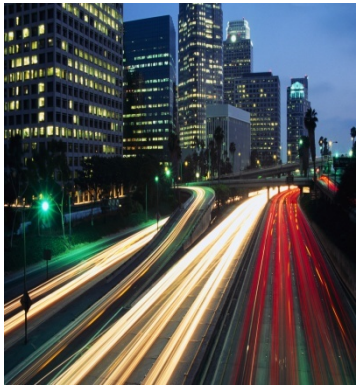
# Border effects, language barriers and trade in the EU

*Increasing Heterogeneity and its Impact.*
*Nuremberg, 2012*



*Ana Condeço-Melhorado*

*Stephan Brunow*

# Introduction and background

*Free labor mobility within the EU*

*The EU gets mixed in cultural terms*

*The impact of migration on the economy is frequently analysed (e.g. proportion of foreigners)*

*Evidence considering cultural diversity supports positive net effects on productivity and innovation*

*What is the impact of migrants and its cultural mix on trade?*

# Positive effects of migration on trade

*Knowledge of migrants about their home country secures export success (e.g. habits, taste, law).*

*The presence of foreigners reduces trade cost*

- **language barriers**
- **border effects**

*Agglomeration economies (immigration + higher exports)*

*Demand effects: immigrants ask for products of their respective countries of origin*

*Indirect effects: migrants select in different jobs/tasks and increase average productivity – competitive advantage*

# Negative effects of migration on trade

*Instead of sending products to other regions, the consumers migrate and consume in the destination country*

*Indirect effects might go through other channels (e.g. ethnic conflicts reduce productivity and this comparative disadvantage reduces trade)*

# Gravity model as a baseline specification

*The Gravity model is widely used to analyse trade flows between two regions r and k*

$$Trade_{rk} = A(\bullet)\frac{GDP_r^{\alpha} GDP_k^{\beta}}{dist_{rk}^{\gamma}}$$

*Augment function A(•) with information on migrants of region r and/or k.*

*Meta analysis by Gent et al. (2012): positive impact, 10% increase in migrants leads to an increase in trade by 1.5%*

# Data (I):

*WORLDNET database (NEA) for freight trade, tonnes, 2005, NUTS-3 regions, differentiation for transport modes and commodities (upstreaming industries)*

- **Tonnes by road,**
- **Tonnes within all modes.**

*Travel times by road between NUTS-3 regions (GIS)*

*Generalized travel costs (multimodal) between NUTS-3 regions (Trans-Tools)*

*Regional data on GDP, Population (2005) from Eurostat*

# Data (II):

*European Labour force survey (2005)*

- **Information on regional industrial mix**
- **Information on foreigners (country of birth / nationality)**

# Variables

*GDP per capita as a measure of regional income*

*Average travel time (on the road)*

*Generalized transport cost (multimodal)*

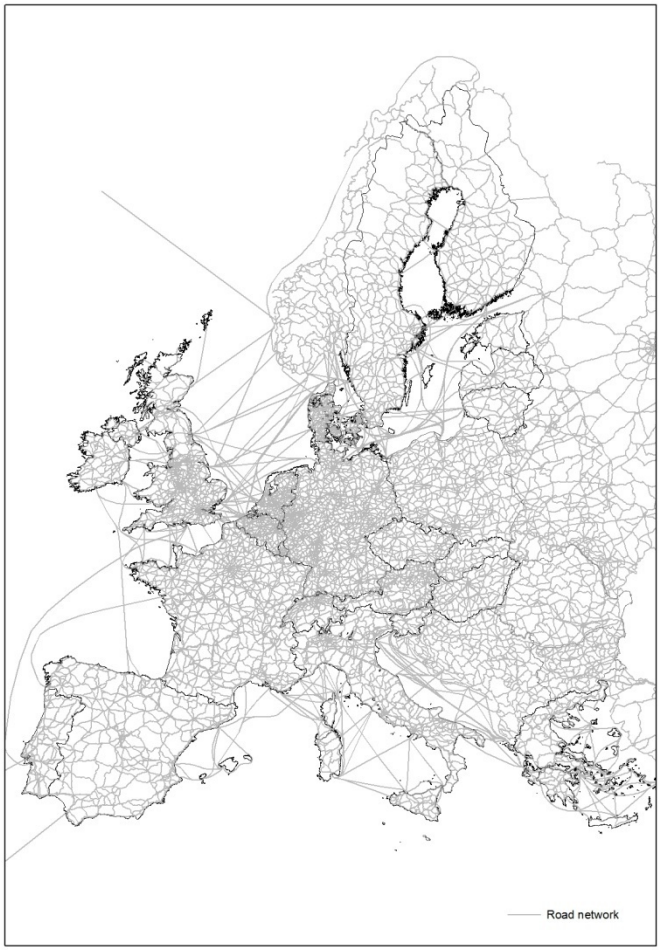
*Dummy variables for*

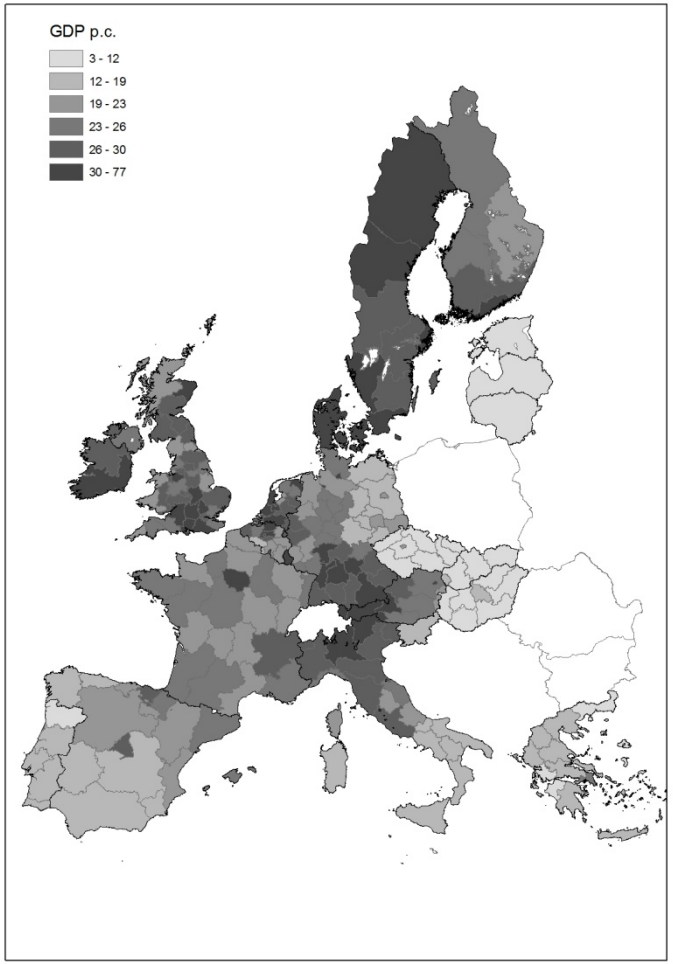
- **Intra-country trade dummy (home)**
- **Common Border dummy**
- **Existance of an international airport / maritim port**
- **Capital status**

*Employment share in industry and service sector*

*Proportion of foreigners*

*Country/region of origin/destination fixed effects*


Road network


GDP p.c.
3 - 12
12 - 19
19 - 23
23 - 26
26 - 30
30 - 77

# Estimation

*Logarithm of the Gravity equation yields the regression model*

$$Trade_{rk} = A(\bullet)\frac{GDPp.c._r^{\alpha}\, GDPp.c._k^{\beta}}{dist_{rk}^{\gamma}}$$

*Base model: all trade with country fixed effects*

*However, two regions with almost same characteristics: one is exporting (importing) and the other does not*

*Therefore 2 types of models: export / import oriented model, It takes export / import regional fixed effects into account*

*Tobit regression to account for Zero-trade*

| | Road Transport | | | Multimodal Transport | | |
|---|---|---|---|---|---|---|
| | Model1Base | Model2Exp | Model3Imp | Model4Base | Model5Exp | Model6Imp |
| | b/se | b/se | b/se | b/se | b/se | b/se |
| O.ln(GDP p.c.) | 0.802*** | | 0.881*** | 0.358*** | | 0.387*** |
| | (0.14) | | (0.13) | (0.12) | | (0.11) |
| D.ln(GDP p.c.) | 0.730*** | 0.801*** | | 0.359*** | 0.388*** | |
| | (0.14) | (0.13) | | (0.12) | (0.11) | |
| ln(time) or ln(GTC) | -3.106*** | -2.699*** | -2.674*** | -3.463*** | -3.294*** | -3.294*** |
| | (0.10) | (0.10) | (0.10) | (0.06) | (0.05) | (0.05) |
| Common Border | 1.467*** | 1.773*** | 1.779*** | 1.447*** | 1.565*** | 1.566*** |
| | (0.10) | (0.09) | (0.09) | (0.07) | (0.06) | (0.06) |
| Home Dummy | 2.202*** | 3.439*** | 3.421*** | 2.560*** | 3.090*** | 3.092*** |
| | (0.31) | (0.25) | (0.25) | (0.22) | (0.17) | (0.17) |
| O.ln(share empl. in ind~) | 5.600*** | | 5.642*** | 1.961*** | | 1.970*** |
| | (0.25) | | (0.23) | (0.18) | | (0.16) |
| O.ln(share empl. in ser~) | 2.316*** | | 2.188*** | -3.383*** | | -3.415*** |
| | (0.59) | | (0.54) | (0.44) | | (0.40) |
| D.ln(share empl. in ind~) | 4.914*** | 4.991*** | | 1.961*** | 1.970*** | |
| | (0.24) | (0.22) | | (0.18) | (0.16) | |
| D.ln(share empl. in ser~) | 0.343 | 0.286 | | -3.384*** | -3.416*** | |
| | (0.55) | (0.50) | | (0.44) | (0.40) | |
| O.ln(share foreigners) | 0.240*** | | 0.289*** | 0.107** | | 0.127*** |
| | (0.06) | | (0.06) | (0.05) | | (0.04) |
| D.ln(share foreigners) | 0.229*** | 0.277*** | | 0.107** | 0.127*** | |
| | (0.06) | (0.06) | | (0.05) | (0.04) | |
| Region FE | no | origin | destinat. | no | origin | destinat. |
| Country FE | origin/dest. | destinat. | origin | origin/dest. | destinat. | origin |
| Pseudo R2 | 0.217 | 0.257 | 0.259 | 0.165 | 0.208 | 0.208 |
| No. obs | 25281 | 25281 | 25281 | 25281 | 25281 | 25281 |
| No. uncensored obs. | 17147 | 17147 | 17147 | 20741 | 20741 | 20741 |

s.e. in (); * p<0.1; ** p<0.05; *** p<0.01

# Conclusion and future questions

*Results of the Gravity equation offer the expected signs*

*From an export point of view: having foreigners in destination region increases trade*

*From an import point of view: having foreigners in origin region is relevant for trade*

*Higher influence of foreigners in trade by road (possible effect of different commodities?)*

*In future with German employment data:*

- **Which occupations are relevant for trade? (Lawyers, marketing experts, production line workers, etc.)**
- **Which nationalities!**


# Thank you for your attention!