Industries, firms and brands: a view on Multinationals

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Multinationals shape:

- Countries’ comparative advantage.
- Cross-country propagation of aggregate shocks.
- Market concentration.
Multinational Production and Comparative Advantage
Multinational Production (MP) shapes countries’ patterns of production

- Oftentimes, countries host large foreign multinationals in sectors where they lack major local firms.
- In other sectors, large local companies dominate, deterring the operations of foreign affiliates in their market.
  - Spain is the world’s 8th-largest producer of cars under the leadership of foreign affiliates of Daimler AG, Ford, Peugeot, GM, Nissan, Renault, and Volkswagen.
  - In Italy, however, prominent home-based companies, such as Ferrari or Fiat, capture a dominant share of the market.

⇒ Country’s comparative advantage is jointly determined by the productivities of local producers and MP in the economy.

⇒ By altering sectoral productivities, MP shapes the cross-country trade and cross-border patterns of production.
Relevance for Policy

Understanding this relationship help us to assess the responses of trade and multinational production (MP) to shocks affecting the level of cross borders production frictions

- Policies strengthening investor-state dispute settlement provisions and fortify intellectually property rights.

Role of MP frictions and the sectoral structure of local producers’ capabilities in explaining cross-country differences in:

- Industrial composition of inward MP.
- Pool of investing countries that each economy hosts.
Stylized Fact

- Sectoral differences in MP shares are strongly correlated with Ricardian productivity differences.
  - Observed shares of inward MP are larger in sectors where local producers are relatively less productive
  - Productivity enhancement is uneven and biased towards sectors in which locals exhibit comparative disadvantage.
## Bilateral Sectoral MP and Productivity

**Productivity Measure:** Gravity Based

<table>
<thead>
<tr>
<th>Dep. Variable</th>
<th>Sales</th>
<th>Employment</th>
<th>No. of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>$y_{ts}^j$</td>
<td>(1)</td>
<td>(2)†</td>
<td>(3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(4)†</td>
<td>(5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(6)†</td>
<td></td>
</tr>
<tr>
<td>$ln\left(TFP_{source}^j\right)$</td>
<td>1.045&lt;sup&gt;a&lt;/sup&gt;</td>
<td>1.219&lt;sup&gt;a&lt;/sup&gt;</td>
<td>0.885&lt;sup&gt;a&lt;/sup&gt;</td>
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<tr>
<td></td>
<td>(0.0498)</td>
<td>(0.0780)</td>
<td>(0.0682)</td>
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<tr>
<td>Observations</td>
<td>8,928</td>
<td>3,317</td>
<td>8,773</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.21</td>
<td>0.22</td>
<td>0.28</td>
</tr>
<tr>
<td>Source FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Location-Sector FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

### Panel (a): Source country’s Productivity

<table>
<thead>
<tr>
<th>ln($TFP_{location}^j$)</th>
<th>-0.177&lt;sup&gt;a&lt;/sup&gt;</th>
<th>-0.296&lt;sup&gt;a&lt;/sup&gt;</th>
<th>-0.551&lt;sup&gt;a&lt;/sup&gt;</th>
<th>-0.545&lt;sup&gt;a&lt;/sup&gt;</th>
<th>-0.497&lt;sup&gt;a&lt;/sup&gt;</th>
<th>-0.593&lt;sup&gt;a&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(0.0440)</td>
<td>(0.0896)</td>
<td>(0.0395)</td>
<td>(0.0784)</td>
<td>(0.0385)</td>
<td>(0.0693)</td>
</tr>
<tr>
<td>Observations</td>
<td>8,742</td>
<td>2,879</td>
<td>8,711</td>
<td>2,833</td>
<td>8,649</td>
<td>2,856</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.35</td>
<td>0.57</td>
<td>0.38</td>
<td>0.62</td>
<td>0.46</td>
<td>0.54</td>
</tr>
<tr>
<td>Location FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Source-Sector FE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

### Panel (b): Location country’s Productivity

| Controls (I) | Y | – | Y | – | Y | – |
|              |   |   |   |   |   |   |
| Controls (I and II) | – | Y | – | Y | – | Y |
| Sector FE    | Y | Y | Y | Y | Y | Y |

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Notes: Figure displays the partial correlation of the MP share by sales $\ln(y^j_l)$ against the location country’s productivity $\ln(TFP_l)$, including controls.
Sectoral MP and Productivity: Employment

Notes: Figure displays the partial correlation of MP share by the number of employees $\ln(y^i_l)$ against the location country’s productivity $\ln(TFP_l)$, including controls.
Sectoral MP and Productivity

![Graph showing relative technology and sectors with lines for Locals, Locals + MP (Actual Equilibrium), and Locals + MP (Counterfactual).]
Gains from trade GT

- GT can be decomposed into two multiplicative terms:
  - Aggregate domestic trade share
  - Dispersion of domestic trade shares across sectors.

\[ GT_l = \frac{W_{g>0,d>0}^l}{W_{g>0,d\to\infty}^l} = \left(\frac{\pi_{ll}}{\theta}\right)^{-\frac{1}{\theta}} \times \left(1 - A_{\pi_{ll}}\right)^{-\frac{1}{\theta}} \]

- GT increase with the dispersion of domestic trade shares, \( A_{\pi_{ll}} \), and decrease in aggregate domestic shares, \( \pi_{ll} \).
A Multi-Sector Model of Trade and MP

- Develops a multi-sector extension of the benchmark Ricardian model of trade and multinational production (Ramondo & Rodríguez-Clare, 2013).
- Model nests *fundamental and effective* comparative advantage in a unified framework
  - Incorporating multiple sectors and multiple factors of production (Levchenko & Zhang, 2016);
  - Allows for export platforms
  - Asymmetric and sector specific MP barriers;
  - Heterogeneous preferences;
  - Differences in factor and intermediate input intensities across sectors: input-output inter-linkages, inter- and intra-sectoral trade; and
  - A non-tradable sector.
Effective and Fundamental Productivities

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MP Liberalization: Total and Adjusted

▶ Counterfactual exercise in which MP costs are reduced gradually and uniformly from their initial value up to a 30% discount.

▶ Decompose the total effects on welfare into two components: total effect and adjusted effect.
  - Adjusted isolate the effects due to changes in the sectoral dispersion of MP and trade shares.

▶ GMP increase on average by 5 percentage points when MP barriers are 30% lower.

▶ Around 1.3 percentage points (26%) are explained by changes in the dispersion of sectoral trade and MP shares.
Counterfactuals: Removing *Fundamental Comparative Advantage*

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Impact of MP on *Effective Productivities*

- Scenario in which MP only affects the average productivity of the economy, while keeping the same comparative advantage of local producers.
- GT are 12% higher if MP only enhances aggregate productivity without eroding host country’s comparative advantage.
Welfare Gains and Non-tradable Sector

- When MP in non-tradables becomes prohibitively costly, real income decreases by 4.7% and GO decline by 24.7%.
  - Increase of 1.54% and 3.35% in price index of manufacturing goods and overall price index, respectively.
The growth of multinational firms in the Great Recession (with Javier Cravino and Andrei A. Levchenko)
Motivation

- Rapid economic integration between 1980-2007
  - Trade, FDI, capital flows

- Pattern reversed during the Great Recession
  1. ‘Great Trade Collapse’
  2. Large drop in financial flows

- Large literature on two related questions
  1. Why did cross-border capital and trade flows declined?
  2. Did this contribute to the crisis?

- Not much attention to multinational firms’ performance

What happened to multinationals during the crisis?
Motivation

- Rapid economic integration between 1980-2007
  - Trade, FDI, capital flows

- Pattern reversed during the Great Recession
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  1. Why did cross-border capital and trade flows declined?
  2. Did this contribute to the crisis?

- Not much attention to multinational firms’ performance

What happened to multinationals during the crisis?
Imports and manufacturing FMN sales relative to GDP

United States

Austria

France

Germany

Netherlands

United Kingdom

Spain

Italy

Japan

Source: OECD statistics
Multinationals
“Collapse” in imports vs FMN sales: 2008-2009

Median decline: Imports 18%, FMN sales 16%

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Preview of results

- Sectoral and size differences account for most of the FMN decline

- FMNs performance varies widely depending on FMNs source country

- Implication: Multinationals will have a differential impact on aggregate output across destination countries hosting FMNs from different sources
  - Model: Multinationals contributed 0.24 percent to the decline in growth in the median country
  - Composition across sources is important for individual countries, decline in growth ranges from 0 to 0.5 pct points
Firm level Data

- ORBIS (Bureau van Dijk)
- Data from business registries and annual reports
- Both publicly listed and private firms
- Manufacturing and non-manufacturing
- 2004-2012

- Cross-firm ownership data
  - Multinationals >50% ownership
- Sample: 34 countries with good coverage
  - Europe (Euro Area and periphery) + AUS, JPN, KOR, MEX, SGP
  - Average country: 180K firms
Observation 1

The affiliates of foreign multinationals grew faster than domestic firms in every year between 2004-2008 and 2009-2012. This pattern was reversed in 2008-2009.
### FMN vs. domestic firms growth

**Firm level evidence**

<table>
<thead>
<tr>
<th></th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dep. Var.: (\gamma_{in,t}(f))</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(\mathbb{I}{f \in FMN})</td>
<td>0.0207</td>
<td>0.0184</td>
</tr>
<tr>
<td></td>
<td>(0.0042)</td>
<td>(0.0009)</td>
</tr>
<tr>
<td>(\mathbb{I}{f \in FMN} \times \mathbb{I}{t=2009})</td>
<td>-0.0326</td>
<td>-0.0297</td>
</tr>
<tr>
<td></td>
<td>(0.0093)</td>
<td>(0.0023)</td>
</tr>
<tr>
<td><strong>No. of Observations</strong></td>
<td>31,521,858</td>
<td>31,521,858</td>
</tr>
<tr>
<td><strong>No. of Firms</strong></td>
<td>6,639,262</td>
<td>6,639,262</td>
</tr>
<tr>
<td><strong>No. of Multinationals</strong></td>
<td>214,851</td>
<td>214,851</td>
</tr>
<tr>
<td><strong>(R^2)</strong></td>
<td>0.0110</td>
<td>0.0240</td>
</tr>
<tr>
<td><strong>Year</strong></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Dest×Year</strong></td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Notes: Standard errors clustered at the source-destination level.
FMN vs. domestic firms growth

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Observation 2

Within sectors, the affiliates of foreign multinational firms grew faster than similarly-sized domestic firms in every year between 2004-2012.

Much of the aggregate relative slowdown of multinational firms in 2008-2009 is accounted for by observable differences in firm size and by differences in the sectors in which multinational firms operate.
Understanding the collapse in multinationals sales

<table>
<thead>
<tr>
<th>Dep. Var.: $\gamma_{in,t}(f)$</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\mathbb{I}{f \in FMN}$</td>
<td>0.0207</td>
<td>0.0184</td>
<td>0.0177</td>
<td>0.0205</td>
</tr>
<tr>
<td></td>
<td>(0.0042)</td>
<td>(0.0009)</td>
<td>(0.0009)</td>
<td>(0.0010)</td>
</tr>
<tr>
<td>$\mathbb{I}{f \in FMN} \times \mathbb{I}{t=2009}$</td>
<td>-0.0326</td>
<td>-0.0297</td>
<td>-0.0177</td>
<td>-0.0012</td>
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<td></td>
<td>(0.0093)</td>
<td>(0.0023)</td>
<td>(0.0020)</td>
<td>(0.0017)</td>
</tr>
</tbody>
</table>

| No. of Observations          | 31,521,858 | 31,521,858 | 31,302,684 | 31,302,216 |
| No. of Firms                 | 6,639,262 | 6,639,262 | 6,563,480 | 6,563,408 |
| No. of Multinationals        | 214,851 | 214,851 | 212,988 | 212,981 |
| $R^2$                        | 0.0110 | 0.0240 | 0.0333 | 0.0422 |

| Year                         | Yes | No | No | No |
| Dest × Year                  | No  | Yes | No | No |
| Dest × Sect × Year           | No  | No | Yes | No |
| Dest × Sect × Quart × Year   | No  | No | No | Yes |

Notes: Standard errors clustered at the source-destination level.

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Propensity Score Matching

Figure 5: Estimated ATT and UMD

- $\beta_{ui}$ Unconditional Mean Difference (UMD)
- $\beta_{ui}$ Average Treatment Effect on the Treated (ATT)
Observation 3

Multinationals from different source countries fared differently in the crisis

Implication: Impact of FMN decline will differ across countries hosting FMN from different source countries
### Differences in country of origin

<table>
<thead>
<tr>
<th>Controls:</th>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
<th>(5)</th>
<th>(6)</th>
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<tbody>
<tr>
<td></td>
<td>$\beta_i,2009$</td>
<td>s.e.$(\beta_i,2009)$</td>
<td>$\hat{\beta}_i,2009$</td>
<td>$\beta_i,2009$</td>
<td>s.e.$(\beta_i,2009)$</td>
<td>$\hat{\beta}_i,2009$</td>
</tr>
<tr>
<td>France</td>
<td>0.032</td>
<td>0.006</td>
<td>0.004</td>
<td>0.033</td>
<td>0.004</td>
<td>0.010</td>
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<tr>
<td>Netherlands</td>
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<td>0.008</td>
<td>-0.005</td>
<td>0.026</td>
<td>0.004</td>
<td>-0.003</td>
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<tr>
<td>Austria</td>
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<td>0.008</td>
<td>-0.013</td>
<td>0.020</td>
<td>0.005</td>
<td>-0.007</td>
</tr>
<tr>
<td>United Kingdom</td>
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<td>0.006</td>
<td>-0.010</td>
<td>0.020</td>
<td>0.004</td>
<td>-0.006</td>
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<tr>
<td>Italy</td>
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<td>0.011</td>
<td>0.002</td>
<td>0.023</td>
<td>0.005</td>
<td>0.007</td>
</tr>
<tr>
<td>Switzerland</td>
<td>0.013</td>
<td>0.005</td>
<td>-0.018</td>
<td>0.017</td>
<td>0.004</td>
<td>-0.009</td>
</tr>
<tr>
<td>United States</td>
<td>0.018</td>
<td>0.006</td>
<td>-0.006</td>
<td>0.019</td>
<td>0.003</td>
<td>-0.002</td>
</tr>
<tr>
<td>Germany</td>
<td>0.017</td>
<td>0.008</td>
<td>-0.014</td>
<td>0.016</td>
<td>0.003</td>
<td>-0.012</td>
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<tr>
<td>Sweden</td>
<td>0.004</td>
<td>0.006</td>
<td>-0.027</td>
<td>0.003</td>
<td>0.005</td>
<td>-0.023</td>
</tr>
<tr>
<td>Japan</td>
<td>0.002</td>
<td>0.009</td>
<td>-0.013</td>
<td>0.001</td>
<td>0.006</td>
<td>-0.009</td>
</tr>
</tbody>
</table>
Counterfactual

Q: What if multinationals had grown at pre-crisis levels (relative to domestic firms)

\[ \gamma_{n,09}^{\text{counter}} - \gamma_{n,09} = \frac{\psi}{\rho - 1} \sum_{i \neq n} \omega_{in} \left[ \hat{\beta}_{i,\text{pre-Cr}} - \hat{\beta}_{i,Cr} \right] \]

\[ = (1 - \omega_{nn}) \left( \bar{\beta}_{\text{pre-Cr}} - \bar{\beta}_{Cr} \right) + \]

Average Effect

\[ \sum_{i \neq n} \omega_{in} \left[ \left( \hat{\beta}_{i,\text{pre-Cr}} - \hat{\beta}_{i,Cr} \right) - \left( \bar{\beta}_{\text{pre-Cr}} - \bar{\beta}_{Cr} \right) \right] \]

"Covariance"
Counterfactual

- Growth rates would have been 0.12 pp higher for the mean country in the sample.

- And 0.18 pp on average in the top 10 destination countries

- MNCs contributed 0.5 pp to the reduction in output in Lithuania. The largest single source of foreign multi-nationals in Lithuania is Poland, whose foreign affiliates did quite poorly in the crisis, with the growth differential of -4.3% relative to the pre-crisis times.

- Estonia and Latvia were also among the countries most negatively affected. Sweden and Finland are the largest sources of foreign affiliates in these countries.
**Counterfactual differences in growth rates**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All countries (N = 34)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total effect</td>
<td>0.117</td>
<td>0.121</td>
<td>-0.131</td>
<td>0.503</td>
</tr>
<tr>
<td>Average</td>
<td>0.015</td>
<td>0.008</td>
<td>0.001</td>
<td>0.036</td>
</tr>
<tr>
<td>Covariance</td>
<td>0.101</td>
<td>0.118</td>
<td>-0.144</td>
<td>0.487</td>
</tr>
</tbody>
</table>

Notes: This table the summary statistics for the change in aggregate output in the counterfactual

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Local Origin, Foreign Ownership: Multinational amalgamation of brands (with Thierry Mayer and Keith Head) (Preliminary)
Rising concentration and brand amalgamation

- A feature of modern market economies is the dominance of enormous multinational corporations (MNCs).

- Under the traditional view MNCs become so large by achieving economies of scale in a set of core products developed at headquarters.

- A lesser discussed route is the amalgamation of brands developed in multiple countries through cross-border acquisitions.
Brand amalgamation: Beer

For and brand reasons, some or all of these brands are expected to be sold as a result of the merger.
Why MNCs acquire foreign brands

- What the MNC wants:
  - Bypass the home bias that limits MNCs ability to sell it’s existing roster of (foreign) brands.
  - Acquire superstar brands that have multi-market potential.

- Why the MNC can outbid local owners:
  - The MNC has other brands that it can sell through the local target’s distribution channels.
  - The MNC has distribution assets in other markets that can be exploited to sell the targeted brand more widely.
Examples of brand amalgamation

- US-based snack foods maker Mondelez (spun off from Kraft), is the 2nd largest chocolate seller in the world.
  - 81% of its chocolate sales via brands originating in Britain (Cadbury), Belgium (Cote d’Or), Switzerland (Toblerone, Milka), Norway (Freia, Marabou), and Greece (Lacta).

- Flagship brands are important, but represent a smaller share of big brewers’ world sales:
  - AB-Inbev: Budweiser 12.3%, Stella 4.2%.
  - Heineken brand: 27.3%.
  - Carlsberg brand: 17.8%

- Diageo, owner of Johnnie Walker, Smirnoff, Tanqueray.
  - Had a market share of less than two percent in India before it bought the local Group United Breweries, and now it has a 39% market share.
This paper

- Documents the international expansion of MNCs through the acquisition of brands created in other countries.

- Quantifies the impact of acquired brands on brand and firm size heterogeneity.

- Uses a CES oligopoly multi-product model in order to infer brand’s appeal and delivered marginal cost, and estimate how changes in brand’s corporate headquarters affect consumers’ demand and firms’ costs.

- Constructs a counterfactual evaluating the impact of changes in brands’ ownership matrix across countries on market concentration.
Dataset

- Unique dataset of sales value and/or volume for over 83,000 brands owned by 46,000 companies, across 153 product categories, in 79 countries (Global Market Information Dataset (GMID))
  
  - Track national and cross-border changes in ownership at the brand level occurred over 2006–2016.

- Apply classification algorithm using Wikipedia, USPTO, and WIPO, to identify each brand’s country of origin.

- Separate headquarter country of current owner from the country in which the brand was originally created.

- The headquarter country of each company in the dataset is obtained by name matching Orbis, Lexis Nexis and SDC platinum database
Observation 1:

World market share of Non-HQ Brands is important
Observation 2:
NonHQ brands significantly contribute to market concentration

<table>
<thead>
<tr>
<th>Category</th>
<th>CR4</th>
<th>CR4 (Non HQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beer</td>
<td>0.86</td>
<td>0.56</td>
</tr>
<tr>
<td>Bottled Water</td>
<td>0.71</td>
<td>0.37</td>
</tr>
<tr>
<td>Carbonates</td>
<td>0.89</td>
<td>0.13</td>
</tr>
<tr>
<td>Cider Perry</td>
<td>0.82</td>
<td>0.34</td>
</tr>
<tr>
<td>Coffee</td>
<td>0.82</td>
<td>0.25</td>
</tr>
<tr>
<td>Concentrates</td>
<td>0.71</td>
<td>0.32</td>
</tr>
<tr>
<td>Juice</td>
<td>0.63</td>
<td>0.35</td>
</tr>
<tr>
<td>Spirits</td>
<td>0.60</td>
<td>0.32</td>
</tr>
<tr>
<td>Sports and Energy Drinks</td>
<td>0.83</td>
<td>0.17</td>
</tr>
<tr>
<td>Wine</td>
<td>0.55</td>
<td>0.19</td>
</tr>
</tbody>
</table>
Observation 3-5

- Observation 3: HQ brands—on average—are available in more markets compared to NonHQ brands.

- Observation 4: Acquisition of NonHQ brands is 18.5% more likely the lower the market share of flagship brands.

- Observation 5: On average, the price of acquired brands increases by 1.7%, and market share decreases by 2.3% after acquisition takes place.
A quantitative framework

We interpret the data from the lens of a quantitative framework in order to:

- Understand the role of the acquired portfolio of brands in explaining the observed level of firm heterogeneity.
  - Quantify the impact of “acquired appeal”.
  - Quantify the cost effect of acquired brands.
Contribution of “original” and “acquired” brands

\[ \Delta^c \ln Y_{ft} = (\sigma - 1) \left[ \Delta^c \left( \frac{N^O_{fb}}{N_{fb}} \ln \varphi^O_{ft} \right) \right] + (\sigma - 1) \left[ \Delta^c \left( \frac{N^A_{fb}}{N_{fb}} \ln \varphi^A_{ft} \right) \right] \]

\[
\begin{align*}
&\text{Firm’s Appeal} \\
&\text{Appeal of Original Brands} \\
&\text{Appeal of Acquired Brands}
\end{align*}
\]

\[
\begin{align*}
&+ \Delta^c \ln N_{ft} + (\sigma - 1) \Delta^c \ln \left( \frac{1}{\tilde{c}^O_{ft}} \right) + (\sigma - 1) \Delta^c \ln \left( \frac{1}{\tilde{c}^A_{ft}} \right) \\
&\text{Firm’s Marginal Cost} \\
&\text{Scope} \\
&\text{MC Original Brands} \\
&\text{MC Acquired Brands} \\
&\text{Cost-appeal covariance} \\
&\text{Markup}
\end{align*}
\]

\[
\begin{align*}
&+ \Delta^c \ln \left[ \frac{1}{N_{ft}} \sum_{b \in B} \left( \frac{\tilde{c}_{ft}}{c_{bt}} \varphi_{bt} \right)^{\sigma^{-1}} \right] - (\sigma - 1) \Delta^c \ln \mu_{ft}
\end{align*}
\]
Contribution of acquired brands to appeal
### Decomposing effects of frictions

<table>
<thead>
<tr>
<th></th>
<th>$\ln s_{bn}$</th>
<th>$\ln A_{bn}$</th>
<th>$\ln c_{bn}$</th>
<th>$\ln \mu_{bn}$</th>
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<tbody>
<tr>
<td><strong>Brand origins</strong></td>
<td></td>
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<tr>
<td>home</td>
<td>0.980\textsuperscript{a}</td>
<td>0.315\textsuperscript{a}</td>
<td>-0.179\textsuperscript{a}</td>
<td>-0.260\textsuperscript{a}</td>
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<td></td>
<td>(0.097)</td>
<td>(0.068)</td>
<td>(0.028)</td>
<td>(0.031)</td>
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<tr>
<td>ln dist</td>
<td>-0.178\textsuperscript{a}</td>
<td>-0.052\textsuperscript{a}</td>
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<td>0.058\textsuperscript{a}</td>
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<td></td>
<td>(0.027)</td>
<td>(0.020)</td>
<td>(0.011)</td>
<td>(0.011)</td>
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<tr>
<td>lang</td>
<td>0.163\textsuperscript{a}</td>
<td>0.010</td>
<td>-0.071\textsuperscript{a}</td>
<td>-0.081\textsuperscript{a}</td>
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<tr>
<td></td>
<td>(0.063)</td>
<td>(0.051)</td>
<td>(0.025)</td>
<td>(0.026)</td>
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<tr>
<td><strong>Corporate Headquarters</strong></td>
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<tr>
<td>home</td>
<td>0.136\textsuperscript{c}</td>
<td>0.024</td>
<td>-0.040</td>
<td>-0.065\textsuperscript{b}</td>
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<tr>
<td></td>
<td>(0.077)</td>
<td>(0.053)</td>
<td>(0.026)</td>
<td>(0.029)</td>
</tr>
<tr>
<td>ln dist</td>
<td>-0.033</td>
<td>-0.026</td>
<td>-0.000</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.016)</td>
<td>(0.009)</td>
<td>(0.009)</td>
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<tr>
<td>lang</td>
<td>0.066</td>
<td>0.062</td>
<td>0.021</td>
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<tr>
<td></td>
<td>(0.052)</td>
<td>(0.042)</td>
<td>(0.022)</td>
<td>(0.024)</td>
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<td><strong>Observations</strong></td>
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<tr>
<td>$R^2$</td>
<td>0.717</td>
<td>0.642</td>
<td>0.986</td>
<td>0.984</td>
</tr>
</tbody>
</table>

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\textsuperscript{a} p < 0.01; \textsuperscript{b} p < 0.05; \textsuperscript{c} p < 0.1
Discussion of results

- While the pooled regressions hide cross-category heterogeneity, on average, home-origin brands have huge advantages: Since $\exp(0.98) \approx 2.66$, home increases market share by 166%.

- The largest impact comes on the taste side (home bias): Being a home brand raises demand equivalent to a 37% price change.

- Cost advantages of home brands are also substantial, especially under Cournot.

- Brands from nearby countries also have appeal and cost advantages.

- Brands sell somewhat better in their HQ country, even holding brand origin constant, mainly a cost effect (4–7% advantage).
Forced divestiture of foreign-owned, domestic-origin brands

Counterfactual

- What is the cumulative impact on concentration and consumer surplus from all the brand acquisitions of MNCs?

- One way to answer this is to start from the status quo and imagine a policy compelling each foreign-owned firm to sell off the brand it owns that originate in the local market.

- We do this by creating counterfactual owners for these brands.

- Then, we use the Bertrand and Cournot versions of the CES oligopoly model to predict market shares and markups in this counterfactual.
Divestitures of acquired local brands

Bertrand

Market concentration (Herfindahl index)

Share of foreign-owned, domestic origin

2016 data
CF divestment
(#) %change in price index

(−1)

high concentration
(EU guidelines)

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