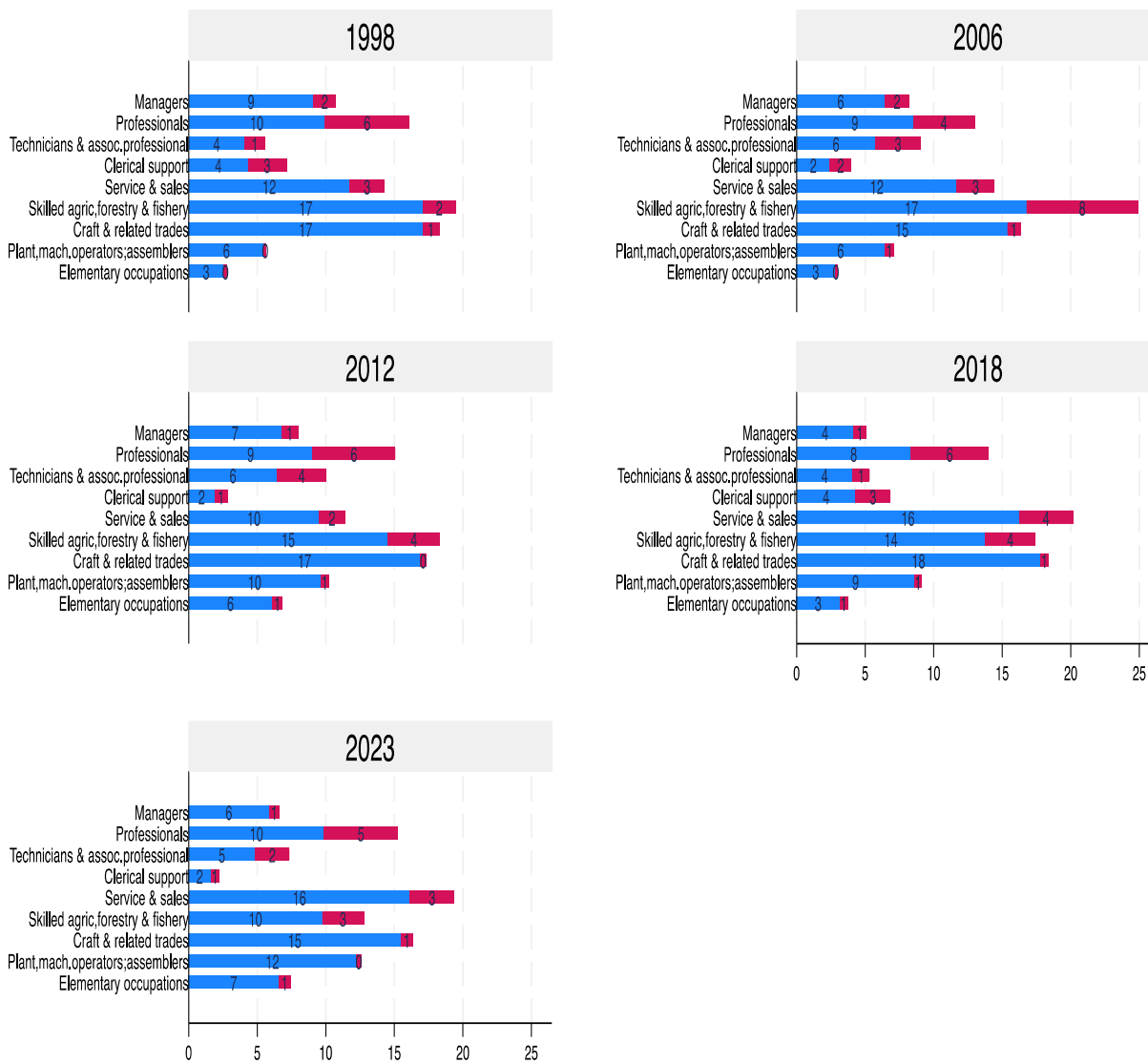


- Women's Labor Force Participation has been declining, from 22% in 1998 to 18% in 2023
- Men's participation has also declined after 2012, falling from 81% to 73%

Source: Authors based on ELMPS 1998-2023. Sample includes all those aged 15 to 64.

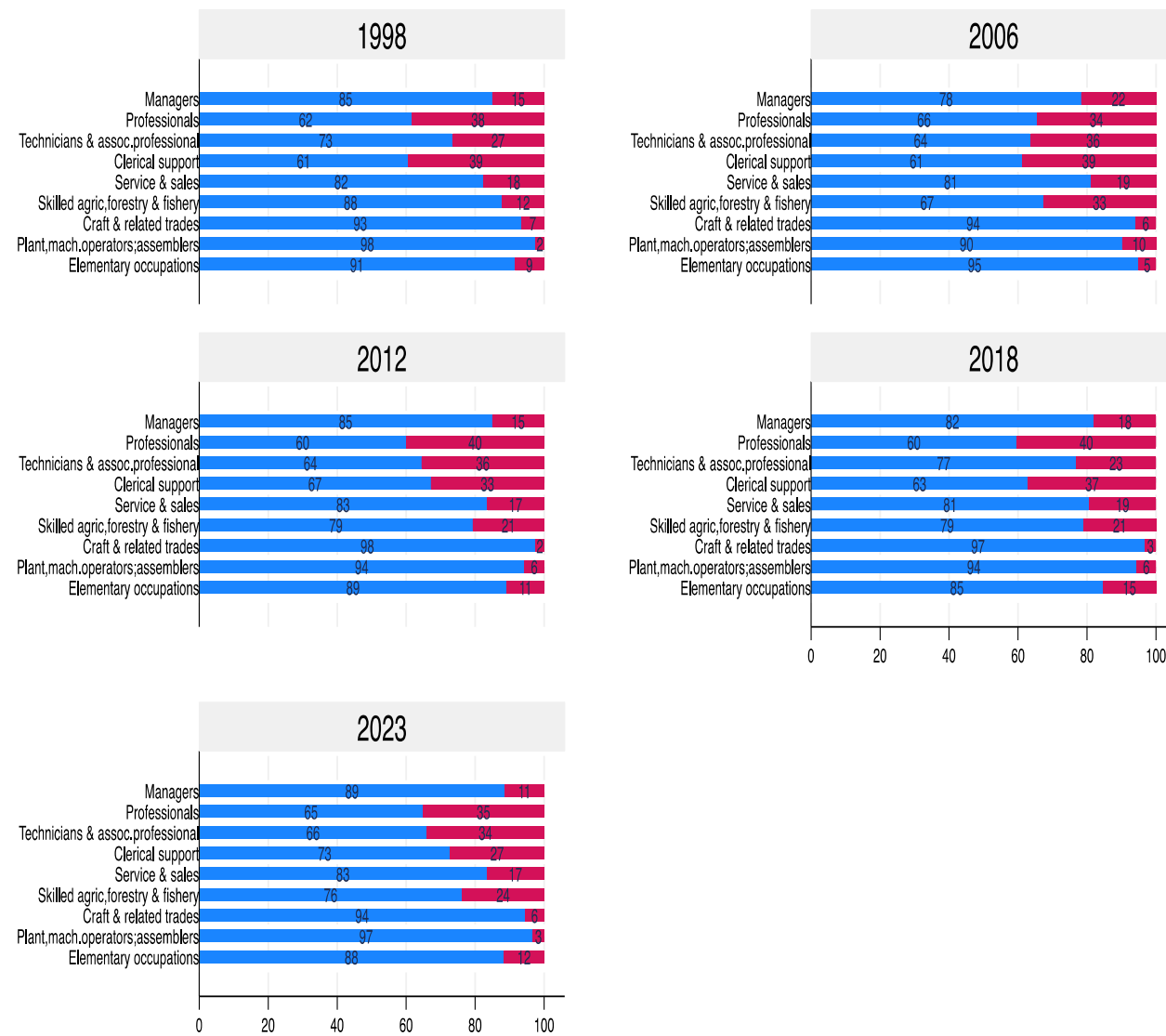
# GENDER COMPOSITION BY RELATIVE SIZE OF BROAD OCCUPATIONAL CATEGORIES

# Gender composition of broad occupational categories



Gender composition, by relative size of occupation (1 digit)

Male Female

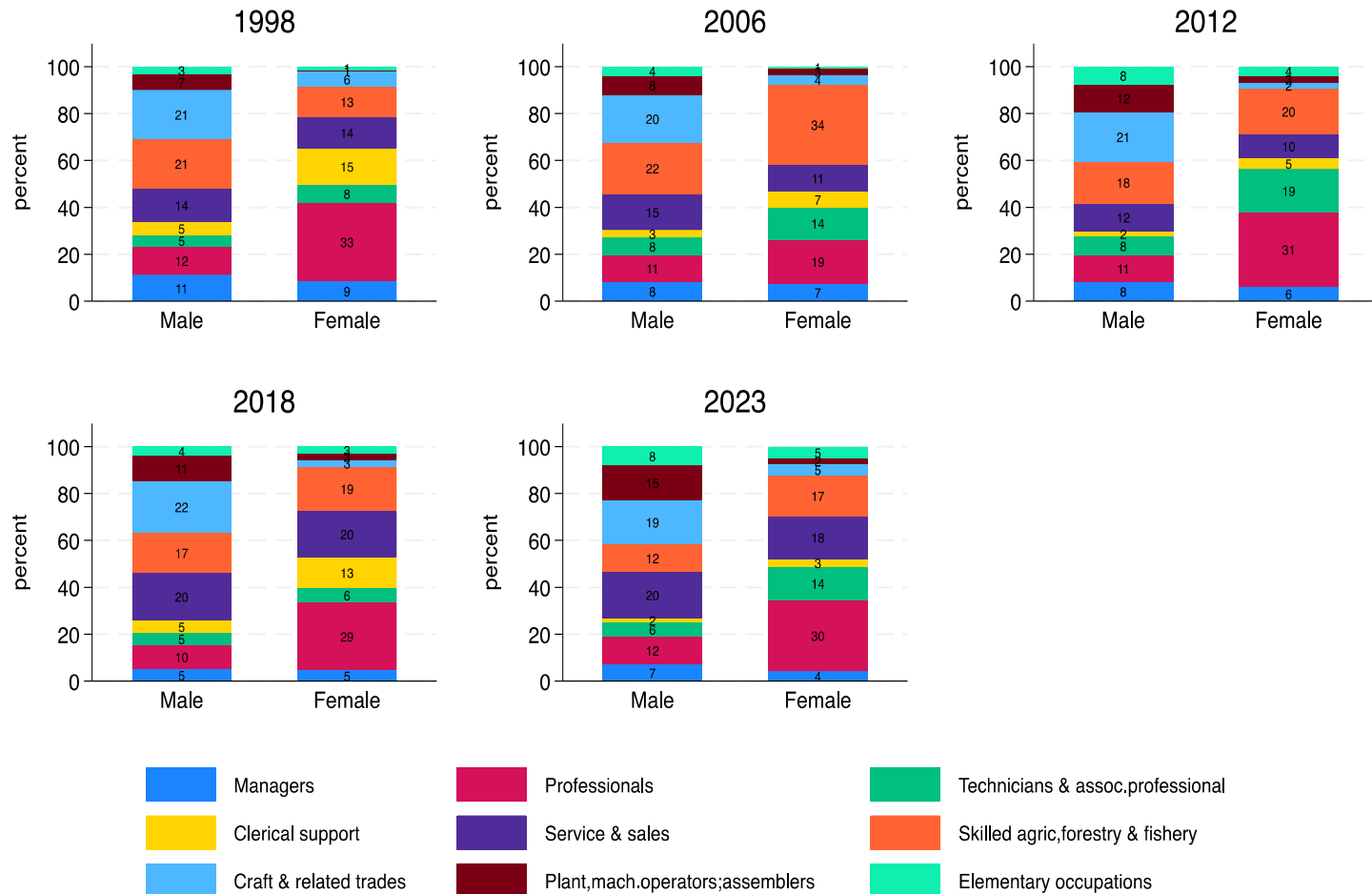


Gender composition by occupation (1 digit)

Male Female

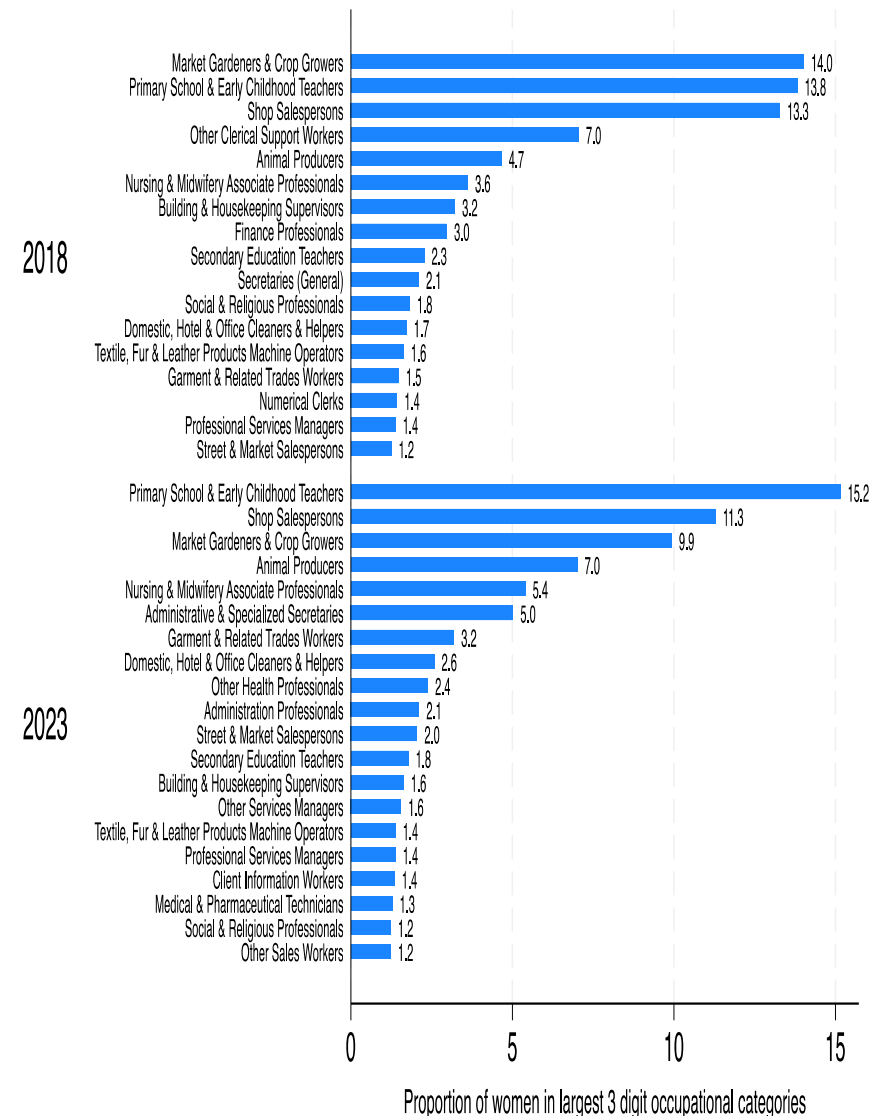
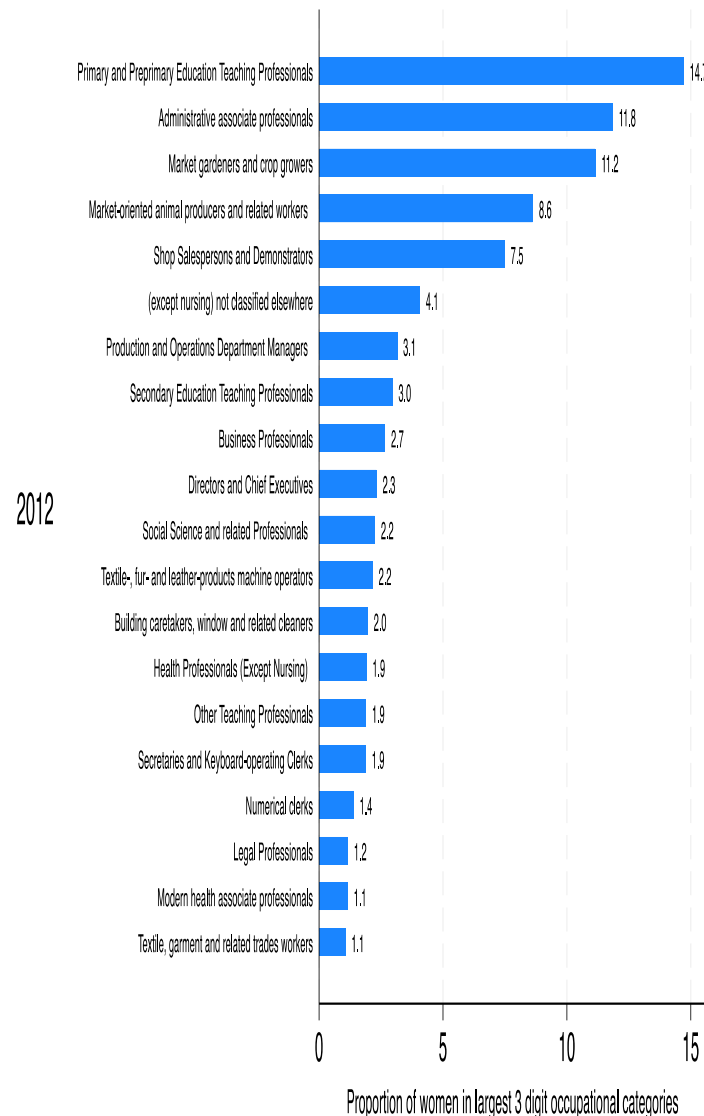
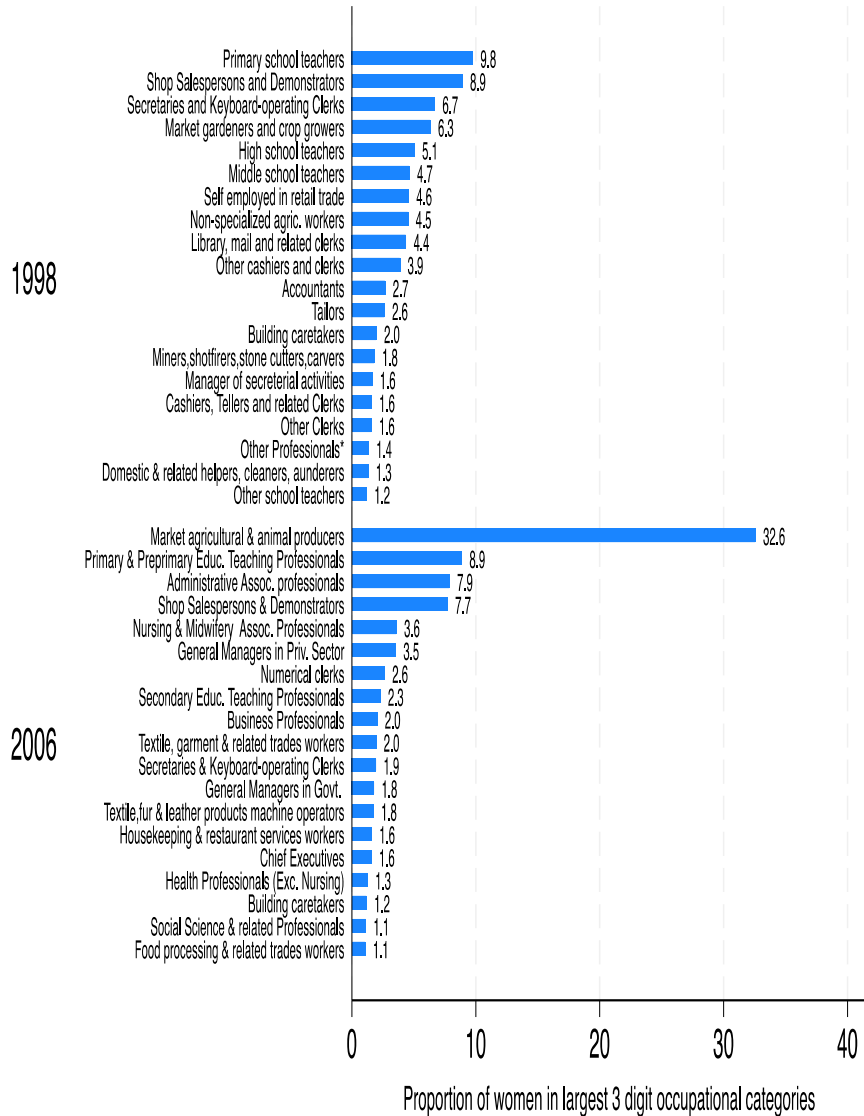
Source: Authors based on ELMPS 1998-2023. Sample includes all those aged 15 to 64, employed according to the market definition.

# SHARE OF EMPLOYMENT BY BROAD OCCUPATIONAL CATEGORIES AND GENDER



- The majority of women were employed in Professional occupations in all years except 2006, when Skilled Agricultural Workers were the largest group.
- Over time the proportion of women Technicians and Associate Professionals increased from 8% in 1998 to 19% in 2012, but then fell in 2018 to give rise to an expanding Clerical Support category. By 2023 these trends had reversed again with Technicians and Associate Professionals rising again to 14% and Clerical support dwindling sharply to 3%. Recall that these categories had high concentrations of women within the occupation, even if small numbers of women overall.

**WOMEN ARE CONCENTRATED IN A HANDFUL OF NARROWLY DEFINED OCCUPATIONS AS TEACHERS, SALESPERSONS, SECRETARIES AND NURSES/MIDWIVES: WITH THE TOP 5 OCCUPATIONS ACCOUNTING FOR 50-80% OF ALL WOMEN WORKERS.**



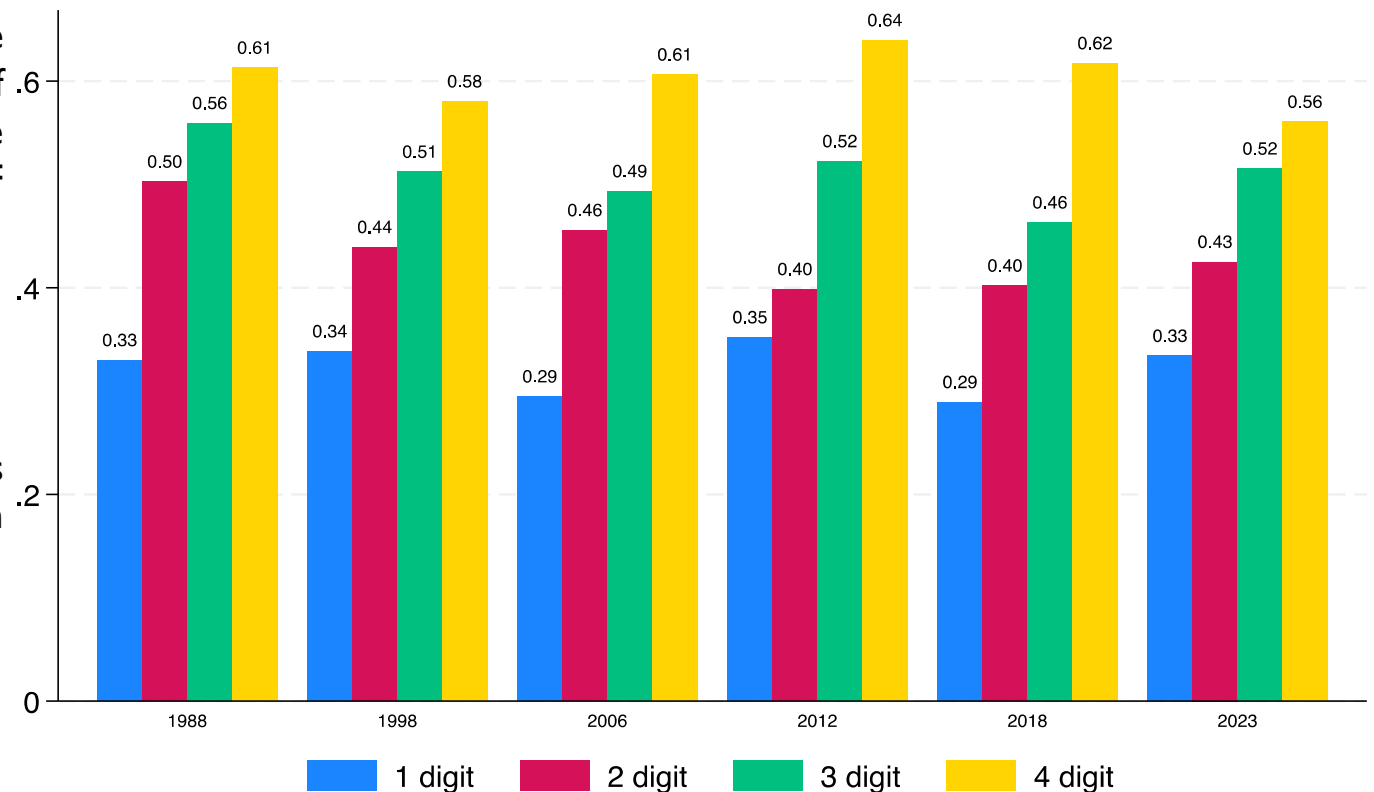
# INDEX OF DISSIMILARITY BY VARYING DEGREE OF OCCUPATIONAL DISAGGREGATION

- 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:  

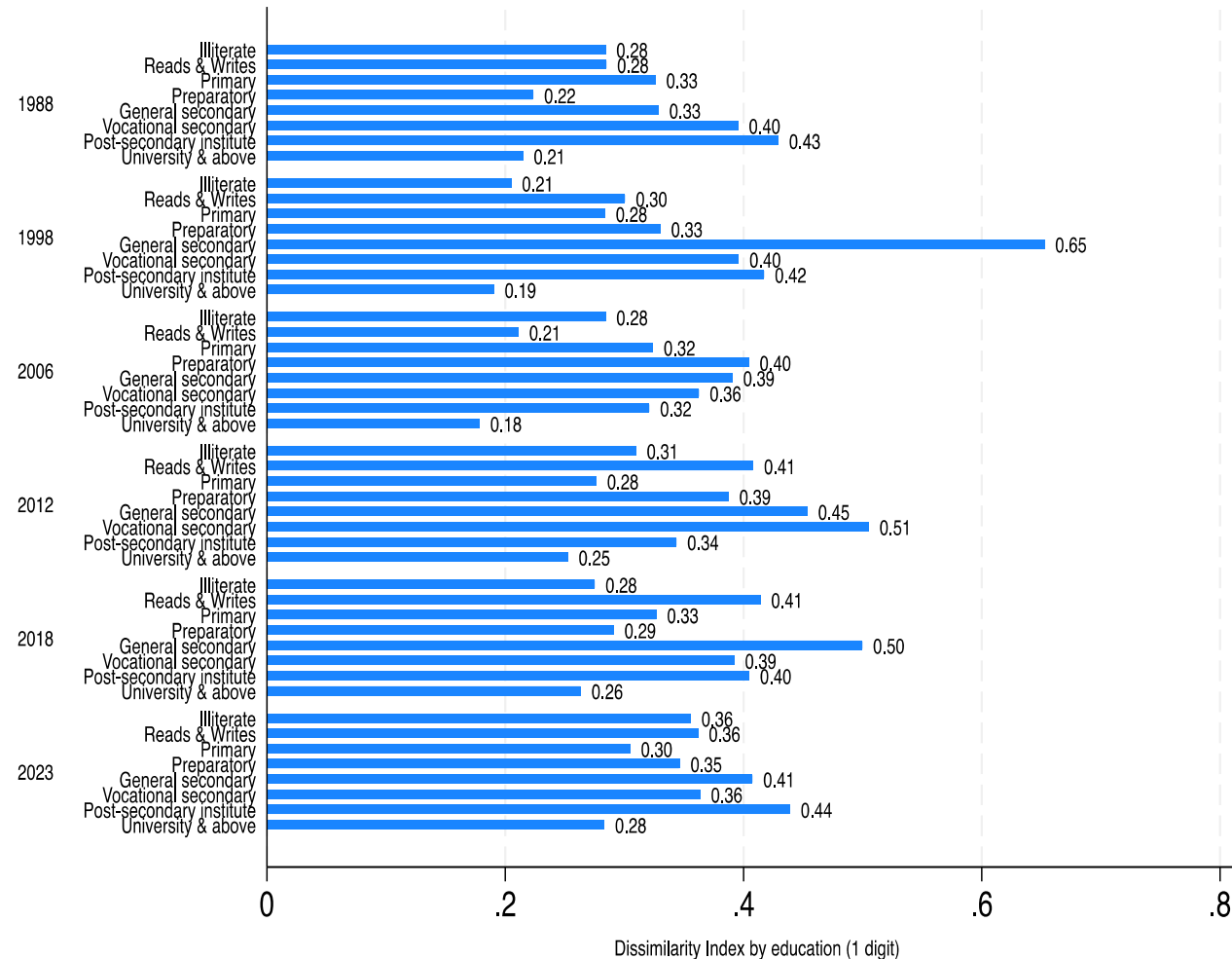
$$ID = 0.5 \sum_i |F_i/F - M_i/M|$$

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.
- A value of 0 indicates complete integration; 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).



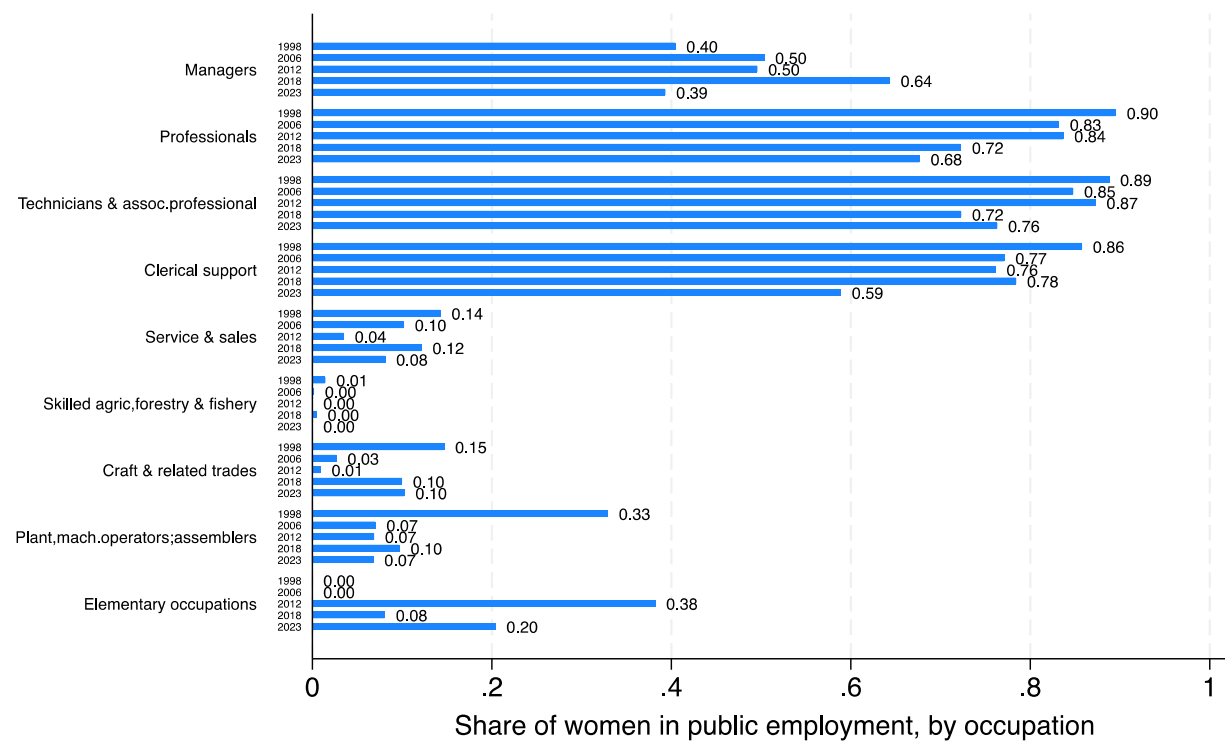
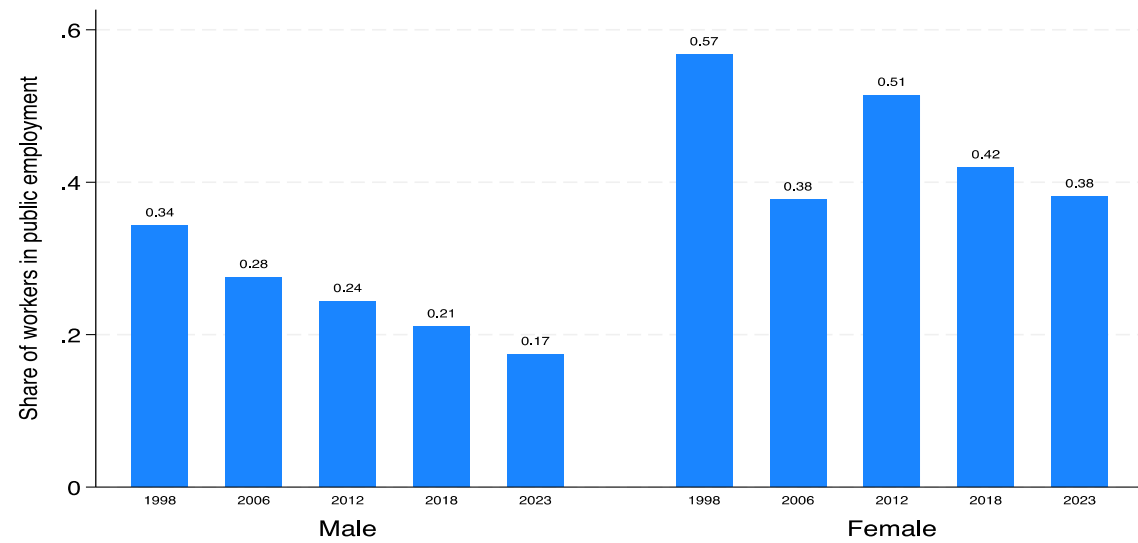
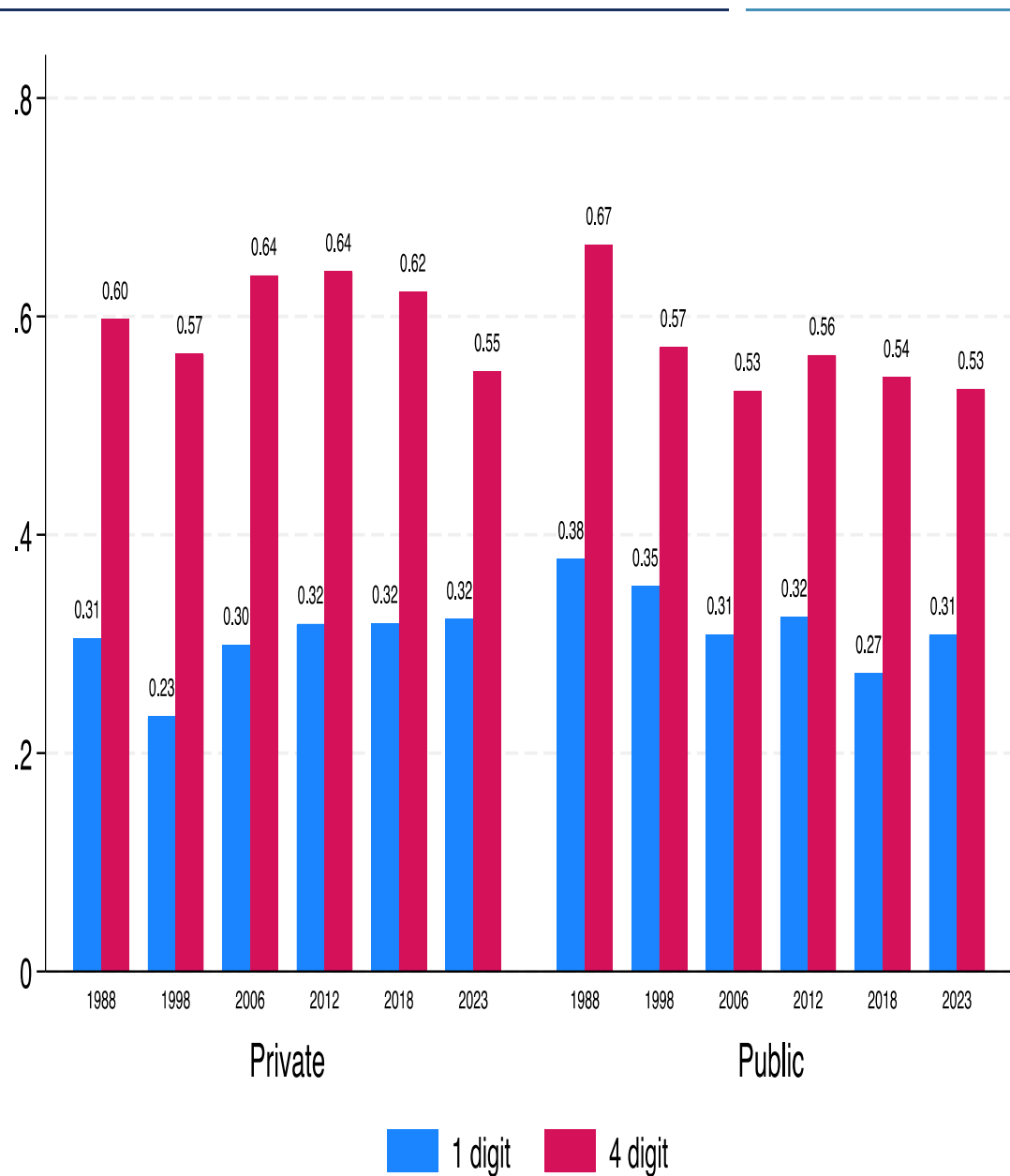
# INDEX OF DISSIMILARITY BY EDUCATION



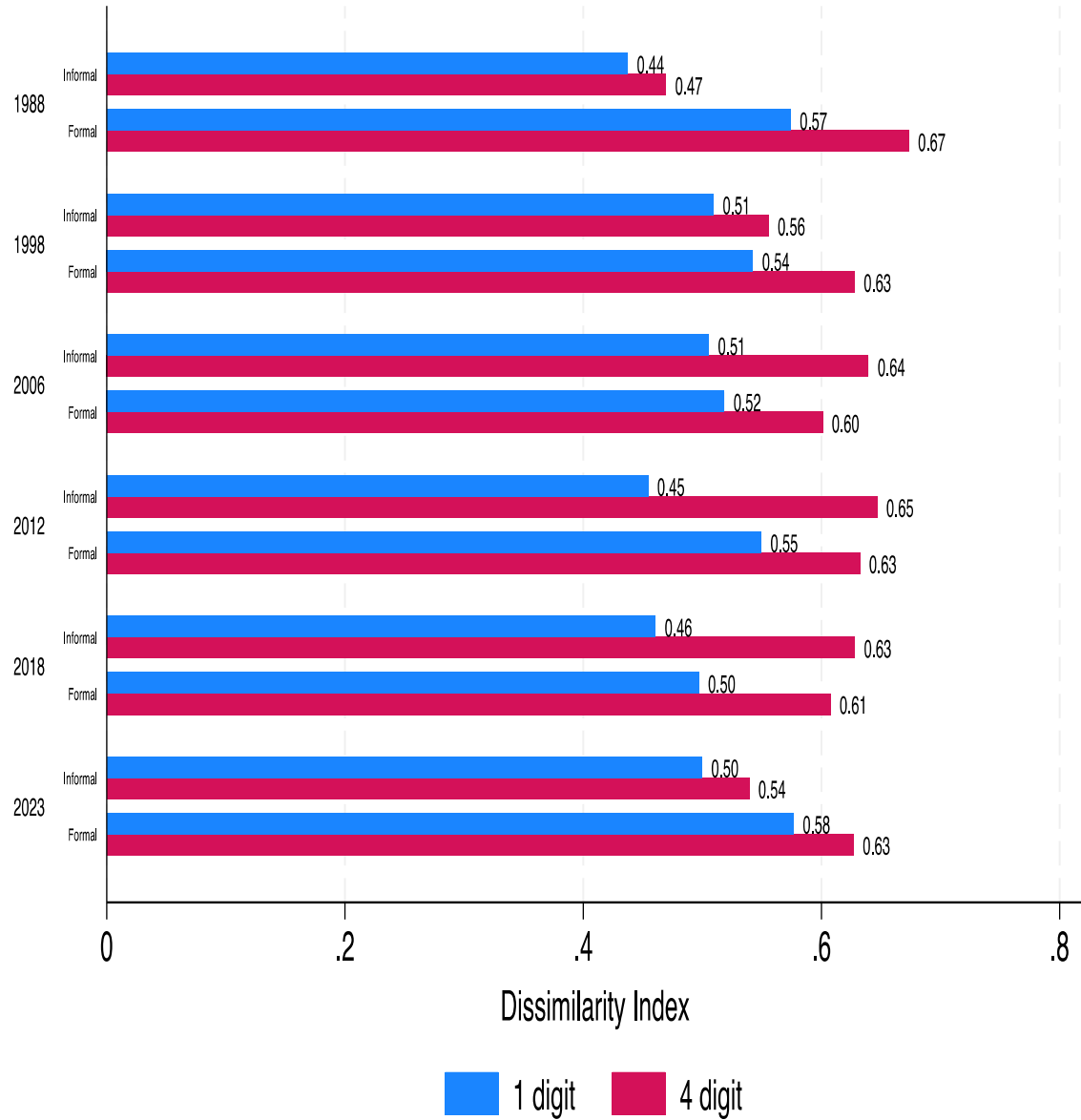
- Occupational segregation is lowest for those with university and above education, and highest for those with secondary or vocational education.
- It is also low among those who are illiterate or can only read and write, likely reflecting high degree of integration in agricultural occupations.



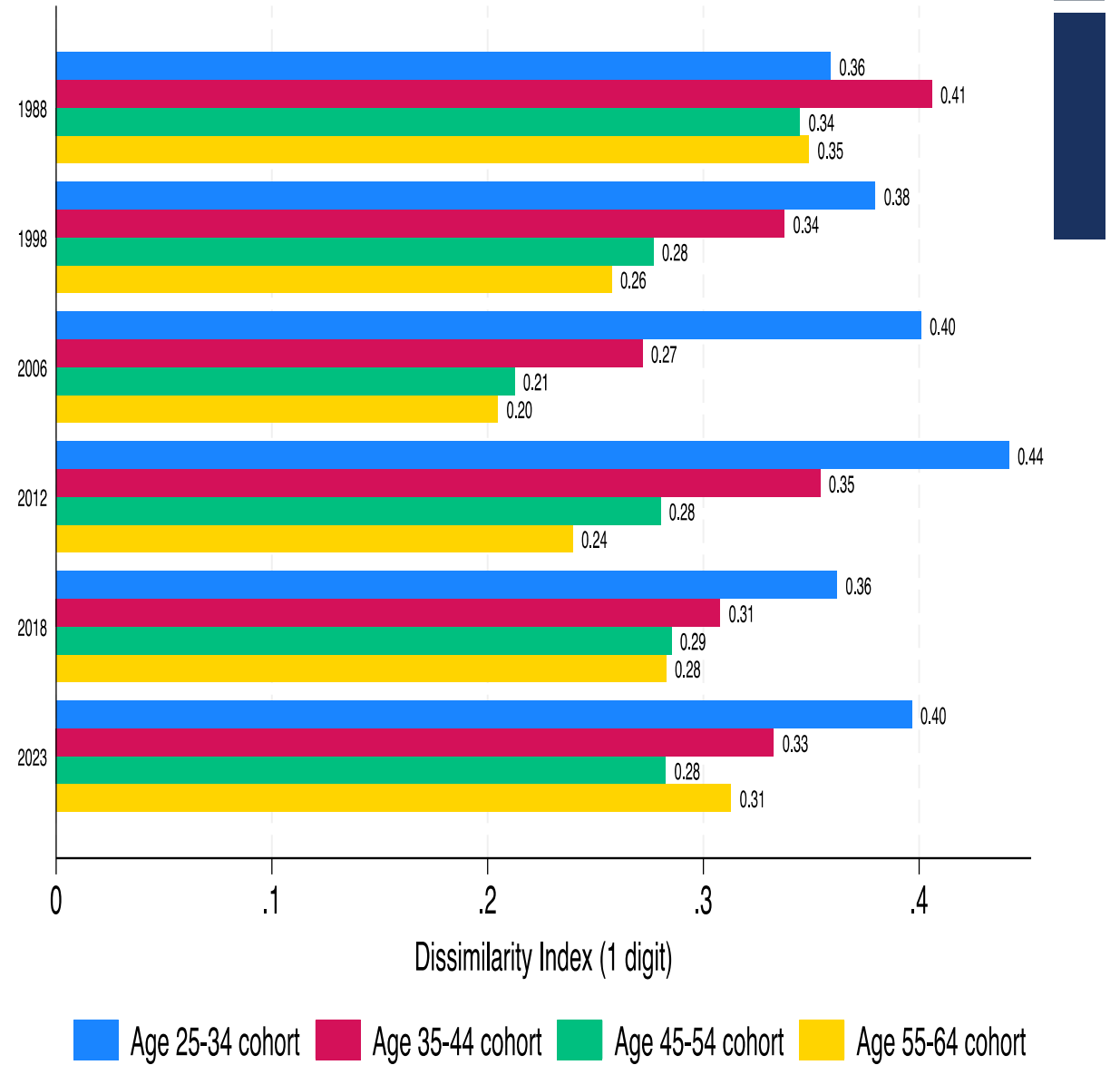
# Public vs. Private Sector: in most year private sector has higher occupational segregation by 4 digit classif.



### Formality Status: higher ID for formal workers

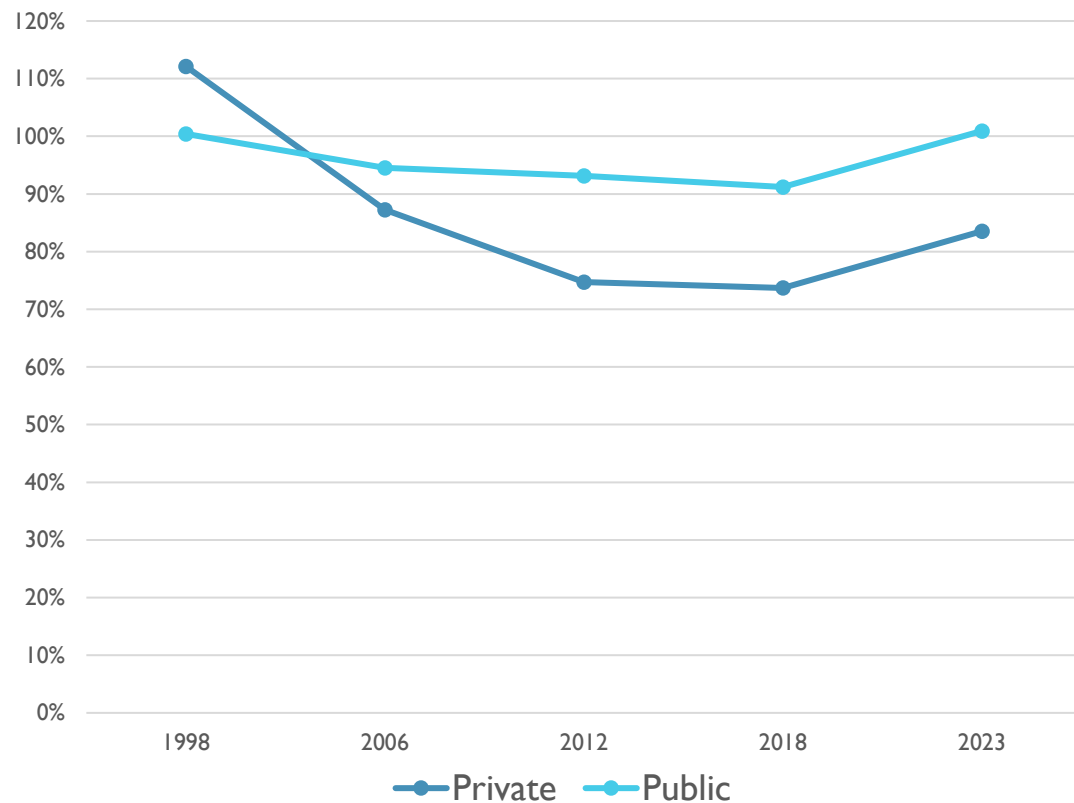


### Age Cohort: higher ID among younger cohorts

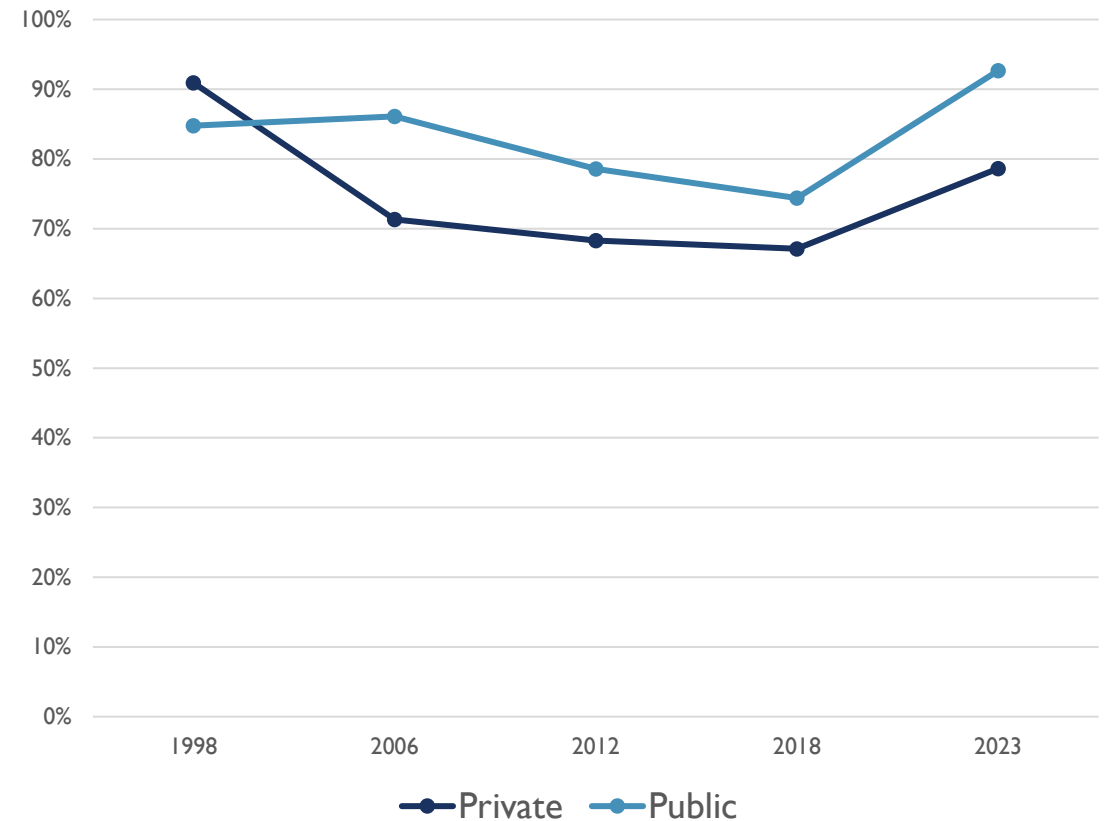


# FEMALE TO MALE EARNINGS RATIO, PRIVATE AND PUBLIC

## Mean Female-Male Earnings Ratio, Hourly

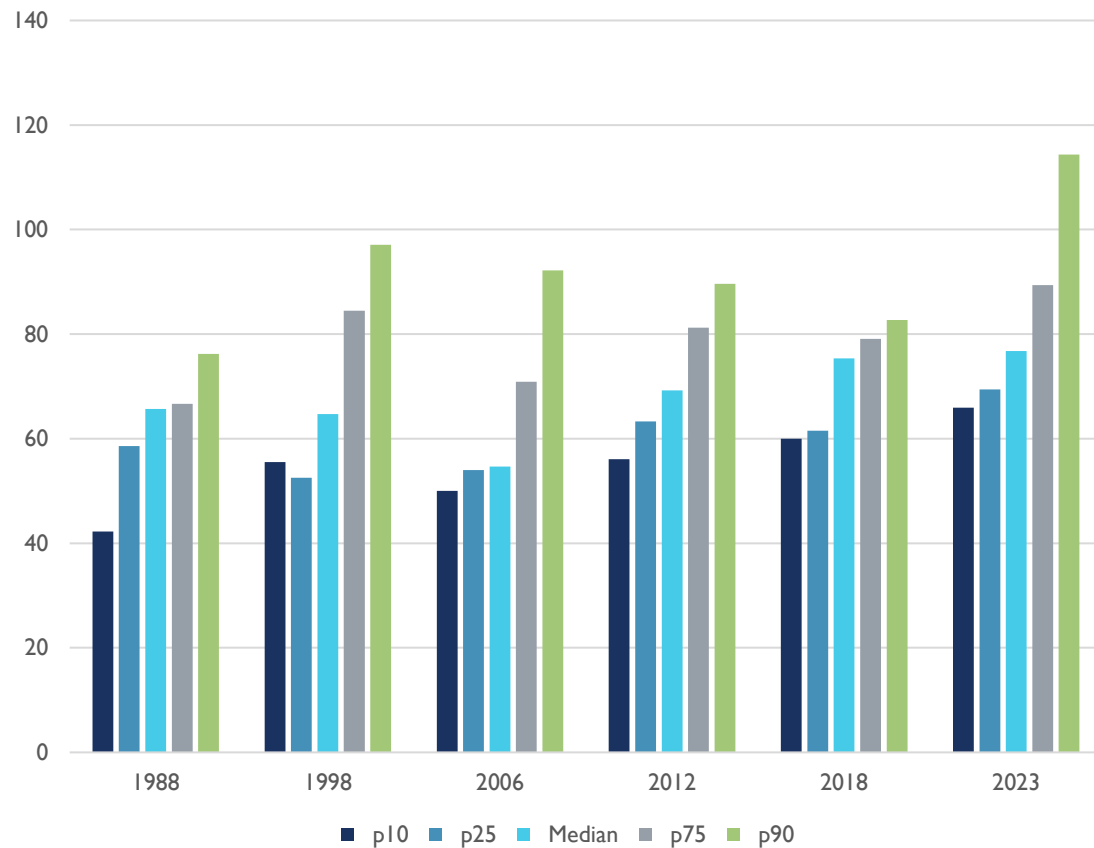


## Mean Female-Male Earnings Ratio, Monthly

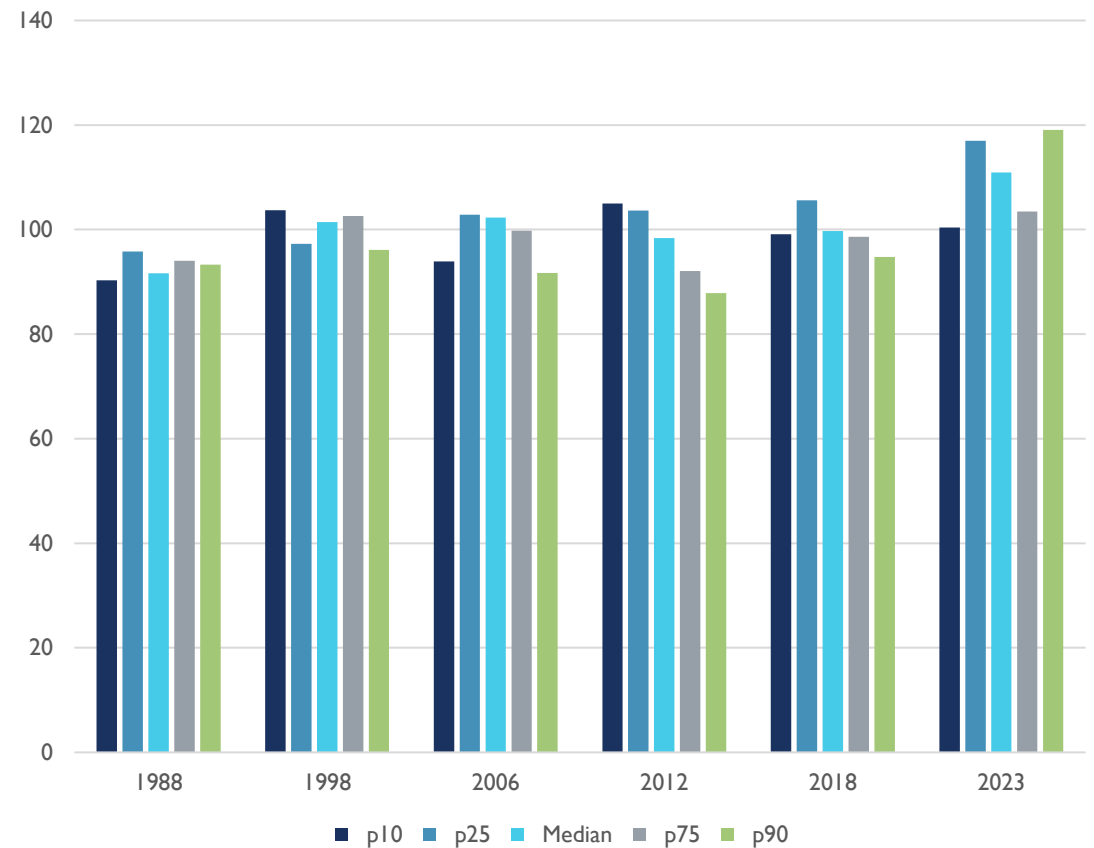


# FEMALE TO MALE EARNINGS RATIO ACROSS THE DISTRIBUTION, PRIVATE AND PUBLIC SECTORS

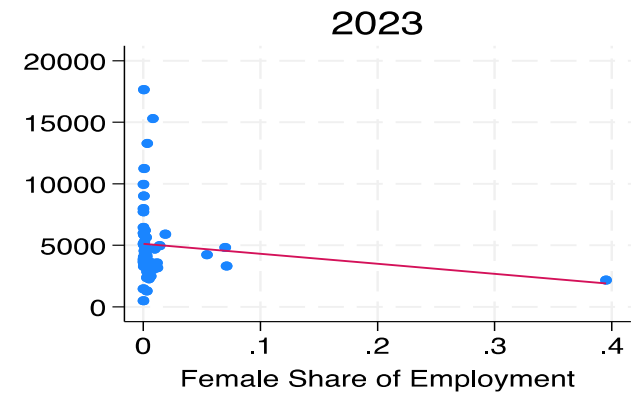
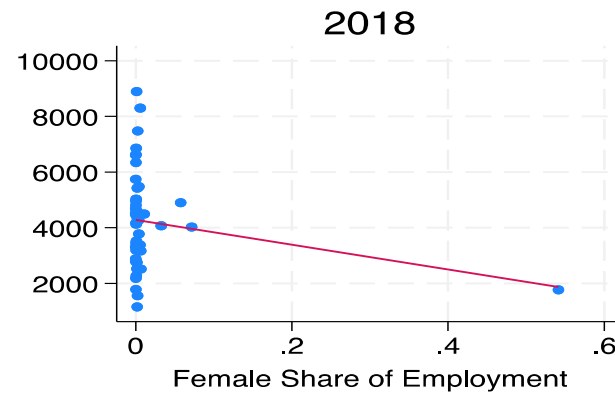
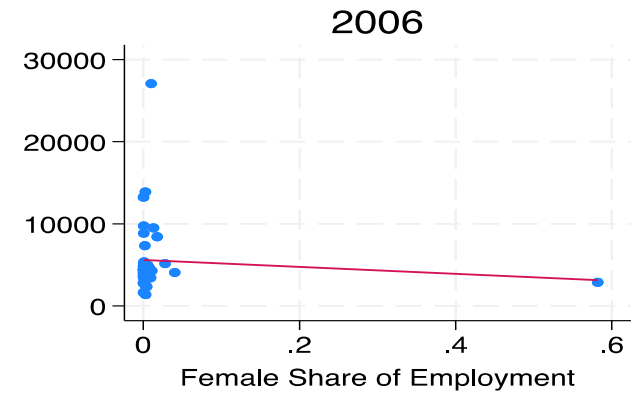
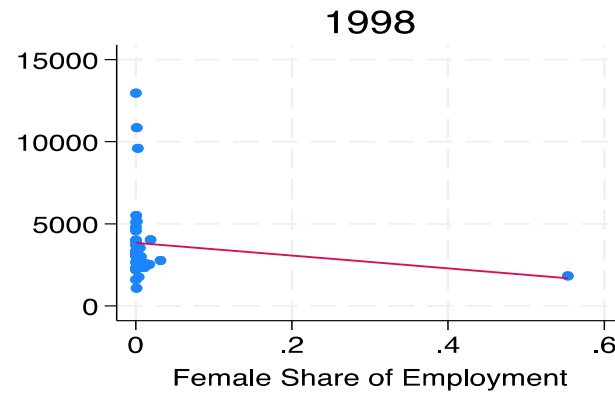
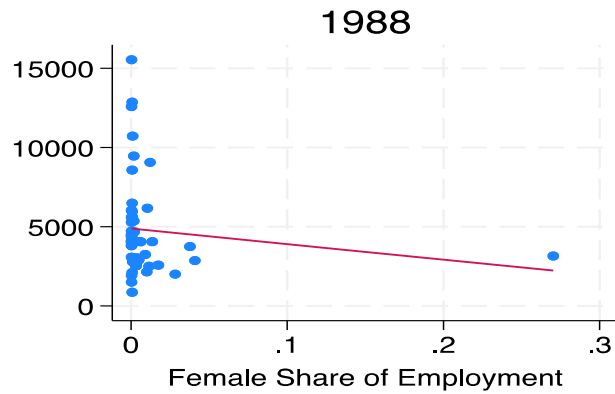
Private Female/ Male Earnings Ratio



Public Female/ Male Earnings Ratio



# MEAN REAL MONTHLY WAGE AND FEMALE EMPLOYMENT SHARE BY 3-DIGIT OCCUPATION (MARKET DEFINITION)



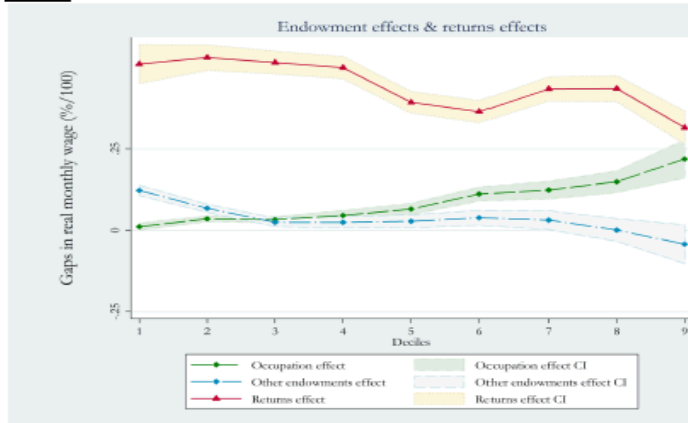
• Private Mean Real Monthly Wage      — Fitted values

# REGRESSION ANALYSIS: UNCONDITIONAL QUANTILE REGRESSION (UQR)

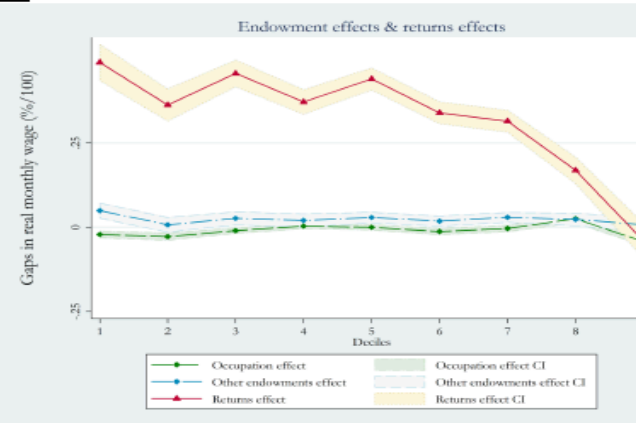
- Decomposition of Wage Gaps: UQR enables the decomposition of gender wage gaps into "explained" and "unexplained" components, allowing for a clearer understanding of how different **endowments** (like education and experience, as well as occupation) and **returns to these endowments** contribute to wage disparities at various quantiles of the wage distribution.
- We assess multiple types of endowments including potential work experience, education, proximity to markets, and employment choices (occupation, industry, formality of employment, firm size). This helps identify how these factors directly influence wages across different segments of the labor market.
- Unlike traditional mean-based regressions, UQR relaxes restrictive assumptions about wage impacts, making it suitable for analyzing wage effects across different points in the wage distribution, capturing variations in wage disparities more accurately.

# GENDER WAGE GAP DECOMPOSITION BY UNCONDITIONAL WAGE DECILE: RETURNS AND ENDOWMENT EFFECTS (CONTROLLING FOR OCCUPATION), PRIVATE SECTOR

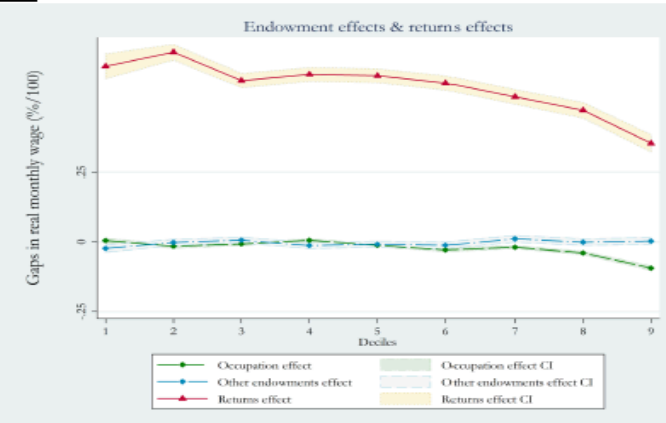
**1988**



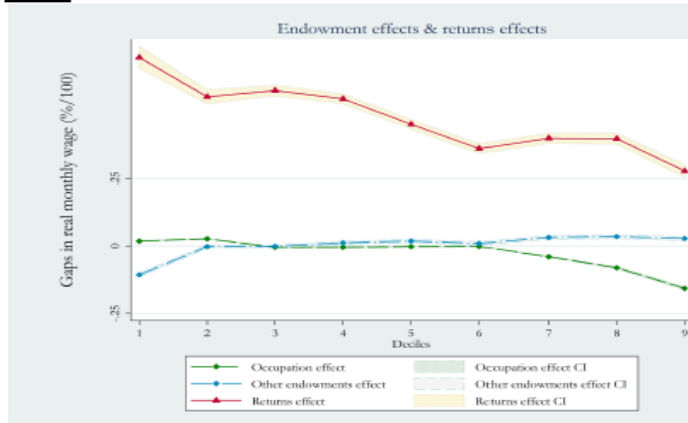
**1998**



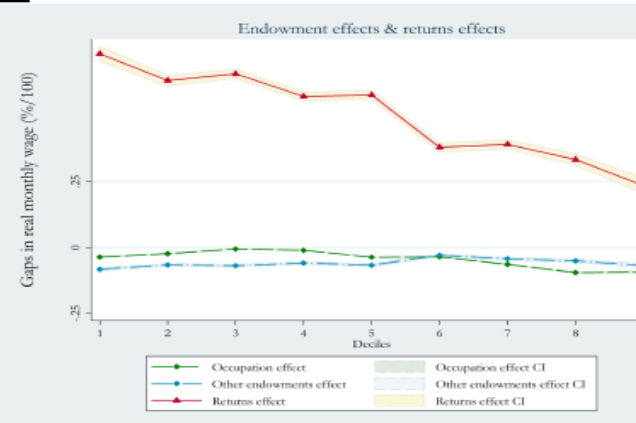
**2006**



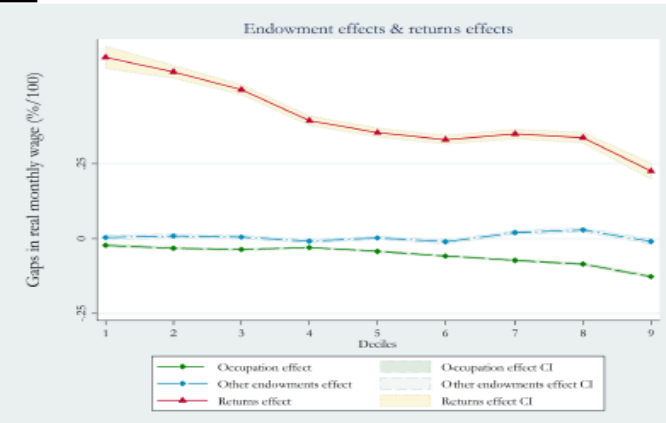
**2012**



**2018**



**2023**



Source: 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 winsorized at the 99<sup>th</sup> percentile to address outlying values. Confidence intervals computed using the delta method.

# GENDER WAGE GAP DECOMPOSITION BY UNCONDITIONAL WAGE DECILE: RETURNS AND ENDOWMENT EFFECTS (CONTROLLING FOR OCCUPATION), PUBLIC SECTOR



Source: 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 winsorized at the 99<sup>th</sup> percentile to address outlying values. Confidence intervals computed using the delta method.



# SUMMARY AND CONCLUSION

- Occupational segregation is prevalent in the Egyptian labor market with women concentrated in a handful of narrow occupational categories, and this seems to have intensified over time
- Occupational segregation is highest for those with secondary or vocational education, work in the private sector, those with formal work arrangements (i.e. a contract or social security), and those who are younger.
- There is a larger mean female/male earnings gap in the private sector and the difference between public and private has been widening.
- The wage gap increased between 1998 and 2018 in both public and private sectors but has since declined again in both.
- The gap is much larger at the bottom of the distribution in the private sector but roughly uniform in the public sector.
- Most of the wage gap in the private sector cannot be explained by observed characteristics, including occupation-the differences in returns to endowments account for almost all of the gap in all years.
- In the public sector the endowments other than occupation explain an increasing share of the gap at higher deciles in the latter years, returns to endowments account for most of the difference at other points along the distribution.