

Gender Pay Gap Patterns in Domestic and Foreign- Owned Firms

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Raw GPG much higher in foreign-owned companies

Ownership	Raw GWG
domestic	13.6%
foreign	27.3%

Motivation



- Foreign firms usually offer **wage premia** -> direct impact on foreign/domestic pay gap (Conyon et al., 2002; Eriksson & Pytlikova, 2011; Hijzen et al., 2013)
 - Wage premia due to **technology, capital** and **competition** externalities from multinationals (Bandick, 2011; Conyon et al., 2002; Chen, Ge, & Lai, 2011)
- But are these foreign-ownership wage premia higher or lower for men than for women?

- Theory suggests that GWG should be lower in foreign-owned firms:
 - **competition**: discrimination is costly (Becker, 1957; Arrow, 1973)
 - weaker **product market competition** in domestic firms could create opportunity for higher rents, likely shared with employees (Black & Strahan, 2001; Nekby, 2003)
 - **globalisation**: trade reduces firms' ability to discriminate women in terms of pay (Black & Brainerd, 2004)
 - foreign-owned firms are quicker in introducing gender equality measures and **family-friendly practices** (Kodama, Javorcik & Abe, 2018)

Theory vs empirical evidence



- However:
 - men are more likely than women to meet **working time requirements**
(Goldin, 2014; Vahter & Masso, 2018, Bøler, Javorcik, and Ulltveit-Moe 2018)
- Empirical literature documents higher GWG in foreign firms, especially in China (Maurer-Fazio et al., 1999; Liu et al., 2000; Seguino 2000; Maurer-Fazio & Hughes, 2002; Braunstein and Brenner 2007; Oostendorp 2009; Rickne, 2012)
 - ... which may not be easily translated to more developed countries
 - literature on European countries is rather scarce in this respect (Zulfiu-Alili 2014; Vahter and Maaso 2019)

Gender segregation is an important factor



- Women tend to segregate into low-paid occupations, industries and establishments (e.g. Bayard et al. 2003)
- This segregation may explain even a half of the GWG (Blau and Kahn 2018)
- Occupational sex segregation may already reflect labour market discrimination against women - in employment rather than in wages

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- Occupational sex segregation may already reflect labour market discrimination against women - in employment rather than in wages
- Does it differ between domestic and foreign-owned firms?

Firm-level factors matter too



- Studies document growing contribution of establishment effects to the widening of wage distributions (Antonczyk et al. 2010; Barth et al. 2016, Card et al. 2013, Card et al. 2018; Handwerker et al. 2016)
- Both sorting across firms and differences in the within-firm bargaining (women receiving less of the wage premium received by men) contribute to the GWG (Card et al. 2016)
- No studies on the different role of **within-firm** wage bargaining of men and women depending on firm ownership

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- No studies on the different role of **within-firm** wage bargaining of men and women depending on firm ownership
- How does within-firm gender wage inequality differ between domestic and foreign firms?

Research questions



- Are GWG (adjusting for workers' characteristics) indeed lower in foreign-owned firms?
- Does the importance of gender segregation for explaining GWG differ between domestic and foreign-owned firms? (and how?)
- How does within-firm gender wage inequality differ between domestic and foreign firms?

Main findings



- Adjusted GWG slightly higher in foreign owned firms
- OLS estimates may be a misleading indicator of the differences in the size of the GWG between the foreign and domestic-owned firms - female employees are much less “comparable” to male employees in the domestic-owned firms
- In the domestic sector, women tend to sort into low-paid jobs. We find no evidence for the foreign one
- Foreign-owned companies have much higher within-firm differences in (residual) earnings and the earnings they pay differ less across firms.

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Structure of Wages and Salaries by Occupations 2008, 2010, 2012, 2014 for Poland

- conducted biennially by Statistics Poland
- we investigate pure private domestic and private foreign ownership only
- total of 1,230,945 individual observations in a pooled sample

Methods (1)



1. OLS regression

- Dependent variable: logarithm of hourly wage
- Variable of interest: female # foreign
- Controls: age (and age squared), education dummies, tenure, experience, parttime dummy, fixed-term contract dummy, occupation dummies, NACE dummies, logarithm of firm size, collective bargaining, share of women, share of workers with tertiary education, share of the young, share of the old, year dummies
- Standard errors clustered at firm level

2. Ñopo decomposition (2008)

- Non-parametric method, based on a matching algorithm
- Captures gender differences in the **common support**
- Variables as in OLS, continuous turned into categorical

Raw and OLS-adjusted GWG indeed higher in foreign firms



Ownership	Raw GWG	OLS-Adjusted GWG (restricted set of explanatory variables)	OLS-Adjusted GWG (full set of explanatory variables)
domestic	13.6%	12.1%	12.3%
foreign	27.3%	23.3%	19.3%

Source: Own calculations based on the Structure of Wages and Salaries by Occupations 2008, 2010, 2012, and 2014 data.

... but with Ñopo decomposition differences almost disappear . | :

Ownership	Gender wage gap	Percentage of matched women	Percentage of matched men
domestic	16.8%	79.8%	62.5%
foreign	18.5%	84.7%	75.5%

Source: Own calculations based on the Structure of Wages and Salaries by Occupations 2008, 2010, 2012, and 2014 data.

Is gender segregation different in f/d firms?



Capturing **segregation**

- Correlation between the share of women and mean men's wage in a given 'job'
- Logistic regression for working in a low-paid job and marginal effects
- Duncan dissimilarity index

Gender segregation matters more in domestic sector



Correlation between the share of women and mean men's wage in a given job, domestic and foreign ownership separately

Ownership	OLS regression Coef. (Std. Err.)	Perason's Correlation Coef.	p-value	Number of observations (jobs)
domestic	-0.054 (0.024)	-0.15	0.024	224
foreign	0.089 (0.094)	0.09	0.349	109

Logistic regression: working in a low-paid job



	dy/dx	Std. Err.	p-value
male (base)			
female, domestic	0.038	0.004	0.000
female, foreign	-0.003	0.007	0.610
Number of observations	1,230,945		

Source: Own calculations based on the Structure of Wages and Salaries by Occupations 2008, 2010, 2012, and 2014 data.

Workers dissimilarity by gender is higher in the domestic sector . | :

Duncan dissimilarity index		Included variables							
domestic	foreign	occupation (9 categories)	education (4 cat.)	age group (5 cat.)	fixed term contract (binary)	part-time (binary)	years of experience (3 cat.)	firm's size (3 cat.)	NACE (18 cat.)
0.36	0.20	X							
0.38	0.23	X	X						
0.40	0.25	X	X	X					
0.40	0.26	X	X	X	X				
0.41	0.27	X	X	X	X	X			
0.41	0.27	X	X	X	X	X	X		
0.42	0.29	X	X	X	X	X	X	X	
0.51	0.37	X	X	X	X	X	X	X	X

Source: Own calculations based on the Structure of Wages and Salaries by Occupations 2008, 2010, 2012, and 2014 data.

Share of within-firm variance is higher in foreign firms . | :

Variance of residual wages within and between firms (error terms in linear regression of logarithm of wages) [% of within-firm variance in total variance]

Year	Domestic	Foreign
2014	53%	71%
2012	53%	70%
2010	53%	72%
2008	51%	70%

Summary



- OLS estimates may be a misleading indicator of the differences in the size of the GWG between the foreign and domestic-owned firms.
- With exact matching the GWG are comparable, they're only slightly higher in foreign-owned firms.
- Female employees are much less “comparable” to male employees in the domestic-owned firms, in contrast to the foreign-owned ones.
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Conclusion & further research



- Domestic firms: segregation responsible for GWG
- Foreign-owned firms: within-firm wage differentials a likely explanation for GWG

Further research:

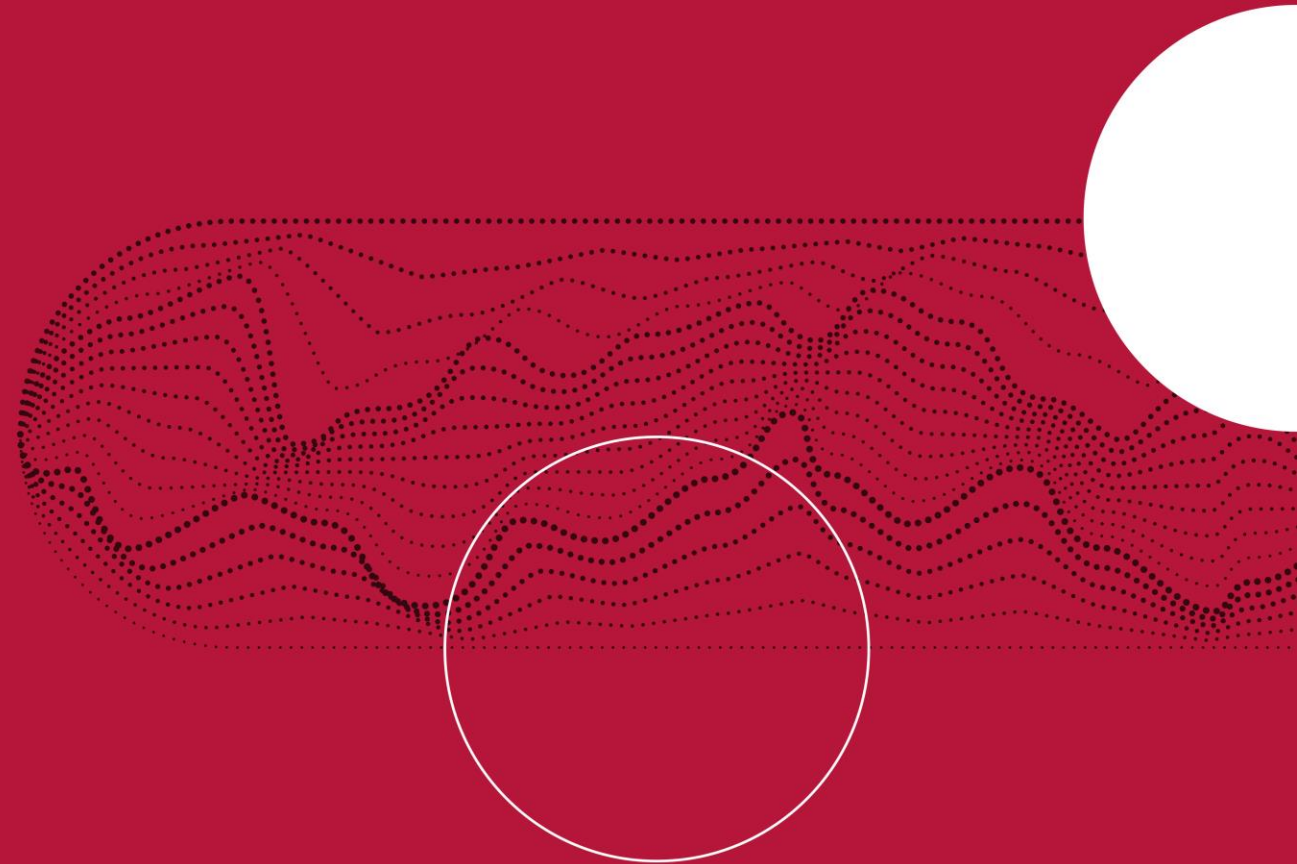
- What is the source of these differences?

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Duncan dissimilarity index



$$D = \frac{1}{2} \sum_{i=1}^N \left| \frac{m_i}{M} - \frac{f_i}{F} \right|$$

where M and F denote total male and female population, respectively, and m_i and f_i denote the population of males or females in the i^{th} category (i.e. occupation, occupation x education, occupation x education x age group, etc.). N is the total number of currently analysed categories.

Differences between domestic and foreign-owned firms (2014) . | :

	domestic	foreign
female (share)	40%	43%
age (average)	40	37
tertiary education (share)	24%	39%
tenure (average)	8	7
firm size (average)	334	1136
fixed term contracts (share)	39%	28%
collective agreements (both firm-level and industry)	38%	34%
Men, average hourly wage (PLN)	19.77	34.80
Women, average hourly wage (PLN)	17.37	25.59
Number of observations	222,203	120,940

Source: Own calculations based on the Structure of Wages and Salaries by Occupations 2014 data.