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Foreign Direct Investment as a Determining Factor in Turkey's Export Performance

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Abstract

Export growth in Turkey has been much faster than GDP growth over the past few decades. Although in the last several years Turkey has been experiencing a constant growth of both exports and foreign direct investments as a result of market-oriented reform process, often associated with European Union (EU) *accession, the export performance as well as the inflow of foreign direct investment (FDI) to Turkey is not satisfactory. Despite increasing inflows of FDI especially in recent years there has not been any attempt to assess its contribution to Turkey's export performance—one of the channels through which FDI influences growth. Using annual data for 1982–2009 this paper investigates the determinants of Turkey's export performance in a simultaneous equation framework (3SLS). Results suggest that the real appreciation of the Turkish Lira adversely affects Turkey's export performance. Export supply is positively related to the domestic relative price of exports while the higher domestic demand reduces export supply. Foreign investment appears to have statistically significant impact on export performance as well as its coefficient has a positive sign. Also, the statistical adequacy of the models used is supported by the following diagnostic tests.*

Keywords: *Exports, Foreign direct investment, FDI, Exchange rates, Simultaneous equation, Turkey.*

JEL Classification Codes*: C30; C51; F13; F21*

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1. Introduction

Globalisation advancing in the last decades especially with the improvement of the information technology and communication help so much in flows of factors of production over the globe. This process is better for all since all capital, technology and labor will be used more efficiently as long as the borders of the countries are open (Ilgun et.al.,2010,42). In this context a country determines her choices between foreign debt and foreign direct investment (FDI) in accordance with the direct benefit for the economic development in order to remove the imbalance leading for the sake of investment in balance of saving and investment. If we refer to the implementation, we witness that countries use both of these two choices. Because it is really difficult to realize the economic development by means of just only foreign dept and potential investments and FDI. Therefore these two methods are not their alternatives but their complementaries. Thus, the FDI may be much more plausible within the period when the foreign debt is more costly (Koç and Sarısoy, 2010, 1)

In this framework, even in Turkey over the past few decades has successfully shifted to a growth strategy based on open and competitive markets. Backed by a favorable international environment and by the opening of accession negotiations with the EU, Turkey has restored macroeconomic stability and has greatly improved the resilience of its economy. Since 2001, the Turkish economy has bounced back from a sharp economic crisis and entered a period of high growth and consistent structural transformation. Annual growth averaged 7.5 percent and output increased more than 40 percent in 2002-2006. Turkey's exports have grown much faster than GDP in the period of 1980-2009. During the same period, its exports have grown over 14% per annum while growth in GDP is about 3,5%. This rapid increase in exports was due to many factors, including the liberalization of trade and exchange rate regimes, successful export promotion policies, growing demand for Turkish products in EU, improvement in competitiveness, and FDI which has been rising significantly from the early 2000s. Up until 2001 the cumulative level of FDI inflow had amounted to 10,382 billion with an average annual inflow of 0,519 billion[1]. From that time Turkey's share of global FDI inflows has been rising consistently and constitutes about 5% of all FDI inflows to developing countries (World Bank, 2008a: 35). Sound policies, a favorable international environment and the prospects of EU accession have helped Turkey expand its export capacity and attract large capital inflows, especially in the form of foreign direct investments. However, despite substantial increase of FDI inflows there has not been any attempt to assess its contribution to Turkey's export performance.

[1] Turkey has experienced a substantial increase in FDI inflows from US$ 18 million in 1980 to US$ 22,19 billion by 2007.

FDI inflows are thought to represent the additional resources emerging market economies need to improve their economic performance. Recent successful developments in these countries suggest that FDI is a powerful tool of increasing a country's output, productivity and exports because multinational companies (MNCs) through which most FDI is undertaken have well established contacts and up to date information about foreign markets. However, the experience of East and South East Asian countries that FDI is a powerful tool of export promotion cannot be generalized to Turkey. FDI-friendly policies and structural reforms, such as energy, transport and labor market reforms, that improve competitiveness in the tradable sectors and attractiveness of Turkey for FDI inflows improved external sustainability over the last decades. Despite significant improvement in 2005-2008, net FDI to Turkey remains low relative to comparator countries. Moreover FDI in Turkey has flowed mostly to the service sector instead of manufacturing. High investment in the service sector does not improve significantly productive capacity in exporting and import-competing sectors. According to The World Bank (2008b) although there is an improvement in investment mix in Turkey in recent years the attractiveness of manufacturing to domestic and foreign investors- such as addressing the high energy costs, poor transport infrastructure, limited labor market flexibility- are important and Turkey's positions in these areas is quite weak. Furthermore, the role of FDI inflows in export promotion in emerging market economies is open to debate and depends crucially on the motive for such investment.

2. Some stylized facts of FDI and exports in Turkey

2.1. Magnitude of FDI inflows

Turkey was one of the lowest recipients of FDI among the developing countries until 2000s. During the 1980s cumulative inflows of FDI was about US$ 0,168 billion or 0,86 % of gross domestic investment (GDI). Both economic and non-economic causes contributed to a lower level of FDI in Turkey (Erdilek, 2003 and Balasubramanyam, 1996). Economic causes include the import substitution strategy of development pursued until the early 1980s, high transactions costs of entry and operation for foreign investors, high inflation, economic instability, lack of protection of intellectual property rights, lack of inflation accounting and internationally acceptable accounting standards, failure of privatization, insufficient legal structure and inadequate infrastructure. Non-economic causes include chronic political instability, internal conflicts (terrorist attack and activities), animosity towards foreign economic presence and lack of sufficient FDI promotion.

FDI in Turkey has expanded slightly following the liberalization programme initiated in the early 1980s. In 1989, Turkey fully liberalized its capital account in order to increase her attractiveness to foreign investors. As shown in Table 1, annual FDI inflows increased from US$ 234,9 millions in 1980-89 to US$ 703,3 millions in 1990-99. Both the absolute value of FDI and its share in GDI rose sharply in 1990s in

comparison with the earlier decade. It was only in 2000s Turkey experienced a significant inflow of foreign capital in the form of both FDI and portfolio capital. Table 1 introduces Turkey's absorption of foreign capital and its contribution to the Turkish economy.

Table 1. Turkey's Absorption of Foreign Capital: 1980-2008 (billion USD)

Year	Total foreign capital (TFC) flows	FDI flows	FDI/TFC (%)	Portfolio capital (PC) flows	PC/ TFC (%)	External debt (ED) flows	ED/TFC (%)	FDI/ gross domestic investment (GDI)
1980-1989	28,83	2,349	8,15	0,418	1,45	28,247	97,98	0,86
1990-1999	75,41	7,033	9,33	1,776	2,36	72,868	96,63	1,79
2000	123,95	0,982	0,79	6,192	5,00	116,784	94,22	1,48
2001	115,65	3,352	2,90	-0,572	-0,49	112,878	97,60	10,62
2002	132,58	1,137	0,86	0,782	0,59	130,662	98,55	2,26
2003	146,73	1,752	1,19	0,951	0,65	144,027	98,16	2,44
2004	167,11	2,785	1,67	3,611	2,16	160,719	96,18	2,67
2005	188,18	10,031	5,33	8,881	4,72	169,269	89,95	8,32
2006	234,47	19,989	8,53	6,712	2,86	207,772	88,61	15,84
2007	283,22	22,195	7,84	9,553	3,37	251,476	88,79	15,81
2008	287,82	12,307	4,28	-1,316	-0,46	276,834	96,18	10,26

Source: Author's calculation based on data from World Development Indicators, World Bank (2009); SPO and Treasury. Total foreign capital includes FDI, portfolio capital and external debt stock. FDI is net inflows. Portfolio capital included both investments in bonds and equities.

While Turkey was still attracting relatively low levels of FDI compared to countries of comparable size, it has done remarkably well in recent years compared with its own past performance (Moran, 2005, 297). For example, annual FDI inflows reached US$ 16,1 billion during 2005-2008 period from just over 2 billion US$ during 2000-2004 and 703 million US$ in 1990-99. Compared with many other emerging markets, FDI inflows into Turkey have been modest, averaging less than % 1 of GDP a year in 1980-2004. However, FDI inflows into Turkey grew strongly to US$22.1 billion in 2007, almost eight times the US$2.7 billion recorded in 2004. By 2006 Turkey became the fifth largest recipient of FDI among emerging markets. The share of FDI in both total foreign capital (TFC) and GDI consistently reached over % 4 by 2005 (see columns 4 and 9, respectively in Table 1).The recent upsurge in FDI reflects the conjunction of several factors: the relative stability and strong growth of economy; reforms in sectors such as energy, telecommunications and banking; and EU accession talks are seen as likely to lead to further reforms of the business environment (The Economist Intelligence Unit, 2007: 179).

Over the past few decades FDI has increased more rapidly than portfolio capital except when Turkey is vulnerable to sudden shifts in investor sentiment because of its large current account deficit, substantial external debt-servicing, heavy reliance on short-term capital inflows, and periodic domestic political tensions (see Table 1 columns 3 and 5, respectively).

Table 2. Foreign Direct Investment in Turkey by Sectoral Breakdown

Industry group (Billion USD)	Average annual 1980-2001		Average annual 2002-2008	
	Value	%	Value	%
Primary	**0,040**	**2,81**	**1,412**	**2,12**
Agriculture, forestry, fishing	0,026	1,84	0,142	0,21
Mining	0,013	0,97	1,270	1,91
Secondary	**0,775**	**54,42**	**24,540**	**36,87**
Food, beverages, tobacco	0,215	15,08	4,029	6,05
Textile, garments, leather	0,035	2,45	0,258	0,39
Chemicals and chemical products	0,110	7,71	2,280	3,43
Motor vehicles	0,205	14,38	5,073	7,62
Rubber and plastic products	0,049	3,45	0,926	1,39
Other manufacturing	0,161	11,35	11,974	17,99
Tertiary	**0,609**	**42,77**	**41,876**	**62,92**
Wholesale and retail trade	0,184	12,95	6,251	9,39
Hotels and restaurants	0,032	2,27	0,582	0,87
Financial intermediation	0,281	19,75	14,001	21,03
Other Services	0,111	7,8	21,052	31,63
Total	**1,425**	**100**	**66,558**	**100**

Source: Central Bank of Turkey.

The sector-wise breakdown of FDI is presented in Table 2. As shown until the early 2000s manufacturing (particularly the chemical, food and motor vehicle industries) attracted the most FDI. However, during the 2002-2008 period FDI inflows was primarily attributable to acquisitions by multinational companies of large stakes in a handful of large Turkish companies, especially in banking and telecommunications, as a result of privatization and private-sector takeovers (The Economist Intelligence Unit, 2007: 179). The share of tertiary sector that encompasses critical elements of the modern economy namely telecommunication, power generation, consulting services, and hotel and tourism in total FDI inflows rose significantly from 42,7% during 1980-2001 to about 62,9% during 2002-2008. Increased FDI inflows to tertiary sector is an important factors in making Turkey competitiveness in global markets because this sectors had long been reserved for the public sector enterprises which were inefficient in managing these services. Following the tertiary sector, the second largest concentration of FDI has been in manufacturing attracting about 36,8% of such investment during 2002-2008.

2.2. Turkey's export performance

Beginning from the year 1980, Turkey changed its economic development policy from "import substituting industrialization" to an outward-looking and predominantly free-market economic model. At that time, as a part of more wide-ranging economic reforms economy open up to world trade, export-promoting incentives were initiated; direct import controls and quantity restrictions have

been eliminated. Turkey's post-1980 export performance has been largely structured around existing capacities built in the pre-1980 inward-oriented growth era (Celasun, 1994: 454). During the period 1980-1995, GDP growth averaged 7 percent annually and despite increased protectionism among the OECD countries, export managed to rise from about $2,9 billion in 1980 to 21,6 billion in 1995, averaging a 15 percent annual increase (TSI, 2009). Several factors contributed to the export performance in this period, including growing demand for Turkish products in the Middle East, the Iran-Iraq War, trade missions promoted by the Turkish government, generous export incentives and the availability of substantive excess capacity in the import-substituting industries that were created during the last two decades (Şenses, 1990 and Nas, 2008: 39).

Table 3. Structure of Exports (percent share in total export unless otherwise stated) and Export Intensity in Turkey

	1980	1990	2000	2005	2008
Agricultural products	37,95	13,44	7,17	5,47	4,43
Food	29,98	11,84	6,59	5,22	4,23
Fuels and mining products	4,96	3,57	1,88	3,01	4,71
Fuels		1,21	0,55	1,79	2,98
Manufactures	15,78	35,76	41,77	40,43	41,04
Iron and steel	0,56	6,07	3,45	3,94	6,65
Chemicals		3,04	1,98	1,89	2,24
Pharmaceuticals		0,30	0,28	0,21	0,19
Machinery and transport equipment		3,48	10,61	14,55	15,47
Office and telecom equipment	0,08	1,05	1,89	2,17	0,95
Electronic data processing and office equipment		0,08	0,12	0,05	0,06
Telecommunications equipment		0,10	1,75	2,11	0,87
Integrated circuits and electronic components		0,00	0,02	0,02	0,02
Automotive products	1,11	0,62	2,84	6,34	7,07
Textiles	6,92	5,87	6,87	4,79	3,72
Clothing	2,64	13,57	12,23	8,01	5,37
Total export	100,00	100,00	100,00	100,00	100,00
Merchandise export percentage of GDP	4,45	8,61	10,39	15,18	16,62
Manufactured export percentage of GDP	1,20	5,83	8,35	12,35	13,07
Non-manufactured export percentage of GDP	3,25	2,78	2,04	2,83	3,55

Source: WTO Statistics database.

The establishment of the Customs Union (1996) and the opening of formal accession negotiations (2004) between Turkey and European Union, and the events both in domestic (two severe earthquakes occurred in Marmara region in 1999 and 2000-2001 financial crisis) and the global (Asia crisis in 1997, Russia crisis in 1998 and 2008 financial crisis) levels that took place after 1996 led to a transformation of the Turkish economy. "A crucial element of success evident from the early stages of

the Turkish neo-liberal experiment involved a radical improvement in export performance combined with a structural shift in favor of manufactured exports" (Öniş and Rubin, 2003: 18). As a result of these developments, during the period 1996-2008, Turkey total exports grew at an annual rate of 15,3 percent while GDP growth averaged 4,35 percent annually (TSI, 2009). Better-than-expected export performance was achieved despite a substantial real appreciation of the Turkish lira during 2002-2007. Export managed to rise from about $36 billion in 2002 to 132 billion in 2008, averaging an 18 percent annual increase (TSI, 2009). İzmen and Yılmaz (2009) described this remarkable export performance is in part due to "newly acquired competitiveness of the Turkish manufacturing industries that was forced by the increased competition after Turkey joined the Custom Union". Similarly, the Neyaptı, Taşkın, and Üngör (2007) study found positive relationship between Turkey's trade performance and the Custom Union agreement. Additionally, as emphasized by Utkulu and Seymen (2006) successful export performance may have been the result of an increase in demand in the European Union and Turkey's trade and exchange-rate liberalization policies.

When we analyze the structure of exports, it is obvious that the main stimulus behind the spectacular increase in Turkey's exports was industrial goods exports, whose share in total exports increased from 36,6% in 1980 to about 95% by 2008 (Table 3). With the rapid increase in the share of industrial goods exports, the composition of the total exports changed dramatically in favor of industrial goods. Five major items (namely machinery and transport equipment, automotive products, iron and steel, clothing and textiles) dominates its manufactured exports. During the last three decades, the share of mining, agriculture and textiles and clothing within total exports stagnated, which implies that Turkey moved from being mainly an agricultural goods exporter to an industrial goods exporter. As an OECD (2006) study pointed out that the loss of competitiveness of the most labor-intensive segments of the business sector, such as textiles and clothing, is due in part to the appreciating exchange rate, but also to the increased openness of European trade to much lower-cost competitors from Asia. On the other hand, other more modern capital intensive sectors, such as automobile manufacturing and automotive products, have been successful in maintaining competitiveness through high productivity growth and restrained wage inflation. Foreign participation in more modern capital intensive sectors has a considerable share in this performance.

3. Models of export demand and supply functions

3.1 The Data and Model

In this section, we adopt the form model specification of Kishor Sharma (2003: 442). The above discussions lead to the following specifications of export demand and supply functions, with expected signs given in parentheses.

$$XD = f(REER, WY, LXD) \quad (1)$$
(+) (+)

$$XS = g(PX/P, DD, FDI, LXS, DUM) \quad (2)$$
(+) (-) ?

where XD is the export demand, measured as total export volume index, REER is the real effective exchange rate, defined as the nominal effective exchange rate multiplied by the major trading partners price index and divided by the Turkish price index, WY is world income, proxied by the world GDP in US$, LXD is the log of lagged export demand, XS is the export supply, measured as total export volume index, PX/P is the Turkish export prices relative to domestic prices, where PX is the unit price of Turkish exports in US$ while P is the wholesale price index for Turkey, DD is the domestic demand pressure, proxied by the gross fiscal deficit of the Central Government as a percentage of GDP, FDI is the foreign direct investment, measured as the net inflows of FDI in US$, LXS is the log of lagged export supply. We include a dummy variable to account for structural break. DUM is dummy variable that indicates the opening of formal accession negotiations (2004) between Turkey and European Union. (Appendix A).

The dummy variable is defined by:

DUM = 1 If t = 2004-2009

0 otherwise

3.2. Econometric Results

Models specified above are estimated using annual data for 1982–2009 periods. Since Hausman's specification test indicated simultaneity bias the three-stage least squares (3SLS) procedure is applied. Before estimating the final model the standard unit root test was performed, but there was no evidence of cointegration. Estimates for both the (1) and (2) models are reported in Tables 4 and 5.

The autocorrelation tests for estimated of equation (1) and (2) indicated that the models is quite successful as the residuals pass the white noise test at the same time normality test indicated that the residuals are normal distributed both of equations.

The positive elasticity of export demand with respect to REER implies that the real appreciation of the Turkish Lira adversely affects Turkey exports. This means a 10% appreciation of the Turkish Lira increase export demand by 0.29%. The short-run exchange rate elasticity of export demand is 0.029 which rises to 0.819 in the long-run. Also we do find statistically significant link between Turkey's export performance and world income. The short-run world income elasticity of export demand is 0.018 which rises to 0.511 in the long-run.

Table 4. Results for Export Demand Equation

	(Coefficient)	
Independent variable	**(Short Run)**	**(Long Run)**
Constant	0.150 (-0.431)	
Log of REER	0.0296 (-2.402) **	0.8190
Log of world income	0.0185 (2.636) **	0.5110
Log of lagged exports	0.9638 (43.940)***	
Diagnostic Tests		
Serial correlation [a]	55.710 (Prob: 0.005)	
Normality [b]	5.232 (Prob: 0.073)	
Adjusted R^2	0.97	

[a] Portmanteau Autocorrelation(lag:1) [b] Jarque Berra
** Significant level 5%, *** Significant level 1%.

Table 5. Results for Export Supply Equation

	(Coefficient)	
Independent variable	**(Short Run)**	**(Long Run)**
Constant	0.7202 (2.136440) **	
Log of relative price of exports	0.1518 (2.2595)**	2.8215
Log of domestic demand pressure	-0.0185 (2.636)**	-0.3438
Log of foreign direct investment	0.0127 (2.435440)**	0.2360
Log of lagged export	0.9462 (41.9578)***	
Dummy variable	0.0672 (2.126836)**	
Diagnostic Tests		
Serial correlation[a]	11.181(Prob: 0.0246)	
Normality[b]	4.929 (Prob: 0.085)	
Adjusted R^2	0.99	

[a] Portmanteau Autocorrelation(lag:1) [b] Jarque Berra
** Significant level 5%, *** Significant level 1%.

Results of the export supply function are reported in Table 5. The positive price elasticity of export supply implies that a rise in export prices in relation to domestic prices increases export supply. The price elasticity of export supply rises from 0.151 in the short-run to just over 2.821 in the long-run. More than 50% of the long run effect comes through within a year after the ten year. The negative elasticity of export supply with respect to domestic demand pressure indicates that the export supply declines as domestic demand increases. The elasticity of domestic demand pressure increases from 0.018 in the short-run to 0.3438 in the long-run. Over 50% of the long-run effects appear within a ten year. On the other hand the coefficient of FDI variable is positive and same time statistical evidence, at least at 5% level, to claim that foreign investment has contributed to Turkey's export performance.

4. Conclusion and Policy Implications

Over the last decade Turkey's exports have grown much faster than GDP. Several factors including foreign investment appear to have contributed to this phenomenon. However, as yet there has not been any attempt to investigate the role of FDI in Turkey's export performance with simultaneous equation model.

Using annual data for 1982–2009 we have examined the determinants of Turkey's export performance in a simultaneous equation framework. Results suggest that demand for export increases when Turkey maintains the real depreciation of the Turkish Lira. Thus, inflation should be kept lower than major trading partners and reliance on flexible exchange rate be increased to ensure that the real depreciation of Turkish Lira is maintained. Export supply is positively related to the domestic relative price of exports and a higher domestic demand reduces export supply. This suggests that tight monetary and fiscal policies are necessary especially at the time of high growth to check domestic prices and demand pressure. Foreign investment appears to have statistically significant impact on Turkey's export performance however its coefficient has a positive sign.

On the other hand since 2004 because Turkey becomes the negotiatory country, the rate of foreign direct investment has been grown considerably. In this case, it apparent that the dummy variable seems statistically significant proves this reality. Within this framework, it is clear that should commit the necessary adjustments in order to grow the foreign direct investment.

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Appendix: Data sources

Export volume index; International Financial Statistics (CD-ROM), International Monetary Fund (2010)

Export unit price; index for Turkey and the rest of the world. International Financial Statistics (CD-ROM), International Monetary Fund (2010).

World income; World Development Indicators (CD-ROM), World Bank (2010)

Real effective exchange rate; International Financial Statistics (CD-ROM), International Monetary Fund (2010)

Wholesale price index of Turkey; International Financial Statistics (CD-ROM), International Monetary Fund (2010)

Domestic demand pressure: It is proxied by the gross fiscal deficit of the Central Government as a percentage of GDP Handbook of Statistics on Turkey Economy, Central Bank of Turkey (2009).

Foreign direct investment; World Development Indicators (CD-ROM), World Bank (2010). This is deflated by the Wholesale price index of Turkey, International Monetary Fund (2010)