

# The Impact of the Hizmet movement on Turkey's Bilateral Trade

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## Abstract

In this paper, we investigate the indirect economic effects of the Hizmet movement. Participants of the Hizmet movement have spread all around the world, opening various types of educational institutions (more than a thousand) ranging from kindergartens to universities since the early 1990s. The main motivation of volunteers in the Hizmet movement comes from the ideas of a Turkish scholar, Fethullah Gulen: to help humankind to be better off. This non-profit movement has created mutual economic benefits for Turkey and the host countries where schools have been established. Turkish schools help many nations to recognize Turkish culture, and create bonds between Turkey and these countries. Eventually, these ties might result in better understanding and more sympathy towards each other. Additionally, these Turkish schools work as informal trade officials, making it much easier for Turkish merchants – both followers of the Hizmet movement and independent merchants – to have trade connections with other countries. In this paper, we show that there is a substantial increase in the volume of exports from Turkey to the countries where Turkish schools have been opened. In particular, we observe this increase in the countries where Turkey did not have a close economic relationship previously. Moreover, we show that Turkish schools have boosted not only Turkish exports to these host countries but also imports from them.

**Keywords:** Bilateral Trade, Hizmet Movement, Turkey

**JEL:** A14, F14, Z10

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## INTRODUCTION

In the last two decades, Turkey has diversified its international trade partners. Prior to the late 1990s, Turkey's trade partners were mostly its neighbors and/or European Union (EU) countries. Trade with other Asian, African and American countries (except the United States) was almost non-existent. However, as a result of the "structural transformations" of the 1980s - especially after the second half of the 1990s, Turkey increased its bilateral trade volume with countries in these geographic regions. (Kilinc 2013) Several economic and political explanations are provided for this trend in the literature.<sup>4</sup> The increased shares of these geographic areas on world income made it economically important to trade with them. Moreover, especially in the last decade, Turkey has shifted from solely relying on the West for its international affairs. It had diversified its interest and partnerships to other issues and regions. Economic ties and political ties have reinforced each other in these newly created relationships. (Civan *et al.* 2013) In this study, we analyze an alternative and complementary factor for this increase in the scale and scope of Turkey's international trade. Starting at the beginning of 1990s, Turkish entrepreneurs have founded schools and cultural centers in Central Asian countries. Later on, more than 1000 Turkish Schools and cultural centers were established in 160+ countries. We hypothesize that these schools increased the volume of bilateral trade between the host countries and Turkey by easing the language and cultural barriers.

The majority of these Turkish educational institutions are inspired by the Turkish preacher Fethullah Gülen. Fethullah Gülen encouraged many activities in a variety of areas, including education, philanthropy and intercultural dialogue (Ebaugh 2010). The general term used for these activities is the Hizmet movement (HM). The HM has become transnational social movement with the launch of first schools in Central Asia in early 90s, and since then, the movement has embarked on pro-globalization activities. (Kuru 2005) The teachings of the HM consider ignorance, poverty and discord to be the enemies of humankind. The volunteers of the HM plan and conduct different projects to overcome these common enemies. These projects are quite heterogeneous both in scale and scope. They range from establishment of universities to fundraising for disaster relief, from eye exam screening in Africa to intercultural dialogue activities in the US. The participants are also quite heterogeneous in their socioeconomic, religious and ethnic backgrounds and in the degree of their involvement on these activities. (Ebaugh 2010; Cetin 2012)

In these Turkish schools, the curriculum is compatible with the requirements of the host country's educational policies. However, it could be said that the curriculum in these schools is tuned towards a

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<sup>4</sup> For a more detailed analysis, see Tekin (2012).

scientific education, with an emphasis on personal moral values. Turkish teachers and administrators, along with local teachers and administrators serve in these schools. Moreover, in most of these schools, Turkish as a foreign language is provided as an elective or mandatory course. During summer terms, many students of these schools visit Turkey to improve their language skills, and to learn more about Turkish culture and the social and economic structure of Turkey. Turkish teachers and their families usually learn local languages as well. Moreover sponsors from Turkey regularly visit these schools. All of these factors help these schools to function not only as cultural centers but also trade centers. We hypothesize that these schools, by eliminating or moderating the language and cultural barriers, initiate and improve bilateral trade between Turkey and their host countries. However, we have to emphasize that this effect is not unidirectional but bidirectional. The figures and trade data clearly indicate that after the foundation of Turkish schools, the upward trend is not only seen in Turkey's exports to the host country but also imports from these countries. We can loosely interpret this bidirectionality as evidence of the benefits of Turkish schools for both the host country and Turkey. In the next section, we provide more information about these Turkish schools and their motivations.

Giving some numbers would make it easier to understand these effects. **Figure 1** and **Figure 2** contain the bilateral trade volumes between Turkey and the countries where the HM has opened schools. In particular, since the early 2000s, we can observe a clear increase in both the exports and imports from these countries (**Figure 2**). More importantly, the shares of these countries on the total volume of Turkey's trade have increased during the same period. In our analysis, we more formally analyze the impact of Turkish schools and cultural centers on bilateral trade between Turkey and the host countries by using a standard gravity method. Our analysis contributes to the literature in two ways. First, it provides more evidence of the significance of cultural and language barriers on international trade.<sup>5</sup> Our analysis and conclusions can therefore provide useful lessons for policy makers. The second contribution of our paper is related to the evolution of bilateral trade. Since we analyze bilateral trade with the countries which did not have sizeable trade volumes with Turkey prior to introduction of Turkish schools, our work provides some insights on this topic.

The rest of the paper is organized as follows. Part 2 provides some background information on the HM and potential avenues of their impact on bilateral trade. Part 3 gives the data and descriptive statistics. Part 4 provides an empirical model and the estimation results. Part 5 concludes the paper.

## **BACKGROUND INFORMATION**

The HM is described in the official website of Fethullah Gülen as follows:

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<sup>5</sup> See Head and Mayer (2014) for a recent review of the literature on this issue.

*The Gülen Movement originated in 1970s Turkey as a faith-inspired initiative to improve educational opportunities for a local community; since then, it has grown into a transnational educational, inter-cultural and interfaith movement. The Gülen Movement has securely established respected institutions (of different kinds, but mostly schools) on every continent. (Gülen 2011)*

The HM's activities can be loosely grouped into five categories: education, philanthropy, health care, intercultural dialogue and media. Some of these activities are coordinated by for-profit companies but the majority of the work is done by not-for-profit companies and foundations. The financing sources are user fees and donations from the participants. The HM usually refrains from soliciting donations from governments and public institutions, including the Turkish government. The HM considers financial independence from the public authorities to be very important, as it is then to conduct its activities according to its principles without the taint of any governments' agenda. The exception to this principle is the allocation and donation of land and buildings by the host country governments. These donations are only used for HM activities within the donating country.

A thorough understanding requires a closer look to grasp its impact on trade relations fully. By now, a vast amount of literature has been developed on the HM<sup>6</sup>. This literature stresses three features of the HM. First of all, the movement is non-contentious and non-adversarial (Cetin 2012). It meticulously refrains from clashing with any thought system. The HM aims to create a "peaceful, harmonious and inclusive" society through transforming individuals by educational means, which is a bottom-up approach (Sykiainen 2007). Secondly, the HM defines itself as a faith-inspired movement, instead of faith-oriented or faith-specific. A grand coalition of all faiths and ideologies may be unrealistic; however, their cooperation is both possible and a must. HM projects are quite heterogeneous and are mainly non-religious. The last point about the character of the HM is its capacity for resilience. It is a loose network of volunteers. The people involved in the activities of the HM are not defined as members or followers, which may be perceived as a rigid affiliation. Instead, the volunteers are regarded as supporters, sympathizers and participants. The participants are quite heterogeneous in their socioeconomic, religious and ethnic backgrounds and in the degree of their adherence to the HM's teaching and thus their involvement. Thus the discourse allows people to find a place for themselves in any area they wish.

From kindergartens to universities, schools all around the world are the core organizational body of the HM. The HM introduces itself everywhere through these schools. They came into existence just after the collapse of the USSR in the Caucasus and Central Asia. The early constituents of the HM,

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<sup>6</sup> Holistic studies of the HM are rare (e.g; Çetin 2010; Ebaugh 2010). In addition, Barton *et al.* (2013), Hunt and Aslandogan (2007). Yavuz and Esposito (2003) are considered useful guides for a comprehensive understanding of the HM.

who were inspired and motivated by the teachings of Fethullah Gülen, acted very quickly to establish schools in order to educate their sisters and brothers who had recently gained their independence. They were welcomed warm-heartedly. The parents of the most talented students and the elite of the host countries trusted their children to these schools. This opening created very close interpersonal relationships with the indigenous people and provided great experience to the HM. The successful inception of the first transnational schools motivated Turkish sponsors further and created a snowball effect both in Turkey and in the host countries. Within almost less than a decade, similar processes started to be repeated all around the world, from Ghana to the Philippines. Currently, in 160+ countries other than Turkey, there are more than 1000 schools and other types of educational facilities in operation. Some sister organizations have also added to the equation. The HM has been launching cultural centers as well. *Kimse Yok Mu*, the relief organization of the movement, which is based in Istanbul, responds to any humanitarian aid situation anywhere in the world. Meanwhile, the HM has started to organize trips between Turkey and the host countries. The HM takes sponsors from Turkey, who are mostly mid-level Turkish businesspeople, to the target countries in order to motivate them; and students from the host countries and their families are brought to Turkey with cultural exchange objectives. Eventually, the HM may gain participants, supporters and sponsors from the host countries. In many countries, HM activities are organized, planned and financed by local participants. However, the ties with Turkey are still strong. These visits and personal ties have unintended but positive economic side effects.

In this paper we study the impact of HM schools on trade volume for the countries with which Turkey previously did not have any sizeable trade; most of these are developing or less developed countries.<sup>7</sup> Doubtlessly, to start bilateral trade between two countries, there has to be potential gains from trade. Since Turkey is at a similar state of development to many of these countries, we argue that there was already great potential for trade with these countries. The HM only breaks some invisible barriers, makes cultures familiar and provides a base not only for social proximity but also for trade opportunities. Below, we discuss potential avenues of the HM for facilitating trade between Turkey and the host countries.

First of all, HM provides Turkish language courses to the students. Many students from these schools read and speak Turkish well. On the other hand, Turkish teachers and other personnel serving in these schools usually learn the local languages. Thus the language barrier is almost automatically broken down by these schools. Second, along with the bright and poor students, children of the business and political elites of the host countries are registered in HM schools, especially in underdeveloped countries.<sup>8</sup> These students have potential to carry out the businesses of their families further. The schools become a natural milieu for them to establish networks. Additionally, the most talented and

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<sup>7</sup> See **Table 1a** for the list of countries we used for this study.

<sup>8</sup> See Clement (2013).

gifted students of these countries prefer the HM schools. These youngsters also have great potential to become bright entrepreneurs who speak at least four languages, including Turkish.

Last, the Turkish sponsors of the HM frequently visit the target countries. From the perspective of the HM, the aim of these trips is to motivate the fundraisers by displaying the success of these schools – the fruits of their efforts – but in the final analysis, these people are small- and middle-scale businesspeople who search for opportunities to make investments. The pre-established official and business networks in the target countries have great potential toward this end. Indeed, trade is increasing, particularly with less developed countries where personal ties are significant. Participants in the HM have been able to establish strong personal relationships while launching schools in these countries.<sup>9</sup> The success of these institutions strengthens these ties further. Thus they are able to reach high-level bureaucrats and politicians with whom it is difficult to obtain access through official procedures.

In the following section, we provide our data sources and formally test the hypothesis that HM schools improve bilateral trade between Turkey and the host country.

## **Data and Descriptive Statistics**

### *Data Sources and Variables*

We obtained the datasets for this paper from a variety of sources (see Table 1). We used a period between 1980 and 2012. The dependent variable, annual exports (imports) by Turkey to (from) country  $j$  is obtained from the International Monetary Fund's (IMF's) Direction of Trade Database. We have used some cultural/geographical dummy variables, extracted from the French Research Centre in International Economics. We obtained a common language dummy, a colonial relationship dummy, a contiguous dummy and bilateral distance (in kilometers) from the corresponding sources. Exchange rate data have been obtained from the IMF's International Financial Statistics database (IFS). The exchange rate is the national currency per USD. Real gross domestic product (GDP) data have also been obtained from the IMF's IFS database.

The main purpose of this study is investigating the effect of the HM on Turkish exports. Accordingly, we created two different variables to measure the effect of the HM. The first variable is a time-varying dummy variable named *School* takes 1 at time  $t$  if country  $j$  has a Turkish school or Turkish

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<sup>9</sup> This can be evaluated as a corollary situation in countries where a common language (Turkish) is used by the host nations. For example, in Central Asian countries, similar results are observed where there are no cultural ties between the host country and the Turkish entrepreneurs. See Bruckmayr (2007) and Tekin (2012) for more details.

cultural center at time  $t$  and 0 otherwise. It is very hard to create this dummy variable since there is no complete list of the schools that have been opened around the world. We created this variable from different resources combined. First, we employed the media report published by Yuksel(2005). The journalist Hakan Yuksel obtained this information from one-to-one interviews. However, since this study has information only up to 2005, we need to update this information. Accordingly, we employed informal information from a documentary program named AYNA featured on Samanyolu TV(STV) in Turkey, which periodically visits countries around the world and presents reliable information about the Turkish schools opened in other countries. The presenters of AYNA visit every cultural center and school supported by the HM in different countries. In these visits, they talk about schools, how many students they have and when they commenced. We have employed this information to create our variable. In addition, we also checked our dummy variable to discover any discrepancies with the latest report published by the *Wall Street Journal*, showing the HM schools around the world (Parkinson and Albayrak 2014).

In addition to the dummy variable, we have created a variable that contains information on how many students in the world these schools have at time  $t$ . We used the same resources we used previously. On the top of the sources cited above; we obtained enrolment numbers (to some extent) from the websites of the schools.<sup>10</sup> In order to measure the effect the school enrolments on total population, we normalized the school enrolments in country  $j$  to the total population (in thousands).

### *Descriptive Statistics*

Table 2 shows the descriptive statistics for the dependent and independent variables. We have 78 cross-sectional observations for the period between 1980 and 2012. *Colony* is a dummy variable that takes 1 if Turkey and country  $j$  have a colonial relationship, and 0 otherwise. The variable has a mean of 0.12. *Contiguous* is a dummy variable takes 1 if Turkey and country  $j$  share the same border. It has a mean of 0.02. *Commonlanguage* is another dummy variable that takes 1 if the country  $j$  also speaks Turkish. Apart from these gravity equation dummy variables, we also have the *WTO* and *Custom*, dummies, which both take 1 if country  $j$  and Turkey are members of the World Trade Organization (WTO) and the EU's Custom Union, at time  $t$ , respectively, and takes 0 otherwise. *Distance* is a binary variable that measures the distance between the capital cities of Turkey and country  $j$ . It has a mean of 5723 km, with a maximum value of 13,118 (Chile) and a minimum of 502 (Bulgaria). *Export* is the value of the exports from Turkey to country  $j$ . We present the logarithm of Export, which has a

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<sup>10</sup> An (incomplete) list of HM schools can be found at <http://www.turkokullari.net/index.php> (accessed 20 June 2014)

mean of 2.02, with a maximum of 2.71 (Egypt) and a minimum 0.00 (Guinea-Bissau).<sup>11</sup> *Import* is the import value of imports to Turkey from country *j*, with a mean of 10.45, a maximum of 14.32 (India) and a minimum of 0 (Tanzania). The logarithm of *Population* has a mean of 16.70, a maximum 10.67 (India) and a minimum of 4.72 (Kosova). *Inflation* has a mean of 13%, with a maximum of 204% (Argentina) and a minimum of -1% (Cote d'Ivoire). Real GDP has a mean of 6.94 ( in logarithms, with a maximum of 10.68 (Japan) and a minimum of 4.72 (Somalia).

It is well-known that the HM has schools or cultural centers in over 160 countries. We have employed 78 countries that have HM establishments. We dropped the countries that Turkey has a strong relationship with, such as EU countries, and we also did not include high-income OECD countries (USA, Canada, Australia) where bilateral trade makes up the bulk of Turkey's foreign trade volume.<sup>12</sup> We believe that Turkey's trade relationships with these countries have a long history and HM's influence would not really be strong enough on the bilateral trade volume. We also drop the countries where the HM has been established after 2010, as it would be hard to see the effect of these institutions on the export potential of Turkey at this stage. In addition, we have created a correlation matrix with dependent and independent variables; the matrix has a range between a minimum of -0.56 and a maximum of 0.42, indicating that we do not have a multicollinearity problem with our dataset.<sup>13</sup> Hizmet movement tries to *reach* every individual in all around the world in principle. At this stage, the followers of HM would go all around the world without following any patterns. However, one might question that as Turkey's economic ties with country *j* established to certain levels, then followers of HM would go this country *j*. In other words, there might be a causality issue. We have employed a Granger-Causality test to observe if this is the issue. We find that neither exports nor imports of Turkey with country *j* affect the HM school openings and school enrollments in country *j*.<sup>14</sup> Accordingly, we are able to look at the causality relationship from the school perspective.

**Figure 1** contains the exports from Turkey to the countries where the HM has established schools. We can see a rising trend, a small drop between 1996 and 1998 due to the EU Custom Union agreements-and another increase in export volumes to those countries. In fact, this positive trend can be explained by the overall increase in the exports from Turkey to the world, which is basically true. To support our argument, we present the share of the countries where the HM has established schools in Turkey's total exports and imports. Similar to the data shown in **Figure 1**, there is a decrease in the

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<sup>11</sup> Since some observations are 0 and the logarithm of 0 is indefinite. Accordingly, we iterate all exports by one million USD.

<sup>12</sup> The list of countries that have been employed in this study is presented in **Table 1a**.

<sup>13</sup> The correlation matrix is available upon request.

<sup>14</sup> For the sake brevity, we did not provide the Granger causality test results but upon request, we can provide them.

shares between 1996 and 2000, mainly due to the Custom Union agreement, and then there is a constant increase in the shares since the 2000s. This increase in the shares coincides with the remarkable increase in the number of the schools that the HM has opened around the world. Indeed, the HM might have had some impact on the trade potential of Turkey. In the following chapter, we aim to show this effect by applying a gravity model.

### Empirical Model and Estimation Results

This paper employs panel data with the gravity model to determine the key determinants of Turkey's export and import volumes. A number of studies have employed the panel data model for analyzing the key determinants of bilateral trade. The panel dataset allows flexibility in modeling differences in behavior across individuals. This paper uses a balanced panel, as each cross-section has the same number of observations.

Before performing the estimations, the panel unit root test is used to investigate the stationarity of all variables (except the dummy variables; see **Table 3**). Dummy variables are stationary, as they deviate between 0 and 1. Furthermore, for variables that do not change across time, such as distance, there is no unit root test carried out. We used four types of panel unit root test, including the Levin *et al.* (2002) method test, the Im *et al.* (2003) method test, the Maddala and Wu (1999), and the Choi (2001) method test based on the ADF–Fisher chi square; and the Maddala and Wu (1999), and the Choi (2001) method test based on the PP–Fisher chi square. All these tests show that all variables are at a level of significance for rejecting the null hypothesis of a unit root.

#### *The Static Panel Data Model*

All variables are tested and the model presents the variables that are statistically significant. The static estimation type model is used for the exports from Turkey (“ $\ln(Export_{ij,t})$ ”) to country  $j$  and the share of country  $j$  in the total exports of Turkey (“ $Share\ of\ Export_{ij,t}$ ”) <sup>15</sup>:

$$\begin{aligned} \ln(Export_{ij,t}) \text{ (or} \\ Share\ of\ Export_{ij,t}) = & \beta_0 + \beta_1 \ln(Distance_{ij,t}) + \beta_2 Common\ language_{ij,t} + \beta_3 Colony_{ij,t} + \\ & \beta_4 Contiguous_{ij,t} + \beta_5 WTO_{ij,t} + \beta_6 Custom_{ij,t} + \beta_7 Inflation_{j,t} + \\ & \beta_8 Exchange_{j,t} + \beta_9 GDP_{j,t} + \beta_{10} Population_{j,t} + \beta_{11} School_{j,t} + \\ & \beta_{12} Enrolment_{i,t} + \delta_t + \varepsilon_{ij,t}. \end{aligned} \tag{1}$$

<sup>15</sup> For definitions of each variable, see Table 1.  $\delta_t$  is the period-fixed effect variable and  $\varepsilon_{ij,t}$  is the error term.

**Table 4** contains the estimations for **Equation (1)**. We posted all the variables that are statistically significant in explaining the dependent variables. To account for autocorrelation in the residuals, the estimation is carried out using the Generalized Least Squares procedure to correct for heteroscedasticity and autocorrelation. Column (1) contains the baseline gravity equation estimations for the export value's dependent variable. At first glance, it can be seen that all baseline equation variables are statistically significant and have the expected signs. The binary variables *Colony*, *Contiguous* and *Common language* have positive and significant coefficients, whereas the bilateral distance variable has a negative and highly significant coefficient. Indeed, these coefficients are significant in all four columns of **Table 4**. These findings are also consistent with the previous findings of Antonucci and Manzocchi (2006), who used a gravity model in a panel dataset to explain Turkey's trade flows between 1967 and 2001. More recently, Bilici *et al.* (2011) found similar results, namely that these gravity equation have the expected signs in explaining the export demand of Turkey. Other gravity equation variables ( $GDP_j$ ,  $Population_j$ ) have positive and significant coefficients, which is consistent with previous studies as well as Antonucci and Manzocchi's (2006) and Bilici *et al.*'s (2011) findings. Apart from the gravity equation variables, we have controlled for macroeconomic uncertainty in the destination countries with the *Inflation<sub>j</sub>* and *Exchange Rate<sub>j</sub>* variables, and have found negative and significant coefficients, as expected. We also control for the binary variables for being a partner of the EU Custom Union and being a member of the WTO; however, we could not find any significant results in the first column.

In the second column, on the top of the baseline model in Column (1), we added the two variables created to control for the school effect on Turkey's export values. Given that the gravity equation variables have almost similar coefficients to those in Column (1), the *School* dummy variable (a binary variable that takes 1 for the years when a HM school/cultural center is operating country  $j$  and takes 0 otherwise) is significant (0.68 with a standard deviation of 0.13), indicating that there has been an increase in Turkey's exports to the countries where the HM has established schools/cultural centers. In the last column, we control for the number of school enrolments (normalized by the population of the country  $j$ ). We found a significant coefficient (0.97 with a standard deviation of 0.31), indicating that school enrolment is also important for explaining Turkey's export volumes. This is quite intuitive, since *Enrolment* is a proxy for quantifying how many people the HM has interacted with in country  $j$ . **Figure 2** shows the value of the exports from the countries where the HM has schools or cultural centers. We can observe a clear increase in exports, particularly after the early 2000s; indeed, this coincides with the findings above. In addition to the findings above, we have found that only the importance of *Common language* is altered after we add the school dummies to the regression. The magnitude of the common language dummy decreases, suggesting that Turkish schools help to eliminate the language barriers between countries, thus enhances bilateral trade.

The last two columns of **Table 4** contain the gravity equation estimations with a different dependent variable, the export shares. This is simply the share of country  $j$  in the total exports of Turkey. The estimated coefficients in Column 3 are weaker compared to those in Column 1, where the *Inflation*, *Distance* and  $GDP_j$  variables are not significant. However, when we add the *School* dummy and the *Enrolment* variable (Column 4), these variables have highly significant coefficients and help to improve the adjusted  $R^2$  of the model from 0.37 to 0.47. Moreover, we are able to observe the importance of the countries where the HM operates in **Figure 1**. **Figure 1** shows the shares of the countries where the HM operates on the total exports from Turkey. In particular, since the early 2000s, the share of those countries in the total exports from Turkey has increased from 5% to 10%.

We also examine the effect of the HM from the other side and model the import demand of Turkey. In order to test for the import demand by Turkey from the corresponding countries, we have run the following regression:

$$\begin{aligned} \ln(\text{Import}_{ij,t}) \text{ (or} \\ \text{Share of Import}_{ij,t}) = \\ \beta_0 + \beta_1 \ln(\text{Distance}_{ij,t}) + \beta_2 \text{Common language}_{ij,t} + \beta_3 \text{Colony}_{ij,t} + \beta_4 \text{Contiguous}_{ij,t} + \\ \beta_5 \text{WTO}_{ij,t} + \beta_6 \text{Custom}_{ij,t} + \beta_7 \text{Inflation}_{i,t} + \beta_8 \text{Exchange}_{i,t} + \beta_9 \text{GDP}_{i,t} + \\ \beta_{10} \text{Population}_{i,t} + \beta_{11} \text{School}_{j,t} + \beta_{12} \text{Enrolment}_{i,t} + \delta_t + \varepsilon_{ij,t}. \end{aligned} \quad (2)$$

The dependent variable is the import level (or share) for Turkey from country  $j$ . Unlike Equation (1), some of the variables (i.e. *Inflation*, *Exchange*, *GDP* and *Population*) have a subscript  $i$ , which corresponds to Turkey. **Table 6** contains the estimations of Equation (2). We have found similar estimations of the coefficients. For instance, the gravity equation variables (i.e. *Colony*, *Contiguous*, *CommonLanguage*, *Distance*, *Population* and  $GDP_j$ ) have the expected sign and statistically significant coefficients. The *Inflation* variable has different signs in different models, whereas *Custom Union* has a positive significant coefficient, unlike in Table 4, indicating the importance of the Custom Union on Turkey's imports. Controlling for our *School* dummy along with the *Enrolment* variable, we observe that the *School* dummy is significant in explaining the import demand of Turkey, in both Column (2) and Column (4). In addition, the model's adjusted  $R^2$  increases from 0.18 to 0.24 after adding these variables. However, *Enrolment*, even though it has a positive coefficient, is not statistically significant.

Overall, in **Tables 4 and 6**, we have observed that the HM school variables have a significant effect on Turkey's total trade. We observe the sharp increase in adjusted  $R^2$  when we model the share of Turkey's exports and imports, which might indicate importance of the Hizmet Movement in creating trade partners for Turkey.

### *The Dynamic Panel Data Model*

The static estimation model has its shortcomings, such as a loss of dynamic information (Naude & Saayman, 2005; Balli *et al.* 2013). Thus, a dynamic estimation model is also included, which is done by introducing the dependent variable into the lagged explanatory variables. This captures the dynamics in a system, as the exports (imports) by Turkey to (from) country  $j$  are reliant on previous levels moving in conformity with current values (Rey *et al.*, 2011). Omitting, for example, persistence/reputation effects (when a trade bridge is already set up between two countries and it is followed up by reliable transactions in the previous year) is a problem (Naude & Saayman, 2005). Furthermore, if previous trade levels are avoided, the effect of variables is very likely to be overestimated, as this will capture both the immediate direct and the lagged indirect effects. Therefore, it is important to have a dynamic model.

With the inclusion of lagged dependent variables as regressors, endogeneity problems arise and the Ordinary Least Squares test provides biased results. One solution to this problem is to use lags of the dependent variable as instruments for the lagged dependent variable, which is done by using the Generalized Method of Moments of Arellano and Bond (1991). This will provide consistent and efficient estimates of the parameters. The dynamic estimation type model for the bilateral exports (export shares) of Turkey is:<sup>16</sup>

$$\begin{aligned} \ln(\text{Export}_{ij,t}) \text{ (or} \\ \text{Share of Export}_{ij,t}) = \\ \beta_0 + \beta_1 \Delta \ln(\text{Export}_{ij,t-1}) \text{ (or } \Delta \text{Share of Export}_{ij,t-1}) + \\ \beta_2 \Delta \text{WTO}_{ij,t} + \beta_3 \Delta \text{Custom}_{ij,t} + \beta_4 \Delta \text{Inflation}_{ij,t} + \end{aligned}$$

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<sup>16</sup> With the dynamic model, variables that do not change over time (time-invariant variables), such as distance, a common language and a colonial relationship between the origin and destination, are automatically dropped.

$$\beta_5 \Delta \text{Exchangerate}_{j,t} + \beta_6 \Delta \text{GDP}_{j,t} + \beta_7 \Delta \text{Population}_{j,t} + \beta_8 \Delta \text{School}_{ijt} + \beta_9 \Delta \text{Enrollment}_{i,t} + \varepsilon_{ij,t}. \quad (3)$$

Similar to the static estimation type model, we performed four different regressions. **Table 5** presents the estimation of each of the eight regressions using the one-step difference Generalized Method of Moments estimator of Arellano and Bond (1991). In all regressions, we performed the Sargan test of overidentifying restriction and we failed to reject the null hypothesis that the instruments are exogenous in any specification for all columns. The Wald test denotes the joint significance of the independent/explanatory variables which are significant.<sup>17</sup>

Overall, we have found same sign for the coefficients as seen in **Table 4**, supporting our previous findings. The *School* dummy and the *Enrolment* variable again have a positive and significant coefficient for the dynamic panel estimations, in both Column 2 and Column 4. This finding supports our findings in Table 4 that the HM has an indirect effect on Turkey's exports.

In Table 7, we have employed the dynamic panel model for Turkey's imports, using Equation (4) below:

$$\begin{aligned} & \ln(\text{Import}_{ij,t}) \text{ (or} \\ & \text{Share of Import}_{ij,t}) = \\ & \beta_0 + \beta_1 \Delta \ln(\text{Import}_{ij,t-1}) \text{ (or } \Delta \text{Share of Import}_{ij,t-1}) + \\ & \beta_2 \Delta \text{WTO}_{ij,t} + \beta_3 \Delta \text{Custom}_{ij,t} + \beta_4 \Delta \text{Inflation}_{i,t} + \\ & \beta_5 \Delta \text{Exchangerate}_{i,t} + \beta_6 \Delta \text{GDP}_{i,t} + \beta_7 \Delta \text{Population}_{i,t} + \\ & \beta_8 \Delta \text{School}_{ijt} + \beta_9 \Delta \text{Enrolment}_{i,jt} + \varepsilon_{ij,t}. \end{aligned} \quad (4)$$

Again, the variables have same signs as they have in **Table 6**, and we observe that the *School* dummy and *Enrolment* have significant and positive coefficients in modeling Turkey's import demand.

## Conclusion

A casual look at the statistics indicates that mutual business relationships between with Turkey and nations where HM operates have risen greatly. In particular, bilateral trade has increased dramatically in the less developed countries where the HM has opened up schools. One might consider that the HM

<sup>17</sup> Time invariant gravity equation variables (*Colony*, *Contagious*, *Distance* and *Commonlanguage*) are dropped from the dynamic panel estimations, since these variables do not change through time.

schools are economic instruments of exploitation of underdeveloped countries by Turkey. Although we did not study the intentions of the HM, we object to this conclusion for three reasons: First HM is very insistent on refraining from using government funds, including funds from the Turkish government. The second is that HM schools increase not only exports but also imports between Turkey and the host country. The third reason is that most of the bilateral trade is conducted by small and middle-sized businesses in Turkey. By definition, these small-scale companies cannot exploit the other side.

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Figure 1

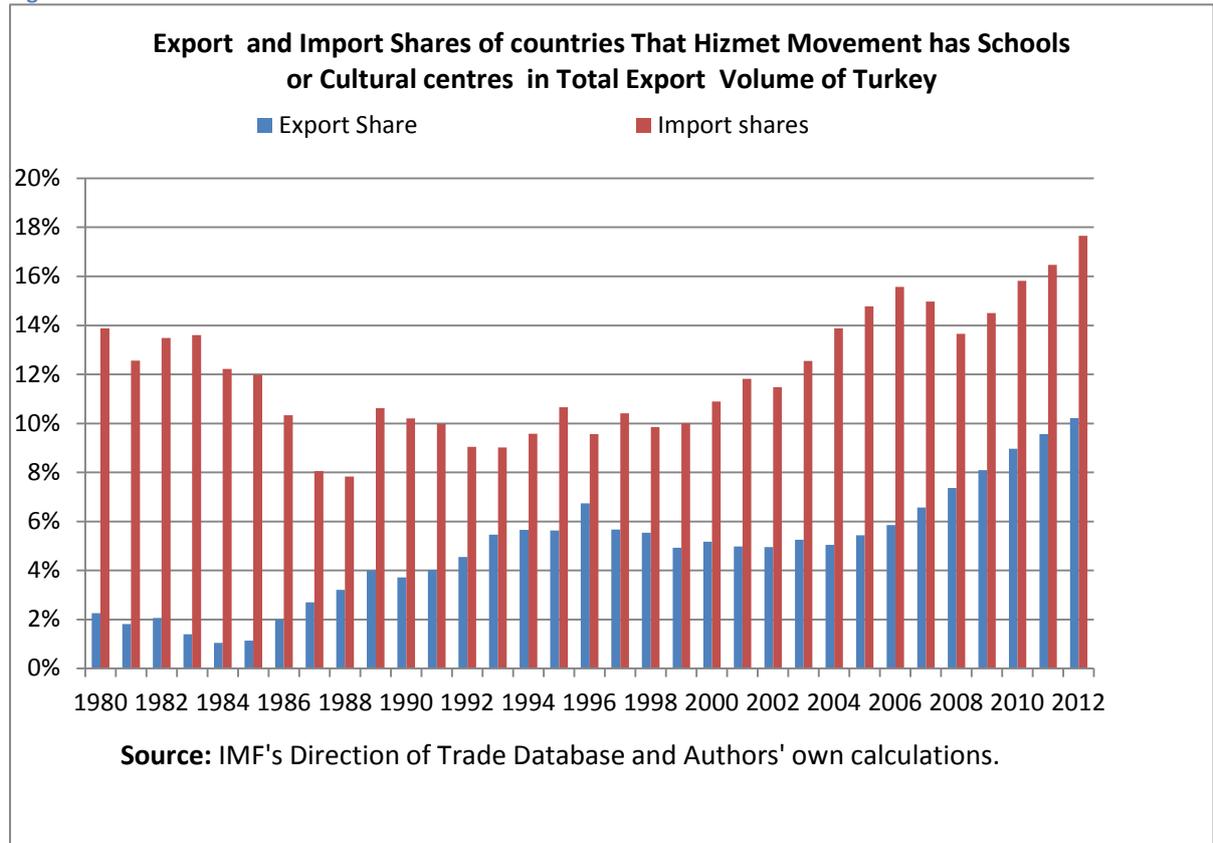
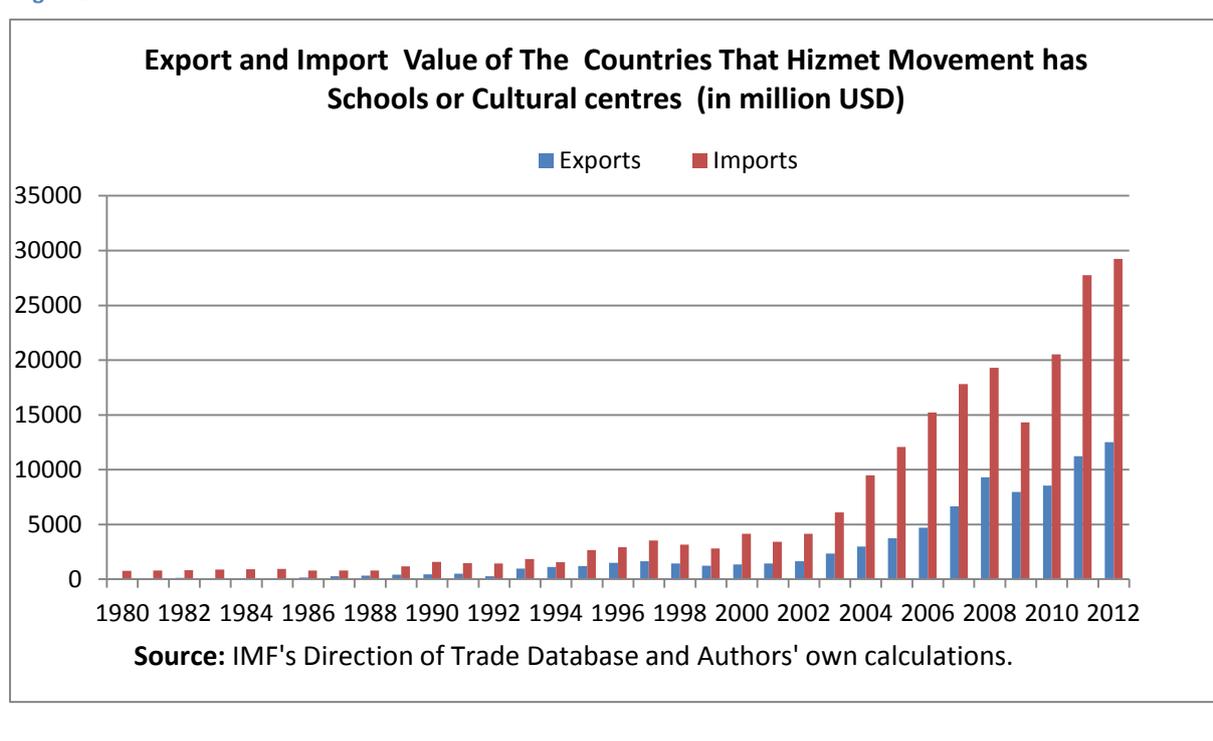


Figure2



**Table 1-a****Country(j) List**

Afghanistan	Equatorial Guinea	Latvia	Papua New Guinea
Albania	Ethiopia	Liberia	Philippines
Algeria	Gabon	Libya	Rwanda
Angola	Gambia The	Macedonia, FYR	Senegal
Argentina	Georgia	Madagascar	Somalia
Bangladesh	Ghana	Malawi	South Africa
Benin	Guinea	Malaysia	Sri Lanka
Bosnia and Herzegovina	Guinea-Bissau	Maldives	Sudan
Brazil	Hungary	Mali	Tajikistan
Bulgaria	India	Mauritania	Tanzania
Burkina Faso	Indonesia	Mexico	Thailand
Cambodia	Japan	Moldova	Togo
Cameroon	Kazakhstan	Mongolia	Turkmenistan
Central African Republic	Kenya	Morocco	Uganda
Chad	Korea, Republic of	Mozambique	Uzbekistan
Chile	Kosovo	Myanmar	Venezuela
Colombia	Kyrgyz Republic	Nepal	Vietnam
Congo Rep	Lao, P.D.R.	Niger	Yemen, Republic of
Cote d'Ivoire	Latvia	Nigeria	Zambia
Egypt		Pakistan	

**Table 1-b Variable Definition and Sources**

Variable Name	Definition	Source
Colony <sub>ij</sub>	A binary variable that takes 1 if origin country <sub>i</sub> and country <sub>j</sub> have a colonial relationship and 0 otherwise	French Research Center in International Economics – (CEPII)
Contiguous <sub>ij</sub>	A binary variable that takes 1 if origin country <sub>i</sub> and country <sub>j</sub> have a colonial relationship after 1945 and 0 otherwise	CEPII
Common Language <sub>ij</sub>	A binary variable that takes 1 if origin country <sub>i</sub> and country <sub>j</sub> share at least one common language and 0 otherwise	CEPII
Distance <sub>ij</sub>	Physical distance (in kilometres) between origin country <sub>i</sub> and country <sub>j</sub> )	CEPII
Exchange rate <sub>i</sub>	Exchange rate for origin country j.	IMF's International Financial Statistics
GDP <sub>j</sub>	Real GDP per capita of the country j.(in USD)	IMF's International Financial Statistics
Export <sub>ij</sub>	Export of Turkey to country j(in USD)	IMF's Direction of Trade Database(DOTS)
Import <sub>ij</sub>	Imports of Turkey from country j. (in USD)	IMF's Direction of Trade Database(DOTS)
School <sub>j</sub>	A binary variable that takes 1 if the country j has a Turkish school at time t, zero otherwise.	Author's own calculations, various resources including AYNA TV program, websites of schools(www. Turkokullari.net)
Enrollment <sub>p</sub>	The total enrollment of Turkish school in country j at time t. Normalized by the population of country j.	Author's own calculations, various resources including AYNA TV program, websites of schools(www. Turkokullari.net)
Inflation <sub>j</sub>	Inflation is simply the logarithm of the Consumer Price Index differences of Country I at time t.	IMF's International Financial Statistics
Exchange Rate <sub>j</sub>	Exchange rate is the change in exchange rate of the country j's currency per USD.	IMF's International Financial Statistics
WTO <sub>ij</sub>	Is a binary variable takes 1 if both country j and Turkey is a member of WTO at time t, and zero for elsewhere.	Authors' own calculations.
Custom <sub>ij</sub>	Custom is a binary variable takes 1 if both country j and	Authors' own calculations.

**Table 2: Descriptive Statistics for Variables**

	Observations	Mean	Standard Deviation	Maximum	Minimum
Colony <sub>ij</sub>	1592	0.12	0.33	1.00	0.00
Contiguous	1592	0.03	0.16	1.00	0.00
Common Language <sub>ij</sub>	1592	0.02	0.14	1.00	0.00
Custom <sub>ij</sub>	1592	0.02	0.13	1.00	0.00
Distance <sub>ij</sub>	1592	5723	2906	13118	502
School Enrollment <sub>t</sub>	1592	0.009	0.002	0.04	0.00
Inflation <sub>t</sub>	1592	0.13	0.28	0.98	0.02
Log(Export <sub>ij</sub> )	1592	2.02	2.61	2.74	0.00
Log(GDP <sub>t</sub> )	1592	6.94	1.22	10.68	4.72
Log(Import <sub>ij</sub> )	1592	10.45	4.30	14.32	0.00
Log(Population <sub>t</sub> )	1592	16.70	1.49	20.93	1.49
Gulen School Dummies <sub>t</sub>	1592	0.41	0.49	1.00	0.00
WTO <sub>ij</sub>	1592	0.41	0.46	1.00	0.00
Exchange rate <sub>t</sub>	1592	0.10	0.31	3.87	-0.24

*Note:* See Table 1 for variable definitions

**Table 3: Summary of Panel Unit Root Test for Variables**

Variable	LLC	IPS	ADF	PP
School Enrollment <sub>t</sub>	0.0000	0.0000	0.0000	0.0000
Inflation <sub>t</sub>	0.0000	0.0000	0.0000	0.0000
Log(Export <sub>ij</sub> )	0.0000	0.0000	0.0000	0.0000
Log(GDP <sub>t</sub> )	0.0000	0.0000	0.0000	0.0000
Log(Population <sub>t</sub> )	0.0000	0.0000	0.0000	0.0000
Exchange rate	0.0000	0.0000	0.0000	0.0000

*Notes:* The table reports the  $p$ -values for the relevant tests. LLC: Levin, Lin & Chu; IPS: Im, Persaran and Shin; ADF: ADF-Fisher chi square; PP: PP-Fisher chi square.

**Table 4: Panel Data Estimation for Turkey's Exports**

	(1)	(2)	(3)	(4)
Colony <sub>ij</sub>	2.54(0.18)***	2.27(0.18)***	0.007(0.002)***	0.006(0.001)***
Contiguous <sub>ij</sub>	1.07(0.30)***	1.14(0.30)***	0.003(0.002)	0.003(0.001) **
Common Language <sub>ij</sub>	2.75(0.30)***	2.45(0.30)***	0.004(0.002)***	0.004(0.001)***
Distance <sub>ij</sub>	-0.54(0.10)***	-0.51(0.10)***	-0.001(0.001)	-0.001(0.005)
Log(Population <sub>j</sub> )	0.63(0.03) ***	0.66(0.03) ***	0.004(0.001) ***	0.005(0.001) ***
Log(GDP <sub>j</sub> )	0.25(0.02) ***	0.25(0.02) ***	0.001(0.002)	0.001(0.003)
Inflation <sub>j</sub>	-0.66(0.33) **	-0.65(0.33) **	0.002(0.003)	0.0005(0.001)
Exchange rate <sub>j</sub>	-0.63(0.29) **	-0.61(0.29) **	-0.002(0.001) **	-0.002(0.0015)
Custom <sub>ij</sub>	-0.52(0.36)	-0.09(0.10)	0.0001(0.002)	0.0001(0.002)
WTO <sub>ij</sub>	0.12(0.08)	0.06(0.08)	0.001(0.0005) **	0.001(0.0004) **
School <sub>j</sub>		0.68(0.13) ***		0.003(0.0015)**
School Enrollment <sub>j</sub>		0.97(0.31) ***		0.027(0.003) ***
No. of Observations	1592	1592	1823	1823
Time/Cross Section Fixed Effect	Yes	Yes	Yes	Yes
ADJUSTED R <sup>2</sup>	0.46	0.48	0.37	0.47

Notes: \*, \*\*, and \*\*\* indicate that the coefficient is significant at the 10%, 5% and 1% level respectively. Standard errors are reported in parentheses. See Table 1 for the variable definitions. The dependent variable used for Columns (1) and (2) is the logarithm of total export of the Turkey in country j . For Columns (3) and (4), the dependent variable is the share of country j in the total exports of Turkey

**Table 5: Dynamic Panel Data Estimation for Turkey's Exports**

	(1)	(2)	(3)	(4)
$\Delta \text{Log}(\text{Exports}_{ij})_{t-1}$ OR (Exportshare <sub>ij</sub> ) <sub>t-1</sub>	0.47(0.002) ***	0.42(0.002) ***	0.55(0.001) ***	0.66(0.001) ***
$\Delta \text{Log}(\text{Population}_j)$	0.08(0.003) ***	0.09(0.06)	-0.012(0.0001) ***	0.01(0.0001) ***
$\Delta \text{Log}(\text{GDP}_j)$	0.18(0.002) ***	0.15(0.02) ***	0.007(0.001) ***	-0.003(0.001) ***
$\Delta \text{Inflation}_j$	-0.73(0.09) ***	-0.78(0.06) ***	-0.002(0.0005) ***	-0.002(0.0005) ***
$\Delta \text{Exchange rate}_j$	-0.46(0.01) ***	-0.31(0.03) ***	-0.005(0.001) ***	-0.001(0.0001) ***
$\Delta \text{Custom}_{ij}$	0.12(0.10)	0.11(0.11)	0.0001(0.002)	0.0001(0.0002)
$\Delta \text{WTO}_{ij}$	0.09(0.01) ***	0.10(0.01) ***	0.002(0.0005) ***	0.002(0.00001) ***
$\Delta \text{School}_j$		0.23(0.05) ***		0.005(0.00001) ***
$\Delta \text{School Enrollment}_j$		0.24(0.11) **		0.003(0.0001) ***
No. of Observations	1456	1427	1762	1723
Sargan Statistic p-value	0.15	0.40	0.36	0.33
Wald test p-value	0.00	0.00	0.00	0.00

Notes: \*, \*\*, and \*\*\* indicate that the coefficient is significant at the 10%, 5% and 1% level respectively. Standard errors are reported in parentheses. See Table 1 for the variable definitions. The dependent variable used for Columns (1) and (2) is the logarithm of total export of the Turkey in country j . For Columns (3) and (4), the dependent variable is the share of country j in the total exports of Turkey.

**Table 6: Panel Data Estimation for Turkey' Imports**

	(1)	(2)	(3)	(4)
Colony <sub>ij</sub>	5.77(0.53)***	5.19(0.55)***	0.005(0.001)***	0.003(0.001)***
Contiguous <sub>ij</sub>	5.67(0.98)***	5.84(0.91)***	0.004(0.001)***	0.005(0.001)***
Common Language <sub>ij</sub>	5.54(0.62)***	4.56(0.64)***	0.005(0.001)***	0.006(0.001)***
Distance <sub>ij</sub>	-1.76(0.28)***	-1.89(0.25)***	-0.003(0.001)***	-0.002(0.001)**
Log(Population <sub>j</sub> )	31.05(2.31)***	29.47(2.36)***	-0.001(0.002)	0.002(0.001)**
Log(GDP <sub>j</sub> )	3.72(0.63)***	4.21(0.64)***	-0.001(0.004)	-0.001(0.008)
Inflation <sub>j</sub>	-0.01(0.01)**	-0.02(0.01)**	-0.003(0.001)**	-0.003(0.002)
Exchange rate <sub>j</sub>	-3.23(1.10)**	-3.90(1.11)**	-0.002(0.001)**	-0.002(0.001)**
Custom <sub>ij</sub>	1.70(1.14)	2.76(0.10)**	0.003(0.001)***	0.003(0.001)***
WTO <sub>ij</sub>	0.95(1.04)	0.95(0.59)	0.002(0.005)	0.002(0.006)
School <sub>j</sub>		1.98(0.40)***		0.004(0.001)***
School Enrollment <sub>j</sub>		0.45(0.29)		0.004(0.004)***
No. of Observations	2303	2303	2303	2303
Time/Cross Section Fixed Effect	Yes	Yes	Yes	Yes
ADJUSTED R <sup>2</sup>	0.28	0.31	0.18	0.24

Notes: \*, \*\*, and \*\*\* indicate that the coefficient is significant at the 10%, 5% and 1% level respectively. Standard errors are reported in parentheses. See Table 1 for the variable definitions. The dependent variable used for Columns (1) and (2) is the logarithm of total import of the Turkey from country  $j$ . For Columns (3) and (4), the dependent variable is the share of country  $j$  in the total imports of Turkey

**Table 7: Dynamic Panel Data Estimation for Turkey's Imports**

	(1)	(2)	(3)	(4)
$\Delta \text{Log}(\text{Imports}_{ij})_{t-1}$ OR $(\text{MImportshare}_{ij})_{t-1}$	0.28(0.002)***	0.28(0.002)***	0.82(0.001)***	0.67(0.001)***
$\Delta \text{Log}(\text{Population}_j)$	21.87(0.002)***	19.45(0.21)***	-0.05(0.0001)***	-0.05(0.0001)***
$\Delta \text{Log}(\text{GDP}_j)$	3.00(0.002)***	3.66(0.32)***	0.03(0.001)***	0.09(0.001)***
$\Delta \text{Inflation}_j$	-0.01(0.002)***	-0.01(0.001)***	-0.02(0.0003)***	-0.58(0.0003)***
$\Delta \text{Exchange rate}_j$	-1.04(0.03)***	-1.82(0.11)***	-0.09(0.001)***	-0.17(0.001)***
$\Delta \text{Custom}_{ij}$	0.06(0.01)***	0.05(0.01)***	0.001(0.0001)***	0.001(0.0001)***
$\Delta \text{WTO}_{ij}$	-0.85(0.90)	-0.96(0.61)	0.07(0.005)***	0.27(0.005)***
$\Delta \text{School}_j$		2.51(0.31)***		0.16(0.001)***
$\Delta \text{School Enrollment}_j$		11.45(0.81)**		0.001(0.001)
No. of Observations	2212	2181	2212	2181
Sargan Statistic $p$ -value	0.28	0.35	0.48	0.38
Wald test $p$ -value	0.00	0.00	0.00	0.00

Notes: \*, \*\*, and \*\*\* indicate that the coefficient is significant at the 10%, 5% and 1% level respectively. Standard errors are reported in parentheses. See Table 1 for the variable definitions. The dependent variable used for Columns (1) and (2) is the logarithm of total import of the Turkey in country  $j$ . For Columns (3) and (4), the dependent variable is the share of country  $j$  in the total imports of Turkey.