

# International transfer pricing and taxation: Evidence from Turkey

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## Abstract

Transfer pricing is a technique that is primarily used by multinational corporations while trading with their affiliated firms. Cross-country differences in both corporate tax rates and tariffs may create an incentive for multinationals to alter market prices of their products by using abusive transfer prices in order to shift their profits to relatively low-tax countries. This system offers opportunities to minimize multinationals' global tax burden. Thus, this paper examines whether alterations in corporate tax rates across countries increase the use of manipulated transfer prices by multinationals. In order to determine the existence of such a relationship we construct an econometric model by using Turkey's import product prices from Germany, France, England and Italy between 1995 and 2003.

*Keywords:* International Transfer Pricing, International Tax Competition, International Taxation.

*JEL codes:* C23, D21, E62, F23.

## 1. Introduction

International transfer pricing can be described as the pricing applied to all intra-firm transactions of a multinational enterprise (MNE) trading with subsidiaries under common ownership and control in different countries. Such transactions can include imports or exports of goods, services, and tangible and intangible properties. Multinational enterprises can use those prices to avoid paying more corporate taxes and tariffs by utilizing differentiation of tax rates among countries, as they trade with subsidiaries located under different tax jurisdictions. MNEs tend to carry their profits from high tax jurisdiction countries to lower ones.(Oncel, 2003) In this case,

transfer prices are manipulated by multinationals in order to decrease their global tax burden. As long as corporate tax rates vary from country to country, MNEs have an incentive to take advantage of these variations by designing the best transfer prices for themselves to reduce their international tax liabilities. (Grubert and Slemrod, 1998)

In the past decade, in addition to increased globalization tendencies and the effects of drastic advances in information and communication technologies on the international business environment, the trend toward a decrease in overall tax rates in many countries to attract foreign direct investments (FDI) has facilitated manipulation of product prices by MNEs. Moreover, since some developing countries have been more concerned with encouraging FDIs by reducing their tax rates as a tax incentive rather than by setting certain transfer pricing rules to protect their tax revenues, theoretically transfer pricing is most prevalent in relatively low tax rate developing countries that do not have transfer pricing rules. (Sun, 1999)

Since international transfer pricing affects both a country's tax revenues and the profits of multinational enterprises, it has recently become one of the most controversial tax issues for different tax administrations, and MNEs. It has been widely studied from different aspects by the academicians as well.

There exists a growing body of empirical studies such as Grubert and Mutti (1991); Harris, Morck, Slemrod, and Yeung (1993); Gruber, Goodspeed, and Swenson (1993); Altschuler, Grubert, and Newlon (2001); Clausing (2001), and Swenson (2001) which emphasize that changes in tax incentives are predominant factors using manipulated transfer prices by MNEs.

In their pioneering study, Grubert and Mutti (1991) contend that host countries' taxes and tariffs have a strong impact on MNEs' income shifting operations. Hines and Rice (1994) find that U.S. multinationals relocate a sizeable fraction of their foreign activity depending on tax rates of the host country. Harris and et al. (1993) argue that U.S. MNEs with tax haven subsidiaries have lower tax liabilities than would be expected. Grubert et al. (1993), demonstrate a relationship between reporting low income in the U.S. by foreign- controlled companies, and the tax system of their home countries. Altschuler et al. (2001) provided additional evidence that foreign investments of manufacturing firms are extremely sensitive to variations in tax rates of the host country. Clausing (2001) also confirmed the existence of this relationship by investigating intra-firm trade flows. One of the most recent analyses realized by Swenson, concerns whether the effects of corporate taxes and tariffs differentiate across products to create an incentive for underpricing or overpricing of affiliated firm transactions. Her findings also support the idea that the combined effect of taxes and tariffs provide an incentive for MNEs to overstate or understate their product prices.

In summary, the results of previous studies show that tax variations have both statistically and economically significant effect on transfer pricing incentives and in determining investment location of MNEs.

In light of former works, in this paper we will discuss the responsiveness of import product prices of Turkey with respect to variations of corporate tax rates in several European countries, by pursuing a similar methodology as Swenson (2001).

## 2. Effects of corporate tax variations on transfer pricing

We know that when a company shifts a dollar of income from one country to another, holding tariff rate, inflation effect, changes in GDP constant, it considers only differences of the corporate tax rates between those countries( Grubert, Mutti: 1991).As a result, as multinationals establish transfer prices for intra-firm transactions to reduce their worldwide tax burden by altering arms length prices upward or downward, the direction of the manipulation, *ceteris paribus*, depends only upon variations of the corporate tax rates between home and host countries.(Swenson:2001) Depending on tax rate differentials between the countries, a firm can choose either to overstate or understate its transfer prices in order to shift taxable income towards or out of Turkey. In a situation where Turkey's corporate tax rate ( $T_t$ ) is higher than the European country's corporate tax rate ( $T_e$ ), the MNE will choose to overstate its transfer prices in order to increase its overall profits.( $TD=T_t-T_e>0$ ) We can give a two case example to provide a better understanding of why the firm chooses artificially elevated transfer prices in conditions where the TD is positive.

	Parent Company (Home Country-A European Country)		Subsidiary Company (Host Country- Turkey)	
	Price of Goods	Transfer Price	Selling Price	Totals
<b>Step I</b>	\$1000	\$2000	\$3000	
Before Tax Profit	\$1000	\$1000		\$2000
Tax Rate(%)	30	60		
Tax Paid	\$300	\$600		<b>\$900</b>
After Tax Profit	\$700	\$400		<b>\$1100</b>
<b>Step II</b>	\$1000	\$2800	\$3000	
Before Tax Profit	\$1800	\$200		\$2000
Tax Rate(%)	30	60		
Tax Paid	\$540	\$120		<b>\$660</b>
After Tax Profit	\$1260	\$80		<b>\$1340</b>

In this example we assume that the parent firm of the multinational which is located in a lightly taxed country (30%) produces or buys some goods or services at the cost of \$1000 each, and then exports them to a subsidiary firm operating in Turkey with a tax rate of 60 percent, for final sale in that country at a constant price of \$3000 each. Under these assumptions, shown in step I, the MNEs' overall profit, after the tax is paid in both countries, is \$1100. However, the MNE is able to reduce its global tax liability by arbitrarily overreporting its transfer prices from \$2000 to \$2800, so that its overall tax burden will decrease from \$900 to \$660.

Conversely, as the Turkish corporate tax rate is lower than the corporate tax rate of the European country, the multinational prefers to understate its transfer prices ( $D_t = T_t - T_e < 0$ ) to take some tax advantages of this variation. We can extend our previous example by adding one more step to show the mechanism of this process.

In this step, we invert the corporate tax rate of both countries and assume that the parent company which operates with a 60 percent corporate tax rate, ships the same products in step one at \$900 each (that is \$100 under the cost price) to its Turkish subsidiary in order to sell them in Turkey at an identical constant price with step one (\$3000). Due to the fact that Turkey's tax rate (30%) is lower than the tax rate of the European country, the multinational will choose to underreport its transfer prices to increase its overall profits from \$1100 (step I) to \$1370 (step III).

	Parent Company (Home Country- a European Country)		Subsidiary Company (Host Country-Turkey)	
	Price of Goods	Transfer Price	Selling Price	Totals
<b>Step III</b>	\$1000	\$900	\$3000	
Before Tax Profit		-\$100	\$2100	\$2000
Tax Rate(%)		60	30	
Tax Paid		\$0	\$630	<b>\$630</b>
After Tax Profit		-\$100	\$1470	<b>\$1370</b>

### 3. Model and data description

We begin our hypothetical scenario by considering a multinational company headquartered in a European country, with a single subsidiary operating in Turkey. We assume that the parent firm produces some intermediate or final products, exporting them to Turkey for sale. We also assume that while the parent company is subject to taxes under the residence basis taxation rule, source basis taxation rules apply to the subsidiary's earnings. According to those rules, the parent firm pays the home corporate

tax rate for both the income it earns at home and in the host country, while the subsidiary pays only the statutory corporate tax rate of the host country (Dworin, 1990). In other words, for our case, while income earned in Turkey by Turkish subsidiary is subject to the Turkish corporate tax rate, the parent firm is responsible for paying the European country's tax rate on income generated in both locations. In order to avoid double taxation, this system allows the parent company to get a foreign tax credit related to the corporate tax paid to the foreign government (Hines and Rice, 1994). For instance, let us assume that the statutory corporate tax rate where the parent firm is located is 40 percent, while Turkey's corporate tax rate is 30 percent, and the Turkish subsidiary that is fully owned by a European multinational generates \$1000 in Turkey. Under these conditions, the Turkish subsidiary will pay \$300 to the Turkish tax administration, whereas the parent firm pays only \$100 instead of \$400 to the tax administration of the European country for its income derived from Turkey.

In order to research whether there is evidence regarding income shifting activity between parent firm and subsidiary to avoid paying their fair share of corporate tax amount by using inappropriate transfer prices, we use Turkey's reported import product prices from Germany, Italy, France and England. Since all four are leading exporter and investor countries to Turkey, using such data offers a high likelihood of catching any kind of transfer pricing maneuver from those countries. We would prefer to study with the data set including multinational firms' intra-firm transactions to get more precise and significant results. However, in the absence of such data, we considered that countries' imported products prices were good proxies for individual firms' products sale prices.

Our sample covers an annual panel data set from 1995 to 2003 with 923 observations in order to provide both a substantial alteration in cross-country corporate tax rates and a decrease of the tariff effect on transfer pricing. As is known, after the custom union agreement between the EU and Turkey in 1995, all import taxes on imported goods and services were mutually abolished in order to invigorate trade between those two parties. Thus, we can ignore the effects of tariffs in our transfer pricing model and can construct our model as following:

$$\begin{aligned} \text{*Reported Product Prices}_{ict} &= \alpha + \beta_1 \text{ Corporate Tax Rate} \\ \text{Differentiation}_{ct} &+ \beta_2 \text{GDP per Capita}_{ct} \\ &+ \beta_3 \text{Inflation}_{ct} \\ &+ \sum_i \lambda_i + \sum_c \gamma_c + \sum_t \delta_t + \varepsilon. \end{aligned}$$

The data associated with our endogenous variable, reported import product prices, are obtained from Turkey's State Institute of Statistics (SIS)

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\* i represents product, c denotes country, and t refers to time.

as unprocessed. We used 23 different products, each of symbolizing an industry. Since the annual values of each imported product and corresponding annual quantities by country are not reported, we need to use following formula to create average annual import prices for each item by country:

$$RPP = \frac{\text{Reported Price of Imported Product from } x \text{ country}}{\text{Quantity of Imported Product from } x \text{ Country}}$$

However, in order to examine the responsiveness of changes in imported product prices and changes in statutory corporate tax rates as percentage, we took first differences of all the product prices and divided them by their previous year values.  $(P - P_{-1} / P_{-1})$

The main exogenous variable in our model is cross-country statutory corporate tax rate differentiation which creates transfer pricing incentives, constructed as:  $ctrd = ctt - cte$ . It is created by subtraction of each EU country's corporate tax rate (cte) from Turkey's corporate tax rate (ctt), and this process was repeated for each EU country in the model.

Our other independent variables are per capita GDP and inflation rates, which are obtained from OECD and IFS for each country, so we are able to cover some other factors that affect prices over time. In order to capture unobservable random components such as indeterminate product quality dissimilarities, cross-country differences in market structure, and other unobservable differentiations related to time variations, we also added three dummy variables which are year dummy, country dummy and product dummy to our model.

We applied our fixed effect model sequentially, first by all products, then by each product and its represented corresponding sector, and finally by each country as well. The fixed effect regression is the model to use when you want to control for omitted variables that differ between cases but are constant over time. It lets you use the changes in the variables over time to estimate the effects of the independent variables on your dependent variable, and is the main technique used for analysis of panel data.<sup>1</sup> After taking care of the heteroscedasticity by performing Breusch–Pagan test and its corrections, our regression results presented in table1 demonstrate that in some cases corporate tax rate alterations among countries are quite significant determinants of shifting profits between the parent company and its affiliated firms. For instance, the regression results for all industries explain that if differences in corporate tax rates increase by one percent, it causes 1.279 percent change in reported product prices. Moreover, the independent product-based regression results also imply that several sectors such as beverages, chemistry, foods, glass, paper and rubber have

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<sup>1</sup> Detailed information regarding fixed and random effect models can be obtained from Wooldridge (2003: Chapters 7, 10 and 11).

statistically significant coefficients that indicate existence of transfer pricing. For example, a percent increase in tax rate differences, leads to a .065 percent change in product prices in the chemistry sector. However, none of our country-based regression results have strong statistical significance. Even though some of our product/sector-based estimations are statistically significant with correct signs, their economic magnitudes are extremely weak.

**Tablo 1**  
Regression Results

Products	Transfer Pricing Incentive	GDP per Capita	Inflation	R <sup>2</sup>
All Products	1.279(.7440) <sup>c</sup>	-.0064(.0045)	1.319(2.429)	.3142
Animal and Animal Products	.1355(.2511)	.0012(.0015)	-1.231(.8202)	.5638
Appliances	.0414(.1448)	-.0003(.0008)	-.2967(.4731)	.7001
Audio/Communications	-.6773(1.150)	.0006(.0070)	-7.444(3.758) <sup>c</sup>	.5955
Beverages	.0438(.0244) <sup>c</sup>	-.0006(.0001)	.0220(.0797)	.8585
Chemistry	.0165(.0080) <sup>b</sup>	.0005(.0012)	.0086(.0262)	.9227
Defense Equipments	1.806(2.313)	.0126(.0142)	.0986(7.556)	.4751
Foods	.0120(.0065) <sup>c</sup>	-.0013(.0014)	.0145(.0212)	.9333
Glass and Derivatives	.0622(.0226) <sup>a</sup>	.0002(.0001) <sup>c</sup>	.0226(.0740)	.8373
Leather and Derivatives	.0256(.0420)	.0000(.0002)	.0771(.1371)	.9617
Machinery and Equipment	.1080(.1275)	.0015(.0007) <sup>b</sup>	-.7198(.4164)	.8975
Metal and Metal Products	-.0149(.0121)	.0001(.0008)	.0085(.0398)	.8654
Minerals and Mining	.0024(.0026)	-.0011(.0012)	-.0086(.0085)	.7472
Office Equipments	15.37(11.73)	-.0335(.0720)	56.27(38.31)	.4849
Oils	-.0046(.0090)	-.0003(.0009)	-.0035(.0294)	.5626
Paper and Derivatives	-.0128(.0066) <sup>c</sup>	.0017(.0019)	-.0027(.0216)	.8827
Pharmaceuticals	8.245(10.27)	-.1021(.0630)	-7.975(33.55)	41.57
Plastics	-.0370(.1926)	-.0021(.0011) <sup>c</sup>	5373(.6292)	.6226
Rubber	.0547(.0246) <sup>b</sup>	-.0002(.0001)	-.0441(.0806)	.8515
Seeds	.8255(3.837)	.0108(.0255)	-4.824(12.31)	.3611
Textile Products	-.0470(.0335)	.0003(.0002) <sup>c</sup>	-.0117(.1094)	.8834
Tobacco	.7267(1.429)	.0002(.0087)	-1.320(4.668)	.3750
Transportation Equipments	2.075(1.812)	-.0295(.0111) <sup>a</sup>	-4.375(5.918)	.7086
Woods and Derivatives	-.0179(.0127)	.0003(.0000) <sup>a</sup>	.0360(.0415)	.8127

Note: Corrected standard errors for heteroscedasticity are shown in brackets. Marks a,b,c are significance level at 1%, 5% and 10% in sequence.

One possibility regarding the reason why our estimation results have minor economic weights is the composition of our sample. Due to the fact that our data set associated with reported import product prices covers not only multinationals' intra-firm trade, it also has all types of firms' import

transactions. This situation certainly decreases the opportunity to get more precise results, and it may reduce the economic effects of cross-country alteration in corporate tax rates on multinationals' profit shifting incentives in our model.

Another factor that may decrease the economic importance of our regression results is Turkey's FDI inflows position among OECD countries. FDI is one of the major indicators of whether a country has multinational activities. As seen from table 2 in appendix, Turkey has one of the lowest FDI inflows among OECD countries, a condition responsible for the very low level of multinational activities in that country. As a result, the possibility for transfer pricing transactions in Turkey is relatively smaller than in most of the other OECD countries.

Although our findings show similarities with Swenson's results, the economic importance of our estimated coefficients are greater than those in her analysis. In fact, Swenson's estimates support that a 5 percent change in corporate tax level will cause a 0.024 percent escalation in the reported transfer prices for affiliated firms.

Consequently, despite some limitations in our model such as not to have an individual firm-based data set, our study provides theoretically consistent and empirically significant results regarding multinationals' transfer pricing behaviors.

#### 4. Concluding remarks

This article has investigated whether cross-country corporate tax rate differences create an incentive for multinationals to report their incomes in low taxed countries by utilizing manipulated transfer prices. In our analysis we used panel data regarding Turkey's reported import prices from Germany, France, Italy and England between 1995 and 2003.

Our findings seem to suggest that reported product prices are very sensitive to changes in corporate tax rates, especially in sectors such as beverages, chemistry, foods, paper and rubber. The results also support the argument that once the tax rates' alterations rise, they increase the frequency of using arbitrarily manipulated transfer pricing.

As a result, these findings suggest that because of the fact that international transfer pricing activities erode a country's tax base, it is urgent to establish transfer pricing regulations, especially for developing countries that do not have transfer pricing rules.

From this point of view, despite the fact that Turkey had no established a specific transfer pricing rules until 2006, a new corporate tax law enacted in June 2006 contains similar transfer pricing rules with OECD countries. These rules put into effect at the beginning of 2007. However the rules have still required to be reviewed in terms of their clarity and explanations.



## Appendix

**Table 2**  
Cumulative FDI Flows in OECD Countries 1995-2004 (Billion Dollars)

Inflows		Outflows	
United States	1461.4	United States	1511.6
Belgium/Luxemburg	868.4	United Kingdom	938.4
United Kingdom	534.3	Belgium/Luxemburg	870.0
Germany	375.5	France	673.0
France	356.0	Germany	429.8
Netherlands	273.8	Netherlands	367.7
Canada	206.6	Japan	280.9
Spain	184.0	Canada	275.6
Sweden	157.9	Spain	268.0
Mexico	147.9	Switzerland	209.3
Ireland	139.3	Sweden	166.1
Australia	118.2	Italy	126.5
Italy	100.6	Australia	73.8
Switzerland	88.1	Finland	72.1
Denmark	71.2	Denmark	60.8
Japan	57.4	Ireland	46.6
Poland	56.2	Korea	39.9
Finland	49.5	Austria	39.7
Korea	48.6	Portugal	38.8
Austria	43.8	Norway	37.0
Czech Republic	41.0	Mexico	10.6
Norway	36.5	Hungary	4.5
Hungary	35.2	Turkey	4.4
Portugal	30.9	Greece	4.3
New Zealand	19.7	Iceland	4.2
Turkey	13.7	Poland	1.6
Slovak Republic	11.8	Czech Republic	1.6
Greece	8.9	New Zealand	1.5
Iceland	1.7	Slovak Republic	0.2
<b>Total OECD</b>	<b>5538.2</b>	<b>Total OECD</b>	<b>6558.6</b>

Source: OECD (2005).

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## Özet

### Uluslararası transfer fiyatlaması ve vergileme: Türkiye örneği

Transfer fiyatlaması, özellikle çok uluslu şirketlerin bağlı ortaklarıyla gerçekleştirdikleri ticari işlemlerde kullanılan bir tekniktir. Ülkelerin kurumlar ve gümrük vergisi oranlarındaki farklılıklar çok uluslu şirketlerin transfer fiyatlaması mekanizmasını kötüye kullanarak kendi sattıkları ürünlerin piyasa fiyatlarını değiştirip, karlarını söz konusu vergiler açısından nispeten daha az vergi yüküne sahip ülkelere aktarmalarına bir teşvik oluşturabilmektedir. Bu mekanizma çok uluslu şirketlerin küresel vergi yüklerini minimize etmeleri hususunda çok uluslu şirketlere bir fırsat sunmaktadır. Bu nedenle çalışma, ülkeler arasındaki özellikle kurumlar vergisi oranlarındaki farklılıkların, kötüye kullanılan transfer fiyatlaması mekanizması uygulamalarını artırıp artırmadığı konusunu araştırmaktadır. Bu ilişkinin belirlenebilmesi için Türkiye'nin 1995-2003 yılları arasında Almanya, Fransa, İngiltere ve İtalya'dan ithal etmiş olduğu ürün fiyatları kullanılarak ekonometrik bir model oluşturulmuştur.

*Anahtar kelimeler:* Uluslararası Transfer Fiyatlaması, Uluslararası Vergi Rekabeti, Uluslararası Vergilendirme.

*JEL kodları:* C23, D21, E62, F23.