

Influence of a common official language on trade

What is the effect of a common official language on the trade between countries?

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1. Introduction

According to Egger and Lassmann (2012), a common official or spoken language increases trade flow on average by 44%. Their meta-analysis shows differences in the average influence that a common language has on trade, attributed to the varying interpretation of common languages across countries and country-pairs (Egger & Lassmann, 2012; Melitz & Toubal, 2014).

While the positive relation between a shared language and international trade is well defined, the exact magnitude remains unclear. This paper aims to quantify the impact of a common official language on trade flow between countries. Here a common language is strictly defined as a shared official language, excluding spoken languages. This leads to the following research question: *the effect of a common official language on the trade between countries?* Answering this question provides better insights in international trade patterns.

2. Methodology

A commonly used spatial interaction model is the gravity model, which predicts the trade between countries based on population size and distance. The model assumes that trade volume is directly proportional to the population or economic size of the trading countries, and inversely proportional to the spatial distance between countries. (Giuliano, 2001; Wheeler, 2005).

This paper extends the gravity model by including a dummy variable for a shared official language, in which case the model can be expressed by:

$$\ln T_{ie} = \beta_0 + \beta_1 \ln Y_i + \beta_2 \ln Y_e + \beta_3 \ln d_{ie} + \beta_4 \text{comlang_off}$$

Equation 1. Extended gravity model

Where T_{ie} expresses the trade volume between the importing country i and exporting country e ; Y denotes the GDP per capita for these countries, d denotes the distance between these countries, and the additional *comlang_off* is the dummy variable equal to 1 if the countries share an official language.

Using natural logarithms allow the coefficients to be interpreted as elasticities, while

the coefficient of the dummy variable represents a percentage change.

3. Dataset

The dataset, *trade_data*, with 45 variables and more than 205 000 observations on international trade flow between countries. Table 1 provides a summary of the key variables used in the estimation.

Table 1. Included variables in the model

Variable	Description
lnExports	Log of Trade between countries
lnGDPcap_e	Log of GDP per capita of the exporting country
lnGDPcap_i	Log of GDP per capita of the importing country
Indist	Log of distance between countries
comlang_off	Common official language

Equation 1. Ordinary gravity model

4. Results

Table 2 summarizes the estimation of the extended gravity model.

	lnExports
Constant	-48.532*** (0.357)
ln GDP per capita export	0.950*** (0.006)
ln GDP per capita import	0.665*** (0.006)
ln distance	-1.069*** (0.009)
Common Official Language	0.610*** (0.024)
RMSE	3.46
R ² Adjusted	0.245
N	164481

*** p < 0.001

Table 2. Results of the estimation

The significant coefficient for distance aligns with the gravity models' assumptions, indicating that greater distance reduces trade volume. By using natural logarithms for distance, export and GDP per capita, the coefficients can be interpreted as elasticities, showing the percentage

change in export for a 1% change in these variables. The positive and significant coefficient for the dummy variable representing shared official languages supports the hypothesis that a common official language is associated with higher trade volumes. Since the dummy variable is binary and not logged, it is interpreted differently: If two trading countries share a common official language, their trade is estimated to be 61% higher than that of countries without a common official language.

Figure 1 visualizes the effect by examining Spain (ESP), plotting trade volume ($\ln Exports$) against GDP per capita ($\ln GDPcap_i$). Two separate linear models were fitted for each group, with the regression lines reflecting the relationship between the trade volume and the GDP per capita of the importing country. The slope/coefficient for the common language cluster is greater, suggesting that, all else equal, countries with a common official language experience a greater increase in trade volume for each increase in GDP per capita of their trading partners.

5. Conclusion

This study confirms that a common official language significantly enhances trade volumes between countries. The extended gravity model shows that countries with a shared official language trade approximately 61% more than those without.

6. Discussion

Our results align with previous findings, suggesting that a shared language reduces communication barriers and fosters trade. Future research could further explore the effects of linguistic similarities for a more comprehensive understanding of trade dynamics.

7. References

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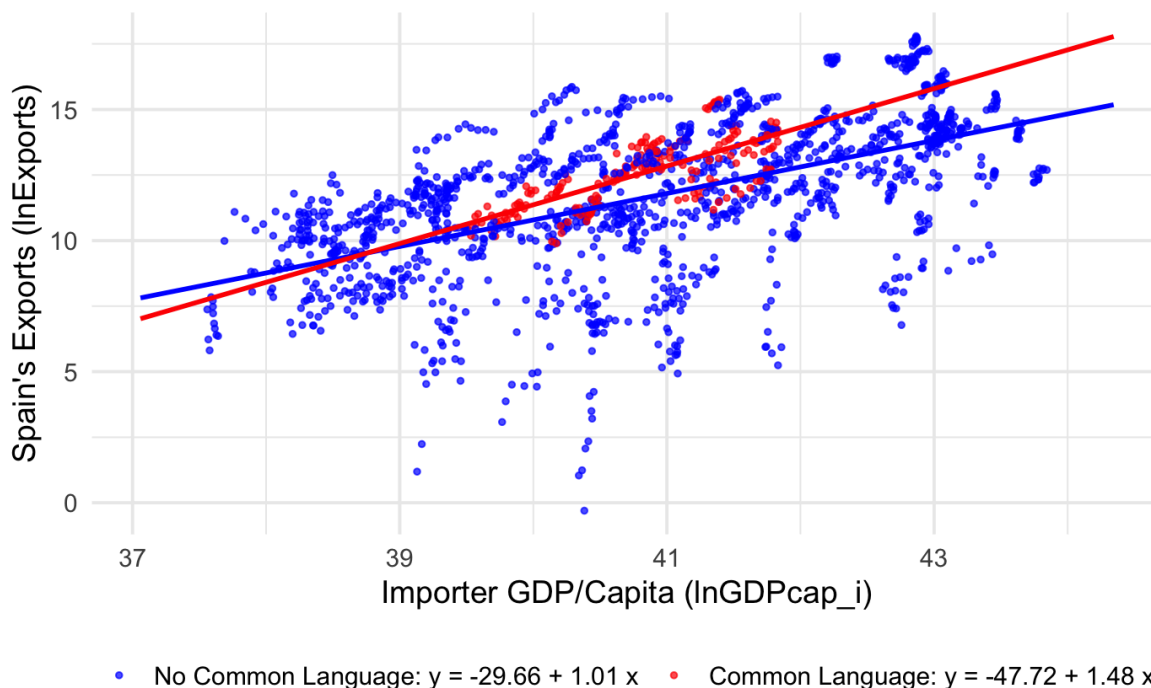


Figure 1. Trade Influence by Common Official Language