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EcoMod 2024

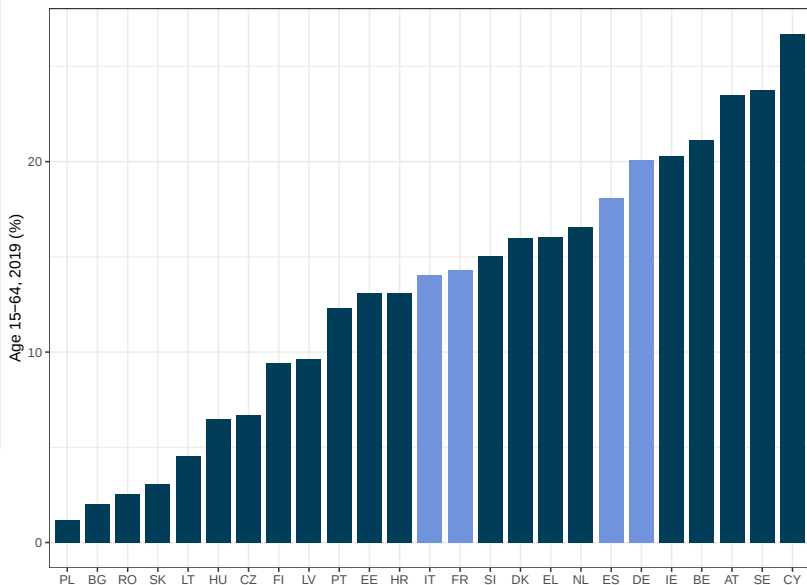
Wage bargaining, relative prices and capital: the impact of immigration on wages and wage inequality

Question

What is the impact of immigration on (native) wages and wage inequality in EU countries?

- ▶ A model-based investigation, using a calibrated search model
- ▶ Three channels of immigration's wage impact
 - ▶ Capital-labor substitution
 - ▶ Relative demand for different sectors
 - ▶ Relative bargaining power of immigrants
- ▶ Quantification using data for France, Germany, Italy and Spain

Immigrant shares in Europe



- ▶ The wage impact of immigration depends crucially on whether relative prices are determined locally or globally
- ▶ In the former case, observed migration patterns are consistent with a non-trivial increase in native wage inequality
- ▶ In the latter case, native wage inequality fall slightly, due to the lower bargaining power of low-skilled immigrants

- ▶ **Area studies:** Card (1990); Altonji and Card (1991)
- ▶ **Factor proportions:** Borjas, Freeman and Katz (1992); Borjas (2003); Ottaviano and Peri (2012); Busch, Krueger, Ludwig, Popova and Iftikhar (2020)
- ▶ **Search frictions:** Chassamboulli and Palivos (2014); Moreno-Galbis and Tritah (2016); Iftikhar and Zaharieva (2019)
- ▶ **Wages and occupations:** Eckstein and Weiss (2004); ILO (2020); JRC (2023)
- ▶ **Inequality:** Card (2009); Borjas (2016); Dustmann, Kastis and Preston (2022)

1. A standard DMP framework with exogenous separation
 - (a) Search segmented by occupations
2. Immigrants and natives search together
 - (a) Indistinguishable ex ante
 - (b) Have the same productivity
 - (c) Have different outside options
3. Aggregate production function
 - (a) Capital-labor substitution
 - (b) Local vs. global demand conditions

- ▶ Unemployment rate

$$\frac{u_j^i}{l_j^i} = \frac{s}{s + f_j}$$

- ▶ Job filling and job finding rates

$$q_j = \mu \theta_j^{-\sigma}$$
$$f_j = \mu \theta_j^{1-\sigma}$$

- ▶ Wage equation

$$w_j^i = \eta (\zeta_j + \kappa \theta_j) + (1 - \eta) b_j^i$$

- ▶ Job creation condition

$$\frac{\kappa}{q_j} = \frac{\zeta_j - \bar{w}_j}{1 - \beta(1 - s)}$$

- ▶ Final goods production

$$Y = K^{\alpha} Z^{1-\alpha}$$

$$Z = \prod_j z_j^{\chi_j}$$

- ▶ Option 1: open economy
 - ▶ Relative prices exogenous
 - ▶ Capital stock fully elastic
- ▶ Option 2: closed economy
 - ▶ Constant capital stock
 - ▶ Relative prices by local demand

$$\frac{p_j a_j n_j}{p_1 a_1 n_1} = \frac{\chi_j}{\chi_1}$$

- ▶ I calibrate the model on recent labor market data in Europe
- ▶ Reference year 2019, with some data available in 2018 or 2022
- ▶ Use the four largest EU economies, all with large immigrant populations
- ▶ Data mostly from Eurostat, unemployment replacement rates from OECD, immigrant wage gaps from ILO (2020)
- ▶ Drop agricultural occupations (ISCO code 6): missing data, small employment share

- ▶ Standard parameter values: $\beta = 0.99$, $\sigma = 0.5$, $\eta = 0.5$
- ▶ Unemployment duration and job tenure $\rightarrow$ job finding and job separation rates (augmented Shimer method)
- ▶ Vacancies and unemployment $\rightarrow$ labor market tightness
- ▶ Job finding rate and tightness $\rightarrow$ matching function parameters
- ▶ Occupation specific wages $\rightarrow$ productivity and vacancy cost
- ▶ Replacement rates, immigrant shares and the immigrant wage gap $\rightarrow$ wages and outside options for immigrants and natives

Country	Sep. rate	Finding	Tightness	Wage gap	Immig.
Germany	0.03	0.52	1.17	0.20	0.20
Spain	0.06	0.32	0.04	0.28	0.18
France	0.04	0.34	0.15	0.09	0.14
Italy	0.03	0.24	0.14	0.30	0.14

Source: Eurostat, own calculations

1. Managers
2. Professionals
3. Technicians and associate professionals
4. Clerical support workers
5. Service and sales workers
6. Skilled agricultural, forestry and fishery workers
7. Craft related trades workers
8. Plant and machine operators, and assemblers
9. Elementary occupations
10. Armed forces occupations

	OC1	OC2	OC3	OC4	OC5	OC7	OC8	OC9
Immigrant share								
Germany	0.14	0.15	0.14	0.13	0.23	0.24	0.35	0.49
Spain	0.14	0.09	0.12	0.12	0.24	0.23	0.19	0.41
France	0.11	0.12	0.09	0.10	0.17	0.17	0.15	0.24
Italy	0.08	0.05	0.06	0.06	0.20	0.20	0.20	0.35
Relative wage								
Germany	2.33	1.40	1.06	0.84	0.64	0.82	0.77	0.57
Spain	1.99	1.37	1.15	0.88	0.70	0.85	0.89	0.67
France	1.88	1.29	0.96	0.72	0.68	0.73	0.77	0.60
Italy	3.37	1.18	1.14	0.93	0.76	0.81	0.84	0.68
Replacement rate								
Germany	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Spain	0.56	0.56	0.56	0.54	0.54	0.54	0.54	0.54
France	0.68	0.68	0.67	0.67	0.67	0.67	0.67	0.67
Italy	0.53	0.53	0.53	0.62	0.62	0.62	0.62	0.62

Source: Eurostat, own calculations

- ▶ Note that we only observe the *migration equilibrium*, difficult to isolate the correct counterfactual

- ▶ Note that we only observe the *migration equilibrium*, difficult to isolate the correct counterfactual
- ▶ The impact of immigration on wages depends crucially on the adjustment of relative prices
- ▶ Immigration skewed towards the low-skilled *may* lower the relative price of products intensive in low-skilled workers
- ▶ But, in highly open countries, local demand conditions are not relevant

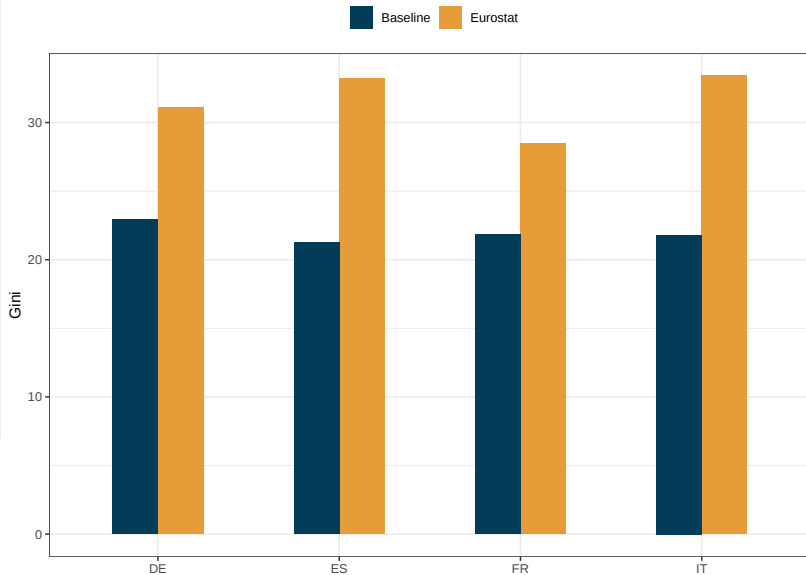
Native nominal and real wage changes

Country	Occupation	Δ nominal wage		Δ real wage	
		Closed	Open	Closed	Open
France	OC2	0.35	0.95	-2.53	0.95
France	OC5	-4.90	1.34	-7.79	1.34
France	OC9	-13.94	1.95	-16.83	1.95
Germany	OC2	1.84	2.98	0.55	2.98
Germany	OC5	-6.11	4.48	-7.40	4.48
Germany	OC9	-42.42	9.84	-43.71	9.84
Italy	OC2	4.82	1.32	5.62	1.32
Italy	OC5	-8.85	5.61	-8.05	5.61
Italy	OC9	-25.50	9.98	-24.70	9.98
Spain	OC2	7.33	2.28	5.72	2.28
Spain	OC5	-7.46	6.11	-9.07	6.11
Spain	OC9	-28.13	10.53	-29.74	10.53

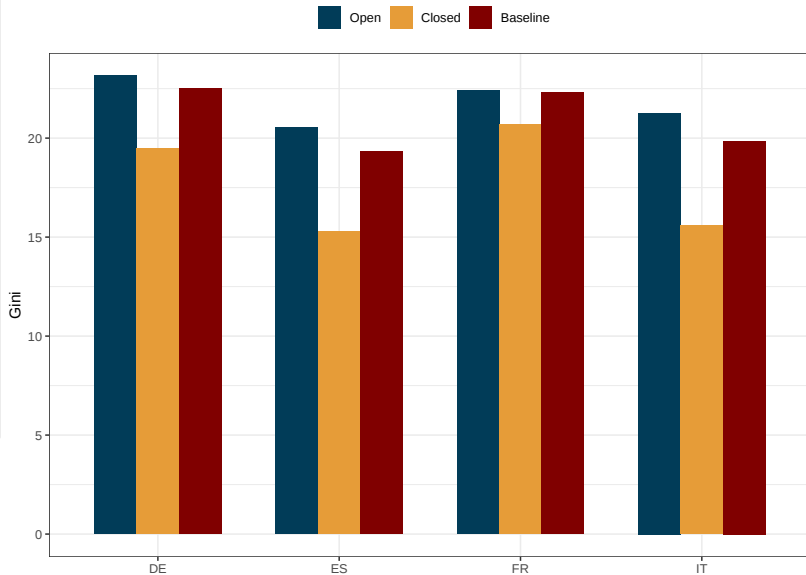
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- ▶ This is probably the empirically important part when looking at the impact of immigration

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- ▶ This is probably the empirically important part when looking at the impact of immigration
- ▶ The bargaining channel *raises* low-skilled native relative wages
- ▶ The relative price channel *lowers* low-skilled native relative wages
- ▶ For open economies, only the first channel operates
- ▶ For closed economies, the second channel dominates

Empirical and calculated Gini



Gini's in the alternative scenarios



- ▶ This paper studies the impact of immigration on wages and wage inequality
- ▶ It builds and quantifies a search model with occupational segmentation and imperfect immigrant-native substitution
- ▶ The wage impact may operate through bargaining, relative prices, and capital-labor substitution
- ▶ In open economies (the medium-run), wage inequality is expected to fall
- ▶ In close economies (the short-run), wage inequality is expected to rise