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Can Turkish and Us Co-Operation in the Black Sea Region Increase Efficiency Gains?

ABSTRACT. *This paper examines the impact of co-operation between Turkey and the US upon Turkish trade and investments towards the Black Sea region. The study is particularly important in the conjuncture of the US withdrawal from the Transatlantic Trade and Investment Partnership (TTIP) and in the wake of signing a free trade agreement with the EU. An additional matter of importance relates to the improved Turkey – Russia economic collaboration especially after the “jet” incident and American involvement with the Middle East. Significant part of the latter is economic as the US has also explicit economic interests in the Eastern Mediterranean. A gravity model has been employed using ordinary least squares on a panel data with fixed effects to analyse aggregate trade. We have also categorized export groups of Turkey and the US separately. Our findings for both Turkish and the US ex-*

ports indicate that per-capita GDP of Black Sea countries are highly persistent and positively correlated with increased efficiency gains and trade volumes. Regression results show that the US exports to the EU member countries are on average less than to those non-EU member Black Sea countries. Hence, we question whether a possible co-operation between the US and Turkish companies can help gaining better access to the Black Sea market for their exports.

KEYWORDS: *trade; gravity model; Turkey, US; Black Sea countries*

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Может ли сотрудничество между Турцией и США в Черноморском регионе привести к улучшениям эффективности?

АННОТАЦИЯ. Настоящая статья посвящена вопросу влияния сотрудничества между Турцией и США на турецкую торговлю и инвестиции в Черноморский регион. Данное исследование приобретает особую актуальность в контексте выхода США из Трансатлантического торгового и инвестиционного партнерства, а также после подписания договора о свободной торговле с Европейским Союзом. Вторым аспектом важности рассматриваемого вопроса является улучшение российско-турецкого торгового сотрудничества, особенно после инцидента со сбитым самолетом и усиления американского присутствия на Ближнем Востоке. Существенная часть последнего касается экономических вопросов, так как США имеют прямо выраженные экономические интересы в Восточном Средиземноморье. Для анализа общей торговли была применена модель с использованием метода наименьших квадратов. Автором в отдельности также были классифицированы экспортные группы Турции и США. Полученные результаты как для турецкого, так и для американского экспорта показывают, что ВВП на душу населения в Черноморских странах значительно устойчив и положительно коррелирован с увеличением прибыли и объемами продаж. Результаты регрессии показывают, что экспорт США в страны – члены Европейского Союза в

среднем меньше, чем для стран Черноморского региона, не входящих в ЕС. В силу этого возникает сомнение относительно того, может ли сотрудничество между американскими и турецкими компаниями помочь получить доступ к черноморскому рынку для экспорта с их стороны.

КЛЮЧЕВЫЕ СЛОВА: торговля, гравитационная модель внешней торговли, Турция, США, Черноморские страны

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Introduction

The aim of this paper is to examine outcomes of a possible co-operation between Turkish and US companies while exporting goods towards the Black Sea (BS) region. We achieve this by using a gravity model in which we analyze primarily the determinants of aggregate exports of both Turkey and the US to the BS region. Then we examine different categories of exports such as food products, machinery and manufactures, separately.

We find that both Turkish and US exports are highly persistent and positively correlated to the per-capita GDP of BS region countries. We also find that determinants of export performance for each sub-category differs substantially. Moreover, regression results show that trade and investment agreements are relevant for US exports to the region, while this is not the case for Turkey.

One other important finding relates to the impact of EU membership of the BS region partners upon exports of the US and Turkey. Total US exports to the non-EU member BS countries are on average higher than to those BS countries that are members of the EU. On the other hand for Turkish exports the EU membership variable is not statistically significant. This suggests that, in order to increase their share in markets for exports in the region a synergy can be generated between the US and Turkish firms.

The following section summarizes the political economy of commercial relations between Turkey and the US with BS countries. The third section explains the methodology and the fourth the data used in the study. Then, we present findings of the empirical tests and sum up with policy recommendations and concluding remarks

Political Economy of BS Countries and Prospects for Turkey – US Co-operation

Differences of BS country economies are most profound as their developmental stages are diverse. In 1992 Turkey and 10 other regional nations formed the Black Sea Economic Cooperation (BSEC) to expand regional trade and economic cooperation. This institution envisioned by late Turkish President Turgut Ozal is important for the purpose of this paper. The BSEC created a powerful regional market of 400 million people from countries bordering or near the Black Sea. This region, rich in untapped natural resources and vital industries, is one of the most difficult terrains of business activity in the world. The agree-

ment ultimately aims to eradicate Black Sea Region countries' differences in economic fundamentals and business practices.

Some of the BSEC countries like Greece, Bulgaria and Romania are in the European Union and they are bound with the rules and regulations imposed by EU membership. Bulgaria, another EU member state received significant amounts of FDI and its successive governments were committed to economic reforms and responsible fiscal planning. The presence of Turkish companies in Bulgaria is vast and the operations of these firms cover a wide range of sectors, from food production to banking. This is facilitated by the presence of large indigenous ethnic Turks. Romania is another Black Sea country that has joined the EU's ranks in 2007. Romania, a deficit country achieved strong GDP growth in recent years thanks to domestic consumption and investment. Romania, one of the poorest countries in the EU, benefited from the membership as it began to realize macroeconomic gains recently, spurring the creation of a middle class. Romania received \$3,4bn FDI inflow with strong Turkish background. Turkish businesses there also vary in the sectors as wide as food, textiles and banking.

The other cluster of countries in the BSEC includes Georgia, Ukraine, Belarus and Russia. Georgia's recent improvement include growth in the construction, banking services, and mining sectors, but reduced availability of external investment and the slowing regional economy are emerging risks. The country imports nearly all its needed supplies of natural gas and oil products. Belarus on the other hand has seen limited structural reform since 1995, when President Lukashenko launched the country on the path of "market socialism". In keeping with this policy, administrative controls over prices and currency exchange rates were re-imposed. In Belarus, continued state control over economic operations hampers market entry for businesses, both domestic and foreign. Ukraine is known as the bread basket of the ex-Soviet Union. It also has a diversified heavy industry with integrated market structures to the other regions of the

former USSR. Although Ukraine is dependent for its energy supplies on Russia, it is one of the most important economies in the region. The liberalization effort has failed as Ukraine experienced a contraction. Ukraine is strategically an important country, as it has been proven by a two-week dispute that saw gas supplies cut-off to Europe in the recent past. Ukraine has ended up with an agreement of ten year gas supply and transit contract with Russia.

The Russian economy was one of the hardest hit by the 2008–2009 global economic crisis as oil prices plummeted and the foreign credits that Russian banks and firms relied on dried up. High oil prices buoyed Russian growth in the first quarter of 2011 and could help Russia reduce the budget deficit inherited from the lean years of 2008–2009, but inflation and increased government expenditures may limit the positive impact of these revenues (Kuznetsov, 2017). Russia's long-term challenges include a shrinking workforce, a high level of corruption, difficulty in accessing capital for smaller, non-energy companies, and poor infrastructure in need of large investments. Russia is a surplus economy by \$71 bn and a growth rate of 4% still receives a record high FDI inflow of \$43bn.

The impact of FDI flows from neighbouring countries more recently began attracting some academic attention. For instance, (Kuznetsov, Nevskaya, 2017) draw attention to the Russian inward FDI from Visegrad countries (Poland, Czech Republic, Slovak Republic and Hungary). They argue that while these countries have been major FDI recipients in Central and Eastern Europe, they have become investors in Russia. For them, Visegrad group direct investments in Russia are mostly comes from enterprises which has removed the political component from their investment decisions. As Rossitsa Rangelova puts it, FDI from the West-European countries has been a major driver for CEE transformation since the beginning of the 1990s, including technological and structural renewal as well as new management methods and organizational rules (Rangelova, 1999).

Briefly, the recent political economy of the region indicates to the severity of conflict of interest between neighbouring countries. Some of the countries in the region drawn under the umbrella of the EU are unable to create competitiveness for their fledgling industries. Russia and Ukraine are trying to establish themselves a respectable place in the newly built transatlantic power corridors and between the US and China. Turkey is no exception. "Arab Spring" appeared to engineer for Turkey a role in the new global power structures but this has faded away rapidly. In the meantime Turkey's bid for EU membership seems to falter. Turkey's geo-politics forces her to be innovative in developing herself a new role in the Eurasian power architecture. In this respect there exists a scope for Turkey to develop business collaborations with the countries in the Black Sea region.

In a relatively short time span there have been fundamental economic and political changes in the region surrounding Turkey. The neighbours in the Black Sea region went through a systemic shift from a socialist economic set up to a more liberalised one while the neighbours to the south experienced a social upheaval popularly known as the "Arab Spring". Amidst these radical shifts Turkey tried to remain relatively stable despite some internal disturbances and external imbalances. Trade with the regions both to the north and to the south increased exponentially. Turkey's commercial and economic interests has become increasingly aligned with Russia that has evolved towards a more strategic partnership, even though Turkey continues to be a member of the Western camp especially through her membership to NATO. As a result Turkey became a hub for the distributional corridors of Caspian and Central Asian oil and gas to the West. In the same time up until recently Turkey was shown as the model case for developing nations in the region.

In the past US interest in the region has been merely focused on security issues. This was due to the international relations of the cold war era. Hard dying habits in establish-

ing such interactions and the ways in which they are inherited by the modern times has been studied more recently by A. Kuznetsov (Kuznetsov 2017). This work presents a comprehensive review on Russian – US relations and discusses that the stagnation of mutual FDI flows began in 2009–2010 as economic and political considerations of the investors has become more influential in investment decision making (p. 45). Since American security architecture began to be redesigned along the “War on Terror” strategy framework US interests in the region assumed more of economic character. But the question is to what extent US can go into the region by itself. What if US acted together with its longest standing ally in the region, namely Turkey, in pursuant of commercial and economic interests? This paper examines the idea of U.S. firms acting together with their Turkish partners in producing positive returns when looking beyond the traditional Middle Eastern and North African markets to seize opportunity to reach markets in the former Soviet Union and Eastern Europe as well as Central Asia. As mentioned above, Turkey already acts as an important link in the East-West Southern Energy Corridor bringing Caspian, Central Asian, and Middle Eastern energy to Europe and world markets. The Baku-Tbilisi-Ceyhan pipeline, which came online in July 2006, delivers 1 million barrels/day of petroleum, and in 2007, the South Caucasus Pipeline (from Shah Deniz) started bringing natural gas from Azerbaijan to Turkey. Turkey’s interconnector pipeline to Greece, an important step in bringing Caspian natural gas to Europe, came online in 2007. In 2009, Turkey signed the Nabucco Intergovernmental agreement, along with Austria, Bulgaria, Romania, and Hungary, which includes plans for a 2,000-mile natural gas pipeline running from Erzurum, Turkey to Baumgarten, Austria with a 31 billion cubic meter capacity. Alternative proposals to Nabucco include the Trans-Adriatic Pipeline (TAP) and the Italy-Turkey-Greece Interconnector.

In the meantime, Turkey’s integration with the region and the US is organised around certain political and economic agreements. Besides its membership to NATO, Turkey is a member of the Organization for Economic Cooperation and Development (OECD), the Council of Europe, and the Organization for Security and Cooperation in Europe (OSCE) as well as the UN and Organization of the Islamic Conference (OIC). Turkey and the EU formed a customs union in the beginning of 1996. In December 1999, Turkey became a candidate for EU membership. The EU decided to begin formal accession negotiations with Turkey in 2005. Turkey is a member of the World Trade Organization (WTO). It has signed free trade agreements with the European Free Trade Association (EFTA), Israel, and many other countries.

We now focus on the U.S. – Turkish perspective with respect to improving business co-operation in the Black Sea Region. We particularly focus on complementarities and indivisibilities in domestic country business set-up and their forward looking prospects in collaboration in the region. This is especially important in the current conjuncture whereby the new US administration began debating a change in their connection with the EU in terms of investments and trade. Turkey views this development with concern that it may divert trade away from Transatlantic towards other parts of the world. Provided that this opportunity is used to promote Turkey’s priorities, this may be helpful in turning Turkish government’s target for the 2023 to become world’s tenth largest economy (now 16th) and reaching an export volume of \$500 bn., while realising per capita incomes beyond \$20 thousand. In order to meet these targets what Turkey needs is, to embark upon some radical shifts in reforming its labour force as well as opening herself up for a more global reach.

The EU membership bid has provided significant social opportunities by developing closer economic and social co-operation. But, the EU engagement with the current economic global crisis prioritised its areas of as-

sistance, in which Turkey did not have uppermost importance. On the other hand, Turkey's importance to the U.S. comes from its geographic location at the junction of the turbulent Middle East, Caucasus, Central Asia, the Balkans and the Black Sea region that include Ukraine and Russia.

Recently, crisis dynamics and energy concerns in the globalised world economy drove such geo-strategically inspired relationship towards the economic sphere. In fact, Turkey already has become an important market for U.S. businesses, in terms of both trade and foreign investments but this importance now has grown to such an extent to act as a bridgehead towards the third countries particularly in the Middle East and the Black Sea Region. More recently, as observed from a variety of interactions between U.S. – Turkey economic councils, a stronger emphasis to work together to overcome obstacles and to seek out new ways to pursue mutual goals in the ex-Soviet countries and Central Asia.

Authorities in both countries search for mechanisms for expanding shared priorities in third countries by promoting support for small and medium sized exporters. The steps taken to enhance investment climate include regulatory and intellectual property support for innovative industries, energy, biotechnology, pharmaceuticals, and government procurement. These steps are expected to deepen ties between the U.S. and Turkish private sectors. Given Turkey's economic growth and development over the last ten years, the U.S. decided to shift its emphasis from short term technical assistance projects to longer term business linkages between the US and Turkish firms. Turkey applies the EU's common external customs tariff to third-country imports, including from the United States, non-agricultural imports and imposes no duty on non-agricultural items from EU and European Free Trade Association (EFTA) countries.

The U.S. Commerce Department has designated Turkey as one of the ten Big Emerging Markets, forecasting great potential commercial opportunities. In 1993 the number of

American firms operating in Turkey was 80, in 2013 this number is above 1200. The U.S. – Turkish Bilateral Investment Treaty went into effect in April 1990. A double-taxation agreement has been signed. In 2009 the U.S. and Turkey launched the Framework for Strategic Economic and Commercial Cooperation, a new cabinet-level initiative focused on boosting trade and investment ties. The inaugural Framework for Strategic Economic and Commercial Cooperation meeting was held in Washington in October 2010. The Framework aims to reduce barriers to bilateral trade and investment, create opportunities for U.S. workers, farmers, and firms, and otherwise enhance bilateral economic ties. The Framework includes greater involvement of the private sector in both countries in dialogue and deliberations between the two governments.

This new engagement on economic matters will give momentum to bilateral commercial transactions and mutual investment flows. The Framework will help the business communities in both countries explore new business partnerships and execute commercial transactions. In addition to the new framework, the U.S. and Turkey hold annual meetings of the Trade and Investment Framework Agreement (TIFA) Council, which met in Washington in July 2010, and the Economic Partnership Commission (EPC), which met in March 2011. The U.S. – Turkish Business Council was established to enable private sector leaders from both markets to provide joint recommendations for improving the commercial relationship.

Two-way trade (exports plus imports) between the United States and Turkey was valued at \$18.7 billion during 2014, representing a modest trading relationship. While U.S.-Turkish trade was sharply impacted by the economic downturn in 2009, U.S. exports to Turkey increased in 2014. Leading U.S. exports to Turkey include aircraft, iron, steel, machinery and fabric, in addition to a wide range of agricultural products. Turkey predominantly exports vehicles, machinery, cement, and tobacco to the United States.

The stock of U.S. foreign direct investment (FDI) in Turkey was \$4.9 billion in 2007, and amounted to \$6.3 billion in 2009, mostly concentrated in the wholesale trade and manufacturing sectors, while Turkish FDI in the United States was \$218 million. Turkey attracted \$325 million FDI from the US in 2014. Americans expect from Turkey to increase its trade advocacy and export promotion efforts, as well as easing up of accessing to the credits, especially for small – and medium-sized businesses involved in high value-added goods and services. According to US Department of State, “Turkey must enforce international trade rules, ensure the transparency and timely execution of judicial orders, increase engagement with foreign investors on policy issues, and pursue policies to promote strong, sustainable, and balanced growth”¹.

U.S. FDI in Turkey is concentrated largely in the banking and manufacturing sectors. Almost all economic sectors open to investment by the Turkish private sector are fully open to foreign participation without screening or prior approval, although establishment in Turkey’s financial and petroleum sectors requires permission. Foreign equity ownership is limited to 25 percent in broadcasting and 49 percent in maritime transportation. Turkey’s parliament is considering draft legislation easing restrictions on foreign ownership in the media sector.

All areas which are open to the Turkish private sector are now open to the U.S. participation and investment. Turkey grants U.S. businesses the same rights, incentives, exemptions and privileges that Turkish businesses receive. U.S. firms can participate in government-financed and/or subsidized research and development programs. Investment incentives include subsidized credit facilities and exemptions on corporate and value-added tax, customs fees and duties. Such openness makes Turkish – U.S. ventures more attractive to act

together in third countries. In addition to an industrial and commercial market in its own right, Turkey is also a regional business hub, thereby offering tremendous opportunity for North American companies to penetrate the high-growth economies of the Middle East, North Africa, Central Asia and the Balkans.

Turkey’s both political and economic involvement in its vicinity has increased significantly in recent years. Delegations from the US, but also other developed and developing countries, kept calling for cooperation with Turkey in order to invest in third countries in regions where the latter’s influence is or is about to be big, such as in the Black Sea, as well as North Africa and Middle East regions. However, our inspiration for this research goes beyond recent political developments. Turkey’s total exports to the Black Sea countries has overpassed those of the US as of 2005. Turkish exports to the BS countries have become more attractive compared to the US exports to the same countries, starting from 2005.

The gravity model

The gravity model was first formulated by Tinbergen (Tinbergen, 1962), who argued trade among countries is determined by the size of their incomes (which Tinbergen measures in gross national product, or GNP) and the geographic distance between them. Linneman (1966) added the population variable to the model. The gravity model has been successful in explaining trade flows but initially lacked theoretical background. After a wave of criticism in the 1970s and 1980s, several authors including Anderson (Anderson, 1979), Bergstrand (Bergstrand, 1985, 1989, 1990) and Helpman and Krugman (Helpman, Krugman, 1985) proved the model had a strong theoretical background.

1 2015 Investment Climate Statement – Turkey. URL: <https://www.state.gov/e/eb/rls/othr/ics/2015/241775.htm#18> (Accessed: 10.06.2017)

An extensive review of empirical studies using gravity models to study international trade flows in recent years can be found in Kεaptsoglou, Karlaftis and Tsamboulas (Kεaptsoglou, Karlaftis, Tsamboulas, 2010).

The simplest form of the gravity model is presented in the following equation:

$$(1) T_{ij} = (Y_i^\alpha Y_j^\beta) / (D_{ij}^\theta)$$

where T_{ij} is trade between country i and j , Y_i is country i 's gross domestic product (GDP), Y_j is country j 's GDP and D_{ij} is the physical distance between the two countries. The parameters α , β and θ are generally estimated in the log-linear version of the model as follows:

$$(2) \ln T_{ij} = \alpha \ln Y_i + \beta \ln Y_j - \theta \ln D_{ij}$$

As noted by equations (1) and (2) above, the gravity model suggests that trade flows between two countries are positively related to their economic size and negatively related to the physical distance between them, which refers to transportation costs. Since Tinbergen (Tinbergen, 1962) the model has been developed and extended in various forms, adding other variables that might affect trade flows such as prices (Bergstrand, 1985, 1989; Anderson, 1979; Anderson, van Wincoop, 2003). Other variables referring to trade costs other than distance were added to the model. These include dummies on borders, cultural or historical (colonial) links among countries, language similarities, membership in free trade area and/or other trade-related agreements.

A number of studies have analyzed determinants of Turkey's trade flows through gravity models (Lejour, Mooij 2005; Antonucci, Manzocchi 2006; Akkemik, Gökşal 2010). These studies analyze different aspects of trade, for instance, the role of EU in Turkey's trade flows, the effects of Chinese exports on Turkish exports or the determinants of Turkish agricultural exports to the EU.

In this paper, we seek to compare trade determinants of Turkey's and US' exports to the Black Sea region countries. We develop

a gravity model and employ a panel dataset to investigate to what extent determinants of Turkey's and US' exports to this region differ. We use country-specific characteristics such as distance between countries and membership in free trade area agreements and membership to the EU and WTO. We also employ other variables that might affect trade flows between Turkey and US and the BS countries, such as gas prices, real effective exchange rates, inflation and unemployment rates.

In order to conduct our analysis, we construct a panel data least ordinary squares model with fixed effects separately for both Turkey's and US' exports toward the Black Sea region (BS) countries.

For Turkey's exports to the BS countries we propose a log-linear variant of the gravity equation as follows:

$$(3) \ln X_{TUR,i,t} = \alpha_0 + \alpha_1 \ln X_{TUR,i,t-1} + \alpha_2 \ln GDP_{i,t} + \alpha_3 \ln GDP_{i,t-1} + \alpha_4 \ln DISTOIL_{i,TUR,t} + \alpha_5 \ln REER_{TUR,t} + \alpha_6 \ln REER_{TUR,t-1} + \alpha_7 \ln GAS_t + \alpha_8 \ln INF_{i,t} + \alpha_9 \ln UNE_{i,t} + \alpha_{10} FTA_t + \alpha_{11} EU_t + \alpha_{12} WTO_t + \varepsilon_t$$

The dependent variable $\ln X_{TUR,i,t}$ indicates Turkey's exports to the BS countries at time t . Subscript i refers to Turkey's trading partners, namely the BS countries, whereas TUR refers to Turkey. $GDP_{i,t}$ indicates per capita real GDP of the partner country. $DISTOIL_{i,TUR,t}$ is a proxy variable developed by multiplying the distance between Turkey and the BS country with oil prices, which we discuss further in the next section. $REER_{TUR,t}$ indicates the real effective exchange rate for Turkey. Meanwhile, GAS_t , $INF_{i,t}$ and $UNE_{i,t}$ refer to gas prices, inflation rates and unemployment rates, respectively. These variables are also believed to explain exports of Turkey to the BS economies. We include one lag of Turkish exports, GDP and real effective exchange rates as independent variables, as well.

Variable FTA_t is a dummy variable that indicates membership of Turkey and the trading partner from BS countries in the same free trade area agreement (FTA). The dummy takes the value of 1 when the free trade

agreement also including Turkey and the BS trading partner has entered into force and 0 when there is no FTA in force, including these countries.

EU_t and WTO_t are two other dummy variables that account for European Union (EU) and World Trade Organization (WTO) membership, respectively. The variables take the value of 1 when the BS trading partner is a member of EU and/or WTO, and 0 otherwise.

Meanwhile, for US' exports to the BS countries we propose a log-linear variant of the gravity equation as follows:

$$(4) \ln X_{US,i,t} = \alpha_0 + \alpha_1 \ln X_{US,i,t-1} + \alpha_2 \ln GDP_{i,t} + \alpha_3 \ln GDP_{i,t-1} + \alpha_4 \ln DISTOIL_{i,US,t} + \alpha_5 \ln REER_{TUR,t} + \alpha_6 \ln REER_{US,t-1} + \alpha_7 \ln GAS_t + \alpha_8 \ln INF_{i,t} + \alpha_9 \ln UNE_{i,t} + \alpha_{10} TA_t + \alpha_{11} EU_t + \alpha_{12} WTO_t + \varepsilon_t$$

The notations of dependent and independent variables are the same as in equation (3), except for the subscript 'US', which indicates the US as reference country, and the explanatory variable TA_t unlike the FTA_t in equation (3). TA_t is a dummy variable that takes the value of 1 if a trade agreement exists between the US and the BS country, starting as of the year the agreement was signed, and 0 otherwise.

We run regressions first for aggregate exports and then separate regressions for five different categories of exported goods – namely food, crude materials, chemicals, manufactured goods and machineries. Categories of the Standard International Trade Classification (SITC Rev.2) were used for developing these groups.

Table 2 in the Annex summarizes all variables used in the model.

Data

Our analysis covers the time period between 1992 and 2010. We restricted our time period since developments from 2010 creates anomalies in the data due to political developments in the region.

The bilateral trade data are extracted from the United Nations Commodity Trade Statistics (COMTRADE) database. The samples for each of the models include exports of Turkey and the US to nine Black Sea countries, namely: Azerbaijan, Belarus, Bulgaria, Georgia, Greece, Kazakhstan, Romania, the Russian Federation and Ukraine. We had to exclude Armenia, as there is officially no trade between this country and Turkey. The trade data in current US dollars is deflated with the US consumer price indices (1982–1984 = 100) extracted from the US Bureau of Labor Statistics database.

GDP per capita data in current US dollars were obtained from International Monetary Fund's World Economic Outlook (IMF WEO) database. This data was also deflated with the US consumer price indices with 1982–1984 = 100. The inflation rates in average consumer prices and the unemployment rates as a percent of total labor force were also obtained by the IMF WEO database.

The real effective exchange rate data for Turkey and the US was obtained from the OECD Main Economic Indicators (MEI) database. The base year for the real effective exchange rate series is 2005.

The data for the natural gas and oil prices – the latter multiplied to distance to create the $DISTOIL_{i,TUR,t}$ proxy – were obtained from the International Energy Agency/OECD Energy Statistics Division. Natural gas prices refer to the EU Pipeline Import prices measured in USD/MBtu, whereas oil prices indicate the Total Average IEA Member Country Crude Oil Import prices measured in USD/bbl.

The data on distance between Turkey and the BS countries as well as the distance between the US and the BS countries was obtained from the World Bank database produced by Nicita and Olaerraga (2006). The reason for developing the $DISTOIL_{i,TUR,t}$ proxy variable is due to the use of an Ordinary Least Squares (OLS) regression with fixed effects, where distance as a variable on its own would cause perfect multicollinearity. We must note here that the parameters corresponding to the variable were highly insignificant both when used

as distance only in pooled panel regressions or when used as the $DISTOIL_{i,TUR,t}$ proxy in fixed effects OLS panel data model.

We could draw two alternative conclusions from this: either distance is not important for Turkish and US imports to BS countries, or distance or the DISTOIL proxy is not a relevant variable to count for transportation costs. Bosker and Garretsen (2010) for example, argue that apart from transportation costs, other variables like *'tariffs and non-tariff barriers, but also less tangible costs arising from cross-border trade, due to institutional and language differences ...'* are other types of costs to trade among countries (2010, 193–4). Other authors also, like Head and Mayer (2010) have also raised the issue of effective distance measurement in gravity models.

Getting back to the other explanatory variables, the data for developing dummy variables on EU and WTO membership was obtained from official websites of the European Union and World Trade Organization, respectively.

The FTA/TA is the only variable that contains different information for Turkish and US exports to the region. For the Turkish exports regression, FTA indicates the presence of a free trade agreement and takes the value of 1 on the year the free trade agreement enters into force. Meanwhile, for the US exports regression, TA indicates the presence of a bilateral trade agreement between the US and the respective country and takes the value of 1 starting from the year the agreement was signed. Information for this variable was obtained from the Office of the US Trade Representative for the US.

Regression results

The results of the gravity model regressions are shown in Table 1. below. We note that all regressions exhibit high F-statistic and R-square values, which indicates the models fit the data and are well-defined.

Regression results show both Turkey's and US' exports towards Black Sea countries are

highly persistent, that is, their trend in the past years matters for determining that in the future. This is shown through the high level of significance – 1 percent – for first lags of dependent variables $L[DEP.VARIABLE]_1$, that is, aggregate exports and exports by each category in all but one regression.

We also notice that the significance of independent variables varies among regressions with aggregate exports or different categories of exports as dependent variables. This implies our model is not bound to aggregate exports and that exports of various commodity categories are determined by different factors.

Regressions indicate the per capita GDP of BS countries is important for both Turkish and US aggregate exports to these countries. The parameter of this variable for the Turkish exports regression is significant statistically and shows a one percent increase in the GDP of BS countries will increase Turkish aggregate exports to these countries by about 0.5 percent. The figure for the US is about 0.39 percent, significant at a 5 percent significance level. These findings suggest there would be a higher demand for Turkish aggregate exports compared to the US aggregate exports (by about 0.11 percentage points) by BS countries for the same amount of increase in their per capita GDP. Moreover, the per capita GDP of BS countries is also statistically significant for Turkey's chemicals, manufactured goods and machinery export categories, as indicated in Table 1.

Variation in Turkey's and US' exports to the BS region is not explained by the variation in the real effective exchange rates variable L_REER , neither by its lag L_REER_1 . Both are statistically insignificant in almost all regressions. This implies irrelevance of price competition in export flows from Turkey and the US to the BS region. Akkemik and Göksal (2010) also get similar results while examining the effect of Chinese exports on Turkish exports. Such findings suggest exports of Turkey and the US to the BS countries are affected by real factors rather than price competitiveness.

An interesting finding is the fact that the presence of a trade agreement between the US and a BS country is statistically significant for

Table 1. Regression results for Turkish and US exports to Black Sea countries

	TOTAL		L_FOOD		L_CRUDE		L_CHEMIC		L_MANUF		L_MACHINE	
	Turkey	US	Turkey	US	Turkey	US	Turkey	US	Turkey	US	Turkey	US
Constant	6.093*** (-1.710)	7.113 (4.879)	5.766** (2.410)	31.177** (12.758)	0.635 (4.779)	29.854** (14.168)	9.731*** (1.894)	24.953*** (8.270)	9.132*** (2.427)	19.316*** (5.560)	5.169** (2.197)	17.877** (8.204)
I_GDPbs	0.499*** (0.125)	0.389** (0.149)	0.252 (0.157)	-0.259 (0.373)	0.364 (0.403)	-0.511 (0.428)	0.285** (0.134)	0.363 (0.257)	1.002*** (0.170)	-0.039 (0.169)	0.630*** (0.163)	0.224 (0.241)
I_GDPbs_1	-0.158 (0.099)	0.055 (0.132)	-0.346** (0.134)	-0.108 (0.327)	-0.318 (0.296)	0.812** (0.365)	-0.093 (0.115)	0.085 (0.215)	-0.593*** (0.151)	-0.042 (0.145)	0.549*** (0.132)	0.012 (0.217)
I_GDP(tr/us)	0.232 (0.335)	2.728 (2.083)	0.960** (0.461)	0.896 (5.105)	0.376 (1.008)	3.624 (5.549)	0.095 (0.382)	-2.052 (3.295)	-0.597 (0.492)	3.532 (2.261)	0.601 (0.455)	1.336 (3.308)
I_GDP(tr/us)_1	-0.317 (0.271)	-4.516* (2.331)	-0.279 (0.388)	-0.697 (5.585)	-0.631 (0.775)	-8.877 (6.156)	-0.032 (0.305)	-2.133 (3.672)	0.096 (0.391)	-4.071 (2.497)	-0.769** (0.358)	-1.237 (3.730)
I_DISTOIL	0.452*** (0.164)	0.294 (0.234)	0.096 (0.225)	-1.143* (0.606)	0.785 (0.484)	1.007 (0.668)	0.021 (0.189)	0.430 (0.401)	0.295 (0.246)	-0.387 (0.266)	0.485** (0.224)	-0.549 (0.397)
I_INF	-0.053** (0.025)	0.062* (0.033)	-0.040 (0.035)	-0.067 (0.083)	0.005 (0.072)	-0.002 (0.093)	-0.079*** (0.029)	-0.114** (0.055)	-0.057 (0.036)	-0.041 (0.037)	-0.09*** (0.033)	-0.002 (0.055)
I_UNE	0.108 (0.091)	-0.024 (0.115)	-0.311** (0.128)	-0.348 (0.294)	0.050 (0.274)	-0.146 (0.334)	0.115 (0.105)	-0.521*** (0.193)	-0.048 (0.138)	-0.206 (0.136)	0.005 (0.126)	-0.103 (0.194)
I_GAS	0.156 (0.195)	0.358 (0.257)	0.082 (0.268)	1.573** (0.649)	0.308 (0.586)	0.462 (0.724)	0.848*** (0.226)	0.367 (0.427)	0.463 (0.290)	1.054*** (0.286)	0.398 (0.266)	1.187*** (0.424)
I_REER(tr/us)05	0.493 (0.489)	1.132 (1.040)	-1.279* (0.653)	-3.633 (2.696)	-0.158 (1.418)	-0.220 (2.970)	-0.226 (0.544)	2.780 (1.754)	0.843 (0.701)	-1.392 (1.178)	-0.794 (0.647)	-1.582 (1.792)
I_REER(tr/us)05_1	-0.996* (0.536)	1.240 (0.878)	0.242 (0.767)	1.627 (2.265)	0.281 (1.631)	2.551 (2.516)	-0.823 (0.622)	0.717 (1.476)	-2.119*** (0.808)	1.413 (0.991)	1.001 (0.756)	1.787 (1.473)
FTA/TA	-0.005 (0.090)	0.085 (0.117)	0.118 (0.124)	0.343 (0.310)	0.040 (0.266)	0.591* (0.339)	0.057 (0.102)	0.434** (0.200)	0.026 (0.133)	0.291** (0.137)	0.365*** (0.120)	0.401** (0.199)
EU	-0.111 (0.103)	-0.286* (0.146)	0.129 (0.142)	-0.188 (0.345)	-0.109 (0.300)	-0.421 (0.380)	-0.204* (0.120)	0.058 (0.225)	-0.192 (0.154)	0.122 (0.152)	-0.059 (0.139)	-0.046 (0.224)
WTO	-0.037 (0.079)	-0.072 (0.103)	-0.074 (0.107)	0.199 (0.263)	0.192 (0.229)	0.189 (0.297)	-0.21623** (0.091)	-0.180 (0.175)	0.006 (0.121)	0.19561* (0.116)	0.036 (0.107)	0.122 (0.172)
I_[dep.variab]²	0.484*** (0.084)	0.522*** (0.085)	0.639*** (0.067)	0.530*** (0.076)	0.503*** (0.073)	0.401*** (0.080)	0.542*** (0.058)	0.261*** (0.075)	0.701*** (0.061)	0.409*** (0.077)	0.406*** (0.055)	0.142 (0.091)
Adjusted R2	0.981	0.956	0.953	0.861	0.914	0.881	0.967	0.893	0.964	0.948	0.960	0.899
[Prob.]	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Observations	146.000	146.000	146.000	146.000	143.000	145.000	146.000	146.000	146.000	146.000	144.000	146.000

Note: Values in brackets indicate standard errors. ***, ** and * denote variables are significant at 99%, 95% and 90% significance levels, respectively.

² This variable is the first lag of the dependent variable, changing for each regression.

almost all US' export categories, while it is not the case for its aggregate exports to BS countries. US exports of crude materials except fuels will be 59 percent higher to BS partners in case a free trade agreement exists among parties and has entered into force, compared to BS countries with which the US does not have a trade agreement.

Similarly, US exports will be higher to those BS countries with which it has a trade agreement in power by 43.4 percent for chemicals and related products (*L_CHEMIC*), by 29 percent for manufacturing sector goods (*L_MANUF*) and by 40 percent for machineries (*L_MACHINE*).

Regarding Turkish exports, a free trade agreement already signed will have a statistically significant positive effect only for exports of machinery and transport equipment.

The coefficient shows these exports will be 36.5 percent higher to BS countries with which Turkey has already signed a free trade agreement.

The EU membership dummy EU has a negative sign and is statistically significant at a 10 percentage significance level for the regression where US total exports are the dependent variable. The coefficient indicates US' exports total to a BS country will be about 28.6 percent lower than to those BS countries that are not EU members.

We also notice Turkey's chemicals exports are negatively affected by BS countries' membership to the EU and WTO. Turkish chemicals exports will be about 20.4 percent lower to BS countries that are EU members and 21.6 percent lower to BS countries that are WTO members.

The DISTOIL variable is statistically significant only for the regression where the US' food exports is taken as dependent variable, where we get an expected negative sign. Regarding Turkish exports, the DISTOIL variable is statistically significant in regressions where aggregate exports as well as those of machinery and transport equipment are set as a dependent variable. In both regressions we get an unexpected positive sign, which suggests the proxy is not relevant or that there is a

bias, considering that Russia, which is a powerful trade partner for Turkey, is the country with the largest distance in the region.

All in all, we conclude that Turkish and US exports to the Black Sea region are persistent, the weight of factors affecting each export category differs, the GDP of BS trade partners is an important factor that drives exports up especially for Turkish exports and that exports of both Turkey and the US are not affected by price competitiveness but rather by real factors. Moreover, we notice trade agreements are relevant for US exports to the region but not for Turkish exports. EU and WTO membership of BS countries also affects US total exports and certain categories of Turkish exports to the region.

Recommendations and policy options

Considering regression results, we suggest the following policy options to be developed between Turkey and the US in order to boost their exports to the Black Sea region:

- In hindsight several industry clusters can be identified as the emerging sectors, information technology, environmental technology, transportation, energy technology, health care technology and financial services. Opportunities for American companies together with their Turkish counterparts in these sectors are significant and expanding rapidly. The other business sectors for developmental prospects include electrical power systems, telecommunications (equipment and services), industrial chemicals, pollution control equipment, computers, medical equipment, and major infrastructure projects.

- Developing business interactions with Greece, Bulgaria and Romania would require alignment of business practices along the EU lines while business interaction with Russia, Georgia and Ukraine would follow strategic priorities.

- Russia, Ukraine, Belarus and Kazakhstan would be much more difficult markets to penetrate because of the size, scope and

depth of their economies. In this case adopting a more flexible business approach might be required.

- Ukraine, due its IMF straightjacket and its history of liberalization, might be a different case. The areas of business opportunities for Turkish – U.S. companies in Ukraine is diverse, but banking, pension and insurance are likely sectors to be considered for investments.

- There exists a need to diversify Turkish-US trade relations. This follows the implications of recent regional changes and new opportunities and challenges in working with third countries. Aligning both Turkish and American business practices would bring about substantial opportunities between Turkish and American business as this might enhance co-operation and collaboration.

- However, there exist certain problem areas to improve business environment and economic co-operation. For instance, in addition to energy sector where innovative partnerships can happen, U.S. based pharmaceutical companies could also invest in Turkey which would bring into Turkey an international investment of about \$1bn. This would create spill-overs to the third countries in the region. The Turkish regulatory framework deters such investment. U.S. businesses often view the Turkish regulatory environment as inconsistent and non-transparent. Although the Office of U.S. Trade Representative recognized the improvement of Turkey's Intellectual Property Rights regime (IPR), Turkey is also on the U.S. piracy watch list.

- It is crucially important that possible disputes are minimized. Turkey already set a strategy by establishing necessary legal regulations and properly using administrative mechanisms on the path of EU accession by generating several rapid, transparent and new legal resolution mechanisms alternative to governmental adjudication, i.e. arbitration. But, there exist cases of legal actions brought against the Government of Republic of Turkey before the ICSID (International Centre for the Settlement of Investment Disputes) are not resolved even after a very long period.

- Developing Istanbul as an international financial centre and logistics. This would require progress on the IFC action plan, determination of specific areas of cooperation, including exchanges of regulatory and policy experts, and potential cooperation on measures to make Turkey more attractive for foreign investment in the financial sector.

- There also exist opportunities for co-operation in the energy sector, including efficiency and renewables. In both countries the vital role in promoting co-operation in energy and innovative industries the private sector needs to be involved through global entrepreneurship programs. Co-operating on entrepreneurship includes supporting similar programs for the third countries, particularly those in the Black Sea Region, North Africa and sub-Saharan Africa.

- Facilitating co-operation between the two governments and private sectors requires leveraging new business opportunities in the third markets. In addition, the promotion of such ventures in the third countries can be facilitated by creating logistics centres in Turkey to manufacture and increase both Turkish and U.S. exports to third countries.

- Complementarities between U.S. and Turkish Outflow FDI. Studying complementarities between Turkish OFDI and the U.S. business interests can provide ground for furthering co-operation particularly towards the third countries in the Black Sea Region.

- Given that EU markets are a strong rival to the US regarding exports to the region, and that Turkey is a member of the EU's customs union, Turkish and US firms exporting or willing to export to the BS countries could initiate trilateral or multilateral cooperation agreements with large Black Sea economies to burst out their trade relations.

Conclusion

Turkey is an important strategic partner of the United States on areas such as security, regional peace and stability, and counter-terrorism. Despite strong political and

military ties, trade relations between the two countries have not yet reached their full potential. The level of bilateral trade is inadequate as 25% of US imports in Turkey are military goods. The establishment of market driven democracies in the Black Sea Region can only survive with comparable economic transformation. The opportunities for the US-Turkish co-operation in the Black Sea Region can be enhanced if based on a strategically designed model that helps strong reforms to integrate the region to the global economic order. Design of such model towards the region need new ideas to improve the balance in trade and investment between Turkish and American businesses. The growth of such co-operation however cannot be possible without realizing and recognizing in the US, the capacity of Turkey. The business community in both countries ought to bridge the divide of *modus operandi* in both countries. Entrepreneurs should find incentives to promote collaboration.

The Black Sea Region has huge potential and job creation in the countries of the region is unlikely to be endogenous but instead will need foreign and external input, providing the opportunity for Turkish-American business collaboration. By combining the strengths of both Turkish and American business, the high level of risk can be reduced since Turkey has experience in the Turkic countries of the ex-Soviet Union while U.S. firms provide credibility.

Some of the problematic issues between Turkey and the U.S. economic partnership are related to trade, investment, entrepreneurship, third country and sectoral co-operation can be dealt with by enhancing business-to-business ties while promoting co-operation in agricultural sector and developing policies that encourage bilateral trade in agricultural goods. There are mutual impediments to improve agricultural trade. The machine manufacturing industry also holds strategic significance in the development by defining the productive skills of other sectors through investment, intermediate goods and the services it offers.

A developed machine manufacturing industry provides a critical competitive edge over other countries in the manufacturing industry. The growth of the Turkish machinery sector is backed by highly competitive and adaptable small and medium-sized businesses (SMEs), which form the bulk of the industrial production in the country. As the drivers of growth in machinery and major contributors to the industrialization of the country, Turkish SMEs distinguish themselves from their peers in other countries by their utilization of the low-cost and highly skilled work force Turkey offers.

Another indicator of the advanced level of the Turkish machinery industry is the rate of domestic input in the production stage. Around 85 percent of domestic input not only reduces the dependency on foreign sources, but also helps other local industries. The combined advantage of the engineering capability required to compete in the international market with reasonable labour costs enable the Turkish machinery industry to offer a range of products and components that are both high-quality and affordable. The machinery industry in Turkey is labour intensive rather than capital intensive, and is expected to remain so in the near future. In this regard, the advantage of the Turkish machinery industry lies in the accumulation of companies with different capabilities, strategies and products, so that this clustering provides a technological edge to the overall industry.

The harmonization of EU legislation in accordance with Turkey's accession process has made it compulsory to obtain the necessary safety and compatibility certifications. As of July 2010, four Turkish national institutions have been authorized as notified bodies to ensure the compliance of local machinery producers with EU standards. Turkey's machinery industry has been given ambitious export targets for the country's 100th anniversary in 2023 to reach USD 100 billion with a share of 2.3 percent of the global market. This is one area where U.S. and Turkish companies can co-operate with some spillover effects to the third countries.

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Annex

Table 2. List of variables used in analysis

No.	Variable	Description	Source
1	const	Constant	
2	TOTAL	Total Turkish or US exports to Black Sea countries (all export data in USD)	UN COMTRADE
3	FOOD	Exports of food and live animals; beverages and tobacco; animal and vegetable oils, fats and waxes.	UN COMTRADE
4	CRUDE	Exports of crude materials, inedible, except fuels; mineral fuels, lubricants and related materials	UN COMTRADE
5	CHEMIC	Exports of chemicals and related products, n.e.s.	UN COMTRADE
6	MANUF	Exports of manufactured goods classified chiefly by material; miscellaneous manufactured articles	UN COMTRADE
7	MACHINE	Exports of machinery and transport equipment	UN COMTRADE
8	DISTOIL	Distance between Turkey or US and partner country(km) oil prices (total average IEA member country crude oil import prices, in USD/bbl.)	For distance: World Bank database by Nicita and Olaerraga (2006); for oil prices: IEA/OECD
9	GDP	Per capita real GDP (USD)	IMF WEO
10	REER	Real effective exchange rate, OECD MEI database, 2005=100.	OECD MEI
11	GAS	EU member states real pipeline natural gas import prices (USD/Mtbu)	IEA
12	FTA / TA	Free trade agreement (for Turkey) or trade agreement (for US) dummy variable	Ministry websites
13	EU	Membership to the European Union dummy variable	EU website
14	WTO	Membership to the World Trade Organization dummy variable	WTO website

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