

# PUBLIC-PRIVATE WAGE GAP IN LATVIA

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# Motivation

- ▶ Media highlights differences in pay and emphasises the necessity for wage alignment.

Pēc Krieviņa teiktā, valsts pārvaldes reformas rezultātā ietaupītā nauda varētu tikt novirzīta atalgojuma sistēmas sakārtošanai, lai atalgojums valsts sektorā būtu daudz maz konkurētspējīgs ar atalgojumu privātajā sektorā.

**Pētījums: valsts pārvaldes atalgojums nav konkurētspējīgs** <sup>24</sup>

*Leide Petrāne, 2016. gada 29. augusts 16:16*

- ▶ Significant opposition from society when public institutions plan to increase the wages.
- ▶ Part of broader research which investigates the wage gaps in Latvia (gender wage gap, ethnic wage gap, public-private sector wage gap)

# Questions

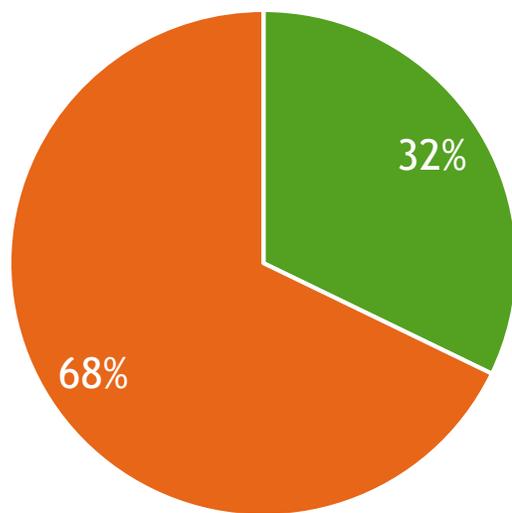
- ▶ Do wages in public and private sector really differ?
- ▶ Is the difference attributable to differences in observable characteristics?
- ▶ Are there any selection effects at play?

# Data and methodology

- ▶ Microdata from labour force survey (LFS) of Latvia for 2015 provided by Central Statistics Bureau.
  - ▶ Large data set (around 10 000 observations).
  - ▶ Wages provided as continuous number.
  - ▶ Broad definition of public sector (not only NACE sector O).
- ▶ Oaxaca-Ransom (1994) decomposition method that shows how much of the wage gap can be explained by differences in characteristics and how much remains unexplained.
- ▶ Double sample correction to account for self-selection in employment and choice of sector.

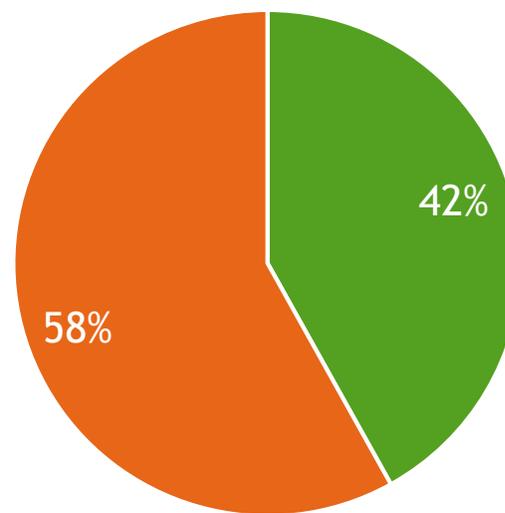
# Nature of private(public) sector employment in Riga and its suburbs might significantly differ from that in other regions

Rīga un Pierīga



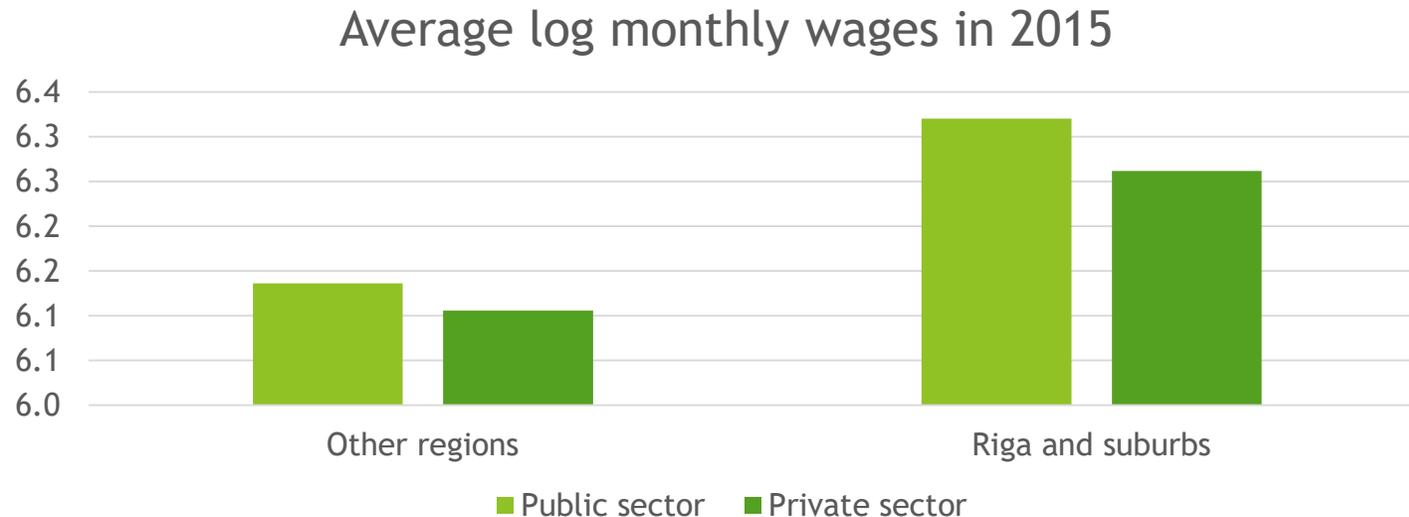
■ Public sector ■ Private sector

Other regions



■ Public sector ■ Private sector

# The average wage in public sector is slightly higher both in Riga and other regions



Comparison of wages gives the raw wage gap, but it does not take into account that skills and characteristics of those employed in public/private sector might differ;

# Conditional wage gap is significant only in Riga, however in favour of private sector

$$Y_i = X_i a + Pub_i \beta + u_i$$

where  $Y_i$  is wage,  $X_i$  is a vector of exogenous variables which may or may not include job characteristics,  $a$  is the respective vector of regression coefficients and  $u_i$  is the error term.  $Pub_i$  is a binary variable that indicates if person works in public sector and  $\beta$  is the respective coefficient.

Riga & Pieriga		Other regions	
Conditional wage gap	-0.048***	Conditional wage gap	0.011

Estimates do not provide reason why wages differ;

Does not indicate which characteristics «explained» the observed wage gap;

Estimates of this type reflect only the level effect of the sector choice and confine regression coefficients to be the same in both sectors. That would raise problems in case characteristics like education attainment is valued differently across the sectors.

Variables included in regressions:

Region: Statistical region and degree of urbanization (urban/rural)

Education: Level of education and field for higher education; years passed since highest education level was obtained, current study status

Personal/demographic: age, age squared, gender, disability, ethnicity, citizenship, marital status

# Oaxaca-Ransom decomposition method provides more detailed information on wage gap

- ▶ Run separate regressions for both sectors

$$Y_{pub,i} = X_i a_{pub} + u_{pub,i}$$
$$Y_{pri,i} = X_i a_{pri} + u_{pri,i}$$

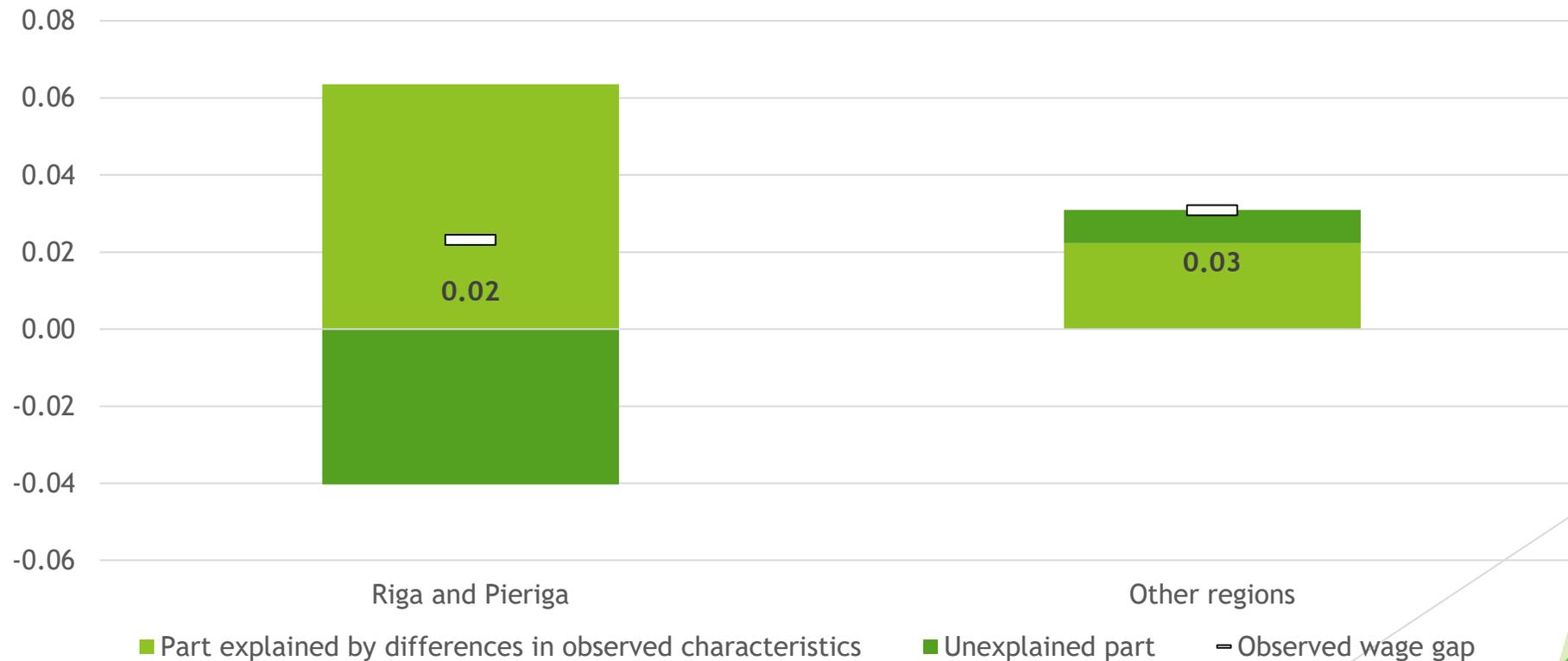
- ▶ Decompose the difference:

$$Y_{pub,i} - Y_{pri,i} = (X_i \widehat{a}_{pub}) - (X_i \widehat{a}_{pri})$$
$$= \widehat{a}_{pop} (\overline{X_{pub,i}} - \overline{X_{pri,i}}) + \overline{X_{pub,i}} (\widehat{a}_{pub} - \widehat{a}_{pop}) + \overline{X_{pri,i}} (\widehat{a}_{pop} - \widehat{a}_{pri})$$

where  $\widehat{a}_{pop} (\overline{X_{pub,i}} - \overline{X_{pri,i}})$  is the part of the wage gap attributable to the differences in the means of the independent variables weighted by the estimated coefficients of wage equation for whole population (both public and private sector employees). Other two terms on the right hand side of equation relate to differences in market evaluation of X which constitute the unexplained component of wage gap.

# Decomposition results reveal that observed wage gap is mostly caused by differences in characteristics

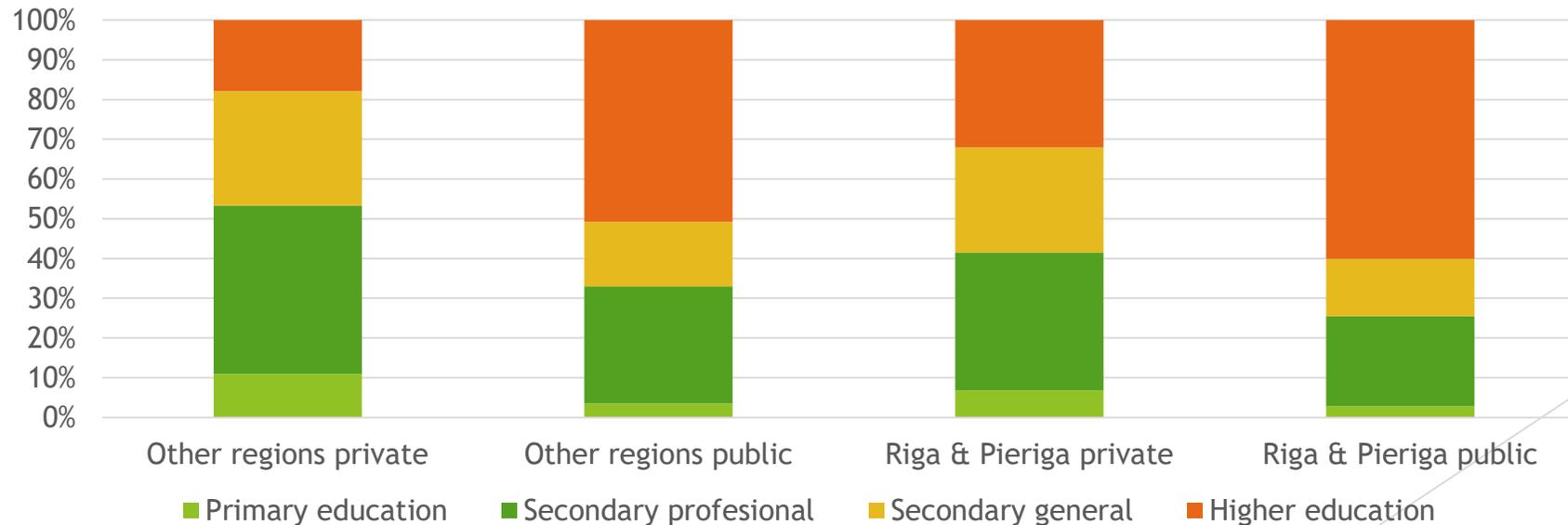
Oaxaca-Ransom decomposition results



# - most particularly education

- ▶ Based on decomposition results: public sector pay should be at least 8% higher than that in private sector if only the differences in attainment of education is looked at.

Employment by level of education



# Results however might suffer from sample-selection bias

- ▶ In case selection in employment is not random and unobserved factors that steer individuals into paid employment are also significant determinants of wage, estimates of wage gap can suffer sample selection bias;
- ▶ Second bias is prone to arise if individual's choice of sector is not random i.e. people "self-select" themselves in public (or private) sector based on their preferences, previous experience or certain characteristics. Under self-selection those individuals who expect comparative advantage within certain sector will chose to work in that sector and therefore benefit from it more than an individual with equal observed characteristics who is randomly drawn from the population.

# This issue is addressed with double sample correction

In the first stage employment and choice of sector probits are estimated

$$I_{1i}^* = Z_i\gamma + \epsilon_{1i}$$
$$I_{1i} = 1 \quad \text{if} \quad I_{1i}^* > 0$$
$$I_{1i} = 0 \quad \text{if} \quad I_{1i}^* \leq 0$$

where  $I_{1i}$  &  $I_{2i}$  are dummy variables that indicate individual's choice of labour market status ( $I_{1i} = 1$  if employed and  $I_{1i} = 0$  otherwise) and choice of sector ( $I_{2i} = 1$  if public sector and  $I_{2i} = 0$  if private sector).

$I_{1i}^*$  &  $I_{2i}^*$  are the latent variables;

$$I_{2i}^* = B_i\beta + \epsilon_{2i}$$
$$I_{2i} = 1 \quad \text{if} \quad I_{2i}^* > 0$$
$$I_{2i} = 0 \quad \text{if} \quad I_{2i}^* \leq 0$$

$Z_i$  &  $B_i$  are the vectors of exogenous explanatory variables;

$\gamma$  &  $\beta$  are the respective vectors of regression coefficients and  $\epsilon_{1i}$  &  $\epsilon_{2i}$  are the error terms that are normally distributed and may or may not be correlated.

And four sample correction terms (two for selection into employment and two for selection into sectors) are created.

$$\hat{\lambda}_{I1,pub,i} = \frac{\phi(Z_i\hat{\gamma})}{\Phi(Z_i\hat{\gamma})}$$

$$\hat{\lambda}_{I1,priv,i} = \frac{\phi(Z_i\hat{\gamma})}{\Phi(Z_i\hat{\gamma})}$$

$$\hat{\lambda}_{I2,pub,i} = \frac{\phi(B_i\hat{\beta})}{\Phi(B_i\hat{\beta})}$$

$$\hat{\lambda}_{I2,priv,i} = \frac{-\phi(B_i\hat{\beta})}{\Phi(-B_i\hat{\beta})}$$

# Overall evidence of positive selection for private sector employees

## Specification

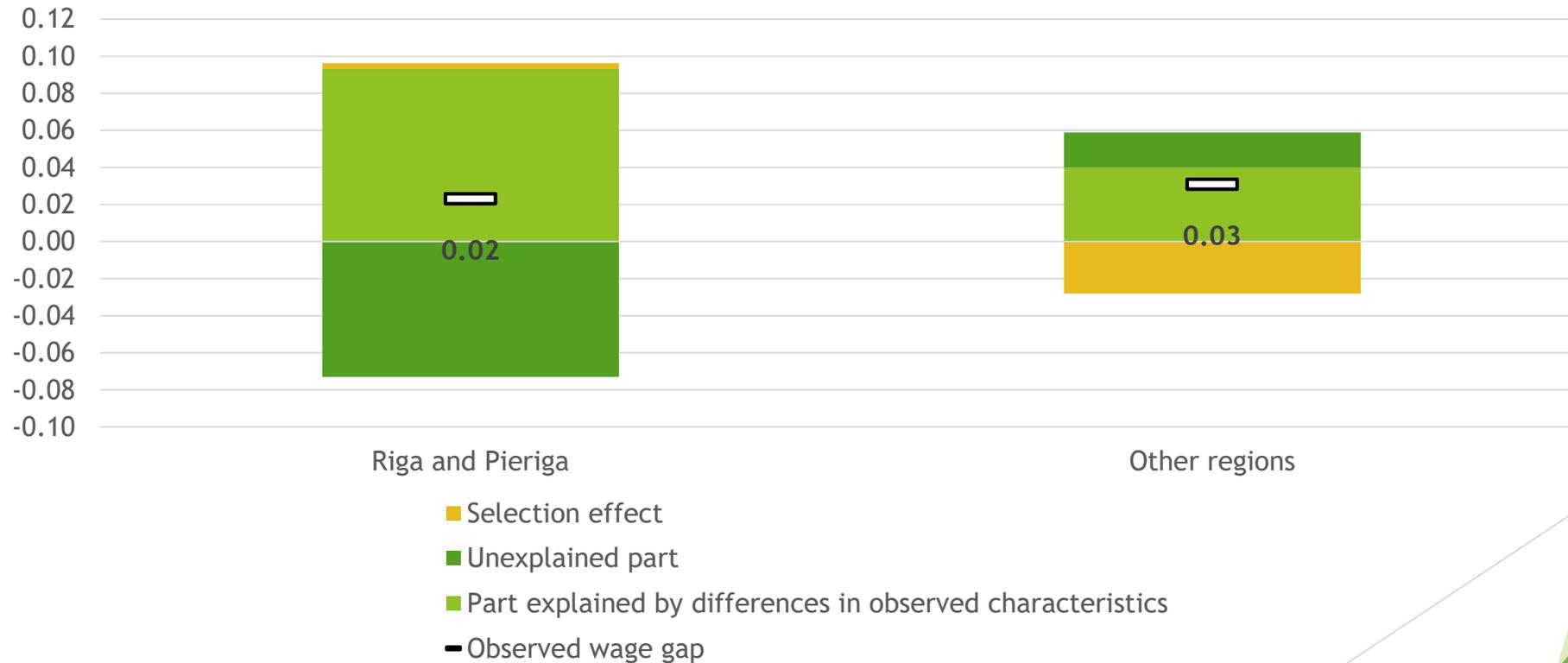
- ▶ Both univariate probit and bivariate probit were used to estimate employment and sector choice equations - results do not differ significantly;
- ▶ No evidence that employment and sectoral choice decisions are not independent (correlation of error terms is insignificant);
- ▶ Identification variables used:
  - ▶ Participation equation: children or elderly person in household (>8 y.o.; 8-18 y.o.; >75 y.o.), lives alone.
  - ▶ Choice of sector: members of household working in public sector.

## Results

- ▶ No participation selection for public sector employees. Some evidence point to positive participation bias for those employed in private sector.
- ▶ Outside of capital city selection due to choice of sector significant and positive in both public and private sector. In Riga the sectoral selection present and significant only for public sector employees.

# No selection effect in capital city, however outside of it selection effect reduces the observed wage gap

Oaxaca-Ransom decomposition results



# Conclusions

- ▶ Observed public/private sector wage gap is small, however significant favouring public sector employees;
- ▶ Decomposition results reveal that observed wage gap is mostly caused by differences in characteristics;
- ▶ Ignoring selection effects lead to different results in regions outside of capital city, however in Riga it might not be a serious issue;
- ▶ In Riga selection effect does not affect observed wage gap. Unexplained part of the wage gap significantly in favour of private sector.
- ▶ In other regions of Latvia selection reduces the wage gap. Selectivity corrected wage gap would be higher and importantly not all of it would be explained by observed characteristics.

# Further tasks

- ▶ Expand the analysis to cover economic crisis and some years before it;
- ▶ International comparison;
- ▶ Robustness checks;
- ▶ Summarize results on wage gaps in Latvia (gender, ethnic and public/private)