

UDC 339.562:339.727.22].025(560)

DOES INWARD FOREIGN DIRECT INVESTMENT INCREASE IMPORTS TO TURKEY? AN INSTRUMENTAL VARIABLES APPROACH

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Abstract

Whether foreign direct investment (FDI) complements or substitutes trade is a significant policy issue. This is particularly the case with respect to the relationship between FDI inflows and host country imports, especially imports of intermediate goods and the adverse effects of the latter on the current account. A surge in FDI inflows and imports over the last three decades makes Turkey an interesting case for investigating the link between FDI inflows and imports. Applying an instrumental variables approach to panel data for 19 OECD countries with FDI stocks in Turkey from 1982 to 2007, I find that an increase of FDI by ten percentage points leads to an increase of imports by around 3.6 to 8.9 percentage points, on average. These findings suggest that imports ensuing FDI inflows can lessen the positive effect of the latter on the current account balance.

Keywords: *International trade, foreign direct investment, Turkey.*

JEL Classification: *C33, C36, F14, F21, F23.*

1. Introduction

Turkish economy has experienced unprecedented growth of both FDI inflows and imports over the last three decades. On average, inward FDI stocks in Turkey grew by about 13.5% per annum from 1982 to 2007 and merchandise imports in Turkey increased by about 13.3% annually over the same period. To put into perspective, both Turkish inward FDI stocks and imports growth rates were higher than those of world, which were %13.2 and 8.2% respectively. This enormous growth in both inward FDI and imports led to studies investigating their determinants in the Turkish context. Surge in inward FDI is mainly associated with national income level, government stability and the initiation of membership negotiation with the EU in 2004

(Esiyok, 2011), while imports are found to be sensitive to national income level, real exchange rate and Customs Union with European Union (EU) countries (Bilin et al., 2007). So far, the effects of inward FDI on imports have been overlooked by existing studies on Turkey, despite the existence of a large body of theoretical and empirical literature on FDI-trade linkage. This study aims to fill in this gap in the literature by extending the investigation of determinants of imports to include inward FDI.

The paper is organised as follows. Section 2 reviews theoretical and empirical literature on FDI-trade relationship. Section 3 specifies the econometric model, discusses the methodology, and describes the dataset. Section 4 explains the estimation results and presents policy recommendations. Section 5 concludes and indicates some directions for future research.

2. Literature Review: Theory and Empirical Evidence

2.1 Theory

Factor proportion and proximity-concentration hypotheses underpin the debate on FDI-trade relationship. The factor proportion hypothesis views the phenomenon of FDI from the perspective of Multinational Enterprises' (MNEs) ability to fragment the value chain geographically, thereby taking advantage of differences in factor costs across countries (Markusen, 1984; Helpman, 1984; Helpman and Krugman 1985; Ethier and Horn, 1990). For instance, if firm specific inputs (intangible assets, such as, knowledge-capital) produced at headquarters could easily be transferred to the foreign affiliates at a low cost, a single plant multinational would arise to exploit possible factor cost differences. Headquarters would be located in the country with skilled abundant-labour and the production plant, where unskilled labour is plentiful. Given the large factor cost differences between developed and developing countries, vertical investment is more likely to arise between them as the factor proportion hypothesis predicts.

If factor proportions consideration dominates in a given industry, MNEs' investments are uni-directional, from home to a host country, and they export differentiated product to the home country. The effect of this inter-industry trade on overall trade of a given country depends on how MNEs would meet the needs of production in terms of inputs, whether through imports from the parent, third country or local suppliers. Moreover, external tariffs of regional blocs might affect the trade for inputs and induce MNEs to trade within the regional bloc.

Based on the assumption that countries are symmetric in terms of market size, factor endowments and technological development, the proximity-concentration hypothesis (Brainard, 1993a) suggests that firms prefer FDI over exporting if they are motivated by proximity to customers or specialized suppliers at the expense of reduced scale (concentration). Hence, MNEs' existence is positively correlated with high transport costs, trade barriers, low investment barriers and the ratio of scale economies at the plant level relative to the corporate level (Horstmann and Markusen, 1992; Brainard, 1993a). Given the symmetries in countries' market size, factor endowments and technologies, MNEs motivated by market access would invest in foreign markets to minimise transport costs associated with exporting. This setting allows for horizontal FDI, where two-way investment between countries similar in terms of both absolute and relative factor endowment occurs. The proximity-concentration hypothesis predicts large FDI flows among industrialised countries.

Trade substituting effects of FDI is likely to dominate if MNEs are concerned with proximity. If proximity considerations dominate in a given industry, multinational sales would replace two-way trade in final goods of unequal magnitudes and might generate inter-industry trade in intermediates (Brainard, 1993a). In this respect, even the presence of FDI itself might have further effects on trade between home and host country. For instance, FDI stimulate demand for imports through informational spill-overs and the creation of production channels (Swenson, 2004). Markusen (1998), Markusen and Venables (1996, and 1998) introduce asymmetries of market size, factor endowments and technological efficiency among countries in explaining the choice between trade and FDI. In these models, as the asymmetries start to disappear between countries in terms of market size, factor endowments, and technological efficiency, more firms would establish

subsidiaries in these developing countries; hence FDI and trade could exist simultaneously. As a result, MNEs become more important relative to trade as countries become more similar in size and in relative endowments as world income grows, and multinational production would substitute trade when countries are similar (Brainard, 1997).

2.2 Empirical Evidence

Existing empirical studies investigating FDI-trade relationship have used data at firm, industry, and country-level data with different estimation techniques and provided mixed results. For instance, Lipsey and Weiss (1984) analyse trade and subsidiary sales using cross-sectional firm data by utilising size of parent company and host country income. They confirm the complementary relationship between USA MNEs' production in foreign soil and their exports to foreign market. Similarly, Blomstrom et al. (1989) using trade equations on US and Swedish firm-level data arrive at the same conclusions as those of Lipsey and Weiss (1984).

Even though firm-level data used in the aforementioned studies allows the analysis at a more disaggregate level, the use of cross-section data makes it impractical to investigate the relationship between multinational activity and trade over time (Egger, 2001). Head and Ries (1997) and Blonigen (2001) employ firm-level panel data in their studies. Head and Ries (1997) find a positive relation between subsidiaries sales and exports, while Blonigen (2001) reveals linkages between trade and FDI in form of importing inputs from home country. His results indicate that there is substitution and complementary effects at product level. Taking disaggregation further, Swenson (2004) analyses the effect of FDI on trade at the product, industry, and the overall manufacturing levels in USA. Her findings confirm the complementary at the overall manufacturing level, while substitution effect becomes visible when USA imports are matched to disaggregated FDI at product level.

Studies applying export and import demand equations to country and industry level data have further enriched the FDI-trade debate. This strand of literature is based on the estimation of augmented export and import equations motivated by theoretical studies suggesting that the same exogenous factors determine trade and MNEs activities. Lin (1995) finds a positive long-run relationship between outward FDI and home country exports. Pfaffermayr (1996) analyses outward FDI and exports with a simultaneous equation system using time series and cross-sectional industry level data from the Austrian manufacturing sector. His findings indicate a significant complementary relationship between outward FDI and exports. Utilising an augmented export demand model in a panel data framework, Pain and Wakelin (1998) report a negative impact of outward FDI stocks on home country exports. Findings of Barrell and Pain (1997) confirm the negative relationship between outward FDI stocks and exports. Using affiliate sales instead of FDI stocks, Clausing (2000) reports that affiliate sales and export sales are positively associated at the aggregate, industry and country level.

Recent panel data studies lend further support to complementary relationship between FDI and trade. Sajid and Nguyen (2011) find that Vietnamese imports are positively associated with inward FDI. Similar results are reported by Soo et al. (2013) between Malaysian imports and inward FDI. Dividing outward Korean FDI and exports data into developed and developing countries, Kang (2012) finds a positive association between outward FDI and exports to developing countries, but fails to find a link between the two variables, outward FDI and exports from Korea, to developed countries.

The literature suggests that variations in methods used by studies in explaining the effect of FDI on trade are firmly related to data availability. Where multinationals sales are available at firm or product level, studies tend to use disaggregated data. In the absence of disaggregated data, studies generally use FDI stocks or flows to gauge multinational activity.

3. Model, Methodology and Data

3.1 Model

In a world consisting of two countries, two goods and two production factors (capital and labour), trade depends on world GDP, similarity of country GDPs and difference in factor endowments (Elhanan Helpman 1987). Similarity of GDPs and difference in factor endowments capture intra-industry trade and inter-industry trade respectively, while world GDP measures trade capacity of countries. In the literature, this specification has been extended to include other factors thought to affect trade (Egger, 2001; Bergstrand and Egger, 2007). In the same manner, I augment the core model with trade costs (costs of imports from home countries to Turkey), real exchange rate, customs union dummy and inward FDI;

$$\ln IM_{iht} = \gamma + \alpha_1 \ln Sum_{iht} + \alpha_2 \ln Sim_{iht} + \alpha_3 \ln PERCD_{iht} + \alpha_4 TRC_{iht} + \alpha_5 REER_{iht} + \alpha_6 CUD_{iht} + \alpha_7 \ln FDIN_{iht} + \theta_{ih} + \lambda_t + \varepsilon_{iht} \quad (1)$$

where subscripts i , h and t stand for home country i , Turkey, and time respectively. $\ln IM_{iht}$ is the log of imports from home country i to Turkey at time t ; $\ln Sum_{iht}$ is the log of sum of the GDPs of home country i and Turkey at time t . $\ln Sim_{iht}$ is the log of similarity index of GDPs of home country i and Turkey at time t . Similarity index is defined as:

$$Simindex = \left(1 - \left(\frac{GDP_{it}}{GDP_{it} + GDP_{ht}} \right)^2 - \left(\frac{GDP_{ht}}{GDP_{it} + GDP_{ht}} \right)^2 \right) \quad (2)$$

$\ln PERCD_{iht}$ is the log of per capita GDP difference between home country i and h at time t , TRC_{iht} is the trade cost for imports from home country i to Turkey at time t . In line with Egger (2001), trade cost of imports is taken as the ratio of import inclusive of cost, insurance and freight (c.i.f.) reported by Turkey to free on board (f.o.b.) export reported by country i . $REER_{iht}$ is the real exchange rates index between home country i and Turkey at time t . $REER_{iht}$ is calculated as:

$$REER_{iht} = \frac{E_{iht} \cdot P_{ht}}{P_{it}} \quad (3)$$

where E_{iht} represents the nominal exchange rate of home country i against Turkish currency, and P_{it} and P_{ht} stand for the consumer price indices of home country i and Turkey, respectively. A rise in $REER_{iht}$ represents an appreciation of home country i currency against the currency of Turkey. CUD_{iht} is the Customs Union dummy to capture the effect of CU between home country i and Turkey at time t . If both home country and Turkey are members of a Customs Union, the CUD_{iht} takes value 1 and 0 otherwise. $\ln FDIN$ is the log of outward stocks of home country i in Turkey at time t . θ_{ih} captures the unobserved country pair specific effects between home country i and Turkey and λ_t control for time fixed effects and ε_{iht} is the error term. Table 1 presents expected signs of variables.

3.2 Methodology

The simultaneity between trade and FDI is reported in the literature by several studies (e.g. Brainard, 1993b; Swenson, 2004; Blonigen, 2005). The simultaneity arises from the common factors in equation (1) that determine both trade and FDI. For instance, an increase in host country GDP would tend to affect imports and inward FDI in the same direction. However, a positive correlation between higher imports and inward FDI does not necessarily mean trade creation. In addition, it is possible that current values of inward FDI are correlated with current (Rodríguez and Bustillo, 2011) and past values of imports (Vernon, 1966; Johanson and Vahlne, 1977)

Simultaneity has serious consequences for estimates. If there is simultaneity in equation (1), the variable $\ln FDI_{iht}$ is correlated with the error term and this correlation violates the consistency assumption of Ordinary Least Squares (OLS). Ignoring the endogeneity of FDI leads to a bias in standard OLS estimator. To account for the potential bias, two methods are used in the literature. The first is to use lagged value of FDI (Pain and Wakelin, 1998) and the second is to employ two-stage least squares (2SLS) method (De Sousa and Lochard, 2004). Frankel (1997) argues that employing lagged variable does not ensure causality; therefore I use 2SLS to account for potential bias caused by the endogeneity of inward FDI.

Although it is fairly easy to detect endogeneity with the aid of statistical tests, it is a daunting task to find suitable instruments that are highly correlated with endogenous variable ($\ln FDI$) but not correlated with the error term in equation (1). The choice of instrumental variables in the literature is quite arbitrary and there is no consensus on a set of instrumental variables. Ghatak and Halicioglu (2007), and Aminian et al. (2008) use country risk indexes as instruments for FDI, assuming that there is a high correlation between these indexes and FDI. Given the limitation in available instruments for FDI, I use indexes of corruption, law and order for Turkey and ratified bilateral investment treaties for investment liberalisation between home countries and Turkey. The literature on FDI suggests that FDI is responsive to corruption (Egger and Winner, 2006), law and order (Busse and Hefeker, 2007), and investment liberalisation (Carr et al., 2001). The assumption that policy variables are thought to affect FDI and not correlated with the error term in equation (1) is very crucial to get reliable estimates using 2SLS. In line with previous empirical studies, Sargan test is used to ensure that instruments meet this condition.

3.3 Data

The dataset comprises 19 home countries that report outward FDI stocks in Turkey: Austria, Canada, Denmark, France, Finland, Greece, Germany, Hungary, Italy, Japan, Republic of Korea, Netherlands, Norway, Poland, Spain, Sweden, Switzerland, UK and USA. The period under consideration is 1982-2007. Observation for FDI is not available for each year for each country; therefore the panel is unbalanced with 295 observations for FDI. The choice of FDI stocks as proxy for multinational activity rather than multinational sales is dictated by data availability.

Nominal values of aggregate merchandise exports (f.o.b.) of home countries (imports of Turkey) are obtained from *Direction of Trade Statistics of International Monetary Fund (IMF)*. Then, nominal export values of home countries are deflated by export price indexes taken from *World Economic Outlook (WEO)*. Some studies use export price deflators or export unit values from IMF. However, export price deflators are not available for the all countries in the sample and export unit values exhibit a great deal of discrepancy from actual price deflators. Disaggregated data for merchandise goods of exports (f.o.b.) according to Broad Economic Category is not available; therefore aggregate merchandise imports ($\ln IM$) are used as dependent variable. The data for GDP and population are taken from *World Bank*.

Data on inward FDI stocks are compiled from various resources, mainly from *OECD International Direct Investment Statistics Database*. FDI data from OECD is extended with the data taken from *Eurostat*, *Central Bank of Netherlands*, *Statistics of Canada*, and *Japan External Trade Organisation*. In line with the OECD database, I convert the values in national currencies into dollars. Exchange rates are taken from main indicators of *OECD database*. FDI stock data from OECD International Direct Investment Year Book are estimation based on market values. Therefore, negative values of FDI stocks are possible because of different accounting practices among countries. In line with Bénassy-Quéré, et al. (2007), I add a small constant to real FDI values deflated by the GDP deflator of each country taken from *United Nations (UN)* database to transform the negative values of FDI to positive use the logarithm of real FDI values ($\ln FDI_{IN}$).

Nominal exchange rates of US\$ for home countries taken from *International Financial Statistics of IMF*; then the real exchange rates of the currencies of home countries against Turkish Lira is calculated. IMF reports data for currencies of the Euro countries in European Currency Unit (ECU). Similar to the method followed

by Bénassy-Quéré et al. (2007) I take conversion rates from *European Central Bank (ECB)* to calculate the exchange rate between European Monetary Union (EMU) countries in the sample and Turkey prior to the year 1999 (when Euro was first introduced). I use the lagged value of Real Exchange Rate (*REER*) to avoid reverse causality. In deflating all the nominal variables in the sample, 2000 is selected as the base year.

The indexes of corruption and law and order are taken from the *International Country Risk Guidance (ICRG)*. Data on the number of bilateral investment treaties are taken from the *Undersecretariat of Treasury in Turkey*. Table A1 and Table A2 in the Appendix provide correlation matrix and descriptive statistics respectively.

4. Results

Table 2 presents regression results using OLS estimator. Given high correlation between *lnSUM* and *lnSIM*, these variables enter the regression separately to prevent multicollinearity. Due to the presence of heteroscedasticity and autocorrelation problems, robust and clustered standard errors are used. The R-squared indicate that the variables in the regression explain 97 per cent of variation in dependent variable, *lnIM*.

As shown in Table 2, only the coefficient estimates for *lnSUM*, and *lnPERCD*, and are significant. The standard OLS procedure does not account for simultaneity between *lnFDIN* and *lnIM*. Consequently, the OLS estimator could lead to some variables not being significant or having unpredicted signs. In order to overcome the potential endogeneity related to inward FDI, variable *lnFDIN* is instrumented with indexes of corruption, law and order for Turkey and ratified bilateral investment treaties and results are presented.

Table 3 presents the results for regressions (3) to (4), using 2SLS method with the instrumental variables. As Wu-Hausman F Test and Durbin-Wu-Hausman test in Table 3 indicate that the exogeneity of the variable *lnFDIN* is clearly rejected. Hence, the simultaneity leads to the inconsistency in the OLS estimator. As Sargan test statistics in Table 3 shows, the null hypothesis that the instruments are valid instruments is not rejected for both models. In other words, the instruments are not correlated with the error term and the choice of instruments is appropriate. The instruments for regressions (3) and (4) appear to be highly correlated with inward FDI as Cragg and Donald (1993) Wald F statistics of excluded instruments are 19.81 and 13.50 for the regressions (3) and (4), respectively. Staiger and Stock (1997) suggest that F tests for instruments below 10 point to weak instruments.

Furthermore, the null hypothesis that disturbance is homoscedastic is not rejected for regressions (3) and (4) using Pagan-Hall general statistics meaning that heteroscedasticity is not a problem in the estimations. Moreover, as the Chi-square tests for country pair in Table 4 show, there are significant country pair and time effects. In addition, all the coefficient estimates are statistically significant and carry expected signs except for the variable, *lnSIM*.

As shown in Table 3, the sum of national incomes is positively associated with exports as the coefficient estimate for *lnSUM*, is significantly positive at the 1% level. On average, if the sum of national incomes (*lnSUM*) increases by 1 percentage point, imports would increase by 1.9 percentage points, other things being constant. In contrast to the predictions, similarity of incomes (*lnSIM*) is negatively related to imports. On average, if similarity of income (*lnSIM*) increases by 1 percentage point, imports would decrease by 2.3 percentage points. Probably, year dummies capture the cyclical effects in similarity of income (*lnSIM*). Per capita difference captures the inter-industry trade, and *lnPERCD* is positively related to imports. The coefficient estimate for *lnPERCD*, is significant at the 5% level, suggesting that an increase of *lnPERCD* by 1 percentage point leads to an increase of imports by 0.7 to 1.05 percentage points.

Moreover, the trade cost (*TRC*) is negatively related to imports, as the coefficient estimate for *TRC*, is significant at the 1% level. On average, an increase of *TRC* by 1 percentage point leads to a decrease of imports by around 0.3 to 0.4 percentage points. Furthermore, Customs Union is positively associated with imports and the coefficient estimate for *CUD*, is significant at the 1% level. On average, signatory home

countries to CU with Turkey are predicted to export to Turkey about %37.9 to 39.1 % more than non-signatory home countries, other things being constant.

In addition, real exchange rate is negatively related to imports as the coefficient estimates for *REER*, is significant at the 5 % level. A one point drop in bilateral real exchange rate index (*REER*) leads to an increase in imports of 0.5 percentage points. Regression results with respect to real exchange rate index and Customs Union are in line with those of Bilin et al. (2007).

Lastly, the major interest of the variable *InFDIN* is positively related to imports as the coefficient estimate for *InFDIN*, is significantly positive at the 10% level. On average, an increase of FDI by 1 percentage point leads to an increase in *InIM* of 0.36 to 0.89 percentage points, other things being constant. The empirical results lend support to the complementary relationship between outward FDI and exports of home countries (imports of host countries), and confirm the findings of Lipsey and Weiss (1984), Blomstrom et al. (1989), Lin (1995), Head and Ries (1997), Pfaffermayr (1996) and Clausing (2000).

The empirical evidence presented here is consistent with the view that inward FDI acts as a catalyst for aggregate imports from home countries to host country. However, the empirical results cannot distinguish imports generated by vertical investment from those generated by horizontal investment, due to the lack of inward FDI and import data at disaggregated level. Overall, results suggest that outward FDI stimulate exports from home countries to Turkey and thereby indicate that fears of job losses in home countries are misplaced.

Assuming that estimated elasticity of imports with respect to inward FDI stays constant, imports ensuing FDI inflows can lessen the positive effect of the latter on the current account balance in future. On the other hand, given the high imported content of exported and domestic goods, any policy change to restrict imports would choke off economic growth. In the face of this dilemma, policy makers could use subsidies to help supplier industry compete with foreign produced inputs. An equally important policy could be to keep inflation in check in order to maintain international competitiveness of local suppliers.

5. Conclusions

Both trade enhancing and trade-displacing nature of FDI raise interest among scholars and policy makers. Existing empirical studies point to a trade-enhancing effect of FDI on trade. Nonetheless, the theoretical literature presents that direction of effect between FDI and trade largely depends on income level and factor cost differences between home and host countries. Consequently, FDI-trade relationship might vary with country pairs included in samples for empirical analysis.

This study analyses the impact of inward FDI from nineteen OECD countries on imports in Turkey during the period 1982-2007. In line with previous studies real exchange rate, customs union and trade costs of imports are added to the regression model. In addition, time dummies are included to smooth out temporal fluctuations caused by internal and external economic crises during the period under investigation. Simple OLS estimations show no evidence that inward FDI has an impact on imports. Since statistical tests present the endogeneity of FDI to imports, 2SLS method is used to correct for simultaneity. After controlling for real exchange rate, customs union effect, and trade costs I find that inward FDI is positively related to imports. Estimated elasticity of inward FDI for imports ranges between 0.36 and 0.89.

One should exercise caution in interpreting the estimation results presented here, based on data at country level. This study suggests a complementary relationship between inward FDI and imports in Turkey. However, a study with disaggregated data at industry or firm level may arrive at conclusions conflicting with this study. Such a detailed empirical analysis could represent a fruitful research avenue provided that inward FDI and trade data are available at firm and industry levels in future.

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Table 1: Expected Signs of Variables

<i>lnSum</i>	+
<i>lnSim</i>	+
<i>lnPERCD</i>	+
<i>TRC</i>	-
<i>REER</i>	-
<i>CUD</i>	+
<i>lnFDIN</i>	+/-

Table 2: the Impact of inward FDI on Imports: OLS Estimates

Variables	(1)		(2)	
	<i>(lnIM)</i>		<i>(lnIM)</i>	
<i>CONS</i>	-25.890 [†]	(0.029)	-6.577*	(0.000)
<i>lnSUM</i>	1.347 [‡]	(0.085)		
<i>lnSIM</i>			-0.989	(0.150)
<i>lnPERCD</i>	0.728*	(0.000)	0.852*	(0.000)
<i>TRC</i>	-0.242	(0.207)	-0.248	(0.161)
<i>REER</i>	0.001	(0.859)	0.000	(0.862)
<i>CUD</i>	0.292	(0.112)	0.258	(0.138)
<i>lnFDIN</i>	-0.021	(0.629)	-0.025	(0.614)
Country Dummies	YES		YES	
Year dummies	YES		YES	
R-squared	0.97		0.97	
No. of observations	295		295	

Source: Author's calculations.

p values are in parentheses. *, †, ‡ represent statistical significance at the 1%, 5% and 10% level, respectively.

Table 3: the impact of inward FDI on Imports: IV estimates

Variables	(3)		(4)	
	(lnIM)		(lnIM)	
CONS	-36.584*	(0.000)	-15.534*	(0.000)
lnSUM	1.976*	(0.000)		
lnSIM			-2.309*	(0.000)
lnPERCD	0.765*	(0.000)	1.050*	(0.000)
TRC	-0.317*	(0.000)	-0.441*	(0.001)
REER	-0.002	(0.236)	-0.005†	(0.029)
CUD	0.330*	(0.000)	0.321*	(0.001)
lnFDIN	0.368*	(0.000)	0.892*	(0.000)
Country dummies	YES		YES	
Year dummies	YES		YES	
Wu-Hausman F Test	16.689*	(0.000)	90.788*	(0.000)
Durbin-Wu-Hausman Chi-sq Test	18.702*	(0.000)	78.914*	(0.000)
Sargan Test	1.464	(0.226)	0.353	(0.838)
Pagan Hall heteroscedasticity test	36.694	(0.860)	21.342	(0.999)
Cragg Donald Wald F statistic	19.810*	(19.810)	13.500*	(0.000)

Source: Author's calculations.

p values are in parentheses. *, †, ‡ represent statistical significance at the 1%, 5% and 10% level, respectively.

Appendix

Table A1: Correlation Matrix

	lnIM	lnSum	lnSIM	lnPERCD	TRC	REER	CUD	lnFDIN
lnIM								
lnSum	0.6008							
lnSIM	-0.3884	-0.9235						
lnPERCD	0.2093	0.3388	-0.2551					
TRC	-0.1905	0.0153	-0.0116	0.1256				
REER	-0.2551	-0.3406	0.2049	-0.1313	-0.2135			
CUD	0.3000	-0.1933	0.3087	-0.0221	-0.1964	-0.1999		
lnFDIN	0.7445	0.6002	-0.3644	0.3453	0.0536	-0.3812	0.1967	

Source: Author's calculations.

Table A2: Descriptive Statistics

Variables	Mean	Standard Deviation	Minimum	Maximum
<i>lnIM</i>	6.8894	1.2043	4.0398	9.9402
<i>lnSUM</i>	18.4784	0.9757	17.1648	20.9007
<i>lnSIM</i>	-1.2783	0.7094	-3.0975	-0.6931
<i>lnPERCD</i>	9.6663	0.8706	4.5158	10.5064
<i>TRC</i>	1.0979	0.2626	0.3959	2.4568
<i>REER</i>	115.0714	22.8481	55.0019	169.9838
<i>CUD</i>	0.3796	0.4861	0	1
<i>lnFDIN</i>	6.1867	0.9083	4.8234	8.4296

Source: Author's calculations.