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**AN ESTIMATION OF TARIFF
PASS-THROUGH IN TUNISIA**

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and Inma Martínez-Zarzoso**

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Abstract

In this paper we evaluate the extent to which changes in tariffs and in international prices are transmitted into consumer prices in Tunisia over the period 2000 to 2008. A pass-through equation is estimated using sectoral panel data at the retail-product level and controlling for unobserved sectoral heterogeneity. The main results show that on average tariff pass-through is 7 percent and that it varies across sectors. In particular, agricultural products seem to be driving the results. Summarizing, the change in Tunisian tariffs has affected local prices, but the effect is lower in magnitude than that found for other developing countries.

JEL Classification: F2, H2

Keywords: Tariffs, International Prices, Tunisia

ملخص

في هذه الورقة نقيم مدى تأثير التغييرات في التعريفات والأسعار العالمية والتي تنتقل إلى أسعار المستهلكين في تونس خلال الفترة من 2000 إلى 2008. ومن خلال المعادلة المقدرّة باستخدام بيانات قطاعية على مستوى التجزئة والمنتج ومراقبة لعدم التجانس القطاعي. أظهرت النتائج الرئيسية على متوسط التعريفات المار هو 7 في المئة، وأنه يختلف في مختلف القطاعات. وعلى وجه الخصوص، فإن المنتجات الزراعية تبدو أن تعود هذه النتائج. وباختصار فإن التغيير في التعريفات التونسية قد أثر على الأسعار المحلية، ولكن النتيجة هي انخفاض في الحجم من تلك الموجودة في البلدان النامية الأخرى.

1. Introduction

In the past two decades an increasing number of developing countries have started unilateral or regional trade liberalization processes in most regions of the world market. In particular, many countries in the North African region have intensified their participation in regional trade agreements, such as the Pan-Arab FTA (GAFTA) and the Euro-Mediterranean agreements (EUROMED), and have also engaged in unilateral trade liberalization policies. The main underlying goal of these trade policies is improving market access and paving the way towards increasing trade, as well as entering into or increasing their participation in global production networks. An important question for economic development is whether these policies help to reduce poverty and to increase the welfare of its citizens. It could be that by reducing tariffs and non-tariff barriers national producers would be displaced by more productive foreign firms that are able to export to the region and this eventually could translate into losses for domestic producers and overall welfare losses. It could also be possible that increasing international competition would reduce domestic prices and this could translate into increasing consumption and welfare for most consumers. For this reason, it is important to evaluate the net welfare effects of such policies in specific countries. A first step to accomplish this task is to analyze the extent to which changes in international prices and in trade and non-trade barriers are transmitted to changes in domestic prices.

In this paper, we focus on the Tunisian case for two reasons. First, this is the first attempt to evaluate the pass-through of international prices into domestic prices in this country using data in the 2000s, a period in which Tunisia witnessed important economic and institutional changes. Second, Tunisia still has relatively high tariffs and a large number of non-tariff barriers¹, despite the fact that the average tariff rate has been reduced in recent years. For instance, the average MFN tariff for manufacturing products has been reduced from 19 percent in 2006 to 12 percent in 2013 (the corresponding tariffs for agricultural goods were 54 and 19 percent respectively).

The main results show that on average tariff pass-through is 7 percent, which is lower in magnitude in comparison to the impact found for other developing countries. It varies across sectors and, in particular, agricultural products seem to be driving the results. Hence, reductions in tariffs are incompletely translated to local prices, probably due to the existence of a number of subsidies on consumer goods and fixed producer prices for products such grain, milk, meat, oil and some vegetables. To investigate the effect of other non-tariff measures (NTMs), ad-valorem equivalents are estimated and its effect on retail prices is also presented. We find that only pre-shipment inspection and other formalities have a negative impact on import values and that other NTMs have instead a positive effect. The effect on retail prices of NTMs is found to be positive and significant, but small in magnitude.

The paper is structured as follows. Section 2 outlines the trade and exchange rate policies in Tunisia in recent years and presents some stylized facts. Section 3 reviews the related literature and Section 4 presents the methodology, describes the main data and variables and presents the results. Finally Section 5 concludes.

2. Tunisian Economic Policy

2.1 Trade policy

In the last two decades Tunisia has increasingly diversified the economy focusing on specific agricultural products, namely olive oil, dates and several organic fruits and vegetables, as well as on manufacturing industries, tourism, and the mining and energy sector. Table 1 reports import shares over time for different product categories. Note that only the product categories

¹ Through the paper we will use the term non-tariff measures instead of non-tariff barriers, since some of them are not necessarily barriers to trade.

for which domestic price data were available are covered. Transport – which comprises cars, premium gasoline and gasoil – together with Housing play the largest role. The importance of clothing and footwear has constantly declined since 2002. On the other hand, housing, water, gas, and electricity have gained importance.

Despite maintaining relatively high tariff barriers, some trade liberalization has taken place in the last three decades with average tariffs decreasing from about 24 percent in 2006 to 13 percent in 2013 (Table 2).

Figure 1 illustrates some of those developments. Clearly, 2005 was a year of exceptionally low tariffs, and the tariff burden increased significantly in 2006 and 2007. Note that in many cases applied tariffs had been lower than bound tariffs, so that these changes were possible in accordance with WTO provisions.

Table 3 presents the evolution of simple average tariffs for different categories of goods. The categorization is the same as in the Tunisian Retail price data. Evidently, average tariffs are higher for food products. The highest tariffs were imposed on fresh and dried fruits and milk, cheese and eggs. While tariffs have declined on average for most food products (with the exception of drinks), tariffs on clothing and footwear, housing, water, gas and electricity, health, and meat and poultry have largely been retained.

Weighted averages – reported in Table 4 – show an average decrease from about 52 percent in 2000 to 31 percent in 2008. The values are in many cases considerably larger than in Table 3, indicating that tariffs on goods with a high import share within categories are relatively large. For many products the evolution over time in weighted averages is more pronounced, which indicates that higher tariffs have experienced larger reductions.

Turning to NTMs as reported by Tunisia as importer², Figures 2 and 3 show the products for which the incidence of NTMs is the highest. Figure 2 shows products affected by more than 50 different NTMs. Most products in this graph are agricultural goods. Figure 3 shows products for which the number of NTMs is higher than 20 and lower than 50 in 2002, those comprise food and vegetable products and also energy goods (gasoil and gasoline). Both figures compare the number of NTMs in the years for which the data are available. For most products, an increase in the number can be observed in 2005 with respect to 2002³.

Most of these NTMs correspond to sanitary and phytosanitary regulations (Type A – 54 percent) followed by technical barriers to trade (Type B – 16 percent) and pre-shipment inspections and other formalities (Type C – 14 percent), as reported in Ghali et al (2014). Other measures used by Tunisian authorities include Type D, contingent trade-protective measures, Type E, non-automatic licensing, quotas, prohibitions and quantity-control measures other than for SPS or TBT reasons, Type F, Price-control measures, including additional taxes and charges, and Type H, measures affecting competition.⁴

In many sectors NTM coverage ratios⁵ – as reported in Table 5 – amount to 100 percent. They are, however, quite low for “Clothing and Footwear” and “Furniture and household articles”. In general, there is no clear inter-temporal pattern. For some products the coverage ratios are significantly reduced over time (Housing, Salt and condiments and Drinks), whereas others show increasing figures over time (Clothing and Footwear and Furniture).

² Provided by the World Bank.

³ This could be due to the data construction, since the information available indicates the number of NTMs in the year in which the corresponding regulation applied but the duration of the measures is not provided. Notice that some NTMs deal with product standards and not necessarily have a protectionist effect.

⁴ UNCTAD (2012).

⁵ Coverage ratios are calculated as the percentage of imported sub-products subject to NTMs in a given price category.

The monthly evolution of retail prices is presented in Table A.1 in the appendix. A break in the series is observed at the end of 2008 for many products, however since tariffs are only available for Tunisian imports until 2008 this will not affect our estimations. It can also be observed that prices show lower variability for some products subject to price interventions, such as bread and cereals, milk, cheese and eggs and oil and fats.

Table 6 presents pairwise correlation coefficients of the variables in natural logs. Most of the crude correlations are significant at the 1 percent level. Vis-à-vis consumer prices the coefficients almost always bear the expected sign, with the exception of weighted-average tariffs, which are insignificant. Note, that there is a significant positive relationship between tariffs and NTMs, indicating that tariffs and NTMs could be used as complements. The latter appear to be the case especially when importing products have a relatively low unit value.

Tunisia entered the GATT in 1990 and therefore is a WTO member since its formation in 1995. Tunisia's commitments under the WTO included the reduction of tariffs in the agricultural sector by 24 percent in ten years (1995 to 2004), as well as the opening up of quotas for the importation of agricultural and food processing products (World Bank, 2014). The country also participates in a number of free trade agreements (FTA). In particular, Tunisia entered GAFTA and the FTA with the EU both in 1998 and signed an FTA with EFTA and another with Turkey in 2005. It is worth noting that tariffs on industrial imports from the EU dropped from about 100 percent in the 1990s to zero by 2008. In contrast, agricultural imports remained with high levels of tariffs and NTMs.

According to the World Bank (2010), Tunisia's tariff policy is still very distortive and has even become more so with the EU liberalization process, with imports from third countries entering at duties of more than 40 percent and the same product entering duty free from the EU. Consequently, the use of weighted tariffs in the subsequent analysis is of crucial importance.

Despite the important reductions in tariffs observed in the data, there has been, however, little progress in reducing NTMs. Tunisia uses NTMs such as technical norms and costly rule of origin requirements to restrict trade with GAFTA members. Indeed, importers often select to pay the MFN tariff instead of incurring the cost of obtaining preferential treatment (World Bank, 2009).

It is also worth noting that the investment climate has improved in the 2000s, mainly due to the economic reforms and the reduction of behind-the-border trade costs (World Bank, 2009). In particular, according to the World Bank Business survey indicators, the number of documents needed to export is lower than the average in the MENA region and at the same level as the OECD-average, however the time needed to export is still in 2015 above OECD average levels (six days more) but four day less than in the region (Table 7). Scope for improvements in time to export and import exist, and could be achieved by reducing the time needed to prepare the necessary documents, which still exceed average OEC levels quite substantially.

2.2 Monetary policy

During the 1990s and in order to maintain a fairly constant real effective exchange rate (REER), Tunisia adopted a REER targeting policy, which helped preserve the competitiveness of the country. However, since 2000 a more flexible exchange rate policy has been adopted, and from 2000 until 2008 the REER shows a substantial depreciation as can be seen in Figure 4.⁶ The depreciation was the consequence of a number of shocks affecting the country, namely the events of September 2001 and several severe droughts that affected agriculture production.

⁶ The nominal effective exchange rate is calculated as the trade weighted arithmetic mean of exchange rates with the most important partner currencies - in so far as data was available from the BCT.

With respect to other policies that also influence consumer prices, the use of administered prices and consumer food subsidies have to be mentioned. There are fixed producer buying prices for wheat and other domestic support for barley, milk, olive oil and sugar beets. Tunisia had used price controls since 1986 on agricultural inputs and producer prices, although the former have been completely removed, there are still guaranteed public prices for grain and milk. With respect to consumer subsidies, since 2000 grains, vegetable oil, and milk are covered by the subsidies (Minot et al, 2010).

3. Literature Review

Trade shocks are related to changes in domestic prices in a complex way. Prices faced by households (retail prices) are usually affected by a number of factors, namely middleman mark-ups, availability of local substitutes, transport costs. These factors lead to an imperfect price transmission and in turn generate important differences between retail prices and border prices. The latter are in general more sensitive to changes in tariff barriers than retail prices. The standard model used to estimate the effect of trade policies or exchange rate movements on retail prices is a pass-through model that distinguishes between domestic and imported varieties (Goldberg and Knetter, 1997).

The literature estimating exchange rate pass-through (ERPT) is very rich, especially for developed country studies. Menon (1995) nicely surveys the early empirical studies, which mainly indicate evidence of incomplete pass-through, especially in countries with low inflation. For the Tunisian case however, we are only aware of one study by Senhadji, Sedik and Kpodar (2007) that evaluates the degree of ERPT to consumer prices in Tunisia⁷ using quarterly data for 43 consumption products (goods and services) over the period from 1995 to 2006. The methodology used in their paper is based on time-series and panel data models and the consumer price index for groups of goods is used as dependent variable. The main results indicate that a 10 percent nominal depreciation of the dinar increase inflation in the 0.7-0.9 percentage points. Similar results are found using time series and panel-data models and the authors mention that trade liberalization of administered prices – mainly food and fuel prices – should increase the degree of ERPT. Indeed, by adding dummy variables for those products they find that the degree of ERPT increases significantly by 37 percent. In general, the statistical significance of the point estimates was very low (10 percent level) implying broad confident bands for the estimates. Some studies extended the pass-through model with trade policy variables to separately estimate ERPT and tariff pass-through (TPT). To our knowledge, there are only three papers that have estimated ERPT and TPT simultaneously (Feenstra, 1989; Menon (1996) and Mallick and Marques, (2008)). However, these studies are (mostly) concerned with the import price at the border of the importing country. More recently, based on Nicita (2009) a bulk of literature has emerged studying the effect of trade policy on local consumer prices. Since we are interested in the distributional effects of trade policy this will be the approach followed in this paper. Recent studies following this approach are Nicita (2009) for the Mexican case, Ural Marchand (2012) for India and Borraz et al. (2013) for Brazil. To our knowledge the Tunisian case has not been studied separately. Nicita (2009) evaluates the effect of the formation of Mercosur on household's income and expenditure over the period 1990 to 2000. He assumes that consumer goods cannot be differentiated by origin and the price of these goods can be expressed as an average price of importer and local substitutes. The estimated pass-through differs for agricultural products and manufacturing and it is estimated at around 33 and 27 percent respectively. The study does not find regional differences in the TPT on agricultural prices, but finds that those differences are significant for manufacturing activities, with regions closer to the US having a TPT of about 70 percent, which declines to 40 percent at 1000 Km.

⁷ Fanizza et al., (2002) for a description of Tunisia's monetary policy in the 1990s.

Ural Marchand (2012) estimates how price changes are transmitted from the border to the consumers using a slightly different model to Nicita (2009) for the Indian case. He uses an ad-hoc model in which domestic prices depend on international prices, the exchange rate in domestic currency, industry-specific trends and time and state dummies. The author is able to estimate different TPT for rural and urban areas and finds that the TPT is significantly lower in rural areas (around 44 percent versus 64 percent in urban areas). ERPT has only a positive and significant coefficient (about 30 percent) for rural areas, whereas it is not significantly different from zero for urban areas. Finally, in Borraz et al (2013) the authors estimate a similar model to Nicita (2009) for the Brazilian case over the period from 1990 to 1999 and find that the TPT is around 0.44 and that trade costs do not have differential effect across geographical areas, hence the interaction term between transport costs and tariffs is excluded from the estimation results. We will follow a similar approach to Nicita (2009) and Borraz et al (2013) and since Tunisia is a small country in terms of area we will not differentiate between geographical regions.

4. Methodology

In this section we present the methodology used to evaluate the impact of trade liberalization in Tunisia on domestic prices. We use retail price data of domestic goods in combination with producer price data and international prices to estimate a pass-through equation.

Retail prices can react only partially to changes in international prices and the extent to which the transmission is complete depends not only on the changes in trade policies, such as tariff reductions or NTMs or on given domestic policies, such as price support and exchange rate policies, but also on exchange rate policies and on the specific institutional and economic environment. It could happen that retail prices do not fully incorporate changes in border prices if the circumstances in the given country impede or complicate the transmission of the changes. In particular, the lack of substitutes, the impact of transport costs, the influence of competitor prices, rigid margins of intermediaries could affect the extent to which reductions in border prices are passed to retail prices.

It is also important to note that price transmission also depends on the market shares of production and consumption of the goods. For example, if a country is a large producer or consumer of a given product it could impact its international price. In the case of Tunisia, which could be considered as a small country in economic terms, this should not be an issue for the majority of goods.

Another important issue is the speed of adjustment. According to World Bank studies for developing countries, changes in international prices of commodities are passed through to domestic prices within 3-6 months, depending on the local production situation, access to markets, and import/export logistics. And even if markets are fully integrated and well-functioning, the average pass-through ranges between 20-70 percent, meaning that a 10 percent change in international prices results in a 2 to 7 percent increase in domestic prices.

In large wheat importing countries of the Middle East and North Africa prices are transmitted quite rapidly (e.g., Egypt, Iraq, and the United Arab Emirates). However, this is probably not the case in countries like Tunisia with high food subsidies and controlled prices.

The empirical strategy consists on adapting the framework developed by Goldberg and Knetter (1997) and Campa and Goldberg (2008) and used by Nicita's (2009)⁸ and Borraz (2013) to the Tunisian case. We express prices as follows:

$$P_{kt} = PP_{kt}^{\alpha} (PI_{kt} (1 + \tau_{kt}))^{1-\alpha} \quad (1)$$

⁸ We are not able to differentiate by regions due to lack of data on regional retail prices.

where P_{kt} is the local price faced by households for good k at time t . PI_{kt} denotes the international price in local currency, τ_{kt} denotes the tariff of good k at period t ; and PP_{kt} is the production price. Here α indicates the domination of local varieties over imported varieties and $(1-\alpha)$ the importance of international prices, trade policies and trade costs on local prices. The degree of pass-through is given by $(1-\alpha)$. The pass-through is complete when α takes the value of zero and changes in border prices are 100 percent passed to retail prices, whereas if $\alpha=1$ the pass-through changes in border prices do not affect retail prices.

Taking logs of equation (1) we obtain,

$$\ln P_{kt} = \alpha \ln PP_{kt} + (1 - \alpha) \ln PI_{kt} + (1 - \alpha) \ln(1 + \tau_{kt}) \quad (2)$$

Loosening the restrictions imposed on coefficients in (2) and adding sectoral, λ_k , and time dummies, π_t , the following model is estimated in accordance with Nicita (2009),

$$\ln P_{kt} = \beta_0 + \beta_1 \ln PP_{kt} + \beta_2 \ln PI_{kt} + \beta_3 \ln(1 + \tau_{kt}) + \lambda_k + \pi_t + \varepsilon_{kt} \quad (3)$$

where ε_{kt} denotes the error term that is assumed to be iid and the rest of variables are the same as in equation (1).

In some regressions the ad-valorem tariff equivalents of NTMs (AVE) are included in the regression. They are obtained estimating a gravity model of Tunisian imports:

$$\ln imp_{jpt} = \gamma_0 + \gamma_1 \ln GDP_{jt} + \gamma_2 \ln(1 + \tau_{jpt}) + \gamma_{\text{NTM}}^h \mathbf{NTM}_{jpt}^h + \varphi_j + \delta_t + \varepsilon_{jpt} \quad (4)$$

Where imp_{jpt} are Tunisian import values of product p (HS-6 digit disaggregation level) from exporter j at time t . GDP_{jt} is exporter GDP. τ_{jpt} are bilateral weighted tariff rates. Finally, \mathbf{NTM}_{jpt}^h is a vector of NTM dummies, and γ_{NTM}^h is the corresponding vector of coefficients, both of 7 dimensions – one for each type of NTM (Types A to F)⁹. φ_j are exporter fixed effects that capture all the other trade cost and gravity variables, like distance and all other time-invariant bilateral dummies and δ_t are year fixed effects that proxy for all time-varying factors common for all exporters and products (Tunisian GDP, business cycle). ε_{jpt} is an iid error term. Note that γ_2 is interpreted as $(1 - \sigma)$, where σ is the elasticity of substitution (Anderson and van Wincoop 2005). In accordance with Bacchetta et al (2012), the tariff equivalent by type of NTM can be calculated as follows:

$$\tilde{\tau}_{\text{NTM}}^h = \exp(\gamma_{\text{NTM}}^h / \gamma_2) - 1 \quad (5)$$

This yields a compound AVE for each product k and year t of:

$$\tilde{\tau}_{kt} = \sum_{p \in k} s_{pkt} \sum_j s_{jpt} \tilde{\tau}_{\text{NTM}}^h \mathbf{NTM}_{jpt}^h \quad (6)$$

where s_{jpt} is the share of imports of HS6 product p imported from country j , and s_{pkt} is the share of imports of good k due to import of HS6 product p . Note that both $\gamma_{\text{NTM}}^h \mathbf{NTM}_{jpt}^h$ and $\tilde{\tau}_{\text{NTM}}^h \mathbf{NTM}_{jpt}^h$ are scalar products. Including NTMs, equation (3) becomes:

$$\ln P_{kt} = \beta_0 + \beta_1 \ln PP_{kt} + \beta_2 \ln PI_{kt} + \beta_3 \ln(1 + \tau_{kt}) + \beta_4 \text{NTM}_{kt} + \varphi_j + \delta_t + \varepsilon_{kt} \quad (7)$$

where NTM_{kt} is either the coverage ratio or $\ln(1 + \tilde{\tau}_{kt})$, i.e. the log-transformed ad-valorem tariff factor equivalent of the NTMs.

⁹ Types are defined as phytosanitary regulations (A), technical barriers to trade (B), pre-shipment inspections and other formalities (C), contingent trade-protective measures (D), non-automatic licensing, quotas, prohibitions and quantity-control measures other than in A and B (E), price-control measures, including additional taxes and charges (F) and measures affecting competition (H).

5. Data, Variables and Empirical Model

5.1 Data and variables

Bilateral tariff data are taken from the World Bank's TRAINS database, which covers years from 2002 to 2008.¹⁰ Because tariff data for 2007 is missing, it is assumed that 2006 tariffs were retained in 2007. Additionally, for tariffs missing at the beginning of the period it is assumed that they are at least as high, as the earliest available tariff, therefore, a conservative estimate is applied. Effectively applied tariffs (AHS) are used in the analyses. Additionally, in some regressions we control for the coverage ratio of NTMs, the corresponding data are from the World Bank¹¹. We are using unilateral NTMs applied by Tunisia on its imports from the world and from the EU. Coverage ratios are calculated as the share of import of the HS6 that are subject to NTMs with respect to total imports in each price-category to reflect the incidence of this factor on imports at the more aggregated level. It is important to notice that it is a crude proxy, given the wide variety of measures (import quotas, security standards, phytosanitary standards, etc). For that reason, as an alternative, we also considered AVE as described in the previous section, also constructed using the World Bank Data. Weighted average tariffs were constructed using import shares from UN-COMTRADE, considering only those products with positive imports.¹²

International prices are approximated using import unit values (i.e., expenditure per unit), based on UN COMTRADE. Unit values were calculated in Dollar per Kilogram. Note that since import values are collected including cost, insurance and freight (c.i.f.) trade cost do not need to be controlled for in the regression analysis. As in the case of tariffs, weighted unit values were calculated based on the respective commodity's import share. Unit values were converted to Tunisian dinar using exchange rates obtained from the Central Bank of Tunisia.

Retail prices and industrial price indices were kindly provided by the Tunisian Institute National de la Statistique. Retail prices are available for more than 140 product or product groups. Unfortunately, for lack of recording in the years for which tariff data are available, and lack of concordance in the trade data, we are left with 75 items. Industrial prices are available for 70 product groups. Those that could be linked to retail price categories are employed.

Since no official conversion table was available that allowed us to merge industrial prices, trade and tariff data, and retail prices, we manually constructed such tables that can be found in the appendix. Note that tariff data were retrieved in a combined harmonized system (HS) nomenclature and were converted to HS 1996 before they could be merged with the trade and non-tariff measures data.

5.2 Main results

The gravity model in equation (4) is estimated using simple OLS. Results are presented in the first two columns of Table 8. The coefficient in row 5 shows that only type C measures – pre-shipment inspections and other formalities – inhibit trade for Tunisia. Therefore, the AVEs – the respective elements of $\tilde{\tau}_{NTM}^h$ calculated according to equation (5) – are negative in the other categories as can be seen in the third column of Table 8. By and large, these result are in accordance with Ghali et al., (2014) even though, curiously, they find a negative coefficient for B-type measures but a positive coefficient for C-type measures. This gives rise to a pattern of compound AVEs, $\tilde{\tau}_{kt}$, per product categories that is reported in Table A.3 in the appendix.

¹⁰ While tariff data for 2013 was available from the ITC's Investment map, these data were not bilateral, which made the calculation of weighted averages difficult. Also, since data from 2009 to 2012 was missing it was not possible to exploit these data without strong assumptions.

¹¹ Compiled and kindly shared by Mariem Malouche, Trade Practice, World Bank.

¹² Note, that UN COMTRADE does not report data for Taiwan. It was assumed that the COMTRADE partner designated "Other Asia, nes" largely coincides with Taiwan, in accordance with the UN International Trade Statistics knowledge base, see: <http://unstats.un.org/unsd/tradekb/Knowledgebase/Taiwan-Province-of-China-Trade-data>.

Note that the reported figures are negative for all product groups indicating that on average the presence of NTMs actually increases trade.

Equations (3) and (7) are estimated for all goods and for broad categories for the period 2002 to 2008 using monthly data for industrial prices and international prices (proxied with weighted import unit values) and for yearly weighted tariffs. The main results for all goods are presented in Table 9. The model is estimated by generalized least squares (GLS)¹³. Column 1 in Table 9 presents the results for a model with time dummies and columns 2 includes, in addition, product dummies. The TPT is 9 percent in column 1 (without product dummies) and 6.4 percent according to the specification with both sets of dummies and the international and production prices coefficients present the expected positive sign and are statistically significant whereas import unit-values are not statistically significant. The degree of TPT is considerably lower in comparison to that found in studies for other developing countries. Including the coverage ratio in columns (3) and (4) leaves results practically unchanged. Unlike the coverage ratio, the inclusion of AVE shows a significant positive impact on prices, but only in column (5). However, including product dummies in column (6) the coefficient becomes insignificant. The inclusion of AVE induces only minor changes in the other coefficients.¹⁴ The TPT is now 6.8 percent.

We also estimated the model including a dummy that takes the value of one for the goods subject to subsidies and price controls. The results concerning the TPT remain the same and the dummy coefficient is negative and significant indicating that retail prices are in general lower for these products.

GLS estimations with product dummies and with a time trend are also presented for broad categories and for single products in Tables 10 and 11. According to the results in Table 10, the coefficient of weighted tariffs is positive for agricultural products and statistically significant in column (1), but it turns insignificant when the coverage ratio of NTMs is added as regressor. For manufactured goods the pass-through coefficient is not significantly different from zero in any of the specification (without and with NTMs).

Table 11 presents the results for broad consumption categories. The results show positive and significant tariff effects (reductions in tariffs are associated with reductions in domestic prices) for three items, namely “Bread and Cereals”, “Milk, Cheese and Eggs” and “Tobacco.” The AVE¹⁵ present mostly non-significant coefficients and in a few cases negative. Finally, results for single products are presented in the Appendix in Table A.4. Positive and significant tariff pass-through is found for 16 products. In particular full pass-through is found for chocolate powder, seed oil bottle and fresh milk and partial pass-through for the other 13 products. As regards the coverage ratio, it presents positive and significant estimates for Fresh milk in bulk, Synthetic carpet mats, Cement and Teal, however the information is missing for many products.

6. Conclusions

In this paper we have estimated the tariff pass-through for the Tunisian economy using data from 2000 to 2008. The main results indicate that changes in tariffs are only partially transmitted to changes in retail prices, with an average pass-through of 7 percent. This partial pass-through effect is lower in magnitude than the one found in other developing-country

¹³ Models (3) and (7) were also estimated in first differences to control for unobserved heterogeneity. However, due to missing values the number of observations was considerably reduced and the estimated effects lost statistical significance. For this reason the preferred estimation is GLS applied to the equations in levels and with different fixed effects.

¹⁴ Note that similar to Ghali et al (2013) we find that most of the NTMs actually increase trade in the case of Tunisia. In some cases the effect was so strong that the AVE was smaller than -1. Due to the logarithmic structure of the model those observations had to be dropped in columns (5) and (6).

¹⁵ Results are not reported to save space. They are available upon request from the authors.

studies. We also estimated the model for specific sectors and the results indicate the tariff pass-through for agricultural products is around 8 percent, whereas for the manufacturing sector the pass-through coefficient is not statistically significant.

The results concerning the transmission of NTMs to domestic prices are not very informative. This could be due to errors in the data and to the lack of a sufficiently accurate measure of NTMs for Tunisian imports. More work is needed to refine the measure used and to obtain more clear-cut results.

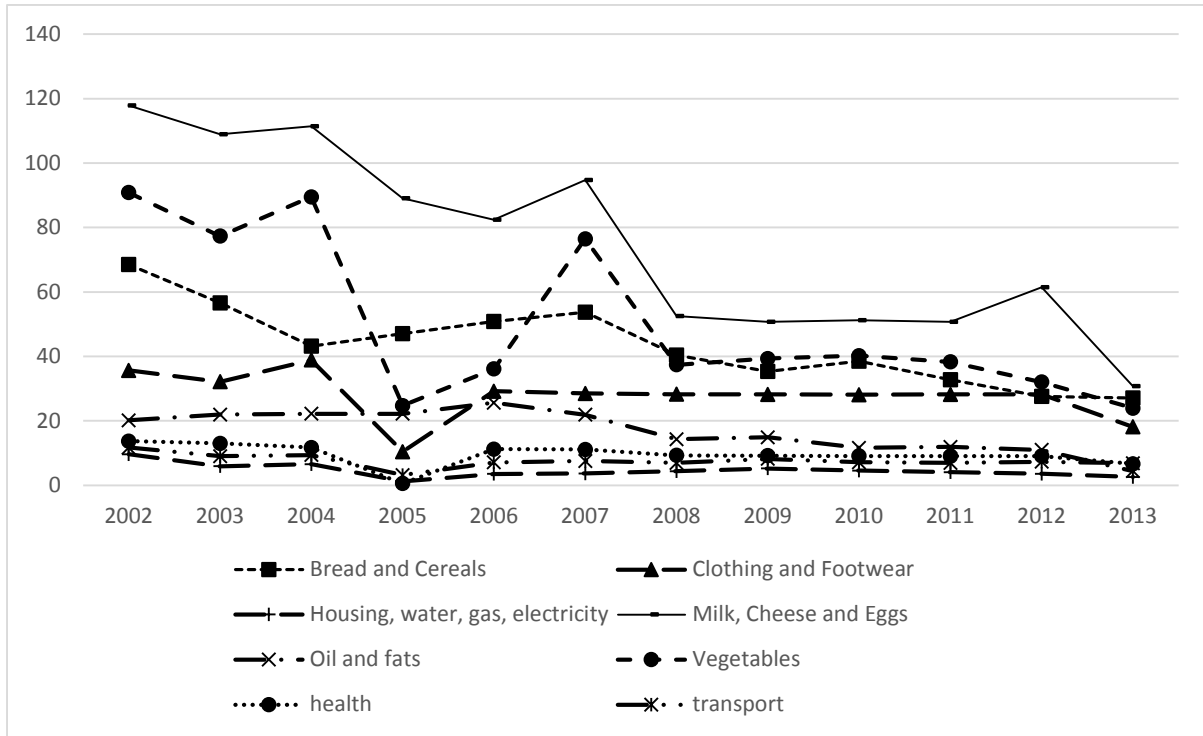
An important aspect that should be mentioned is that a high share of the imported goods (around 40-50 percent of imports) corresponds to intermediate goods and part and components, which are also subject to protection, but which cannot be directly linked to retail prices. An interesting aspect to be investigated is how changes in protection concerning these products will affect the prices of the final goods produced in Tunisia using those imported inputs. We leave this for further research.

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Figure 1: Evolution over Time of Weighted Average Applied Tariffs



Source: Author's elaboration using WITS and ITC data.

Figure 2: Number of NTMs for Products Affected by More Than 50 NTMs

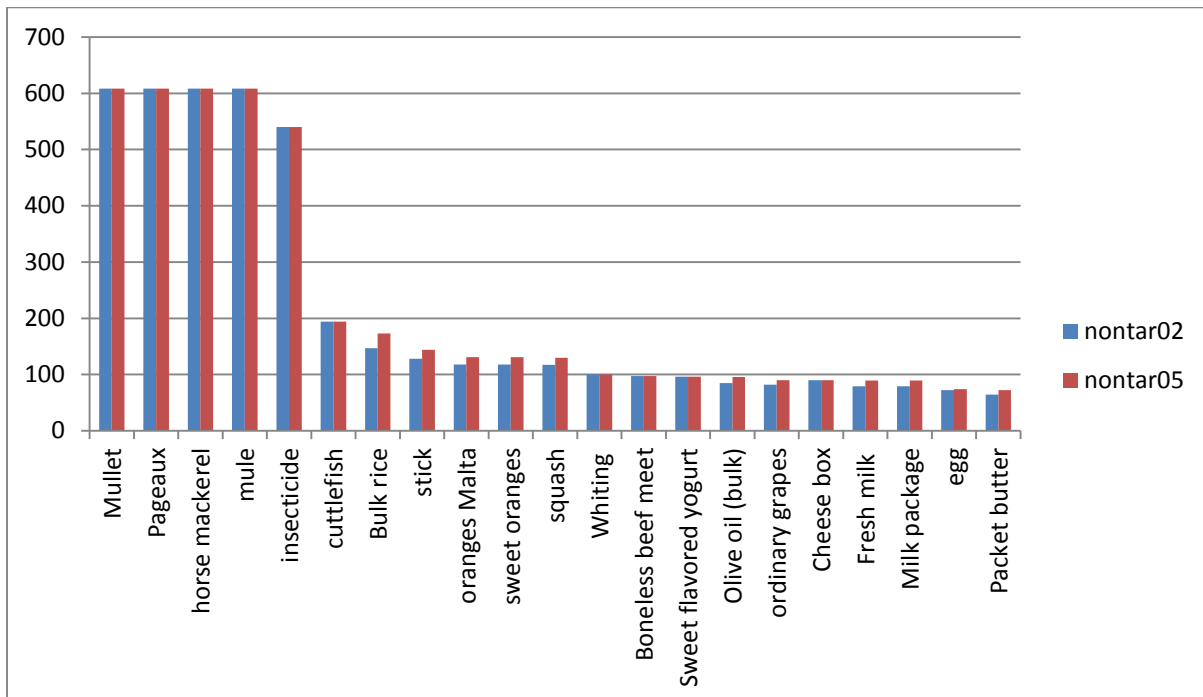


Figure 3: Number of NTMs for Products Affected by More Than 20 NTMs

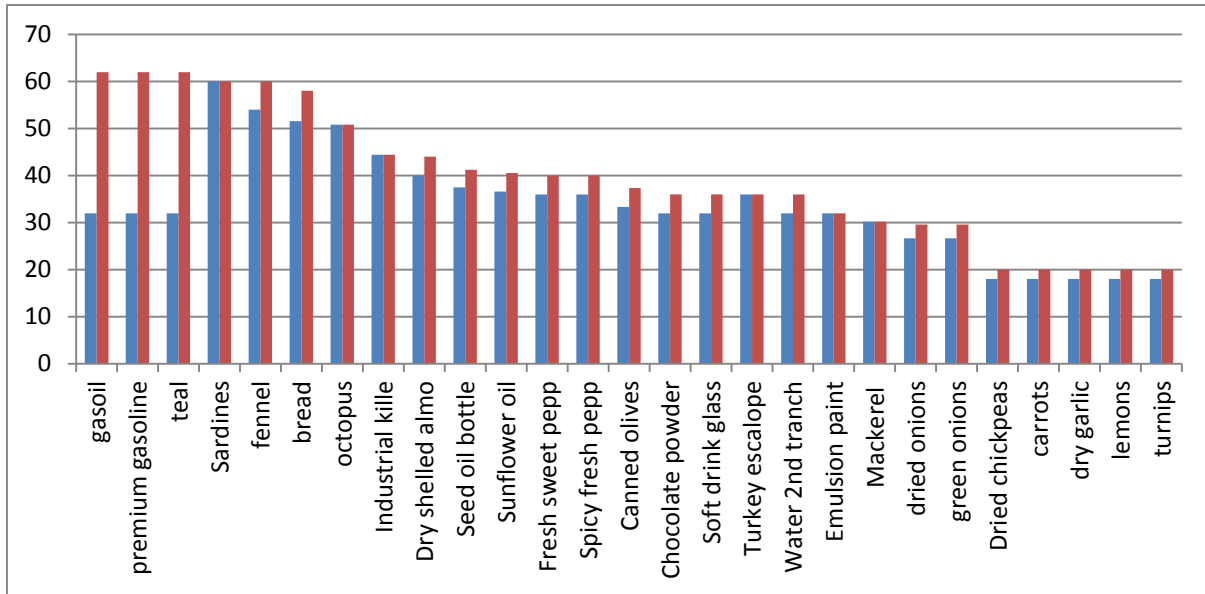


Figure 4: Evolution over time of the Tunisian Monthly Effective Exchange Rate

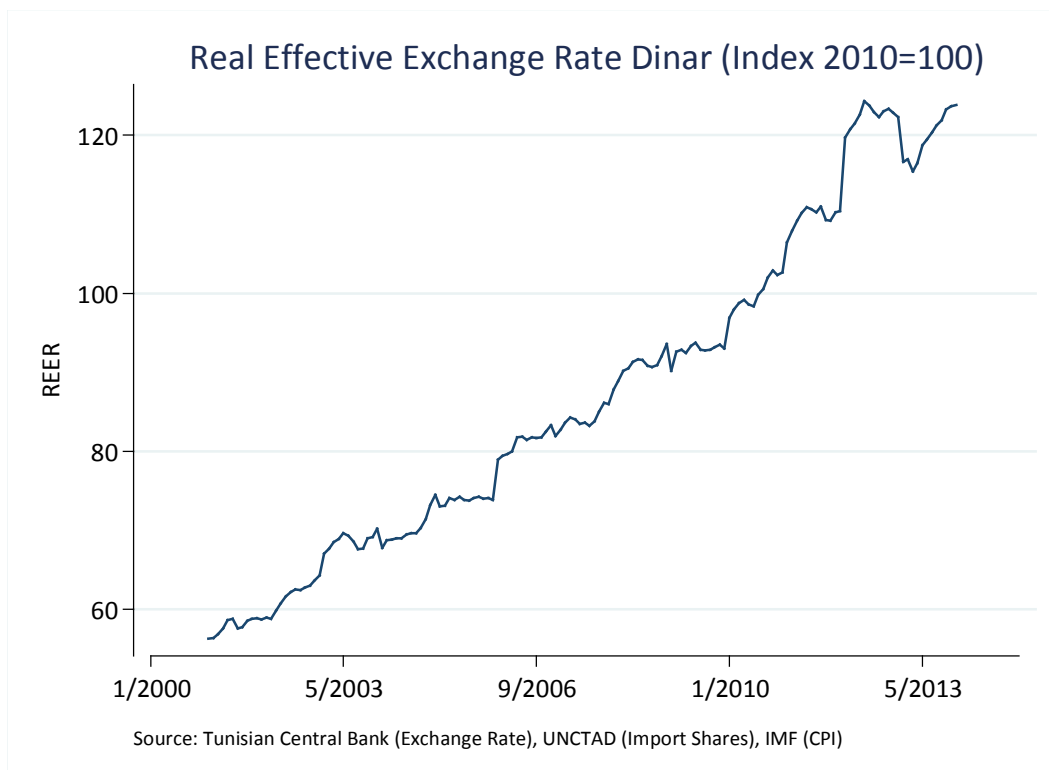


Table 1: Import Shares over Time in Percent

Categories of Goods	Year						
	2002	2003	2004	2005	2006	2007	2008
Bread and Cereals	4.87	3.14	2.77	2.9	2.77	4.97	4.97
Clothing and Footwear	14.53	14.67	12.35	11.29	9.55	9.2	7.29
Fish and Seafood	0.19	0.28	0.22	0.28	0.3	0.26	0.27
Fresh and dried Fruits	0.11	0.08	0.17	0.08	0.07	0.07	0.05
Furniture, household articles	3.99	3.81	3.78	4.17	4.18	3.76	3.57
Housing, water, gas, electricity	9.49	10.55	9.92	13.14	14.08	12.32	16.06
Meat and Poultry	0	0.04	0.22	0.21	0.14	0.11	0.1
Milk, Cheese and Eggs	0.28	0.32	0.36	0.28	0.2	0.22	0.27
Oil and fats	1.12	1.47	1.37	1.48	1.57	1.24	1.91
Salt and condiments	0.03	0.03	0.03	0.04	0.03	0.02	0.03
Sugar, Jam, tea, coffee and chocolate	1.33	1.05	1.08	1.12	1.46	1.09	0.99
Tobacco	0.45	0.47	0.47	0.52	0.47	0.43	0.34
Vegetables	0.29	0.25	0.26	0.25	0.19	0.39	0.13
Drinks	0.12	0.13	0.09	0.1	0.08	0.09	0.07
Health	2.03	1.96	1.97	2.01	1.78	1.69	1.54
Transport	12.29	13.13	13.67	14.79	15.2	13.58	15.22

Note: Authors' calculation using trade statistics form UN-COMTRADE.

Table 2: Average Tariffs by Sector and Tariff Type

Tariff type		2006 (%)	2013 (%)
All products	Average of MFN tariffs	23.87	12.80
	Average of preferential tariffs	22.19	10.62
Agricultural	Average of MFN tariffs	58.32	21.23
	Average of preferential tariffs	54.24	19.45
Non-agricultural	Average of MFN tariffs	18.93	11.68
	Average of preferential tariffs	17.60	9.36

Source: Market Access Map. International Trade Center.

Table 3: Simple Average Effectively Applied Tariff Rate in Percent

Categories of Goods	Year						
	2002	2003	2004	2005	2006	2007	2008
Bread and Cereals	19.37	18.8	18.4	17.03	16.99	16.99	15.63
Clothing and Footwear	15.78	15.67	16.06	12.35	14.42	14.42	15.39
Fish and Seafood	7.88	7.88	7.85	6.7	6.69	6.69	7.95
Fresh and dried Fruits	23.4	22.92	22.55	19.84	19.78	19.78	18.22
Furniture, household articles	13.15	12.92	12.83	8.86	11.42	11.42	12.53
Housing, water, gas, electricity	7.89	7.4	7.28	4.63	6.68	6.68	6.94
Meat and Poultry	5.17	5.13	5.07	4.96	4.96	4.96	4.77
Milk, Cheese and Eggs	16.12	15.48	15.68	15.92	15.96	15.96	13.83
Oil and fats	8.24	8.15	7.97	6.82	7.53	7.53	6.8
Salt and condiments	15.87	15.75	15.66	11.71	12.11	12.11	13.43
Sugar, Jam, tea, coffee and chocolate	12.84	12.38	12.28	10.64	11.23	11.23	11.56
Tobacco	9.2	9.07	8.73	7.43	7.57	7.57	7.45
Vegetables	19.35	18.97	18.63	13.61	13.61	13.61	13.62
Drinks	17.01	16.97	16.93	15.44	17.37	17.37	16.87
Health	6.77	5.57	5.41	3.16	4.73	4.73	4.98
Transport	11.08	11.14	10.98	7.95	10.02	10.02	10.57

Note: Authors' calculation using trade statistics form UN-COMTRADE.

Table 4: Weighted Average Effectively Applied Tariff Rate in Percent

Categories of Goods	Year						
	2002	2003	2004	2005	2006	2007	2008
Bread and Cereals	68.51	56.57	43.23	47.1	50.88	53.71	40.37
Clothing and Footwear	35.68	32.15	38.87	10.44	29.21	28.5	28.26
Fish and Seafood	36.17	37.34	36.39	24.55	24.43	25.98	38.01
Fresh and dried Fruits	110.88	103.83	91.27	89.06	84.82	69.58	51.02
Furniture, household articles	33.73	32.47	31.74	9.62	29.85	29.62	29.93
Housing, water, gas, electricity	9.64	5.92	6.56	1.25	3.52	3.64	4.36
Meat and Poultry	104.28	94.98	81.45	79.57	83.75	88.5	59.7
Milk, Cheese and Eggs	117.91	108.93	111.47	89.07	82.42	94.78	52.51
Oil and fats	20.15	21.93	22.21	22.21	25.61	21.9	14.32
Salt and condiment	72.84	51.95	46.92	18.14	15.82	12.68	36.99
Sugar, Jam, tea, coffee and chocolate	19.49	19.59	18.91	17.22	16.95	16.9	15.17
Tobacco	30.77	26.93	22.32	10.36	24.14	23.97	17.97
Vegetables	90.87	77.34	89.49	24.71	36.09	76.47	37.41
Drinks	49.58	49.4	50.89	39.73	58.2	50.29	46.59
Health	13.72	13.01	11.69	0.54	11.21	11.11	9.26
Transport	11.72	9.05	9.38	3.15	7.11	7.54	6.93

Note: Authors' calculation using trade statistics form UN-COMTRADE.

Table 5: Coverage Ratios in Percent

Categories of goods	Year						
	2002	2003	2004	2005	2006	2007	2008
Bread and Cereals	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Clothing and Footwear	0.11	0.12	0.09	3.15	2.14	2.85	2.04
Fish and Seafood	90.20	95.15	97.10	98.03	97.93	98.57	98.45
Fresh and dried Fruits	100.00	100.00	100.00	99.96	99.86	100.00	100.00
Furniture, household articles	22.38	27.02	28.05	32.61	33.93	33.45	34.84
Housing, water, gas, electricity	54.69	57.22	62.88	58.87	57.05	52.25	50.45
Meat and Poultry	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Milk, Cheese and Eggs	100.00	99.63	100.00	100.00	100.00	100.00	100.00
Oil and fats	92.80	93.40	93.97	94.83	93.79	89.98	92.49
Salt and condiment	78.37	81.87	70.04	69.30	69.39	67.66	61.75
Sugar, Jam, tea, coffee and chocolate	97.79	97.09	97.21	98.25	97.88	97.59	97.80
Tobacco	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Vegetables	99.94	99.95	99.35	99.82	99.70	99.93	99.76
Drinks	73.18	73.99	65.37	69.72	71.41	67.42	72.34
Health	99.05	99.13	99.31	98.99	98.99	98.89	99.03
Transport	61.15	65.21	62.62	93.55	94.40	92.78	94.43

Note: Authors' calculation using trade statistics form UN-COMTRADE, and World Bank.

Table 6: Pairwise Correlations of Variables in Natural Logs

	Consumer prices	Weighted average tariff	NTM coverage ratio	Weighted unit values	Industrial prices
Consumer prices	1				
Weighted average tariffs	-0.0141	1			
NTM coverage ratio	0.1007*	0.2859*	1		
Weighted unit values	-0.0929*	-0.4733*	-0.3341*	1	
Industrial prices	0.0608*	-0.1476*	0.0264	0.2897*	1
Exchange rate	0.0572*	-0.1586*	0.0202	0.0805*	0.4731*

Note: * indicates significance at 1% level.

Table 7: Trading Across Borders in Tunisia

Indicator (2015)	Tunisia	Middle East & North Africa	OECD
Documents to export (number)	4	6	4
Time to export (days)	16.0	19.4	10.5
Cost to export (deflated US\$ per container)	805.0	1,166.3	1,080.3
Documents to import (number)	6	8	4
Time to import (days)	20.0	23.8	9.6
Cost to import (deflated US\$ per container)	910.0	1,307.0	1,100.4

Source: <http://www.doingbusiness.org/data/exploreeconomies/tunisia/#trading-across-borders>.

Table 8: Gravity Estimation and AVEs

VARIABLES	OLS	SE	AVE (in %)
Exporter GDP	0.0788	[0.0547]	
Weighted Tariff	-1.493***	[0.0405]	
Type A NTM	1.065***	[0.0778]	-50.9952
Type B NTM	0.526***	[0.0239]	-29.6867
Type C NTM	-0.448***	[0.0825]	34.96706
Type D NTM	0.382***	[0.107]	-22.5908
Type E NTM	3.008***	[0.308]	-86.6599
Type F NTM	0.118***	[0.0406]	-7.60489
Type H NTM	1.256***	[0.0405]	-56.8838
Constant	6.014***	[1.219]	
Observations	261,245		
R-squared	0.122		
Year FE	Yes		
Exporter FE	Yes		

Note: Standard errors in brackets, *** p<0.01, ** p<0.05, * p<0.1. Authors' calculation using data from UN-COMTRADE, World Bank. Type descriptions are given in footnote 8.

Table 9: Tariff Pass-Through for All Goods

VARIABLES	(1) All goods	(2) All goods	(3) All goods	(4) All goods	(5) All goods	(6) All goods
Ind. Price	0.259** [0.109]	0.163** [0.0727]	0.254** [0.109]	0.165** [0.0729]	0.385*** [0.114]	0.222*** [0.0752]
Weight. UV per Kg	-0.00590 [0.00444]	0.00297 [0.00414]	-0.00539 [0.00444]	0.00296 [0.00414]	-0.00440 [0.00450]	0.00171 [0.00414]
Weight. Tariff	0.0941** [0.0443]	0.0642* [0.0350]	0.0921** [0.0441]	0.0634* [0.0351]	0.0900** [0.0443]	0.0643* [0.0349]
Coverage Ratio			4.82e-05 [0.000631]	0.000168 [0.000513]		
AVE of NTM					0.139** [0.0645]	0.0716 [0.0517]
Constant	-1.256** [0.525]	-2.198*** [0.389]	-1.245** [0.531]	-2.223*** [0.397]	-1.785*** [0.553]	-2.295*** [0.403]
Product dummies	No	Yes	No	Yes	No	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	4,656	4,656	4,656	4,656	4,572	4,572
Number of products	74	74	74	74	73	73

Notes: Standard errors in brackets. *** p<0.01, ** p<0.05, * p<0.1. Ind. Price, Weight. UV per Kg, Weight. Tariff in logs.

Table 10: Tariff Pass-Through for Broad Categories

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
		Agriculture			Manufactures	
Ind. Price	0.225 (0.140)	0.224 (0.140)	0.0602 [0.163]	0.245*** (0.0576)	0.243*** (0.0573)	0.273** [0.126]
Weight. UV per Kg	0.00194 (0.00567)	0.00282 (0.00568)	0.00685 [0.00612]	0.00506 (0.00430)	0.00397 (0.00429)	-0.00214 [0.00857]
Weight. Tariff	0.0827* (0.0433)	0.0667 (0.0438)	0.0355 [0.0511]	0.0417 (0.0415)	0.0567 (0.0416)	0.126 [0.0854]
Coverage Ratio		0.00379** (0.00166)	0.00364** [0.00162]		-0.0006*** (0.000203)	-0.00108** [0.000437]
Product dummies	Yes	Yes	No	Yes	Yes	No
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,894	2,894	2,894	822	822	822
Number of products	50	50	50	12	12	12

Note: Standard errors in brackets. Ind. Price, Weight. UV per Kg, Weight. Tariff in logs. *** p<0.01, ** p<0.05, * p<0.1

Table 11: Tariff Pass-Through for Specific Categories

Category	Unit Values	Ind. Prices	Weight. Tariffs	Constant	Obs.	Products
Bread and Cereals	-0.0229	0.487	0.472***	-113.9***	456	6
Clothing and Footwear	0.122	2.127***	-12.44	-235.2***	44	2
Fish and Seafood	0.0126	-0.156	0.126	-9.595	574	8
Fresh and dried Fruits	-0.0126	3.865***	-0.0507	66.16	290	7
Furniture, household articles	0.00320	0.184***	0.0123	-40.38***	526	7
Housing, water, gas, electricity	0.00395	0.355***	0.0615	-48.65***	520	7
Meat and Poultry	0.0194	0.531**	0.346	-48.59	119	2
Milk, Cheese and Eggs	-0.0175**	0.391**	0.242***	-219.4***	324	5
Oil and fats	-0.00328	-0.0594	-0.0176	-77.01***	168	2
Salt and condiment	0.000150	0.00742	0.00148	-5.695**	252	3
Sugar, Jam, tea, coffee and chocolate	-0.00850	-0.133	0.0830	0	181	3
Tobacco	-0.00456	0.487***	0.134***	-96.13***	252	3
Vegetables	-0.00430	-0.753	0.0226	-115.8***	530	14
health	0.231**	-0.0855	-1.912***	234.8***	168	2
transport	0.00523	0.0363**	-0.0555	-5.468	252	3

Note: All models estimated with robust s.e. with a time trend and product fixed effects. All models include a constant and were estimated in logs. Tariffs and Unit Values are weighted by import shares.

Appendix

Figure A1: Monthly Evolution of the Retail Prices for Broad Categories from 1998 to 2012

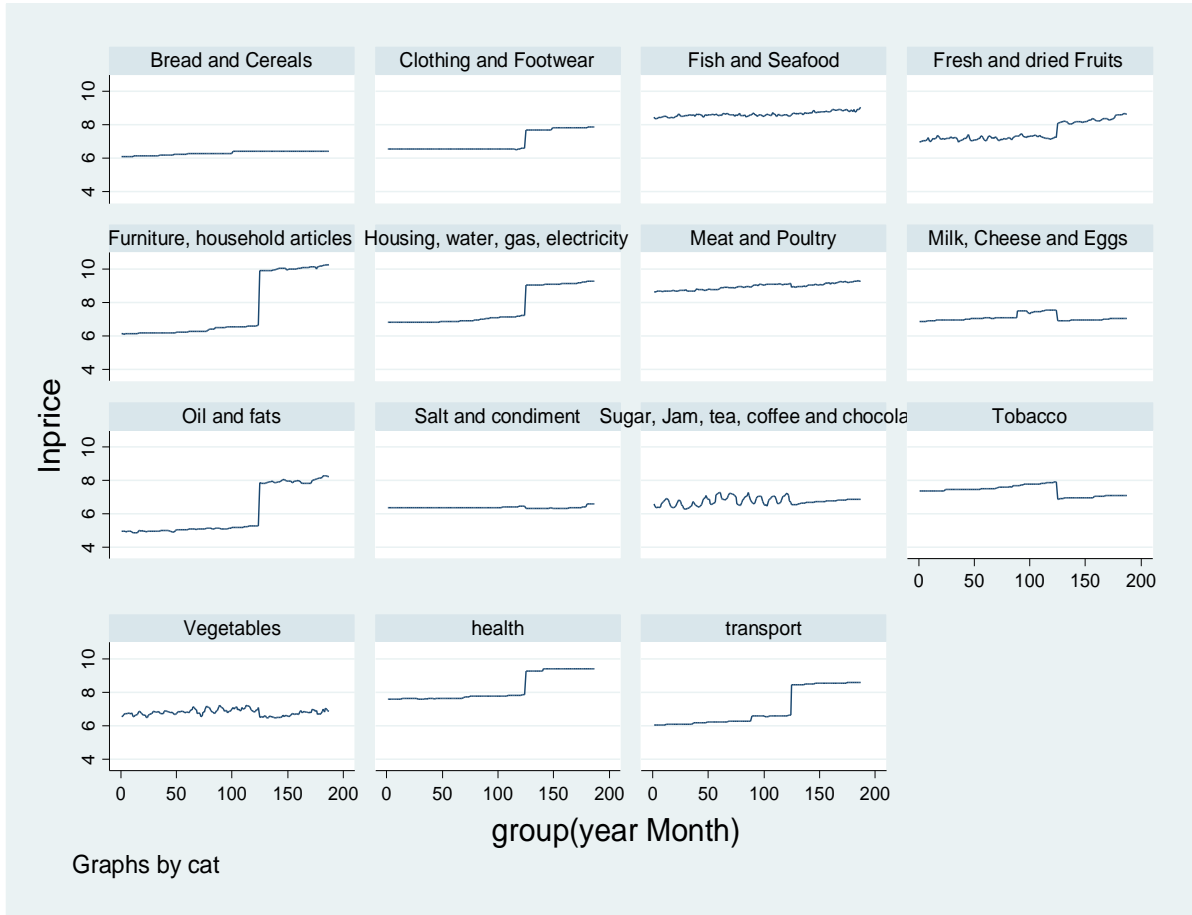


Table A1: Conversion Table for Retail Categories and HS 1996

Code	Retail category	Hs6	Hs product description
1	Semolina	N/a	N/a
2	Couscous	190240	Couscous
3	Macaroni	190211	Uncooked pasta, not stuffed or otherwise prepared :-- containing eggs
3	Macaroni	190219	Uncooked pasta, not stuffed or otherwise prepared :-- other
3	Macaroni	190230	Other pasta
4	Flour packet	110100	Wheat or meslin flour.
4	Flour packet	110210	Rye flour
4	Flour packet	110220	Maize (corn) flour
4	Flour packet	110230	Rice flour
4	Flour packet	110510	Flour, meal and powder
5	Bread	190510	Crispbread
5	Bread	190520	Gingerbread and the like
5	Bread	190540	Rusks, toasted bread and similar toasted products
5	Bread	190590	Other
6	Stick	190590	Other
7	Bulk rice	100610	Rice in the husk (paddy or rough)
7	Bulk rice	100620	Husked (brown) rice
7	Bulk rice	100630	Semi-milled or wholly milled rice, whether or not polished or glazed
7	Bulk rice	100640	Broken rice
8	Lamb	020410	Carcasses and half-carcasses of lamb, fresh or chilled
8	Lamb	020430	Other meat of sheep, fresh or chilled :- carcasses and half-carcasses of lamb, frozen
9	Boneless beef meat	020130	Boneless: processed & other
9	Boneless beef meat	020230	Boneless, processed
9	Boneless beef meat	021020	Meat of bovine animals
10	Industrial killed whole chicken and plucked	020711	Of fowls of the species gallus domesticus :-- not cut in pieces, fresh or chilled
10	Industrial killed whole chicken and plucked	020712	Of fowls of the species gallus domesticus :-- not cut in pieces, frozen
11	Turkey escalope	020724	Of turkeys :-- not cut in pieces, fresh or chilled
11	Turkey escalope	020725	Of turkeys :-- not cut in pieces, frozen
12	Mullet (average)	030269	Other fish, excluding livers and roes :-- other
12	Mullet (average)	030379	Other
13	Mule	030269	Other fish, excluding livers and roes :-- other
13	Mule	030379	Other
14	Whiting (average)	030378	Other fish, excluding livers and roes :-- hake (merluccius spp., urophycis spp.)
15	Sardines (average)	030261	Other fish, excluding livers and roes :-- sardines (sardina pilchardus, sardinops spp.), sardinella (sardinella spp.), brisling or sprats (sprattus sprattus)
15	Sardines (average)	030371	Other fish, excluding livers and roes :-- sardines (sardina pilchardus, sardinops spp.), sardinella (sardinella spp.), brisling or sprats (sprattus sprattus)
15	Sardines (average)	160413	Fish, whole or in pieces, but not minced :-- sardines, sardinella and brisling or sprats
16	Mackerel (average)	030264	Other fish, excluding livers and roes :-- mackerel (scomber scombrus, scomber australasicus, scomber japonicus)
16	Mackerel (average)	030374	Other fish, excluding livers and roes :-- mackerel (scomber scombrus, scomber australasicus, scomber japonicus)
16	Mackerel (average)	160415	Fish, whole or in pieces, but not minced :-- mackerel
17	Pageaux (average)	030269	Other fish, excluding livers and roes :-- other
17	Pageaux (average)	030379	Other
18	Horse mackerel	030269	Other fish, excluding livers and roes :-- other
18	Horse mackerel	030379	Other
19	Octopus	030751	Octopus (octopus spp.) :-- live, fresh or chilled
19	Octopus	030759	Octopus (octopus spp.) :-- other
20	Cuttlefish	030741	Cuttle fish (sepia officinalis, rossia macrosoma, sepiola spp.) And squid (ommastrephes spp., loligo spp., nototodarus spp., sepioteuthis spp.) :-- live, fresh or chilled
20	Cuttlefish	030749	Cuttle fish (sepia officinalis, rossia macrosoma, sepiola spp.) And squid (ommastrephes spp., loligo spp., nototodarus spp., sepioteuthis spp.) :-- other
21	Egg	040700	Birds' eggs, in shell, fresh, preserved or cooked.
22	Fresh milk in bulk	040110	Of a fat content, by weight, not exceeding 1 %
22	Fresh milk in bulk	040120	Of a fat content, by weight, exceeding 1 % but not exceeding 6 %
22	Fresh milk in bulk	040130	Of a fat content, by weight, exceeding 6 %
23	Milk package	040110	Of a fat content, by weight, not exceeding 1 %
23	Milk package	040120	Of a fat content, by weight, exceeding 1 % but not exceeding 6 %
23	Milk package	040130	Of a fat content, by weight, exceeding 6 %
24	Sweet flavored yogurt	040310	Yogurt
25	Cheese box	040610	Fresh (unripened or uncured) cheese, including whey cheese, and curd
25	Cheese box	040620	Grated or powdered cheese, of all kinds
25	Cheese box	040630	Processed cheese, not grated or powdered
25	Cheese box	040640	Blue-veined cheese
25	Cheese box	040690	Other cheese
26	Packet butter	040510	Butter
27	Seed oil bottle (soybean)	150710	Crude oil, whether or not degummed
27	Seed oil bottle (soybean)	150790	Other

Code	Retail category	Hs6	Hs product description
28	Olive oil (bulk)	150910	Virgin
28	Olive oil (bulk)	150990	Other
29	Sunflower oil	151211	Sunflower-seed or safflower oil and fractions thereof :-- crude oil
29	Sunflower oil	151219	Sunflower-seed or safflower oil and fractions thereof :-- other
30	Corn oil	151521	Maize (corn) oil and its fractions :-- crude oil
30	Corn oil	151529	Maize (corn) oil and its fractions :-- other
31	Thawed	N/a	N/a
32	Watermelons	080711	Melons (including watermelons) :-- watermelons
33	Melons	080719	Melons (including watermelons) :-- other
34	Ordinary grapes	080610	Fresh
34	Ordinary grapes	080620	Dried
35	Lemons	080530	Lemons (citrus limon, citrus limonum) and limes (citrus aurantifolia)
36	Oranges malta	080510	Oranges
37	Sweet oranges	080510	Oranges
38	Dry shelled almonds	080212	Almonds :-- shelled
39	Artichokes	070910	Globe artichokes
40	Carrots	070610	Carrots and turnips
41	Choux	070420	Brussels sprouts
42	Squash	070990	
43	Fennel	090950	Seeds of fennel; juniper berries
44	Green beans	070820	Beans (vigna spp., phaseolus spp.)
44	Green beans	071022	Leguminous vegetables, shelled or unshelled :-- beans (vigna spp., phaseolus spp.)
45	Dried onions	070310	Onions and shallots
45	Dried onions	071110	Onions
45	Dried onions	071220	Onions
45	Dried onions	200120	Onions
46	Turnips	070610	Carrots and turnips
47	Green onions	070310	Onions and shallots
47	Green onions	071110	Onions
47	Green onions	071220	Onions
47	Green onions	200120	Onions
48	Dry garlic	070320	Garlic
49	Fresh sweet peppers	070960	Fruits of the genus capsicum or of the genus pimenta
50	Spicy fresh peppers	070960	Fruits of the genus capsicum or of the genus pimenta
51	Potatoes	071010	Potatoes
52	Fresh peas	070810	Peas (pisum sativum)
53	Tomatoes	070200	Tomatoes, fresh or chilled.
53	Tomatoes	200210	Tomatoes, whole or in pieces
54	Dried chickpeas	071320	Chickpeas (garbanzos)
55	Dried beans	200551	Beans (vigna spp., phaseolus spp.) :-- beans, shelled
55	Dried beans	200559	Beans (vigna spp., phaseolus spp.) :-- other
56	Caster sugar	170111	Raw sugar not containing added flavouring or colouring matter :-- cane sugar
56	Caster sugar	170112	Raw sugar not containing added flavouring or colouring matter :-- beet sugar
57	Chocolate powder	180610	Cocoa powder, containing added sugar or other sweetening matter
58	Normal black tea	090230	Black tea (fermented) and partly fermented tea, in immediate packings of a content not exceeding 3 kg
58	Normal black tea	090240	Other black tea (fermented) and other partly fermented tea
59	Super red tea	090230	Black tea (fermented) and partly fermented tea, in immediate packings of a content not exceeding 3 kg
59	Super red tea	090240	Other black tea (fermented) and other partly fermented tea
60	Blended coffee	090111	Coffee, not roasted :-- not decaffeinated
60	Blended coffee	090112	Coffee, not roasted :-- decaffeinated
60	Blended coffee	090121	Coffee roasted :-- not decaffeinated
60	Blended coffee	090122	Coffee roasted :-- decaffeinated
61	Pure coffee	090111	Coffee, not roasted :-- not decaffeinated
61	Pure coffee	090112	Coffee, not roasted :-- decaffeinated
61	Pure coffee	090121	Coffee roasted :-- not decaffeinated
61	Pure coffee	090122	Coffee roasted :-- decaffeinated
62	Tomato concentrate	210320	Tomato ketchup and other tomato sauces
63	Salt	250100	Salt (including table salt and denatured salt) and pure sodium chloride, whether or not in aqueous solution or containing added anti-caking or free-flowing agents; sea water.
64	Canned harissa	090420	Fruits of the genus capsicum or of the genus pimenta, dried or crushed or ground
65	Peppercorns	090411	Pepper :-- neither crushed nor ground
65	Peppercorns	090412	Pepper :-- crushed or ground
66	Canned olives	071120	Olives
66	Canned olives	200570	Olives
67	Soft drink glass	220290	Other
68	Mineral water	220110	Mineral waters and aerated waters
68	Mineral water	220210	Waters, including mineral waters and aerated waters, containing added sugar or other sweetening matter or flavoured
69	Cigarettes (cristal)	240220	Cigarettes containing tobacco
69	Cigarettes (cristal)	240290	Other
70	Cigarettes inter march	240220	Cigarettes containing tobacco
70	Cigarettes inter march	240290	Other
71	Neffa	240399	Other
72	Degreasing a jacket	N/a	N/a

Code	Retail category	Hs6	Hs product description
73	Degreasing trousers	N/a	N/a
74	Men's shirts (1)	620510	Of wool or fine animal hair
74	Men's shirts (1)	620520	Of cotton
74	Men's shirts (1)	620530	Of man-made fibres
74	Men's shirts (1)	620590	Of other textile materials
75	Vest	620791	Other :-- of cotton
75	Vest	620792	Other :-- of man-made fibres
75	Vest	620799	Other :-- of other textile materials
75	Vest	620891	Other :-- of cotton
75	Vest	620892	Other :-- of man-made fibres
75	Vest	620899	Other :-- of other textile materials
75	Vest	610910	Of cotton
75	Vest	610990	Of other textile materials
76	Jean pants boy	620342	Trousers, bib and brace overalls, breeches and shorts :-- of cotton
76	Jean pants boy	620349	Trousers, bib and brace overalls, breeches and shorts :-- of other textile materials
77	Men's shoes	640110	Footwear incorporating a protective metal toe-cap
77	Men's shoes	640191	Other footwear :-- covering the knee
77	Men's shoes	640192	Other footwear :-- covering the ankle but not covering the knee
77	Men's shoes	640199	Other footwear :-- other
77	Men's shoes	640212	Sports footwear :-- ski-boots, cross-country ski footwear and snowboard boots
77	Men's shoes	640219	Sports footwear :-- other
77	Men's shoes	640220	Footwear with upper straps or thongs assembled to the sole by means of plugs
77	Men's shoes	640230	Other footwear, incorporating a protective metal toe-cap
77	Men's shoes	640291	Other footwear :-- covering the ankle
77	Men's shoes	640299	Other footwear :-- other
77	Men's shoes	640312	Sports footwear :-- ski-boots, cross-country ski footwear and snowboard boots
77	Men's shoes	640319	Sports footwear :-- other
77	Men's shoes	640320	Footwear with outer soles of leather, and uppers which consist of leather straps across the instep and around the big toe
77	Men's shoes	640330	Footwear made on a base or platform of wood, not having an inner sole or a protective metal toe-cap
77	Men's shoes	640340	Other footwear, incorporating a protective metal toe-cap
77	Men's shoes	640351	Other footwear with outer soles of leather :-- covering the ankle
77	Men's shoes	640359	Other footwear with outer soles of leather :-- other
77	Men's shoes	640391	Other footwear :-- covering the ankle
77	Men's shoes	640399	Other footwear :-- other
77	Men's shoes	640411	Footwear with outer soles of rubber or plastics :-- sports footwear; tennis shoes, basketball shoes, gym shoes, training shoes and the like
77	Men's shoes	640419	Footwear with outer soles of rubber or plastics :-- other
77	Men's shoes	640420	Footwear with outer soles of leather or composition leather
77	Men's shoes	640510	With uppers of leather or composition leather
77	Men's shoes	640520	With uppers of textile materials
77	Men's shoes	640590	Other
78	Chlaka leather women	640420	Footwear with outer soles of leather or composition leather
79	Boy sneakers	640520	With uppers of textile materials
80	Fabrics	500710	Fabrics of noil silk
80	Fabrics	500720	Other fabrics, containing 85 % or more by weight of silk or of silk waste other than noil silk
80	Fabrics	500790	Other fabrics
80	Fabrics	511111	Containing 85 % or more by weight of wool or of fine animal hair :-- of a weight not exceeding 300 g/m2
80	Fabrics	511119	Containing 85 % or more by weight of wool or of fine animal hair :-- other
80	Fabrics	511120	Other, mixed mainly or solely with man-made filaments
80	Fabrics	511130	Other, mixed mainly or solely with man-made staple fibres
80	Fabrics	511190	Other
80	Fabrics	511211	Containing 85 % or more by weight of wool or of fine animal hair :-- of a weight not exceeding 200 g/m2
80	Fabrics	511219	Containing 85 % or more by weight of wool or of fine animal hair :-- other
80	Fabrics	511220	Other, mixed mainly or solely with man-made filaments
80	Fabrics	511230	Other, mixed mainly or solely with man-made staple fibres
80	Fabrics	511290	Other
80	Fabrics	511300	Woven fabrics of coarse animal hair or of horsehair.
80	Fabrics	520811	Unbleached :-- plain weave, weighing not more than 100 g/m2
80	Fabrics	520812	Unbleached :-- plain weave, weighing more than 100 g/m2
80	Fabrics	520813	Unbleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520819	Unbleached :-- other fabrics
80	Fabrics	520821	Bleached :-- plain weave, weighing not more than 100 g/m2
80	Fabrics	520822	Bleached :-- plain weave, weighing more than 100 g/m2
80	Fabrics	520823	Bleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520829	Bleached :-- other fabrics
80	Fabrics	520831	Dyed :-- plain weave, weighing not more than 100 g/m2
80	Fabrics	520832	Dyed :-- plain weave, weighing more than 100 g/m2
80	Fabrics	520833	Dyed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520839	Dyed :-- other fabrics
80	Fabrics	520841	Of yarns of different colours :-- plain weave, weighing not more than 100 g/m2
80	Fabrics	520842	Of yarns of different colours :-- plain weave, weighing more than 100 g/m2

Code	Retail category	Hs6	Hs product description
80	Fabrics	520843	Of yarns of different colours :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520849	Of yarns of different colours :-- other fabrics
80	Fabrics	520851	Printed :-- plain weave, weighing not more than 100 g/m2
80	Fabrics	520852	Printed :-- plain weave, weighing more than 100 g/m2
80	Fabrics	520853	Printed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520859	Printed :-- other fabrics
80	Fabrics	520911	Unbleached :-- plain weave
80	Fabrics	520912	Unbleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520919	Unbleached :-- other fabrics
80	Fabrics	520921	Bleached :-- plain weave
80	Fabrics	520922	Bleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520929	Bleached :-- other fabrics
80	Fabrics	520931	Dyed :-- plain weave
80	Fabrics	520932	Dyed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520939	Dyed :-- other fabrics
80	Fabrics	520941	Of yarns of different colours :-- plain weave
80	Fabrics	520942	Of yarns of different colours :-- denim
80	Fabrics	520943	Of yarns of different colours :-- other fabrics of 3-thread or 4-thread twill, including cross twill
80	Fabrics	520949	Of yarns of different colours :-- other fabrics
80	Fabrics	520951	Printed :-- plain weave
80	Fabrics	520952	Printed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	520959	Printed :-- other fabrics
80	Fabrics	852090	Other
80	Fabrics	521011	Unbleached :-- plain weave
80	Fabrics	521012	Unbleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521019	Unbleached :-- other fabrics
80	Fabrics	521021	Bleached :-- plain weave
80	Fabrics	521022	Bleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521029	Bleached :-- other fabrics
80	Fabrics	521031	Dyed :-- plain weave
80	Fabrics	521032	Dyed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521039	Dyed :-- other fabrics
80	Fabrics	521041	Of yarns of different colours :-- plain weave
80	Fabrics	521042	Of yarns of different colours :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521049	Of yarns of different colours :-- other fabrics
80	Fabrics	521051	Printed :-- plain weave
80	Fabrics	521052	Printed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521059	Printed :-- other fabrics
80	Fabrics	521111	Unbleached :-- plain weave
80	Fabrics	521112	Unbleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521119	Unbleached :-- other fabrics
80	Fabrics	521121	Bleached :-- plain weave
80	Fabrics	521122	Bleached :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521129	Bleached :-- other fabrics
80	Fabrics	521131	Dyed :-- plain weave
80	Fabrics	521132	Dyed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521139	Dyed :-- other fabrics
80	Fabrics	521141	Of yarns of different colours :-- plain weave
80	Fabrics	521142	Of yarns of different colours :-- denim
80	Fabrics	521143	Of yarns of different colours :-- other fabrics of 3-thread or 4-thread twill, including cross twill
80	Fabrics	521149	Of yarns of different colours :-- other fabrics
80	Fabrics	521151	Printed :-- plain weave
80	Fabrics	521152	Printed :-- 3-thread or 4-thread twill, including cross twill
80	Fabrics	521159	Printed :-- other fabrics
80	Fabrics	521211	Weighing not more than 200 g/m2 :-- unbleached
80	Fabrics	521212	Weighing not more than 200 g/m2 :-- bleached
80	Fabrics	521213	Weighing not more than 200 g/m2 :-- dyed
80	Fabrics	521214	Weighing not more than 200 g/m2 :-- of yarns of different colours
80	Fabrics	521215	Weighing not more than 200 g/m2 :-- printed
80	Fabrics	521221	Weighing more than 200 g/m2 :-- unbleached
80	Fabrics	521222	Weighing more than 200 g/m2 :-- bleached
80	Fabrics	521223	Weighing more than 200 g/m2 :-- dyed
80	Fabrics	521224	Weighing more than 200 g/m2 :-- of yarns of different colours
80	Fabrics	521225	Weighing more than 200 g/m2 :-- printed
81	Zip	960711	Slide fasteners :-- fitted with chain scoops of base metal
81	Zip	960719	Slide fasteners :-- other
	Tailoring costs:		
82	trousers	N/a	N/a
83	Tailoring costs: dress	N/a	N/a
84	Oil paint	N/a	N/a
85	Emulsion paint	320910	Based on acrylic or vinyl polymers
85	Emulsion paint	320990	Other
86	Cement	252310	Cement clinkers
86	Cement	252321	Portland cement :-- white cement, whether or not artificially coloured

Code	Retail category	Hs6	Hs product description
86	Cement	252329	Portland cement :-- other
86	Cement	252330	Aluminous cement
86	Cement	252390	Other hydraulic cements
87	Lime	250900	Chalk.
88	Brick 12	681011	Tiles, flagstones, bricks and similar articles :-- building blocks and bricks
88	Brick 12	681019	Tiles, flagstones, bricks and similar articles :-- other Other, not in coils, not further worked than hot-rolled :-- of a thickness of 3 mm or more but less than 4.75 mm
89	Round rebar 12	720853	Other
90	Water 2nd tranche	220290	Other
91	Electricity 2nd tranche	N/a	N/a
92	Town gas (low pressure)	271111	Liquefied :-- natural gas
92	Town gas (low pressure)	271121	In gaseous state :-- natural gas
92	Town gas (low pressure)	271129	In gaseous state :-- other
93	Bottled gas	271111	Liquefied :-- natural gas
93	Bottled gas	271121	In gaseous state :-- natural gas
93	Bottled gas	271129	In gaseous state :-- other
94	Charcoal	440200	Wood charcoal (including shell or nut charcoal), whether or not agglomerated.
94	Charcoal	270111	Coal, whether or not pulverised, but not agglomerated :-- anthracite
94	Charcoal	270112	Coal, whether or not pulverised, but not agglomerated :-- bituminous coal
94	Charcoal	270119	Coal, whether or not pulverised, but not agglomerated :-- other coal
94	Charcoal	270120	Briquettes, ovoids and similar solid fuels manufactured from coal
95	Teal	270900	Petroleum oils and oils obtained from bituminous minerals, crude. Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils b
95	Teal	271000	For electric lighting
96	Ordinary light bulb	701110	For electric lighting
97	Halogen bulb	701110	For electric lighting
98	Plastic chair	940180	Other seats
99	Foam mattress instead	940421	Mattresses :-- of cellular rubber or plastics, whether or not covered
99	Foam mattress instead	940429	Mattresses :-- of other materials
100	Synthetic carpet mats	570232	Other, of pile construction, not made up :-- of man-made textile materials
100	Synthetic carpet mats	570242	Other, of pile construction, made up :-- of man-made textile materials
100	Synthetic carpet mats	570252	Other, not of pile construction, not made up :-- of man-made textile materials
100	Synthetic carpet mats	570292	Other, not of pile construction, made up :-- of man-made textile materials
100	Synthetic carpet mats	570330	Of other man-made textile materials
101	Green soap	340111	Soap and organic surface-active products and preparations, in the form of bars, cakes, moulded pieces or shapes, and paper, wadding, felt and nonwovens, impregnated, coated or covered...:-- for toilet use(including medicated products)
101	Green soap	340119	Soap and organic surface-active products and preparations, in the form of bars, cakes, moulded pieces or shapes, and paper, wadding, felt and nonwovens, impregnated, coated or covered with soap or detergent :-- other
101	Green soap	340120	Soap in other forms
102	Bleach	282890	Other
103	Scouring powder	340540	Scouring pastes and powders and other scouring preparations
104	Insecticide	380810	Insecticides
105	Washing machine	845140	Washing, bleaching or dyeing machines
106	Earthenware plate	691200	Ceramic tableware, kitchenware, other household articles and toilet articles, other than of porcelain or china.
116	Earthenware plate	691110	Tableware and kitchenware
107	Plate glass	701331	Glassware of a kind used for table (other than drinking glasses) or kitchen purposes other than of glass-
107	Plate glass	701332	Glassware of a kind used for table (other than drinking glasses) or kitchen purposes other than of glass-
107	Plate glass	701333	Glassware of a kind used for table (other than drinking glasses) or kitchen purposes other than of glass-
107	Plate glass	701339	other than of glass-
108	Pot (8 l)	732391	Other :-- of cast iron, not enamelled
108	Pot (8 l)	732392	Other :-- of cast iron, enamelled
108	Pot (8 l)	732393	Other :-- of stainless steel
108	Pot (8 l)	732394	Other :-- of iron (other than cast iron) or steel, enamelled
108	Pot (8 l)	732399	Other
109	Sheet and pillowcase has places	630210	Bed linen, knitted or crocheted
109	Sheet and pillowcase has places	630221	Other bed linen, printed :-- of cotton
109	Sheet and pillowcase	630222	Other bed linen, printed :-- of man-made fibres
109	Sheet and pillowcase	630229	Other bed linen, printed :-- of other textile materials
109	Sheet and pillowcase	630231	Other bed linen :-- of cotton
109	Sheet and pillowcase	630232	Other bed linen :-- of man-made fibres
109	Sheet and pillowcase	630239	Other bed linen :-- of other textile materials
110	Towel	480300	Toilet or facial tissue stock, towel or napkin stock and similar paper of a kind used for household or sanitary purposes, cellulose wadding and webs of cellulose fibres, whether or not creped, crinkled, embossed, perforated, surface-co

Code	Retail category	Hs6	Hs product description
110	Towel	481820	Handkerchiefs, cleansing or facial tissues and towels
110	Towel	481840	Sanitary towels and tampons, napkins and napkin liners for babies and similar sanitary articles
110	Towel	560110	Sanitary towels and tampons, napkins and napkin liners for babies and similar sanitary articles, of wadding
110	Towel	630260	Toilet linen and kitchen linen, of terry towelling or similar terry fabrics, of cotton
111	Gp consultation	N/a	N/a
112	Consultation in hospital	N/a	N/a
113	Cost of hospital stay	N/a	N/a
114	Efferalgan	300390	Other
114	Efferalgan	300490	Other
115	Tylenol	300390	Other
115	Tylenol	300490	Other
116	Injection	N/a	N/a
117	Bus / metro	N/a	N/a
118	Subscription	N/a	N/a
119	2nd class train ticket	N/a	N/a
120	4cv cars	870321	Other vehicles, with spark-ignition internal combustion reciprocating piston engine :-- of a cylinder capacity not exceeding 1,000 cc
120	4cv cars	870322	Other vehicles, with spark-ignition internal combustion reciprocating piston engine :-- of a cylinder capacity exceeding 1,000 cc but not exceeding 1,500 cc
120	4cv cars	870323	Other vehicles, with spark-ignition internal combustion reciprocating piston engine :-- of a cylinder capacity exceeding 1,500 cc but not exceeding 3,000 cc
120	4cv cars	870324	Other vehicles, with spark-ignition internal combustion reciprocating piston engine :-- of a cylinder capacity exceeding 3,000 cc
120	4cv cars	870331	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel) :-- of a cylinder capacity not exceeding 1,500 cc
120	4cv cars	870332	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel) :-- of a cylinder capacity exceeding 1,500 cc but not exceeding 2,500 cc
120	4cv cars	870333	Other vehicles, with compression-ignition internal combustion piston engine (diesel or semi-diesel) :-- of a cylinder capacity exceeding 2,500 cc
121	Premium gasoline	271000	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils b
122	Gasoil	271000	Petroleum oils and oils obtained from bituminous minerals, other than crude; preparations not elsewhere specified or included, containing by weight 70% or more of petroleum oils or of oils obtained from bituminous minerals, these oils b

Source: Authors' elaboration.

Table A2: Conversion Table between Retail Prices and Industrial Price Categories

Code	Retail category	Category industrial prices
1	Semolina	Processed cereals
2	Couscous	Processed cereals
3	Macaroni	Processed cereals
4	Flour packet	Processed cereals
5	Bread	Processed cereals
6	Stick	Processed cereals
7	Bulk rice	Processed cereals
8	Lamb	Meat
9	Boneless beef meat	Meat
10	Industrial killed whole chicken and plucked	Meat
11	Turkey escalope	Meat
12	Mullet (average)	Preserved fish
13	Mule	Preserved fish
14	Whiting (average)	Preserved fish
15	Sardines (average)	Preserved fish
16	Mackerel (average)	Preserved fish
17	Pageaux (average)	Preserved fish
18	Horse mackerel	Preserved fish
19	Octopus	Preserved fish
20	Cuttlefish	Preserved fish
21	Egg	Other food products
22	Fresh milk in bulk	Dairy
23	Milk package	Dairy
24	Sweet flavored yogurt	Dairy
25	Cheese box	Dairy
26	Packet butter	Dairy
27	Seed oil bottle (soybean)	Oils and fats
28	Olive oil (bulk)	Oils and fats
29	Sunflower oil	Oils and fats
30	Corn oil	Oils and fats
31	Thawed	Preserved vegetables, fruit and jam
32	Melons	Preserved vegetables, fruit and jam
33	Watermelons	Preserved vegetables, fruit and jam
34	Ordinary grapes	Preserved vegetables, fruit and jam
35	Lemons	Preserved vegetables, fruit and jam
36	Oranges malta	Preserved vegetables, fruit and jam
37	Sweet oranges	Preserved vegetables, fruit and jam
38	Dry shelled almonds	Preserved vegetables, fruit and jam
39	Artichokes	Preserved vegetables, fruit and jam
40	Carrots	Preserved vegetables, fruit and jam
41	Choux	Preserved vegetables, fruit and jam
42	Squash	Preserved vegetables, fruit and jam
43	Fennel	Preserved vegetables, fruit and jam
44	Green beans	Preserved vegetables, fruit and jam
45	Dried onions	Preserved vegetables, fruit and jam
46	Turnips	Preserved vegetables, fruit and jam
47	Green onions	Preserved vegetables, fruit and jam
48	Dry garlic	Preserved vegetables, fruit and jam
49	Fresh sweet peppers	Preserved vegetables, fruit and jam
50	Spicy fresh peppers	Preserved vegetables, fruit and jam
51	Potatoes	Preserved vegetables, fruit and jam
52	Fresh peas	Preserved vegetables, fruit and jam
53	Tomatoes	Preserved vegetables, fruit and jam
54	Dried chickpeas	Preserved vegetables, fruit and jam
55	Dried beans	Preserved vegetables, fruit and jam
56	Castor sugar	Other food products
57	Chocolate powder	Other food products
58	Normal black tea	Drinks
59	Super red tea	Drinks
60	Blended coffee	Drinks
61	Pure coffee	Drinks
62	Tomato concentrate	Preserved vegetables, fruit and jam
63	Salt	Salt
64	Canned harissa	Preserved vegetables, fruit and jam
65	Peppercorns	Preserved vegetables, fruit and jam
66	Canned olives	Preserved vegetables, fruit and jam
67	Soft drink glass	Drinks
68	Mineral water	Drinks
69	Cigarettes (cristal)	Manufactured tobacco
70	Cigarettes inter march	Manufactured tobacco
71	Neffa	Manufactured tobacco
72	Degreasing a jacket	N/a
73	Degreasing trousers	N/a
74	Men's shirts	Apparel

Code	Retail category	Category industrial prices
75	Vest	Apparel
76	Jean pants boy	Apparel
77	Men's shoes	Shoes
78	Chlaka leather women	Shoes
78	Chlaka leather women	Leathers worked
78	Chlaka leather women	Leather goods
79	Boy sneakers	Shoes
80	Fabrics	Fabrics
81	Zip	Textile articles
82	Tailoring costs: trousers	Textile articles
83	Tailoring costs: dress	Textile articles
84	Oil paint	Dyes, paints, inks and adhesives
85	Painting water	Dyes, paints, inks and adhesives
86	Cement	Cement and lime plaster
87	Lime	Cement and lime plaster
88	Brick 12	Tiles and bricks
89	Round rebar 12	Articles of cement and concrete
90	Water 2nd tranche	Water
91	Electricity 2nd tranche	Electricity
92	Town gas (low pressure)	Ext. Raff. Oil of -gas
93	Bottled gas	Ext. Raff. Oil of -gas
94	Charcoal	Other products of wood
95	Petroleum	Ext. Raff. Oil of -gas
96	Ordinary light bulb	Lamps and tubes
97	Halogen bulb	Lamps and tubes
98	Plastic chair	Products in plastic materials
99	Foam mattress instead	Various textile articles
100	Synthetic carpet mats	Textile articles
101	Green soap	Soaps, detergents and cleaning products
102	Bleach	Dyes, paints, inks and adhesives
103	Scouring powder	Soaps, detergents and cleaning products
104	Insecticide	Miscellaneous parachechemical
105	Washing machine	Tools & hardware
106	Earthenware plate	Ceramic products
107	Plate glass	Glass and glass products
108	Pot (8 l)	Steel products
108	Pot (8 l)	Non-ferrous metals
109	Sheet and pillowcase has places	Various textile products
110	Towel	Various textile products
111	Gp consultation	N/a
112	Consultation hospital chu map	N/a
113	Fresh bed hospital stay	N/a
114	Efferalgan lives mg comp eff c bt	Pharmaceuticals
115	Tylenol mg comp bt	Pharmaceuticals
116	Injection	N/a
117	Bus / metro	N/a
118	Subscription	N/a
119	2nd class train ticket	N/a
120	4cv cars	Cycles and motorcycles
121	Premium gasoline	Ext. Raff. Oil of -gas
122	Gasoil	Ext. Raff. Oil of -gas

Source: Authors' elaboration.

Table A3: Weighted AVE (in %) by Product Group across Time

Category	2002	2003	2004	Year 2005	2006	2007	2008
Bread and Cereals	-31.77	-34.59	-49.04	-67.55	-67.77	-67.22	-67.43
Clothing and Footwear	-0.06	-0.07	-0.05	-1.00	-0.69	-0.91	-0.67
Fish and Seafood	-20.69	-22.11	-22.75	-23.02	-22.98	-23.15	-23.13
Fresh and dried Fruits	-44.14	-44.68	-45.15	-43.55	-44.08	-45.36	-44.53
Furniture, household articles	-6.46	-7.58	-8.14	-9.67	-9.94	-9.66	-10.03
Housing, water, gas, electricity	-33.47	-35.20	-36.39	-53.51	-52.82	-49.49	-49.33
Meat and Poultry	-22.06	-43.82	-45.62	-45.41	-44.50	-38.86	-43.09
Milk, Cheese and Eggs	-17.64	-17.88	-18.12	-18.31	-17.99	-18.37	-18.64
Oil and fats	-100.04	-92.20	-103.34	-81.08	-71.44	-89.21	-103.47
Salt and condiment	-15.89	-16.87	-13.79	-14.39	-14.81	-15.29	-12.45
Sugar, Jam, tea, coffee and chocolate	-58.95	-54.76	-56.11	-58.22	-60.82	-56.44	-56.58
Tobacco	-56.88	-56.88	-56.88	-56.88	-56.88	-56.88	-56.88
Vegetables	-36.59	-30.33	-37.30	-28.22	-32.18	-49.81	-23.11
Drinks	-29.67	-29.85	-19.92	-22.42	-20.98	-18.66	-19.15
Health	-56.06	-56.08	-56.26	-55.96	-56.07	-55.95	-56.08
Transport	-23.63	-23.63	-34.16	-26.64	-34.14	-34.44	-24.62

Note: Negative numbers indicate that non-tariff measures increase bilateral trade.

Table A4: Tariff Pass-Through by Product

Product	Unit Value	Tariff	Ind. Price	Constant	Obs.	R2
Boneless beef meat	0.0226**	0.0204	0.619***	-1.009**	72	0.781
Bulk rice	0.585***	-13.10***	3.805**	-25.70***	84	0.746
Canned harissa	0.00233***	-0.0142**	0.496***	-3.341***	84	0.413
Castor sugar	-0.0755***	-1.175	2.071	-8.365	84	0.091
Charcoal	0.0952***	0.689***	1.393***	-8.638***	84	0.780
Cheese box	0.0326**	-0.0855*	0.816***	-4.820***	84	0.738
Chocolate powder	0.0439	4.388*	2.419	-13.15	47	0.066
Cigarettes (cristal)	-0.00379	0.518***	3.107***	-16.75***	84	0.716
Cigarettes inter March	-0.0154	0.470***	2.853***	-14.83***	84	0.658
Pot (8 l)	-0.349**	22.37**	0.560***	-2.496***	22	0.883
Couscous	0.408***	-20.85***	0.410***	14.11***	36	0.999
Dried chickpeas	-0.941*	-0.403	3.935***	-3.208	24	0.701
Dry shelled almonds	0.000258	0.277	7.336***	-34.35***	48	0.094
Earthenware plate	-0.0177***	-0.0370*	0.265***	-1.766***	84	0.476
Efferalgan lives mg	0.168***	-0.352***	-0.200***	-2.361***	84	0.763
Flour packet	0.0952***	0.435***	10.12***	-50.54***	84	0.649
Foam mattress instead	0.0676***	0.101	0.922***	-5.344***	84	0.844
Fresh milk in bulk	-0.0283	2.137***	10.74***	-53.48***	60	0.802
Fresh sweet peppers	0.598***	-3.846***	-0.341	-3.243**	24	0.488
Industrial killed whole chicken	0.0932**	1.916	2.841***	-15.12***	47	0.685
Mackerel (average)	-0.00745	3.949e+06	-0.321	-1.412e+06	71	0.048
Men's shoes	0.151	-0.0759	0.0224	-2.349	22	0.709
Milk package	-0.00981**	0.0628	1.212***	-5.581***	60	0.889
Normal black tea	0.0171	24.34	-0.399	0.357	50	0.036
Olive oil (bulk)	-0.0192***	-0.269***	0.181***	-1.893***	84	0.753
Packet butter	-0.00910***	-0.165***	0.989***	-3.211***	84	0.944
Pageaux (average)	-0.0256	-0.0976	0.718	-1.578	76	0.037
Painting water	0.0463***	0.194***	-0.000609	-5.315***	84	0.847
Plate glass	-0.0272	-0.293***	0.479***	-5.362***	84	0.499
Sardines (average)	-0.0749*	-3.780**	1.153***	-1.384	72	0.194
Seed oil bottle (soybean)	0.0759***	5.297***	0.0908	-5.189***	84	0.500
Sheet and pillowcase has places	0.304***	0.556***	0.481***	-9.032***	84	0.959
Spicy fresh peppers	-0.0467	0.286	0.595***	-2.696***	24	0.595
Sweet flavored yogurt	0.464***	-2.469***	0.619**	-3.165**	36	0.982
Synthetic carpet mats	-0.0532***	-0.153***	-0.564	-0.590	84	0.523
Tomato concentrate	0.0133***	0.0121***	1.147***	-5.646***	84	0.939
Tylenol mg comp bt	-0.153*	-0.485**	-2.119***	11.21***	84	0.930
Whiting (average)	0.0300***	-115.316**	-1.594	41.255**	36	0.191
Artichokes	-0.592	6.902		2.455	23	0.123
Carrots	0.356	-5.286	-52.27	242.0	23	0.189
Cement	-0.00410	0.115*	0.813***	-7.772***	84	0.788
Cuttlefish	0.0226**	6.667	0.924***	-5.701	78	0.522
Dried beans	4.645	-150.8	-9.161	42.10*	14	0.192
Dried onions	0.00363	-0.175***	1.833**	-9.134***	84	0.176
Dry garlic	-0.196	-6.347	-0.522	6.752	24	0.254
Fennel	0.119	-0.157	0.206	-2.238	73	0.030
Gasoil	0.00741***	0.315***	0.0321***	-1.765***	84	0.717
Green beans	0.0947	-0.141	-2.575	10.80	74	0.087
Green onions	0.00295	0.0160	1.096***	-5.374***	24	0.920
Green soap	0.0850***	-0.303*	2.028***	-11.58***	84	0.872
Horse mackerel	-0.0277	0.150	-0.0372	2.475**	78	0.125
Lemons	-0.995	-6.595	-1.948	22.53**	24	0.100
Lime	-0.0600	-13.66	0.611**	-3.924	16	0.701
Macaroni	-0.290***	-0.207	0.782	0.979	84	0.650
Melons	0.00699	-0.0756	1.313	-6.456	26	0.014
Mule	-0.0577**	0.163	-0.939***	7.113***	84	0.572
Neffa	0.0871***	0.186***	3.469***	-16.16***	84	0.882
Octopus	0.0401***	0.185*	-0.0255	1.461*	79	0.363
Oranges Malta	-0.0798	0.365	3.323	-15.83	34	0.233
Ordinary grapes	-0.269**	-1.219	2.203**	-6.313*	74	0.056
Premium gasoline	0.000574	-0.458***	0.153***	-0.713***	84	0.736
Squash	-0.000558	-0.0888***	0.212	-0.0164	84	0.393
Stick	-0.933***	0.925**	-7.012***	48.30***	84	0.883
Sweet oranges	-0.0478***	0.423***	-0.654	3.702*	48	0.453
Teal	-0.0151**	-0.698***	0.315***	0.0119	84	0.899
Turnips	0.425	-2.163	-42.51	193.8	25	0.115
Watermelons	0.286*	-0.790*	3.504***	-18.86***	36	0.333

Note: For a number of products it was not possible to obtain single regressions estimates due to missing data (Bread, Bottled gas, Cars, Chlaka leather women, Choux, Salt and Town gas (low pressure)). Products in Bold are those with a positive and significant pass-through coefficient.