Exploring European Regional Trade
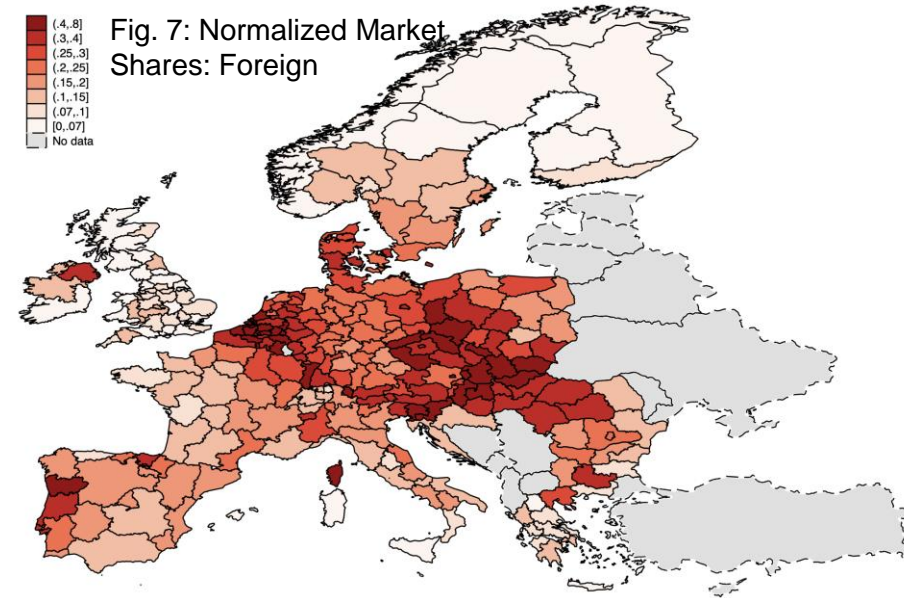
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Discussant's comments
Jeffrey Frankel, Harvard University & NBER

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Exploring European Regional Trade

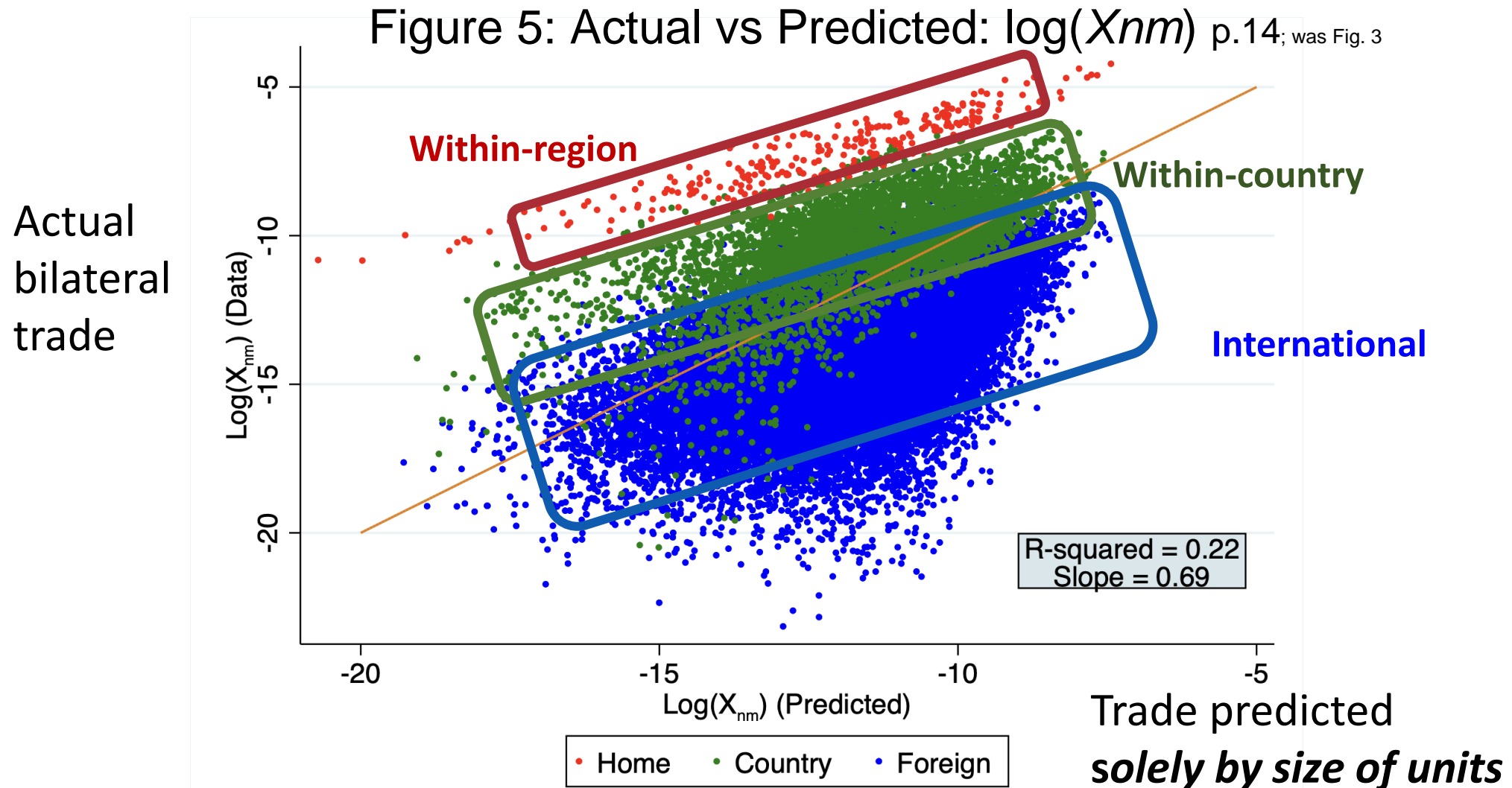Fig. 7: Normalized Market Shares: Foreign

- Analysis of intra-European trade:
  - between countries ("border effect"),
  - between regions within a country (sub-national "regional effect"),
  - Within sub-national regions ("home effect").

- Santamaria, Ventura & Yesilbayraktar is a SaVvY paper.

- Very thorough.

- Please explain in the first paragraph what you mean by "region":
  - = a sub-national unit, like a province. E.g., Catalonia.
  - Otherwise, a region could be supra-national. E.g., Scandinavia.
  - In Google Scholar, "regional trading" has the latter interpretation.

The dataset is exciting:
Detailed trade flows across European regions, by industry,

- from European Road Freight Transport survey.

- Goods trade among 269 regions, 24 European countries (2011-17).

- A nice application of the gravity model.
  - Valuable to have such granular data for sub-national units.
  - One theme: trade at level of sub-national regions differs from national level.
  - But I notice some respects in which it looks similar. "Home bias" is sort of fractal.

- Data limitations:
  - Trade only within Europe.
    - The European focus is fine.
    - But, e.g., European "remoteness" (Fig.12, p.23) differs from true "international remoteness."
  - Only trucking data. No train, ship, or air transport.
    - Must make a big difference, in particular, for islands.
    - In fact, how are Mediterranean islands counted at all?

Size of pair of units explains some of bilateral trade, but the geographical level appears more important.

Figure 5: Actual vs Predicted: log(Xnm) p.14; was Fig. 3

Within-region

Within-country

Actual bilateral trade

International

R-squared = 0.22
Slope = 0.69

Log(X_{nm}) (Data)
Log(X_{nm}) (Predicted)

Trade predicted *solely by size of units*
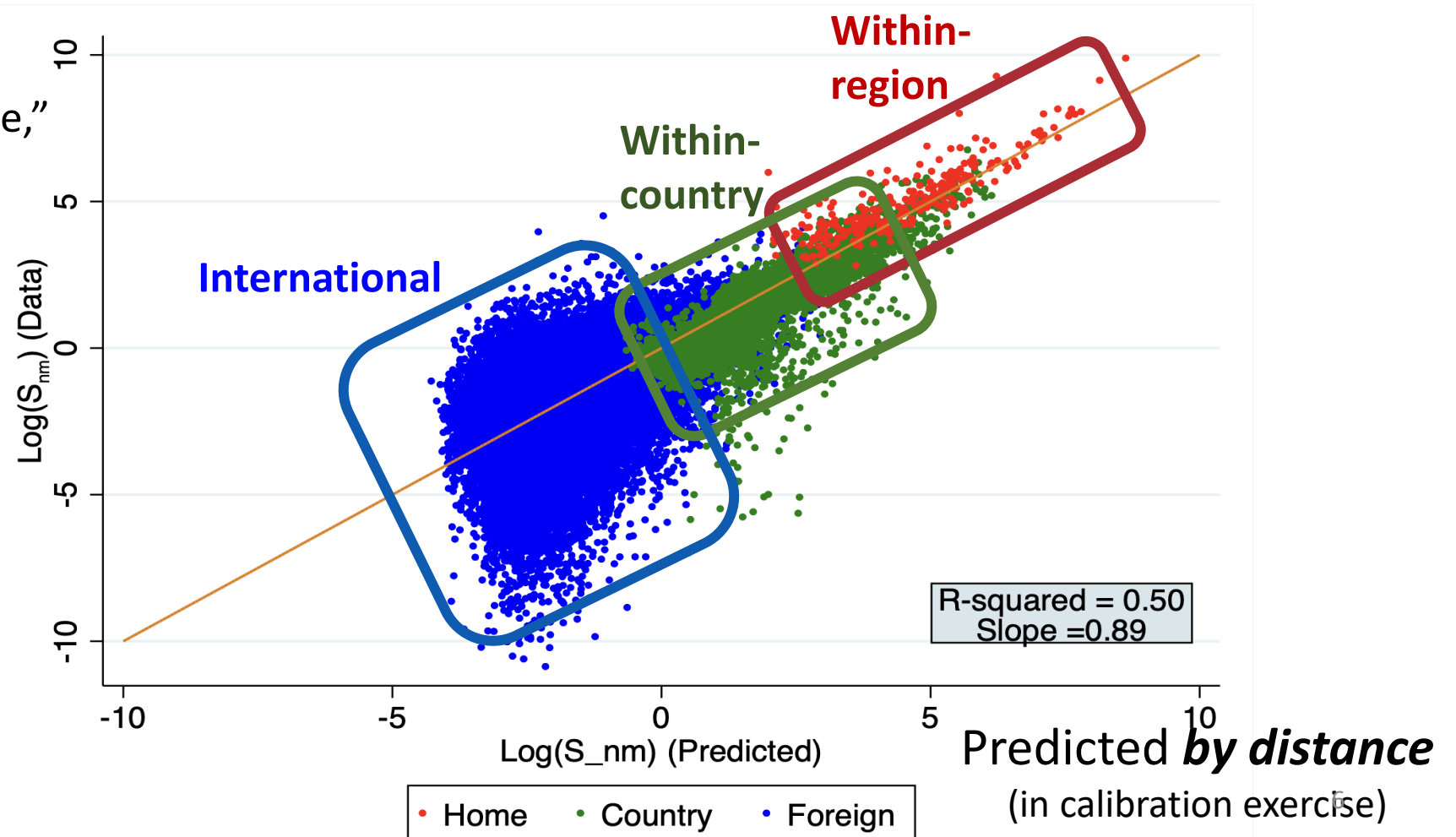
• Home   • Country   • Foreign

Essential gravity control: bilateral distance

- Distance actually traveled is indeed better than straight-line distance,
  - though a few gravity studies have measured shipping distance.

- SVY: Estimated effect of (log) bilateral distance on (log) trade ≈ 1.
  - Many other gravity studies have found the same.
  - One is tempted to declare a universal law: increasing bilateral distance by 10% reduces bilateral trade by 10%.
  - It's a contribution to show that it works even on small regional distances.

- SVY: The distance coefficient seems robust.
  - It does not correlate strongly with size of the country, number of regions, type of government, or structure at the country level.
  - Results aren't much affected if specification allows non-linearity in distance (Table 1, p.28).
  - I.e., the effect going from 10 miles to 11 ≈ going from 1,000 to 1,100 ?

After normalizing by size, distance explains much of home bias.

Figure 15: Normalized Market Shares: Data vs Predicted, p.26

Actual "Normalized Market Share," aka *Trade Intensity* or *Concentration ratio.*

Predicted *by distance* (in calibration exercise)

Other controls in gravity equation are also of interest.

- Most show the expected significant coefficient:
  - Common-language dummy .76.
  - Common-EU 1.8 (> FTA 1.3 > 0.5 in Head & Mayer, 2014)
  - & Common-Schengen 1.2.

- But common-currency dummy insignificant
  through most of paper (6/10 draft),
  - contrary to Rose (2000) and many who followed.
  - I had wondered if it might be because the only common currency = €.
    - € is known to have a much smaller trade effect than other currency unions.
  - But CU dummy finally shows significance in an unexpected place: Table 7.
    - Common currency here has significant effect on *both* trade & social interactions.
    - Why only in Table 7 (p.59)?

The standard global gravity model uses some other controls that are not here.

- Some are less relevant for exclusively European trucking data:
  - landlockedness,
  - length of coastline,
  - colonial relationships.

- But at least one robustly trade-promoting variable in the gravity literature might also apply to these European data:
  - Contiguity or adjacency or "common border".
  - Berlin-Amsterdam trade > Berlin-Malmo?

Major conclusion.

- Beyond the well-known home bias at the national level, there is also a strong "home bias" at the regional (sub-national) level. (E.g., Table 3, 6/10 draft.)

- It controls for some newish & significant determinants of regional trade.
  - Positive influences on regional home bias: geographic isolation --
    - Island region, mountain region, European remoteness.

  - Negative effects on regional home bias: cosmopolitanism --
    - Motorway density, manufacturing share of employment,
    - Public employment share; migrant share.
      - tho they disappear under fixed effects.

- A motivating finding:
  apparent sub-national home bias findings are genuine
  - and not attributable to aggregation of data into larger geographic units
  - as in Coughlin & Novy (2021); Hillberry & Hummels (2008).
- SVY use the difference between political boundaries and the boundaries in their statistical data set (which separate regions more arbitrarily) to get at the geographical aggregation problem.
- Conclusion:
  "These results suggest that effects of political borders exist within countries and are not caused by the statistical aggregation."

"Governments play an important role in driving the border effects within countries."

- Interesting, but not surprising.
- Many countries have trade barriers between their provinces or states.
  - E.g., Canada (beer).
  - China.
    - In 2022, a new "national unified market"
    - as half of "dual circulation".
  - In theory, the US does not have barriers between states,
    - thanks to the Interstate Commerce Clause of the Constitution.

Extensive vs. intensive margin of trade

- A theme highlighted throughout, "how different is home trade [*within* the region] vs. domestic and especially foreign trade" (p.57).
- The extensive margin of trade,
  - here represented by the # of industries a region trades with itself and
  - the number of shipments that are made by each industry,
  - explains almost half the variation of home trade that we see across regions (45.6%)
- By contrast, "the intensive margin explains most of the variation in flows between regions."
  - Might that be explained if economies of scale in the size of each shipment are more important when selling at longer distances?
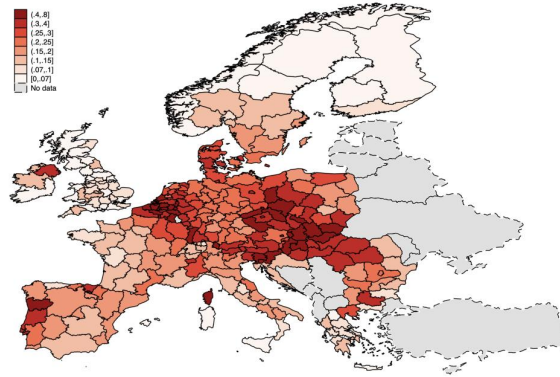 - You wouldn't use containerized cargo to ship a few miles.

Early literature on bias toward intra-national trade

- Wei (1996): average OECD country imports ≈ 2 ½ times as much from itself as from an otherwise identical foreign country.
- Nitsch (2000): average EU country trades ≈ 10 times as much intranational as internationally with an EU partner country of similar size & distance.
- The original case with data on intra-provincial trade was Canada.
  - SVY have McCallum(1995) "National borders matter: Canada-US regional trade patterns," *AER.*
  - But another is Helliwell (1995, 1997, 2000).
- The original motivation for McCallum-Helliwell was the case of Quebec.
  - Partisans of independence argued that Quebec could prosper by trading with the US.
  - The gravity estimates showed Quebec far more dependent on intra-Canadian trade than on trade with the US.
    - By a factor of 20, before Canadian-US FTA.
    - Factor of 3-5 subsequently.

References also relevant, but missing

- Engel & Rogers (1996), "How Wide is the Border?" *AER.*
  - Parsley & Wei (2001), *JIE* . Cavallo, Neiman & Rigobon (2014), *QJE.*

- Rose (2000), "One Money, One Market: Estimating the Effect of Common Currencies on Trade," *EP;*
  - and the many associated CU-motivated papers that followed.
- True, the Rose data set is mostly sovereign countries; but it also includes some sub-national units.
- Effect of "Political union" dummy on bilateral trade in Rose research:
  - coefficient estimated at 1.3; Or 1.1 in 2002 paper;
  - controlling for common language, currency, & many other gravity variables
  - => French overseas departments Martinique & Guadeloupe trade 3.0 times [=exp(1.1)] as much with mainland France as do sovereign former colonies Dominica & Saint Lucia.
  - ≈ 1.2 "Effect of international border" in S-V-Y, Table 1**,** when controlling for language.
  - SVY have far better data to get at this. But interesting that answer looks similar.

Appendix 1:
Distance explains much of home bias, but not all.

Figure 7: Normalized Market Shares: Data vs Predicted, p.17

Actual "Normalized Market Share," aka *Trade Intensity*

Appendix 2: "Governments play an important role in driving the border effects within countries."

- Possible welfare implications for policy?
- In a Krugman (1980, 1991) type trade model, nearby units constitute Natural Trading Areas:
  - => The priority for removing trade barriers should be among neighbors.
  - Intuitively, trade-creation will dominate trade-diversion.
  - Up to a point.

- But the "New trade theory" of monopolistic competition has been overtaken by the "New new trade theory" of heterogeneous firms.
  - Head & Mayer (2014), "Gravity Equations: Workhorse, Toolkit, & Cookbook."