A Difficult Relationship: Declining (but Productive) FDI Inflows in Turkey

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WORLD BANK GROUP

Macroeconomics and Fiscal Management Global Practice Group

December 2016

Abstract

This paper assesses two research questions: has the presence of foreign firms contributed to productivity increases in Turkey, and how could Turkey increase foreign direct investment inflows? First, the analysis applies dynamic regressions in differences over an AMADEUS firm-level data set. Similar to the results for other emerging countries, Turkish firms that received foreign direct investment will see an increase in productivity after the fourth year. The paper finds evidence of negative but small competition

spillovers over domestic firms in the same sector of the multinational, as well as positive and large knowledge spillovers to domestic firms in broader two-digit sectors. This finding constitutes a case for foreign direct investment attraction policies in Turkey. Second, based on the findings of the cross-country regressions, the paper argues that Turkey could increase its attractiveness to foreign investors by strengthening institutional quality, in particular the rule of law, and mitigating exchange rate volatility.

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A Difficult Relationship: Declining (but Productive) FDI Inflows in Turkey*

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Keywords: foreign direct investment, Turkey, knowledge spillovers, determinants of FDI

JEL classification:

F21 International Investment • F21 Long-Term Capital Movements • F23 Multinational Firms

* This paper has been prepared as a background for the World Bank Country Economic Memorandum (CEM) on Investment in Turkey. The authors thank Ulrich Bartsch and Kamer Karakurum-Ozdemir, team leaders of the report, for the contributions and guidance provided during the elaboration of the paper. The authors are equally grateful to officials at the Turkish Central Bank and the Turkish Ministry of Economy for the valuable feedback provided. This paper has been kindly cleared by Ivailo V. Izvorski, Practice Manager, MFM, and Johannes Zutt, Country Director for Turkey.

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1. The context: Foreign direct investment in Turkey

Under the auspices of international financial institutions, Turkey initiated in the 1980s a successful case of economic liberalization through export oriented policies (see Botarav and Yeldan, 2001). Turkey opened its capital account to international flows in 1989 following a slowdown in economic activity in the late 1980s. Contrary to expectations, foreign direct investment (FDI) remained subdued, averaging just about 0.4 percent of GDP during the 1990s. On the other hand, portfolio inflows increased significantly, and their volatility contributed to heightened macroeconomic volatility and to the crises of 1994 and, especially, 1998-99 and 2001, when the country suffered net portfolio capital outflows above 2 percent of GDP (Ertuğrul and Selçuk, 2001). This is also a typical outcome for emerging markets with fixed exchange rates, high inflation and unrestricted capital inflows.

In the 1990s and early 2000s, and except for India, Turkey lagged significantly behind the rest of the now called BRICs (large emerging economies) in terms of foreign direct investment attraction, as shown in Table 1. According to some scholars, domestic inefficiencies, persisting controls, and red-tape were the reasons behind the struggle to attract foreign direct investment (Celasun et al., 1999), whereas others blame deficiencies in the design and timing of the economic liberalization approach (Önis, 1998; Demir, 2004). In addition, macroeconomic instability and inflation have been often highlighted as significant deterrents of FDI (Erdilek, 2003). Furthermore, the decade of the 1990s was one of frequently changing political coalitions, which might have also hindered capital flows.

Table 1. Average net foreign direct investment to GDP inflows in emerging economies

	1980-89	1990-99	2000-04	2005-08	2009-13
Turkey	0.2	0.4	0.8	3.0	1.6
Eastern Europe and Central Asia median	0.6	1.7	3.6	6.2	3.0
Brazil	0.7	1.5	3.4	2.5	2.9
China	0.6	3.9	3.2	4.7	4.0
Malaysia	3.2	5.8	2.7	3.9	3.3
Mexico	1.2	1.9	3.1	2.4	2.3
India	0.0	0.4	0.9	2.1	1.8
Russian Federation	-	0.7	1.5	3.7	2.9
South Africa	0.0	0.6	1.7	2.1	1.6

Source: World Development Indicators using World Bank MacroStats to Go

Net foreign direct investment inflows to Turkey increased to 3 percent of GDP, on average, in 2005-2008. As envisaged by some authors (Basar and Tosunoglu, 2006), the signaling caused by the official start of European Union (EU) accession negotiations in 2005 seems to have significantly helped increase FDI inflows. This is line with other emerging markets, as in Alfaro, Kalemli-Ozcan, and Volosivych (2008), who show that the most important determinant of FDI is a country's institutional quality. It is also worth mentioning the modifications in the legal framework for foreign direct investment introduced in 2003, as well as increased macroeconomic and political stability as other contributing factors.

In the aftermath of the global crisis, FDI inflows to Turkey have dwindled, declining from 2.1 percent of GDP in 2010 to 1.6 percent in 2014, and in spite of the fact that the economy rebounded quickly from the slowdown in growth experienced in 2009. It is worth noting that this is partly due to the lower inflows to the financial sector, while FDI into utilities and manufacturing increased significantly (Table 2). It has been also argued that lower FDI inflows may be affected by slower than expected progress in the adoption by Turkey of the *acquis communautaire*, allegedly seen as a proxy of institutional development, coupled with diminishing prospects of EU membership (Sánchez-Martín, Escribano, and de Arce, 2015). Concretely, the European Commission (2015), when relating the status of the Turkey's membership process, explicitly mentions a deterioration of rule of law, accentuated in 2014, as one of the main challenges going forward. This could potentially hamper FDI inflows in the future.

Table 2. FDI flows to Turkey by sector, as percentage of total

	2002-2004	2005-2008	2009-2013
Primary sector (including mining)	3.0%	1.2%	2.4%
Secondary sector	29.2%	17.2%	24.7%
Electricity, gas and water supply	8.6%	2.7%	24.7%
Construction	0.6%	1.5%	5.1%
Transport and communications	18.0%	21.1%	4.6%
Financial intermediation	15.6%	47.7%	26.3%
Other services	25.1%	8.5%	12.2%
Yearly average FDI flows in the period (US\$ million)	905	11863	9921
Source: authors' calculations based on Central Bank of Turkey and Ministry of the Treasury data			

Why is foreign direct investment attraction so vital for developing economies? Contrary to other capital flows of short term nature, foreign direct investment is believed to be a stable source of

development financing (Wolf, 2005). The composition of capital flows matters (Tong and Wei, 2011), and for a large open economy such as the Turkish, which presented an average current account deficit of 7.5 percent of GDP in 2010-2013, counting with long-term foreign investment matters. In addition, beyond the macroeconomic implications, firm-level evidence for some developing economies points to the existence of positive productivity spillovers over local suppliers (Javorcik, 2004; Kugler, 2006), as well as other positive pecuniary and knowledge-related externalities.

The purpose of this paper is twofold: first, assessing whether foreign direct investment in Turkey has contributed to growth by generating the micro-level externalities; second, if that is the case, empirically identifying significant driving factors for foreign direct investment, in order to help understand the reasons for Turkey's limited success in attracting inflows, and propose ways to increase the appeal to foreign investors.

The rest of the paper is structured as follows: section two presents firm-level evidence of the impact of FDI on productivity in Turkey; section three presents a cross country approach to the determinants of FDI attraction in Eastern Europe and Turkey; section four draws policy implications for Turkish policy makers; and section five concludes.

2. FDI and Growth in Turkey: Evidence from Firm Level Data

In order to respond to the question on the impact of foreign direct investment on growth, we examine whether multinational firms increased the productivity of Turkish firms who received FDI between 2005 and 2012. We also analyze how this affects the productivity of domestic firms operating in the same or different sectors than the foreign affiliates of the multinationals.

2.1. Data and empirical approach

Our data come from the ORBIS database (also known as AMADEUS for European countries) which is compiled by Bureau van Dijk Electronic Publishing (BvD). It covers 60 countries worldwide, including both developed and emerging countries. ORBIS has financial accounting information from detailed harmonized balance sheets and profit and loss accounts of all companies. In terms of coverage, the database is crucially different from the other data sets that are commonly used in the literature, such as Compustat (for the United States), Compustat Global, and Worldscope databases, in that 99 percent of the companies in ORBIS are private, whereas the data sets mentioned contain information mainly on large listed companies. A fundamental advantage of our data is the detailed

ownership information, encompassing over 30 million “links” between companies and their shareholders. For each target/affiliate/subsidiary company we know the amount of foreign investment in company stock, together with the country of origin of the investor.

We have 7,000+ unique firms over the period 2005 to 2012, amounting to 35,000+ observations. FDI represents 3 to 4 percent of these firms receiving foreign investment, which is a typical average number in Europe (much higher in Latin American countries). The econometric analysis is based on the work by Fons-Rosen, Kalemli-Ozcan, Sorensen, Volosovych, and Villegas-Sanchez (2014).

Two well-known findings in the literature are that multinational subsidiaries generally outperform domestic firms and the most prevalent form of multinational entry is through acquisition, rather than greenfield investment. These facts suggest that the superior performance of companies receiving FDI could be due to multinationals selecting domestic firms which a priori were better performing. It is not straightforward then to gauge how much of the correlation between ownership and productivity is due to selection and how much due to active improvements caused by, say, transfers of superior technologies and organizational practices to foreign subsidiaries. We try to address both sides of this issue. The focus on the manufacturing sector allows us to compare results with those in the existing literature.

Both labor productivity and total factor productivity are computed. Labor productivity is defined as value added to labor ratio, $\log(VA/L_{i,t})$. We construct TFP as the residual from a Cobb-Douglas production function with capital and labor: $\log(TFP_{i,t}) = \log(Y_{i,t} - M_{i,t}) - \alpha_1 \log(L_{i,t}) - \alpha_2 \log(K_{i,t})$, where the coefficients are estimated by the method of Woolridge (2009) that improved upon Olley and Pakes (1996) and Levinsohn and Petrin (2003), as explained in detail in Fons-Rosen et al. (2014). Y is output (operating revenue or sales), M is materials, K is capital (fixed tangible assets) and L is labor.

2.2. Which firms are foreign-owned in Turkey?

In this analysis, we apply the standard OECD definition of FDI: “a direct investment enterprise is an incorporated or unincorporated enterprise in which a single foreign investor either owns 10 per cent or more of the ordinary shares or voting power of an enterprise [...]”.⁵ Prior to

⁵ See [http://unctad.org/en/Pages/DIAE/Foreign-Direct-Investment-\(FDI\).aspx](http://unctad.org/en/Pages/DIAE/Foreign-Direct-Investment-(FDI).aspx), accessed March 13, 2016.a

assessing what is the effect of foreign investment on firm level productivity, a probit regression is run to understand which domestic firms receive foreign investment in the first place, i.e., firm-level determinants of foreign investment. This is presented in the following equation,

$$\begin{aligned} FO_{i,t} = & \beta_0 FO_{i,t-1} + \beta_1 \log(K/L)_{i,t-1} + \beta_2 \log(VA/L)_{i,t-1} + \beta_3 \log(ASSETS)_{i,t-1} \\ & + \beta_4 \log(ASSETS)_{i,t-1}^2 + \beta_5 AGE_{i,t} + \beta_6 AGE_{i,t}^2 + \phi_{st} + \epsilon_{i,t} \end{aligned} \quad (1)$$

where i represents each firm, and t the time. To measure firm productivity, we use $\log(VA/L)_{i,t-1}$, and $\log(TFP)_{i,t-1}$. We find that the only significant predictor of foreign investment is firm and sector productivity—when we replace sector-year fixed effects, ϕ_{st} with sector level productivity—in addition to lagged foreign investment signaling a reputation effect or long term investment effect. All other determinants are insignificant, meaning size or age or capital intensity or being in a certain sector does not influence the investment decision. The key determinant of foreign investment is whether the sector that the firm is operating in is growing (in terms of output), and whether the firm identified by the foreign investor is productive and growing.

It is important to take into account this selection result (which is a typical finding in the literature for other emerging markets) in the analysis presented below, on the impact of FDI on productivity. Otherwise, we would not be able to tell whether a positive correlation between FDI and productivity is due to the fact that foreign firms pick productive firms, or because the arrival of foreign capital increases the productivity of the subsidiary once it receives the investment. Hence, we opt for dynamic lagged difference regressions to leave aside this cherry picking effect.

2.3. Do Foreign-Owned Firms Become More Productive After Receiving FDI?

We ask whether foreign-owned firms become more productive with increased foreign ownership; that is, we estimate dynamic relations with foreign ownership growth and productivity growth.

We estimate the growth in TFP on the change in FO, experimenting with the length of the growth interval. We estimate the following equation:

$$\Delta^k \log(TFP_{i,s,t}) = \beta \Delta^k FO_{i,s,t} + \delta_{s,t} + \epsilon_{i,s,t} \quad (2)$$

where $TFP_{i,s,t}$ refers to total factor productivity of firm i , in sector s , at time t , and $FO_{i,s,t}$ is the percentage of firm i 's capital owned by foreign investors at time t . $\delta_{s,t}$ represents sector-year dummies. The lag-length k takes values between one and four; i.e., $\Delta^k x_t$ is $x_t - x_{t-k}$.

The parameter of interest is the “within” coefficient, β : a positive β implies that changes in foreign ownership are associated with increasing productivity relative to firms that stay domestically owned.

Table 3 examines the relationship between growth in foreign ownership and growth in firm total factor productivity in the manufacturing sector. As we have been emphasizing, accounting for firm selection is crucial and after differencing, all specifications in Table 3 are free of firm-specific time invariant effects.

Columns (1) to (4) of Table 3 show the results for different time horizons. An increase in foreign ownership does not have an immediate impact on productivity— only after four years is there a positive and statistically significant relationship between foreign ownership and firm productivity. The point estimate for the four year differencing is significant at the 1 percent level and implies that a 100 percent increase in foreign ownership is associated with a 1.1 percent increase in firm productivity, so a small effect.

Table 3: Foreign ownership and firm productivity

	(1)	(2)	(3)	(4)	(5)
	$\Delta \ln(\text{TFP})$	$\Delta^2 \ln(\text{TFP})$	$\Delta^3 \ln(\text{TFP})$	$\Delta^4 \ln(\text{TFP})$	$\Delta^4 \ln(\text{TFP})$
$\Delta \ln(\text{FO})$	0.000 (0.003)				
$\Delta^2 \ln(\text{FO})$		0.001 (0.003)			
$\Delta^3 \ln(\text{FO})$			0.002 (0.003)		
$\Delta^4 \ln(\text{FO})$				0.011*** (0.003)	0.011*** (0.003)
Observations	34,128	32,231	28,344	18,138	18,138
Year Fixed Effects	Yes	yes	yes	yes	yes
Sector Fixed effect	Yes	yes	yes	yes	yes
Sector-Year Fixed effect	No	no	no	no	yes

Source: authors' calculations based in the Orbis dataset for Turkey.

Notes: The regressions are estimated by GLS. TFP is total factor productivity, computed using the Wooldridge-Levinsohn-Petrin methodology (WLP). FO is transformed as $(\text{FO}/100) + 1$. FO is the share of foreign-owned equity. Δ^k indicates the change between year t and year $t - k$ where $k = 1, \dots, 4$. Standard errors clustered at the firm level are in parenthesis. ***, **, *, denote significance at 1%, 5%, and 10% levels.

Table 4 undertakes the same analysis but this time focusing on affiliates that are fully owned as opposed to the foreign ownership of more than 10% threshold we used in the previous table. As can be seen, results are very similar, though the economic impact is a little bigger.⁶ The positive productivity effects are still realized after four years. This effect is a typical finding in the literature of effects of FDI on firm productivity. As has been found for Latvia, Lithuania, and Spain by others, and also for other Eastern European countries by Fons-Rosen et al. (2014), in general it takes 3-5 years to realize potential benefits of FDI. This is as expected if FDI is bringing technology and knowhow. Hence, Turkey is not different from other emerging markets in this regard. The reason why the

⁶ Focusing on companies owned more than 50% (majority owned) delivers a very similar result.

economic effect is small is—as we show—FDI comes to the more productive firms in the first place and hence once this effect is controlled for (which is only done by a few papers so far in the literature) further improvements in productivity are small.

Table 4: Foreign ownership and firm productivity—Fully Owned Subsidiaries

	(1)	(2)	(3)	(4)	(5)
	$\Delta \ln(\text{TFP})$	$\Delta^2 \ln(\text{TFP})$	$\Delta^3 \ln(\text{TFP})$	$\Delta^4 \ln(\text{TFP})$	$\Delta^4 \ln(\text{TFP})$
$\Delta \ln(\text{FO})$	0.000 (0.003)				
$\Delta^2 \ln(\text{FO})$		0.001 (0.003)			
$\Delta^3 \ln(\text{FO})$			0.001 (0.003)		
$\Delta^4 \ln(\text{FO})$				0.023*** (0.003)	0.022*** (0.003)
Observations	3008	2889	2765	1823	1055
Year Fixed Effects	Yes	yes	yes	yes	yes
Sector Fixed effect	Yes	yes	yes	yes	yes
Sector-Year Fixed effect	No	no	no	no	yes

Source: authors' calculations based in the Orbis dataset for Turkey

Notes: The regressions are estimated by GLS. TFP is total factor productivity, computed using the Wooldridge-Levinsohn-Petrin methodology (WLP). FO is transformed as $(\text{FO}/100) + 1$. FO is the share of foreign-owned equity. Δ^k indicates the change between year t and year $t - k$ where $k = 1, \dots, 4$. Standard errors clustered at the firm level are in parenthesis. ***, **, *, denote significance at 1%, 5%, and 10% levels.

All these regressions are estimated by feasible Generalized Least Squares (GLS). There is a large difference in the variance of the error terms across firms, so GLS is more efficient. We do this in two steps: first OLS estimation, and then we use residuals from the OLS estimation to calculate firm-specific standard errors which we then use to weight observations in the second step.

In spite of the firm level heterogeneity, sectors are not that different in terms of delivering this result. All our regressions in Table 1 and Table 3 have sector fixed effects and the last columns have sector-year fixed effects (both at 2 and 4 digit sectors). It is clear that the results of last two columns in both tables are very similar. To test the sectoral heterogeneity hypothesis further, we interact FDI

with sector dummies. This exercise yields an insignificant result and hence we are not reporting it. This means that the effect is similar across sectors. Recall that we are working with four-digit sectors within manufacturing so this result is expected. If we worked with sectors like construction, services or agriculture, then the results might differ. Even when the bulk of foreign investment in Turkey is in services, we focus exclusively on the manufacturing sector, where the calculation of firm level productivity is more accurate, as it benefits from correct measurement of capital and materials, and the results are comparable across countries.

Table 5: Foreign ownership and firm employment

	(1)	(2)	(3)	(4)	(5)
	$\Delta \ln(L)$	$\Delta^2 \ln(L)$	$\Delta^3 \ln(L)$	$\Delta^4 \ln(L)$	$\Delta^4 \ln(L)$
$\Delta \ln(FO)$	0.000 (0.003)				
$\Delta^2 \ln(FO)$		0.353*** (0.003)			
$\Delta^3 \ln(FO)$			0.585* (0.25)		
$\Delta^4 \ln(FO)$				-0.293*** (0.001)	-0.123*** (0.001)
Observations	34,128	32,231	28,344	18,138	18,138
Year Fixed Effects	Yes	yes	yes	yes	yes
Sector Fixed effect	Yes	yes	yes	yes	yes
Sector-Year Fixed effect	No	no	no	no	yes

Source: authors' calculations based in the Orbis dataset for Turkey.

Notes: The regressions are estimated by GLS. LHS is log employment. FO is transformed as $(FO/100)+1$. FO is the share of foreign-owned equity. Δ^k indicates the change between year t and year $t - k$ where $k = 1, \dots, 4$. Standard errors clustered at the firm level are in parenthesis. ***, **, *, denote significance at 1%, 5%, and 10% levels.

Table 5 runs similar regressions as above but this time using log employment as the dependent variable. As we can see, there is an initial increase in employment but after four years this effect turns negative. This may mean that domestic content requirements imposed on multinationals upon arrival, in terms of hiring local workers, would vanish after the fourth year. This is not surprising since the four-year mark is also when productivity starts improving. Clearly, efficient use of labor explains part

of the productivity improvement. Using majority control or fully owned affiliates deliver similar results.

2.4. Spillover Effects to Domestic Firms

Studies on FDI spillovers in emerging markets (horizontal and vertical) typically rely on a two-digit industry classification (see, for instance, Javorcik, 2004). Following Fons-Rosen et al. (2014), we define horizontal “competition spillovers” at the four-digit classification for each country:

$$Spillover\ Comps_{s4,t} = \frac{\sum_{i \in s4} FO_{it} Y_{it}}{\sum_{i \in s4} Y_{it}}, \quad (3)$$

where s4 refers to an index for each specific sector, at the four-digit sector classification. We construct the variable for “knowledge spillovers:”

$$Spillover\ Know_{s4,t} = \frac{\sum_{i \in s2} FO_{it} Y_{it}}{\sum_{i \in s2} Y_{it}} - \frac{\sum_{i \in s4} FO_{it} Y_{it}}{\sum_{i \in s2} Y_{it}}, \quad (4)$$

The knowledge spillover variable captures foreign presence in the same two-digit sector, excluding output produced by foreign-owned companies in its own four-digit sector. For example, if a foreign-owned company is a car manufacturer (four-digit sector classification), other car manufactures could be negatively affected by competition spillovers. On the other hand, it is possible that manufactures of electrical and electronic equipment for motor vehicles (classification would establish a business relationship with the company leading to knowledge transfers but not competition. In the literature for vertical linkages and spillovers, the relevant linkage is based on input-output tables at two digits.

Traditionally, the empirical literature has found positive horizontal productivity spillovers in developed countries and negative productivity spillovers in developing countries. Fons-Rosen et al. (2014) show that negative productivity spillovers in developing countries are driven by competition effects in broadly defined sectors and there can still be knowledge spillovers in narrowly defined sectors where firms are not in direct competition.

Columns (1) and (2) in Table 6 reveal a negative and significant effect of foreign owned companies in terms of competition spillovers, meaning in the same four-digit sector, where the latter column uses two digit sector-year effects to control for the fact that FDI will be attracted to high productivity sectors. The negative effect is expected from a direct competition explanation, as local companies would be expected to suffer from the entry in the market of a foreign direct competitor;

nonetheless, the empirical evidence on the existence of this effect is mixed (Javorcik and Spatareanu, 2005). We expect competition effects to be dominant within the same four-digit sector classification, while potential technology and knowledge transfers might come from foreign presence in the same two-digit sector.

Table 6: Competition and Spillovers Within and Between Four Digit Sectors

Dependent Variable: Firm Productivity				
Sample: Domestic Firm				
	All Firms		Continuing Firms	
	(1)	(2)	(3)	(4)
<i>Spillover Competition</i>	-0.077*** (0.005)	-0.015*** (0.004)	-0.057*** (0.005)	-0.018*** (0.005)
<i>Spillover Knowledge</i>	0.346*** (0.032)	0.225*** (0.006)	0.329*** (0.008)	0.119** (0.009)
Observations	36,638	33,354	16,192	16,492
Firm Fixed Effects	yes	yes	Yes	yes
Sector2dig-Year Fixed Effects	NO	YES	NO	YES

Source: authors' calculations based in the Orbis dataset for Turkey.

Notes: Estimation performed by Generalized Least Squares (GLS) where weights are the square root of the firm mean squared predicted residuals. Standard errors clustered at the corresponding level specified in the table are reported in parentheses. Results are obtained based on the sample of firms with no foreign ownership (i.e., firms that were never acquired (in any percentage) by a foreign-owned investor over the period of analysis). The dependent variable is the log of total factor productivity which is computed following Wooldridge-Levinsohn-Petrin methodology (WLP). See the text for the information on the construction of spillover variables.

Once we focus on effects within the thinner four-digit sector classification, where multinationals operate in the same two-digit but different four-digit sectors, we find negative competition effects and positive and significant knowledge spillovers. The point estimates suggest that, if the foreign presence in your same four digit sector doubles, you, as a domestic firm, have 1.5 percent lower productivity due to competition and business stealing effects. But if you are a domestic firm in the same two-digit sector but different four-digit sector than the foreigners, your productivity would be boosted by up to 20 percent.⁷ Columns (3) and (4) show similar results when we use a sample of continuing firms and do not allow for entry and exit.

⁷ It is worth noting that the spillover variables are average foreign ownership shares, i.e., they are between 0 and 1. Thus, productivity would be boosted by 20 percent only when average FO rises from 0 to 100%--not when it doubles from, say, 5% to 10%. In that case, productivity gains could be smaller.

As shown by Fons-Rosen et al. (2014), the competition spillover is negative both for developed countries in Europe and transition economies of Eastern Europe. The coefficient estimate is -0.03 for developed countries and -0.08 for emerging Europe. The coefficient for Turkey is -0.015, which is a much less negative. For the knowledge spillover the coefficient for developed Europe is 0.020 (a much smaller positive than Turkey) and the coefficient for emerging Europe is negative at -0.078. Hence Turkey is unique among its neighboring countries in terms of getting full knowledge spillovers from FDI for domestic firms that are not in direct competition with the multinationals. The reason for this, we suspect, is that Turkey is farther behind in terms of technological frontier and best business practices and the domestic firms truly benefit from the close business relationships with multinationals.

Summarizing, we show that FDI has positive productivity effects on firms that receive the investment only after 4 years. This is a result typically found for other emerging market countries like Turkey in the literature since it takes time for such countries to transfer the technology and knowhow. Moreover, we find that knowledge spillovers are positive and big in Turkey in spite of the negative competition spillovers. The latter effect is a typical result for emerging markets but the former is not. In general spillovers are positive only if they are vertical in emerging markets, meaning in downstream and upstream industries. Here even within the same industry if you are not a direct competitor with the multinationals you, as a domestic firm, benefit from multinational existence in your broad sector. This may have to do with the fact that Turkey still is behind in terms of management practices and technology and knowhow and can benefit a lot from FDI when domestic firms are not competing with foreign owned firms directly in the production of the final good.

Finally, it is worth mentioning that we have a full set of time dummies in our regressions and the coefficients on time dummies (although not reported) are also important, since they become negative after 2009, pointing to the fact that there were some FDI liquidation outflows in Turkey. In the next section, we explore the determinants for foreign direct investment attraction, to try to understand which factors may have influenced the slowdown in FDI attraction in Turkey, and how the situation could be corrected. Given the potential for large knowledge spillovers evidenced by firm level data analysis, there are reasons to encourage foreign direct investment attraction in Turkey.

3. How to attract more foreign investment? A cross country approach to the determinants of FDI

3.1. An eclectic empirical approach to the determinants of FDI

This section revisits the determinants of foreign direct investment in Eastern Europe and Turkey by adopting the cross country analytical framework proposed by Sánchez-Martín et al. (2014). This empirical approach combines different theories concerning foreign direct investment to identify relevant variables to be included in panel data regressions.

According to Dunning (1998), developer of the so-called eclectic Ownership-Location-Internalization (OLI) paradigm, beyond firm-specific determinants, labor endowments and location-bound factors play an important role in multinational decisions to invest. Thus, the empirical model incorporates *enrollment in tertiary education* and *telephone and mobile phone lines per capita* available from the World Development Indicator database of the World Bank (2015), as proxies for human capital and telecommunications infrastructure, respectively. The first is expected to influence foreign direct investment attraction, especially for companies requiring a skilled labor force, whereas the penetration of telecommunications would benefit all multinationals by lowering costs and improving business competitiveness.

Drawing from the OLI paradigm, the Knowledge-Capital Model (Markusen and Maskus, 1999) allows for multiple production facilities, separating cross-support centralized services and disperse production in some multinationals. This approach distinguishes three types of FDI depending on the motivation: export-oriented (vertical), market seeking (horizontal), and resource seeking. The empirical framework presented in this paper incorporates *GDP per capita growth* as proxy for market expansion. It has been found to be one the most robust determinants of horizontal FDI inflow attraction in econometric studies (Artige and Nicolini, 2005). It also includes the level of *trade openness*, defined as the sum of exports and imports as a percentage of GDP, as this would signal economies that are “international trade friendly”, which would positively contribute to vertical FDI attraction. Nonetheless, it is worth noticing that this macro-level cross country analysis does not explicitly distinguish between horizontal and vertical FDI inflows.

In addition, other macroeconomic and country risk variables, such as *inflation*, a typical proxy for macroeconomic stability (Buch and Lipponer, 2004), an *exchange rate stability* index, an *economic risk rating* and a *financial risk rating* are also included as potential determinants of foreign direct investment,

following the empirical literature (e.g. Asiedu, 2002). Note that for the three latter variables, a higher value corresponds to a lower risk. High levels of inflation, exchange rate instability generating currency mismatches, and macroeconomic and financial uncertainty indicating the likelihood of eventual crises are all expected to have negative effects on foreign direct investment attraction.

Aside from endowments, location-bound, and macroeconomic variables, institutions are widely considered to matter for foreign direct investment attraction. For example, as argued by Rodrik, Subramanian, and Trebbi (2004:21), the presence of clear property rights for investors is a key, if not the key, element in the institutional environment that shapes economic performance. A country in which investors believe their property rights are safe would thus be more likely to attract FDI as shown for the first time by Alfaro, Kalemli-Ozcan and Volosovych (2008) and then by others.

Therefore, as discussed in more detail in Sánchez-Martín et al. (2014), the proposed empirical approach pays special attention to institutional variables and introduces a series of institutional indexes elaborated by the PRS Risk Group (International Country Risk Guide), such as *control of corruption*, *rule of law*, *government stability*, *bureaucracy quality*, and *investment profile* (see table with definitions in the Annex). In principle, it would be expected that the higher a country rates in these institutional dimensions, the larger FDI inflows that country would be receiving. Higher control of corruption (less likelihood of patronage, nepotism...) is expected to result in larger FDI inflows, according to the so called “grabbing hand” hypothesis by Egger and Winner, 2006. A *law and order* index, composed of an assessment of the strength and impartiality of the legal system and an assessment of the popular observance of law, is also included in the analysis, and expected to be a key factor for FDI attraction. The *government stability* variable, a valuation of the government’s ability to carry out its electoral program and its ability to stay in office, could be expected to positively contribute to foreign direct investment attraction, although empirical evidence is mixed (Asiedu, 2002). The *quality of bureaucracy* is believed to foster foreign direct investment attraction in the sense that it entails lower administrative hurdles and enhanced policy implementation. Finally, *investment profile*, measuring the likelihood of expropriation, obstacles to profit repatriation, payment delays and risks posed to contract viability is also expected to present a positive sign, given that the higher the rating the lesser the direct obstacles to investment are.

Given the nature of our sample – mostly composed of Eastern European countries during the post-communist era- it is important to add control variables for the important economic transformation these economies have been through. Thus, in order to take into account the recent conversion of Eastern European economies to the capitalist economic system, the cross country

analysis presented in this paper introduces a series of transition indexes elaborated by the European Reconstruction and Development Bank. First, *price liberalization* allows multinationals to have control of price-setting decisions by subsidiaries, thus allowing them to fully reap profits that would not be possible in a centralized economy. Second, a *competition policy* variable is included, although the expected effect on FDI is ambiguous: lower competition in the host economy may mean larger potential gains for a foreign subsidiary that is established; at the same time, a less developed competition policy may imply that the subsidiary faces an established oligopoly that constrains its ability to operate. Third, *privatization* processes associated with economic transition are an opportunity for foreign investors, and positively influence FDI (Mukherjee and Suetrong, 2009).

Regional integration processes are alleged to have a positive impact on foreign direct investment attraction (Kokko and Gustavsson, 2004), although testing this hypothesis runs against numerous empirical challenges. Drawing from previous analytical studies trying to measure the impact of regional integration on FDI, and in spite of the limitations of this approach, we introduce two dummy variables: one capturing accession negotiations with the EU and the second one capturing EU membership (Cartensen, 2004; Gungor and Binatli, 2010; Esiyok, 2011).

Finally, as discussed in Sánchez-Martín et al. (2014), investment decisions in a certain moment may be related to the signaling role provided by the existing level of foreign investment in a country, given that risk-averse investors may be more prone to invest in economies with a greater foreign presence. Nevertheless, given that this study focuses on the institutional and policy related determinants of FDI, we decide to not include this variable in the reported regressions, as the FDI stock is also determined by similar factors to FDI inflows. Results with the stock of FDI considered as an independent variable are nonetheless included in the Annex.

3.2. Cross-country regression results on the determinants of FDI

The empirical analysis in this study is based on a sample made up of 16 countries, essentially from Eastern and Central Europe⁸ and Turkey, over the 1999-2013 period. The relationship between FDI inflows and its determinants is estimated by regressing the following equation,

⁸ Countries included are Albania, Belarus, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Moldova, Poland, Romania, Slovak Republic, Slovenia, Turkey, and Ukraine.

$$y_{it} = \beta_0 + \beta_1 x_{it} + v_i + u_{it}$$

where the dependent variable, yearly FDI inflows as a percentage of GDP (y_{it}),⁹ is modeled as a function of a series of location-related, macroeconomic, institutional, and transition-related determinants (x_{it}), as discussed before. We include country fixed effects (v_i) in all the specifications in order to control for unobserved country specificities. The error term is represented by u_{it} .

In addition, the equation laid out above was estimated using an alternative method of random effects. Although the results are remarkably similar across both specification, the Hausman test confirms in most cases that estimation under fixed effects is preferred to random effects (as the latter estimator turns out to be inconsistent).

Table 7. Im-Pesaran-Shin unit-root test results

Variable	P value
FDI net inflow	0.0000
Inflation	0.0000
GDP growth	0.0074
Openness	0.0000
Law and Order	0.0000
Bureaucracy	0.0000
Government stability	0.0000
Corruption Control	0.0005
Investment Profile	0.0207
Exchange rate risk	0.0000
FDI Stock	0.6377
Tertiary Educ enrolment	0.9501
Tel and mobile subscription	1.0000
Δ Tertiary Educ enrolment	0.0004
Δ Tel and mobile subscription	0.0000

Source: authors' calculations.

⁹ FDI inflows (% GDP) come from the UNCTAD database, and are defined as follows: "For associates and subsidiaries, FDI flows consist of the net sales of shares and loans (including non-cash acquisitions made against equipment, manufacturing rights, etc.) to the parent company plus the parent firm's share of the affiliate's reinvested earnings plus total net intra-company loans (short- and long-term) provided by the parent company. For branches, FDI flows consist of the increase in reinvested earnings plus the net increase in funds received from the foreign direct investor".

We also conduct a series of co-integration tests prior to performing cross country regressions, in order to avoid potential distortions caused by the inclusion of non-stationary variables. The panel data co-integration test developed by Levin, Lin and Chu (2002) and Im-Pesaran-Shin (2003) applied in this paper subtracts cross-sectional means within the panel, in order to mitigate propensity towards rejection of the null caused by the existence of cross-section dependencies (Gengenbach, Palm, and Urbain, 2010.) The results of the test revealed that all the variables are stationary except trade openness, and the proxies for infrastructure and human capital (Table 7). Therefore, in order to prevent potential issues, these variables are included in the regression in first difference, which after transformation does not present a unit root.

Regression results are displayed in Table 8. Overall, the panel is fairly balanced, despite the lack of data for the EBRD transition index for the Czech Republic, and the unavailability of data for the same index in 2013 resulting in the loss of about 30 observations. Regressions (1) to (4) consider the effects of macroeconomic variables (1), to which country risk variables and education and infrastructure are incorporated (2 and 3), together with variables accounting for the economic transition process (4). Specifications (5) to (8) follow the same pattern, but with institutional variables instead of macroeconomic indicators. A caveat to acknowledge is that the fact that a series of significant determinants of foreign direct investment have been identified in cross-country regressions does not imply the causality of the results presented in this section.

On the macroeconomic side, the results suggest that GDP growth, a proxy for market growth rate, is the only variable that seems to be significantly and positively affecting FDI inflows. Nonetheless, the effect seems to vanish as more variables are included, most likely because they are also associated with higher GDP growth. Other macroeconomic variables such as trade openness and inflation do not seem to have played a significant role on foreign investors' decisions over 1999-2013, although the coefficient of exchange rate stability becomes significant once we incorporate institutional variables. The relatively small role apparently played by macroeconomic fundamentals goes against our expectation, but may be explained by the fact that FDI decisions consider a large range of factors simultaneously. Furthermore, investment decisions under high macroeconomic uncertainty contexts, such as those occurring during a period of economic transition, may require more time to consider the environment as stable and hence be pushed back to later – which makes it difficult to capture their effects under this setting (Trevino et al., 2002). Similarly, the estimation results show that human capital, proxied by enrollment in tertiary education does not appear to influence FDI inflows. This suggests that most foreign investors in Eastern Europe were not seeking a highly

skilled labor force.

Table 8. Regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GDP growth rate (3 y ma)	32.15*** (10.11)	29.87*** (8.888)	18.41* (10.24)	16.14 (12.88)					14.02 (9.991)
Δ Trade Openness	3.947 (2.570)	4.425 (2.697)	4.809 (2.991)	3.981 (3.665)					5.399 (3.561)
Inflation (3 y ma)	-0.003 (0.002)	0.001 (0.002)	-0.0001 (0.003)	0.0042 (0.005)					
Investment profile		0.271 (0.297)				0.493* (0.257)			0.178 (0.238)
Δ Enrolled in tertiary ed.			0.00646 (0.077)	-0.0346 (0.066)					0.049 (0.083)
Δ Fixed and mobile lines			0.136** (0.0515)	0.110* (0.0569)					0.121** (0.0457)
Economic risk rating			-0.0533 (0.112)	0.0131 (0.121)			0.0999 (0.0601)	0.116 (0.0691)	-0.0840 (0.131)
Exchange rate risk			0.0367 (0.0904)	0.0408 (0.115)			0.209* (0.117)	0.233 (0.134)	0.243* (0.133)
Large privatization				3.120* (1.670)				6.005*** (1.762)	
Price liberalization				-1.172 (1.667)				-3.465** (1.222)	
Competition policy				-0.977 (1.678)				-2.035* (1.073)	
Law and order (t-1)					2.709** (1.125)	2.636** (1.009)	2.678** (1.115)	2.504** (1.006)	2.446** (0.928)
Government stability (t-1)					0.369** (0.127)	0.342*** (0.116)	0.395** (0.139)	0.354** (0.139)	0.108 (0.198)
Corruption (t-1)					-0.635 (0.828)	-0.201 (0.825)	-0.450 (0.836)	-0.647 (0.760)	
Bureaucracy quality (t-1)					-0.0954 (0.841)	-0.663 (0.935)	-0.0761 (0.880)	-1.791* (0.989)	
Constant	3.401*** (0.456)	1.048 (2.795)	4.284 (3.099)	-0.410 (10.45)	-7.751* (3.787)	-11.48** (5.075)	-13.6*** (4.556)	-8.975 (6.985)	-9.07** (4.225)
Observations	238	238	228	195	224	224	224	187	214
R-squared	0.109	0.118	0.195	0.196	0.097	0.119	0.120	0.184	0.261

Source: author's calculation. ***, **, *, denote significance at 1%, 5%, and 10% levels.

It is worth noting a strong increase of the R squared when the number of mobile phone and fixed line subscriptions, a proxy for telecommunications infrastructure, is included in the regressions.

It could be argued that there could be “endogeneity” associated to this variable, especially considering that Turkey has experienced large FDI inflows into this sector since 2005. However, this proxy variable is not directly associated to the amount of FDI in communications (coming to Turkey to buy the physical and intangible assets). Second, mobile and fixed phone subscriptions in Turkey have grown steadily from 1999 through 2008; thus, the process had already begun before the 2005-2008 FDI inflow boom. Third, it is worth considering that Turkey is only one of the 16 countries of which the sample is made.

Furthermore, in order to ensure that the results are robust to alternative specification, and do not suffer from major simultaneity problems, we have performed alternative Generalized Method of Moments estimation following Arellano and Bond (1991), which produces very similar results to those presented in our original econometric specification. Lastly, dropping the infrastructure proxy does not qualitatively affects the results either.

Moving to the institutional variables, the results point to a large positive and significant relationship between FDI inflows and ‘law and order’. This is in line with our expectations that the enforcement of the law is a key determinant of foreign investors’ decisions. Government stability and its capacity to implement programs and reforms also appear to have positive and significant impact on the attraction of FDI. Other institutional and political variables such as corruption control, bureaucracy quality and investment profile do not seem to attract more FDI as they improve over time. This may be because they are intimately related with the improvement of other institutional factors and relate closely to the general level of development of an economy.

Transition variables are essential control variables in this group of countries, but they seem to have played a mixed role in fostering FDI. Indeed, on the one hand, the quality of competition policy and the progress in price liberalization have not contributed to attract FDI and, to the contrary regression (8) suggests that better competition rules and price liberalization could have deterred FDI inflows when macroeconomic fundamentals are not controlled for, although the results are barely significant. On the other hand, large scale privatization is positively and significantly associated with larger FDI inflows, confirming that a higher degree of privatization provides investment opportunities that are related to competition effects or first-mover advantage seekers (Bellak and Leibrecht, 2011).

The regression results displayed in Table 9 offer a comparison of three specifications summarizing the previous results, using respectively country fixed effects, country fixed effects and

control for EU accession/negotiations, and country and time fixed effects as robustness checks.¹⁰ Overall, these results, based on a more selective set of variables, reinforce the conclusion from equations (1) to (8): law and order and phone lines are strongly significant across all specifications.

Equations (12) to (14) provide interesting insights about the role of EU accession prospects in attracting FDI. Indeed, the EU negotiation dummy has a positive and significant coefficient in most of the regression results, backing up the argument that accession talks tend to matter more than formal accession in driving investor appetite for investment in one country.

Furthermore, exchange rate risk becomes a significant factor of FDI inflows when one does not control for EU candidacy or time fixed effects, suggesting that the prospect for EU accession may have played a role in anchoring exchange rate stability expectations. This result is in line with Bevan and Estrin (2004) who argue that foreign investors viewed the prospects for EU memberships in Eastern Europe as a positive signal regarding the quality of macroeconomic management, political stability and institution quality because EU accession implies the compliance with strong requirements. Similarly, large scale privatization appears to be strongly significant when EU accession dummies are not included.

¹⁰ Other robustness checks have been carried out. Overall, after smoothing the series with 3 years moving average and logarithm transformations respectively, the results remain vastly unchanged. A crisis dummy was also included, and did not suggest that a break in the series occurred after the crisis erupted.

Table 9. Additional regression results, including EU and time controls

(FE with robust SE)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
	Country FE			Country FE and EU dummies			Country and Time FE		
GDP Growth rate	14.72*	11.76	15.72*	16.25**	14.19*	16.43*	-3.917	-5.997	-8.865
	(8.161)	(7.550)	(8.841)	(7.041)	(7.090)	(7.776)	(14.24)	(14.83)	(17.91)
Δ Trade Openness	3.874	4.358*	4.156	3.996	4.316*	4.462	5.191	6.185	5.177
	(2.399)	(2.476)	(2.585)	(2.335)	(2.428)	(2.561)	(4.623)	(5.037)	(5.170)
Δ Enrolled in tertiary ed.	0.0431	0.0520	0.0315	0.0210	0.0273	0.0254	0.0919	0.0996	0.0258
	(0.0785)	(0.0777)	(0.0770)	(0.0878)	(0.0897)	(0.106)	(0.0808)	(0.0826)	(0.103)
Δ Fixed&mobile phone lines	0.125**	0.124**	0.0994*	0.133**	0.131**	0.106**	0.103**	0.104**	0.0607
	(0.0470)	(0.0460)	(0.0492)	(0.0475)	(0.0470)	(0.0476)	(0.0465)	(0.0461)	(0.0391)
Law and order	2.321**	2.539***	2.409**	2.374**	2.499**	2.504**	2.469***	2.527***	2.026**
	(0.812)	(0.856)	(0.894)	(1.020)	(1.040)	(1.080)	(0.804)	(0.834)	(0.838)
Exchange rate risk		0.212*	0.233*		0.142	0.221		0.186	0.196
		(0.108)	(0.128)		(0.124)	(0.136)		(0.169)	(0.187)
Large scale privatization			3.022**			2.046			5.021*
			(1.348)			(1.500)			(2.701)
EU accession candidate				2.326**	2.124**	1.799***			
				(0.826)	(0.921)	(0.587)			
EU member				0.410	0.336	0.382			
				(1.292)	(1.291)	(1.650)			
Constant	-6.733*	-9.466**	-18.8**	-8.912*	-10.46*	-17.39**	-7.055	-8.561*	-21.2**
	(3.677)	(4.381)	(7.327)	(5.064)	(5.425)	(7.199)	(4.284)	(4.702)	(8.812)
Observations	214	214	183	214	214	183	214	214	183
R-squared	0.247	0.254	0.253	0.266	0.269	0.260	0.318	0.322	0.336
Number of countries	16	16	15	16	16	15	16	16	15

Source: author's calculation. ***, **, *, denote significance at 1%, 5%, and 10% levels.

4. Policy implications for Turkey

As discussed in section 2, Turkey traditionally struggled to attract foreign direct investment, until the country saw a change in fortune in 2005. As discussed in more detail in Sánchez-Martín et al. (2014), the jump in FDI inflows observed in 2005-08 is likely to have to do with the signaling caused by the official launch of *EU* accession negotiations, among other factors. This seems to be corroborated by the significant coefficient of the EU membership dummy variable present in the cross-country empirical analysis conducted for this paper.

However, in the context of the international economic crisis and the crunch in Southern EU members, starting in 2009, foreign direct investment slowed down. Net FDI inflows to Turkey halved to 1.6 percent of GDP in 2009-2013, from 3 percent of GDP in 2005-2008. This compares to a regional median for countries in Eastern Europe of 3 and 6.2 percent of GDP, respectively, over the same periods. Interestingly, other developing countries (e.g. large Latin American economies) have not experienced a significant decline in FDI inflows over the past five years, which seems to suggest that new EU member countries and other economies with strong ties with the European Union may be suffering from the convulsed economic and political situation traditional investor or partner countries are going through.

In the case of Turkey, EU27 originated FDI inflows decreased from a value of close to US\$14 billion in 2006-08 to roughly US\$5.5 billion in 2009-10. Foreign direct investment inflows after the 2009 crisis have been mainly sustained thanks to capital accruing to the energy and utilities sector in a context of liberalization. The empirical analysis has shown that in fact privatization seems to have played a significant role in FDI attraction in Eastern European countries. However, as *privatization* and liberalization processes in Turkey are completed in most sectors, this will no longer be a driving force for FDI inflows.

Drawing from the cross-country empirical results presented in the previous section, we try to understand which other factors, apart from the EU crisis and low-spirited prospects for EU accession, may have contributed to the slowdown in FDI inflows to Turkey. We also discuss which policies could be designed to try to correct this trend. This is especially important for the economic development of Turkey, as we have found empirical firm-level evidence pointing to a large and positive contribution of FDI to the productivity of local companies through knowledge spillovers.

Firstly, cross-country regressions identify the existing stock of FDI in a given country as a significant determinant of FDI inflows, since there seem to be some sort of agglomeration and/or

signaling effects. Turkey's level of net stock of FDI (20 percent of GDP) is significantly lower than the average level of stock in other Eastern European countries (50 percent of GDP). This may help partly explain significantly smaller FDI inflows to Turkey, a country that may not be perceived as a cradle for long term investment.

Second, foreign direct investment attraction is found to be negatively affected by exchange rate risk. It may be argued that, by introducing macro-prudential measures to mitigate *exchange rate variability* caused by volatile capital flows, Turkey would gain attractiveness for long term foreign direct investment attraction. Some macro-prudential measures are already under implementation (see Fendoglu, Kilinc, and Yörükoglu, 2014).

Figure 1. Evolution of foreign direct investment and the exchange rate risk index

Source: authors' elaboration from UNCTAD, ICRG

Another significant determinant of foreign direct investment is the proxy for *telecommunications infrastructure*. Data from the World Development Indicators suggests that the penetration of mobile and fixed lines in Turkey, very fast until 2008, has stagnated, as shown in Figure 2. This implies an expansion in the phone line subscriptions gap with respect to new EU members, which could also suggest slower technology adoption. Public policies aimed at fostering the penetration of telecommunications at competitive rates could be helpful in terms of foreign direct investment attraction. Public investment in other types of infrastructure (e.g. roads, ports) not included in our econometric analysis, may also contribute to the arrival of foreign multinationals.

Figure 2. Evolution of foreign direct investment and telephone penetration

Source: authors' elaboration from UNCTAD, ICRG

A third opportunity for Turkey to increase its appeal to foreign investors would imply strengthening institutions. The cross-country econometric analysis presented in the previous section suggests that, over the past two decades, government stability and law and order have been key determinants of foreign direct investment in Eastern European countries. The International Country Risk Guide *government stability* index, composed of measures of government unity, legislative strength and popular support, has been in Turkey higher than the regional average. This reflects the political stability the country has enjoyed under the *Adalet ve Kalkınma Partisi* era, inaugurated in 2001, which may have arguably helped increasing FDI inflows.

On the other hand, however, Turkey has traditionally underperformed in terms of *law and order*, understood as a product of the strength and impartiality of the legal system and the popular observance of the law. The *law and order* index for Turkey declined starting in 2011, in a context of a series of controversial judiciary system reforms, which may have undermined the separation of power in the country. It could be argued that these institutional indexes cannot *per se* reflect the complex and varied nature of institutions across the world (e.g. think of China). Nevertheless, in the same way that sovereign risk ratings by credit agencies influence investment decisions (even if they may present caveats), international investors do take these institutional indexes into consideration when deciding among a few countries in the same region to host their subsidiaries. Thus, any action taken by the Turkish authorities to correct the perceived deterioration in *law and order* would be likely to help enhance FDI attraction.

Figure 3. Average law and order and investment profile indexes, 2010-13.

Source: authors' elaboration from UNCTAD, ICRG

It is also worth mentioning the *investment profile* variable included in the analysis, which reflects contract viability (expropriation risk), profit repatriation policies, and likelihood of payment delays. The coefficient for this variable is only significant when macroeconomic variables are not included in the analysis (see specification 6), probably because strong institutions tend to come hand in hand with better macroeconomic management. Interestingly, in Latin America and the Caribbean, over the period 1991-2010, the investment profile was the most significant variable for foreign direct investment attraction, while law and order was not (see Sánchez-Martín et al., 2014). Countries in which there had been notable cases of expropriation during the past decade (República Bolivariana de Venezuela, Argentina, Bolivia) saw their FDI inflows sharply decline. As reflected in section 3, the fact that Turkey at the moment not only seems to lag behind in terms of rule of law, but also in terms of protection of investors, suggested that it may just be the other side of the same coin. Thus, strengthening the investor protection framework could potentially help reap some FDI gains, although in this case the empirical evidence is mixed.

Finally, as evidenced by the firm level analysis, the existence of highly significant and positive knowledge spillovers in Turkey calls for policies aimed both at FDI attraction and also at facilitating

the interaction between foreign and domestic firms. The latter would include programs for capacity building which allow domestic firms to become competitive suppliers of multinationals, and the development of entrepreneurial parks for both domestic and foreign firms, among others.

Summarizing, since the presence of foreign subsidiaries in Turkey is having a significant productivity-enhancing effect in domestic firms, there is a case for authorities to actively pursue the attraction of long-term foreign capital. In a context of slowdown in the EU accession and privatization processes, achieving larger FDI inflows in Turkey would need mitigating exchange rate variability, expanding infrastructure (penetration of telecommunications), and strengthening institutions (property rights protection and law and order).

5. Conclusion

This paper has addressed two main research questions: firstly, understanding the extent to which foreign investment is contributing to productivity gains by domestic firms (both the firms receiving the investment and other, related firms) and thus, indirectly, to economic growth; and, secondly, identifying the determinants of foreign direct investment attraction, in order to understand how the Turkish economy, which traditionally underperformed in terms of FDI inflows, could increase its appeal to foreign investors.

In order to tackle the first question we draw from the ORBIS/AMADEUS data set, featuring financial accounting information from detailed harmonized balance sheets and profit and loss accounts for 7,000 companies established in Turkey, over the period 2005-2012. This data set has also the advantage of providing detailed ownership information, including the “links” between companies and their shareholders, together with the country of origin of the investor. Both labor productivity and total factor productivity (as in Woolridge, 2009) are computed. We first find that the main (and only) determinant of foreign direct investment at the micro level is firm and sector productivity. Thus, to mitigate a potential selection bias, we opt for a dynamic regression in differences, following Fons-Rosen et al. (2014).

We find that firms that receive foreign direct investment in Turkey see an increase in their productivity four years after the arrival of foreign capital. In this sense, Turkey is not different from other countries; it is a well-established finding in the literature that, in general, it takes 3-5 years to realize potential benefits of FDI. On the other hand, while there is evidence of an increase in

employment during the second and third years of the foreign investment, this positive effect disappears during the fourth year, which suggests some sort of staff consolidation exercise contributing to productivity increases.

We also look for spillovers on local firms, stemming from the presence of foreign owned companies. Following Fons-Rosen et al. (2014), we define horizontal “competition spillovers” in narrowly defined sectors (four-digit classification), as the entry of highly competitive foreign owned companies is likely to impact on local competitors. At the same time, we define a “knowledge spillover” variable that captures foreign presence in the same two-digit sector, excluding output produced by foreign-owned companies in the same four-digit sector (which would be the direct competitors). We find that, even if there is a small and negative competition spillover impacting domestic companies in narrowly defined sectors, there is also strong evidence of large and positive knowledge spillovers to domestic companies in the broader two-digit sector. This is a very important finding, since Turkey is unique among its neighboring countries in terms of getting full knowledge spillovers from FDI for domestic firms that are not in direct competition with the multinationals. Thus, we argue that there is a strong case for the design of policies aimed at increasing foreign direct investment attraction in Turkey, with the aim of helping unleash economic development.

To reply to our second research question, how Turkey can attract larger FDI inflows, we build a panel of data for 16 Eastern European economies (and Turkey) over the period 1999-2012. Drawing from an eclectic theoretical framework based on existing literature, and following Sánchez-Martín et al. (2014), we include in our empirical experiment a series of macroeconomic, endowment and infrastructure-related, institutional, and risk variables, and conduct a series of cross-country estimations using fixed effects. In line with previous literature focusing on Eastern and Central Europe (Cartensen, 2004, Bevan, 2004), exchange rate stability, mobile phone penetration, government stability, law and order, privatization, and EU candidacy are all significant determinants of foreign direct investment. Nonetheless, it is worth mentioning that the fact that a series of significant determinants of foreign direct investment have been identified in cross-country regressions does not imply the causality of the results.

Turkey is a country that over the past three decades has underperformed with respect to other large emerging economies (BRICs) in terms of foreign direct investment inflows. Only after the beginning of accession negotiations to the European Union, the country was able to significantly increase foreign direct investment inflows. However, as the privatization process comes to an end, and EU accession prospects cool down, attracting FDI is likely to become increasingly difficult. In

fact, FDI inflows in 2009-2013 have already been halved (1.6 percent of GDP), if we compare to 2005-2008.

We argue that, apart from the slow progress in the adoption of the *acquis-communautaire* and the internal crisis in the EU negatively affecting FDI prospects, Turkey may have missed some opportunities due to a perceived deterioration in its rule of law since 2011. Thus, strengthening institutions and ensuring the independence of the judiciary may be needed to increase the appeal to the foreign investors. In addition, the introduction of macro-prudential policies to mitigate exchange rate volatility caused by short-term portfolio inflows could also help attract long-term FDI in Turkey.

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7. Annex

Table 10. Alternative regression results including the lagged stock of FDI

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Lag Stock FDI (%GDP)	0.0237 (0.0339)	0.0184 (0.0359)	0.0156 (0.0430)	0.00145 (0.0361)	-0.00164 (0.0371)	0.00491 (0.0401)	0.00769 (0.0333)	0.00869 (0.0328)	0.0174 (0.0354)
Growth rate	16.66 (9.865)	13.77 (10.05)	16.88 (10.95)	16.38** (7.507)	14.02* (7.798)	16.84* (8.406)	-3.922 (14.22)	-6.028 (14.81)	-9.140 (17.80)
Δ Openness	3.859 (2.292)	4.264* (2.375)	4.123 (2.550)	3.997 (2.352)	4.318* (2.429)	4.439* (2.509)	5.110 (4.465)	6.105 (4.897)	4.904 (4.833)
Δ Enrolled in tertiary ed.	0.0469 (0.0714)	0.0535 (0.0727)	0.0329 (0.0753)	0.0206 (0.0836)	0.0278 (0.0856)	0.0235 (0.0991)	0.0885 (0.0812)	0.0959 (0.0826)	0.0154 (0.101)
Δ Fixed and mobile lines	0.127** (0.0473)	0.126** (0.0468)	0.101* (0.0498)	0.133** (0.0454)	0.131** (0.0451)	0.106** (0.0463)	0.103** (0.0468)	0.104** (0.0464)	0.0617 (0.0401)
Law and order	2.725* (1.335)	2.816** (1.299)	2.652* (1.359)	2.388* (1.358)	2.484* (1.334)	2.549* (1.419)	2.546** (1.108)	2.614** (1.142)	2.199* (1.184)
Exchange rate risk		0.176 (0.131)	0.216 (0.144)		0.144 (0.131)	0.217 (0.143)		0.188 (0.174)	0.196 (0.190)
Large scale privatization			2.601* (1.430)			2.017 (1.552)			5.030* (2.696)
EU accession candidate				2.295* (1.206)	2.158 (1.248)	1.686* (0.921)			
EU member				0.383 (1.057)	0.366 (1.046)	0.296 (1.377)			
Constant	-9.421 (7.048)	-11.09 (6.816)	-18.91** (7.628)	-8.996 (6.967)	-10.38 (6.875)	-17.51** (7.888)	-7.539 (6.102)	-9.127 (6.596)	-22.33** (10.13)
Observations	214	214	183	214	214	183	214	214	183
R-squared	0.253	0.258	0.255	0.266	0.269	0.260	0.319	0.322	0.338
Number of countries	16	16	15	16	16	15	16	16	15

Source: authors' calculations

Table 11. Variable definitions

Variables	Source	Variable definition
Dependent variable: Net FDI inflows (%GDP)	UNTCAD database on FDI.	FDI are on a net basis (capital transactions' credits less debits between direct investors and their foreign affiliates), or net acquisitions of assets (outward FDI) and net incurrence of liabilities (inward FDI)
Macroeconomic variables		
Growth rate	WDI	GDP per capita growth at 2005 constant prices
Openness	WDI	It is measured as the exports plus the imports divided the GDP of one particular country in a given year
Inflation	WDI	Inflation as measured by the consumer price index reflects the end-of- percentage change in the cost to the average consumer of acquiring a basket of goods and services
Infrastructure and human capital		
Infrastructure	WDI	Number of telephone and mobile phone line subscription
Human capital	WDI	Enrollment in tertiary education (%)
Institutions		
Law and order	PRS Group: International Country Risk Guide (ICRG)	The "law" sub-component assesses the strength and impartiality of the legal system, and the "order" sub-component assesses popular observance of the law.
Government stability	PRS (ICRG)	A measure of both of the government's ability to carry out its declared program(s), and its ability to stay in office. The risk rating assigned is the sum of three subcomponents: Government Unity, Legislative Strength, and Popular Support.
Corruption	PRS (ICRG)	A measure of corruption within the political system that is a threat to foreign investment by distorting the economic and financial environment, reducing the efficiency of government and business.
Bureaucracy quality	PRS (ICRG)	In low-risk countries, the bureaucracy is somewhat autonomous from political pressure.
Investment profile	PRS (ICRG)	A measure of the factors affecting the risk to investment that are not covered by other political, economic and financial risk components. The risk rating assigned is the sum of three subcomponents: Contract Viability/Expropriation, Profits Repatriation, and Payment Delays.
EU membership and candidacy announcement	EU	
Country Risk		
Risk for exchange rate instability	PRS (ICRG)	Annual percentage change in the exchange rate of the national currency against the USD (against the EUR in the case of the USD; prior to 2000, to the DM).
Economic risk rating	PRS (ICRG)	A means of assessing a country's current economic strengths and weaknesses. Risk points are assessed for each of the component factors of GDP per head of population, real annual GDP growth, annual inflation rate, budget balance as a percentage of GDP, and current account balance as a percentage of GDP.
Transition variables	EBRD transition database	The transition indicator scores reflect the judgment of the EBRD's Office of the Chief Economist about country-specific progress in transition. More information available on the EBRD website.
Privatization		Index of the level of Privatization
Price liberalization		Index of the level of Price liberalization
Competition policy		Index of the level of Competition policy

Source: authors' elaboration