THE AGE OF THE DRAGON: CHINESE COMPETITION AND THE PRICING BEHAVIOR OF ITALIAN FIRMS *

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Abstract

In this paper we use a unique dataset of Italian manufacturing firms that includes firm-level price data to investigate whether increased penetration of Chinese products affects the competitive environment in an advanced country. Instrumenting China's share over world exports to Italy with China's total world export market share, we find that increases in the share of Chinese products have a negative and sizable causal impact on Italian firms' price dynamics: firms operating in a sector where such a share is 10 per cent higher tend to contain output price growth by 0.3-0.35 percentage points per year. In line with the factor proportions hypothesis we show that this impact is stronger on less skill-intensive industries. Finally, as predicted by the recent theoretical trade literature with heterogeneous firms, we find that, within low skill-intensive sectors, less efficient firms are the ones that are forced to reduce prices and markups most.

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1 Introduction

Does increased penetration of Chinese products affect the competitive environment in advanced countries? More precisely, does product competition from China cause a reduction of firms' (relative) prices and markups? Are these effects stronger in less skill-intensive sectors where China holds a comparative advantage? Are they stronger on less efficient firms? We answer positively to all these questions using a unique micro-level dataset of Italian manufacturing firms over the period 1990-2006.

The pro-competitive effect of trade is theoretically well-grounded. In the seminal paper by Krugman (1979), trade integration raises the number of product varieties available, thereby increasing competition. Recent trade models (Bernard, Eaton, Jensen and Kortum, 2003; Melitz, 2003; Melitz and Ottaviano, 2008) have proposed a new and richer perspective emphasizing the importance of firm heterogeneity. In these models enhanced foreign competition raises aggregate industry productivity by means of within-industry reallocation of resources from low- to high-productivity firms.

The empirical support to the pro-competitive effect of trade is growing and, in line with theoretical developments, has progressively restricted the focus from countries to sectors and then to firms[1].

The primary contribution of this paper is to the empirical literature and hinges upon the use of firm-level actual price data. We estimate a model of firm-level pricing that accounts for demand and cost shocks, for domestic and foreign competition, for firms' size and productivity and for time and sector fixed effects. We distinguish between import penetration and the Chinese share of world exports to Italy and find a sizeable pro-competitive effect of the latter on Italian firms' pricing: firms operating in a sector where China's share is 10 per cent higher tend to contain output price growth by 0.3-0.35 percentage points per year.

Thanks to our focus on prices, we complement recent firm-level analysis on the effects of import competition from low-wage countries on quantity-based variables as output, employment, and firms' survival. Bernard, Jensen and Schott (2006a) use US plant-level manufacturing data and show that sectoral exposure to increasing imports from low-wage countries is positively (negatively) correlated with the probability of plant death (employment growth). Bernard, Jensen and Schott (2006b) perform a similar exercise using as an external trade shock a reduction of inbound trade costs. They find that this is positively associated with industry- and firm-level productivity growth, the probability of plant death, the probability of entry of new exporters, and export growth by incumbent exporters. Bloom, Draca and Van Reenen (2008) use firm-level data from 11 EU countries and find that Chinese import competition reduces employment growth and increases, though to a

[1] See Bernard, Jensen, Redding and Schott (2007) for a comprehensive survey.

lesser extent, the propensity to adopt ICT and plant exit. With respect to these studies, we provide a direct test of the first step of the reallocation process proposed by the recent trade literature with heterogeneous firms: stronger foreign competition forces domestic firms to reduce prices and profits[2] until low-productivity firms get closer to their break-even and eventually exit the market, thus giving a start to a redistribution of market shares that leads to sectoral productivity improvements. Empirical firm-level evidence on prices and markups is particularly important because, as pointed out by Bernard, Jensen, Redding and Schott (2007), "welfare gains arising from the reallocation of market shares toward high-productivity firms, may be magnified if the increase in the product market competition induced by trade liberalization leads to lower markups of price over marginal costs".

Through the use of actual prices and the estimation of a pricing equation that controls for all determinants of costs and markups, we can also draw conclusions on the effects of import competition on markups without appealing to indirect estimation methods as the one proposed by Hall (1988)[3] and used by Abraham, Konings and Vanormelingen (2009) to show that import competition from low-wage countries reduces markups and workers' barganining power among Belgian firms.

The availability of firm-level data allows us to test for heterogeneous effects of Chinese competition across both sectors and firms, thus improving upon Auer and Fischer (2008) and Chen, Imbs and Scott (2009) who use sectoral production price data[4]. We exploit the predictions brought forward by a standard Heckscher-Ohlin model and show that Chinese competition exerts stronger pressures on less skill-intensive industries. Therefore, we provide evidence in favor of the factor proportions hypothesis, based on China's relative abundance of unskilled labor (Schott, 2008), while we do not find any support to arguments based on the scope for vertical differentiation and product quality (Kugler and Verhoogen, 2008; Khandelwal, 2010). We also verify whether firm-level TFP shapes the way firms respond to competitive pressures. We find that within sectors, and in particolar within the subgroup of low skill-intensive sectors, the effect of stepped-up competition of Chinese provenance is stronger on less productive firms. The focus on TFP as a source of firm-level heterogeneity is in line with the trade models with heterogeneous firms and the empirical evidence that followed.

Our focus on China is particularly appropriate from several perspectives. China repre-

[2] In the seminal paper by Melitz (2003) markups are time-invariant. This hypothesis has been relaxed by Melitz and Ottaviano (2008).

[3] On the drawbacks of this approach, see Tybout (2001).

[4] On the basis of a panel of manufacturing industries for seven European countries during the 1990s, Chen, Imbs and Scott (2009) find significant pro-competitive effects of trade openness; in particular, they show that increased imports raise industry productivity, reduce industry markups, (temporarily) slow down (production) prices. Auer and Fischer (2008) find that US industrial sectors more exposed to competition from emerging countries record higher productivity growth, as well as lower price inflation.

sents a very important shock to international trade, one that is also temporally well-defined. Its increasing role in world trade has been impressive and has occurred during the time horizon covered by our firm-level data. Schott (2008) looks at US import data and finds that in the last 30 years Chinese products' penetration has been impressive, much higher than that recorded by the Latin American countries altogether: China's market share over total exports to US has grown by almost 20 percentage points, against only 8 of Mexico. According to the manufacturing trade data we use in this paper, the Chinese share of total world exports increased from 2.3 per cent in 1990 to 11.2 in 2005; the corresponding share of world exports to Italy increased from 0.6 to 6.2. Importantly, China's potential growth in world trade is still very high.

As shown by Schott (2008), a product-level comparison between China and other OECD countries' exports to the US reveals a very similar product specialization, but Chinese prices are much lower. This suggests that competitive pressures exerted by China on world markets are in the same product range as advanced countries and mostly price-based, thus making the investigation of firms' price reactions particularly appropriate. Moreover, since both Chinese exports and Italian production are concentrated in less technologically advanced sectors (so called "traditional" sectors: textile, apparel, leather, footwear, furniture), the relationship we study is of great relevance.

In the empirical analysis we address possible endogeneity biases caused by the evolution of price competitiveness of Italian firms feeding back into China's export patterns to Italy. We instrument the Chinese share in world exports to Italy in a given industry with the corresponding share in total world exports[5]. This identification strategy aims at isolating push factors determining China's exports related with industrial development and trade policy in that country.

Finally, this paper grazes an issue that has been the object of a vast and controversial debate over the last few years: the relationship between globalization and the worldwide very subdued inflation pattern, despite buoyant economic activity (Ball, Mankiw and Romer, 1988; Rogoff, 2003; Bean, 2006). We do not aim at contributing to this debate, as we focus on the effect that trade integration exerts on relative prices through lower import prices and stronger competitive pressures (Pain, Koske and Sollie, 2006)[6].

The paper is organized as follows. In the next section we presents the estimating equation. Section 3 describes the firm-level and the trade data we combine in the empirical analysis. The results for the baseline specification are in section 4, while extensions are in section 5. Concluding remarks are left to the last section.

[5] For developing countries, endogeneity concerns have been solved using (exogenous) one-off trade liberalization events (Levinsohn, 1993; Harrison, 1994; Krishna and Mitra, 1998; Tybout, 2001; Pavcnik, 2002).

[6] On the basis of the same dataset we use here, Gaiotti (2009) argues that globalization has not induced a weakening of the link between prices and domestic economic activity.

2 Empirical Specification

As our goal is to isolate the effect of import competition from China on firms' pricing strategies, we need to set up an empirical specification that accounts for all price determinants: demand, costs, productivity and market power. In a standard model with imperfect competition a firm's profit maximization yields an optimal price that is a markup over marginal costs (i.e., $p_{i,t} = \mu_{i,t} * c_{i,t}$); after taking logs and first-differencing, we get:

$$\Delta \log p_{i,t} = \Delta \log \mu_{i,t} + \Delta \log c_{i,t}$$

While we observe prices at the firm-level, we need to proxy for markups and unit costs. To this aim, we take stock of the rich industrial organization literature on markups (Domowitz, Hubbard and Petersen, 1988; Rotemberg and Woodford, 1992; for Italy, Marchetti, 2001) and define markups as a function of a time-invariant sector component related to technology and market structure, the level of demand (cyclical markups) (*demand*) and competition. We make a distinction between domestic (*domcomp*) and foreign competition, and we further break down the latter into Italy's import penetration (*impen*) and the share of China in world exports to Italy (*china_it*). The idea is that, once we control for average import penetration, we can identify import composition effects focusing only on China's share over total exports to Italy. In line with industrial organization models and related empirical evidence, we also assume markups to be increasing in firm size (*size*). Notationally, we obtain[7]:

$$\begin{aligned} \Delta \log \mu_{i,t} \quad = \quad & \alpha_o + \beta \Delta \log demand_{i,t} + \gamma_0 \Delta \log domcomp_{s,t} + \gamma_1 \Delta \log impen_{s,t} + \\ & \gamma_2 \Delta \log china\_it_{s,t} + \delta \Delta \log size_{i,t} + \varepsilon_{i,t} \end{aligned} \tag{1}$$

where s indexes the 2-digit NACE sector a firm i belongs to. It is worth highlighting, as we discuss below, that we use a firm-level measure of demand, proxied by changes in the capacity utilization rate. Competition, both domestic and foreign, is measured at the sectoral level.

We then model changes in unit costs as follows:

$$\Delta \log c_{i,t} = \alpha_1 + \kappa \Delta \log wage_{i,t} + \chi \Delta \log inputcost_{i,t} + \xi \Delta \log tfp_{i,t} + \psi_t + u_{i,t} \tag{2}$$

where *wage* is the unit wage, *inputcost* is the unit cost of intermediate inputs, tfp is total

[7] The time-invariant sector components affecting the level of markups are swept away by first-differencing.

factor productivity. Year dummies ψ_t capture changes in costs that are common to all firms. Importantly, *inputcost* controls for the effect of cheaper intermediate inputs, including those from China, on costs and prices (Abraham, Konings and Vanormelingen, 2009).

When we combine equations (1) and (2) to derive our base empirical specification, we take one-period lags of all the regressors. This choice, that helps reduce simultaneity bias, is substantiated by the empirical evidence arising from a large number of recent studies on firms' pricing policies in the euro area, based on both survey and quantitative micro data (see Fabiani et al., 2007 and references therein). According to these studies, firms' prices do not react immediately to cost or demand shocks; both in Italy and in other European countries firms adjust prices on average once a year.

Given that the firm-level output price change recorded in our database is expressed in percentage terms, in the estimating equation we define all regressors as percentage changes. Notationally:

$$\begin{aligned} \Delta p_{i,t} = \; & \alpha + \beta \Delta demand_{i,t-1} + \gamma_0 \Delta domcomp_{s,t-1} + \gamma_1 \Delta impen_{s,t-1} + \\ & \gamma_2 \Delta china\_it_{s,t-1} + \delta \Delta size_{i,t-1} + \kappa \Delta wage_{i,t-1} + \\ & \chi \Delta inputcost_{i,t-1} + \xi \Delta tfp_{i,t-1} + \psi_t + \eta_{i,t} \end{aligned} \quad (3)$$

We always cluster standard errors by sector, as we aim at identifying the effect of a sectoral variable ($\Delta china\_it$) in a firm-level dataset. In order to account for the possibility that changes in costs are characterized by sectoral trends - induced, for example, by technological change - we also show an estimate of equation (3) that includes a full set of sector dummies (19 sectors from the 2-digit NACE-Rev.1 classification).

2.1 Causality

The key parameter of interest in equation (3) is γ_2. This is the coefficient of the percentage change in the Chinese share of world exports to Italy, which in our interpretation measures the effect of a change in competitive pressures from China (through imports) on Italian firms' price variations. We expect it to be negative.

Even after controlling for other determinants of firm-level price dynamics, the distribution of the changes in the Chinese share across sectors could still be correlated with the error term, thus inducing a bias in the estimate of γ_2. The main concern is reverse causality: Chinese products may gain larger market shares in those sectors where Italian firms raise prices more (or decrease them less). Hence, we would expect an upward bias in γ_2. A second concern is related to the potential omission, among our set of controls, of time-varying sectoral factors that affect at the same time both output price dynamics in Italy and the Chinese share in Italy.

We address these two issues by instrumenting the variable $\Delta china\_it$ with the equivalent figure computed on total world export flows, that is with the percentage change in China's total world export share computed excluding exports to Italy ($\Delta china\_wrl$). Our identification strategy is therefore based on the assumption that $\Delta china\_wrl$ moves mostly as a result of push factors related to industrial development and trade policies in China.

A possible critique to this assumption is that, despite the exclusion of exports to Italy, $\Delta china\_wrl$ may still be affected by Italian firms' price competitiveness. We think this is not a serious issue because Italy's weight over total world imports and exports is relatively small (less than 4 per cent), to say that Italy's ability to affect China's world exports is quite negligible. Moreover, the overlapping between Italy and China's geographical patterns of trade is very limited: the EU15 market, where Italian firms sell more than 50 per cent of their exported products, accounts for less than 15 per cent of China's exports; the latter are mostly directed to the Asian region and the US (two thirds in 1998, still 65 per cent in 2006). In other words, if China's export share in Italy is relevant for Italian firms' pricing strategies - which is the object of this paper -, the price competitiveness of Italian firms does not affect China's world export share (our instrumental variable).

Having argued that $\Delta china\_wrl$ evolves indipendently of Italian developments, we need to account for the possibility that some unobserved time-varying sectoral factors could still bias our estimates. Such factors must have an impact on trade at the worldwide level in order to simultaneously affect China's world share and firms' pricing strategies in Italy. For instance, coordinated changes in tariffs and other import restrictions may indeed affect both Chinese exports and Italian prices. To the extent that such international factors may affect world trade sectoral developments, we can investigate whether the latter are correlated with the evolution of the Chinese world share. We find that the correlation (equal to -0.035) between $china\_wrl$ and sectoral world trade (that is, the denominator of $china\_wrl$) is statistically not significant (P-value: 0.46), supporting the hypothesis that our instrument is not driven by time-varying factors affecting world trade. In other words, such unobserved sectoral factors are unlikely to be a source of bias.

A final issue is the possible weakness of our instrument. In our view, this is not a real concern. As shown in the last panel of Figure 1, the evolution of $china\_wrl$ and that of $china\_it$ (the market share levels) for the manufacturing industry as a whole (excluding tobacco, petroleum and computing) are quite close. The importance of China has been growing since the beginning of the '90s in both markets (world and Italy) with a slight acceleration after 2000. The other panels of Figure 1 show that the world figure traces the Italian one quite well even at the sectoral level, with a correlation coefficient above

0.9. Most importantly, in our base regression the F-statistic of excluded instruments is well above the rule of thumb threshold of 10 recommended by Staiger and Stock (1997) to avoid weak instrument concerns.

For the same reasons outlined above, reverse causality could also plague the estimated coefficient of import penetration. We empirically deal with this by instrumenting import penetration in Italy with the corresponding figure computed for the US. The results, presented in section 4.2, indicate that the estimated bias, if any, is very small.

3 The Data

We combine data from various sources and merge firm-level information with sectoral trade figures. Firm-level data, available from 1982 through 2006, are obtained from the Bank of Italy's Survey on Investment in Manufacturing Firms (SIM) and the Company Account Data Service (CADS). Sectoral trade data, available from 1990 through 2005, are from the World Trade Analyzer (WTA) database developed by Statistics Canada. In both data sources, we focus only on 2-digit Nace Rev.1 manufacturing industries and exclude three sectors: "Tobacco products", which in Italy is mostly government-owned, "Petroleum & Coal Products", whose performance is too sensitive to international oil prices, and "Computing and office equipment", which is too thin (almost negligible) in Italy.

Since we estimate a lagged differenced model, the dependent variable (i.e., the annual rate of change in firms' output prices) ranges from 1992 to 2006, and the regressors from 1991 to 2005. After excluding observations below the 1st and above the 99th percentile of the distributions of the growth rate of each firm-level regressor, we are left with 6,343 observations (about 1,550 firms that are sampled on average for 4 consecutive years).

3.1 Firm-level data

SIM is an open panel (managed by the Bank of Italy) of firms with at least 50 employees. SIM's questionnaires, submitted to companies at the beginning of each calendar year and relative to the previous year's data, collect a wide range of information: year of foundation, nationality, location, sector of activity, ownership structure, employment (yearly average), investment (realized and planned), sales (domestic and foreign), capacity utilization rate, indebtdness. Every year the survey is enriched with additional sections covering specific issues[8].

[8] Given the strict, personal relationship between officials of the Bank of Italy and the single firm, the intense process of data revision carried out by statisticians of the Bank of Italy and the special effort to keep information as closely comparable across time as possible, SIM turns out to be a very high quality dataset. Among others, papers based on SIM are Guiso and Parigi (1999) and Iranzo, Schivardi and Tosetti (2008).

CADS is the organization in charge of gathering and managing firms' account data in Italy. It was established in the early 1980s jointly by the Bank of Italy, the Italian Banking Association (ABI) and a pool of leading banks with the aim of collecting and sharing information on borrowers. For about 15,000 manufacturing firms per year, CADS contains balance sheets re-classified in order to reduce the dependence on accounting conventions used by each firm to record income figures and asset values.

Descriptive statistics on the merged CADS-SIM dataset are presented in Tables 1 and 2. The sample tends to be biased towards relatively large and old firms reflecting the fact that, as stated above, we observe the balance sheets only of those firms that obtain bank loans. The sectoral composition is broadly representative of the specialization of the Italian economy, with most firms operating in machinery, textile, apparel and chemical products. The number of firms is not constant over time, due to the fact that SIM is an open panel and to the requirement we impose in our analysis that each firm participates to the survey for at least three years in a row.

Importantly, since 1987 the SIM survey has collected quantitative information on firms' output price change with respect to the previous year. The price change is expressed in percentage terms, euro-denominated and averaged across products and destination markets: this is our dependent variable in the regression analysis. The absence of a product breakdown in our firm-level price data raises some concerns. First, being firms classified in the sector which their main product belongs to, they could partly be missplaced if they produce goods falling in two or more different 2-digit categories; fortunately, as shown by ISAE (2009), this is extremely rare among Italian firms. Second, we cannot control for the potential shift of multi-product firms' production activity towards goods that are less exposed to increased competition. In this regard, we think that our focus on China comes to help: in the face of low-wage competitive pressure multi-product firms may move towards higher-quality products, thus inducing a positive bias in the estimated coefficient of $\Delta china\_it$. Importantly, this bias would work against the result we expect to find.

Figure 2 shows the price distribution across firms by year: the overall average is about 2 per cent, but there is quite a high degree of variability, both over time and across sectors and firms. The largest price increases are reported by firms operating in the metal industry and are concentrated in 2003 and 2004 − years characterized by sharp rises in raw material prices − and in 1993 and 1995 −following devaluation episodes. The largest price cuts are recorded in the metal industry and in the production of paper and chemical products in 1996. In the empirical analysis we control for these time and sectoral effects.

The advantage of working with firm-level price data can be appreciated in Figure 3 that reports the overall (all years) distribution of price changes under three specifications: raw data, controlling for year fixed effects and controlling for year and sector fixed effects.

Allowing for year and, to a much lesser extent, sector fixed effects helps smooth out some spikes in the raw data but does not seem to have a large explanatory power. In other words, there is still a lot of heterogeneity to be exploited within years and sectors, that is, across firms.

The reliability of our firm-level price measure can be assessed by comparing it with its macroeconomic counterpart, the official Producer Price Index (PPI), computed and published by the Italian National Statistical Institute (ISTAT) (available since 1996 at the 2-digit NACE-Rev.1 classification). Figure 4 shows, for the whole manufacturing sector and for each sub-sector, the PPI (excluding energy) annual growth rate and the average annual price change computed on the basis of firm-level data. It is quite evident that the two measures are highly correlated, despite the fact that the PPI is a weighted average and refers only to industrial products sold on the domestic market, whereas SIM price changes reported by firms are simple averages computed irrespectively of the destination market.

All the regressors at the firm-level are constructed from the merged CADS-SIM dataset. Firm size (*size*) is measured as the number of employees[9]. Unit wage (*wage*) is obtained as the ratio between total labor costs and the number of employees. The short-run changes in firm-level demand ($\Delta demand$) are proxied by changes in the firm's capacity utilization rate[10]. The intensity of domestic competition (*domcomp*) is measured by a concentration index (the market share of the four largest firms in terms of sales) computed on the basis of the full CADS sample at the 3-digit level. Total factor productivity (tfp) is Bank of Italy's internal computation based on the method proposed by Levinsohn and Petrin (2003) and applied to CADS data on value added, capital stock, intermediate inputs and labor; it also entails the correction for imperfect competition proposed by Klette and Griliches (1996) and adapted further to firm-level production function estimation by Melitz (2004)[11].

The measure of unit input costs (*inputcost*) is computed as the ratio of the balance

[9] As a measure of firm size, we prefer to use employment instead of total sales. Being the product between output and prices, sales could be positively correlated with prices, even with their changes, simply because prices appear on both terms.

[10] The firm-level rate of capacity utilization is derived from SIM as the answer to the following question: "What is the ratio between actual production and the level of production which would be possible by fully using the available capital goods without changing labor inputs?". The correlation between its annual across-firm average and a standard macro measure of capacity utilization in manufacturing (computed by the Bank of Italy on the basis of industrial production and ISAE's quarterly surveys) is about 0.8. Gaiotti (2009) shows that movements in SIM's capacity utilization also track quite well the behavior of the output gap in the whole economy.

[11] Along the lines traced by Olley and Pakes (1996), Levinsohn and Petrin (2003) proposed to solve the simultaneity bias stemming from the unobservability of TFP by adding intermediate inputs to the production function estimation. Klette and Griliches (1996) note that a production function estimation where value added is deflated through a sectoral deflator potentially suffers from an omitted variable bias, where omitted is the difference between the sectoral deflator and individual firms' prices. In an imperfectly competitive world, this difference is non-zero. The same authors suggest as a correction to add the sectoral deflated value added as proxy for such a difference.

sheet figure on total costs for intermediate inputs to the number of employees. This is not a precise measure of unit cost of inputs, since the average price of inputs is multiplied by the ratio between the physical quantity of intermediate inputs and the number of employees. In other terms, changes in *inputcost* can be related both to changes in input prices (possibly due to cheaper Chinese products) and to changes in factor (intermediate inputs vs labor) proportions related, for example, to changes in firms' outsourcing strategies (again possibly due to cheaper Chinese products). Nevertheless, this is useful for our identification strategy as it allows to disentangle the pro-competitive effect of Chinese imports from that of both cheaper input prices and outsourcing. Clearly, the coefficient of *inputcost* can be interpreted as the effect of changes in input prices only under the assumption that factor proportions are fixed.

3.2 Trade data

The main source of our trade data is the World Trade Analyzer developed and managed by Statistics Canada, which provides clean data on export and import flows, in current dollars, for a very large set of countries, disaggregated by destination market and type of product for the period 1985-2005. The product breakdown corresponds to the 4-digit SITC-Rev.3 classification. Since firms in the CADS-SIM dataset are classified according to the NACE-Rev.1 system, we mapped the SITC-Rev.3 classification into the 3-digit NACE-Rev.1 using the concordance tables provided by the United Nations. We then aggregated the data at 2-digits as SIM has too few firms in many year-3-digit sector cells.

We construct two measures of China's importance in world trade: the Chinese share of total world exports and the share of Chinese exports in world exports to Italy (*china_wrl* and *china_it*, respectively). While the latter represents the variable of interest, that is a sectoral indicator of competitive pressures exerted from China on Italian firms in the Italian market, the former acts as instrumental variable. We restrict trade data to the 1990-2005 period since data on Chinese exports to Italy before the '90s appear not to be very reliable. Table 3 reports the actual sectoral figures for 1992, 1995, 2000 and 2005. In traditional sectors the Chinese share of world exports to Italy has grown significantly, getting close to 15 per cent in 2005; the same share computed over total world exports has reached even higher values, especially in apparel and leather goods (around 25-30 per cent). Since 2000 the increase has been also very significant in the "other transport equipment" sector, where the Chinese share of total world exports stands at 23.3 per cent in 2005.

Sectoral import penetration (*impen*) in Italy is derived combining production series from the OECD STAN database for Industrial Analysis with exports and imports from the OECD STAN bilateral trade database; figures are recorded at the 2-digit Nace-Rev.1

classification and available until 2006. In the same way we measure import penetration in the US (*impen_us*), used in a robustness check as instrument for *impen*. The two measures are reported in Table 4. As of 2005, import penetration in Italy is highest in motor vehicles, TV and communication equipment, chemical goods, iron and steel, lowest in metal products, publishing and products from non-metal minerals. The pattern is different for the US which is a rather closed economy for motor vehicles but very import-dependent for leather products and apparel. Import penetration in Italy, whose correlation with *impen_us* is positive and equal to 0.34, displays instead a negative correlation (of about -0.15) with *china_it*.

4 Empirical Results

Before turning to estimates of equation (3), we assess whether the raw data provide any preliminary evidence suggesting that the Chinese export share in Italy has a bearing on Italian firms' pricing strategies. We split the sample into two groups according to the size of the average sectoral annual change in the Chinese share over the period examined (1990-2005), using the median as cutoff point. Simple unconditional means indicate that indeed the average annual price increase in the group of sectors that recorded a larger (than the median) increase in competitive pressures from China is equal to 1.7 per cent, against 2.5 per cent in the other group.

Another way to examine the data is to check whether the relationship we are looking for already holds in a simple regression framework. Table 5 reports the coefficients of OLS and IV regressions of the firm-level price change on the lagged change in the Chinese share of total world exports to Italy. The results display a statistically significant relationship only when we control for year fixed effects (column 2); in such cases, the R-squared rises significantly, too. The contribution of sector fixed effects, despite being statistically significant, is very limited. The IV estimate (column 5) is highly significant and negative.

4.1 Base regression

We now focus on the estimation of equation (3). The first two columns of Table 6 report OLS estimates without (column 1) and with (column 2) sector fixed effects. The estimated cofficient of $\Delta china\_it$ is always negative, and not statistically significant when we control for sector fixed effects.

As discussed in Section 2.1, if the entry of Chinese products on the Italian market is, *ceteris paribus*, more intense in sectors where Italian firms are less price competitive, i.e. where domestic prices increase relatively more, then the OLS estimate of the parameter γ_2 is upward-biased. We therefore turn to IV estimation, using China's total world export share as instrument. The results, reported in the same Table, are again displayed without (column 3) and with (column 4) sector fixed effects.

In the IV estimations the coefficient of $\Delta china\_it$ becomes highly statistically significant and much smaller, thereby confirming an upward bias in the OLS estimates. The pro-competitive effect of imports from China on firms' output prices amounts to about 0.03-0.035, to say that a 10 per cent increase in the Chinese share brings about a 0.3/0.35 percentage points reduction of price dynamics. This is quite a sizeable effect as the average price change across years and sectors in our sample is 2 per cent.

Turning to the other regressors, OLS and IV specifications yield similar results. As expected, import penetration has a negative effect on price growth, too. The estimated effect, though, is much smaller than the one of $\Delta china\_it$: according to the IV estimation, a 10 per cent increase in import penetration reduces price dynamics by 0.06 percentage points, less than a fifth the effect of China[12].

A size increase ($\Delta size$) raises market power and therefore the firm's ability to charge, *ceteris paribus,* higher prices. According to Kugler and Verhoogen (2008), a positive correlation between firm size and output prices might also follow from the fact that larger firms are those producing better quality goods that are reasonably sold at higher prices. The dynamics of intermediate input costs also has a positive impact on price changes.

The remaining coefficients are not significant. In particular, the price elasticity to labor costs ($\Delta wage$) is statistically not significant and very small. This result is consistent with previous empirical evidence showing that the finer the disaggregation, the lower the estimated response of prices to changes in wages (Bils and Chang, 2000). Similar results, based on Italian firm-level data, are obtained by Rosolia and Venditti (2009) using actual wages and by Gaiotti and Secchi (2006) and Gaiotti (2009) using nationally bargained wages. Moreover, according to firm surveys conducted recently in a wide number of European countries (in the context of the Eurosystem Wage Dynamics Network), only around 15 per cent of firms acknowledge a strong relationship between the timing of price changes and that of wage changes (Druant et al., 2009). In particular, in the case of Italy, the low frequency of wage changes and the scarce variability across firms as compared to other countries is largely explained by the wide coverage of the highly centralized collective bargaining system[13].

As to the effect of TFP, the statistically not significant coefficient may reflect the fact that the sign of the relationship between price and TFP changes is a priori ambiguous: as clearly pointed out by Melitz (2004), it captures both increases in productivity (with a

[12] The coefficient is not statistically significant when we do not control for sector fixed effects (column 3).

[13] If we regress firm-level price changes only on wage dynamics, we obtain a significant coefficient of about 0.03, which is very close to the one estimated by Rosolia and Venditti (2009) over a longer time period. The coefficient becomes much lower (and statistical insignificant) once we control for time dummies.

negative effect on prices) and quality upgrades (with a positive effect).

The plausibility of our empirical design in identifying the causal effect of Chinese competitive pressures on price dynamics in Italy requires that both the reduced-form and the first-stage regressions provide credible estimates of the coefficient of $\Delta china\_wrl$. The IV coefficient of $\Delta china\_it$ is equal to the ratio between the coefficient of $\Delta china\_wrl$ in a reduced-form regression of Δp on $\Delta china\_wrl$ (and the other controls) and the coefficient of $\Delta china\_wrl$ in the first stage of the IV estimation. In columns 1-3 of Table 7 we show the first-stage estimation under three different specifications: with only year and sector fixed effects (column 1), with year fixed effects and firm-specific controls (column 2), with firm-specific controls, year and sector fixed effects (column 3). The estimate of $\Delta china\_wrl$ takes a reasonable value, is also highly significant and insensitive to the inclusion of the full set of control variables (with the only exception of the sector fixed effects). The F-statistics of excluded instruments (in the bottom panel of the Table) is always above the rule of thumb value of 10[14]. Thus, the first-stage impact of China's world export share is very powerful and appears valid. The next three columns reveal that $\Delta china\_wrl$ is strongly and directly associated with changes in output prices: its estimated coefficient has a very plausible size and is also highly significant.

Taken together, the results in Table 7 provide convincing evidence of a causal link between changes in China's world export share and changes in China's export share and output prices in Italy. In the remainder of the paper we present robustness tests and extensions to the base estimation. To streamline the presentation of results, hereafter we focus only on the IV estimates under two alternative specifications: with and without sector fixed effects.

4.2 Robustness

Import penetration may be endogenous for the same reasons as the Chinese share of world exports to Italy is. To deal with the related upward bias, we instrument the change in import penetration in sector s in Italy with the corresponding figure in the US. The chosen instrument is not affected by Italian firms' pricing strategies, but it is correlated with import penetration in Italy. Results, reported in Table 8, are very similar to those obtained in the base regression. The coefficient of $\Delta china\_it$ remains unchanged at -0.035[15]. In the first stage regression for $\Delta china\_it$, while $\Delta china\_wrl$ is positive and highly significant,

[14] Since we have repeated observations within the sector-year cell at which the endogenous $\Delta china\_it$ and the exogenous $\Delta china\_wrl$ are defined, the F-statistics of excluded instruments could be improperly measured. To address this issue, we collapsed the dataset at the sector-year cell, repeated the IV estimation and found basically no difference for the value of the F-statistics.

[15] The uncorrelation between $\Delta china\_it$ and $\Delta impen$ is confirmed also by the first-stage estimates shown in Table 7.

$\Delta impen\_us$ is not significantly different from zero. In the same way, in the first stage regression for $\Delta impen$, import penetration in US is positive and strongly significant, while the change in China's world export share ($\Delta china\_wrl$) is not. This pattern is reassuring as it indicates that we have two orthogonal instruments: one for $\Delta china\_it$ and one for $\Delta impen$.

A Hausman test that compares an IV model where only $\Delta china\_it$ is instrumented to an IV model where both $\Delta china\_it$ and $\Delta impen$ are instrumented does not reject the null hypothesis that the estimate from the former model is consistent. Hence, in the remainder of the analysis we proceed with the more parsimonious specification where only $\Delta china\_it$ is instrumented.

A second exercise deals with the presence of a possible survivorship bias. Since firms that are not able to compress margins enough may decide, or be forced, to exit the market, we could be overestimating the pro-competitive effect of $\Delta china\_it$. We address this issue using information on firms' history, contained in CADS, that allows to explicitly control for exit from the market. In particular, we include among the regressors a dummy variable *exit* constructed in two alternative ways[16]. In the first, more restrictive, definition, *exit* takes value 1 if the firm is liquidated or goes bankrupt after exiting the sample and 0 otherwise. In the second, *exit* takes value 1 also if the firm is subsequently acquired by another firm. Results are displayed in Table 9: in both cases (columns 1-2 for the first definition, and 3-4 for the second) all the results are unchanged and the coefficient of *exit* is never significantly different from zero.

Table 10 shows the robustness of our estimates to outliers. The first two columns present the estimates of equation (3) after eliminating sector-year cells with less than 20 firms. Again, the previous results, now based on 6,145 observations, fully hold. The last two columns refer to the results obtained estimating equation (3) on the sub-period 1996-2006. The exclusion of the years 1993-95 is motivated by the large devaluation of the Italian Lira occurred in 1992, which provided a stronger shield to those sectors more exposed to foreign competition. Indeed, Figure 2 shows that price changes were especially large in that period. The estimates confirm the intuition: the coefficient of $\Delta china\_it$ increases, in absolute terms, by almost 50 per cent, to -0.053.

Since we measure Chinese competitive pressures in Italy, the effect we estimate should be stronger on prices charged on the domestic market. In the absence of information on prices broken down by destination, we perform two indirect tests: i) we exclude firms exporting more than 30 per cent of their total sales at (t-1); ii) we estimate a weighted version of equation (3) where the firm-level weights are constructed as the share of domestic sales in

[16] The variable *exit* can be interpreted as the hazard rate in a Heckman selection model. The difference is that here the probability of exit is perfectly observed and it does not need to be estimated.

total sales. In both cases, we expect a lower coefficient of $\Delta china\_it$ (higher in absolute value). Results are reported in Table 11. As shown in columns 1 and 2, which refer to the first experiment, the estimated impact of imports from China on price changes rises to -0.057, from -0.035 in the base regression with sectoral fixed effects. This is to say that a 10 per cent increase in the Chinese share over world exports to Italy reduces price dynamics by 0.6 percentage points, 60 per cent more than what reported in Table 6. Consistently, the same happens to the coefficient of $\Delta impen$ (here not instrumented) that is now higher (-0.009) than the one estimated in the base regression. The weighted estimates are presented in columns 3 and 4. Again as expected, the (negative) impact of foreign competition is larger. This holds for both the coefficient of $\Delta china\_it$ and that of $\Delta impen$. Our conjecture is therefore confirmed: firms more reliant on domestic revenues are more affected in their pricing strategies by the competition exerted by Chinese products in Italy.

Other robustness checks carried out but not reported in the text are the following. To allow for price dynamics that are geographically heterogeneous, we controlled for firm's location including macro-area dummies (North-West, North-East, Center and South): results are unchanged and the dummies are overall not significant. We tested for the potential persistence in firm's price dynamics including the lagged price change as an additional regressor: in a GMM estimation where the one-period lagged price change is instrumented with its two-period lag, results are again stable and the lagged dependent variable is not statistically different from zero. We also estimated the baseline model with firm fixed effects, so as to capture firm-specific time trends, and allowing for clustering of standard errors at the firm level. In both cases, results hold through[17].

5 Extensions

The results presented so far show that the growth in the Chinese export share in Italy affects the pricing strategies of Italian firms. They are remarkably robust across specifications and sub-samples. We now propose some extensions aimed at improving our understanding of the mechanisms through which Chinese competitive pressures influence prices in Italy and further strengthening our results. For this, we take advantage of the availability of sector- and firm-level characteristics.

[17] Despite the absence of any evident structural break in the expansion of China into world markets (fig. 1), we also tested whether the coefficient of $\Delta china\_it$ is larger after China's entry into WTO in 2001 or after 1998 when the European Union significantly reduced its import tariffs. In both cases we find no significant differences. The expiration of the Multifiber Agreement in 2005, the event that had the stronger impact on the surge of Chinese exports (Brambilla, Khandelwal and Schott, 2009; Raff and Wagner, 2009), is beyond the reach of our data.

5.1 Heterogeneity across sectors

Is the price effect of China's competitive pressure different across sectors? Providing an answer to this question represents not only a way of testing the predictions of theoretical models but also a further indirect test on the plausibility of the causal relationship we are identifying. In particular, we want to provide evidence on the relative explanatory power of two different theoretical arguments.

Firstly, the factor proportions framework that descends from the Heckscher-Ohlin trade model implies that a relatively low-skilled labor abundant country like China should specialize in manufacturing industries whose technology is less capital- and skill-intensive. As a result, when Chinese goods massively enter a relatively more capital- and skill-abundant country like Italy, Italian industries more severely hit should be those that are less capital- and skill-intensive. Romalis (2004) shows that factor proportions explain quite well the structure of commodity trade. Using US plant-level data, Bernard, Jensen and Schott (2006b) find that, in the face of a high exposure to imports from low-wage countries, plant survival and growth is lower in industries that are less capital- and skill-intensive.

The second argument is based on vertical differentiation: focusing on product quality, Khandelwal (2010) argues that the ability of advanced countries' firms to escape from low-wage countries' competition is increasing in the industry scope for vertical differentiation. He finds that the negative impact of import penetration from low-wage countries is stronger in US sectors where the quality ladder is shorter, that is where the scope for quality upgrading is more limited. He shows that his indicator of length of quality ladder is not fully explained by capital- and skill-intensity indicators (despite being positively correlated to them) and that the results above also hold when explicitly controlling for factor proportions.

In the empirical analysis, we interact $\Delta china\_it$ with sectoral indicators of capital intensity, skill intensity and importance of product quality. In the spirit of Rajan and Zingales (1998), all indicators are computed on US data to avoid endogeneity problems. In particular, we use Khandelwal's measures of capital intensity (*capint*), skill intensity proxied by the ratio between non production and production workers (*whbl*), and length of quality ladder (*qualad*)[18]. As an alternative measure of skill intensity, we consider the 1990-2005 average share of high- and medium-skilled workers −defined as those that have at least completed high school − over total workers (*edu*) from the March 2008 release of the EU KLEMS database. The advertising/sales ratio (*adv*), computed by Kugler and Verhoogen (2008) from the 1975 FTC Line of Business Survey, is a further proxy for the scope for quality differentiation.

[18] All three measures refer to year 1989. Capital and skill intensity are from the NBER Manufacturing database (Bartelsman, Becker and Gray, 1996).

Table 12 reports the five sectoral measures. Capital intensity is highest in the production of chemicals, basic metals, pulp and paper, and lowest in apparel, leather products and footwear. The latter industries, along with the production of textiles, employ the lowest percentage of medium-high skilled workers; this is instead highest for firms producing medical, precision and optical instruments, chemicals and communication equipment. Overall, the correlation between capital and skill intensity is about 0.4. The ratio between non production and production workers (*whbl*) displays a very similar pattern to that of *edu*: their correlation is larger than 0.8 per cent.

Turning to the Khandelwal's measure of product quality, the sectors with the longest quality ladder are textiles, chemicals, medical, precision and optical instruments, while the shortest is for printing, publishing, fabricated metal products, leather products and footwear. As pointed out by Khandelwal (2010), this measure, though being positively correlated with capital intensity (0.20), captures sectoral characteristics that are not exhausted by factor intensities. Interestingly, *qualad* is negatively correlated with skill intensity. The advertising/sales ratio is positively correlated with the length of quality ladder; it is highest in the production of furniture and other manufacturing, printing and publishing, food products and beverages and lowest in the production of leather products and footwear, basic metals and wood products.

The results of the regressions with heterogeneous effects by sector are reported in Table 13, where the coefficient of interest ($\Delta china\_it *sect$) refers to the interaction between $\Delta china\_it$ and the (continuous) sectoral measure indicated in the column heading[19]. The estimates support the factor proportions hypothesis: as it appears in columns (2) and (3), the causal impact of China's exports decreases as sectoral skill intensity increases: the two coefficients are significant at the 8 per cent level. The estimates based on *edu* indicate that the impact of China ranges from -0.02 for "medical, precision and optical instruments" to -0.08 for "wearing apparel and dressing". We find no significant heterogeneity in terms of capital intensity (column 1) and product quality (columns 4 and 5).

All in all, our estimates indicate that the pro-competitive effect of imports from China is stronger in low-skill sectors where China holds a comparative advantage due to the relative abundance of unskilled labor (Schott, 2008).

5.2 Heterogeneity across firms

Now we turn to investigate the role of firm heterogeneity.

Thanks to the growing availability of micro datasets, a number of empirical studies highlights the importance of firm heterogeneity to understand the effect of trade developments.

[19] The variable *sect* is not included among the regressors because we always control for sectoral dummies.

Following the seminal paper by Bernard and Jensen (1995), a large cross-country literature shows that exporters are on average more efficient than non-exporters and that this is not the result of the exporting activity but rather an ex-ante feature (self-selection) related to the fact that only the most productive firms are able to overcome the costs of starting to export.

In line with these empirical findings, new theoretical trade models focus on the relationship between trade and firms' heterogenous efficiency. Looking at the effects of a trade liberalization through the lenses of firm-level adjustments, the models by Melitz (2003), Bernard, Eaton, Jensen and Kortum (2003), and Melitz and Ottaviano (2008) show that, within an industry, the effects of increased foreign competition are magnified by the reallocation of market shares from less to more efficient firms.

On US data, Bernard, Jensen and Schott (2006a) find that the estimated effect of low-wage country competition is weaker on high-productivity and relatively more capital-intensive plants and that plants tend to move away from industries more exposed to low-wage country competition, to more capital intensive productions. In a companion paper Bernard, Jensen and Schott (2006b) find that the impact on plant death is smaller for more productive plants[20].

All in all, productivity turns out to be the key variable to identify which firms get access to foreign markets, and which firms gain from trade-induced reallocations. In this respect, we add a new piece of evidence and show how productivity affects the way firms' pricing strategies react to import competition from low-wage countries. We interact $\Delta china\_it$ with the lagged log-level of TFP. If the price effect of the Chinese export share is smaller for high-TFP firms, we expect the coefficient of the interaction term to be positive.

The results are shown in Table 14. In the full sample (column 1) we do not find any statistically significant heterogeneity across firms with different degrees of efficiency. The average effect of $\Delta china\_it$ remains unchanged at 0.035; the coefficient of the other regressors are also unchanged.

Reasonably, though, TFP should matter more in sectors that are more exposed to China's comparative advantage. Therefore, relying on the sectoral evidence provided in the previous section, we split sectors according to skill intensity. In columns 2 and 3 we use the median value of *edu* to split the sample between low-medium and medium-high skill intensive sectors[21], and find that indeed in the former group more efficient firms are more capable of preserving markups. Other things being equal, at levels of productivity that

[20] For developing countries, one-off trade liberalization events are shown to be followed by an intense resource reallocation that brings aggregate productivity growth (Levinsohn, 1993; Harrison, 1994; Krishna and Mitra, 1998; Tybout, 2001; Pavcnik, 2002).

[21] An alternative approach is to include a triple interaction among the Chinese share, sector-level skill intensity and firm-level TFP. We do not follow this path due to multicollinearity problems.

are one standard deviation below the average, the impact of China's export share on price dynamics raises from 0.045 to 0.055. It decreases by 1 percentage point, to 0.034, for firms whose productivity is one standard deviation above the average.

Interestingly, the coefficient of $\Delta wage$ is now positive and significant. Compared with the base estimation, this result indicates that the effect of firm-level wage changes on prices is significantly different from zero only in low skill-intensive sectors.

In the group of sectors with skill intensity above the median, the coefficient of $\Delta china\_it$ is not statistically significant, suggesting that the relationship between skill intensity and the price impact of Chinese exports we found in the previous section is not linear. These results are confirmed when we use the *whbl* indicator instead of *edu* to split sectors according to skill intensity (columns 4 and 5).

6 Conclusions

Recent advances in the international trade literature have brought forward the idea that firm heterogeneity is a crucial ingredient to understand the functioning of international markets. A large number of empirical papers have therefore put the firm at the center of the analysis and shown that different reactions of firms to trade liberalizations or to increased foreign competition are the trigger to industry-level adjustments.

In the chain of events that goes from enhanced competition to increases in aggregate productivity a key role is played by prices and markups. Stronger foreign competition forces price and profit reductions, and, as a consequence, low-productivity firms get closer to their break-even until they eventually exit; this gives a start to a reallocation of market shares across firms that leads to sectoral productivity improvements. In line with these models, we show that the growing competitive pressures exerted by Chinese products on an advanced economy like Italy has contributed to soften, *ceteris paribus*, output prices and markups at the firm-level.

To the best of our knowledge, this paper is the first empirical test, based on firm-level data, of such a prediction. The impact we estimate is non-negligible: a 10 per cent increase in the Chinese share of world exports to Italy reduces price dynamics by 0.3-0.35 percentage points per year (the average annual inflation rate is equal to 2 per cent).

A further important contribution of this paper is related to the use of firm-level price data that allows to explore both sector and firm heterogeneity. We do this keeping a tight link with old and new theoretical predictions.

As to sectors, we find that the impact of Chinese competitive pressures is stronger among low-skill sectors such as textile, apparel, leather goods, furniture. We intepret this as an empirical support to the factor proportions hypothesis: it is China's relative abundance of unskilled labor that shapes the differential impact of its exports in advanced economies across sectors.

The recent trade literature highlights the role of productivity in explaining the link between firm heterogeneity and trade. In line with these models, we find that the impact of Chinese competitive pressures is highly heterogeneous across firms depending on their productivity level and is indeed much more severe for low-productivity firms that are presumably less able to escape competition by upgrading the quality of their products. This result holds only within low-skill sectors.

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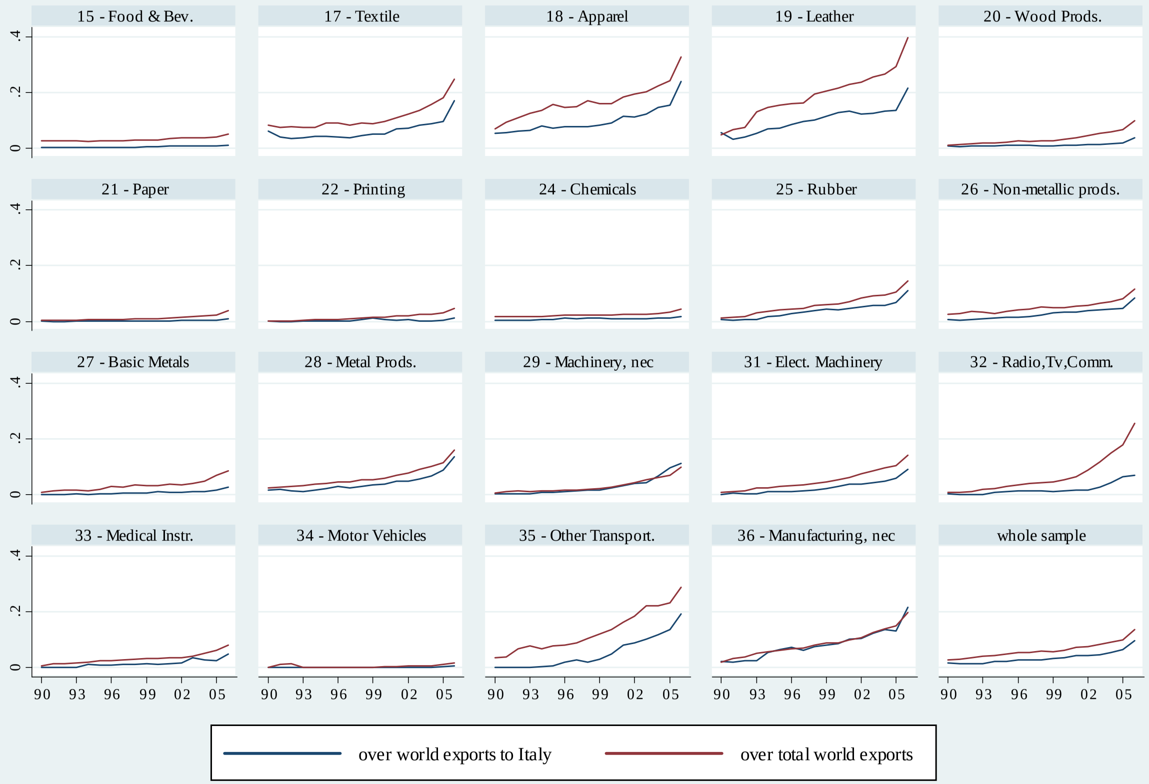
Table 1: Descriptive statistics of sampled firms

	1990	1995	2000	2005
number of employees (median)	297	253	212	156
age	44	44	42	41
sales (million of euros)	70.1	152.7	164.6	86.6
value added per worker (thousands of euros)	35.3	52.7	58.3	60.6
per capita wage (thousands of euros)	22.2	30.3	33.7	38.6
export/sales (percentage, only exporters)	30.4	36.6	39.1	41.4

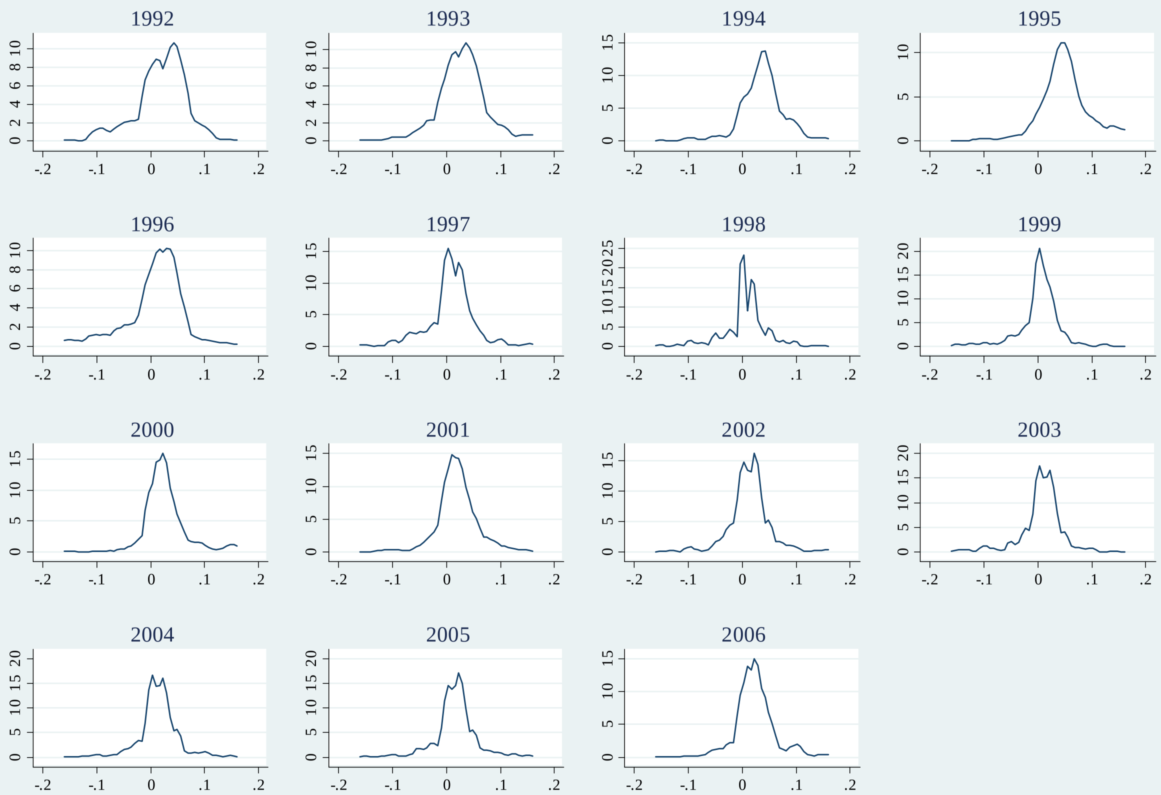
Source: SIM - CADS

Figure 1: China's export share by sector



Source: World Trade Analyzer by Statistics Canada - For full sectors description, see Table 2

Figure 2: Distribution of annual price changes, by year (percentages)



Source: SIM - Price changes are measured at the firm-level and refer to the average across all goods produced by a firm.

Figure 3: Distribution of price changes over all years (percentages)

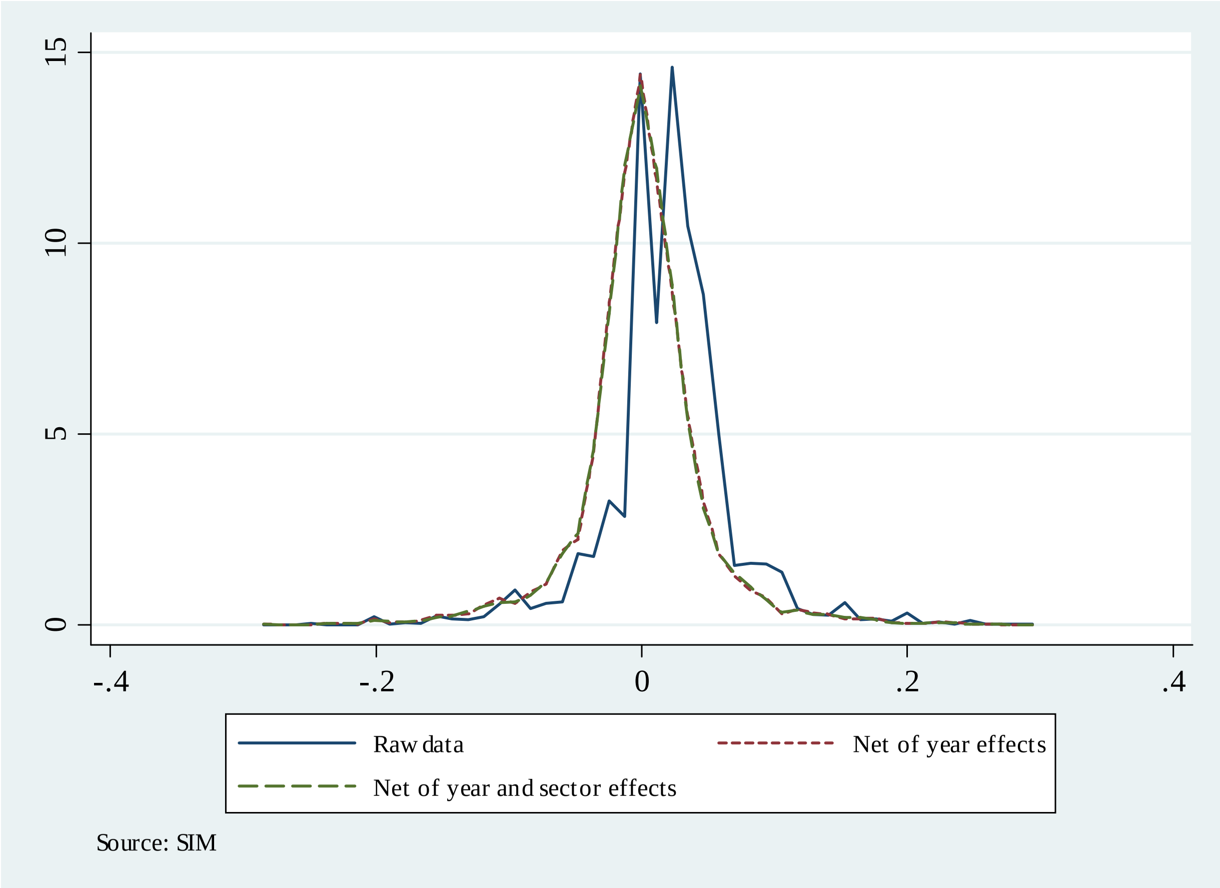


Figure 4: Annual price change, sectoral averages (percentages): SIM vs official production prices

Source: SIM and Italian National Statistical Institute (ISTAT). SIM price changes are measured at the firm-level. Full sector description in Table 2.

Table 2: Distribution of firms in terms of value added and employment, by sector

	Value added				Employment			
	1992	1995	2000	2005	1992	1995	2000	2005
Food products and beverages (15)	3.6	5.3	12.7	10.1	2.0	3.8	10.5	9.0
Textiles (17)	5.6	5.8	6.4	3.5	6.5	6.9	8.0	5.5
Wearing apparel, dressing (18)	3.1	4.6	3.3	2.8	3.3	5.0	4.1	4.0
Leather, leather products and footwear (19)	0.5	1.0	1.3	1.5	0.6	1.9	2.6	2.5
Wood and products of wood and cork (20)	0.2	0.5	0.7	0.9	0.3	0.6	1.1	1.1
Pulp, paper and paper products (21)	3.4	5.3	3.7	3.0	3.1	3.4	3.0	2.7
Printing, publishing and reproduction (22)	1.4	1.2	5.0	2.8	1.1	1.2	4.7	1.8
Chemicals and chemical products (24)	12.3	7.9	11.3	6.9	8.4	5.4	7.5	4.7
Rubber and plastics products (25)	7.6	7.8	7.6	4.0	6.6	6.5	8.5	4.6
Other non-metallic mineral products (26)	7.7	4.5	9.9	8.7	5.4	3.4	7.5	7.2
Basic metals (27)	3.0	5.1	12.4	9.3	2.2	3.0	13.7	7.3
Fabricated metal products (28)	2.3	2.2	2.3	4.9	2.2	2.3	2.7	5.8
Machinery, n.e.c. (29)	11.9	13.8	9.0	20.7	11.3	12.2	9.8	21.0
Electrical machinery (31)	5.1	3.9	2.2	3.2	3.8	3.6	2.3	2.9
Radio, television and communication equipment (32)	4.9	2.4	1.5	0.8	6.3	5.4	1.3	1.0
Medical, precision and optical instruments (33)	1.0	1.4	3.0	4.2	1.1	1.7	3.8	3.8
Motor vehicles, trailers and semi-trailers (34)	22.5	21.8	2.5	7.2	32.0	28.0	2.3	7.4
Other transport equipment (35)	3.1	4.5	2.2	1.8	2.9	4.9	3.5	2.3
Manufacturing n.e.c., including furniture (36)	0.6	1.0	3.1	2.3	0.8	0.9	3.3	5.4

Source: SIM

Table 3: China's share over world exports to Italy and over total world exports, by sector

Sector (NACE -Rev.1 code in parenthesis)	exports to Italy				world exports			
	1992	1995	2000	2005	1992	1995	2000	2005
Food products and beverages (15)	0.3	0.4	0.6	0.8	2.6	2.8	3.1	4.0
Textiles (17)	3.6	4.3	5.1	9.8	7.7	9.0	9.6	18.3
Wearing apparel, dressing (18)	6.2	7.4	9.1	15.5	11.0	15.7	16.0	24.2
Leather, leather products and footwear (19)	4.2	7.2	12.8	13.6	7.5	15.6	21.6	29.4
Wood and products of wood and cork (20)	0.8	1.0	1.1	1.9	1.7	2.1	3.2	6.8
Pulp, paper and paper products (21)	0.0	0.0	0.2	0.4	0.4	0.7	0.9	2.3
Printing, publishing and reproduction (22)	0.0	0.2	0.7	0.4	0.3	0.6	1.6	3.2
Chemicals and chemical products (24)	0.4	0.7	1.0	1.2	1.7	2.0	2.3	3.2
Rubber and plastics products (25)	0.6	2.0	4.1	6.9	1.7	4.2	6.2	10.5
Other non-metallic mineral products (26)	0.8	1.6	3.4	4.6	3.7	3.7	5.0	8.1
Basic metals (27)	0.1	0.2	1.0	1.7	1.5	1.9	3.1	6.9
Fabricated metal products (28)	1.2	2.1	3.7	8.7	2.8	4.0	5.8	11.4
Machinery, n.e.c. (29)	0.2	0.8	2.4	9.6	1.4	1.3	2.6	6.9
Electrical machinery (31)	0.1	1.0	2.9	5.7	1.2	2.9	5.4	10.4
Radio, television and communication equipment (32)	0.0	1.0	1.2	6.4	1.0	3.0	5.3	17.9
Medical, precision and optical instruments (33)	0.1	0.8	1.3	2.5	1.5	2.3	3.2	6.1
Motor vehicles, trailers and semi-trailers (34)	0.0	0.0	0.1	0.3	1.4	0.1	0.2	1.0
Other transport equipment (35)	0.0	0.5	5.0	13.7	6.7	7.8	13.8	23.3
Manufacturing n.e.c., including furniture (36)	2.5	6.5	8.6	13.2	3.7	6.3	8.9	14.9

Source: World Trade Analyzer, Statistics Canada

Table 4: Import penetration in Italy and US, by sector

Sector (NACE -Rev.1 code in parenthesis)	Italy				US			
	1992	1995	2000	2005	1992	1995	2000	2005
Food products and beverages (15)	14.7	16.7	16.8	17.6	5.4	5.6	7.1	8.5
Textiles (17)	16.4	19.2	22.8	27.6	15.1	16.7	28.5	39.5
Wearing apparel, dressing (18)	12.0	15.7	20.8	27.0	33.3	37.9	51.9	71.6
Leather, leather products and footwear (19)	15.0	20.2	27.8	31.1	65.0	71.6	79.5	92.1
Wood and products of wood and cork (20)	14.8	16.9	17.3	17.6	11.5	12.8	15.8	19.6
Pulp, paper and paper products (21)	23.0	28.8	28.9	28.5	8.3	9.9	11.4	12.9
Printing, publishing and reproduction (22)	2.9	5.0	7.0	6.9	1.4	1.7	1.7	2.0
Chemicals and chemical products (24)	32.0	37.9	43.1	49.1	10.1	12.5	17.7	21.8
Rubber and plastics products (25)	15.6	15.9	17.9	19.7	9.2	10.2	12.9	17.5
Other non-metallic mineral products (26)	7.7	10.0	9.7	8.9	9.8	11.4	14.2	16.3
Basic metals (27)	35.5	38.4	45.7	47.5	16.4	18.9	25.4	27.4
Fabricated metal products (28)	5.2	5.3	6.1	6.0	5.7	6.5	8.5	11.5
Machinery, n.e.c. (29)	22.7	28.2	31.4	31.5	23.1	26.0	29.8	38.6
Electrical machinery (31)	18.8	23.5	26.4	25.2	23.4	28.4	38.4	47.7
Radio, television and communication equipment (32)	33.9	44.8	58.6	59.8	32.1	37.2	40.0	54.9
Medical, precision and optical instruments (33)	42.8	46.5	52.0	51.3	21.4	27.2	42.8	46.7
Motor vehicles, trailers and semi-trailers (34)	52.9	54.3	57.4	66.5	25.9	25.3	30.4	34.1
Other transport equipment (35)	30.4	24.2	45.9	35.9	13.1	14.5	25.8	23.0
Manufacturing n.e.c., including furniture (36)	10.9	12.3	15.5	15.8	19.8	21.8	28.0	31.6

Source: OECD STAN Database for Industrial Analysis.

Table 5: Univariate regression

	Dep. Var.: $\Delta price$				
	OLS				IV
	(1)	(2)	(3)	(4)	(5)
$\Delta china\_it$	-0.001	-0.005*	0.000	-0.004	-0.035***
	(0.001)	(0.002)	(0.002)	(0.003)	(0.013)
Constant	0.021***	0.021***	0.018***	0.017***	0.025***
	(0.001)	(0.003)	(0.000)	(0.004)	(0.005)
Year FE	no	yes	no	yes	yes
Sector FE	no	no	yes	yes	yes
Observations	6343	6343	6343	6343	6343
R^2	0.000	0.091	0.010	0.101	-
P-value test F(all year FE = 0)		0.000		0.000	0.000
P-value test F(all sector FE = 0)			0.000	0.000	0.000

Notes: In columns 1 - 4 OLS estimates. In columns 5 IV estimates where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients.

*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 6: Base Regression

	Dep. Var.: $\Delta price$			
	OLS		IV	
	(1)	(2)	(3)	(4)
$\Delta china\_it$	-0.005*	-0.004	-0.030***	-0.035***
	(0.002)	(0.002)	(0.009)	(0.012)
$\Delta impen$	-0.004*	-0.005***	-0.004	-0.006**
	(0.002)	(0.002)	(0.003)	(0.003)
$\Delta domcomp$	-0.001	-0.000	-0.001	-0.000
	(0.005)	(0.006)	(0.006)	(0.006)
$\Delta demand$	0.002	0.003	0.002	0.003
	(0.008)	(0.008)	(0.008)	(0.008)
$\Delta size$	0.180**	0.188**	0.183***	0.180***
	(0.072)	(0.073)	(0.068)	(0.070)
$\Delta inputcost$	0.023***	0.023***	0.023***	0.021***
	(0.006)	(0.006)	(0.006)	(0.005)
$\Delta wage$	0.002	0.004	0.006	0.009
	(0.010)	(0.011)	(0.011)	(0.012)
Δtfp	0.004	0.004	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)
Constant	0.021***	-0.006	0.031***	0.035***
	(0.003)	(0.004)	(0.005)	(0.005)
Sector FE	no	yes	no	yes
Year FE	yes	yes	yes	yes
R^2	0.099	0.147		
Observations	6343	6343	6343	6343

Notes: In columns 1 and 2 OLS estimates of equation 3; in columns 3 and 4 IV estimates of equation 3 where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3.

*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 7: First stage and reduced form

	Dep. Var: $\Delta china\_it$			Dep. Var: $\Delta p_{i,t}$		
	First stage IV			Reduced form		
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta china\_wrl$	0.751***	1.00***	0.761***	-0.026**	-0.030***	-0.027**
	(0.189)	(0.190)	(0.191)	(0.010)	(0.010)	(0.010)
$\Delta impen$		-0.060	-0.053		-0.002	-0.004**
		(0.053)	(0.041)		(0.002)	(0.002)
$\Delta domcomp$		0.018	0.011		-0.002	-0.001
		(0.051)	(0.057)		(0.006)	(0.006)
$\Delta demand$		-0.002	0.013		0.002	0.003
		(0.034)	(0.028)		(0.008)	(0.008)
$\Delta size$		-0.097	-0.348		0.186**	0.192**
		(0.441)	(0.362)		(0.072)	(0.074)
$\Delta inputcost$		-.015	-.054		0.023***	0.023***
		(0.069)	(0.073)		(0.006)	(0.006)
$\Delta wage$		0.135	0.157		0.003	0.005
		(0.103)	(0.111)		(0.011)	(0.011)
Δtfp		-0.099	-0.077		0.005	0.004
		(0.063)	(0.049)		(0.005)	(0.005)
Constant	0.881***	0.244	0.869***	-0.002	0.024***	-0.003
	(0.913)	(0.206)	(0.189)	(0.004)	(0.004)	(0.005)
Sector FE	yes	no	yes	yes	no	yes
Year FE	yes	yes	yes	yes	yes	yes
F- stat of excl. instr.	15.87	27.82	15.94			
R^2	0.224	0.157	0.225	0.102	0.101	0.111
Observations	6343	6343	6343	6343	6343	6343

Notes: In columns 1 -3 first stage IV regressions with $\Delta china\_it$ as dependent variable and $\Delta china\_wrl$ as regressor. In columns 4 -6 reduced form regression of Δp on $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. F-stat refers to the F-statistics of excluded instruments from the first stage estimation of $\Delta china\_it$ on $\Delta china\_wrl$.

*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 8: Instrumenting import penetration

	Dep. Var.: $\Delta price$	
	(1)	(2)
$\Delta china\_it$	-0.029***	-0.035***
	(0.009)	(0.012)
$\Delta impen$	-0.009**	-0.009**
	(0.004)	(0.005)
$\Delta domcomp$	-0.000	0.000
	(0.006)	(0.006)
$\Delta demand$	0.002	0.003
	(0.008)	(0.008)
$\Delta size$	0.183***	0.180***
	(0.068)	(0.070)
$\Delta inputcost$	0.023***	0.021***
	(0.006)	(0.005)
$\Delta wage$	0.006	0.009
	(0.011)	(0.012)
Δtfp	0.002	0.002
	(0.005)	(0.005)
Constant	0.031***	0.035***
	(0.005)	(0.005)
Sector FE	no	yes
Year FE	yes	yes
Observations	6343	6343

Notes: IV estimates of equation 3 where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$ and $\Delta impen$ with $\Delta impen\_us$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3 *** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 9: Firms' exit

	Dep. Var.: $\Delta price$			
	liquidation or bankruptcy		liquidation, bankruptcy or acquisition	
	(1)	(2)	(3)	(4)
$\Delta china\_it$	-0.030***	-0.035***	-0.030***	-0.035***
	(0.009)	(0.012)	(0.009)	(0.013)
$\Delta impen$	-0.004	-0.006**	-0.004	-0.006**
	(0.003)	(0.003)	(0.003)	(0.003)
$\Delta domcomp$	-0.001	-0.000	-0.001	-0.000
	(0.006)	(0.006)	(0.005)	(0.006)
$\Delta demand$	0.002	0.003	0.002	0.003
	(0.008)	(0.008)	(0.008)	(0.008)
$\Delta size$	0.180***	0.178**	0.184***	0.183***
	(0.069)	(0.070)	(0.067)	(0.068)
$\Delta inputcost$	0.023***	0.021***	0.023***	0.021***
	(0.006)	(0.005)	(0.006)	(0.005)
$\Delta wage$	0.006	0.009	0.006	0.009
	(0.011)	(0.012)	(0.011)	(0.012)
Δtfp	0.002	0.002	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)
exit	-0.003	-0.002	0.000	0.001
	(0.003)	(0.003)	(0.002)	(0.002)
Constant	0.032***	0.036***	0.031***	0.035***
	(0.005)	(0.005)	(0.005)	(0.005)
Sector FE	no	yes	no	yes
Year FE	yes	yes	yes	yes
Observations	6343	6343	6343	6343

Notes: IV estimates of equation 3 where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. In columns 1 and 2 the dummy *exit* is equal to 1 if the firm is liquidated or goes bankrupt after exiting the sample and 0 otherwise; in columns 3 and 4 *exit* is equal to 1 also for firms that are subsequently acquired by another firm.
*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 10: Outliers

	Dep. Var.: $\Delta price$			
	>20 firms		1996-2006	
	(1)	(2)	(3)	(4)
$\Delta china\_it$	-0.030***	-0.034***	-0.044**	-0.053*
	(0.010)	(0.012)	(0.018)	(0.030)
$\Delta impen$	-0.003	-0.005**	-0.003	-0.004***
	(0.002)	(0.002)	(0.002)	(0.002)
$\Delta domcomp$	-0.001	-0.000	-0.005	-0.004
	(0.005)	(0.006)	(0.003)	(0.004)
$\Delta demand$	0.002	0.003	-0.002	-0.000
	(0.009)	(0.009)	(0.009)	(0.008)
$\Delta size$	0.183***	0.182**	0.237***	0.234***
	(0.069)	(0.071)	(0.070)	(0.076)
$\Delta inputcost$	0.023***	0.022***	0.014**	0.012**
	(0.006)	(0.005)	(0.006)	(0.006)
$\Delta wage$	0.004	0.007	0.026**	0.031**
	(0.011)	(0.012)	(0.012)	(0.013)
Δtfp	0.004	0.004	-0.002	-0.002
	(0.005)	(0.005)	(0.003)	(0.003)
Constant	0.030***	0.034***	0.057***	0.063***
	(0.005)	(0.004)	(0.015)	(0.017)
Sector FE	no	yes	no	yes
Year FE	yes	yes	yes	yes
Observations	6145	6145	5076	5076

Notes: IV estimates of equation 3 where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. In columns 1 and 2 we exclude sector-year cells with less than 20 firms; in columns 3 and 4 the equation is estimated on the subperiod 1996-2006.

*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 11: Domestic vs exporting firms

	Dep. Var.: $\Delta price$			
	exports<30%		weighted regression	
	(1)	(2)	(3)	(4)
$\Delta china\_it$	-0.042***	-0.057***	-0.036***	-0.045***
	(0.012)	(0.016)	(0.011)	(0.014)
$\Delta impen$	-0.009**	-0.009**	-0.006**	-0.008**
	(0.004)	(0.004)	(0.003)	(0.003)
$\Delta domcomp$	-0.001	-0.003	0.000	0.000
	(0.005)	(0.006)	(0.005)	(0.005)
$\Delta demand$	0.010	0.013	0.005	0.006
	(0.014)	(0.015)	(0.011)	(0.011)
$\Delta size$	0.070	0.099	0.162**	0.167**
	(0.090)	(0.095)	(0.075)	(0.079)
$\Delta inputcost$	0.027***	0.024***	0.026***	0.024***
	(0.009)	(0.009)	(0.007)	(0.007)
$\Delta wage$	0.022	0.032	0.014	0.020
	(0.019)	(0.022)	(0.014)	(0.015)
Δtfp	-0.006	-0.004	-0.000	0.000
	(0.006)	(0.006)	(0.005)	(0.005)
Constant	0.058***	0.073***	0.053***	0.061***
	(0.013)	(0.013)	(0.012)	(0.011)
Sector FE	no	yes	no	yes
Year FE	yes	yes	yes	yes
Observations	2905	2905	6343	6343

Notes: IV estimates of equation 3 where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. In columns 1 and 2 we exclude firms that at (t-1) have exported more than 30 per cent of their total sales; in columns 3 and 4 the equation is estimated weighting observations by the share of domestic out of total sales.
*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 12: Sectoral measures

Sector (NACE -Rev.1 code in parenthesis)	*capint*	*edu*	*whbl*	*qualad*	*adv*
Food products and beverages (15)	81.4	0.794	0.39	2.04	0.026
Textiles (17)	48.7	0.729	0.15	2.62	0.014
Wearing apparel, dressing (18)	11.2	0.666	0.18	2.28	0.015
Leather, leather products and footwear (19)	18.6	0.729	0.19	1.68	0.000
Wood and products of wood and cork (20)	36.3	0.760	0.20	1.81	0.002
Pulp, paper and paper products (21)	126.0	0.873	0.30	1.88	0.002
Printing, publishing and reproduction (22)	33.2	0.922	0.87	1.33	0.028
Chemicals and chemical products (24)	166.1	0.928	0.75	2.46	0.005
Rubber and plastics products (25)	48.5	0.845	0.29	2.32	0.012
Other non-metallic mineral products (26)	78.6	0.831	0.29	2.15	0.007
Basic metals (27)	157.1	0.847	0.29	2.21	0.001
Fabricated metal products (28)	53.0	0.836	0.35	1.42	0.011
Machinery, n.e.c. (29)	63.1	0.895	0.57	2.40	0.007
Electrical machinery (31)	57.7	0.886	0.56	2.01	0.009
Radio, television and communication equip. (32)	57.7	0.927	0.56	2.01	0.009
Medical, precision and optical instrum. (33)	45.3	0.934	0.96	2.40	0.013
Motor vehicles, trailers and semi-trailers (34)	68.6	0.890	0.52	2.08	0.008
Other transport equipment (35)	68.6	0.920	0.52	2.08	0.008
Manufacturing n.e.c., including furniture (36)	22.1	0.798	0.25	2.40	0.004
Correlation matrix					
capint	1	0.432	0.163	0.201	-0.411
edu		1	0.819	-0.065	-0.082
whbl			1	-0.064	0.116
qualad				1	0.047
adv					1

Source: EU KLEMS, Kugler and Verhoogen (2008), Khandelwal (2010). *capint* is capital intensity, *edu* is average share of high- and medium-skilled workers -defined as those that have at least completed high school - over total workers, *whbl* is skill intensity proxied by the ratio between non production and production workers, *qualad* is length of quality ladder, *adv* is advertising/sales ratio.

Table 13: Sector heterogeneity

	Dep. Var.: $\Delta price$				
	$capint$	edu	$whbl$	$qualad$	adv
	(1)	(2)	(3)	(4)	(5)
$\Delta china\_it$	-0.051*	-0.216**	-0.053***	-0.007	-0.037***
	(0.027)	(0.109)	(0.018)	(0.032)	(0.013)
$\Delta china\_it * sect$	0.000	0.208*	0.038*	-0.014	0.175
	(0.000)	(0.120)	(0.022)	(0.016)	(0.653)
$\Delta impen$	-0.006**	-0.006**	-0.006**	-0.006**	-0.006**
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)
$\Delta domcomp$	0.000	-0.001	-0.001	-0.000	-0.000
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
$\Delta demand$	0.003	0.003	0.003	0.003	0.003
	(0.009)	(0.009)	(0.008)	(0.008)	(0.008)
$\Delta size$	0.180***	0.181***	0.183***	0.180**	0.181***
	(0.069)	(0.069)	(0.070)	(0.070)	(0.069)
$\Delta inputcost$	0.022***	0.021***	0.021***	0.021***	0.021***
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$\Delta wage$	0.010	0.009	0.009	0.010	0.011
	(0.013)	(0.012)	(0.012)	(0.012)	(0.012)
Δtfp	0.002	0.003	0.002	0.002	0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
$Constant$	0.035***	0.038***	0.038***	0.036***	0.035***
	(0.005)	(0.006)	(0.006)	(0.006)	(0.005)
Sector FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Observations	6343	6343	6343	6343	6343

Notes: IV estimates where $\Delta china\_it$ is instrumented by $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. The variable *sect* is equal to the one indicated in the heading of each column; more details on the sectoral indicators are provided in section 5.1.
*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.

Table 14: Firm and sector heterogeneity

	Dep. Var.: $\Delta price$				
		edu		*whbl*	
	all sample	below median	above median	below median	above median
	(1)	(2)	(3)	(4)	(5)
$\Delta china\_it$	-0.035***	-0.045***	-0.017	-0.071***	-0.013
	(0.012)	(0.012)	(0.013)	(0.024)	(0.009)
$\Delta china\_it * tfp$	0.000	0.004**	-0.002	0.004**	-0.002
	(0.002)	(0.001)	(0.003)	(0.002)	(0.003)
tfp	-0.000	-0.001	0.000	-0.001	0.000
	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
$\Delta impen$	-0.006**	-0.004***	-0.004	-0.006**	-0.006
	(0.003)	(0.001)	(0.007)	(0.002)	(0.007)
$\Delta domcomp$	-0.000	-0.006	-0.000	-0.008	0.003
	(0.006)	(0.005)	(0.008)	(0.006)	(0.008)
$\Delta demand$	0.003	-0.006	0.016	0.007	0.001
	(0.009)	(0.007)	(0.015)	(0.014)	(0.010)
$\Delta size$	0.180***	0.283***	0.013	0.266***	0.112
	(0.069)	(0.087)	(0.075)	(0.102)	(0.079)
$\Delta inputcost$	0.021***	0.023***	0.016**	0.017**	0.020*
	(0.005)	(0.006)	(0.008)	(0.007)	(0.010)
$\Delta wage$	0.011	0.020**	-0.010	0.020**	-0.004
	(0.012)	(0.009)	(0.026)	(0.010)	(0.022)
Δtfp	0.002	-0.001	0.007	-0.000	0.007
	(0.005)	(0.005)	(0.010)	(0.005)	(0.009)
$Constant$	0.035***	0.039***	0.041***	0.051***	0.038***
	(0.005)	(0.007)	(0.011)	(0.012)	(0.009)
Sector FE	yes	yes	yes	yes	yes
Year FE	yes	yes	yes	yes	yes
Observations	6343	3982	2361	3516	2827

Notes: IV estimates where $\Delta china\_it$ is instrumented with $\Delta china\_wrl$. Robust standard errors clustered at the sectoral level (2 digits of the Nace Rev.1 classification) are reported in brackets below the coefficients. The explanatory variables are described in sections 2 and 3. The variable *sect* is equal to the one indicated in the heading of each column; more details on the sectoral indicators are provided in section 5.1. tfp is the lagged log-level of firm-level total factor productivity.

*** identifies significance of the coefficient at 1 per cent; ** identifies significance at 5 per cent, * identifies significance at 10 per cent.