

Distribution services and differential producer and consumer price impacts of trade

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Abstract: We examine the differential impact of import prices on consumer and producer prices. This includes an analytical decomposition of factors, like distribution costs, oligopoly markups, and distribution sector market power that contribute to variations in pass-through. Differences between consumer and producer price pass-through is evidence of market power in the trade and distribution sector. We then examine these relationships in the core EU-15 Members for the period 1996-2006. This sample is characterized by a common trade policy and almost identical exchange rate changes, as well as a well-integrated set of markets at the industry level but with relatively segmented trade and distribution sectors. We quantify the transmission of border price changes, from both tariff changes and exchange rate movements, into both European producer prices and consumer prices. There is substantially more impact on European producer prices than on consumer prices. The degree of consumer price impact varies substantially across countries and products. Part of this variation in pass-through is linked to market structure in the retail and distribution sectors.

Key words: Pass-through, imports and prices, European Union

JEL codes: F42, F36, F14

1. Introduction

While border prices of traded goods have been shown to be quite sensitive to changes in exchange rates or tariff changes, the pass-through to consumer prices is known to be much less sensitive (Parsley and Wei 2003, Taylor 2000), implying pass-through to be less than complete (i.e. less than 100%). This partial pass-through can be explained by a number of factors, including costs added in the distribution sector and imperfect competition in the distribution sector. Recent literature also offers evidence of this aggregate pass-through having declined over time. (Ihrig, J.E., M. Marazzi and A.D. Rothenberg 2003). One explanation for this is changing trade composition. Imports into the Euro-area from the rest of the world have changed. Shares of energy and, to a lesser extent, machinery and transport equipment within total imports have increased, while those of food, other commodities and basic manufactures have declined.

In general, the literature on pass-through has focused on exchange rate pass-through rather than real border price changes. However, as pointed out in Feenstra (1987) the mechanism behind exchange rate pass-through and real border price pass-through are analogous and, can thus be expected to work the same way for tariff reductions as well. Indeed, over the last decade, several sectors experienced substantial reductions in import barriers in Europe. The aim of this paper is to quantify the extent to which European consumers have actually benefited from import price decreases over the past ten years, linked especially to tariff changes. The approach we follow here involves estimating the impact of changes in import prices on both general EU producer prices, and prices for consumers across EU Member States. We find that The overall pass-through of import price changes to consumer prices was approximately 11% from 1996-2006. At the same time, there is substantial variation, both across industries and member countries. We also find significant interaction between the various measures of retail sector competitiveness and the rate of pass-through, as well as evidence that unit values at the detailed product level are a function of income. This last point, which is consistent with the recent literature on consumer values, suggests that concurrent changes in incomes may muddy the waters in the search for understanding of pass-through rates.

2. Theory

We start with a basic analytical framework where consumers buy a mix of imported and competing domestic goods. These goods reach consumers through a trade and distribution sector that exercises market power (oligopoly) vis-à-vis consumers, and also market power vis-à-vis domestic and foreign producers (oligopsony). The result is a double margin mechanism linking border prices to consumer prices and competing producer prices.

In formal terms, assume that imports are supplied according to the import supply function in equation (1).

$$(1) \quad P_{cif} = F(q_M) \quad F' > 0$$

In equation (1), P_{cif} is the c.i.f. price before duties, and valued at the foreign exchange rate, while q_M is the quantity of imports. We convert P_{cif} to a landed price for imports, P_M , by applying the exchange rate e and the tariff $T=1+t$. This yields equation (2).

$$(2) \quad P_M = eTP_{cif} = eTF(q_M)$$

There is also a domestic¹ industry that competes with imports in supplying the trade and distribution chain that leads to final consumers. It is also characterized by a standard upward sloping supply schedule.

$$(3) \quad P_H = S(q_H) \quad S' > 0$$

In equation (3), q_H is home supply, and P_H is the price paid to producers. To round out the basic conditions for the market, we add a consumer demand where price is inversely related to total supply.

$$(4) \quad P_D = D(q_M + q_H) = D(Q) \quad D' < 0$$

In equation (4), P_D represents domestic prices at the consumer level.

We assume that between the sources of supply of q_M and q_H , on the one hand, and consumers, on the other, we have a distribution and trade sector. Firms in this

¹ Note that for the empirics that follow, it makes sense to think of a “European” domestic industry, and a competing extra-European industry. We could elaborate the present structure to include numerous sources of supply, with varying degrees of oligopsony power captured through the first derivatives of the corresponding supply curves. Without any oligopsony power, in the present setup it makes sense to focus on the world price and the competing domestic industry.

sector are oligoplistically competitive vis-à-vis consumers, and oligopsonistically competitive vis-à-vis sources of supply. The profit for one of these firms j will be:

$$(5) \quad \pi_j = (D(q_M + q_H) - P_M - c)q_{Mj} + (D(q_M + q_H) - P_H - c)q_{Hj}$$

In equation (5), π_j is firm profit, q_{Mj} and q_{Hj} are firm sales of imports and domestic goods, and c is a per-unit cost for intermediate trade and distribution services. With standard Cournot-Nash assumptions and identical intermediary firms, from the first order conditions for profit maximization, we can derive the following equilibrium relationships between prices at the border P_M , factory gate P_H , and store shelves P_D .

$$(6) \quad (n^{-1}\theta_H^{-1}\varepsilon_D^{-1} + 1)P_D = (n^{-1}\varepsilon_S^{-1} + 1)P_H + c$$

$$(7) \quad (n^{-1}\theta_M^{-1}\varepsilon_D^{-1} + 1)P_D = (n^{-1}\varepsilon_M^{-1} + 1)P_M + c$$

In equations (6) and (7), n is the number of intermediary service firms, ε_D is the elasticity of demand corresponding to equation (4), ε_S is the elasticity of supply corresponding to equation (3), ε_M is the elasticity of import supply corresponding to equations (1) and (2), and θ_H and θ_M represent the quantity-weighted market share of domestic and imported goods. From equations (6) and (7), it is possible to derive a range of relationships between log or percent changes (denoted for x by \hat{x}) in prices, markups, and perceived monopsony power. We start with the relationship between border prices the set of consumer and domestic producer prices:

$$(8) \quad \hat{P}_D = \hat{\mu}_M + (\hat{\phi}_M + \hat{P}_M)\theta_M$$

$$(9) \quad \hat{P}_H = \theta_H^{-1}\hat{\mu}_M + (\hat{\phi}_M + \hat{P}_M)\theta_M\theta_H^{-1} - \theta_H^{-1}\hat{\mu}_H + \hat{\phi}_H$$

In equations (8) and (9), the term $\phi_M = (n^{-1}\varepsilon_M^{-1} + 1)$ is the difference between P_M and the perceived marginal cost of imports (in essence a mark-up ratio analogous to the markup on the consumer side). The ϕ_H is the corresponding term for domestic supply.

Equation (8) says that given changes in border prices \hat{P}_M , the correspondence to change in consumer prices depends on this change, weighted by the cost share θ_M , changes in perceived monopsony power in the import market, and changes in markups. We summarize a number of points related to equation (8) in the following propositions.

Proposition 1: The correspondence between changes in border prices and changes in consumer prices is reduced with a greater service cost component c such that the term θ_M is reduced.

Proposition 2: The correspondence between changes in border prices and changes in consumer prices depends on changes in equilibrium markups. To the extent that intermediate firms partially absorb price changes through markup adjustments, the correspondence is reduced.

Equation (9) gives a similar mapping between import prices and domestic producer prices. The correspondence here depends on a number of factors, including relative cost shares and relative markup responses for imports and domestic goods. In the absence of the monopsony terms and similarity in marginal cost shares, we can simplify the relationship as follows.

$$(10) \quad \hat{P}_H = \hat{P}_M$$

With monopsony, but with relatively similar cost shares, equation (9) simplifies as follows.

$$(11) \quad \hat{P}_H = \theta_H^{-1}(\hat{\mu}_M - \hat{\mu}_H) + \hat{P}_M + \hat{\phi}_H$$

On the basis of equations (9)-(11) we make the following propositions:

Proposition 3: Lack of direct one-to-one correspondence between import and home price changes follows from monopsony power. This is manifested through the direct impact of monopsony power coefficients and indirect through cost share differences in equation (9).

Proposition 4: The correspondence of import and home producer price changes depends on the scope of differential changes in markup rates, and changes in perceived monopsony power.

We can work from equations (8) and (9) to decompose the difference between producer and consumer price correspondence to import price changes.

$$(12) \quad \hat{P}_D - \hat{P}_H = \frac{\theta_H - \theta_M}{\theta_H} (\hat{\phi}_M + \hat{P}_M + \hat{\mu}_M) + \theta_H^{-1} \hat{\mu}_H - \hat{\phi}_H$$

Differences in price impacts at the consumer and local producer level depend on the size of the import price shock itself, differences in perceived marginal costs, changes in these perceived marginal costs, and changes in markups. If we are comparing countries where \hat{P}_M is the same (for example EU countries with a common import policy and exchange rate) differences in producer and consumer passthrough are a function of markup responses, marginal cost shares, and monopsony power. From equation (12) we can make the following propositions.

Proposition 5: Differences between consumer and producer price changes can be magnified if intermediate firms partially absorb price changes through markup adjustment.

Proposition 6: With similar marginal cost shares for imports and domestic goods, differences in producer and consumer price movements follow from a combination of adjustment of oligopoly and oligopsony margins.

Finally, when perceived marginal costs shares are similar (or when we have only oligopoly and not oligopsony power), then the markup response is:

$$(13) \quad \hat{\mu}_H \approx \theta_H (\hat{P}_D - \hat{P}_H)$$

3. Empirics

From the discussion in the previous section, we now turn to the empirical relationship between changes in border prices, and corresponding changes in both producer and consumer prices. Propositions (1)-(6), and the underlying equations, map differences in import and consumer prices to changes in markups and to service cost margins.

Differences between consumer and producer price responses are evidence of market power in the distribution sector, and so should be a function of the degree of market power. We focus here on the core EU-15 Member states, characterized by a common trade policy and relative uniform exchange rate movements. We first examine producer

prices, then consumer prices and the difference between the two across EU Members and product categories. We follow this with an empirical examination of the impact of retail and distribution sector competition and cost structures on differences in pass-through rates.

a. Data

We work with data from a number of different sources, namely EUROSTAT (consumer prices, import protection), COMTRADE (trade data), the OECD (structure of trade sectors), WITS (import protection) and the IMF (exchange rates). Organizing the data has involved mapping detailed trade data to detailed consumer price series for all individual member states. The HICP (harmonized index of consumer prices) data on prices contain both detailed product prices, and the general level of consumer prices. Trade data include quantity, and value of trade data for detailed product categories².

In order to be able to merge trade and price data, which were reported in different product classifications, we have mapped HS1996 trade data into CPCv.1.0 classification and then mapped this classification into COICOP classification in which the price data is recorded³. The product sectors, by HICP category, are listed in Table 1 below. From the trade data, unit value indexes were calculated with the same base year (EUROSTAT currently uses 2005) as the consumer price indexes. Note that a much more detailed product mapping, with estimated pass-through coefficients, is supplied in the annex. In addition, we have merged import protection data with our trade and price data. This is based on HS1996 data from WITS, supplemented with OECD/GTAP data on protection for food sectors. Once we have matched and merged data from various sources, our final dataset includes income, price, and import protection data from 1996-2006. Not all data are available for all countries and all product categories for all years. For this reason, in the sections that follow, sample size and choice of estimation technique will be driven in part by available data.

²About 8% of the data had missing quantities. Since for the analysis we use unit values, missing observations had to be eliminated from the analysis, together with observations where the quantities were not recorded in weight.

³The merging of these two data sets, have resulted in a few products, for which there were no corresponding product codes in HS, which consequently had to be omitted from the analysis.

We also work with indexes of the industrial structure of the distribution sectors. From the OECD we have a range of indexes to work with. These are summarized in Table 2 below, with regards to source and description. The seven measures summarized in the table cover a wide range of characteristics. In our data, they have been rescaled from 1 to 8, where 1 is more competitive. The data indicate that France, Austria and Greece are among the European countries with the highest levels of restrictions, and least competition, in the retail sector. Netherlands, Ireland and Sweden on the other hand, are pointed out as being among those with highest competition and least restrictions. While our trade and price data cover the period 1996-2005, some of the competition indexes were available only for some years. These were interpolated for the years where the data were missing. In addition, our retail indicators do not cover all countries.

b. Pass-through by Industry and EU Member

We focus on this section on the basic rate of pass-through across broad sectors and Member States, focusing on changes in import prices from tariff reductions and exchange rate changes and quantifying the chain from import prices to corresponding European producer prices and corresponding consumer prices.. We do this by examining the pattern of overall price transmission of border price changes. First, we focus on relative rates of convergence of European producer prices to world market prices and then focus on the pass-through of import price declines to consumer prices. This involves structural estimation of a system of price transmission equations, as spelled out below.

Producer Prices

We start with the impact of extra-EU import prices on EU producer prices. Identically, this maps to the impact of tariff cuts on producer prices. We aim to analyze product specific changes in producer prices, and in so doing, we employ a simultaneous equation model estimated with an iterated SUR estimator, which can be described by the following equations:

$$(14) \quad \ln(P_{producer,t}) = \alpha_1 + \alpha_2 \ln(P_{landed,t}) + \alpha_3 T + \alpha_4 \ln PCI_t$$

$$(15) \quad \ln(P_{landed,t}) = \beta_1 + \ln(e) + \ln(P_{border,t}) + \ln(1 + \tau) + \beta_2 T + \beta_3 \ln PCI_t$$

where P is an index of prices (1996=100) and T is time. The term P_{border} represents the import price at the border, τ is the tariff rate and e represents the exchange rate (the foreign currency value of the domestic currency, where our import price data are in dollars.) In brief, equation (14) links changes in import prices to EU producer prices. Equation (15) links border prices to tariffs and exchange rate changes over time (indexed by T)⁴. Both equations also include an index for per-capita income, as we expect from the recent literature that income levels are linked to unit values (and implicitly to quality). The result of this exercise applied to our full dataset yields an average impact coefficient from extra-EU import prices to producer prices, are summarized in Table 3. More detailed estimates, by sector, are discussed in the next subsection.

From Table 3, the average EU-wide producer price impact coefficient (elasticity) was 0.338. This implies that an increase in import prices of 1% implies an increase in EU producer prices of 0.34%. In the sections that follow, we will take a closer look at underlying variations in this impact, across sectors and member countries.

Table 4 below reports estimated price impact coefficients at the sector level for the full European sample. These indicate the percent changed observed in our measure of EU producer prices given observed changes in import prices from outside the EU. There is some variation across products, due in part to the underlying rate of protection and possibly to differences in reported data and declaring countries. From the Table 4, producer price impact is shown to be highest for household maintenance items, textiles and clothing, medical products and purchase of vehicles. Meanwhile, there is no significant price impact on European producer prices in audio-visual equipment, food, personal transport equipment and in household appliances. While we find a strong mapping from import prices to consumer prices in motor vehicles, we find little evidence that this carries through to consumers. The food price results simply confirm that the European Union's Common Agricultural Policy, which historically was meant to insulate European food markets from world price movements, did indeed accomplish this result over the sample period.

⁴ N.B. in implementation, this set of equations is estimated jointly with the consumer price equations developed in the next section.

We next turn to varying producer price impact across member states, using the same set of estimating equations. The results of this exercise are summarized in Table 5. More details is provided in the Annex tables. From the Table 5, there is significant variation in the estimated impact coefficients across member countries. For example, German producers are more directly impacted by price changes at the border than are those of other European producers. At the other end of the spectrum, import price changes are shown to have had little (i.e. no significant) impact on Polish or Greek producer prices over the sample period.

Consumer Prices

We next turn to the extent to which reductions in import prices have been passed through to declines in consumer prices, i.e. consumer price pass-through. Consider the pass-through of price changes from the border to consumers. Landed price changes in local currency will generally follow from one of two factors: (i) a drop in border prices or (ii) an appreciation of the domestic currency, so that import prices fall in local currency terms. Border prices in turn combine delivered import prices and the impact of tariffs. In formal terms, we have defined the landed price already in equation (15) above. Assuming that prices at the consumer level are a function of landed prices, we specify the following additional estimating equation for linking consumer prices $P_{consumer}$ to import prices P_M which are a composite of extra-EU import prices P_{landed} and intra-EU import (producer) prices $P_{producer}$:

$$(16) \quad \ln(P_{M,t}) = \gamma_1 + \gamma_2 \ln(P_{producer,t}) + \gamma_3 \ln(P_{landed,t})$$

$$(17) \quad \ln(P_{consumer,t}) = \phi_1 + \phi_2 [\ln(P_{M,t}) - \ln(e_t)] + \phi_3 T$$

As in equations (14) and (15), P is an index of prices (1996=100) and T is time. In equation (17), the coefficient ϕ_2 is the consumer price pass-through coefficient for exchange rate and nominal price changes. It measures the estimated impact of landed prices on consumer prices (i.e. the extent of pass-through of these changes from the border to the consumer).

The average ϕ_2 estimated for the full sample is reported in Table 6 above. This is a crude estimate of average pass-through across consumer products. (More detailed estimates, by product and member country are summarized the following subsections

and available in detail in the Annex Tables). From the Table, the average pass-through of import prices across industries and member countries was 0.11. This implies that, a 1% drop in prices for consumer goods at the border implied, on average, a .11% drop in consumers consumer prices. Using this as a reference point, we will now turn in Table 7 to sector-specific variations across industries and country-specific differences across EU Member States.

Table 7 below reports regression results for equation (17) for the EU as a whole for a broad range of HIPC product categories. (Results on more disaggregated product categories can be found in the Annex Tables, along with the full set of underlying regressions. The estimates are based on an iterated SUR estimator, which given econometric restrictions are preferred to OLS, and using annual data. To preserve degrees of freedom, and to ensure sufficient variation in tariffs with product categories, these estimates are for the full EU25 sample only.

Recall that the average pass-through coefficient for all industries was 11%. However, from Table 7, there was wide variation across product categories. Interesting to note is that pass-through at the consumer level was among the highest in food and clothing and textiles, i.e. the sectors which have experienced highest levels of trade liberalization in the last decade. At a more disaggregate level (see the annex tables), there is significant variation across food sectors. Estimated pass-through was highest for Fruits (53%) and Oils and Fats (33%), and lowest for Milk, Cheese and Eggs (less than 10%). On the other extreme, there is no discernable pass-through in Tobacco. The obvious explanation for this is the high level of taxation (around 75%) for this product, due to public health reasons. Other industries with low levels of consumer price pass-through are furniture, household appliances and vehicles.

Overall, the regression results summarized in Table 7 and reported in more detail in the annex point to significant sector specific variation underneath average rates of pass-through. For some products, the estimated coefficients indicate that tariff reductions will reach consumers directly, while in other sectors, other factors are insulating consumers from border price changes.

The variation in estimated consumer pass-through across EU Member States is summarized in Table 8 below, while more detailed regression results are again reported in the annex. From the Table, we again see significant variation across Member States, with respect to the degree to which consumers have benefited from decreasing import

prices. Estimated pass-through is highest for Ireland and Estonia, while for Denmark and Greece we find no significant pass-through at all.

c. retail competition

An obvious question at this stage is why the pass-through is not total. There are several explanations for this. One is that consumer prices include domestic markups for marketing and distribution that are not directly impacted by the landed price of imports. In other words, the consumer price is actually a composite of service inputs and the landed product itself. In addition, imperfect retail competition will lead to lower pass-through. With imperfect competition in the retail sector, part of the price drop is captured as retailer profits rather than consumer price decline. We turn here to an examination of factors affecting these rates of pass-through.

Based on the recent literature, one possible explanation for the inter-Member State variation in consumer price pass-through is underlying differences in retail competition. Our basic approach here is to modify the basic regressions equations above using the full panel and including our indexes of retail structure, and interaction of these with the import price term. We have restricted the sample, for comparison purposes, to those observations for which we have observations on all the retail competition indexes. The result of this exercise is summarized in Table 9 below.

For the restricted sample, our estimated average pass-through rate is 0.065, or roughly 6.5 percent. This is reported in the first column of results in Table 9, where we have not controlled for retail structure. In order to explore the role of retail structure in the pass-through process, in the remaining columns, we introduce various measures of retail structure to the statistical mix. Since we expect the retail variables to be correlated, we include the different variables separately in the regressions. For example, the variable measuring protection of existing firms is capturing factors similar to those in the variable measuring barriers to entry. Thus, these variables are incorporated into separate regressions.

In general, the indexes are logarithmic and benchmarked to unity, implying a perfectly open FDI regime as having an index value of zero. By including a variable measuring retail sector competitiveness, and an interaction term between retail sector competitiveness and the pass-through variable, we obtain an estimate of the average pass-through in the most competitive and open retail sectors. This is given by the coefficient of the pass-through variable ('import prices'). From the coefficients in the

table, in countries with the most competitive and open retail sectors, the average pass-through is roughly 0.71 percentage points (the coefficient is about 10% greater) than the sample average from the first column.

As can be seen from the Table 9, the estimated retail indexes are not consistently significant. However, when significant, they exhibit the expected positive sign. More importantly, in each case the interaction between the retail structure indexes and the import price (i.e. the impact on the pass-through coefficient) is consistently highly significant at the 0.1% level or better. In other words, this implies that there is significant interaction between our various measures of retail structure and the rate of pass-through.

What do these results tell us? Our interpretation is that reform of regulation and price controls implies a process of falling consumer prices and greater direct impact of trade policy on consumers. It also points to potential consumer benefits from further trade and FDI liberalization in the retail sector.. These results thus suggest that (in accordance with previous results as reported in Francois and Wooton 2008 and Francois, Manchin, Norberg, and Spinanger 2007) we should expect that the benefits of trade liberalization for consumers depend on the structure of the retail and distribution sectors.

4. Conclusions

Our goal in this paper has been to explore empirically the interaction between consumer prices and trade openness in Europe. We depart from the recent literature on passthrough at the sector level by focusing on producer prices in addition to consumer prices. For this reason, the approach taken has been macroeconomic, focusing on evidence at the level of industry aggregates rather than at the firm level. The aggregate effects we have identified imply a complex mix of factors linking price changes at the border to changes in internal market conditions and firm cost structures. For sectors where EU producers are able to exercise market power protected from imports, a greater share of these price changes is likely to be absorbed in changes in producer margins, in times of both rising and falling prices. Market structure in the trade and distribution sectors is also appears to be important to consumer welfare and the consumption-related gains to trade liberalization.

5. References

- Adolfson, M. (2004) Exchange-Rate Pass-Through- Theory, Concepts, Beliefs and Some Evidence, Mimeo, Sveriges Riksbank 2004.
- Alfaro, L. (2005), Inflation, openness, and exchange-rate regimes: The quest for short-term commitment, *Journal of International Economics* 77, pp. 229-249.
- Boylaud, O. and G. Nicoletti (2001), "Regulatory reform in retail distribution", OECD Economic Studies No. 32.
- Broda, C. and D.E. Weinstein (2004), Globalization and the Gains from Variety, NBER working paper No. 10314.
- Campa, J. M. and L. S. Goldberg (2005) Exchange Rate Pass-Through into Import Prices, *The Review of Economics and Statistics* 87, 679-690.(also NBER working paper No. 8934, 2002)
- Campa, J. M., L. S. Goldberg and J. M. Gonzalez-Minguez (2005) Exchange Rate Pass-Through to Import Prices in the Euro Area. Federal Reserve Bank of New York Staff Report No. 219 (September).
- Campa, J. M. and L. S. Goldberg (2006) Distribution Margins, Imported Inputs and the insensitivity of the CPI to Exchange Rates, mimeo Federal Reserve Bank of New York.
- Chen, N., J. Imbs and A. Scott (2004) Competition, Globalization and the Decline of Inflation, CEPR Discussion Paper Series No. 4695.
- Conway, P. and G. Nicoletti (2006), "Product Market Regulation in the Non-Manufacturing Sectors of OECD Countries: Measurement and Highlights", OECD Economics Department Working Paper, No 530.
- DeStefano, M. (2003) Exchange Rate Pass-Through in the Italian Car Market 1990-1996, Mimeo Boston University.
- Dornbusch, R. (1987) Exchange Rates and Prices, *The American Economic Review* 77, pp. 93-106.
- Feenstra R. C. (1987) Symmetric Pass-Through of Tariffs and Exchange Rates under Imperfect Competition: An Empirical Test, NBER Working Paper No. 2453.
- Feenstra, R.E. (1992) How Costly is Protectionism, *the Journal of Economic Perspectives*, Vol.6. pp. 159-178.
- Francois, J.F., M. Manchin, H. Norberg, and D. Spinanger (2007), "Impacts Of Textiles And Clothing Sectors Liberalisation On Prices," Final Report 2007-04-18,

Commission of the European Union – Directorate-General for Trade.

- Francois, J.F. and I. Wooton (2008), “Market Structure and Market Access,” World Bank and CESifo policy discussion paper.
- Frankel, J., D. Parsley and S.-J. Wei (2005) Slow Passthrough Around the World: A New Import for Developing Countries? KSG Faculty Research Paper, (February).
- Goldberg, P. K. and Knetter, M. M. (1997) Goods Prices and Exchange Rates: What Have We Learned? *Journal of Economic Literature*, 35, 1243-1272.
- Golub, S. S. (2003), “Measures Of Restrictions On Inward Foreign Direct Investment For Oecd Countries,” *OECD Economic Studies* No. 36, 2003/1.
- Gruben, W.C. and McLeod, D. (2004), The Openness- Inflation Puzzle Revisited, *Applied Economics Letters* 11, pp.465-468.
- Gust, C and N. Sheets (2007) *International Finance Discussion Papers*, Board of Governors of the Federal Reserve System, No. 850.
- Ihrig, J.E., M. Marazzi and A.D. Rothenberg, (2006) Exchange-Rate Pass-Through in the G-7 Countries, *International Finance Discussion Papers*, Board of Governors of the Federal Reserve System, No. 851.
- Lane, P. R. (1997) Inflation in open Economies, *Journal of International Economics* 42, pp. 327-347.
- Marazzi, M., N. Sheets and R. Vigufsson (2005) , *International Finance Discussion Papers*, Board of Governors of the Federal Reserve System, No. 833.
- Parsley D. and Wei, S.J. (2003) A Prism Into the PPP-Puzzle: The Micro-Foundations of the Big Mac Real Exchange Rates ; NBER working paper No. 10074.
- Romer, D. (1993) Openness and Inflation: Theory and Evidence, *the Quarterly Journal of Economics* 108, pp. 869-903.
- Romer, D. (1998) “A New Assessment of Openness and Inflation: Reply,” *the Quarterly Journal of Economics* 113, pp. 641-648.
- Taylor, J. B. (2000) Low inflation, pass-through, and the pricing power of firms. *European Economic Review* 44, 1389-1408.
- Terra, C. T. (1998) Openness and Inflation: A New Assessment, *the Quarterly Journal of Economics* 113, pp. 641-648.

Table 1:
Description of HICP Product Categories.

Description	HICP Number
Food	11
Non-alcoholic beverages	12
Tobacco	22
Clothing	31
Footwear including repair	32
Materials for the maintenance and repair of the dwelling	431
Furniture and furnishings, carpets and other floor coverings	51
Household textiles	52
Household appliances	53
Glassware, tableware and household utensils	54
Tools and equipment for house and garden	55
Goods and services for routine household maintenance	56
Medical products, appliances and equipment	61
Purchase of vehicles	71
Spares parts and accessories for personal transport equipment	721
Audio-visual, photographic and information processing equipment	91
Other recreational items and equipment, gardens and pets	93
Electrical appliances for personal care; other appliances, articles and products for personal care	1212, 1213
Other personal effects	1232

Table 2:
Regulation and Competition Indexes for Retail.

Index	Description	Source
Regulatory Impact	Index of cost impact of regulation of wholesale and retail trade and repairs. Min=.194 (least impact) Max=.627 (most impact)	Conway and Nicoletti (2006)
FDI-restrictions	Index of restrictions on inward FDI Min=.05 (least restricted) Max=.627 (most restricted)	Golub (2003)
Registration in Commercial register	Cost and competition impact related to commercial registration requirements Min=0 (least impact) Max=6 (most impact)	Conway and Nicoletti (2006), Boyland and Nicoletti (2003)
Protection of existing firms	Cost and competition impact related to protection of existing firms Min=0 (least impact) Max=6 (most impact)	Conway and Nicoletti (2006), Boyland and Nicoletti (2003)
Price controls	Cost and competition impact related to price controls Min=0 (least impact) Max=6 (most impact)	Conway and Nicoletti (2006), Boyland and Nicoletti (2003)
Barriers to entry	Cost and competition impact related to regulatory barriers to entry Min=0 (least impact) Max=5.5 (most impact)	Conway and Nicoletti (2006), Boyland and Nicoletti (2003)
Overall Barriers to Competition	Summary competition indexes Min=0.5 (least impact) Max=6.0 (most impact)	Conway and Nicoletti (2006), Boyland and Nicoletti (2003)

Note: Conway and Nicoletti (2006) data represent a panel. Conway and Nicoletti (2006) and Boyland and Nicoletti (2003) provide two data points (1998 and 2003) and we have extrapolated to intermediate years. Golub (2003) provides cross-section data.

Table 3:
EU-wide Average Producer Price Impact Coefficient.

Impact Coefficient	Number of observations	R-squared.
0.338 ***	11487	0.425

***) denotes that the coefficient is significant at the 1-level.

Table 4:
Estimated Industry-Specific Producer Price Impact Coefficients.

HICP	Description	Price Impact Coeff.
	Average	0.34***
11	Food	0.08
12	Non-alcoholic beverages	0.06
22	Tobacco	0.31***
31	Clothing	0.41***
32	Footwear including repair	0.37***
431	Materials for the maintenance and repair of the dwelling	0.09***
51	Furniture and furnishings, carpets and other floor coverings	0.20***
52	Household textiles	0.34***
53	Household appliances	-0.05
54	Glassware, tableware and household utensils	0.62***
55	Tools and equipment for house and garden	0.20***
56	Goods and services for routine household maintenance	0.502***
61	Medical products, appliances and equipment	0.69***
71	Purchase of vehicles	0.79***
721	Spares parts and accessories for personal transport equipment	-0.07
91	Audio-visual, photographic and information processing equipment	-0.35***
93	Other recreational items and equipment, gardens and pets	0.10***
1212, 1213	Electrical appliances for personal care; other appliances, articles and products for personal care	0.19***
1232	Other personal effects	-0.29***

***) denotes that the coefficient is significant at the 1% level.

Table 5:
Estimated National Producer Price Impact Coefficients

Country	Estimated Price Impact Coefficient
Austria	0.35***
Cyprus	0.68***
Denmark	0.60***
Estonia	0.18***
Finland	0.33***
France	0.44***
Germany	1.10***
Greece	0.07
Italy	0.73***
Ireland	0.44***
Poland	0.01
Portugal	0.16***
Spain	0.59***
Sweden	0.67***
United Kingdom	0.53***
EU25 ⁵	0.34***

***) denotes that the coefficient is significant at the 1% level.

Source: Own calculations, based on iterated SUR-regressions

Table 6:
EU-Wide Average Pass-Through Coefficient.

Pass-through Coefficient	Number of observations	R-squared
0.115 ***	11487	0.0942

***)denotes that the coefficient is significant at the 1-level.

Source: Own calculations, using Linear Regressions.

⁵ Due to limitations in the availability of data, this average is based on our sample of countries in the Table.

Table 7:
Estimated Industry-Specific Consumer Price Pass-Through Coefficients.

HICP	Description	Pass-through coeff.
	Average	0.11***
11	Food	0.25***
12	Non-alcoholic beverages	0.137***
22	Tobacco	-0.004
31	Clothing	0.162***
32	Footwear including repair	0.153***
431	Materials for the maintenance and repair of the dwelling	0.048***
51	Furniture and furnishings, carpets and other floor coverings	0.034***
52	Household textiles	0.28***
53	Household appliances	0.004
54	Glassware, tableware and household utensils	0.013
55	Tools and equipment for house and garden	0.21***
56	Goods and services for routine household maintenance	0.004***
61	Medical products, appliances and equipment	0.026*
71	Purchase of vehicles	0.08***
721	Spares parts and accessories for personal transport equipment	0.102***
91	Audio-visual, photographic and information processing equipment	0.164***
93	Other recreational items and equipment, gardens and pets	0.132***
1212, 1213	Electrical appliances for personal care; other appliances, articles and products for personal care	0.186***
1232	Other personal effects	0.111***

***) denotes that the coefficient is significant at the 1% level.

Source: Own calculations, based on iterated SUR-regressions.

Annex Table 8

Detailed sector-specific consumer price pass-through.

HICP	Description	Pass-through coeff.
	Average	0.11***
11	Food	0.25***
111	Breads and Cereals	0.21***
112	Meat	0.23***
113	Fish and Seafood	0.20***
114	Milk, cheese and eggs	0.09***
115	Oils and fats	0.332***
116	Fruit	0.5333***
117	Vegetables	0.187***
118	Sugar, jam, honey, chocolates and confectionary	0.249***
119	Food products, n.e.c	-0.005
12	Non-alcoholic beverages	0.137***
121	Coffee, tea and cocoa	0.222***
122	Mineral waters, soft drinks, fruit and vegetable juice	0.092***
22	Tobacco	-0.004
31	Clothing	0.162***
311	Clothing materials	0.131***
312	Garments	0.163***
313	Other articles of Clothing and clothing accessories	0.105***
32	Footwear including repair	0.153***
431	Materials for the maintenance and repair of the dwelling	0.048***
51	Furniture and furnishings, carpets and other floor coverings	0.034***
511	Furniture and furnishing	0.034?
512	Carpets and other floor coverings	0.20***
52	Household textiles	0.28***
53	Household appliances	0.004
531-532	Major Household appliances , whether electric or not and small electric household appliances	0.027
54	Glassware, tableware and household utensils	0.013
55	Tools and equipment for house and garden	0.21***
56	Goods and services for routine household maintenance	0.004***
61	Medical products, appliances and equipment	0.026*
611	Pharmaceutical Products	0.037*
612-613	Other medical products; therapeutic appliances and equipment	0.009*

71	Purchase of vehicles	0.08***
712, 713, 714	Motor cycles, bicycles and animal drawn vehicles	0.109***
721	Spares parts and accessories for personal transport equipment	0.102***
91	Audio-visual, photographic and information processing equipment	0.164***
911	Equipment for the reception, recording and reproduction of sound and pictures	0.100***
912	Photographic and cinematographic equipment and optical instruments	0.155***
913	Information processing equipment	0.275***
914	Recording media	0.008
920	Major durables for indoor and outdoor recreation, including musical instruments	0.004
93	Other recreational items and equipment, gardens and pets	0.132***
931	Games, toys and hobbies	0.189***
932	Equipment for sports, camping and open-air recreation	0.121***
933	Gardens, plants and flowers	0.313***
934-935	Pets and related products; veterinary and other services for pets	0.069***
1212, 1213	Electrical appliances for personal care; other appliances, articles and products for personal care	0.186***
1232	Other personal effects	0.111***

***) denotes that the coefficient is significant at the 1% level.

Source: Own calculations, based on iterated SUR-regressions.

Table 9:
 Estimated Average National Pass-Through Coefficients, Consumer Prices

Country	Estimated Pass-Through Coefficient
Austria	0.089***
Cyprus	0.120***
Denmark	-0.01
Estonia	0.164***
Finland	0.009
France	0.114***
Germany	0.109***
Greece	-0.016
Italy	0.062***
Ireland	0.1411***
Poland	0.108***
Portugal	0.073***
Spain	0.088***
Sweden	0.087***
United Kingdom	0.058*
EU25 ⁶	0.115***

***) denotes that the coefficient is significant at the 1% level.

⁶ Due to limitations in the availability of data, this average is based on our sample of countries in the Table.

Table 10:
Regression Results, Consumer Price Pass-Through and Retail Structure

Service sector structure,
Inflation and tariffs, $\ln(\text{HICP}, 1996=100) \dagger$

	model 1	model 2	model 3	model 4	model 5	model 6	model 7	model 8
intercept	-0.008 (-1.81)	-0.020 (-1.59)	-0.018 (-0.21)	.001 (0.19)	-.004 (-0.56)	-0.034 (-5.44)	0.003 (0.31)	-0.011 (-0.97)
tariffs	0.647 (8.49)	0.534 (9.96)	0.527 (9.80)	0.571 (10.79)	0.553 (10.33)	0.588 (11.13)	0.549 (10.26)	0.545 (10.15)
import prices	0.065 (8.49)	0.072 (9.34)	0.073 (9.53)	0.070 (9.15)	0.071 (9.21)	0.064 (8.49)	0.072 (9.36)	0.071 (9.19)
regulatory impact		0.067 (2.00)						
FDI restrictions			0.048 (0.77)					
regisration				-0.002 (-0.05)				
requirements					0.004 (0.83)			
protection of existing firms						0.038 (8.07)		
price controls							-0.001 (-0.19)	
barriers to entry								0.010 (1.25)
overall barriers								-0.028 (-6.20)
price-index		-0.123 (-6.78)	-0.374 (-6.98)	-0.033 (-5.47)	-0.021 (-5.84)	-0.028 (-4.39)	-0.028 (-6.06)	
interaction								
n obs	2347	2347	2347	2347	2347	2347	2347	2347
R-sq from OLS	0.1049	0.1236	0.1227	0.1169	0.1179	0.1348	0.1188	.1200
F-statistic, Pr>0	137.4, .000	82.58, .000	81.93, .000	77.52, .000	78.29, .000	91.24, .000	78.95, .000	79.84, .000

notes: tariffs = $\ln(1+t)$

Annex: Detailed Summaries of Sector Estimates

Table A 1: Alcoholic beverages, tobacco and narcotics.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.027 (0.019)				
Temp	0.040 (0.004)***		0.084 (0.014)***	0.040 (0.017)**	-0.008 (0.001)***
ln_T96	0.425 (0.068)***				
lnmp_xeu25		0.215 (0.016)***	0.267 (0.056)***		
lnmp_eu25		0.715 (0.016)***			
Lner		-0.970 (0.059)***			
lnpci_dex			0.473 (0.159)***	0.290 (0.188)	
Constant	-0.062 (0.024)***	0.018 (0.014)	-0.298 (0.065)***	-0.028 (0.076)	-0.008 (0.005)*
Observations	223	223	223	223	223

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 2: Audio-visual, photographic and information processing equipment.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.164 (0.031)***				
Temp	-0.051 (0.003)***		-0.018 (0.015)	-0.065 (0.011)***	-0.002 (0.000)***
ln_T96	0.511 (0.486)				
lnmp_xeu25		0.522 (0.033)***	-0.358 (0.089)***		
lnmp_eu25		0.436 (0.027)***			
Lner		-1.081 (0.087)***			
lnpci_dex			-0.085 (0.167)	0.573 (0.128)***	
Constant	0.008 (0.032)	-0.049 (0.021)**	-0.114 (0.064)*	-0.008 (0.051)	-0.002 (0.002)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 3: Bread and cereals.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.211 (0.016)***				
Temp	0.018 (0.002)***		0.004 (0.009)	-0.029 (0.013)**	-0.019 (0.002)***
ln_T96	-0.015 (0.055)				
lnmp_xeu25		0.201 (0.012)***	0.002 (0.044)		
lnmp_eu25		0.752 (0.018)***			
Lner		-1.028 (0.041)***			
lnpci_dex			0.488 (0.107)***	0.824 (0.148)***	
Constant	0.012 (0.015)	-0.031 (0.008)***	-0.146 (0.040)***	-0.008 (0.063)	0.014 (0.013)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 4: Carpets and floor coverings

	HICP	composite	eu25	xcu25	ln_T
Lnmdex	0.206 (0.022)***				
Temp	0.003 (0.002)		-0.016 (0.010)*	-0.033 (0.008)***	-0.001 (0.000)***
ln_T96	0.374 (0.220)*				
lnmp_xcu25		0.298 (0.017)***	-0.018 (0.080)		
lnmp_eu25		0.771 (0.015)***			
Lner		-1.046 (0.032)***			
lnpci_dex			0.426 (0.107)***	0.228 (0.090)**	
Constant	-0.027 (0.021)	-0.002 (0.007)	0.007 (0.043)	-0.033 (0.037)	-0.002 (0.002)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 5: Clothing

	HICP	composite	eu25	xcu25	ln_T
Lnmdex	0.162 (0.035)***				
Temp	-0.001 (0.004)		-0.051 (0.011)***	-0.070 (0.012)***	-0.001 (0.001)*
ln_T96	-0.951 (0.214)***				
lnmp_xcu25		0.200 (0.010)***	0.408 (0.057)***		
lnmp_eu25		0.664 (0.011)***			
Lner		-0.889 (0.027)***			
lnpci_dex			0.348 (0.121)***	0.927 (0.139)***	
Constant	0.135 (0.030)***	-0.013 (0.007)**	-0.075 (0.047)	0.072 (0.056)	-0.009 (0.004)**
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 6: Clothing and footwear

	HICP	composite	eu25	xcu25	ln_T
Lnmdex	0.309 (0.036)***				
Temp	0.010 (0.004)***		-0.053 (0.009)***	-0.057 (0.010)***	-0.001 (0.001)*
ln_T96	-0.444 (0.242)*				
lnmp_xcu25		0.193 (0.009)***	0.431 (0.057)***		
lnmp_eu25		0.677 (0.010)***			
Lner		-0.922 (0.020)***			
lnpci_dex			0.299 (0.104)***	0.711 (0.114)***	
Constant	0.081 (0.032)**	-0.018 (0.005)***	-0.058 (0.042)	0.043 (0.046)	-0.009 (0.004)**
Observations	223	223	223	223	223

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 7: Clothing materials

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.131 (0.034)***				
Temp	0.013 (0.003)***		-0.053 (0.011)***	-0.064 (0.017)***	-0.002 (0.000)***
ln_T96	-1.100 (0.338)***				
lnmp_xeu25		0.241 (0.010)***	-0.058 (0.044)		
lnmp_eu25		0.606 (0.017)***			
Lner		-0.796 (0.045)***			
lnpci_dex			0.641 (0.118)***	0.712 (0.191)***	
Constant	0.115 (0.034)***	-0.017 (0.009)**	-0.094 (0.048)*	-0.021 (0.078)	0.000 (0.001)
Observations	180	180	180	180	180

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 8: Coffee, tea, and cocoa

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.221 (0.026)***				
Temp	0.001 (0.002)		-0.029 (0.009)***	-0.099 (0.008)***	-0.003 (0.001)***
ln_T96	0.974 (0.130)***				
lnmp_xeu25		0.396 (0.012)***	0.207 (0.061)***		
lnmp_eu25		0.611 (0.014)***			
Lner		-0.996 (0.027)***			
lnpci_dex			0.670 (0.104)***	1.146 (0.092)***	
Constant	-0.033 (0.016)**	-0.013 (0.005)**	-0.055 (0.032)*	0.138 (0.036)***	0.005 (0.003)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 9: Electrical appliances for personal care, articles for personal care.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.186 (0.022)***				
Temp	0.020 (0.002)***		-0.035 (0.009)***	-0.038 (0.009)***	-0.002 (0.000)***
ln_T96	1.448 (0.185)***				
lnmp_xeu25		0.158 (0.009)***	0.187 (0.062)***		
lnmp_eu25		0.715 (0.009)***			
Lner		-0.925 (0.020)***			
lnpci_dex			0.591 (0.100)***	0.488 (0.106)***	
Constant	-0.073 (0.014)***	-0.007 (0.004)*	-0.037 (0.041)	-0.024 (0.044)	-0.004 (0.003)*
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 10: Equipment for sport, camping and open-air recreation.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.121 (0.019)***				
Temp	-0.001 (0.002)		0.010 (0.017)	-0.051 (0.008)***	-0.001 (0.000)***
ln_T96	2.938 (0.263)***				
lnmp_xeu25		0.503 (0.027)***	0.178 (0.143)		
lnmp_eu25		0.586 (0.016)***			
Lner		-1.012 (0.051)***			
lnpci_dex			0.141 (0.203)	0.189 (0.102)*	
Constant	-0.145 (0.019)***	-0.000 (0.013)	-0.117 (0.070)*	-0.073 (0.035)**	-0.002 (0.002)
Observations	181	181	181	181	181

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 11: Equipment for the reception, recording and reproduction of sound and pictures

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.098 (0.021)***				
Temp	-0.051 (0.003)***		0.075 (0.018)***	-0.022 (0.018)	-0.003 (0.000)***
ln_T96	1.218 (0.339)***				
lnmp_xeu25		0.179 (0.022)***	0.165 (0.068)**		
lnmp_eu25		0.679 (0.022)***			
Lner		-1.133 (0.093)***			
lnpci_dex			-0.765 (0.207)***	0.783 (0.210)***	
Constant	-0.064 (0.031)**	-0.064 (0.020)***	-0.223 (0.083)***	0.118 (0.084)	-0.004 (0.002)*
Observations	191	191	191	191	191

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 12: Fish and seafood.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.202 (0.017)***				
Temp	0.028 (0.002)***		-0.016 (0.007)**	-0.004 (0.008)	0.000 (0.000)
ln_T96	0.846 (0.127)***				
lnmp_xeu25		0.393 (0.017)***	0.412 (0.055)***		
lnmp_eu25		0.576 (0.019)***			
Lner		-1.001 (0.030)***			
lnpci_dex			0.493 (0.080)***	0.571 (0.093)***	
Constant	-0.074 (0.017)***	-0.002 (0.006)	-0.006 (0.030)	-0.058 (0.038)	-0.003 (0.002)*
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 13: Food.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.249 (0.015)***				
Temp	0.017 (0.001)***		0.002 (0.006)	-0.009 (0.007)	-0.007 (0.001)***
ln_T96	0.157 (0.054)***				
lnmp_xeu25		0.264 (0.007)***	0.085 (0.056)		
lnmp_eu25		0.721 (0.009)***			
Lner		-1.018 (0.015)***			
lnpci_dex			0.431 (0.079)***	0.517 (0.074)***	
Constant	-0.029 (0.011)***	-0.019 (0.003)***	-0.118 (0.028)***	0.001 (0.035)	-0.001 (0.007)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 14: Food and non-alcoholic beverages

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.395 (0.023)***				
Temp	0.016 (0.002)***		-0.002 (0.005)	-0.011 (0.007)	-0.006 (0.001)***
ln_T96	0.543 (0.077)***				
lnmp_xeu25		0.260 (0.006)***	-0.010 (0.047)		
lnmp_eu25		0.711 (0.008)***			
Lner		-1.013 (0.012)***			
lnpci_dex			0.546 (0.063)***	0.414 (0.073)***	
Constant	-0.089 (0.016)***	-0.016 (0.002)***	-0.117 (0.025)***	0.025 (0.033)	-0.002 (0.006)
Observations	223	223	223	223	223

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 15: Food including alcohol and tobacco.

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.233 (0.016)***				
Temp	0.021 (0.001)***		0.006 (0.006)	-0.019 (0.007)***	-0.007 (0.001)***
ln_T96	0.058 (0.062)				
lnmp_xeu25		0.264 (0.009)***	0.151 (0.056)***		
lnmp_eu25		0.725 (0.011)***			
Lner		-1.038 (0.018)***			
lnpci_dex			0.396 (0.080)***	0.550 (0.073)***	
Constant	-0.014 (0.012)	-0.016 (0.004)***	-0.126 (0.028)***	0.033 (0.035)	0.001 (0.007)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 16: Food, nec

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	-0.005 (0.018)				
Temp	0.019 (0.002)***		-0.004 (0.006)	-0.024 (0.015)	-0.000 (0.001)
ln_T96	0.425 (0.076)***				
lnmp_xeu25		0.348 (0.017)***	-0.003 (0.028)		
lnmp_eu25		0.412 (0.044)***			
Lner		-0.758 (0.071)***			
lnpci_dex			0.476 (0.070)***	-0.143 (0.159)	
Constant	-0.029 (0.013)**	0.003 (0.013)	-0.090 (0.029)***	0.009 (0.071)	-0.002 (0.005)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 17: Footwear including repair

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.153 (0.024)***				
Temp	0.009 (0.003)***		-0.032 (0.016)**	-0.026 (0.009)***	-0.001 (0.000)***
ln_T96	-2.089 (0.345)***				
lnmp_xeu25		0.386 (0.032)***	0.376 (0.124)***		
lnmp_eu25		0.609 (0.018)***			
Lner		-1.039 (0.067)***			
lnpci_dex			0.096 (0.179)	-0.077 (0.098)	
Constant	0.218 (0.040)***	0.010 (0.015)	-0.045 (0.072)	0.023 (0.041)	-0.002 (0.001)**
Observations	191	191	191	191	191

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%

Table A 18: Fruit

	HICP	composite	eu25	xeu25	ln_T
Lnmdex	0.533 (0.034)***				
Temp	0.016 (0.002)***		-0.006 (0.005)	0.008 (0.005)	-0.001 (0.001)
ln_T96	0.466 (0.066)***				
lnmp_xeu25		0.405 (0.014)***	0.296 (0.067)***		
lnmp_eu25		0.561 (0.014)***			
Lner		-0.994 (0.020)***			
lnpci_dex			0.328 (0.063)***	0.382 (0.063)***	
Constant	-0.050 (0.014)***	-0.001 (0.004)	-0.074 (0.025)***	-0.108 (0.025)***	-0.002 (0.004)
Observations	192	192	192	192	192

Standard errors in parentheses. *significant at 10%; ** at 5%; *** at 1%