Relationship Between Immigration and Host Country's Growth and Unemployment

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Overview

Introduction

- Net migration rate into OECD countries have been increasing steadily.

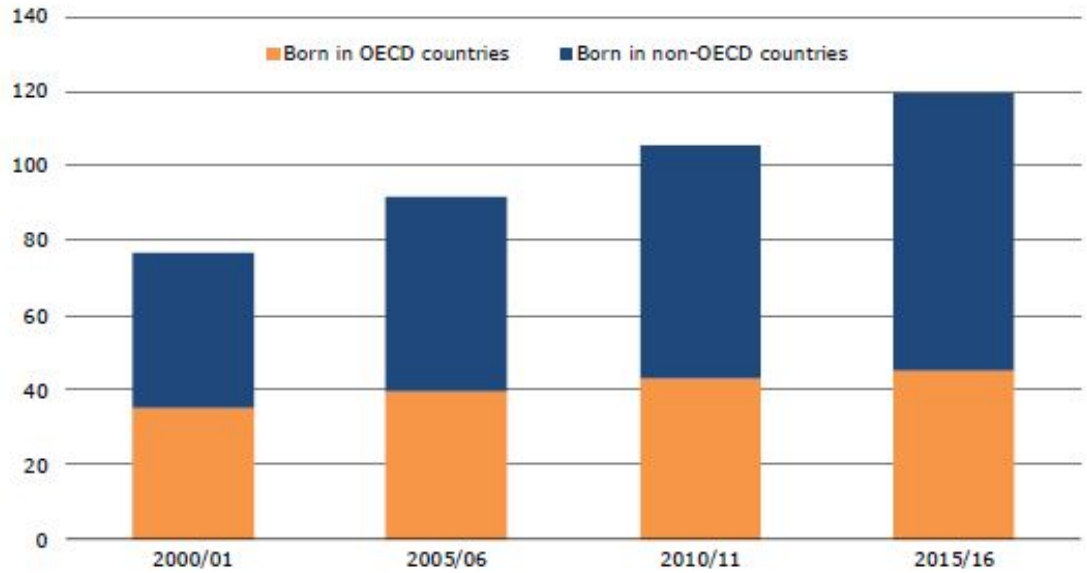

Figure 1[1]: Share of migrants (age 15+) in the OECD, by OECD country of birth vs non-OECD country of birth, 2000/01 to 2015/16 (in millions)

- Research question of interest: What is the relationship between immigration and host country's economic state?

[1]Source:OECD

Data

- Data sources for this paper for period 1991-2011 for 9 host countries:
  - i) Annual net migration rate data from OECD Population and Vital Statistics Dataset
  - ii) Annual GDP percapita from OECD Annual National Accounts
  - iii) Annual unemployment rate from OECD Annual Labor Force Statistics

- The host countries are USA, Germany, UK, Canada, France, Australia, Italy, Spain and Switzerland

Variable	Mean	Std Dev	Min	Max
GDP per capita	40476	8242.1	25865	64386
Net migration rate (%)	4.06	3.25	-0.964	14.87
Unemployment (%)	8.27	3.94	1.78	24.17

Table 1: Summary Statistics

Model Specification

- 3 variable second-order Panel VAR model with two lags as follows:

$$z_{it} = \Gamma_1 z_{it-1} + \Gamma_2 z_{it-2} + f_i + e_{it}$$

  where i represents the index for each country, z_t is a three-variable vector {log(net migration rate), log(GDP per capita) and log(unemployment rate)}, f_i is the fixed effect associated with each country
- Employ forward mean differencing/ forward orthogonal deviation to remove fixed effects from variables. This procedure known as the 'Helmert procedure' (Arellano and Bover, 1995) removes the mean of all future observations available for each firm-year
- This method allows us to use lagged regressors as instruments and estimate the system by the generalized method of moment (GMM)

Panel Unit Root Test

- Initial variables of interest are not stationary but **first-differencing yields stationary series** as shown in the table below:

Variable	Test Statistic	P-value
log(net migration)	-0.07	0.47
Δ log(net migration)	**-6.06**	**0.00**
log(GDP per capita)	0.03	0.51
Δ log(GDP per capita)	**-3.96**	**0.00**
log(unemployment)	0.33	0.63
Δ log(unemployment)	**-4.06**	**0.00**

Test statistic is based on Im, Pesaran and Shin (2003) test for unit roots in heterogeneous panels. The test's null hypothesis is the presence of a unit root.
Δ represents first difference

Table 2: Panel Unit Root Test

Main Findings (1/2)

VARIABLES	(1) Δlog(NMR) [2]	(2) Δlog(GDP) [3]	(3) Δlog(UNEMP) [4]
L.Δlog(NMR)	-0.0601	-0.000397	0.00476
	(0.134)	(0.00297)	(0.0218)
L2.Δlog(NMR)	0.0196	-0.00362	0.0225
	(0.0925)	(0.00388)	(0.0186)
L.Δlog(GDP)	-1.587	0.724***	-3.345***
	(4.013)	(0.135)	(0.753)
L2.Δlog(GDP)	1.847	0.263**	-0.0320
	(3.918)	(0.127)	(0.750)
L.Δlog(UNEMP)	-2.044**	0.0584**	0.121
	(1.032)	(0.0246)	(0.155)
L2.Δlog(UNEMP)	0.846	0.0207	-0.186*
	(0.621)	(0.0161)	(0.104)
Observations	153	153	153

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

[2] NMR: Net Migration Rate
[3] GDP: GDP percapita
[4] UNEMP: Unemployment

Impulse Response Functions (1/2)

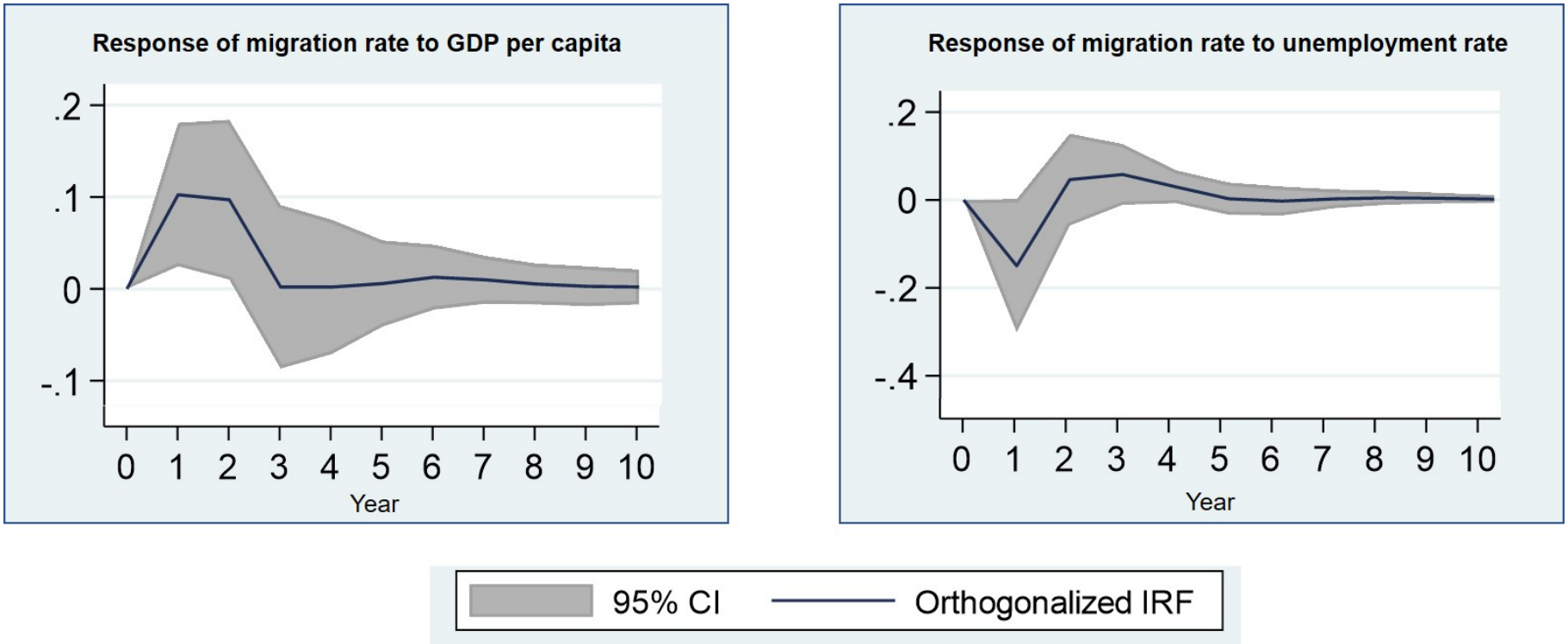

Figure 1: Impulse response functions (response of migration rate)

Impulse Response Functions (2/2)

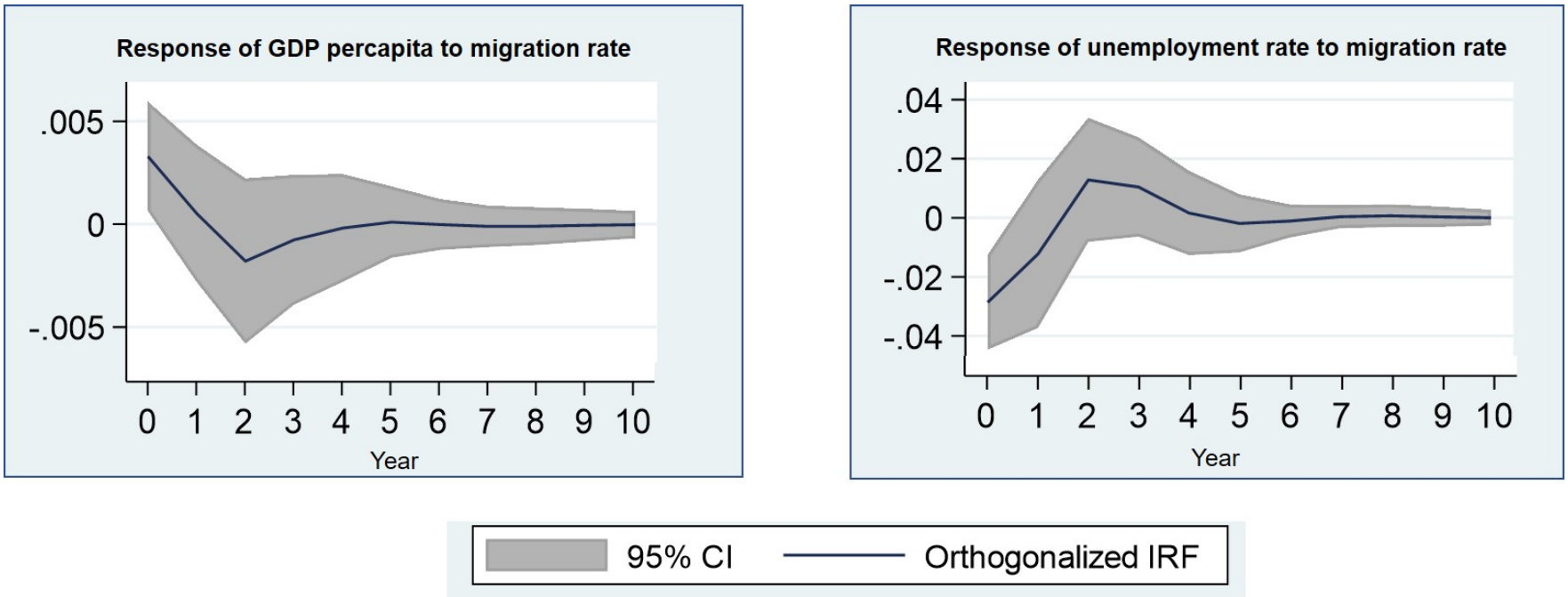

Figure 2: Impulse response functions (response of GDP percapita and unemployment rate)

Conclusion

- Migration inflow to host countries responds positively to a positive orthogonal shock in GDP per capita
- Migration inflow to host countries responds negatively to a positive shock in the unemployment rate in host countries
- Future research: Dynamics of net migration rate and economic conditions for origin countries

References

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- Boubtane, E., Coulibaly, D., Rault, C. (2013). Immigration, growth, and unemployment: Panel VAR evidence from OECD countries. Labour, 27(4), 399–420. https://doi.org/10.1111/labr.12017
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