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## **Who gains and who loses from China's growth?**

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# Who gains and who loses from China's growth?

Angela Cheptea

**Annotation:** Recent trade evolutions credit China with a large and growing market potential, and explain the increasing attractiveness of the Chinese market to foreign producers. In 2007 one tenth of internationally traded products were shipped to China. The present paper aims to determine the countries that profit and suffer the most from the recent expansion of the Chinese market. We use an econometric shift-share methodology that permits to identify for each trade flow the share of growth arising from the capacity to target the products and markets with the highest increase in demand, and the share due exclusively to exporter's performance. Export dynamics specific to each country (exporter) are estimated for the Chinese market and compared to those of the global market, for all internationally traded products and agri-food products alone. We estimate the contribution of countries' geographical and sectoral structure, and their export performance to the evolution of their market shares, and differentiate between changes in export volumes and prices.

**Key words:** International trade, Export performance, Market shares, Shift-Share, China.

## 1 Introduction

One of the most remarkable features that characterized international trade over the last two decades is the transformation of China into the world's largest exporter. In the early 1990s, Chinese products accounted for less than 5% of the world market; by the end of the 2000s, more than one sixth of the value of merchandises traded worldwide originates from China. This impressive market share gain was achieved at the extend of losses experienced by other exporters, especially the ones from the developed world. At the same time, the rising Chinese share in world exports sustained the expansion of the country's domestic and import demand. Two factors lie at the heart of China becoming a major outlet for world production. On one hand, due to increasing outsourcing of world production to China, the country's exports incorporate a large share of imported inputs. Parts and components represent one third of China's imports, compared to less that 20% at the global level. On the other hand, the rapid growth of Chinese exports has increased the purchasing power of domestic consumers and their demand for foreign produced goods. Both trends led to a strong increase in China's import capacity. Unsurprisingly, selling to the Chinese market has become a priority for most countries and large exporting firms, and the Chinese market is often referred to as the new driver of the world economy.

Exporting to China can be very different from exporting to the rest of the global market or traditional trade partners and therefore very challenging. Which countries have profited the most which the less from this increase in the size of the Chinese market? Are the best performers on the Chinese market also the ones that cope the best with the global competition? Which products sell the best on the Chinese relative to the global market? This paper aims at answering these questions by identifying recent changes in specialization and market shares of leading world exporters.

We use an econometric shift-share analysis that allows us to identify for each country the share of export growth arising from the capacity to target the products and markets with the highest increase in demand, and the share due exclusively to its exporting performance. This methodology applies only to the intensive margin of trade, i.e. the same products exchanged

between the same partners in two different years, as growth rates can be computed only for these trade flows. Symmetrically, the extensive margin is the net value of appearing and disappearing trade flows. While a rapid turnover of trade flows can be observed in a world matrix mostly "filled" with zeros, the largest contribution to the growth of trade on both global and Chinese markets was the intensive margin.<sup>1</sup>

Using an econometric shift-share analysis, we compute for each exporting country the amount of growth that can be imputed to the geographical and sectoral composition of its exports and the amount owed to its proper efforts, i.e. export performance. These intrinsic export growths differ from the overall growth rates of exports for the corresponding categories (country, partner, or product) due to composition terms. Thus, only part of the growth rate of European exports reflects the efforts undertaken by exporting countries. Some of the growth comes from the above world average increase in the import demand of EU partner countries, and some is due to the above world average increase in the world demand for products exported by the EU. In the end, the intrinsic export growth attributable to the EU may be even negative.

Similar export dynamics specific to each country (exporter) and product are estimated for the Chinese market and compared to those of the global market. For that, we perform a shift-share analysis of exports to China alone. Accordingly, we are able to separate the evolution of the 'pure' Chinese import demand from the growth rate of the Chinese market. To simplify the comparison across countries and import markets, all terms are expressed as percentage shifts of initial (1995) market shares.

The rest of the paper is organized as follows. Section 2 shows the redistribution of global and Chinese market shares among exporters and sectors over the 1995-2007 period, and the trade dynamics of the global and Chinese markets. In section 3, we discuss the decomposition of changes in countries' market shares obtained with the shift-share methodology, the contribution of price fluctuations and volume changes, and evolutions in terms of value-added (i.e. after correcting for the foreign content of exports). Concluding remarks are formulated in section 4.

## 2 Methods

Table 1 summarizes the recent changes in world market shares. I consider all exchanged products, i.e. the primary and the manufacturing sectors, with the exception of mineral products, notably oil, as well as some specific and non classified sectors. Intra-EU27 trade flows are excluded to allow the comparison of European countries with other exporters.<sup>2</sup> The first column gives the share of the global market in 2007 of largest world exporters.<sup>3</sup> The second column shows the percentage point changes in market shares over the 1995-2007 period. The last two columns display similar figures for the Chinese market. Similar evolutions for trade in agri-food products, corresponding to HS2 chapters 1 to 24, are displayed in Table 2.

The most remarkable evolution in Table 1 is that China has almost tripled its world market share since the mid-1990s, becoming a trade giant, second only behind the EU27. The EU market share has been fairly affected by the ten-point rise of China over the same period. In contrast, Japan and the US have lost over five percentage points of market shares each. Evolutions were less spectacular for developing countries given their smaller shares in world

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<sup>1</sup> Hereafter the Chinese market designates the sum of Chinese imports, or the sum of trade flows having China as destination.

<sup>2</sup> See Appendix \ref{sec data} for details.

<sup>3</sup> For the simplicity of the exposé only countries and group of countries that account for at least 1% of world trade in all years from 1995 to 2007 are shown. Data on other countries can be provided upon request.

exports. Most of them managed to increase their exports at a pace at least equal to the growth rate of global trade.

**Table 1:** The distribution of export market shares over 1995-2007, all products

	<i>The global market</i>		<i>The Chinese market</i>	
	2007 share, %	1995-2007 $\Delta$ , p.p.	2007 share, %	1995-2007 $\Delta$ , p.p.
EU27	19.4	-1.22	16.2	-2.53
France	2.3	-0.54	2.0	-0.96
Germany	5.5	-0.09	5.8	0.96
Italy	2.3	-0.41	1.7	-1.27
United Kingdom	2.0	-0.79	1.5	-0.98
United States of America	13.0	-5.25	10.3	-2.09
Japan	8.9	-5.31	17.8	-4.30
Canada	3.8	-1.42	1.2	-0.72
Switzerland	2.3	-0.56	1.2	-0.51
China	15.5	9.22		
Brazil	1.7	0.27	0.9	0.25
India	1.7	0.62	1.4	0.43
Indonesia	1.2	0.06	1.1	-0.33
Korea	4.4	0.57	11.6	3.57
Malaysia	2.1	-0.28	3.1	0.33
Mexico	2.8	0.59	0.3	0.01
Taiwan	3.6	-0.12	15.9	2.18
Singapore	2.0	-0.75	4.7	0.07
Thailand	1.9	0.14	3.1	1.00
Middle East and North Africa	4.0	1.54	1.6	0.32
Sub-Saharan Africa	1.6	0.10	0.8	-0.15
Rest of the World	9.9	1.80	8.8	2.48

*Notes:* Author's calculations. Oil and intra-EU 27 trade are excluded. The change in market shares is given in percentage points (p.p.).

Another important dynamic over the 1995-2007 period is the transformation of China also into a large importer. In 2007 9.7% of the goods traded internationally were shipped to China. Combined with the two-digit growth rate of Chinese production, this makes China a very attractive market. Its capacity to drive world trade and economic growth was confirmed during the 2008-2009 crisis and is being tested again as many industrialized countries are threatened by a deep economic recession.

If we consider the Chinese market alone, only Germany and a few large Asian exporters (Korea, Taiwan, Thailand) succeeded to increase substantially their market shares. For the US, Japan and Canada, their losses on the Chinese market were smaller than on the extra-Chinese market. This reveals their capacity to sell better domestic production to China than to the global market. Differently, the position of most European countries deteriorated more on the Chinese market.

Next, we focus on the contribution of different factors to the growth of exports. We focus exclusively on the intensive margin of trade, i.e. on trade flows that involve the same partners and traded products in at least two consecutive years from 1995 to 2007. We ignore trade flows created or disappeared throughout the period, for which one cannot compute growth rates. This does not affect much our results, since at our level of disaggregation the bulk of the

growth in world trade comes from a larger volume of goods being exchanged via previously established trade partnerships. We decompose the intensive margin of exports using an econometric shift-share methodology, and analyze the export growth specific to each exporter and product category on the global and the Chinese markets.

**Table 2:** The distribution of export market shares over 1995-2007, agri-food products

	<i>The global market</i>		<i>The Chinese market</i>	
	2007 share, %	1995-2007 $\Delta$ , p.p.	2007 share, %	1995-2007 $\Delta$ , p.p.
EU27	15.3	-2.45	9.4	-6.02
France	2.7	-0.52	2.6	-1.87
Germany	1.8	-0.46	0.9	-1.44
Italy	1.6	0.16	0.5	0.18
United Kingdom	1.3	-0.81	1.0	-2.11
United States of America	14.4	-5.08	19.6	-2.93
Japan	0.6	-0.20	2.8	-1.17
Canada	6.9	2.57	3.6	-6.49
Switzerland	0.7	-0.59	0.2	-0.14
China	5.1	0.08		
Brazil	0.9	0.02	11.6	6.69
India	5.7	1.17	1.5	0.58
Indonesia	2.3	0.32	5.2	2.51
Korea	2.8	0.87	1.5	-0.60
Malaysia	0.6	-0.46	8.3	2.15
Mexico	2.6	0.29	0.3	0.12
Taiwan	2.4	0.41	0.9	-0.56
Singapore	0.4	-1.02	1.7	-1.89
Thailand	2.9	-0.54	4.6	-3.79
Middle East and North Africa	5.1	1.29	1.1	0.69
Sub-Saharan Africa	4.2	-0.29	1.5	0.48
Rest of the World	27.1	3.61	26.3	10.38

*Notes:* Author's calculations. Intra-EU 27 trade are excluded. The change in market shares is given in percentage points (p.p.).

In the field of international trade, the traditional shift-share analysis, also known as the *constant market share analysis*, aims to measure the contribution of countries' geographical and sectoral specialization to the growth of their exports (Tyszynski, 1951; Richardson, 1971a, 1971b; Fagerberg, 1988). The method simply aims at computing the contribution of the initial geographical and sectoral composition of exports to changes in market shares. The remaining part of the change is attributed to pure performance (i.e. price and non-price competitiveness).

Departing from this traditional analysis, we rely here on an econometric shift-share methodology developed by Cheptea et al. (2012) and Cheptea (2012). Rather than using a simple balance-sheet decomposition of growth rates into structural and competitiveness effects, we use a weighted variance analysis. Firstly, structural and performance contributions to export growth rates, expressed as changes in logarithms, are estimated from highly disaggregated data with weighted OLS. Secondly, estimated exporter, importer and product effects are aggregated into country-specific structural and performance effects. The resulting decomposition of export growth rates (in logarithmic form) is then transposed into a decomposition of changes in global market shares. Finally, we switch from log-linearized

growth rates to true growth rates in order to obtain results comparable with previous ones. To use the information on time variations in the data, we focus on the sum of annual growths of each trade flow rather than on the increase in its value between the first and last years of a period. Therefore, our method is constrained by the observation of the same flow in two consecutive years (necessary for computing annual growth rates), i.e. it applies only to the intensive margin of trade.<sup>4</sup>

We regress export growths on country, partner and sector (HS 2-digit) fixed effects. Normalized estimated effects  $\alpha_i^t$ ,  $\beta_j^t$  and  $\gamma_k^t$  give the intrinsic contribution of each exporter ( $i$ ), importer ( $j$ ) and product category ( $k$ ) to the growth of exports on the global market in time  $t$ :

$$d \ln X_i^t = \alpha_i^t + \sum_j \left( \frac{w_{ij}^t}{w_i^t} \right) \beta_j^t + \sum_k \left( \frac{w_{ik}^t}{w_i^t} \right) \gamma_k^t. \quad (1)$$

In equation (1)  $d \ln X_i^t$  and  $w_i^t$  stand for the growth of exports towards all world partners in time period  $t$  and, respectively, the average weight of flows in global trade. We choose to express the growth rate of country  $i$ 's exports as a Törnqvist index of growth rates of disaggregated trade flows, i.e. as a weighted average of the logarithmic change in its exports of each product  $k$  to each partner  $j$ :

$$d \ln X_i^t = \sum_{jk} \left( \frac{w_{ijk}^t}{w_i^t} \right) \ln \frac{X_{ijk}^t}{X_{ijk}^{t-1}} = \sum_{jk} \left( \frac{w_{ijk}^t}{w_i^t} \right) d \ln X_{ijk}^t. \quad (2)$$

Similar effects, except for importers, ( $\alpha_{ij}^t$  and  $c_{kj}^t$ ) are estimated for shipments towards China ( $J$ ):

$$d \ln X_{ij}^t = \alpha_{ij}^t + \sum_k \left( \frac{w_{ijk}^t}{w_{ij}^t} \right) c_{kj}^t. \quad (3)$$

Figure 1 pictures the annual growth rates of exports towards the global and Chinese markets. The evolution of the import capacity of both markets followed more or less the same peaks and downturns. However, in the middle of the period (from 2000 to 2004) exports to China grew much more rapidly. This resulted in an overall increase in Chinese imports from 1995 to 2007 of 247%, while world trade grew by only 151%. Differently, the intrinsic growth of China's import demand, corresponding to parameter  $\beta_J^t$ , was considerably lower: 69% for the entire 1995-2007 period. Still, this figure is largely above the trade dynamics of most other import markets. Among the twenty-two countries and groups of countries listed in Table 1, only India's intrinsic import demand grew faster. The large gaps between the increase of the intrinsic Chinese demand and the overall growth of Chinese imports reveal the fact that a significant part of the expansion the Chinese market was driven by the strong export dynamics of its trade partners and the strong demand for products they exchange with China. In other words, China imported a lot from countries with the best export performances and in products with the most rapidly growing global demand.

<sup>4</sup> In the context of the recent economic crisis this type of analysis gained interest among economists: Brenton and Newfarmer (2007), Cafiso (2009), ECB (2005), Amador and Cabral (2008), Jimenez and Martin (2010), Panagiotis et al. (2010), Finicelli et al. (2011).

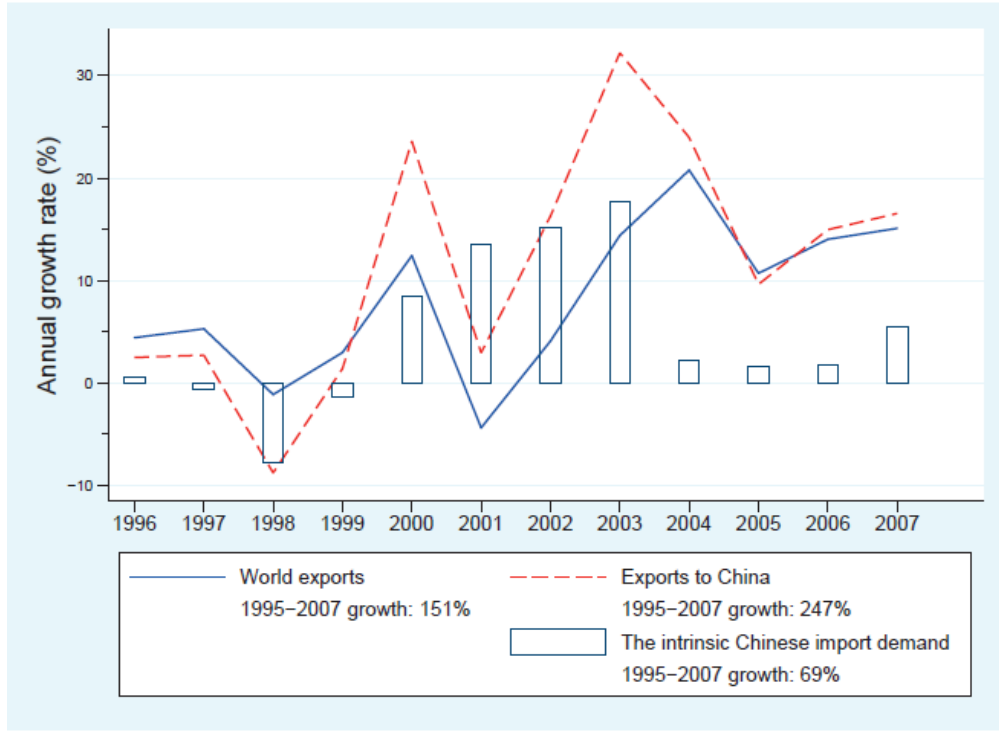


Fig. 1: Exports growth on the global and Chinese markets, 1995-2007

### 3 Results and Discussion

The present section is dedicated to the decomposition of changes in countries' shares of the global and Chinese markets, at the intensive margin, into export performance and structure effects. We compute the latter using exporter-, importer- and product-specific effects discussed in section 2. Our objective is to identify the countries with the best and the poorest resilience in terms of their global and Chinese market shares. We focus here only on the intensive margin of exports, which reflects 97.2% of growth in world exports and 99.9% of the increase in exports having China as destination. Therefore, the conclusions reached for this component of exports' growth can be safely generalized.

Table 3 displays the evolution of global market shares of main exporters between 1995 and 2007 and its decomposition into exporter-specific performance, geographic and sectoral structure effects:

$$g_i = \exp \left( \sum_t d \ln \left( \frac{x_i^t}{x_i^1} \right) \right) - 1 = [1 + PERF_i] * [1 + GEO_i] * [1 + SECT_i] - 1. \quad (4)$$

The *export performance* ( $PERF_i$ ) is the change in a country's market share driven by country-specific factors. This is the increase in market shares one would observe in the absence of any differences in the product composition and the geographical orientation of country's exports and world trade. Structural effects ( $GEO_i$  and  $SECT_i$ ) reflect the contributions of the country's exports structure by partner and product to the overall growth of its exports. A large positive (negative) structure effect corresponds to a share of country' exports in products and to import markets with strongly growing demand higher (lower) than the world average. More precisely, we define:

$$PERF_i = \exp \left( \sum_t (\alpha_i^t - d \ln X^t) \right) - 1; \quad (5)$$



$$GEO_i = \exp \left( \sum_t \sum_j \left( \frac{w_{ij}^t}{w_i^t} \right) \beta_j^t \right) - 1; \quad (6)$$

$$SECT_i = \exp \left( \sum_t \sum_k \left( \frac{w_{ik}^t}{w_i^t} \right) \gamma_k^t \right) - 1. \quad (7)$$

The decomposition is obtained for each country and year within the considered period, and, since growth rates are computed as changes in logarithms, country-level *export performance*, *geographic* and *sectoral structure* effects for the entire period are obtained by summing up the corresponding annual effects.

**Table 3:** Decomposition of changes in world market shares, 1995-2007, all products

	Change in market share (%)	Contribution of:		
		Performance	Structure effects	
			Geographic	Sectoral
	(1)	(2)	(3)	(4)
EU27	-5.0	-17.3	6.0	8.4
France	-19.0	-31.7	5.2	12.9
Germany	-0.6	-15.3	4.8	11.9
Italy	-14.9	-16.1	8.2	-6.3
United Kingdom	-29.6	-39.2	1.0	14.5
United States of America	-28.1	-36.2	4.4	8.0
Japan	-37.7	-43.3	-1.6	11.6
Canada	-26.0	-16.8	-14.4	3.9
Switzerland	-15.7	-26.4	1.4	13.0
China	155.2	264.8	-12.2	-20.4
Brazil	24.3	49.9	-1.7	-15.7
India	59.2	88.4	4.7	-19.3
Indonesia	8.0	49.2	-7.4	-21.9
Korea	16.7	12.2	3.4	0.6
Malaysia	-11.5	-0.4	-9.9	-1.4
Mexico	29.0	47.5	-14.2	1.9
Taiwan	-6.1	-10.6	8.0	-2.8
Singapore	-24.3	-28.3	-1.0	6.6
Thailand	11.0	35.1	-8.3	-10.5
Middle East and North Africa	50.6	53.2	10.5	-11.0
Sub-Saharan Africa	0.8	16.2	-2.6	-11.0
Rest of the World	12.9	24.1	3.7	-12.2

*Notes:* Author's calculations. The estimation is performed at the 2-digit level of the HS and explain the annual growth of all trade flows existing in any two consecutive years in the period 1995-2007. The following identity between columns holds:  $\ln((1)=100+1) = \ln((2)=100 + 1) + \ln((3)=100 + 1) + \ln((4)=100 + 1)$ .

According to Table 3, the 5% loss of EU's share of the global market on the intensive margin is mainly due to its poor export performance (-17.3%), partially compensated by favorable geographic (6.0%) and sectoral (8.4%) structure effects. Market share losses suffered by developed economies, already documented in section 2, were the result of their poor global export performances. The good positioning in terms of best selling products and most dynamic trade partners only hindered the contraction of these countries' shares of the global

market. On the opposite, emerging economies reinforced their positions as world exporters by increasing the overall competitiveness of their exports and despite the adverse sectoral and geographic structure effects.

**Table 4:** Decomposition of changes in Chinese market shares, 1995-2007, all products

	Change in	Contribution of:		Contribution of:	
	market	Perfor-	Sectoral	Price	Volume
	share (%) (1)	mance (2)	structure (3)	evolutions (4)	evolutions (5)
EU27	-14.5	-18.3	4.7	11.9	-23.6
France	-35.5	-46.8	21.2	-31.7	-5.6
Germany	19.2	7.6	10.7	12.7	5.8
Italy	-43.2	-28.2	-20.9	20.7	-52.9
United Kingdom	-40.2	-41.6	2.4	37.0	-56.3
United States of America	-17.9	-23.9	7.9	-1.8	-16.4
Japan	-19.5	-25.3	7.7	7.7	-25.3
Canada	-39.4	-28.6	-15.1	37.7	-56.0
Switzerland	-30.5	1.2	-31.4	-1.3	-29.6
Brazil	35.7	27.6	6.4	4.3	30.0
India	47.4	108.8	-29.4	-3.0	52.0
Indonesia	-23.2	-12.9	-11.8	-11.0	-13.7
Korea	43.8	53.2	-6.1	35.9	5.8
Malaysia	11.5	5.0	6.2	66.3	-33.0
Mexico	24.4	16.3	7.0	73.2	-28.2
Taiwan	16.0	17.0	-0.9	-37.9	86.8
Singapore	1.0	-12.4	15.3	-43.3	78.1
Thailand	57.9	106.7	-23.6	9.4	44.3
Middle East and North Africa	28.8	49.6	-13.9	25.9	2.3
Sub-Saharan Africa	-16.6	11.3	-25.1	109.4	-60.2
Rest of the World	44.2	66.1	-13.2	66.3	-13.3

*Notes:* Author's calculations. The estimation is performed at the 2-digit level of the HS and explain the annual growth of all trade flows existing in any two consecutive years in the period 1995-2007. Columns (4) and (5) give the contribution of the evolution of prices and volumes to changes in shares of the Chinese market. The following identities between the different columns hold:  $\ln((1)=100+1) = \ln((2)=100+1) + \ln((3)=100+1)$  and  $\ln((1)=100+1) = \ln((4)=100+1) + \ln((5)=100+1)$ .

In Table 4, we report the decomposition of changes in exporters' shares of the Chinese market. Columns 2 and 3 of the table reflect the contribution of exporter-specific performance and sectoral structure effects:

$$g_{ij} = \exp \left( \sum_t d \ln \left( \frac{x_{ij}^t}{x_j^t} \right) \right) - 1 = [1 + PERF_{ij}] * [1 + SECT_{ij}] - 1. \quad (8)$$

where  $PERF_{ij}$  and  $SECT_{ij}$  are computed similarly to  $PERF_i$  and  $SECT_i$ :

$$PERF_{ij} = \exp \left( \sum_t (a_{ij}^t - d \ln x_j^t) \right) - 1; \quad (9)$$

$$SECT_{ij} = \exp \left( \sum_t \sum_k \left( \frac{w_{ijk}^t}{w_{ij}^t} \right) c_{kj}^t \right) - 1. \quad (10)$$

The last two columns of Table 4 correspond to shifts in market shares induced by changes in prices and volumes. To obtain market share evolutions in terms of volumes, we deflate all trade values expressed in current USD,  $X_{ijk}^t$ , with trade indices computed for each exporter  $\times$  importer  $\times$  HS2 relationship. The procedure is similar to Fontagne et al. (2008) and relies exclusively on trade values and unit values available in the BACI database. Trade indices for each pair of countries and HS2 chapter are computed as chained Tornqvist indices of unit value ratios of traded HS 6-digit products within the chapter. The year 2000 is taken as reference, meaning that 2000 trade flows in constant and current/volume terms are equal. The difference between the evolution of trade expressed in current and constant/volume terms is attributed to price fluctuations.

**Table 5:** Decomposition of changes in world market shares, agri-food products, 1995-2007

	Change in market share (%)	Contribution of:		
		Performance	Structure effects	
			Geographic	Sectoral
	(1)	(2)	(3)	(4)
EU27	-3.2	-8.4	0.6	5.1
France	-21.0	-26.5	0.5	6.8
Germany	8.7	5.3	2.5	0.7
Italy	4.1	-3.9	-4.2	13.0
United Kingdom	-34.7	-46.3	10.6	10.1
United States of America	-24.8	-29.4	6.0	0.6
Japan	-65.1	-44.9	-37.6	1.4
Canada	10.4	10.0	1.7	-1.3
Switzerland	-4.2	-6.5	-2.4	5.0
China	36.4	90.6	-25.0	-4.6
Brazil	81.1	99.5	1.3	-10.4
India	22.9	37.6	4.2	-14.3
Indonesia	57.4	70.0	0.7	-8.0
Korea	-48.0	-31.9	-24.4	1.0
Malaysia	17.4	9.8	12.9	-5.3
Mexico	27.1	14.0	8.1	3.2
Taiwan	-77.7	-68.2	-25.2	-6.4
Singapore	-47.3	-48.4	-2.6	5.0
Thailand	-15.6	-7.0	-5.1	-4.4
Middle East and North Africa	10.9	9.2	2.6	-1.0
Sub-Saharan Africa	-6.5	-2.5	5.9	-9.4
Rest of the World	11.3	17.5	-0.4	-4.9

*Notes:* Author's calculations. The estimation is performed at the 2-digit level of the HS and explain the annual growth of all trade flows existing in any two consecutive years in the period 1995-2007. The following identity between columns holds:  $\ln((1)=100+1) = \ln((2)=100 + 1) + \ln((3)=100 + 1) + \ln((4)=100 + 1)$ .

Overall, the role of performance and structure effects in explaining changes in shares of the Chinese market are similar to country-level evolutions observed at the global level. The position of industrialized countries weakens although they export the products mostly demanded by Chinese firms and consumers. The only exception is Germany who increased in twelve years its share of the Chinese market by 19%, corresponding to 1 p.p. Other European

countries, on the contrary, were much less performing than on the world market. In turn, developing countries benefited the most from the increasing size of the Chinese import demand. This is particularly the case of China's traditional trade partners (Korea, Taiwan, Malaysia, Thailand), but also that of Latin American countries (Brazil, Mexico, Argentina, Chile). The latter succeeded to expand their sales on the Chinese market by mainly targeting the products with fast growing demand.

If we ignore price evolutions, market share losses of most developed countries in China were even more pronounced. The increase in the unit value of products exported by these countries to Chinese partners (up to 38% for Canada) could not compensate for the contraction of Chinese demand for these products in volume (real) terms. The main exception to this trend are French exporters who lost shares of the Chinese market mainly because of the drop in the price of exported products. Price evolutions are very heterogeneous and even larger across developing countries. This is due to larger exchange rate appreciations/depreciations observed for these countries, a main element of price evolutions. For example, Malaysia and Mexico compensate their large market shares losses in real terms by an about 70% price increase in the price of exported goods. On the contrary, Singapore and Taiwan reinforced their positions on the Chinese market as their exports became around 40% cheaper.

**Table 6:** Decomposition of changes in Chinese market shares, agri-food products, 1995-2007

	Change in market share (%) (1)	Contribution of:		Contribution of:	
		Perfor- mance (2)	Sectoral structure (3)	Price evolutions (4)	Volume evolutions (5)
EU27	-53.0	-59.2	15.2	-35.1	-27.6
France	-58.7	-73.8	57.8	-31.7	-39.5
Germany	-64.6	-66.9	6.8	-21.1	-55.2
Italy	72.7	45.5	18.7	-21.8	120.8
United Kingdom	-75.7	-77.4	7.4	-24.6	-67.8
United States of America	-17.1	-35.1	27.7	-2.0	-15.4
Japan	-27.7	-35.6	12.3	-9.0	-20.5
Canada	-63.7	-17.9	-55.8	-7.7	-60.7
Switzerland	-45.3	-49.7	8.9	-58.2	31.0
Brazil	176.1	62.5	69.9	-43.5	388.5
India	88.1	29.3	45.5	-17.4	127.8
Indonesia	100.3	51.0	32.6	-16.2	139.0
Korea	-27.2	-4.7	-23.6	-21.6	-7.1
Malaysia	40.4	25.6	11.8	-14.1	63.4
Mexico	63.6	76.4	-7.2	-48.1	215.3
Taiwan	-39.7	-58.1	43.7	-51.7	24.9
Singapore	-49.4	-52.3	6.0	44.4	-65.0
Thailand	-42.0	35.8	-57.3	-22.5	-25.1
Middle East and North Africa	210.0	277.8	-18.0	-10.9	247.7
Sub-Saharan Africa	51.5	61.6	-6.3	-1.8	54.3
Rest of the World	88.4	91.7	-1.7	72.8	9.0

*Notes:* Author's calculations. The estimation is performed at the 2-digit level of the HS and explain the annual growth of all trade flows existing in any two consecutive years in the period 1995-2007. Columns (4) and (5) give the contribution of the evolution of prices and volumes to changes in shares of the Chinese market. The

following identities between the different columns hold:  $\ln((1)=100 + 1) = \ln((2)=100 + 1) + \ln((3)=100 + 1)$  and  $\ln((1)=100 + 1) = \ln((4)=100 + 1) + \ln((5)=100 + 1)$ .

Tables 5 and 6 show decomposition of countries' market shares evolution on the global and Chinese markets for agricultural and food products (HS2 chapters 1 to 24), according to equations (4) and (5), respectively.

Differences between the contribution of different factors, for developed and developing countries, are better visualized in a graphical representation of market share evolutions from Tables 4 and 6 (Figures 2 and 3 of Appendix B). To ease comparisons, evolutions are expressed in logarithms of shifts in exporters' shares of the Chinese demand. Performance and structure bars (log-effects) add up to give the logs of market share shifts. The same is true for price and volume bars (log-effects).

## 4 Conclusions

Emerging countries have been winning large market shares since the early 1990s. Among these, China stands out with the most remarkable performance: it almost tripled its world market share and has become a leading exporter, second only to EU~27. Recent evolutions also reveal the large and growing potential of the Chinese market and its increasing attractiveness to foreign producers. The present paper attempts to identify the countries that have profit the most from the expansion of the Chinese market.

To answer this question, an econometric shift-share methodology is employed. For each exporter the share of trade growth arising from the capacity to target the products and markets with the highest increase in demand, and the share due exclusively to the country's own export performance are identified. This methodology applies only to the intensive margin of trade, which captures in our case the bulk of the growth. Exporter, importer and product specific contributions to export growth rates are estimated from highly disaggregated data with a weighted variance analysis, and then aggregated into country-specific structural and performance effects. The resulting decomposition of export growth rates is then transposed into a decomposition of changes in market shares to obtain comparable results. We use detailed longitudinal trade data on an exhaustive basis from the BACI database. Shifts in shares of the global and Chinese market, expressed in percentage of the initial share, and their decomposition into performance and structural effects are computed for each exporting country.

We find that countries that profit the most from the expansion of the Chinese economy are its traditional trade partners (except Japan), Germany, and large Latin American countries (Brazil and Mexico). For the first group of countries, the main driving forces were the specificities of the bilateral relationship with China (geographical proximity, trade agreements, complementarity of production processes, etc.). The selection of most competitive exporting firms into suppliers of the Chinese market was at the origin of Germany's market share gains. Our results suggest that German firms selling to China were more competitive than average German exporting firms. Lastly, we acknowledge the capacity of Latin American exporters to adapt their product mix to the evolution of the Chinese demand.

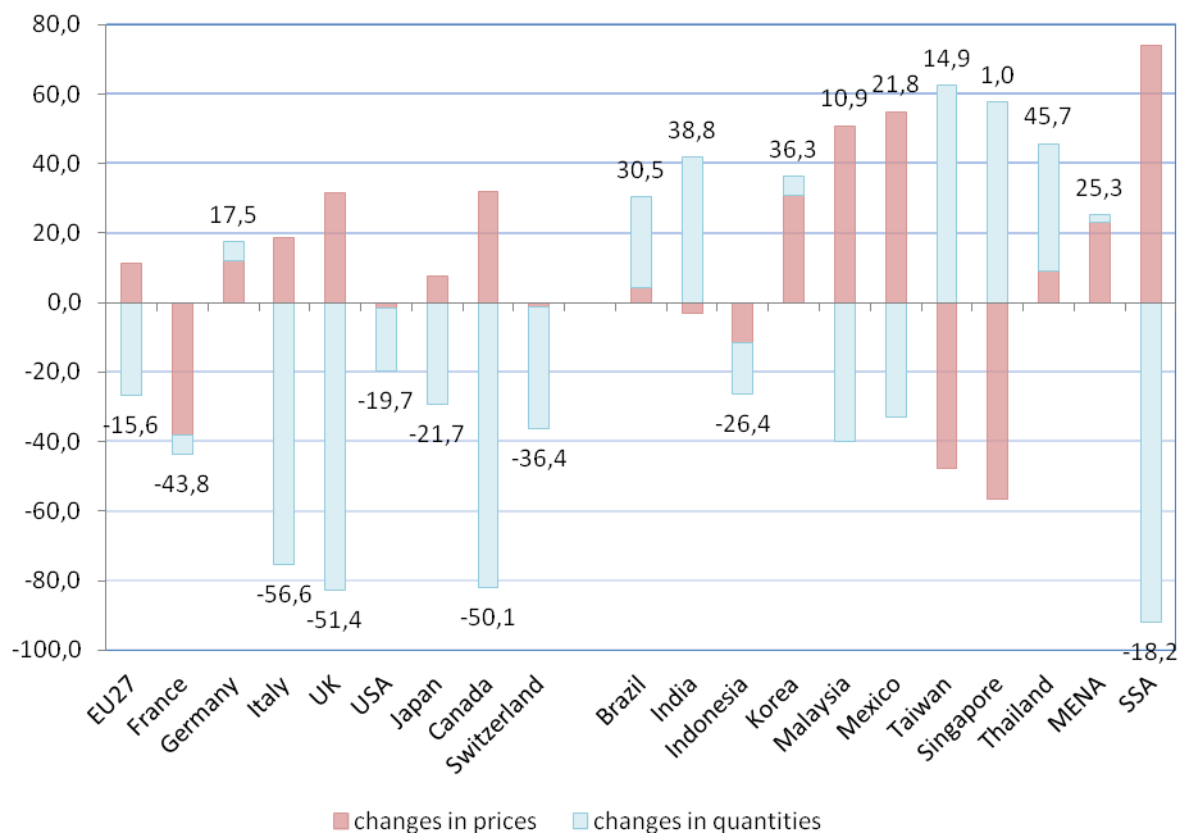
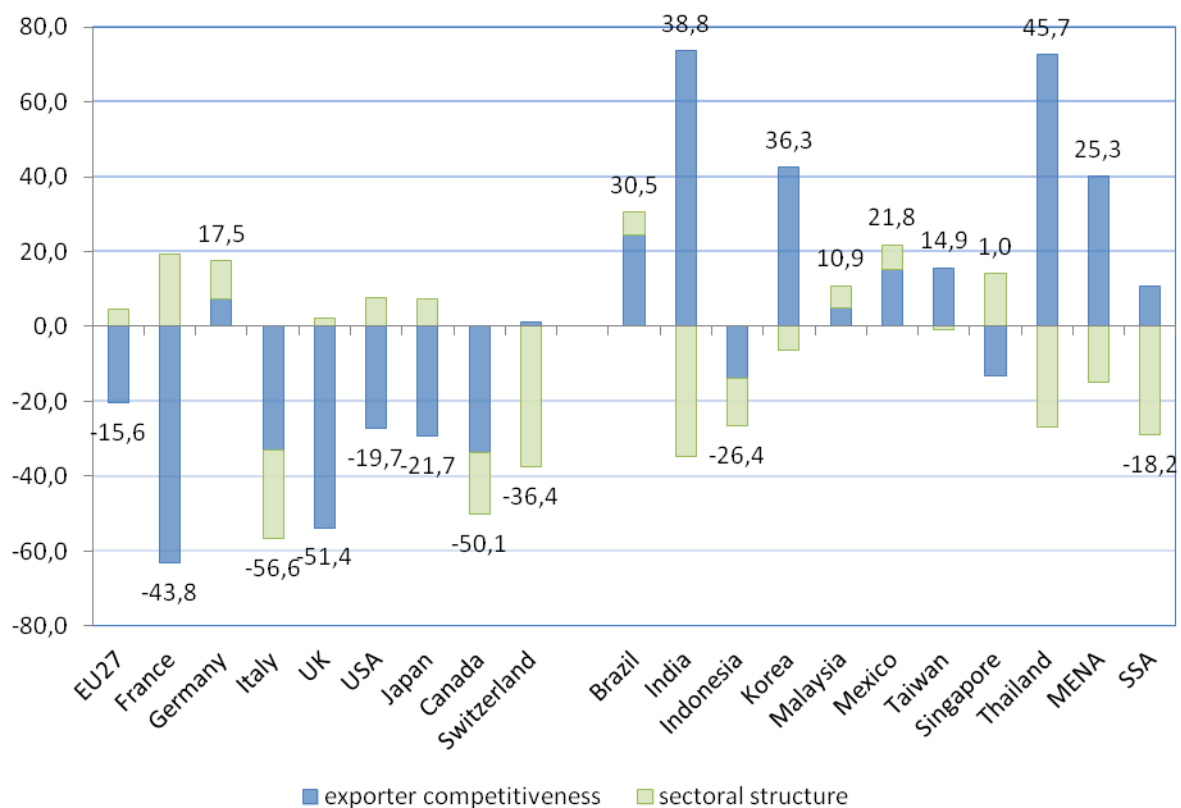
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## **A Data description**

Trade data used in this paper are from the BACI database, a new database for the analysis of international trade developed by Gaulier and Zignago (2010), available to COMTRADE users at: <http://www.cepii.fr/anglaisgraph/bdd/baci.htm>. BACI covers trade between more than 200 countries, in about the 5,000 products of the 6 digits Harmonized System (HS) classification. The present study excludes intra-EU 27 trade flows. This choice must be kept in mind when it comes to market shares and changes therein. We exclude also mineral products, specific, and non-classified products, corresponding to chapters 25, 26, 27 (mineral products), 97 (works of art, collectors' pieces and antiques), 98 and 99 (special classifications or transactions) of the Harmonized System. For the shift-share decomposition of the intensive margin of exports we also exclude trade flows inferior to USD 10,000 and non-independent territories and micro-countries. The motivation behind is to keep a larger share of trade flows in the intensive margin, the only component of the growth of trade discussed in that section. For export growths and the shift-share decomposition we also drop trade flows of a value lower than USD 10,000 or involving micro-states in order to avoid very large growth rates that would alter the explanatory power and the statistical significance of country, partner and product fixed-effect estimates. For this analysis we employ HS2 data obtained by aggregation of HS6 data.

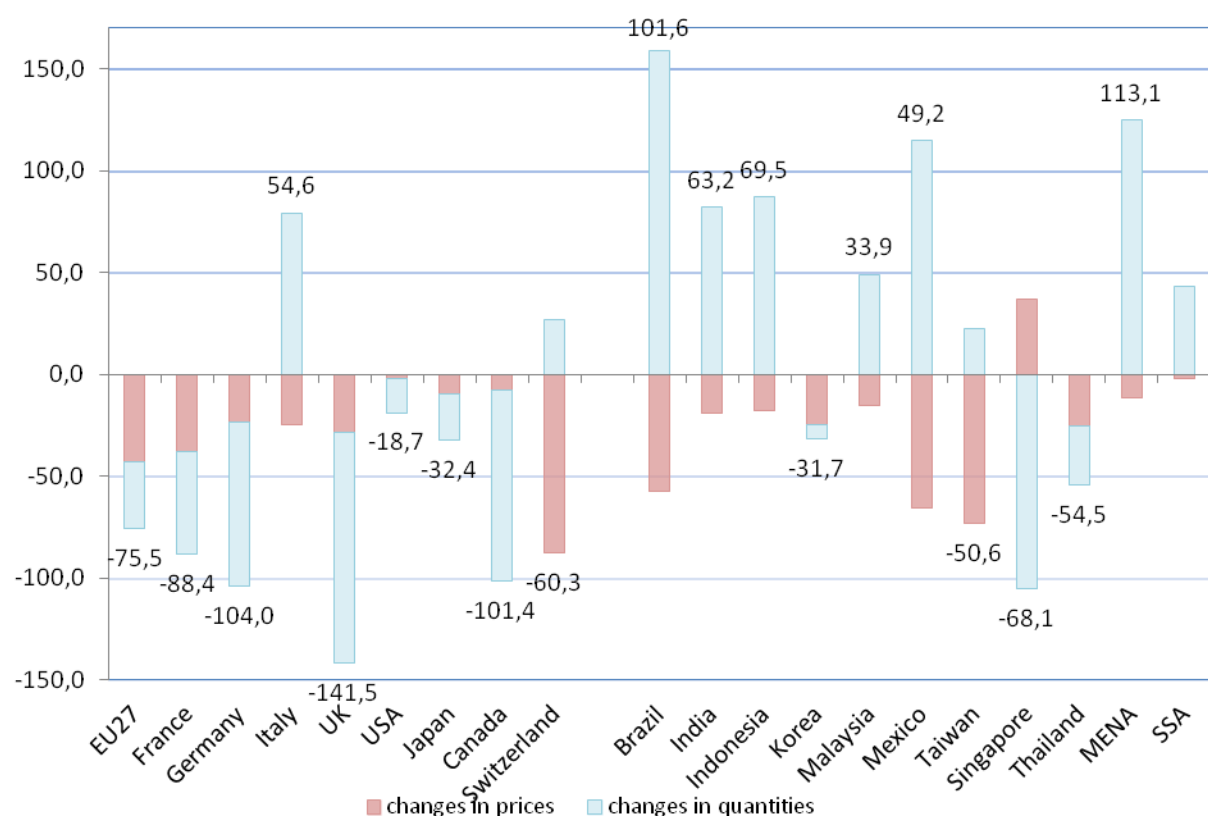
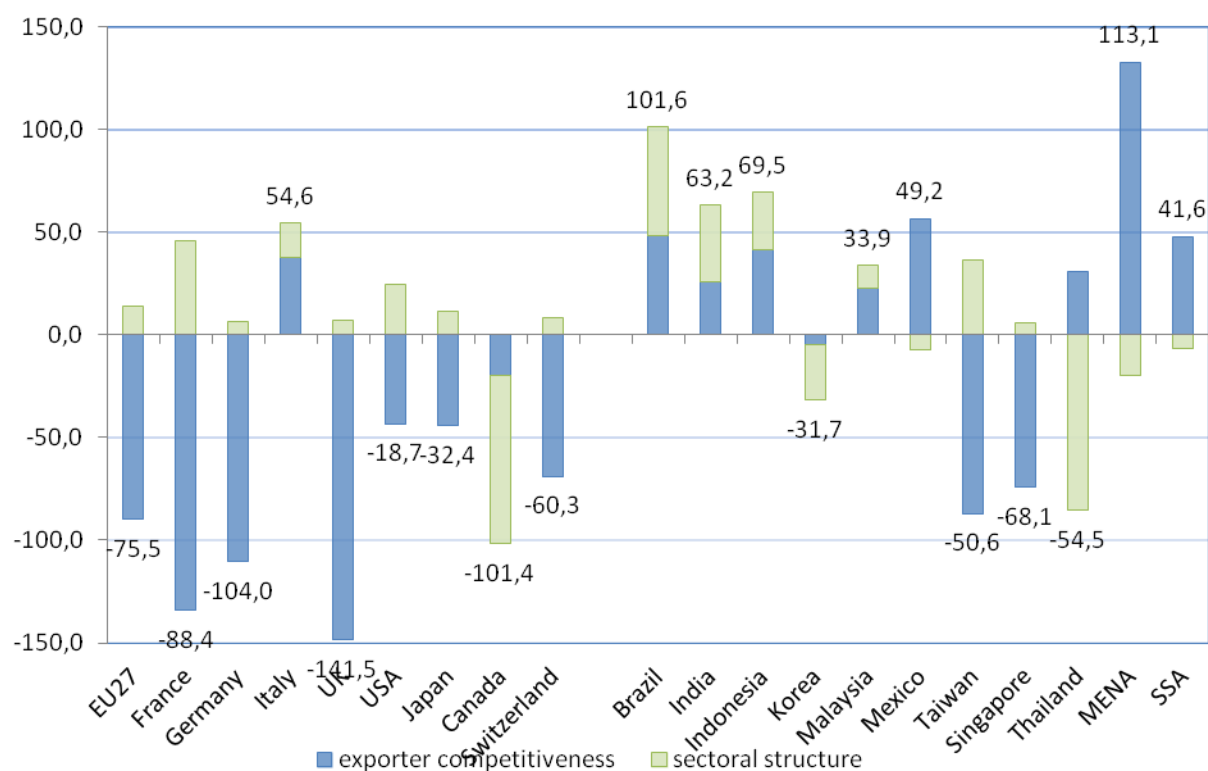
## B Export performance and structure effects





**Fig. 2:** Changes in shares of the Chinese import demand, all products, 1995-2007

*Notes:* Units on the vertical axis correspond to logarithmic changes (%) in 1995 market shares.



**Fig. 3:** Changes in shares of the Chinese agri-food import demand, 1995-2007

Notes: Units on the vertical axis correspond to logarithmic changes (%) in 1995 market shares.