Italy and China Agri-Food Trade: Integration, Similarity and Competition

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e: integration, similarity and competition

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Abstract

The paper looks at the increasing integration of China into the world market, with a specific focus on agricultural and food trade and on the Italian market. Agricultural trade among Italy and China has been limited to secondary products, especially originated in the livestock sector. However, in the last decade exchanges have been constantly increasing and the set of products changing deeply. Specifically, Italian exports to China have been specialising towards the typical "Made in Italy" processed products, showing a potential market for Italian agricultural and food products.
In order to test the opportunity and the risks of the integration of China into the world agro-food markets, some similarity indices have been calculated, with refer to two different markets: the EU-15 and the Chinese market. In the first case the similarity of Chinese exports with those of some EU partners on the EU-15 market was considered; in the second the similarity of exports of some EU Member States to China was calculated. Taking into account the different level of quality of agro-food products, the main result of the analysis is that Chinese products entering EU are more complementary than similar to the EU products; at the same time, China is a great potential market for EU products, and Italy will compete with other EU countries in the gain of quotas on the Chinese agro-food market.

JEL classification: F1, Q17.

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resent some specific characteristics: on the one hand China -food trade than in other sectors, and at the moment, it faces exporter. On the other hand, worries about product quality and food safety are a very important issues for agri-food trade, among other things, because of the strong implications they can have when evaluating the consumer health risks but also as a non-tariff barrier to the potential flow of products coming from the Asiatic country.

On this point, China's entry into the World Trade Organisation in 2001 should be evaluated positively, since it contributed to China's integration in the world market.

In this paper we will examine the agri-food exchanges between Italy and China, looking at them in the more general framework of the trade relations of the two countries. After the first section, which describes the agri-food exchange evolution, we will look at the growth of trade specialisation, highlighting how the relations progressed towards concentration on products with a higher additional value and more "recognisable" elements, especially for Italian exports towards China. In the second part of the paper we use simple specialisation indexes to analyse the level of similarity of the agri-food exchanges between China, Italy and other countries (EU and not), which will be compared in order to try and evaluate the possible competition level between the analysed countries with regard to some reference markets. This exercise is carried out at two different levels; in the first case the similarity of the agri-food exports between China and some European countries in respect of the EU-15 market is analysed; in the second case reference is made to the Chinese market, in particular the similarity of Italian exports towards China with those of other European partner countries.

In both cases, the quality level of the exchanged products is taken into account, and it is highlighted how quality strongly influences the flows of the exchanged products. Trade flows apparently similar have a different weight in the similarity calculation if they are selected on the basis of quality.

2. Total and agri-food trade between Italy and China

The position of China in the world market took a sharp turn when it entered the World Trade Organisation (WTO) in 2001 (Huang, Rozelle, 2002). Following the agreement, China undertook to reduce its import

dustrial products and widen import quotas for agricultural the multilateral WTO regulations represents the pick of a the end of the Seventies, when import costs were reduced and markets were gradually opened to foreign investments (Chirico, 2004). The result of the long reform process has been a very sustained growth rate for the general economy which, in the case of overseas trade, always remained above 10% yearly (Huang, Rozelle, 2002)[1]. However, for the agri-food sector, considered strategic for both the questions of self-sufficiency and food security, this opening towards the world market was a much slower and more cautious process to which WTO adhesion gave notable impulse. From 2001, the total exports of the country have more than doubled, and imports have increased even more. On the contrary, the total of the country's agri-food exchanges became a little less dynamic after 2001, and in any case much less in favour of China, whose imports increased faster than exports[2] (INEA, 2005).

The total trade balance between Italy and China has been very dynamic over the last decade, with a net worsening of Italy's position. Between 1994 and 2004 the balance, constantly negative except for the first year, increased with a certain regularity until 2003, to improve slightly in the last year. In 2004, at constant values (1997), the trade balance results in deficit by more than 5,000 million Euro, with imports amounting to about 12,000 million Euro and exports to little more than 7,000 million.

China has a rather limited role in the Italian foreign trade, even if in slight growth. In 1994 the Italian export quota towards China was equal to 1.2%, while in 2004 it grew to 1.6%; on the contrary, Chinese exports towards Italy reached 1.9%, while in 2004 a figure of 4.2% was reached.

Moving to agri-food trade, it is worth underlining its marginal contribution to the total trade between Italy and China: agri-food exchanges represent just 1.2% of the total trade volume, and this quota has remained quite constant through time. China, as an agri-food partner, is of secondary importance to Italy. Even if a certain positive dynamism can be seen, it is definitely more toned down compared to the total trade. In

[1] The total trade balance for China in 2004 was positive for more than 32 million U$D, with an increase, just comparing to the previous year, of 23%. In comparison with 2001, when China joined the WTO, exports grew by 123%, while imports grew by 130% (INEA, 2005).

[2] Huang and Rozelle (2003) show how the total export value of agricultural *commodities* (cereals, oilseeds and sugar) has reduced during the last years, while the exports of higher value-added products, such as fruit and vegetables or livestock products, have grown.

d product supplier, but its importance as a client for Italian 4 quota reached just 0.13% (against 0.03% in 1994), and 2004. Looking at the trend over the decade, the agri-food balance at constant values (1997) shows a rather irregular progress: after growing during the second half of the Nineties, the trend shows a slight negative pace, then a new upward phase begins during the initial years of the 2000 decade. In 2004 exports reached about 22 million Euro, against imports for more than 200 million Euro. The balance, therefore, is approximately -196 million Euro (at constant values).

As regards the dynamics of the main traded items between 1994 and 2004 (Table 1), data highlight a prevalence of aggregates which often represent statistical "product residuals" that include very different and heterogeneous items (the "Other livestock products" and "Other food products" cases are good examples). This aspect indicates a substantial marginality of the agri-food exchanges between the two countries, confirmed also by the scanty amount of the absolute value flows. Another interesting point that emerges during the last 10 years is the "de-specialisation" process of agri-food trade: in 1994 the main export item represented 43% of the total exported from Italy to China; in 2004 the first item covered only 27% of the total. Similarly, looking at imports, even though the first five items make up 82% in 2004 against 81% in 1994, it should be highlighted how the first sector covered almost 50% of the total in the mid-nineties, while in 2004 the first item stopped at 38%. In conclusion, besides de-specialisation, as mentioned before, we should also talk about trade "re-qualification", evident especially in exports, in favour of Italian products that are of greater interest for the international markets.

In particular, on the import side the purchase of vegetables (processed and dried) and processed fish products from China becomes more relevant, while, on the export side, the typical "*made in Italy*" agri-food items show a fast growth: biscuits and confectionary (18%), quality and table red wines (together 8%), olive oil (8%), and pasta (3%).

od exchanges

sation indicators that measure the merchandise similarity between the export flows of two countries in the same reference market. The use of these indexes as an analytical instrument for evaluating competitiveness between exports towards a specific market is based on the fact that the more the goods two countries export toward a common reference market are "similar", the more they can be considered as competitors for those goods. The analysis was carried out using three different indicators: the export structure similarity index (ES), the product similarity index (PSI) and the quality similarity index (QSI) (Grubel, Lloyd, 1975; Finger, Kreinin, 1979; Castellano, Henke, 1998; De Nardis, Trau, 1999; Iapadre, 2002; Rolli, Zaghini, 2002; Monti, 2003), and using the Eurostat database with an eight "digit" merchandise disaggregation and with reference only to agri-industrial exchanges[3].

The first indicator, ES, compares the relative dimension of the export flows for a given merchandise aggregate between two countries towards a specific reference market. The index is based on the quota of each item to the total of the agri-industrial exports for each of the two countries compared.

In mathematical terms:

$$ES = \sum_i [\min(x_{iA}, x_{iB})] * 100,$$

where x_{iA} and x_{iB} are, respectively, the quotas of the total agri -industrial exports of country A and country B, regarding the item i (eight "digits" level). The index varies between 0 and 100: in the first case the similarity is null, while in the second the flows are identical.

Another indicator (PSI) can be used to refine the similarity analysis between the exports of two countries. Differently from the ES index, which refers only to the flow merchandise structure, PSI is based on the absolute export values (Grubel, Lloyd, 1975; Monti, 2003).

Expressed as a formula, the PSI is given by:

[3] The term "digit" refers to the number of figures in the code which, in the *Harmonized Commodity Description and Coding System* used by Eurostat, are used to define a product. While the digit number increases, the level of disaggregation also increases, therefore the goods merchandise definition level. Classification has moved from 2 digits, which represent the "chapters" to 4 digits, which represent the "items", to 12 digits which represent the maximum available merchandise disaggregation .

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flows of the merchandise sector i (eight " digits" level) for Benedictis, Tavoli, 2005a and 2005b). As in the case of ES, this index varies between 0 and 100: in the first case the similarity is null, in the second the flows are identical. Finally QSI, which is a PSI component, can be used to include the quality aspect of the goods exported from two countries to a common reference market. The QSI is created from the PSI with the difference, however, that in this case only the commercial flows judged as being similar in quality contribute to the index. In other words, all the flows of the products exported towards a specific market by two countries are taken into consideration when calculating the PSI, while with QSI the similarity is only calculated on the flow of products that are similar in quality. The others are given a null value. To carry out this selection the average unitary value (AUV) of each item "i" that the two countries export to the reference market was used as a *proxy* of the quality level.

In mathematical terms,

$$QSI = \left\{1 - \left[\sum_i \left| X_{iA}^q - X_{iB}^q \right| / \sum_i \left(X_{iA}^q + X_{iB}^q\right)\right]\right\} * \left(\sum_i \left(X_{iA}^q + X_{iB}^q\right) / \sum_i \left(X_{iA} + X_{iB}\right)\right) * 100$$

where X_{iA} and X_{iB} represent respectively the exports of country A and country B of the product i (eight digits) limited by cases for which the quality similarity condition is respected, namely:

$$(1-a) < \left(AUV_{X_{iA}} / AUV_{X_{iB}}\right) < (1+a),$$

where the coefficient "a" is normally positioned between 0.15 and 0.25. In this case, a relatively high coefficient equal to 0.25 was selected given the heterogeneity of the economic systems of the countries being compared.

Once the three indicators were defined, they were used to analyse two cases:

- the level of similarity in the exports of China and Italy (and other European partners) to the European market;
- the level of similarity in the exports of Italy and other European partners to the Chinese market.

In both cases, the exercise was repeated for two 2-year periods: 1996-97 and 2002-2003.

e 3), it can be seen how the ES index shows modest, even though increasing, values, which translate into a low similarity of the Chinese export structures with those of the European countries here analysed.

The PSI confirms the modest absolute dimension of the agri-food export flows activated by China towards the EU. Looking at the QSI, it reveals that quality is a discriminating parameter for agri-food products exported by China to the European market. In practice, there does not seem to be a real short and medium term risk of direct competition with Italian and other Member State agri-food exports towards the European markets.

3.3 The Chinese market

This section looks at the similarity between Italian agri-food exports and those of other Community countries towards the Chinese market. In this case only the ES and PSI indexes were used, given that the calculation of similarity based only on similar quality flows reduces the options to a very limited number of items, enough to render the index insignificant. Italian agri-food exports towards China were compared with those of France, Spain and Netherlands; these are, in fact, the EU partners that, more than others, can be considered as potential competitors of Italy on the Chinese agri-food market (table 3).

Spain is the country which appears as the strongest direct competitor of Italy on Chinese market: the value of PSI is higher than in the case of France and the Netherlands. From a dynamic point of view, however, the Netherlands show the greatest index growth between the two periods considered. On the contrary, France and Spain similarity levels are lower with respect to Italian exports.

hina and Italy has not increased in quantity, but rather has smaller number of items that are more important for the Italian agri-food balance. Going into details, it is interesting to see how in 2004 the typical " made in Italy" items, such as cereal products, vegetable oils and fats and beverages (red wine) appeared among the main products exported to China.

From the analysis of trade similarity it appears that China has taken very small steps in the overseas sale of agri-food products when compared with other suppliers. The use of QSI shows how the convergence process between the Chinese supply and that of other countries involves products of different quality levels and which therefore, in reality, address different market segments. In other words, the quality level of the Chinese products, still very far from the European level, highlights how the choices of the Chinese producers and exporters are, for the moment, directed towards those market segments for which price becomes a more important competitive factor. The scenario is different if one looks at the similarity between Italian exports and those of some Europe an countries to the Chinese market. Spain seems to be a relevant competitor, while Dutch exports to China show a growth in similarity with Italian exports.

In conclusion, what emerges is a strong opportunity for Italy and other EU countries to expand their agri-food sales in China. The Asiatic country represents a potential market that can absorb growing quantities of agri-food products with a high value added, if the evolution of trade is followed by suitable promotion, valorisation and information policies.

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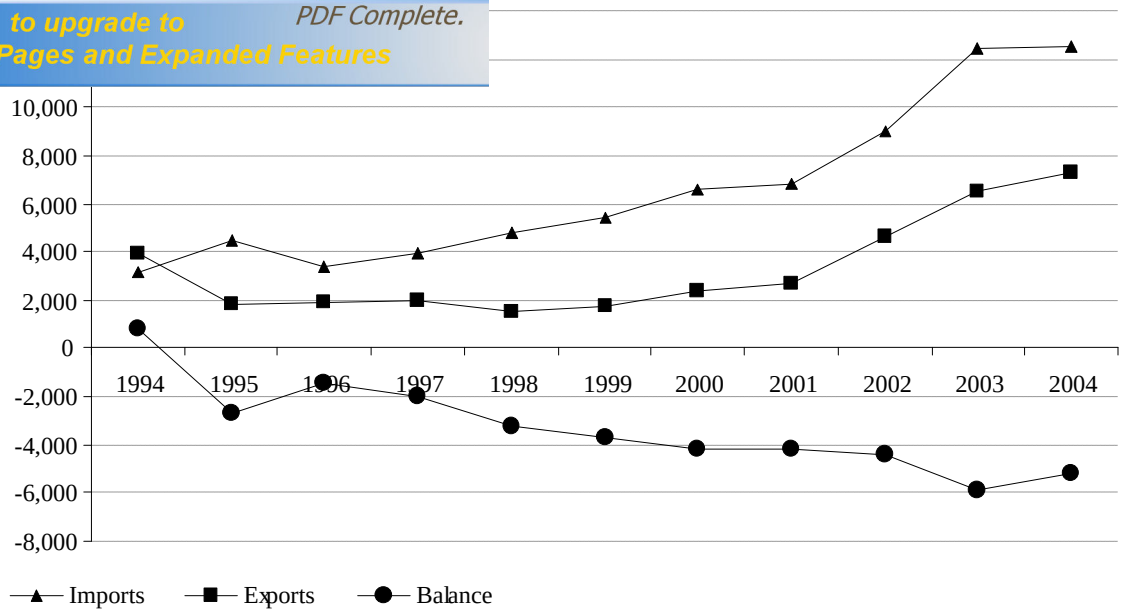

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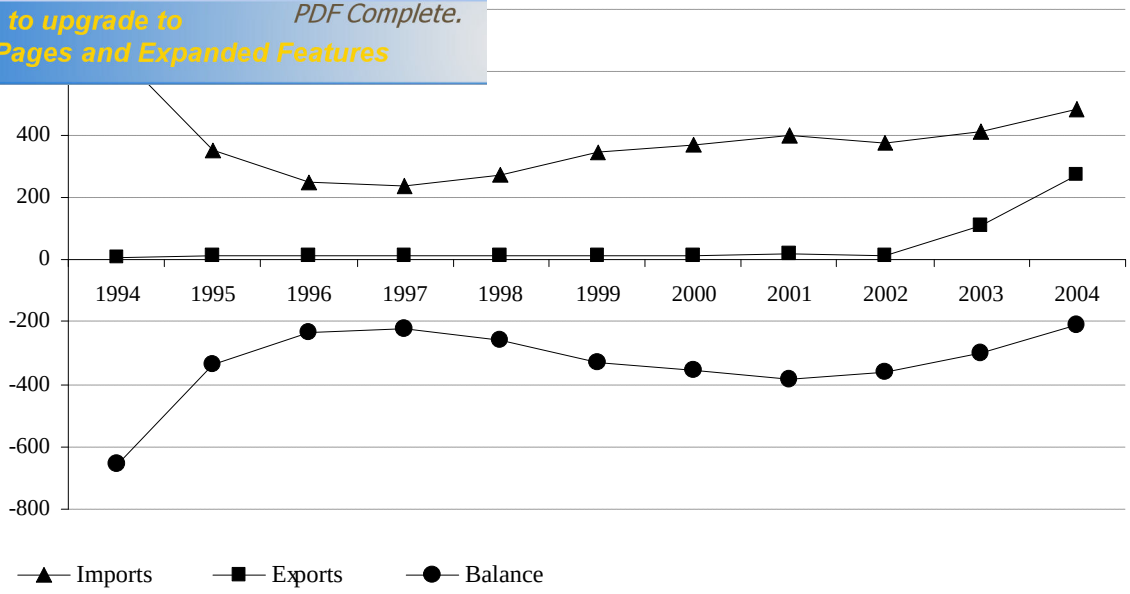

s with China (thousand euro)

			2004		
		%	**Imports**	**Value**	**%**
		48.5	Other livestock products	138,578	37.7
		14.3	Processed vegetables	111,303	30.3
		7.5	Dried legumes and vegetables	20,748	5.6
		5.9	Processed and preserved fish	16,732	4.6
Fresh legumes and vegetables	14,195	5.0	Forestry products	14,298	3.9
Total first 5 sectors	*232,472*	*81.2*	*Total first 5 sectors*	*301,659*	*82.1*
Total agri-food sector	286,365	100.0	Total agri-food sector	367,485	100.0

Exports	**Value**	**%**	**Exports**	**Value**	**%**
Other livestock products	1,431	42.5	Other food industry products	7,149	27.1
Other food industry products	537	16.0	Cereal products	5,972	22.6
Processed and preserved fish	372	11.1	Drinks	3,491	13.2
Sugar and confectionery	337	10.0	Fishing and Hunting	2,167	8.2
Drinks	154	4.6	Oils and fats	1,999	7.6
Total first 5 sectors	*2,831*	*84.1*	*Total first 5 sectors*	*20,778*	*78.6*
Total agri-food sector	3,365	100.0	Total agri-food sector	26,420	100.0

Source: calculations by INEA using ISTAT figures

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			PSI		QSI	
			1996-97	2002-03	1996-97	2002-03
		9.7	3.5	4.3	1.1	1.1
		1.1	5.0	7.7	1.1	2.1
		2.9	6.3	7.7	1.8	1.1
Spain	10.4	15.1	7.0	10.2	2.9	3.5
Holland	12.1	14.2	5.5	6.2	2.0	2.2
New Member Countries	14.9	17.0	15.0	16.6	4.6	2.1
Turkey	9.4	13.9	9.3	12.8	1.5	2.4

Source: calculations by INEA using Eurostat figures

I between Italy and other suppliers in

	ES		PSI	
	1996-97	2002-03	1996-97	2002-03
	31.6	28.2	12.1	7.4
Spain	42.6	32.5	29.7	23.4
Holland	14.9	24.6	6.8	13.3

Source: calculations by INEA using Eurostat figures

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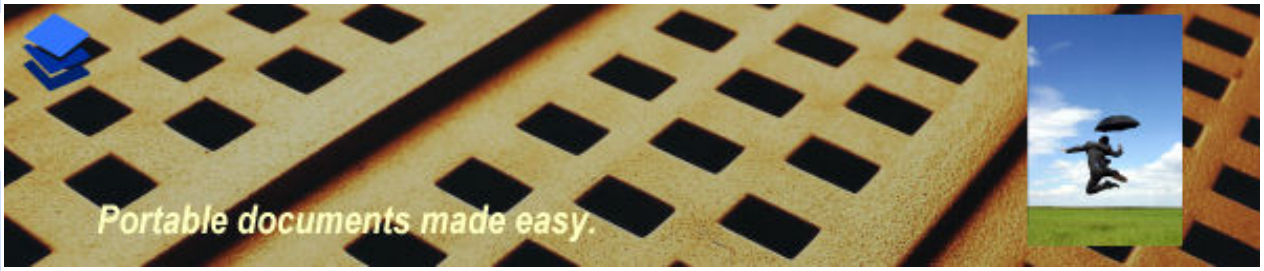

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