The Relative Impact of different Forces of Globalisation on Wage Inequality*

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INTRODUCTION

- Globalisation and its effects hotly debated in politics and economics
- Globalisation fosters economic growth, however there are winners and losers
- Globalisation → income inequality → rise of populism (see Rodrik, 2018)
Theoretical Framework of Globalisation Forces

- **Trade → Income Inequality**
  - *Heckscher-Ohlin model*: high level of unskilled (skilled) labor → decrease (increase) in income inequality
  - Feenstra & Hanson (1996): outsourcing of stages of production → rise in inequality in both regions (“North” and “South”)
  - Diffusion of technology → skill-biased technologies → increase in income inequality

- **FDI → Income Inequality**
  - *Heckscher-Ohlin model* and Feenstra & Hanson (1997) same implications as above
  - FDI & entry of MNE → higher demand for skilled labour → increase in inequality in host country

- **Migration → Income Inequality**
  - Effect depends on socio-economic and demographic characteristics of immigrants and native population
  - Substitutability → higher competition in labour market → decrease in wages of native workers
  - Complementarity → different skills → increase in productivity and wages of natives
**Research Question**

**Question**

What is the impact of globalisation forces, 
- Trade 
- FDI 
- Migration 

on wage inequality among native employees?

**Approach**

- Capture the impact at the individual level 
- Apply the results in order to evaluate contribution to overall wage inequality
**Econometric Approach I**

- **Augmented Mincer regression** → consider globalisation measures at the industry level
- **Multilevel regression model** → individual and industry level

\[
y_{ijt} = X'_{ijt}\beta + Z'_{jt}\gamma + \delta_t + \nu_{jt} + \epsilon_{ijt}
\]  

- \(y_{ijt}\) hourly wage
- \(X_{ijt}\) vector of covariates at the individual level \((k \times 1)\)
- \(Z_{jt}\) vector of covariates at the industry level \((r \times 1)\)
- \(\delta_t\) time fixed effect
- \(\nu_{jt}\) industry random effect
- \(\epsilon_{ijt}\) error term
- \(i = 1, \ldots, N\) individuals
- \(j = 1, \ldots, J\) industries
- \(t = 1, \ldots, T\) years
Econometric Approach II

- **Shapley-value decomposition** (see Shorrocks, 2013)
  - Regression-based approach

\[ \hat{y}_{123} = \hat{\beta}_1 x_1 + \hat{\beta}_2 x_2 + \hat{\gamma}_3 z_3 \]

- Calculate wage inequality based on predicted values \( \rightarrow \hat{I}_{\text{ineq}_{123}} \)
- Assessment of importance of variable groups \( \rightarrow \) capture the relative contribution to wage inequality
  - Calculate predicted values by stepwise elimination of variables (variable groups)

\[
C_1^{\{123\}} = \hat{I}_{\text{ineq}_{123}}^{(0)} - \hat{I}_{\text{ineq}_{123}}^{(1)}
\]

\[
C_1^{\{12\}} = \hat{I}_{\text{ineq}_{12}}^{(1)} - \hat{I}_{\text{ineq}_{12}}^{(2)} \quad \text{and} \quad C_1^{\{13\}} = \hat{I}_{\text{ineq}_{13}}^{(1)} - \hat{I}_{\text{ineq}_{13}}^{(2)}
\]

\[
C_1^{\{1\}} = \hat{I}_{\text{ineq}_{1}}^{(2)}
\]

- Overall contribution to wage inequality \( \rightarrow \) average over all \( C_1 \)
Data

- **Individual data**
  - *EU Statistics on Income and Living Conditions (EU-SILC)*: cross-sectional data from 2008 to 2013 → NACE at 1-digit level
    - Dependent variable: hourly wage
    - Explanatory variables: gender, age, region, firm size, temporary contract, education, occupation

- **Industry data**
  - *Migration*: share of foreign born → *EU-LFS*
  - *Trade*: VAX-VA-ratio, inter-industry offshoring, foreign-VAX-VA-ratio, intra-industry offshoring → *WIOD*
  - *FDI*: inward FDI, outward FDI → *Eurostat & OECD*
  - Additional explanatory variables: business enterprise R&D stocks, value-added per employee

- Minimize the number of explanatory variables for *Trade* and *FDI* → principal-component analysis (PCA)
## Augmented Mincer Regression, 2011-2013

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Observations: 7,243 25,901 6,909 11,500 20,554 30,906 27,651 11,086
Industries: 12 12 13 11 12 13 13 12

Notes: Selected results, robust standard errors in parentheses. * p<0.1, ** p<0.05, *** p<0.01.
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Shapley-value decomposition – GINI, 2011-2013

Note: Own calculations and illustration.
Shapley-value decomposition – GINI, 2011-2013

Note: Own calculations and illustration.
Choice of inequality measure

- *Gini-index*: more weight on the centre of the wage distribution
- \( GE(0) \)-index: more sensitive to the bottom tail of the wage distribution
- \( GE(2) \)-index: more sensitive to the upper tail of the wage distribution

- \( GE(0) \) and \( GE(2) \): in most cases overall explained part of inequality only one third
Concluding Remarks

Summary

- Major part of wage inequality among native employees can be ascribed to individual worker characteristics → education, occupation, gender, age, ...
- Globalisation effects are quite heterogeneous
  - Migration contributes to wage inequality among natives in Southern European countries
  - No clear pattern for trade and FDI

Caveats

- Data issues in general
- Highly aggregated industries → low level of variation
- Globalisation also affects labour market participation → selection bias
References


Shapley-value decomposition – GE(0), 2011-2013

Note: Own calculations and illustration.
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