

Journal of Peace Research

<http://jpr.sagepub.com/>

Impediments to trade across the Green Line in Cyprus : Classic barriers and mistrust

Omer Gokcekus, Jessica Henson, Dennis Nottebaum and Anthony Wanis-St John

Journal of Peace Research 2012 49: 863

DOI: 10.1177/0022343312452286

The online version of this article can be found at:

<http://jpr.sagepub.com/content/49/6/863>

Published by:



<http://www.sagepublications.com>

On behalf of:

Peace Research Institute Oslo



[Journal of Peace Research Replication Data](#)

Additional services and information for *Journal of Peace Research* can be found at:

Email Alerts: <http://jpr.sagepub.com/cgi/alerts>

Subscriptions: <http://jpr.sagepub.com/subscriptions>

Reprints: <http://www.sagepub.com/journalsReprints.nav>

Permissions: <http://www.sagepub.com/journalsPermissions.nav>

>> [Version of Record](#) - Nov 22, 2012

[What is This?](#)

Impediments to trade across the Green Line in Cyprus: Classic barriers and mistrust

Journal of Peace Research

49(6) 863–872

© The Author(s) 2012

Reprints and permission:

sagepub.co.uk/journalsPermissions.nav

DOI: 10.1177/0022343312452286

jpr.sagepub.com



Omer Gokcekus

John C Whitehead School of Diplomacy and International Relations, Seton Hall University

Jessica Henson

George Washington University Law School

Dennis Nottebaum

Center for Interdisciplinary Economics (CIW), University of Münster

Anthony Wanis-St John

School of International Service, American University

Abstract

Cyprus is a divided island. Despite the lack of a comprehensive peace agreement reunifying the country, in 2004 trade commenced across the Green Line that separates the Greek and Turkish Cypriot communities. The volume of trade has grown steadily since, but has it reached its full potential? First, a gravity equation is estimated by using an ‘out-of-sample’ estimation strategy to predict potential trade for the period from 2004 to 2009. We observe a sizable gap between potential and actual volumes of trade. We then attempt to account for this gap by analyzing economic, legal, and social-psychological barriers that can explain this difference. It is found that (1) actual trade has only reached around 10% of its potential, with (2) legal constraints accounting for 35% of the missing trade, (3) extra transportation costs for about 5%, and (4) unmeasurable and social-psychological barriers for a significant amount of between 48% and 60%, depending on the year. The findings suggest that attention must be paid to the objective barriers to trade as well as the subjective interpersonal and intercommunal perceptions that can affect trade and ultimately, peaceful resolution of the conflict. These findings have implications for other conflicts in which divided communities with the potential for trading across a shared border seek to maximize the joint economic and political gains of emerging interdependence.

Keywords

Cyprus, gravity model, intercommunal conflict, intercommunal trade, mistrust, trade barriers

Introduction

Economic interdependence is widely seen as a deterrent to violent conflict. It is argued that states focus on the absolute gains from trade and lay aside concerns about relative gains when they are not in conflict (Morrow,

1997), and they stay focused on the prospect of continued future gains from economic interdependence, thus

Corresponding author:

omer.gokcekus@shu.edu

avoiding violent conflict (Copeland, 1996). Nonetheless, the relationship between economic interdependence and conflict is a complex one (for general reviews, see for example Barbieri & Schneider, 1999; Oneal, Russett & Burbaum, 2003). The existing literature has been advanced through large-N studies on interstate trade, conflict, and peace, and it has been less focused on *intrastate* conflicts. This article contributes to the debate on the relationship between economic interdependence and conflict by focusing on a case of internal, protracted conflict: the case of Cyprus.

The island of Cyprus remains divided along the Green Line, a United Nations-monitored buffer zone between the ceasefire lines that are a legacy of the 1974 partition of the island. For well over 35 years, the Green Line has divided the northern and the southern parts of Cyprus and stood as both a symbolic and real obstacle to interaction and peacebuilding between the two communities (UNFICYP, 2010). The Greek and Turkish communities of Cyprus hence behave like *de facto* separate states even though they remain part of the same island and – at least *de jure* – of the same country. Trade and civilian traffic across this border has been virtually nonexistent until the northern side unilaterally opened gates on the Green Line in 2004. Trade has grown ever since at an average annual rate of 35.9%. In this article, we ask whether the volume of trade between the two sides has reached its full potential. And if not, how do economic, legal, and social-psychological barriers impact trade between northern and southern Cyprus? By examining in depth the case of emerging trade between intrastate adversaries, Turkish Cypriots (TC) and Greek Cypriots (GC), we attempt to shed some light on these questions by conducting a two-step analysis.

The remainder of the article is organized as follows. In the following section, we determine the difference between actual and potential levels of trade for the period from 2004 to 2009. To do so, we first estimate a benchmark gravity equation of trade for the European Union to model the patterns of dyadic trade within the EU as a function of factors such as economic sizes, population, distance, and a set of cultural, historical, and political variables. This model is then used to calculate projections for trade between northern and southern Cyprus. The difference between these estimates of potential trade levels and the actually observed ones is then examined in order to determine factors that function as impediments to trade and thus may account for the gap. We differentiate between objective, quantifiable restrictions, as well as subjective

and non-quantifiable constraints.¹ We find that a ‘culture of conflict’ exists throughout the island that impedes ‘mutually productive interchange’ (Fisher, 2001: 322) and sketch out how this may play a role – alongside the classic objective barriers to trade – in maintaining the gap between predicted and realized intra-island trade.

Potential versus actual volumes of trade

After the failure of the UN-led mediation between the two Cypriot communities, the Republic of Cyprus (RoC) acceded to the EU on 4 May 2004 without resolution of the communal division. In response, the EU modified the Treaty of Accession with conditions laid out in Protocol 10 addressing the accession of Cyprus as an internally partitioned member. The application of the *acquis communautaire* has since been suspended in areas where the government of the Republic of Cyprus ‘does not exercise effective control’ – namely, northern Cyprus (as well as certain areas used as UK military bases).

Protocol 10 also establishes special rules concerning Green Line regulation trade (GLRT) – the crossing of goods and services from northern to southern Cyprus.² However, since the EU does not regard the Green Line as the external border of the Union, goods entering areas not effectively under control of the RoC are not subject to customs, duties, or charges, nor are they subject to customs declaration; the quantities of goods, however, have to be registered. Goods may only enter the RoC this way if they were wholly obtained in the areas not effectively under the control of the RoC, or if they underwent their last, substantial, economically justified process in areas not effectively under the control of the RoC. Goods crossing the Green Line are to be accompanied by a document issued by the Turkish Cypriot Chamber of Commerce (TCCC), which is authorized by the EU to ensure that the guidelines detailed above, as well as quality and health standards, are met (Council Regulation, 2004).

¹ We consider two quantifiable barriers: product exclusion and transportation costs. Exclusion can directly diminish potential trade while transportation barriers add costs to products and transactions. We also consider other constraints which we categorize as non-quantifiable.

² Specifically, Protocol 10 – and thus Green Line regulation trade as subject of this article – regards exports from northern to southern Cyprus.

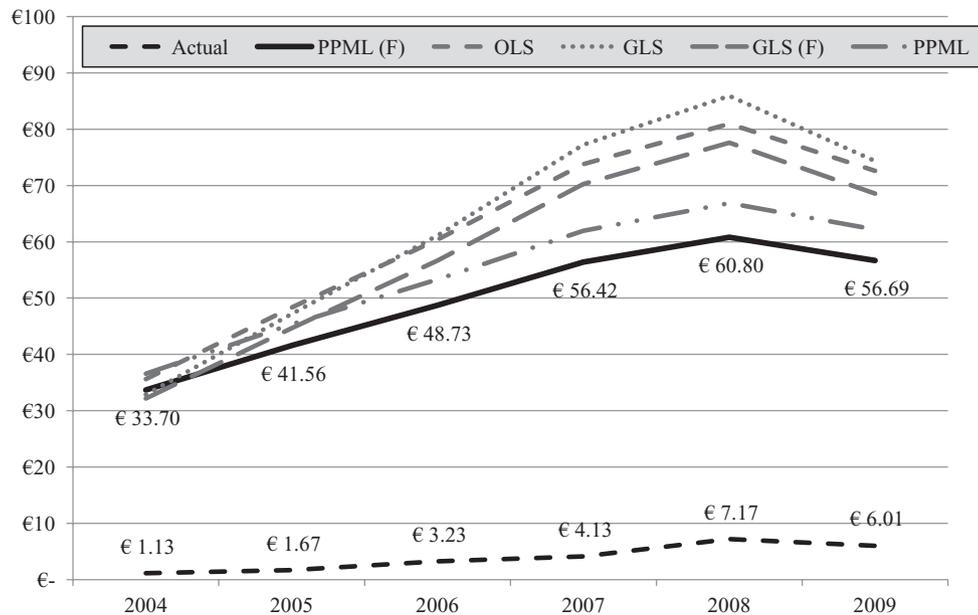


Figure 1. Potential versus actual annual Green Line Regulation Trade (in million Euros), 2004–09

As Figure 1 illustrates, Green Line regulation trade has steadily grown since the implementation of the protocol in 2004. Starting from goods valued at 1.13 million Euros in 2004, GLRT peaked at 7.17 million in 2008, with an average annual growth rate of 39.5% over the period from 2004 to 2009.³ Given these increasing figures, the question arises whether the volume of trade between the two sides has reached its full potential or whether there is still room for trade expansion.

We construct a Green Line trade possibility frontier to estimate potential trade levels in order to shed some light on this question. To do so, we first estimate a gravity equation of trade for the European Union to model the patterns of trade within the EU between 2004 and 2009.

The model

Pioneered by Linnemann (1966), Pöyhönen (1963a,b) and Tinbergen (1962), the gravity model of trade holds that the level of trade between two countries is an increasing function of the economic size of each state and a decreasing function of trade costs, usually modelled as the distance between the two. Over the years, theoretical frameworks have been developed in order to adapt the

model to different trade theories. The gravity model has since become a workhorse not only in the estimation of trade flows, but also in related areas such as foreign direct investments or migration flows.⁴ It has also proved useful in explaining trade frictions that inhibit the free flow of goods and services be they natural, such as geographic particularities of a country (see for example Anderson & van Wincoop, 2004; Hummels, 2007), or man-made, such as currency unions (Baldwin, 2006; Rose, 2000), trade and integration agreements (Baier & Bergstrand, 2007; Egger et al., 2011), or conflict (Polachek & Seiglie, 2007; Reuveny & Kang, 2003).

A general gravity equation for trade between two entities may be expressed as:

$$T_{ijt} = \alpha_0 Y_{it}^{\alpha_1} Y_{jt}^{\alpha_2} D_{ij}^{\alpha_3} e^{\theta_i d_i + \theta_j d_j}, \quad (1)$$

where T_{ijt} represents exports from country i (exporter) to j (importer) at time t , Y_{it} and Y_{jt} are the economic sizes of countries i and j at time t , D_{ij} is the distance between i and j , d_i and d_j are dummies identifying the exporter and importer, α_0 , α_1 , α_2 , α_3 , θ_i , and θ_j are unknown parameters.

Most studies log-linearize Equation 1 and estimate the parameters by using ordinary least squares (OLS)

³ Not only has the *amount* of trade increased since the implementation of GLRT, but also the *variety* of goods traded (Turkish Cypriot Chamber of Commerce, 2011). For details, see Gokcekus (2008a,b).

⁴ For detailed overviews of the gravity model and how it is grounded empirically and theoretically, see Anderson & van Wincoop, 2003; Bergstrand, 1985; Bergstrand & Egger, 2011; Deardorff, 1998; Egger 2000.

regression techniques. However, as has been pointed out repeatedly over recent years (e.g. Egger, 2002; Egger & Pfaffermayr, 2003; Santos Silva & Teneyro, 2006), using OLS leads to biased estimates given that a log-linear version cannot handle zero-values for trade and also suffers from problems of heteroskedasticity due to country- and time-specific effects. Santos Silva & Teneyro (2006) have proposed a Poisson Pseudo-Maximum Likelihood (PPML) estimator as a remedy for these estimation problems, which has since been found to yield overall unbiased, robust and accurate estimation results (Santos Silva & Teneyro, 2010, 2011). Hence, we estimate the following equation using the PPML estimator adding exporter-time and importer-time fixed effects as suggested by Bergstrand & Egger (2011):

$$T_{ijt} = \exp[\alpha_0 + \alpha_1 \ln Y_{it} + \alpha_2 \ln Y_{jt} + \alpha_3 \ln D_{ij} + \theta_1 \ln pop_{it} + \theta_2 \ln pop_{jt} + \theta_3 language_{ij} + \theta_4 border_{ij} + \theta_5 samecountry_{ij} + \theta_6 landlocked_i + \theta_7 landlocked_j + \theta_8 EU_{it} + \theta_9 EU_{jt} + \theta_{10} Euro_{it} + \theta_{11} Euro_{jt}] \eta_{ijt}, \quad (2)$$

where \ln is the natural logarithm; pop is the population of the exporter/importer at time t ; $language$ is a dummy that accounts for a common language spoken in countries i and j ; $border$ is a dummy that accounts for a border between i and j ; $samecountry$ is a dummy that takes the value of 1 if exporter and importer once belonged to the same country; $landlocked$ is a dummy that takes the value of 1 if the exporter/importer is landlocked; EU is a dummy for EU membership of the exporter/importer at time t ; $Euro$ is a dummy for Euro membership of the exporter/importer at time t ; and η_{ijt} is an error term.

Data

Following Egger (2002), we use panel data on dyadic export flows between the current 26 EU member countries for the years from 2004 to 2009. We exclude the country for which we estimate trade potentials (Cyprus) from the sample, and thus utilize an 'out-of-sample' estimation strategy.

Data on unilateral exports and population come from the IMF *Direction of Trade Statistics* and GDP data from *Eurostat*. Data on geodesic distances between each country's most populated cities as well as dummy variables for landlockedness, historic country origin, border, and common language are from CEPII's GeoDist database (Mayer & Zignago, 2011). The *EU* and *Euro* dummies are self-constructed. In total this yields a dataset with

3900 observations (26 exporters x 25 importers x 6 years).

Estimation results

In line with the findings of Santos Silva & Teneyro (2006: 650), our PPML estimates confirm that the coefficients for GDP and distance are not close to 1 and -1 respectively, as has previously often been suggested, but rather around 0.6. Overall, the results are very much in line with findings reported by earlier studies, both in terms of the size of the coefficients and their signs, underlining the robustness of the model. Inserting the coefficients into Equation 2 yields the benchmark gravity equation that is employed to project potential Green Line regulation trade:

$$T_{ijt} = \exp[-9.371 + 0.591 \ln Y_{it} + 0.508 \ln Y_{jt} + 0.131 \ln pop_{it} + 0.250 \ln pop_{jt} - 0.567 \ln D_{ij} + 0.457 language_{ij} + 0.463 border_{ij} + 0.415 samecountry_{ij} + 0.046 landlocked_i + 0.032 landlocked_j + 0.388 EU_{it} + 0.250 EU_{jt} + 0.200 Euro_{it} + 0.091 Euro_{jt}] \quad (3)$$

Projecting potential GLRT

We use income and population statistics for northern and southern Cyprus from the respective statistical offices for our projections. Yet, measuring the distance between the two entities poses challenges. The most common measure of distance, geodesic distance between capitals or most populous cities, is not an option in this case since both communities share a divided capital city, Nicosia. We thus use two alternative measures of distance derived from the literature on intranational trade. The first is based on Wei's (1996) method of taking a quarter of the distance to the economic center of the nearest trading partner. In our case this would be Beirut, which is located about 244 km from Nicosia, yielding a score of 61 km for our distance variable. The second measure is derived from Leamer (1997) who suggests taking the radius of a circle whose area is the area of the country. From an overall area for Cyprus of 9250 km², we calculate a radius of 54.26 km. Based on the rough average of these rather similar approximations we use 57.5 km as our measure of distance between northern and southern Cyprus.

Inserting these statistics into Equation 3 allows us to calculate potential GLRT. We derive trade potential at

Table I. Green Line Regulation Trade: Realized versus unrealized

Year	Realized (actual/potential) (%)	Unrealized (1-realized) (%)	Unrealized due to		
			Legal constraints (%)	Extra transportation costs (%)	Residual (%)
2004	3.4	96.6	35.0	1.5	60.1
2005	4.0	96.0	35.0	1.8	59.1
2006	6.6	93.4	35.0	3.0	55.3
2007	7.3	92.7	35.0	3.3	54.3
2008	11.8	88.2	35.0	5.4	47.8
2009	10.6	89.4	35.0	4.8	49.6

values of 33.7, 41.6, 48.7, 56.4, 60.8, and 56.7 million Euros for the years from 2004 to 2009, respectively.⁵ In other words, as is summarized in Table I, the actual trade level in 2004 reached only 3.4% of the prediction, a figure that increased to 10.6% in 2009, with a peak of 11.8% in 2008.

Explaining unrealized trade potential

Although trade across the Green Line has grown since 2004 both in absolute numbers and relative to its potential, the overall level remains rather low at just over 10% of the predicted level in the peak year 2008. In the following, we develop a set of factors that we identify as relevant causes for this persistent gap. The first factor limits trade directly by product exclusion. Thus (1) trade restrictions currently in place prohibit important product categories such as citrus fruits, dairy products, and live animals except fish from being traded across the Green Line. An additional set of factors related to (2) transportation acts as cost drivers in that they impose excessive additional costs and thereby present an important obstacle to trade. These factors include (a) licensing requirements for drivers hauling over a certain weight, (b) costs linked to shipping and transportation, including high insurance rates, and (c) standstill time at the border. Additionally, we discuss two non-quantifiable explanations, specifically (3) the legal and taxation structure associated with GLRT and (4) the extent of mistrust, a socio-psychological consequence of divided communities living with an unresolved political conflict.

These factors will be assessed in more detail in the following section. It should, however, be noted that while it is possible to quantify the effects of legal constraints and costs associated with transporting goods, it is more difficult to quantify socio-psychological barriers and other technical aspects that may deter trade. Our analysis is based on the observable, quantifiable barriers, and when taken together, accounts for a variable portion of the unrealized trade. There is a residual portion of unrealized trade that we believe is correlated to such non-quantifiable factors.

Product restrictions and transportation costs

A number of products, such as citrus fruits and animal-derived goods, are not allowed to cross the Green Line due to sanitary and health concerns. To account for these product restrictions affecting the volume of trade, we examine the national account and trade statistics for northern Cyprus. For the years 2004 to 2009, export revenues from goods that are allowed to cross the Green Line constitute on average 65% of the total export revenues of northern Cyprus to the rest of the world. In other words, 35% of the overall export revenues of northern Cyprus are due to exports in products that are barred from GLRT. Correspondingly, we assume that a GLRT gap of 35% is attributable to the product restrictions that are placed on some types of tradable goods.

Transportation issues play a substantial role in constricting trade across the Green Line. One aspect driving up transportation costs is driver-licensing requirements that differ profoundly between the two sides. The RoC requires commercial drivers to hold special licenses to operate vehicles exceeding a certain weight (European Commission, 2011). Currently the only way to obtain these licenses is to pass a test given by the government of the RoC. In 2005, every TC that took the test failed (Donmezer & Apostolides, 2006). On occasion freight

⁵ As illustrated by Figure 1, using either OLS or GLS estimators for the estimation of Equation 2 does not alter the predicted level of potential GLRT profoundly. However, our PPML estimates are unbiased and predict an overall lower amount of trade, yielding estimations that are probably on the conservative side.

drivers have not been allowed to cross from northern Cyprus into southern Cyprus with their cargo due to improper licensing. This results in the need for companies in northern Cyprus to hire two sets of drivers. Hiring a second driver also means the goods have to be transferred at the Green Line onto different trucks. The unloading, reloading, and standstill time associated with the process add to the costs. The RoC also enforces a weight limitation on commercial vehicles coming from northern to southern Cyprus (European Commission, 2011). This restriction necessitates shipping in smaller quantities per truckload, also increasing costs. Additionally, insurance issues arise, with each side charging extra fees for vehicles registered in the other area. As the goods become more expensive to ship and trade, the overall benefits from trade for both communities are lowered, further reducing their incentives to engage in trade with one another.

We conducted interviews with 15 Turkish Cypriot business people engaging in GLRT to gather information in order to be able to quantify the additional transportation costs. In sum, the persons interviewed unanimously described the process of shipping goods as becoming more cumbersome due to the time-consuming process of having to unload and reload goods at the Green Line. Asked how they would quantify the additional costs they usually incur due to this, most put the premium attached to GLRT at between 20% and 50%. Accordingly, we conservatively increased the distance measure used in our gravity model by 25% to account for the impact of extra transportation costs.⁶ Thus, instead of the 57.5 km used in our base model we enter 71.9 km to capture this effect.

Incorporating the effects of additional product constraints and transportation costs into our model yields the results reported in Table I. Given our assumption that legal constraints can be quantified as the share of those goods restricted from GLRT of the overall exports of northern Cyprus, we assign a constant effect of 35% to product restrictions. The extra transportation costs account for an increasing part of potential trade that

remains unrealized during the period under observation here, ranging from 1.5% in 2004 up to 5.4% in 2008.

After incorporating the effects of these two quantifiable barriers into our estimations we retain a sizable 'residual' of between 60.1% (2004) and 47.8% (2008) that can be ascribed to factors outside of the model as developed so far (see Table I). These aspects that we define as non-quantifiable barriers – whether non-quantifiable due to their nature or because appropriate measures are unavailable – are discussed next.⁷

Non-quantifiable barriers

VAT restrictions, origin requirements, and banking facilities

The main restrictions in the structural and legal category in addition to the sectoral limitations are regulations on value-added taxation (VAT), origin requirements, and payment difficulties.⁸ If these problems were addressed and eliminated, trade would likely increase between the two sides.⁹ However, even the elimination of these problems would not resolve the underlying social-psychological issues that impede economic interaction, which we explore separately below.

VAT is an issue that traders on both sides face. The RoC follows standard EU VAT policies, imposing a 15% tax across sectors, while the rates in northern Cyprus depend on sector and product, ranging from 0% to 20%. The RoC requires all exporters to pay VAT and then apply for a refund, but only businesses registered with the GC Chamber of Commerce are eligible to receive refunds. Many TC businesses are not registered with the GC Chamber of Commerce. Thus, TC producers exporting their goods may suffer a 15% tax loss that cannot be recovered. For some goods the original benefits of trade may be negated, rendering the transaction economically unattractive.

⁷ We first consider VAT, origin requirements, and banking facilities that are categorized as non-quantifiable due to lack of data or proxies for their impact on GLRT. We then consider the mistrust component, whose impact is intrinsically non-quantifiable.

⁸ In addition to demand and supply price elasticity, tax elasticity of supply and similar parameters would be required to quantify the effects of double taxation, etc. Since these parameters are not available we choose to treat these barriers as non-quantifiable.

⁹ Smuggling is another issue that makes the quantification more difficult. Although local newspapers frequently report on increasing smuggling activities across the border and anecdotal evidence suggests that this is an issue, quantifying interactions within the shadow economy is extremely difficult if not impossible and beyond the scope of this article.

⁶ It would be preferable to estimate approximate shipping costs using more established methods, such as employing cif/fob-ratios (Limão & Venables, 2001). Unfortunately, the basic data required for the calculation of these is simply not available for GLRT. However, Radelet & Sachs (1998) report transportation cost increases of up to 233% in some countries due to shipping restrictions and other impediments. We therefore believe our estimate of adding 25% based on the interviews we conducted to be very much on the conservative side.

Origin requirements are a major technical impediment. Both sides stipulate that only goods 'originating in or receiving substantial value added in' the respective area are eligible for trade. Fulfilling these origin requirements involves a time-consuming and costly multiple-step process. It requires documentation approved by the respective chamber of commerce and inspection of the product along with inspection of the facility where it was produced (Donmezer & Apostolides, 2006). At the same time, the product may not contain more than a limited amount of imported materials.

Without a common currency or meaningful business links, banks in the RoC and in northern Cyprus face challenges to interbank coordination, requiring that early trade transactions be paid in cash, further limiting the size of trades.¹⁰ 'Credit is rare between GC and TC traders, in large part because of the absence of a speedy and reliable mechanism that both sides trust, to recover bad credit. Nor is there a mechanism to arbitrate GL trade disputes' (Donmezer & Apostolides, 2006: 39).

Mistrust and trade

Further impediments to trade can be found in the attitudes and behaviors of both communities. Earlier research on barriers to trade (Donmezer & Apostolides, 2006) focused on technical barriers, while acknowledging that social-psychological barriers played a role that merited further research. We survey data on the respective communities' attitudes regarding trust, especially with regard to economic relations across the Green Line. What we find suggests strongly that both communities continue to make important misattributions about the other side that cast a shadow onto current and future cooperation.

Trust is generally low throughout Cyprus. A USAID/UNDP sponsored study found that most Cypriots (76% of GCs, 85% of TCs) believe that 'only some people can be trusted' within their own society (CIVICUS, 2005). GC society suffers from 'widespread intolerance', as measured by stated unwillingness to have neighbors who differ in terms of religion, ethnicity, immigration status, and other categories, while TC society was found to be only 'moderately tolerant' (CIVICUS, 2005).

Kelman (2007) asserted that contact among adversaries, in the absence of other factors, may not improve attitudes, and might worsen them. Despite trade and cross community contact, 'each community continues to have misperceptions about the other's true intentions and/or preferences' concerning the resolution of the political dispute (UNFICYP, 2007). More troubling still are the trust-specific findings: even after the opening of the crossing points, most Cypriots had never had contact with the other community (90% of TCs, 87% of GCs). Since the opening, 45% of GCs said their opinion of people from the other side was either 'somewhat' or 'much' worse than before. For TCs the corresponding figure is 12%. For large parts of both communities, their respective opinions of each other remained unchanged after crossing the Green Line (41% of GCs, 63% of TCs).¹¹

The attitudes of Cypriots toward the ultimate resolution of the Cyprus conflict are generally negative. When their respective political leaders finally do conclude an accord, it will be weakened by a great deal of popular mistrust: 63% of GCs and 74% of TCs partly or strongly believe that the other side 'cannot be trusted to adhere to an agreement'. A more recent study (InterPeace, 2010) presents skepticism and deepening mistrust: 65% of GCs and 69% of TCs are pessimistic about achieving any breakthrough in the peace process while 82% of GCs and 68% of TCs still believe 'the other side would not honor an agreement and therefore implementation would fail'.

The TC's inability to gain market share among GCs has socio-psychological origins as well. For example, Donmezer & Apostolides (2006) found that marketing problems for TC businesses are less about technical capacity and more about bias: 'Only a few GC newspapers, television stations and other media outlets will air or publish ads for TC products and services'.

In the period prior to the Annan Plan referenda, some GCs opposed reunification on the ground that the TC economy was weak and would burden GC taxpayers. Once the Green Line opened, the TC economy's increasing strength was then cited by some GCs as a reason *not* to trade (Donmezer & Apostolides, 2006). More recently, GCs overwhelmingly opposed (81%) any direct trade or commercial flights between TCs and the

¹⁰ It may be possible to estimate and quantify the limitation on the size of trades due to lack of credit and lack of dispute resolution mechanisms. A proxy could be proposed, as in the case of transportation costs. We have refrained from doing so in the absence of reliable empirical data from either interviews with trading parties or aggregate datasets on this factor.

¹¹ A similar survey question in the UNDP study, however, revealed a less disparate distribution regarding negative impact of encounters. In that study, 15% of GCs and 23% of TCs came away from an encounter with the other side with a 'somewhat negative' or 'very negative' opinion of the other (UNDP, 2006).

European Union (InterPeace, 2011). Cypriots espouse the perception that gains from trade are a zero-sum game. This derives from and is strengthened by a zero-sum view of the overarching conflict. While both communities (89% of GCs, 77% of TCs) believe the possibilities of new jobs and business opportunities are important reasons to pursue a political settlement (InterPeace, 2010), these same data reveal that significant parts of both communities are concerned that in an eventual settlement of the conflict *their own* community would bear the financial burden of implementation (59% of GCs, 40% of TCs), while the benefits of economic growth might go to *the other* community (45% of GCs, 39% of TCs).

Much of the attitudinal concerns noted above are mutual negative perceptions that are the residue of the unresolved conflict. However, some of it is also attributable to the 'confusion' from each community's leadership regarding the desirability of interdependence (Peace Economics Consortium, 2011). Both Cypriot business communities express fear concerning intercommunal trade. Greek Cypriots fear condemnation by other Greek Cypriots and, when asked, find the subject so taboo that they deny the very existence of intercommunal trade. Turkish Cypriots fear being treated unfairly by their trade partners (Hatay, Mullen & Kalimeri, 2008).

The resulting image overall is that of two communities whose initial economic contacts have been limited by the objective barriers we discuss above, but also by the biases that are the legacy of their political conflict. At the community and individual levels, Cypriots continue to erect subjective barriers toward trade through collective perceptions of each other.

Concluding remarks

Trade has the potential to contribute to peaceful settlement of the Cyprus conflict. But the potential for increased intra-island trade remains unrealized due to the persistence of a number of barriers. We analyze several salient and quantifiable barriers and make predictions about their negative impact on the realization of the trade possibility frontier. Each of them has a measurable impact on GLRT.

Additionally, we discuss how the social-psychological barriers stemming from the intercommunal conflict also contribute to this problem. The prevailing mistrust is not an abstraction: it interacts with technical and structural impediments in ways that significantly impede trade. Communities that do not trust each other and

construct tangible barriers to trade will find it difficult to initiate or expand such trade. We conclude that biases that persist after a long conflict can have real and costly economic implications. The expectation of peace-enhancing economic interdependence cannot be taken for granted. The legacy of conflict casts a shadow on the potential interdependence among adversaries. Before the interdependence emerges and reaches its potential, the trade itself must be bolstered by some of the factors that also contribute to the resolution of conflict, including attitudinal and institutional changes that mitigate mistrust.

Our research has relevance to the interplay among trust, trade, and peace in other conflict zones where affected populations have the possibility of trade in the absence of a comprehensive political solution, or who are separated by a ceasefire zone or other barriers. While prior research has asserted that the absence of trust will impede political negotiations in intercommunal conflicts (Fisher, 2001; Pearson, 2001), we assert that this same mistrust will impede the economic interdependence that is supposed to bolster peace. To the extent that scholars and practitioners promote the concept of trade to facilitate peaceful relations among former adversaries, a more thorough understanding of the interaction among quantifiable and non-quantifiable barriers will continue to be required. Rebuilding trust may be a prerequisite for both economic and political interdependence.

Replication data

The STATA dataset and do-files for the regression analysis, as well as the Excel file for calculating the potential trade, can be found at <http://www.prio.no/jpr/datasets>.

Acknowledgements

The authors would like to thank Thomas Apolte, Costas Apostolides, Sara Cady, Nele Franz, Adam Godet, Gary Hufbauer, Marie Möller, Mark Rhinard, Bob Schlehner, and Edward Tower, participants at a Spring 2012 WIN Group roundtable at Johns Hopkins University, including Bill Zartman, Dean Pruitt, Terry Hopmann, and Mauro Galluccio, and three anonymous referees and an editor of the *Journal of Peace Research* for their helpful comments. All remaining errors are of course ours.

Funding

Gokcekus gratefully acknowledges a URC Summer Research Stipend from Seton Hall University.

References

- Anderson, James E & Eric van Wincoop (2003) Gravity with gravitas. *American Economic Review* 93(1): 170–192.
- Anderson, James E & Eric van Wincoop (2004) Trade costs. *Journal of Economic Literature* 42(3): 691–751.
- Baier, Scott L & Jeffrey H Bergstrand (2007) Do free trade agreements actually increase members' international trade? *Journal of International Economics* 71(1): 72–95.
- Baldwin, Richard E (2006) The Euro's trade effect. ECB Working paper 594. Frankfurt: European Central Bank.
- Barbieri, Katherine & Gerald Schneider (1999) Globalization and peace: Assessing new directions in the study of trade and conflict. *Journal of Peace Research* 36(4): 387–404.
- Bergstrand, Jeffrey (1985) The gravity equation in international trade: Some microeconomic foundations and empirical evidence. *Review of Economics and Statistics* 67(3): 474–481.
- Bergstrand, Jeffrey & Peter Egger (2011) Gravity equations and economic frictions in the world economy. In: Daniel Bernhofen, Rod Falvey, David Greenaway & Udo Kreickemeier (eds) *Palgrave Handbook of International Trade*. New York: Palgrave Macmillan, 532–570.
- CIVICUS: Civil Society Index Report For Cyprus (2005) An assessment of civil society in Cyprus: A map for the future. Intercollege and the Management Centre of the Mediterranean (http://www.undp-act.org/main/data/articles/civicus_civil_society_index_report_cyprus.pdf).
- Copeland, Dale C (1996) Economic interdependence and war: A theory of trade expectations. *International Security* 20(4): 5–41
- Council Regulation (EC) (2004) No. 866/2004 of 29 April 2004 on a regime under Article 2 of Protocol 10 to the act of accession. *Official Journal of the European Union L 161 of 30 April 2004*.
- Deardorff, Alan V (1998) Determinants of bilateral trade: Does gravity work in a neoclassical world? In: Jeffrey A Frankel (ed.) *The Regionalization of the World Economy*. Chicago, IL: University of Chicago Press, 7–32.
- Donmezer, Ayse & Costas Apostolides (2006) Constraints to intra-island trade. Report prepared for the EDGE Project, United States Agency for International Development.
- Egger, Peter (2000) A note on the proper econometric specification of the gravity equation. *Economics Letters* 66(1): 25–31.
- Egger, Peter (2002) An econometric view on the estimation of gravity models and the calculation of trade potentials. *World Economy* 25(2): 297–312.
- Egger, Peter & Micheal Pfaffermayr (2003) The proper panel econometric specification of the gravity equation: A three-way model with bilateral interaction effects. *Empirical Economics* 28(3): 571–580.
- Egger, Peter; Mario Larch, Kevin E Staub & Rainer Winkelmann (2011) The trade effects of endogenous preferential trade agreements. *American Economic Journal: Economic Policy* 3(3): 113–143.
- European Commission (2011) Seventh report on the implementation of Council Regulation (EC) 866/2004 of 29 April 2004 and the situation resulting from its application covering the period 1 May until December 2010. COM (2011) 284 of 30 May 2011.
- Fisher, Ronald J (2001) Cyprus: The failure of mediation and the escalation of an identity-based conflict to an adversarial impasse. *Journal of Peace Research* 38(3): 307–326.
- Gokcekus, Omer (2008a) Green line regulation and its economic implications in Cyprus. *Armenian Journal of Public Policy Proceedings*: 175–193.
- Gokcekus, Omer (2008b) *The Economics of the Isolation of Turkish Cypriots*. Kyrenia: Freebirds.
- Hatay, Mete; Fiona Mullen & Julia Kalimeri (2008) Intra-island trade in Cyprus: Obstacles, oppositions and psychological barriers. British High Commission and PRIO Cyprus Centre: Norway. PCC Paper 2
- Hummels, David (2007) Transportation costs and international trade in the second era of globalization. *Journal of Economic Perspectives* 21(3): 131–154.
- InterPeace (2010) Next steps in the peace talks: An island wide study of public opinion in Cyprus. International Peacebuilding Alliance, Cyprus 2015 (<http://www.cyprus2015.org>).
- InterPeace (2011) Bridging the gap in the intercommunal negotiations: An island wide study of public opinion in Cyprus. International Peacebuilding Alliance, Cyprus 2015 (<http://www.cyprus2015.org>).
- Kelman, Herbert C (2007) Social-psychological dimensions of international conflict. In: I William Zartman (ed.) *Peacemaking in International Conflicts: Methods and Techniques*. Washington, DC: United States Institute for Peace Press: 61–107.
- Leamer, Edward E (1997) Access to western markets and eastern effort levels. In: Salvatore Zecchini (ed.) *Lessons from the Economic Transition: Central and Eastern Europe in the 1990s*. Dordrecht: Kluwer Academic, 503–526.
- Limão, Nuno & Anthony J Venables (2001) Infrastructure, geographical disadvantage, transport costs, and trade. *World Bank Economic Review* 15(3): 451–479
- Linnemann, Hans (1966) *An Econometric Study of International Trade Flows*. Amsterdam: North-Holland.
- Mayer, Thierry & Soledad Zignago (2011) Notes on CEPII's distances measures: The GeoDist database. CEPII Working paper 25.
- Morrow, James D (1997) When do 'relative gains' impede trade? *Journal of Conflict Resolution* 41(1): 12–37.
- Oneal, John R; Bruce Russett & Michael L Berbaum (2003) Causes of peace: Democracy, interdependence, and international organizations, 1885–1992. *International Studies Quarterly* 47(3): 371–393.
- Peace Economics Consortium (2011) Economic interdependence in Cyprus: Current assessment and prospects for the future. Main findings and conclusions.

- Pearson, Frederic S (2001) Dimensions of conflict resolution in ethnopolitical disputes. *Journal of Peace Research* 38(3): 275–287.
- Polachek, Solomon W & Carlos Seiglie (2007) Trade, peace, and democracy: An analysis of dyadic dispute. In: Todd Sandler & Keith Hartley (eds) *Handbook of Defense Economics* 2. North-Holland: Elsevier, 1017–1073.
- Pöyhönen, Pentti (1963a) A tentative model for the volume of trade between countries. *Weltwirtschaftliches Archiv* 90(1): 93–100.
- Pöyhönen, Pentti (1963b) Toward a general theory of the international trade. *Economiska Samfundets Tidskrift* 16: 69–77.
- Radelet, Steven C & Jeffrey D Sachs (1998) Shipping costs, manufactured exports, and economic growth. Harvard Center for International Development. Mimeo.
- Reuveny, Rafael & Heejoon Kang (2003) A simultaneous-equations model of trade, conflict, and cooperation. *Review of International Economics* 11(2): 279–295.
- Rose, Andrew K (2000) One money, one market: Estimating the effect of common currencies trade. *Economic Policy* 30: 7–46.
- Santos Silva, Joao MC & Silvana Tenreyro (2006) The log of gravity. *Review of Economics and Statistics* 88(4): 641–658.
- Santos Silva, Joao MC & Silvana Tenreyro (2010) On the existence of the maximum likelihood estimates in Poisson regression. *Economics Letters* 107(2): 310–312.
- Santos Silva, Joao MC & Silvana Tenreyro (2011) Further simulation evidence on the performance of the Poisson pseudo-maximum likelihood estimator. *Economics Letters* 112(2): 220–222.
- Tinbergen, Jan (1962) *Shaping the World Economy: Suggestions for an International Economic Policy*. New York: Twentieth Century Fund.
- Turkish Cypriot Chamber of Commerce (2011) Total spread of sales through Green Line: 2004–2009 (<http://www.ktto.net/english/greenline1.html>).
- UNDP (2006) A report on a quantitative household survey on the level of trust between the two communities in Cyprus. Action for Cooperation and Trust Initiative.
- UNFICYP (2007) The UN in Cyprus: An intercommunal survey of public opinion by UNFICYP (http://www.unficy.org/nqcontent.cfm?a_id=1324).
- UNFICYP (2010) United Nations Peacekeeping Force in Cyprus website (http://www.unficy.org/nqcontent.cfm?a_id=1565&tt=graphic&clang=11).
- Wei, Shang-Jin (1996) Intra-national versus international trade: How stubborn are nations in global integration? National Bureau of Economic Research, Working paper 5531.
- OMER GOKCEKUS, b. 1964, PhD in Economics (Duke University, 1994); Professor of International Economics and Development, John C. Whitehead School of Diplomacy and International Relations, Seton Hall University (2003–); current main interests: trade and conflict, political economy, and wine economics. Publication outlets include *American Journal of Agricultural Economics*, *Economics Letters*, *Economics and Politics*, *Journal of Wine Economics*, and *Public Choice*.
- JESSICA HENSON, b. 1981, MA in Diplomacy & International Relations (Seton Hall University, 2007), JD candidate, The George Washington University Law School (2009–).
- DENNIS NOTTEBAUM, b. 1983, MA in Political Science, Economics (University of Münster, 2009), PhD Candidate in Economics, Center for Interdisciplinary Economics, University of Münster (2010–); Research Associate, Swedish Institute of International Affairs (UI) (2011–); Editor, openDemocracy.net (2010–).
- ANTHONY WANIS-ST JOHN, b. 1965, PhD in International Relations (Tufts University, Fletcher School of Law and Diplomacy, 2001); Assistant Professor, International Peace and Conflict Resolution, School of International Service, American University (2006–). Most recent book: *Back Channel Negotiation: Secrecy in Middle East Peacemaking* (Syracuse University Press, 2011).