Love for Quality, Comparative Advantage, and Trade

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Motivation

- Evidence on import and export specialization:
  - imports quality and importer’s GDP positively correlated
    [e.g., Hallak (JIE2006), Fieler (2011)]
  - exporters raise production quality to serve richer importers
    [e.g., Verhoogen (QJE2008), Crino-Epifani (EJ2012)]
  - **Fact**: quality of traded goods rises over the path of development
Motivation

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    exporters raise production quality to serve richer importers
    
    \[ e.g., \text{Verhoogen (QJE2008), Crino-Epifani (EJ2012)} \]
  
  - **Fact:** quality of traded goods rises over the path of development

- **Ricardian models:** fixed comparative advantage as economies evolve
  - France has comparative advantage in wine, UK in whisky
  - they exchange those two goods... regardless of their income levels

- **Hypothesis:** productivity differentials rise with quality sophistication
As countries get wealthier:

- higher qualities are traded in the international markets
- cross-country cost differentials magnify with quality sophistication
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In this context, import and export specialization take place together:

- **Importers**: shift their spending... towards the ever more productive suppliers... of higher-quality goods
- **Exporters**: expand those sectors... offering greater comparative advantage... in producing higher-quality goods
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We get testable predictions on specific bilateral trade specialization... emerging and intensifying over the path of development
Key assumptions

1. Continuum of horizontally and vertically differentiated goods

   - horizontal dimension: types of goods (cars, TVs, bananas...)
   - vertical dimension: quality degrees of each good
     - cathode ray tube vs LED TV
     - standard vs organic bananas

Nonhomothetic preferences: love for quality

- everyone likes quality... but willingness to pay for it rises with income
- richer agents buy higher qualities of all differentiated goods
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2. Nonhomothetic preferences: love for quality
   - everyone likes quality... but willingness to pay for it rises with income
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3. Cross-country cost differentials stronger for higher qualities
Set of commodities produced by a given country
Preview of theoretical results

- Trade and specialization evolve over the path of development
  - comparative advantage may remain latent at early stages...
  - ... and gradually reveal themselves as economies evolve
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Quality upgrading in consumption leads to larger trade flows
- local producers leave room for more efficient foreign producers
- analogous processes take place in foreign markets
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  - analogous processes take place in foreign markets

- Rising export and import specialization over the growth path
Related literature

- Nonhomothetic preferences in international trade
  - on the vertical dimension: e.g., Flam-Helpman (AER1987)
    Stokey (REStud1991), Murphy-Shleifer (JDE1997)
  - on the horizontal dimension: e.g., Markusen (AER1986)
    Bergstrand (EJ1990), Matsuyama (JPE2000)

- Income-dependent willingness to pay for quality
  - Fajgelbaum-Grossman-Helpman (JPE2011): trade costs, IRS
  - Jaimovich-Merella (JEEA2012): fixed Ricardian comparative advantage

- Alcala (2011): cross-country cost differentials rising with quality; *homothetic preferences*

- Fieeler (ECM2011): nonhomothetic preferences; *across goods*
  heterogenous Ricardian technological disparities
The model: commodity space

- Commodity space defined along three dimensions:
  - Horizontal: goods space $Z = [0, 1]$
  - Varietal: country space $V = [0, 1]$
  - Vertical: quality space $Q = [1, \infty)$

Each commodity designated by a good-country-quality triple: $(z, v, q)$.
The model: commodity space

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  - **horizontal**: goods space $Z = [0, 1]$
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  - **vertical**: quality space \( Q = [1, \infty) \)

- Each commodity designated by a good-country-quality triple:
  \[
  (z, v, q) \in Z \times V \times Q
  \]
  - \( Z \): wine (whisky, cars, TVs, bananas...)
  - \( V \): Spanish, French, Californian wines (different grapes, vinification...)
  - \( Q \): ageing, grape selection...
Production: a symmetric world economy

- A continuum of firms may produce each commodity \((z, \nu, q)\)

- Unit labour requirement: \(e^{-\eta_{z,\nu}} q^{\eta_{z,\nu}} / (1 + \kappa)\)
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  - \(\kappa > 0\): total factor productivity (identical worldwide)
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  - each \(\eta_{z,v}\) independently drawn from a uniform \([\underline{\eta}, \overline{\eta}]\), with \(\underline{\eta} > 1\)
  
  - \(\kappa > 0\): total factor productivity (identical worldwide)

- In equilibrium, price of commodity \((z, v, q)\) given by

\[
p_{z,v,q} = e^{-\eta_{z,v}} q^{\eta_{z,v}} \frac{w_v}{1 + \kappa}
\]

  - \(w_v > 0\): wage in country \(v\)
Indians in country $i$ consume *only one* quality $q_{z,v}^i$ of each $(z,v)$.
Preferences and budget constraint

- Individuals in country $i$ consume *only one* quality $q_{z,v}^i$ of each $(z,v)$.

- They seek to maximize:

  \[ U^i = \int_{Z} \int_{V} \ln C_{z,v}^i \ dv \ dz \]

  with

  \[ C_{z,v}^i = \begin{cases} 
  c_{z,v}^i & \text{if } c_{z,v}^i < 1 \\
  (c_{z,v}^i)^{q_{z,v}^i} & \text{if } c_{z,v}^i \geq 1 
  \end{cases} \]

- Subject to:

  \[ \int_{Z} \int_{V} p_{z,v}^i c_{z,v}^i \ dv \ dz \leq w_i \]

- $c_{z,v}^i \geq 0$: consumed quantity of commodity $q_{z,v}^i$.
- $p_{z,v}^i \geq 0$: price of commodity $q_{z,v}^i$.
- $w_i \geq 0$: income in country $i$. 
In this symmetric world, all relative wages always equal one:

\[ w_i = w_v = w, \quad \forall i, v \in V \]
In this symmetric world, all relative wages always equal one:

\[ w_i = w_v = w, \quad \forall i, v \in \mathbb{V} \]

Quality rises over the growth path (increases with \( \kappa \)):

\[ q_{z,v}^{i} = q_{z,v} = \left( \frac{1 + \kappa}{Q} \right)^{1/(\eta_{z,v} - 1)}, \quad \forall i \in \mathbb{V} \quad \text{and} \quad \forall (z, v) \in \mathbb{Z} \times \mathbb{V} \]

\[ Q \equiv \int_{\mathbb{Z}} \int_{\mathbb{V}} q_{z,v} \, dv \, dz: \text{average quality of consumption} \]
Expenditure shares as a natural measure of *import intensity*:

\[
\beta^i_{z,v} = \frac{p^i_{z,v} c^i_{z,v}}{w_i} = \frac{p_{z,v} c_{z,v}}{w} = \beta_{z,v}
\]
Imports and exports intensities

- Expenditure shares as a natural measure of *import intensity*:

\[ \beta_{z,v}^i \equiv \frac{p_{z,v}^i c_{z,v}^i}{w_i} = \frac{p_{z,v} c_{z,v}}{w} = \beta_{z,v} \]

- In our symmetric world economy, expenditure shares coincide with the *revealed comparative advantage* (RCA):

\[ \text{RCA}_{z,v} \equiv \frac{X_{z,v}}{W_{z}} = \beta_{z,v} \]

\[ X_{z,v} \equiv \int_{V} \beta_{z,v}^i \, di = \beta_{z,v} : \text{value of exports of good } z \text{ by country } v \]

\[ X_v \equiv \int_{Z} X_{z,v} \, dz = 1: \text{aggregate value of exports by country } v \]

\[ W_z \equiv \int_{V} X_{z,v} \, dv = 1: \text{total value of exports of good } z \text{ by the world} \]

\[ W \equiv \int_{Z} W_z \, dz = 1: \text{aggregate value of exports by the world} \]
Trade and specialization along the growth path

For any pair \((z', v'), (z'', v'')\) \(\in Z \times V\), with \(\eta_{z', v'} < \eta_{z'', v''}\):

- i.
  - \(b_{z', v'} > b_{z'', v''}\): larger shares to sectors with better productivity draws

- ii.
  - \(\partial b_{z', v'}/\partial k > \partial b_{z'', v''}/\partial k\): concentration intensifies as TFP rises

From an exporter’s perspective:

- \(v_0 = v_0\): countries export more from sectors with stronger RCA
- \(z_0 = z_0\): stronger RCA in sectors with better productivity draws

From an importer’s perspective:

- \(z_0 = z_0\): higher shares allocated to varieties produced by countries with better productivity draws
Trade and specialization along the growth path

- For any pair \((z', v'), (z'', v'')\) \(\in \mathbb{Z} \times \mathbb{V}\), with \(\eta_{z', v'} < \eta_{z'', v''}\):
  
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Vincenzo Merella (University of Cagliari)
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i. \(\beta_{z', v'} > \beta_{z'', v''}\): larger shares to sectors with better productivity draws

ii. \(\partial \beta_{z', v'}/\partial \kappa > \partial \beta_{z'', v''}/\partial \kappa\): concentration intensifies as TFP rises
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From an exporter’s perspective:

- fixing \(v'' = v'\): countries export more from sectors with stronger RCA
- fixing \(z'' = z'\): stronger RCA in sectors with better productivity draws
Trade and specialization along the growth path

- For any pair \((z', v'), (z'', v'') \in \mathbb{Z} \times \mathbb{V}\), with \(\eta_{z',v'} < \eta_{z'',v''}\):
  
  i. \(\beta_{z',v'} > \beta_{z'',v''}\): larger shares to sectors with better productivity draws
  
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World economy with cross-country inequality

- A two-region world economy: $\mathcal{H}$ and $\mathcal{L}$
- Different random generating processes for $\{\eta_{z,v}\}_{z \in \mathbb{Z}}$:
A two-region world economy: $\mathcal{H}$ and $\mathcal{L}$

Different random generating processes for $\{\eta_{z,v}\}_{z \in \mathbb{Z}}$:

- for any $v \in \mathcal{H}$, each $\eta_{z,v}$ independently drawn from $U(\eta, \bar{\eta})$ as before
A two-region world economy: $\mathcal{H}$ and $\mathcal{L}$

Different random generating processes for $\{\eta_{z,v}\}_{z \in \mathbb{Z}}$:

- for any $v \in \mathcal{H}$, each $\eta_{z,v}$ independently drawn from $U\left(\eta, \bar{\eta}\right)$ as before
- for any $v \in \mathcal{L}$, $\eta_{z,l} = \bar{\eta}$ for all $z \in \mathbb{Z}$. 
A two-region world economy: $\mathcal{H}$ and $\mathcal{L}$

Different random generating processes for $\{\eta_{z,\nu}\}_{z \in \mathbb{Z}}$:

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Extended to $K > 2$ regions, where $\forall \eta_k \in \left[\underline{\eta}, \overline{\eta}\right]$ for each $k \in \mathcal{K}$:

- $\eta_{z,\nu_k} = \eta_k$ with probability $\left(\eta_k - \underline{\eta}\right) / \left(\overline{\eta} - \underline{\eta}\right)$
A two-region world economy: $\mathcal{H}$ and $\mathcal{L}$

Different random generating processes for $\{\eta_{z,\nu}\}_{z \in \mathbb{Z}}$:

- for any $\nu \in \mathcal{H}$, each $\eta_{z,\nu}$ independently drawn from $U \left( \bar{\eta}, \eta \right)$ as before
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Extended to $K > 2$ regions, where $\forall \eta_k \in \left[ \underline{\eta}, \bar{\eta} \right]$ for each $k \in K$:

- $\eta_{z,\nu_k} = \eta_k$ with probability $\left( \eta_k - \underline{\eta} \right) / \left( \bar{\eta} - \underline{\eta} \right)$
- $\eta_{z,\nu_k}$ independently drawn from $U \left( \eta_k, \bar{\eta} \right)$ otherwise
Absolute advantage for regions with wider distribution domains:

- relative wages higher in countries from those regions
- a wedge arises between sectoral absolute and comparative advantage
- RCAs do not coincide with expenditure shares
What inequality changes along the growth path

- Absolute advantage for regions with wider distribution domains:
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- From an exporter’s perspective:
  - poorer countries may sell higher qualities even if relatively less efficient
  - countries with strongest RCA always export the highest quality goods
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- From an importer’s perspective:
  - richer countries always consume goods of higher qualities
  - import shares from exporters with higher RCA rise with importer’s GDP
Preview of testable predictions

Demand side:

a. quality of imports rises with the importer’s level of income
Preview of testable predictions

- **Demand side:**
  - a. quality of imports rises with the importer’s level of income

- **Supply side:**
  - b. exporters adjust the quality of production to serve different markets
  - c. specialization is stronger when producing higher-quality varieties
Preview of testable predictions

- **Demand side:**
  a. quality of imports rises with the importer’s level of income

- **Supply side:**
  b. exporters adjust the quality of production to serve different markets
  c. specialization is stronger when producing higher-quality varieties

- **Demand/supply side:**
  d. richer importers buy more from exporters with a comparative advantage
Related findings

- Evidence consistent with **a.**

- Evidence consistent with **b.**
  Mexico: Verhoogen (QJE2008), Iacovone-Javorcik (2008);
  Italy: Crino-Epifani (EJ2012); China: Manova-Zhang (QJE2011);
  Colombia: Brooks (JDE2006); Portugal: Bastos-Silva (JIE2010)

- We provide evidence consistent with **c.** and **d.** in turn
Dataset

- Gaulier and Zignano (2009) dataset (source: UN COMTRADE data)
  - FOB values (US$) and quantities of bilateral trade 1995-2009
  - level of disaggregation: HS 6-digit products; 5000+ products

- We compute unit values for each products in any bilateral relationship
  - e.g.: average price of exports by US of ‘air conditioning machines, window or wall types’ (code 841510) to Honduras

- G&Z (2009) data quite clean: we additionally disregard observations
  - if quantity is less than 1 unit (ton)
  - if value is less that 10,000 US dollars
Comparative advantage and quality of exports: prediction

- Comparative advantage should intensify at higher levels of quality:

\[ \log(Q_{z,x,t}) = a + b \log(RCA_{z,x,t}) + d_z + z_t + u_{z,x,t} \]

\( Q_{z,x,t} \): quality indicator of product \( z \) exported by country \( x \) at time \( t \)
Comparative advantage should intensify at higher levels of quality:

- positive correlation between RCA and quality of exports
Comparative advantage and quality of exports: prediction

- Comparative advantage should intensify at higher levels of quality:
  - positive correlation between RCA and quality of exports

- We run the regression:

\[
\log (Q_{z,x,t}) = \alpha + \beta \log (RCA_{z,x,t}) + \delta_z + \zeta_t + \nu_{z,x,t},
\]

- \(Q_{z,x,t}\): quality indicator of product \(z\) exported by country \(x\) at time \(t\)

- Our model predicts \(\beta > 0\)
### TABLE 1.A

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: log of (weighted) mean unit value of exports</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Log RCA</td>
<td>0.039***</td>
<td>0.045***</td>
<td>0.037***</td>
<td>0.068***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
<td>(0.009)</td>
<td>(0.007)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Log GDP per capita exporter</td>
<td>0.319***</td>
<td>0.366*</td>
<td>0.441**</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.041)</td>
<td>(0.207)</td>
<td>(0.213)</td>
<td></td>
</tr>
<tr>
<td>Year dummies</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Product dummies</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
<td>-</td>
</tr>
<tr>
<td>Exporter dummies</td>
<td>NO</td>
<td>NO</td>
<td>YES</td>
<td>-</td>
</tr>
<tr>
<td>Product-Exporter dummies</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>YES</td>
</tr>
<tr>
<td>Observations</td>
<td>4,405,953</td>
<td>4,176,504</td>
<td>4,176,504</td>
<td>4,176,504</td>
</tr>
<tr>
<td>Adj. R squared</td>
<td>0.66</td>
<td>0.68</td>
<td>0.72</td>
<td>0.81</td>
</tr>
</tbody>
</table>

Robust absolute standard errors clustered at the exporter level reported in parentheses. All data is for years 1995-2009.

The total number of different products is 5017. * significant at 10%; ** significant at 5%; *** significant at 1%.
### TABLE 1.B

<table>
<thead>
<tr>
<th></th>
<th>animal &amp; anim. prod.</th>
<th>vegetable products</th>
<th>foodstuff</th>
<th>mineral products</th>
<th>chem. &amp; allied ind.</th>
<th>plastic &amp; rubbers</th>
<th>skin, leath. &amp; furs</th>
</tr>
</thead>
<tbody>
<tr>
<td>log RCA</td>
<td>0.063***</td>
<td>0.028***</td>
<td>0.039***</td>
<td>-0.021**</td>
<td>0.052***</td>
<td>0.034***</td>
<td>0.078***</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.007)</td>
<td>(0.008)</td>
<td>(0.009)</td>
<td>(0.010)</td>
<td>(0.008)</td>
<td>(0.007)</td>
</tr>
<tr>
<td>log Ypc exporter</td>
<td>0.354**</td>
<td>0.271*</td>
<td>0.372**</td>
<td>0.298</td>
<td>0.238</td>
<td>0.398**</td>
<td>0.479***</td>
</tr>
<tr>
<td></td>
<td>(0.140)</td>
<td>(0.171)</td>
<td>(0.188)</td>
<td>(0.213)</td>
<td>(0.411)</td>
<td>(0.194)</td>
<td>(0.140)</td>
</tr>
<tr>
<td>Observations</td>
<td>131,841</td>
<td>243,517</td>
<td>172,096</td>
<td>91,124</td>
<td>483,160</td>
<td>186,173</td>
<td>62,602</td>
</tr>
<tr>
<td># of products</td>
<td>194</td>
<td>323</td>
<td>181</td>
<td>151</td>
<td>760</td>
<td>189</td>
<td>74</td>
</tr>
<tr>
<td>Adj. R squared</td>
<td>0.68</td>
<td>0.69</td>
<td>0.68</td>
<td>0.59</td>
<td>0.76</td>
<td>0.64</td>
<td>0.76</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>wood &amp; wood prod.</th>
<th>textiles</th>
<th>footwear</th>
<th>stone &amp; glass</th>
<th>metals</th>
<th>machinery &amp; electrical</th>
<th>transport.</th>
</tr>
</thead>
<tbody>
<tr>
<td>log RCA</td>
<td>0.027***</td>
<td>0.047***</td>
<td>0.079***</td>
<td>0.073***</td>
<td>0.028***</td>
<td>0.082***</td>
<td>0.160***</td>
</tr>
<tr>
<td></td>
<td>(0.008)</td>
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<td>0.657***</td>
</tr>
<tr>
<td></td>
<td>(0.168)</td>
<td>(0.269)</td>
<td>(0.243)</td>
<td>(0.290)</td>
<td>(0.214)</td>
<td>(0.183)</td>
<td>(0.150)</td>
</tr>
<tr>
<td>Observations</td>
<td>206,601</td>
<td>695,506</td>
<td>54,675</td>
<td>165,753</td>
<td>459,481</td>
<td>743,870</td>
<td>121,006</td>
</tr>
<tr>
<td># of products</td>
<td>228</td>
<td>809</td>
<td>55</td>
<td>188</td>
<td>587</td>
<td>762</td>
<td>132</td>
</tr>
<tr>
<td>Adj. R squared</td>
<td>0.73</td>
<td>0.70</td>
<td>0.65</td>
<td>0.91</td>
<td>0.75</td>
<td>0.65</td>
<td>0.66</td>
</tr>
</tbody>
</table>

Robust absolute standard errors clustered at the exporter level reported in parentheses. All data is for years 1995-2009.

All regression include time dummies and product-exporter dummies. * significant 10%; ** significant 5%; *** significant 1%.
Richer consumers should purchase larger shares of product $z$ from countries with a comparative advantage in producing $z$:

\[
\log \text{impo}_z, m, x \propto \log \text{RCA}_z, x = \log \left( \frac{Y_m}{\text{RCA}_z, x} \right) + G_m, x + d_z + \mu_m + \varepsilon_z, x, m
\]

Our model predicts $q > 0$.
Richer consumers should purchase larger shares of product $z$ from countries with a comparative advantage in producing $z$:

- positive correlation between import shares from specialized exporters and interaction importer-per-capita-GDP/exporter-RCA
Richer consumers should purchase larger shares of product $z$ from countries with a comparative advantage in producing $z$:

- positive correlation between import shares from specialized exporters and interaction importer-per-capita-GDP/exporter-RCA

We run the regression:

$$
\log \left( \frac{\text{impo}_{z,m,x}}{\sum_{x \in X} \text{impo}_{z,m,x}} \right) = \rho \log (RCA_{z,x}) \\
+ \theta [\log (Y_m) \times \log (RCA_{z,x})] + G_{m,x} + \delta_z + \mu_m + \varepsilon_x + \nu_{z,x,m}
$$

Our model predicts $\theta > 0$
Table 2.A

<table>
<thead>
<tr>
<th></th>
<th>Full Sample</th>
<th>Restricted Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Log RCA exporter</td>
<td>0.456***</td>
<td>-0.676***</td>
</tr>
<tr>
<td></td>
<td>(0.026)</td>
<td>(0.138)</td>
</tr>
<tr>
<td>Interaction term</td>
<td>0.119***</td>
<td>0.104***</td>
</tr>
<tr>
<td></td>
<td>(0.015)</td>
<td>(0.012)</td>
</tr>
<tr>
<td>Distance expo-impo (× 1000)</td>
<td>-0.121***</td>
<td>-0.116***</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.010)</td>
</tr>
<tr>
<td>Contiguity</td>
<td>1.098***</td>
<td>1.116***</td>
</tr>
<tr>
<td></td>
<td>(0.101)</td>
<td>(0.131)</td>
</tr>
<tr>
<td>Common official language</td>
<td>0.362***</td>
<td>0.413***</td>
</tr>
<tr>
<td></td>
<td>(0.099)</td>
<td>(0.133)</td>
</tr>
<tr>
<td>Common coloniser</td>
<td>0.255*</td>
<td>0.164</td>
</tr>
<tr>
<td></td>
<td>(0.152)</td>
<td>(0.178)</td>
</tr>
<tr>
<td>Common legal origin</td>
<td>0.204***</td>
<td>0.204**</td>
</tr>
<tr>
<td></td>
<td>(0.082)</td>
<td>(0.096)</td>
</tr>
<tr>
<td>Common currency</td>
<td>0.351**</td>
<td>0.415**</td>
</tr>
<tr>
<td></td>
<td>(0.149)</td>
<td>(0.174)</td>
</tr>
<tr>
<td>Observations</td>
<td>5,773,873</td>
<td>5,773,873</td>
</tr>
<tr>
<td>Number of importers</td>
<td>184</td>
<td>184</td>
</tr>
<tr>
<td>R squared</td>
<td>0.47</td>
<td>0.47</td>
</tr>
</tbody>
</table>

Robust absolute standard errors clustered at the importer and exporter level reported in parentheses. All data corresponds to the year 2009.

All regressions include product dummies, importer dummies and exporter dummies. The total number of HS 6-digit products is 5017.

Column (4) uses importers in subset A to compute the exporters' RCA and importers in subset B to compute the dependent variable. Column (5) uses the RCA computed with importers in subset A to instrument the exporters' RCA. * significant 10%; ** significant 5%; *** significant 1%.
Table 2.B

<table>
<thead>
<tr>
<th></th>
<th>animal &amp; anim. prod.</th>
<th>vegetable products</th>
<th>foodstuff</th>
<th>mineral products</th>
<th>chem. &amp; allied ind.</th>
<th>plastic &amp; rubbers</th>
<th>skin, leath. &amp; furs</th>
</tr>
</thead>
<tbody>
<tr>
<td>log RCA</td>
<td>-0.322***</td>
<td>-0.298***</td>
<td>-0.344***</td>
<td>-0.269**</td>
<td>-0.500***</td>
<td>-0.548***</td>
<td>-0.622***</td>
</tr>
<tr>
<td></td>
<td>(0.106)</td>
<td>(0.104)</td>
<td>(0.096)</td>
<td>(0.145)</td>
<td>(0.138)</td>
<td>(0.138)</td>
<td>(0.155)</td>
</tr>
<tr>
<td>interaction term</td>
<td>0.073***</td>
<td>0.079***</td>
<td>0.089***</td>
<td>0.075***</td>
<td>0.107***</td>
<td>0.118***</td>
<td>0.120***</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.011)</td>
<td>(0.011)</td>
<td>(0.015)</td>
<td>(0.015)</td>
<td>(0.015)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>Observations</td>
<td>105,332</td>
<td>210,866</td>
<td>215,975</td>
<td>72,839</td>
<td>602,592</td>
<td>317,328</td>
<td>66,347</td>
</tr>
<tr>
<td>Adj. R squared</td>
<td>0.44</td>
<td>0.49</td>
<td>0.50</td>
<td>0.46</td>
<td>0.49</td>
<td>0.52</td>
<td>0.60</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>wood &amp; wood prod.</th>
<th>textiles</th>
<th>footwear</th>
<th>stone &amp; glass</th>
<th>metals</th>
<th>machinery &amp; electrical</th>
<th>transport.</th>
</tr>
</thead>
<tbody>
<tr>
<td>log RCA</td>
<td>-0.444***</td>
<td>-0.411***</td>
<td>-0.644***</td>
<td>-0.527***</td>
<td>-0.541***</td>
<td>-0.711***</td>
<td>-0.554***</td>
</tr>
<tr>
<td></td>
<td>(0.105)</td>
<td>(0.166)</td>
<td>(0.155)</td>
<td>(0.131)</td>
<td>(0.130)</td>
<td>(0.131)</td>
<td>(0.112)</td>
</tr>
<tr>
<td>interaction term</td>
<td>0.101***</td>
<td>0.090***</td>
<td>0.119***</td>
<td>0.107***</td>
<td>0.111***</td>
<td>0.134***</td>
<td>0.114***</td>
</tr>
<tr>
<td></td>
<td>(0.012)</td>
<td>(0.019)</td>
<td>(0.016)</td>
<td>(0.015)</td>
<td>(0.015)</td>
<td>(0.014)</td>
<td>(0.013)</td>
</tr>
<tr>
<td>Observations</td>
<td>252,135</td>
<td>795,926</td>
<td>75,522</td>
<td>209,397</td>
<td>630,910</td>
<td>1,296,090</td>
<td>176,916</td>
</tr>
<tr>
<td>Adj. R squared</td>
<td>0.53</td>
<td>0.55</td>
<td>0.61</td>
<td>0.53</td>
<td>0.50</td>
<td>0.55</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Robust absolute standard errors clustered at the importer-exporter level in parentheses. All data corresponds to year 2009.

All regression include product, exporter and importer dummies, and the set of gravity terms used before in Table 2.A taken from Mayer & Zignano (2006). * significant 10%; ** significant 5%; *** significant 1%.
Table 2.C

Coefficients of Log(Yn) x Log(RCA): independent regressions for each HS 6-digit product

<table>
<thead>
<tr>
<th>% positive coefficients</th>
<th>% negative coefficients</th>
<th>median coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>insignificant</td>
<td>significant</td>
<td>10%</td>
</tr>
<tr>
<td>29.8%</td>
<td>15.7%</td>
<td>38.0%</td>
</tr>
<tr>
<td>83.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total number of different products was 4904 (98 products were lost due to insufficient observations). Data corresponds to year 2009. Regressions include importer dummies and the set of gravity terms used in Table 2.A taken from Mayer & Zignano (2006).

- Coefficients positive and significant for 2633 products
- Non-negative coefficients in 4095 cases
- Coefficients significantly negative only for 103 products out of 4904
Conclusion

- We have proposed a theory based on Ricardian comparative advantage that reveal gradually over the course of development:
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- as getting richer, countries raise the quality of the goods they consume

Changes in the origin of imports are due to such exporters being more productive at producing higher-quality varieties.
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- this leads them to raise their import shares originating from exporters displaying a comparative advantage in those goods
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- We have proposed a theory based on Ricardian comparative advantage that reveal gradually over the course of development:
  - as getting richer, countries raise the quality of the goods they consume
  - this leads them to raise their import shares originating from exporters displaying a comparative advantage in those goods
  - changes in the origin of imports are due to such exporters being more productive at producing higher-quality varieties

Vincenzo Merella (University of Cagliari) WSCMD Guildford, 16 November 2012 Love for Quality and Trade
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We have proposed a theory based on Ricardian comparative advantage that reveal gradually over the course of development:

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We have provided evidence supportive of our predictions in linking income, quality of consumption and comparative advantage

Trade frictions omitted: could help rationalizing the positive empirical relationship between importer’s GDP and imports/GDP ratio