

Gravity of Migration

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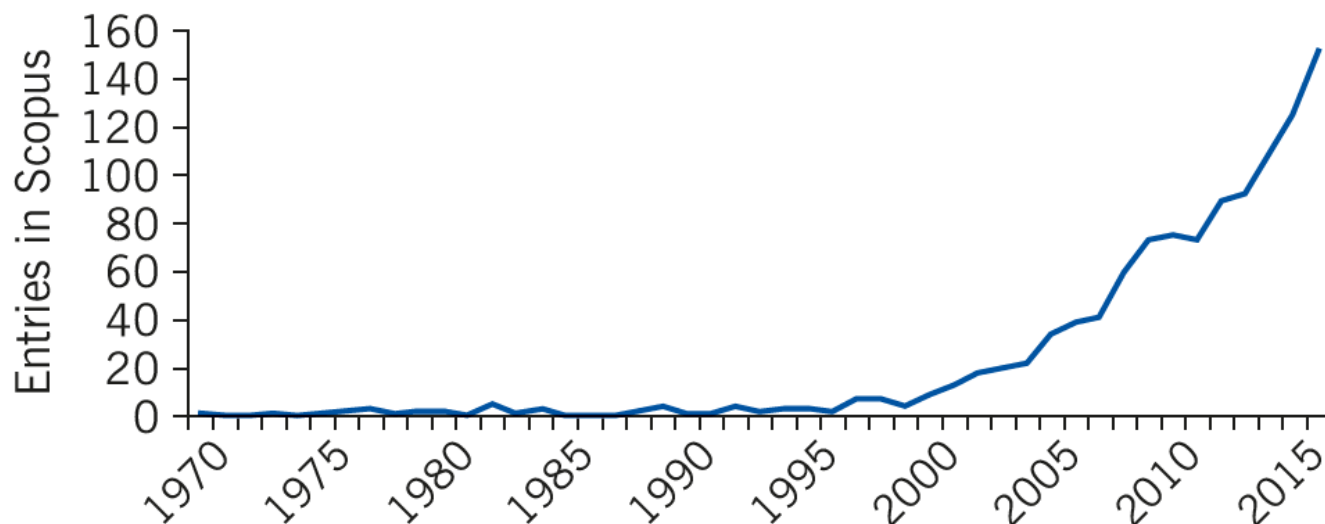
Gravity Models

- ▶ Gravity models have long been popular for analyzing economic phenomena related to the movement of goods and services, capital, or even people
- ▶ Researchers can now use gravity models to better assess the impacts of migration policy, for instance, the effects of visa restriction policies on migration flows.
- ▶ Gravity models:
 - ▶ Estimation of the normal or typical level of flows between two markets (counterfactuals)
 - ▶ At least for some uses: microeconomic foundations

Example: Poot et al. (2016): The Gravity Model of Migration: The Successful Comeback of an Ageing Superstar in Regional Science

Why Gravity?

Gravity models have become widely used by academics and policy advisors



Note: Shows the number of entries in Scopus when using the search term “gravity model” in the “economics” field.

Source: Author’s own elaboration from Scopus data. Online at: <http://www.scopus.com>. Retrieved January 8, 2016.

Gravity

- ▶ Typical form:

$$M_{ij} = G \frac{P_i^\alpha \times P_j^\beta}{D_{ij}^\gamma}$$

$$\ln M_{ij} = \delta + \alpha \ln P_i + \beta \ln P_j - \gamma \ln D_{ij} + \varepsilon_{ij}$$

- ▶ Advantages:
 - ▶ Intuitive consistency with migration theories
 - ▶ Ease of estimation in its simplest form
 - ▶ Goodness of fit in most applications

Simple Gravity

- ▶ Example: Lewer & Van der Berg (2008): A gravity model of immigration

Applications of the gravity model

Independent variables	(1) Eq. (3): Gravity model of trade	(2) Eq. (5): Gravity model of immigration	(3) Eq. (6): Testing for institutions' effect on immigration	(4) Eq. (7): Testing effect of source country education on immigration
Constant	-5.493 (-13.14)**	4.218 (13.90)**	4.054 (13.19)**	3.914 (11.78)**
$gdp_i \cdot gdp_j$	0.691 (51.00)**			
$pop_i \cdot pop_j$	0.081 (3.99)**	0.221 (14.48)**	0.222 (14.45)**	0.221 (14.51)**
$dist_{ij}$	-0.589 (-16.53)**	-0.261 (-8.79)**	-0.269 (-9.01)**	-0.245 (-8.01)**
$CONT_{ij}$	0.346 (3.59)**	-0.091 (-1.09)	-0.106 (-1.26)	-0.095 (-1.13)
$LANG_{ij}$	0.499 (5.24)**	0.275 (3.34)**	0.308 (3.71)**	0.249 (3.00)**
$BLOC_{ij}$	0.768 (13.03)**			
$LINK_{ij}$	0.474 (4.63)**	0.288 (3.21)**	0.272 (3.03)**	0.304 (3.38)**
$rely_{ij}$		0.00004 (2.31)**	0.00003 (1.82)*	0.00005 (2.48)**
$stock_{ij}$		0.401 (33.13)**	0.402 (33.22)**	0.403 (33.21)**
$rlaw_{ij}$			0.001 (1.86)*	
$property_{ij}$			0.131 (2.88)**	
$human_j$				0.002 (2.24)**
Buse R^2	0.731	0.662	0.663	0.663
Observations	2710	2710	2710	2710

Notes: Figures in parentheses are heteroskedasticity-consistent t -statistics. ** indicates significant at the 95% level and * at the 90% level. The joint hypothesis cross-section units having a common intercept is rejected ($H_0: \gamma_2 = \gamma_3 = \dots = \gamma_{16} = 0$, $F_{calc} = 8.93 > F_{crit} = 1.30$).

Examples of Interesting Uses

- ▶ Warrin & Svaton (2008): European Migration: Welfare Migration or Economic Migration?
 - ▶ Empirical assessment of bilateral migration flows into the EU-15 countries
 - ▶ As long as its effect is not offset by a high unemployment rate in the host country, the level of social protection expenditure influences migrants' choice of destination
 - ▶ The welfare state characteristics of the host country need to be reckoned with when studying European migration flows
- ▶ Bertoli et al. (2016): The European crisis and migration to Germany
 - ▶ Analyze the surge of migration to Germany after the 2010 crisis
 - ▶ The estimation of the gravity equation with monthly bilateral migration data reveals that the movements in the unemployment rate and the migration policy changes that were introduced over our sample period exert a significant influence on the size of the bilateral migration flows to Germany.
- ▶ Sekeris & Vasilakis (2016): The Mediterranean Refugees Crisis and Extreme Right Parties: Evidence from Greece
 - ▶ Test whether massive refugees flows can affect the political choices of natives in European countries.
 - ▶ Use an instrument based on a gravity model predicting the stock of refugees

References

- ▶ Bertoli et al. (2016): The European crisis and migration to Germany
- ▶ Sekeris & Vasilakis (2016): The Mediterranean Refugees Crisis and Extreme Right Parties: Evidence from Greece
- ▶ Lewer & Van der Berg (2008): A gravity model of immigration. *Economic Letters*
- ▶ Warrin & Svaton (2008): European Migration: Welfare Migration or Economic Migration? *Global Economy Journal*