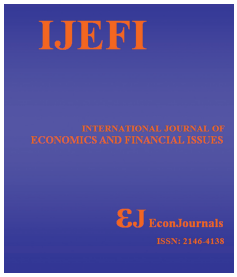

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FDI and Indirect Taxes - Sector Approach: The Case of Turkey

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ABSTRACT

This study aims to investigate the relationship between indirect taxation and foreign direct investments in Turkey. We benefit from a quarterly data set covering the period 2006:Q1-2016:Q1 and employ bounds testing approach of Pesaran et al. (2001). We also employ error correction model in order to determine short-run coefficients. Our results obtained from bounds test confirm the cointegration relationship between total indirect taxes and foreign direct investments. We also expand our analysis by focusing on the effects on sub-sectors. While the bounds testing approach confirms the cointegration relationship between indirect taxes and foreign direct investments in manufacturing sector, we find no evidence for a cointegration relationship in the tertiary sector. The test result is also inconclusive for agricultural sector. Moreover, the results of error correction models suggest no statistically significant effects in the short-run.

Keywords: Fiscal Policy, Indirect Taxes, Tax Competition
JEL Classifications: E60, E62

1. INTRODUCTION

Economic growth and improving the well-being of people have been main economic targets throughout the history. Some countries are in an advantaged position in order to achieve these targets as they already are well endowed with high levels of inputs in both quantity and quality. Nevertheless, some other countries are not so fortunate and suffer from poverty and middle income traps. Especially the scarcity of capital is a rather distinct in developing world, and these countries try to eliminate the deficiency from foreign capital resources. Foreign direct investments are also seemed to be attractive as they provide transfer of technology (know-how), production method, trade secrets and so on. Therefore attracting foreign direct investments is usually seen as a solution for some countries in order to get rid of their disadvantaged positions.

With the globalization process, considerable amount of restrictions on trade and capital flows are reduced and firms aiming to maximize their profits start to seek low cost advantaged solutions all over the world. That is why the amount of foreign direct investments have increased substantially, especially after 1980s. According to World Investment Report (UN 2015. p. 5) of United Nations, global direct investment inflows are nearly $1.23 trillion in 2014. Considerable amount of the total foreign direct investments have been directed to the developed regions as the investors take into account some factors such as macroeconomic conditions and political stability. Nevertheless, as United Nations (2015. p. 5) suggests five developing economies[1] managed to be among the top 10 foreign direct investments recipients in the world in 2014. Taking into account the driving power of foreign direct investments on income level, countries are still in an effort to attract more of them. In that context, clarifying the determinants of foreign direct investments is a crucial subject especially for less developed or developing countries.

The economic literature has a reasonable number of studies that try to explore the determinants of foreign direct investments. And, these studies usually focus on some conventional factors such as direct taxes (especially corporation taxes), price stability, exchange rate stability, budget deficits, political stability, social cohesion and so on. However, less attention has been paid to a different possible

1 These countries are: China, Hong Kong China, Singapore, Brazil and India, respectively.

determinant: Indirect tax. Yet, some motives can be listed in order to focus on indirect taxes in particular.

The effects of indirect taxes on foreign direct investments may differ from the effects of direct taxes. Desai et al. (2004) list possible channels for the differences. First, direct taxes generate transfer pricing motives, but there is no motive in case of indirect taxes. Secondly, income taxes encourage firms to reduce their capital-labor ratios and therefore foreign direct investments. However such an effect will be less for indirect taxes. And thirdly, firms in some countries such as US may be ineligible to claim foreign tax credits for some indirect tax payments. Therefore, they will possibly be as sensitive as the local firms to indirect tax differences. Moreover, foreign direct investments cannot leave the host country quickly, therefore their investors have to face with the economic risks and responsibilities of the country. In that context, exploring the effects of indirect taxes in particular is a crucial subject.

It is also worth to note that the effects of indirect taxes on foreign direct investments may differ according to various sectors due to the aim of the production. For example a firm in a manufacturing sector may be more motivated to produce in order to export than a firm operating in a small personal service sector. And if so, as the producers now have a lot of competitors from all over the world, they will be more motivated to decrease their costs. And as they are not subject to same tax rates, their decisions about foreign direct investments may be more sensitive to the host country's taxation. While mentioning to the theory of economic base[2] Thulin (2014. p. 2) states that production is either sold locally (non-basic activities) or exported to other regions or countries (basic activities). Moreover he suggests that the activities belonging to the basic sector are typically found in manufacturing, agriculture, mining and tourism while examples of industries mostly comprising non-basic activities include retail and personal services. Therefore, the effects of indirect taxes on the foreign direct investment inflows may differ for different sectors and analyzing the relationship on a basis of sub-sectors becomes more of an issue.

Taking into account the previous debates we may suggest that the contribution of our study to the previous literature is two-fold: First, our study aims to test the effects of taxes on foreign direct investments by focusing only on the indirect taxes. To the best of our knowledge, this study is the first in examining the relationship between indirect taxes and foreign direct investments in Turkey. Secondly, we expand our analysis by taking into account the foreign direct investments on a sectoral basis. For that purpose we benefit from the data of foreign direct investments on agricultural, manufacturing and tertiary sector. Moreover, while testing the relationship empirically we benefit from a quarterly data set covering the period 2006:Q1-2016:Q1 and bounds testing approach of Pesaran et al. (2001) that gives consistent results for a set of regressors which are a mixture of I(0)/I(1) variables.

2 The theory of economic base mainly suggests that economic wellbeing of a region depends on the level of its export activity. Detailed information can be found in Andrews (1953).

The paper is organized as follows. Section 2 represents a literature review about the effects of taxation on the level of foreign direct investments. The data, methodology and the estimation results are given in Section 3. The study is concluded and some policy recommendations for Turkey are given in Section 4.

2. LITERATURE REVIEW

Taxation seems to be widely accepted determinant of foreign direct investments according to previous literature. Simmons (2003. p. 106) draw attention to the reduction in capital controls and foreign exchange restrictions. Accordingly, capital controls and foreign exchange restrictions have been reduced or completely removed in most of the countries, therefore tax differentials amongst nations remain one of the few distortions to the free flow of international capital. Among a number of different indicators of taxation such as tax holidays, investment tax credits and tax reductions the literature is heavily concerned with the tax rates and tax revenues as they can be measured easily.

There exists a number of studies that try to explore the relationship between taxes and foreign direct investments, however here we try to mention to the most recently ones. We also ignore the studies that focus on a single country. So, we represent the results of the studies that investigate the relationship for more than one country and next we only mention to studies for Turkey among the single country cases.

The study of Devereux and Freeman (1995) is one of the pioneer studies that examine empirically the role of taxation on the choices about foreign direct investments. By using data of seven major trading countries covering the period 1984-1989, they conclude that the choice between domestic and outward foreign direct investments is not affected from taxation. Nevertheless, they also suggest that the choice about the location of outward foreign direct investments is affected by taxation.

The more recent studies has reached more significant relationship between taxation and foreign direct investments. Of those studies, the study of Gropp and Kostial (2000. p. 4) is the first paper that establish an empirical link between foreign direct investments and corporate tax revenues, not just corporate income tax rates. By using a panel data set of 25 OECD countries for the period 1988-1997, they conclude that taxes indeed play an important role for foreign direct investment flows. Furthermore, their results suggest that high tax countries such as Germany and Italy will gain revenue from tax harmonization in EU whereas low tax countries such as Ireland will suffer a loss from harmonization.

Again by using a panel data set, Gorter and Parikh (2003) investigate the effects of the changes in the corporate tax rates of a EU country on the foreign direct investments and they confirm the effectiveness of the tax rates. A later study by Benassy-Quere et al. (2005) benefits from bilateral foreign direct investment data and so their study departs from studies that focus on aggregate foreign direct investments. They benefit from a panel data set of 11 OECD countries over 1984-2000. Their empirical results confirm that tax differentials play a significant role on the location

of foreign direct investments. Çak and Karakaş (2009) similarly explore the determinants of foreign direct investments using panel data of eight countries including Turkey. Their data set covers the period of 1990-2007. They used different economic factors as independent variables. And from these variables, corporation tax rates and total tax burden are the fiscal ones. They find negative and statistically significant coefficients for both of the variables.

Hansson and Olofsdotter (2010) analyze the relationship between corporate tax rates and foreign direct investments for the member countries of EU. They try to clarify the differences among the EU-15 and new members about the determination of foreign direct investments. By using a data covering the period 1995-2006 they conclude that tax differentials seem to affect foreign direct investments to new members. They also find out that agglomeration economies play a more important role in the foreign direct investment decisions within EU-15.

A more recent study of Kersan-Skabic (2015) investigate the determinants of foreign direct investments by focusing six countries in Southeast Europe. The countries are Albania, Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Montenegro and Serbia. As a result of a GMM methodology he observes no statistically effect of corporate tax rates on the foreign direct investment flows for the period 2000-2014.

There are also some studies that benefit from micro level data from multinational corporations. For example, Simmons (2000) construct an index of corporate tax attractiveness by benefiting from surveys that measures the evaluations of individual attributes that make up the countries' corporate tax systems. The survey is applied to the consecutives of over 600 of the world's largest multinational corporations. In a later study Simmons (2003) examines the effects of national tax systems on foreign direct investments by benefiting from the results of his previous survey. He confirms that the national tax systems are effective on the amount of foreign direct investment flows.

The study of Mutti and Grubert (2004) is also one of the studies that benefits from micro data. Furthermore, their study differs from previous studies as they mention to the foreign investments in different sectors. They focus on the activities of multinational corporations by US majority-owned foreign affiliates. By using both panel data and micro data of multinational corporations, they find that investments geared towards export markets (electronics, computers, cars, etc.) rather than the domestic market is particularly sensitive to host country taxation. Furthermore, they suggest that this sensitivity is greater in developing countries.

There also some studies that focus on various kinds of taxes. Of those studies Desai et al. (2004) examine the impact of indirect (non-income) taxes on FDI by American multinational firms. Their empirical findings suggest that higher local indirect taxes lowers the level of foreign direct investments and output. The study of Beck and Chaves (2012) is another study that pay attention to the effects of various taxes not only capital income taxes on the foreign direct investments. They use a data for a panel of 25 OECD countries covering the period 1975-2006. Their results suggest that increase in capital income tax rates has a negative effect on foreign direct investments, while increases in labor income tax rates have the opposite effect. Moreover, they suggest that increases in consumption tax rates have no statistically significant effect on the level of foreign direct investments.

Lastly, some studies explore the determinants of foreign direct investments empirically for Turkey. Of those studies Koşar and Van (2012) employ Johansen cointegration test and error correction model as methodology. By using monthly data covering the period 2000-2011 they observe a negative relationship between corporation tax revenues and foreign direct investments. Besides, Hazman (2010) focus on the effects of financial incentives instead of tax rates and revenues. By using Toda-Yamamoto causality test, she find no evidence of causality relationship between the incentives and foreign direct investments.

To sum up, although there is a huge literature about the effects of taxation on foreign direct investments, less attention has been paid to the role of indirect taxes. Moreover, there is lack of a study that examines the role of indirect taxes on a sectoral basis for Turkey.

3. EMPIRICAL ANALYSIS

3.1. Data, Methodology and Unit Root Tests

Most of the previous studies examine the relationship between direct taxes and foreign direct investments. However, taking into account the debates in introduction, we focus on a different variable: Indirect tax. For that purpose, we employ the ratio of indirect tax revenues to gross domestic product (GDP) as the independent variable. This variable consists of the taxes obtained from goods and services, taxes obtained from international trade and transactions, revenue stamps and fees. Furthermore, as our second aim is to examine the effect of indirect taxes on the foreign direct investments for different sectors, we employ extra three variables as dependent variables indicating foreign direct investments on agricultural, manufacturing and tertiary sector. In that context, we employ four different models:

$$fdi\_gdp_t = \alpha_0 + \alpha_1 * ind\_gdp_t + u_t \quad (1)$$

$$fdia\_gdp_t = \alpha_0 + \alpha_1 * ind\_gdp_t + u_t \quad (2)$$

$$fdim\_gdp_t = \alpha_0 + \alpha_1 * ind\_gdp_t + u_t \quad (3)$$

$$fdis\_gdp_t = \alpha_0 + \alpha_1 * ind\_gdp_t + u_t \quad (4)$$

Where, fdi_gdp_t is the ratio of foreign direct investments to GDP (%) in period t, $fdia\_gdp_t$ is the ratio of foreign direct investments on agriculture to GDP (%) in period t, $fdim\_gdp_t$ is the ratio of foreign direct investments on manufacture to GDP (%) in period t, $fdis\_gdp_t$ is the ratio of foreign direct investments on services to GDP (%) in period t and ind_gdp_t is the ratio of indirect tax revenues to GDP (%) in period t. We employ data for the period 2006:Q1-2016:Q1. The data is obtained from the Central Bank electronic data distribution system of the Republic of Turkey.

Before examining the models we test the variables for a possible seasonality problem. We establish a seasonality only in *ind_gdp* variable and get seasonally adjusted series by Census X-12 method. The results of the seasonality test can be seen in Table 1.

Since the autoregressive distributed lag bounds test of Pesaran et al. (2001) is based on the assumption that the variables are either I(0) or I(1), next we examine the stationarity of the series. In order to ensure that none of the variables are I(2) we benefit from two conventional unit root tests: Augmented Dickey–Fuller unit root test of Dickey and Fuller (1979) and Phillips–Perron unit root test of Phillips and Perron (1988).

The null hypothesis states that the variable has a unit root in both of the tests. The results of the Augmented Dickey–Fuller test can be seen in Table 2. Accordingly, all the variables except *ind_gdp* are I(0) at the 1% level of significance. So, they are stationary at level. The variable of *ind_gdp* is again I(0) but only with trend and at the 5% level of significance. Nevertheless, none of the variables are I(2) and we can apply bounds test of Pesaran et al. (2001).

We also confirm our findings about stationarity with Phillips-Perron unit root test. The results can be seen in Table 3. Accordingly, our previous findings are exactly valid. In that context, our models are ready to be transformed in order to be tested with bounds testing approach.

Table 1: Seasonality test results

Variables	F-statistics	Result
ind_gdp	26.406**	Seasonality present at the 0.1% level
fdi_gdp	1.295	No evidence of stable seasonality at the 0.1% level
fdia_gdp	0.697	No evidence of stable seasonality at the 0.1% level
fdim_gdp	0.888	No evidence of stable seasonality at the 0.1% level
fdis_gdp	1.099	No evidence of stable seasonality at the 0.1% level

GDP: Gross domestic product

3.2. Bounds Test for Cointegration and Error Correction Model

In order to test the long-run relationships we employ bounds testing approach. For that purpose four different unrestricted error correction models are generated:

Model 1:

$$\Delta fdi\_gdp_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta fdi\_gdp_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta ind\_gdp_{t-i} + \alpha_3 fdi\_gdp_{t-1} + \alpha_4 ind\_gdp_{t-1} + u_t$$

Model 2:

$$\Delta fdia\_gdp_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta fdia\_gdp_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta ind\_gdp_{t-i} + \alpha_3 fdia\_gdp_{t-1} + \alpha_4 ind\_gdp_{t-1} + u_t$$

Model 3:

$$\Delta fdim\_gdp_t = \alpha_0 + \sum_{i=1}^{p} \alpha_{1i} \Delta fdim\_gdp_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta ind\_gdp_{t-i} + \alpha_3 fdim\_gdp_{t-1} + \alpha_4 ind\_gdp_{t-1} + u_t$$

Model 4:

Table 2: Augmented Dickey–Fuller unit root test results

Variables	Level		First difference	
	τμ	τT	τμ	τT
ind_gdp	−2.8886* (0.0556)	−4.0690** (0.0141)	−8.2199*** (0.0000)	−8.1728*** (0.0000)
fdi_gdp	−4.5267*** (0.0008)	−5.8174*** (0.0001)	−12.8557*** (0.0000)	−12.6722*** (0.0000)
fdia_gdp	−5.8694*** (0.0000)	−5.9642*** (0.0001)	−9.2435*** (0.0000)	−9.1192*** (0.0000)
fdim_gdp	−6.5972*** (0.0000)	−6.5118*** (0.0000)	−10.5476*** (0.0000)	−10.4086*** (0.0000)
fdis_gdp	−3.9526*** (0.0040)	−5.2131*** (0.0007)	−11.4995*** (0.0000)	−11.3749*** (0.0000)

Figures in parenthesis are t probability values. ***P<1%, **P<5%, *P<10%. Lag length is determined by Schwarz information criteria. H_0: The variable has a unit root. τT represents the most general model with a drift and trend; τμ is the model with a drift and without trend. GDP: Gross domestic product

Table 3: Phillips Perron unit root test results

Variables	Level		First difference	
	τμ	μT	τμ	μT
ind_gdp	−2.9070* (0.0534)	−4.0690** (0.0141)	−8.8191*** (0.0000)	−9.2764*** (0.0000)
fdi_gdp	−4.9435*** (0.0002)	−6.0657*** (0.0001)	−19.4807*** (0.0001)	−27.1260*** (0.0000)
fdia_gdp	−5.8579*** (0.0000)	−5.9552*** (0.0000)	−9.0991*** (0.0000)	−8.9797*** (0.0000)
fdim_gdp	−6.6267*** (0.0000)	−6.5369*** (0.0000)	−38.5925*** (0.0001)	−39.6711*** (0.0000)
fdis_gdp	−4.2904*** (0.0016)	−5.5462*** (0.0003)	−20.3059*** (0.0001)	−38.9583*** (0.0000)

Figures in parenthesis are t probability values. ***P<1%, **P<5%, *P<10%. Band width is determined by Newey-West criteria. H_0: The variable has a unit root. GDP: Gross domestic product

$$\Delta fdis\_gdp_t = \alpha_0 \sum_{i=1}^{p} \alpha_{1i} \Delta fdis\_gdp_{t-i} + \sum_{i=0}^{p} \alpha_{2i} \Delta ind\_gdp_{t-i} + \alpha_3 fdis\_gdp_{t-1} + \alpha_4 ind\_gdp_{t-1} + u_t$$

Where;

Δ indicates difference operator, p indicates optimal lag length and is a serially independent random error with mean zero and finite covariance matrix. This methodology can be applied irrespective of the order of integration of the variables. F or Wald statistics calculated after the test is compared with the critical values of Pesaran et al. (2001). If the calculated statistics falls between the lower and upper bounds the test is inconclusive, however if the value falls outside the critical value bands, a conclusive inference can be drawn without needing to know the integration/cointegration status of the underlying regressors (Pesaran et al., 2001. p. 290).

We obtained the optimal lag lengths by benefiting from Akaike information criteria (AIC) and Schwarz criteria (SC). The results are summarized in Table 4.

As trend variables are statistically insignificant at 5% significance level, we prefer the models without trend variable in all four situations. The bold values are the optimal lag lengths according to related criteria. Accordingly, the optimal lag lengths are found as p = 4, p = 1 and p = 5 for Model 1, 3 and 5 respectively. Nevertheless, we do not choose p = 5 as the optimal lag length for Model 2 since there is serial correlation problem according to Breusch-Godfrey autocorrelation LM test. Therefore, we determine lag length as p = 2 since it has the lowest AIC and SC without having serial correlation problem (X^2_{BG} value of the model with lag length p = 2 is 0.2243).

Furthermore, we test for stability of the four models with optimal lag lengths by using CUSUM test. From Figure 1, all of the four models are stable as the plots lay within the 5% critical bounds of stability.

The bounds test is mainly based on the F-test for the joint significance of the coefficients of the lagged variables. Our null hypotheses for all of the models can be stated as H_0: $\alpha_3 = \alpha_4 = 0$ whereas the alternative hypothesis can be stated as H_1: $\alpha_3 \neq \alpha_4 \neq 0$. The calculated F statistics are compared with the critical values determined by Pesaran et al. (2001). Table 5 shows the F statistics that are obtained from bounds tests and the critical values at the 5% level of significance.

As can be seen from Table 5, the F statistic of Model 1 is greater that the upper bound. Therefore, the result of bounds test indicates that there is a cointegration relationship between indirect taxes and total foreign direct investments. This finding is also valid when we focus on foreign direct investments on manufacturing sector in Model 3. However, as the F statistic is less than the lower bound, the bounds test of Model 4 suggests that there is no cointegration relationship between indirect investments and foreign direct investments on tertiary sector. Furthermore, as the F statistic in Model 2 falls inside the critical value band, the test is inconclusive for agricultural sector.

Next, we estimate short run coefficients by using error correction models for Models 1 and 3 in which cointegration relationship is observed. As can be seen from Table 6, neither of the coefficients except error correction terms are statistically significant. So, our empirical findings indicate that indirect taxes do not affect the level of foreign direct investments in the short run. This finding is valid for both total foreign direct investments and foreign direct investments oriented to manufacturing sector.

In addition, the coefficients of error correction terms are statistically significant and negative as expected. Therefore, while the whole system is getting adjusted at the speed of 45% towards long run equilibrium in Model 1, the speed of adjustment is 119% in Model 3.

Table 4: AICs for different lag lengths

Lag length	Model 1		Model 2		Model 3		Model 4	
	AIC	SC	AIC	SC	AIC	SC	AIC	SC
1								
No trend	2.9403	3.1535	−7.1852	−6.9720	4.8111	5.0244	2.6410	2.8543
Trend	2.9294	3.1853	−7.1893	−6.9333	4.8620	5.1179	2.6508	2.9067
2								
No trend	2.8975	3.1991	−7.2559	−6.9543	4.9021	5.2038	2.5999	2.9015
Trend	2.8060	3.1508	−7.2056	−6.8609	4.9521	5.2969	2.5648	2.9096
3								
No trend	2.7038	3.0956	−7.2881	−6.8963	4.9733	5.3651	2.2255	2.6174
Trend	2.5912	3.0265	−7.2386	−6.8032	5.0189	5.4543	2.1781	2.6135
4								
No trend	2.4113	2.8952	−7.2908	−6.8069	5.0665	5.5503	1.7518	2.2357
Trend	2.3526	2.8805	−7.2497	−6.7218	5.1025	5.6304	1.6741	2.2019
5								
No trend	2.4766	3.0543	−7.5905	−7.0128	5.1366	5.7143	1.7164	2.2941
Trend	2.4463	3.0684	−7.6949	−7.0728	5.1879	5.8100	1.7137	2.3359
X^2_{BG}	0.4699		0.0217		0.2683		0.3680	

X^2_{BG} is the probability values of Breusch-Godfrey autocorrelation LM test for the models with optimal lag lengths. AIC: Akaike information criteria, SC: Schwarz criteria

4. CONCLUSION

By the expansion of globalization especially after 1980s, multinational firms are in an effort to minimize their costs both by benefiting from low cost inputs and from relatively low taxes worldwide. This situation led to an increase of foreign direct investment flows throughout the world. On the other hand countries try to attract investment flows as these flows are usually seen as a driving force of economic growth and development. And, in order to be successful in this competition, decreasing taxes is one of the most conventional ways.

As the direct taxes seem to be the heaviest burden about taxation, there are huge amount of studies that analyze the effects of direct taxes on the choice about the location of foreign direct investments. Nevertheless, another possible determinant of foreign direct investments is usually forgotten. We deal with this variable which is indirect tax.

It may be rational to expect significant effects of indirect taxes on foreign direct investments, because investors usually face not only with direct taxes and with indirect taxes also. The lack of transfer pricing motives and the absence of any avoidance may cause indirect taxes to be more effective on foreign direct investments. Taking into account these concerns, examining the role of indirect taxes on foreign direct investments in particular is a critical issue. Furthermore, as the effects on different sectors may differ, it is also crucial to investigate the relationship on a sectoral basis. Our empirical findings which are obtained from a quarterly data set of 2006:Q1-2016:Q1 also confirms this discrimination.

By using bounds testing approach we find that indirect taxes and total foreign direct investments are cointegrated. So, we

Table 5: Bounds test results

Models	k	F-statistics	5%	
			Lower bound	Upper bound
1	1	8.3750	4.94	5.73
2	1	5.6429	4.94	5.73
3	1	11.4069	4.94	5.73
4	1	2.6313	4.94	5.73

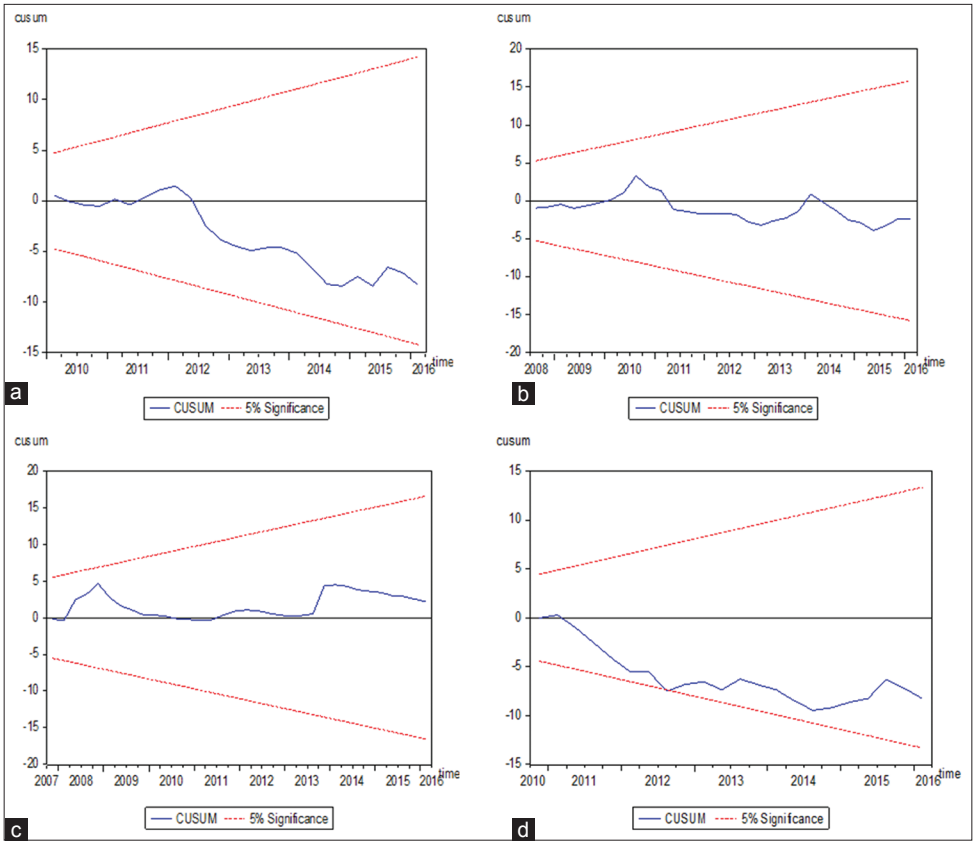
k indicates the number of independent variables. Critical values are obtained from Pesaran et. al. (2001)

Table 6: Short run parameter estimates

Error correction model					
Dependent variable: Δ*fdi_gdp*			Dependent variable: Δ*fdim_gdp*		
Variables	Coefficient	t-statistics	Variables	Coefficient	t-statistics
Δ*fdi_gdp*(−1)	−0.2047	−1.5498	Δ*fdim_gdp*(−1)	0.1050	0.6041
Δ*ind_gdp*(−1)	−0.2825	−0.5780	Δ*ind_gdp*(−1)	−0.8253	−0.6577
ect(−1)	−0.4506	−2.8809***	*ect*(−1)	−1.1977	−4.6398***

***P<1%, **P<5%, *P<10%.

Figure 1: (a-d) Stability tests



can conclude that these two variables move together in the long run. This finding is also valid for foreign direct investments that are oriented to manufacturing sector. However we observe no cointegration relationship between indirect taxes and foreign direct investments that are oriented to services. Furthermore, we cannot define any clear result for agricultural sector as the bounds test remain inconclusive. Although, error correction models indicate no significant effects in the short run, we may suggest that indirect taxes will be effective on both total foreign direct investments and investments that are oriented to manufacturing sector. This result is not surprising when we remind the suggestion of economic base theory which indicates that the manufacturing sector generally produces not only for local economy but also for exporting. Since the exporting firms compete with a large amount of competitors and as they face with wide range of tax rates throughout the world, they may be more sensitive to any factor that may affect their total costs.

It is worth noting that indirect taxes in Turkey like in many of the developing economies constitute a relatively large part of total tax revenues as OECD revenue statistics indicate. In that context, while determining fiscal policies aiming to attract foreign direct investments, the role of indirect taxes also have to be considered, especially in manufacturing sector.

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