



Wider effects of immigration; Effects on income and income inequality.

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Study Materials and Reading List

- Slides of the lectures
- All materials provided on: <http://home.cerge-ei.cz/pytlikova/LaborSpring19/>

Compulsory Readings:

- Bansak, Simpson and Zavodny: *The Economics of Immigration*, [Part IV Other Effects of Immigration](#). Chapters 9 and 10
- Bansak, Simpson and Zavodny: *The Economics of Immigration*, Part III Labor Market Effects of immigration, Chapter 7, Labor Market Effects of Immigration - Theory

Other Relevant Literature (optional):

- Kahanec, M. and M. Pytliková (2017): "[The Economic Impact of East-West Migration on the European Union](#)". *Empirica*, Vol. 44, Issue 3, pp 407–434, August 2017.
- Bansak, Simpson and Zavodny: *The Economics of Immigration*, chapter 7 and 8 on Labor Market Effects of Immigration – Theory and Evidence

WIDER EFFECT OF MIGRATION

Impacts of Immigration and Ethnic Diversity:

- Technology and innovation
- Productivity
- Housing
- Prices of goods and services
- Product diversity
- Financial markets, capital investment
- Entrepreneurship
- FDI (impact on sending too)
- Trade (impact on sending too)
- Remittances (impact on sending too)
- Income and Income Inequality
- Other – happiness, education, health, crime, ...

Impact of immigration on destinations' labor markets - Employment and wages – remember from previous lectures

Effects depends on:

- Size
- How immigrants are **complementary or substitutable** to native workers

Impact of immigration on destinations' labor markets
- effect on national income

The Economic Impact of East-West Migration on the EU

Martin Kahanec and Mariola Pytliková

Empirica 2017

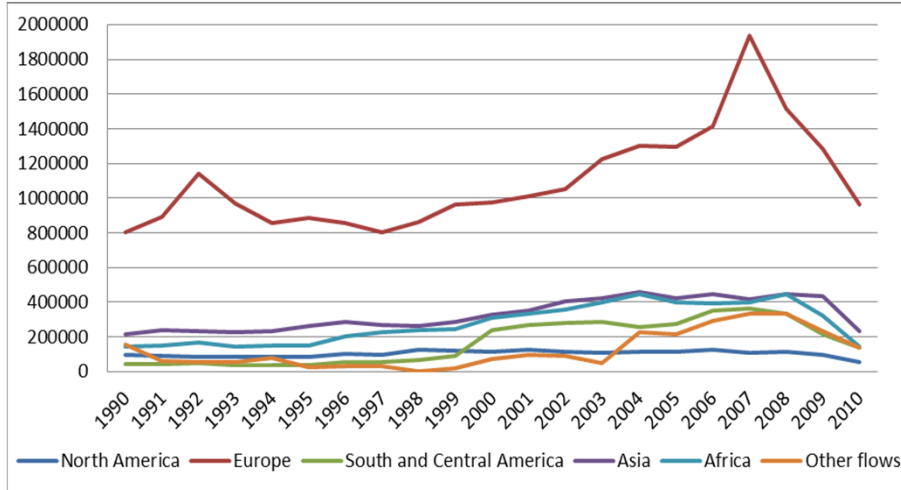
Aims

- costs and benefits of recent migration from the EaP, EU8 and EU2
- Focus on key economic variables in the EU: GDP per capita, total GDP, employment rate, capital stock, total factor productivity, capital to labour ratio, and output per worker
- Use of new international migration dataset compiled for this purpose and advanced econometric methods to evaluate the effects of immigration from the new EU members and from the EaP Countries on the receiving EU economy.

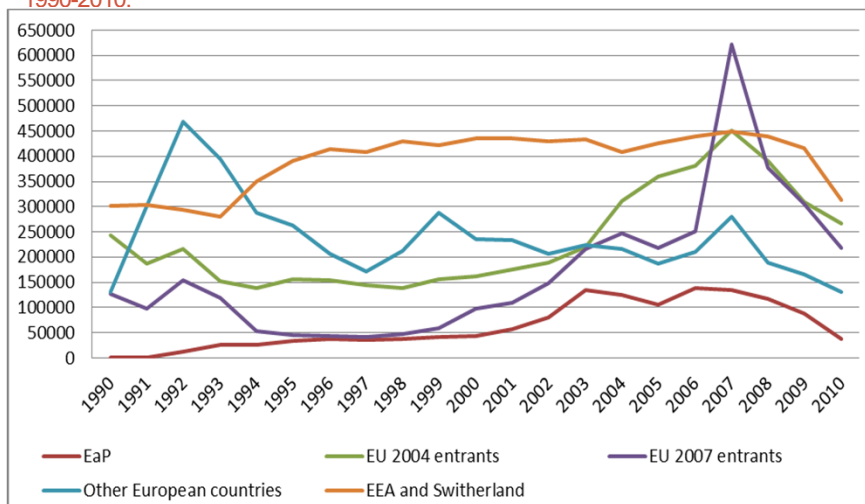
Data & models – Flows and stocks of migrants

- New dataset on immigration flows and foreign population stock into **42 OECD countries from all world countries**.
- Collected by writing to national statistical offices.
- **Period: 1980 to 2010.**
- Unbalanced panel.
- Improvement w.r.t. to other sets:
 - Both flows and stocks
 - Comprehensive in origins and time
- Besides other variables collected from OECD, Eurostat or WDI

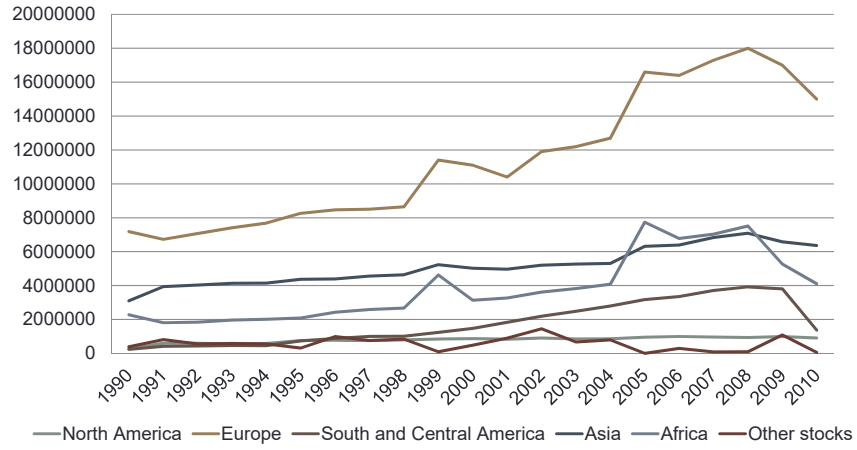
Migration flows to EU27 destination countries by regions of origin, 1990-2010



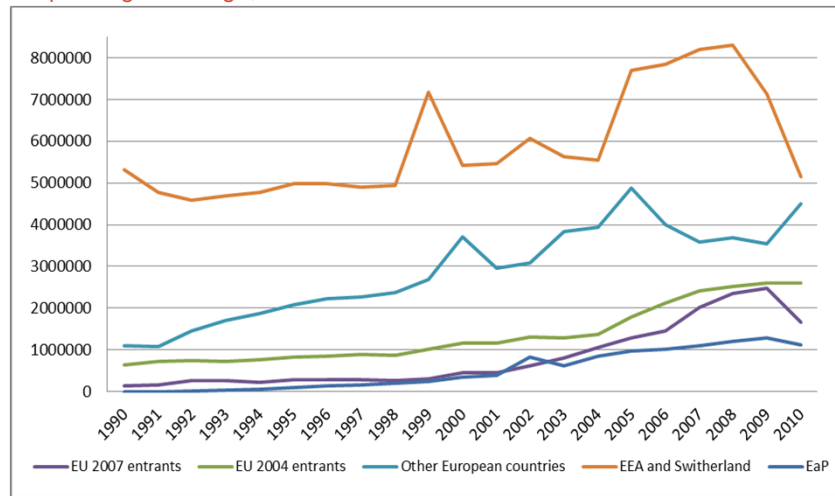
Migration flows to EU27 destination countries from Europe, by European regions of origin, 1990-2010.



Foreign population stocks living in EU27 destination countries by regions of origin, 1990-2010



Foreign population stocks living in the EU27 destination countries from Europe, by European regions of origin, 1990-2010.



Methodology

- we follow an aggregate production function framework, similarly as in Ortega and Peri (2009) and Docquier et al (2010). The starting point of our analyses is the Cobb-Douglas production function:

$$Y_{jt} = A_{jt} \cdot K_{jt}^{\alpha} \cdot L_{jt}^{1-\alpha}$$

Where Y represents the total output, K physical capital input, L labor input and A the total factor productivity. Parameter α represents the capital income share. Subscripts j and t indicate destination country and year, respectively. We use a logarithmic transformation of derivatives over time, and the linear form of equation (1) can be then written as:

$$\ln Y_{jt} = \ln A_{jt} + \alpha \ln K_{jt} + (1-\alpha) \ln L_{jt}$$

- Using equation (1) the average wage in country c , at time t can be calculated as the marginal product of labor:

$$w_{jt} = \frac{dY_{jt}}{dL_{jt}} = A_{jt} \cdot \left(\frac{K_{jt}}{L_{jt}} \right)^{\alpha} \cdot (L_{jt})^{\alpha}$$

Using the same transformation as in the case of equation (2), it follows that the percentage change in average wages depends on total factor productivity, but also on the capital-labor ratio and the labor growth rates:

$$\ln w_{jt} = \ln y_{jt} = \ln A_{jt} + \alpha(\ln k_{jt} - \ln L_{jt})$$

Where k is capital to labor ratio, and
 y GDP per worker

Methodology

- This implies estimating the following set of models:

$$\ln X_{jt} = D_t + \gamma \ln s_{jt} + \nu_j + \theta_t + \delta_r * \theta_t + \varepsilon_{jt}$$

- where X represents one of the following:
 - employment rate and labour force participation* (to account for the labor input),
 - capital services and capital to labor ratio* (to account for the capital input),
 - total factor productivity* (calculated as a Solow residual),
 - output per worker* (to account for the average wage) and
 - output per capita*.
- we account for country-specific FE and time fixed effects interacted separately with region dummies in our main specifications, in order to capture other factors determining the economic outcomes of our interest that cannot be attributed to the changes in stock of foreigners per population. The robust error term is clustered by country.
- The explanatory variable of our interest is foreign population stock from particular regions of origin relative to the total population in destination country j .

Identification

- To deal with the potential endogeneity problems mentioned above, we apply instrumental variable (IV) technique.
- For our IV we use a model of determinants of bilateral migration in the first step in order to obtain predicted stock of migrants.

$$\ln s_{ijt} = \gamma_0 + \delta_{ij} + \lambda_i * \theta_t + \varepsilon_{ijt}$$

- Such predicted stock of migrants serves as an instrument for the possibly endogenous stock of migrants in the second step regression.

Table 5: Consequences of foreign population on production factors, productivity and factors per worker in the EU15 economies

To EU15	Effects of immigration from 2004 EU entrants		Effects of immigration from 2007 EU entrants		Effects of immigration from EaP group								
	OLS	FE	2SLS	FE	OLS	FE	2SLS	FE	OLS	FE	2SLS	FE	
Dependent variable													
Log (GDP per Capita)	-0.001 (0.002)		0.03** (0.01)		-0.0021 (0.001)		0.055* (0.03)		-0.00486*** (0.00135)		-0.0130*** (0.00501)		
Log (Total GDP)	-0.00073 (0.00343)		0.0529*** (0.01657)		-0.00108 (0.00181)		0.092** (0.04367)		-0.00589*** (0.00173)		-0.0144** (0.0062)		
Log (Labour force participation)	0.0005* (0.0003)		0.0005 (0.002)		0.0005* (0.0003)		0.0009 (0.003)		0.00049* (0.00027)		-0.00134 (0.00154)		
Log (Employment rate)	-0.0004 (0.00105)		0.02*** (0.003)		-0.0002 (0.0006)		0.03*** (0.01)		-0.00061 (0.00056)		-0.00993*** (0.00348)		
Log (Capital stock)	-0.00006 (0.0002)		-0.0001 (0.0006)		-0.00007 (0.00009)		-0.0003 (0.001)		-0.00002 (0.00009)		-0.00196*** (0.00063)		
Log (Total factor productivity)	0.00004 (0.0004)		-0.004 (0.002)		0.00007 (0.0005)		-0.007 (0.006)		-0.00015 (0.00031)		-0.00247* (0.00143)		
Log (Capital to labour ratio)	0.001 (0.003)		-0.017 (0.01)		0.001 (0.0016)		-0.018 (0.02)		-0.00389** (0.00153)		0.033*** (0.01038)		
Log (Output per worker)	-0.001 (0.002)		-0.03** (0.01)		-0.0022* (0.0012)		-0.06*** (0.02)		-0.00452*** (0.00113)		0.00544 (0.00574)		
No of Observations	225		183		225		183		225		161		
F-test			7.88				11.08				11.39		

Results

- positive and significant effects of post-enlargement migration flows from the new EU member states on GDP, GDP per capita, and employment rate, rate and negative effect on output per worker in the EU15
- negative effects of migration from the Eastern Partnership countries on GDP, GDP per capita, employment rate, and capital stock in the EU15, but a positive significant effect on capital to labour ratio.
- the coefficients to income imply that 10 per cent increase in the number of immigrants coming from the 2004 and 2007 EU member countries per destinations population increases the destinations income per capita by 0.3 and 0.55 per cent, respectively. In contrast, 10 per cent increase in share of immigrants coming from the EaP lowers income per capita in the EU15 countries by 0.13 per cent.

Conclusions

- With due respect to data limitations, we interpret the results of this comparative analysis based on the past immigration to EU15 between 1995 and 2010 as indicating a generally positive effect of migration on receiving countries' economies, which is conditioned by economic integration and free labour mobility (and the prospect thereof).

Effects on Income Inequality

- Immigration can affect distribution of income
- Remember measurements: Gini coefficient, income shares (percentiles, deciles, e.g. P90/10, P90/50,..) relative earnings..
- As discussed during our lecture on income inequality, the inequality has risen since the late 1970 in majority of countries. Immigration may be one of reasons (refresher – other e.g. SBTC, falling union membership, minimum wage, greater globalization = trade, offshoring, immigration?..)
- Intuition - Inflow of low-skilled immigrants that reduce low-skilled wages would increase income inequality; inflow of high-skilled immigrants that drives down high-skilled wages would reduce income inequality.
- Empirical evidence
 - Kahanec and Zimmermann (2011) find that immigration tend to decrease income inequality in Western European countries. They show that the college-educated population share in OECD countries is positively related to the immigrant population share, and the college-educated population share, in turn, is negatively related to GINI index.
 - Research on US by Card (2009) shows that immigration has had a very little effect on wage inequality in the US cities.

OUR NEXT LECTURE – Tuesday 19.2.2019, 11.30-13.00

- Other effects of immigration– happiness, education, health, crime, ..
- *Emigration and source countries; Brain drain and brain gain; Remittances*
- *Final thoughts and a summary of economics of immigration*