MEASURING EXPORT COMPETITIVENESS (MEC) DATABASE:

WHAT CAN WE LEARN ABOUT FRENCH COMPETITIVENESS AND THE GLOBAL CONTEXT?

From a collaboration between Banque de France, World Bank Group, and International Trade Centre

December 16, 2015
THE MEASURING EXPORT COMPETITIVENESS DATABASE

Measuring Export Competitiveness (MEC)

Visualize Export

Featured
1 of 6

Visualize Export Growth

Track how a country's exports have performed since 2005 in volumes, values, and prices.

Read more »

Measuring Export Competitiveness

Measuring Export Competitiveness Brochure

Over the past 30 years international trade has become an engine of growth for much of the developing world. And with the global economy changing so rapidly, countries need to know where they stand on the global trade and production map—even more so with South-South trade creating new opportunities and challenges.

How to use the MEC Database

To understand what's behind the change in a country's global export market share, please start with the Visualize Export Growth tab and follow the market share decomposition throughout the site. Learn more at the How to use the MEC Database section.

Partner Focus

A World Bank project in collaboration with the Banque De France and the International Trade Center. To learn more, please visit the Partners section.
METHODOLOGY

A world matrix of imports and exports, with country pair data at the product level

Quarterly data to better control for the timing of any shocks, and we look at changes in value, volume, and prices – to capture real and nominal effects

Decomposition of exports market share growth into three components:

- Exporter’s effect or performance: overall capacity to export any good to any market
- The geographic structure of exports: capacity to export to destination markets with an increasing import demand
- The sectoral structure of exports: specialization in the export of products with a dynamic global import demand

Same procedure as for exports is applied to imports, to quantify country specific demand shocks

A weighted variance analysis of annual growth rates, based on various works: Cheptea, Gaulier, & Zignago (2005), Cheptea, Fontagné & Zignago (2010) and Bricongne, Fontagne, Gaulier, Vicard and Taglioni (2011)
WHAT MEC TELLS ABOUT THE COMPETITIVENESS OF FRANCE
CHANGES IN EXPORT MARKET SHARES PROXY COMPETITIVENESS GAINS

FRANCE, EXPORT GROWTH AND CHANGES IN MARKET SHARES, 2006Q1-2015Q2
BUT MARKET SHARE CHANGES CAN BE DRIVEN BY SUPPLY SIDE PUSH OR DEMAND SIDE PULL FACTORS

FRANCE, DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2006Q1-2015Q2
ZOOM ON THE LAST THREE YEARS

FRANCE, DECOMPOSITION OF CHANGES IN EXPORT MARKET SHARES, 2012Q1-2015Q2
FRENCH SPECIALIZATION IN HIGHLY DEMANDED PRODUCTS PARTIALLY OFFSET MARKET SHARE LOSSES

FRANCE, PULL FROM PRODUCT MIX AND SECTORIAL SPECIALIZATION, 2012Q1-2015Q2

Diagram showing contributions to market share change and relative price change in various sectors.
Driven by sectors and products with high skill content, which have had a dynamic demand since 2012, unlike mid-skill in which Germany specializes.

France, pull from product mix and sectoral orientation, 2012Q1-2015Q2

Germany, pull from product mix and sectoral orientation, 2012Q1-2015Q2
BUT FRENCH EXPORT MARKET SHARES SUFFERED FROM WEAK DEMAND ON ITS MAIN IMPORTING MARKETS

FRANCE, PULL FROM MARKET ORIENTATION, 2010Q1-2012Q4

FRANCE, PULL FROM MARKET ORIENTATION, 2013Q1-2015Q2
<table>
<thead>
<tr>
<th>Country</th>
<th>Crisis &amp; rebound 08Q4-11Q2</th>
<th>Post-crisis 11Q3-14Q2</th>
<th>Euro Deval 14Q3-15Q2</th>
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<tbody>
<tr>
<td>Germany</td>
<td>-0.4</td>
<td>-2.3</td>
<td>0.9</td>
</tr>
<tr>
<td>France</td>
<td>-2.3</td>
<td>-4.2</td>
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<tr>
<td>Italy</td>
<td>-3.8</td>
<td>-5.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Spain</td>
<td>-5.6</td>
<td>-2.9</td>
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</tr>
<tr>
<td>Euro Area</td>
<td><strong>-2.3</strong></td>
<td><strong>-2.6</strong></td>
<td><strong>1.1</strong></td>
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**WEAK GERMAN, SPANISH AND ITALIAN DEMAND AFFECTED FRENCH MARKET SHARES BUT EURO DEVALUATION HELPED**
SUPPLY SIDE PUSH FACTORS SET FRANCE APART FROM NEIGHBORS, NOT BAD SPECIALIZATION

THE 4 LARGE EURO AREAS ECONOMIES: ALL IN ONE CHART, 2010Q1-2015Q2
FRANCE LESS ABLE THAN NEIGHBORS TO PROFIT OF WEAK EURO, DESPITE LOWER PERFORMANCE GAP

THE 4 LARGE EURO AREAS ECONOMIES: ALL IN ONE CHART, 2014Q3-2015Q2
THE MONETARY UNION MEANS THAT THERE ARE IMPORTANT PRICE COMOVEMENTS IN MARKET SHARE CHANGES...

**Adjusted Market Share Correlations - Top 100 Exporters (Avg. 2008Q1-2015Q2). Values Decomposition**
…POSSIBLY STRONGLY INFLUENCED BY SHARING A COMMON CURRENCY…

**Adjusted Market Share Correlations - Top 100 Exporters (Avg. 2008Q1-2015Q2). Price Decomposition**
...which however also extend to performance measured in volumes

Adjusted Market Share Correlations - Top 100 Exporters (Avg. 2008Q1-2015-Q2). Quantities Decomposition
CONCLUSION

The application of the database to France has allowed an analysis of the main drivers of French export competitiveness

It has demystified myths about an unfavorable product mix of the French export basket, suggesting that the main drivers of the low performance of French exports during the crisis have been supply side competitiveness shortcomings and a weak demand from its main export partners

Findings confirm Krugman's thesis on the importance of supporting EA demand to help EA countries to recover from the Euro Debt crisis

Besides looking at country specific analyses from wide across the world, the database also allows to look at systemic issues such as the global trade slowdown. See Gaulier et al (2015), chp. 5 in Hoekman eds. “The Global Trade Slowdown: A New Normal?”, which finds that:

• China’s reintegration in the global economy in the 1990-2000s had a juggernaut effect on the volume and structure of world trade
• The export driven export strategy of China has led to price deflation on its export basket, and reorientation of developed countries’ exports towards higher value goods and services
• About half of the current global trade slow-down is due to a reorientation of Chinese production towards serving domestic demand
• The weakness of the demand in Europe and a levelling off of the process of global fragmentation of production are other important reasons for the global trade slowdown
Thank you

For further information
Daria Taglioni dtaglioni@worldbank.org
METHODOLOGY
Decomposition of exports market share growth into three components:

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- the sectoral structure of exports: specialization in the export of products with a dynamic global import demand

Same procedure applied to imports allows to also quantify country specific shocks

A weighted variance analysis of annual growth rates, following Cheptea, Gaulier, & Zignago (2005), Cheptea, Fontagné & Zignago (2010) and Bricongne et al. (2011)
Step 1: Computation of Mid-Point Growth Rates.

- For a country $i$ exporting a value $x$ to a country $c$ of product $k$ at time $t$, the mid-point growth rate is defined as follows:

$$
g_{ickt} = \frac{x_{ickt} - x_{ick(t-1)}}{\frac{1}{2} \left( x_{ickt} - x_{ick(t-1)} \right)}$$

- weight attributed to each flow $g_{ickt}$ is given by the relative share of the flow in total exports, where total refers to the exports of the whole sample of countries:

$$S_{ickt} = \frac{x_{ickt} - x_{ick(t-1)}}{\left( \sum_c \sum_i \sum_k x_{ickt} - x \sum_c \sum_i \sum_k x_{ick(t-1)} \right)}$$
ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 1: Computation of Mid-Point Growth Rates.

- **Quarter-on-quarter** growth rate of the total value of world exports is given by summing each individual flow $g_{ickt}$ weighted by $s_{ickt}$:

  $$G_t = \sum_c \sum_i \sum_k s_{ickt} \cdot g_{ickt}$$

- $G$ is monotonically related to the conventional growth rate measure, and it represents a very good approximation of the latter except for extremely high growth rates. For bigger growth rates the two growth measures are linked by the following identity:

  $$\sum_{i,c,k} G_{ick}^t = \sum_{i,c,k} g_{ick}^t \cdot s_{ick}^t \approx \ln \left( \frac{\sum_{i,c,k} x_{ick}^t}{\sum_{i,c,k} x_{ick}^{t-1}} \right)$$
ECONOMETRIC SHIFT-SHARE DECOMPOSITION

Step 2: Fixed effects regression

- ANOVA methodology to decompose export (import) growth in a sectoral effect, a geographical effect and a pure competitiveness effect.

- Specifically, we regress the mid-point growth rate on three sets of fixed effects, i.e. exporter, importer and sector/product fixed effects, here denoted with the letter $f$ by means of a weighted OLS estimation.

$$g_{ickt} = \alpha + \sum_i \phi_i f_i + \sum_c \beta_i f_i + \sum_k \gamma_k f_k + \varepsilon_{ickt}$$
Step 2: Fixed effects regression

- We normalize the effects so to quantify them as deviations from the average growth rate of exports (imports) for the overall sample in the dataset, i.e. in our case this roughly corresponds to world export growth.

\[
\phi_i^t = \hat{\alpha}^t + \hat{\phi}_i^t + \sum_c s_{ic}^t \hat{\beta}_c^t + \sum_k s_{ik}^t \hat{\gamma}_k^t
\]

\[
\ln\left(\frac{\sum_{c,k} x_{ick}^t}{\sum_{c,k} x_{ick}^{t-1}}\right) \approx \sum_{c,k} G_{ick}^t = \sum_{c,k} g_{ick}^t * s_{ick}^t = \phi_i^t + \sum_c s_{ic}^t \hat{\beta}_c^t + \sum_k s_{ik}^t \hat{\gamma}_k^t
\]

\[
\hat{\beta}_c^t = \beta_c^t - \sum_c s_{ic}^t \hat{\beta}_c^t
\]

\[
\hat{\gamma}_k^t = \gamma_k^t - \sum_k s_{ik}^t \hat{\gamma}_k^t
\]
Step 3: Computation of price and quantity effects

The decomposition is further extended to separate quantity from price effects to capture the role played by price adjustments in the period. We follow the procedure used in Bricongne et al (2011), which uses a Tornqvist index to carry out the decomposition (only the intensive margin can be taken into consideration when disentangling price from quantity effects).

We decompose values into quantities and unit values. We compute average price changes, for total exports and vis-à-vis individual trade partners, by means of weighted averages of the elementary price changes. Elementary flows are decomposed as follows:

\[
d \ln \left( \frac{\text{value}}{\text{quantity}} \right)_{ick, \frac{t}{t-1}} = d \ln \left( \text{quantity} \right)_{ick, \frac{t}{t-1}} + d \ln \left( \frac{\text{value}}{\text{quantity}} \right)_{ick, \frac{t}{t-1}}
\]

Unit value indices differ from price indices since their changes may be due to price and (compositional) quantity changes. Bias in unit value indices are attributed to changes in the mix of goods exported and to the poor quality of recorded data on quantities. More the data is disaggregated, more this bias is reduced.
USING MEC TO ASSESS THE ROLE OF CHINA IN THE GLOBAL TRADE SLOWDOWN
INTERDEPENDENCES GO BEYOND THE REGIONAL SCOPE: WHAT CHINA DOES MATTERS GLOBALLY

GROWTH OF GLOBAL TRADE AND GROWTH OF CHINA’S ADJUSTED MARKET SHARE

-15 -10 -5 0 5 10 15 %


China - Adjusted export market share
World Trade
AND SUPPLY SIDE DEVELOPMENTS IDIOSYNCRATIC TO CHINA, NET OF OTHER EFFECTS NOT ONLY CONTRIBUTE TO EXPLAIN GLOBAL TRADE SLOWDOWN...

THE SUPPLY-SIDE: COUNTRIES’ CONTRIBUTIONS TO CHANGES IN EXPORTS, MEASURED BY “ADJUSTED” EXPORT MARKET SHARES, QUANTITIES

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<td>0.3</td>
<td>0.1</td>
</tr>
<tr>
<td>China &amp; Honk Kong</td>
<td>1.3</td>
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<tr>
<td>Other developed</td>
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<tr>
<td>Rest of the World</td>
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<tr>
<td><strong>World</strong></td>
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THE DEMAND-SIDE: COUNTRIES’ CONTRIBUTIONS TO CHANGES IN IMPORTS, MEASURED BY “ADJUSTED” IMPORT MARKET SHARES, QUANTITIES

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...BUT ALSO INFLUENCE GLOBAL PRICES

CHINA’S EXPORT SPECIALIZATION AND CONTRIBUTION TO WORLD IMPORT PRICES AND VOLUMES (2006Q1-2008Q3)

CHINA’S EXPORT SPECIALIZATION AND CONTRIBUTION TO WORLD IMPORT PRICES AND VOLUMES (2011Q3-2015Q2)
IT IS NOT THAT CHINA SPECIALIZED IN LOW VALUE EXPORTS, BUT RATHER CHINA’S SPECIALIZATION HAD A DAMPENING EFFECT ON THE WORLD PRICES OF ITS EXPORTS

- **Trade acceleration phase.**
  - Initial supply-side shock when China started exporting.
  - Chinese domestic demand, including for its own products, low over a prolonged period of time and a large production base compared to world totals.
  - Effect: China generated a large export surplus that
    - drove down the world price for goods in which it specialized; and
    - reinforced specialization patterns based on Ricardian comparative advantages and the reallocation of global demand for those products towards Chinese exports (often from domestic supply or regional exports).

- **Trade deceleration phase**
  - Rebalancing of Chinese growth towards domestic demand, but continued imports.
  - Downward pressure on global price for products in which China specializes is lower, and so is the rate of reallocation of market shares in favor of imports from China.