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**Passport, Please!
Travels, Travails and Trade**

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Abstract

A country's visa policies are widely assumed to have economic consequences. In this short paper, I examine the effect of the ease with which a country's citizens can enter foreign countries on international trade. Using a specification of the gravity model that avoids the endogeneity problems that typically arise when analyzing the association between ease of travel and the extent of bilateral interactions, I find that countries which issue powerful passports experience more international trade.

Keywords: visa; document; mobility; border; barrier

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1. Introduction

Diplomacy, i.e., a government's practice of conducting international relationships, often has measurable economic consequences. Diplomatic efforts, such as a country's membership and cooperation in multilateral organizations, have the potential to promote cross-border interaction; Rose (2005), for instance, examines the effect of various international institutions on trade. Likewise, failures of diplomacy, such as interstate conflicts and wars, are typically found to substantially harm growth; Blomberg and Hess (2012) and Polachek and Sevastianova (2012), among others, estimate the cost of conflict on welfare and per capita income.

Apart from these consequences, the economic effects of diplomacy have recently attracted growing attention for (at least) two other reasons. First, the role and purpose of diplomatic activities have changed considerably over the last few decades. While some traditional functions of the diplomatic service, such as the collection of information about developments abroad, have largely disappeared, other tasks have gained in importance, including tasks based on economic motives. Second, diplomacy is costly. The foreign service, for instance, requires sizable operational expenditures. More notably, membership in international organizations typically requires obligations which ultimately imply a loss of national sovereignty. In view of the transfers involved, both in terms of money and power, cost-benefit analyses of diplomatic activities have been recently in growing demand.

Diplomatic efforts can take various forms; they range from negotiating treaties and agreements to the operation of permanent presence posts, such as embassies, in foreign countries. As a result, given this diversity, a sizable literature already examines the economic effects of a wide range of diplomatic activities. Rose (2016), for instance, documents, at a very general level, that a country's 'soft power' also matters commercially; countries that are perceived to be exerting a positive global influence are found to export more to their admirers. At another extreme, Nitsch (2007) analyzes the effects of a very specific form of diplomacy, state visits, finding that official travels by heads of state tend to benefit bilateral trade with the host country.

In this short paper, I explore the effects of another feature of diplomatic efforts, a country's willingness and ability to facilitate easy cross-border travel for its citizens.¹ In practice,

¹ Bangwayo-Skeete and Skeete (2017) take a different perspective. Aiming to identify determinants of a country's visa policies, they find, for instance, that membership in the European Union is associated with more visa-free travel privileges.

administrative procedures for entering and exiting a country are one of the most visible aspects of the foreign policy of a sovereign state; they are also one of the most important foreign policy areas. The U.S. Department of State, for instance, notes on its website: “Consular Affairs (CA) is the public face of the Department of State for millions of people around the world [...] These far-reaching consular activities have broad foreign policy and domestic political implications and involve serious legal, humanitarian, and management concerns. [...] CA is also the Department’s largest Bureau in terms of domestic personnel and is almost entirely funded through revenue generated by consular fees. This revenue totaled \$4.16 billion in 2015, making CA the equivalent of a Fortune 600 company.”²

Visa policies have many facets, including, among others, the requirements to be fulfilled for being granted an entry visa, the time it takes to be granted approval for a visa, and the period of allowed stay. In view of the heterogeneity of measures and procedures, I quantify the overall conditions for crossing a country’s borders by the number of countries and territories that can be entered by its citizens without a visa. In particular, it is argued that the ultimate aim of governmental efforts to lower restrictions on cross-border travel is to facilitate unhindered mobility. Previous studies, in contrast, have exclusively focused on the economic impact of very specific visa policy measures. Neiman and Swagel (2009), for example, examine stricter U.S. rules and procedures enacted on visa applications after the September 11, 2001, attacks, finding that countries participating in the visa waiver program (and, therefore, unaffected by these changes) experienced a larger decline in travelers. Other studies analyze the pairwise association between visa-free travel and bilateral economic activity, such as Davis and Gift’s (2014) assessment of the trade effects of the abolition of border controls between the member countries of the Schengen Agreement, Neumayer’s (2011) analysis of the effects of visa restrictions on trade and investment or Czaika and Neumayer’s (2017) study of the effects of visa policies on cross-border mobility. As many of these policy measures, however, are dyadic in nature, the analyses face potential endogeneity concerns where restrictions to travel are influenced by the extent of bilateral interactions.

2. Methodology and Data

In order to identify the effect of a country’s visa policies, I estimate an augmented gravity model which has been highly successful in explaining patterns of international trade. In particular, following Head and Mayer (2014) and others, I use a ‘least squares with country

² See <https://travel.state.gov/content/travel/en/about.html>.

dummy variables' estimator, where fixed effects for the exporter and importer account for any factor that shifts the overall level of exports or imports of a country. As these factors include a country's overall visa policies, I construct from this monadic variable a new dyadic variable, which is identifiable in this setting and explained in more detail below. Specifically, I estimate equations of the form:

$$(1) \quad \ln(X_{ij}) = \gamma \text{Visa}_i \text{Visa}_j + \sum_n \beta_n Z_{ij} + \lambda_i + \mu_j + \varepsilon_{ij},$$

where X_{ij} denotes nominal exports from country i to country j , $\text{Visa}_i \text{Visa}_j$ is the dyadic measure of the exporter's and importer's cross-border mobility, Z is a vector of auxiliary dyadic control variables (such as the geographic distance between i and j), λ_i and μ_j are comprehensive sets of exporter and importer fixed effects respectively, and ε_{ij} is a residual to represent all other influences on exports.

Since countries with close trade ties to one another are also more likely to allow for visa-free travel between each other, I examine the effects of a country's overall openness to cross-border mobility on trade. In particular, I make use of a new data set, obtained from Arton Capital, a global financial advisory firm, on the number of countries and territories that can be entered by a country's citizens without a visa. By multiplying the share of countries to which a passport holder from i has visa-free access times the share of countries to which a passport holder from j can travel visa-free, I obtain a dyadic travel mobility variable, the probability that a pair of randomly selected individuals from the two countries will be able to visit each other without the need for a travel visa, which is independent of the actual diplomatic relationship between the two countries.

Data on the number of a country's visa-free (or visa on arrival) agreements, the Visa-Free Score, are available for 199 countries and territories, covering the period from 2015 onwards in annual frequency.³ The current (2018) scores range from 25 for Afghanistan to 164 for Singapore. In view of the short time span of available data, I estimate a cross-section gravity model, analyzing bilateral patterns of trade in 2016. Moreover, to further reduce potential endogeneity concerns, the visa policies measure is lagged by one year and, thus, refers to policies in 2015. In fact, changes in a country's overall visa policies are not uncommon (although often of moderate magnitude), as shown in Figure 1, which presents a scatterplot of the Visa-Free Score in 2016 against the Visa-Free Score in 2015 (along with a 45° line).

³ See <https://www.passportindex.org>.

Other data are compiled from conventional sources. Trade data are obtained from the International Monetary Fund's Direction of Trade Statistics. The dyadic control variables are computed based on information taken from the CIA World Factbook.

3. Empirical Results

Column 1 in Table 1 presents the baseline estimation results. In line with expectations, the gravity controls work well (that is, exports fall with geographic distance and are larger when countries share a land border and official language), while fixed effects for the exporter and the importer control for any country-specific determinant of trade (such as a country's economic size and remoteness). The coefficient of interest to me, however, is the estimate of γ , the joint effect of the exporter's and the importer's visa policies on trade. As shown, the effect is estimated to be large, positive and significant, with a point estimate of 1.97 implying that a one percentage point increase in the probability of pairwise visa-free travel is associated with a two percent increase in bilateral exports.

In the remaining columns of Table 1, I verify the robustness of this result along a variety of dimensions. In columns (2) and (3), I replace exports with respectively imports and average trade as regressand, without much effect. In columns (4) and (5), I expand the sample and apply techniques that allow me to take into account observations of zero (or unreported) trade. While the least squares results are robust to this extension, the estimated γ coefficient decreases in magnitude and loses statistical precision for Poisson estimation. Since the language effect, however, is also no longer statistically distinguishable from zero, I do not place much confidence in this estimator in this setting. In column (6), I include, at the cost of a reduced sample, additional dyadic controls, which yields a smaller but still highly significant γ estimate. Intuitively, the point estimate becomes moderately smaller in magnitude when I estimate the current (instead of the one-year lagged) effect of visa policies on exports, as shown in column (7).

I also examine the sensitivity of the findings to the functional form of the dyadic variable that quantifies the trading partners' visa policies. Table 2 presents results. In particular, I use the pairwise minimum of the exporter's and the importer's Visa-Free Score, a binary dummy variable which takes the value of one when both countries have a Visa-Free Score that is above the sample median (and zero otherwise), and a binary dummy variable which takes the value of one when both countries have a Visa-Free Score that is above the 75th percentile of

the sample (and zero otherwise). For all these measures, the estimate of γ is positive and statistically highly significant. The results are also economically plausible. The point estimate of 0.28 in column (2) implies, for instance, that, holding other things constant, a country's exports are higher by 32 percent when the citizens of both countries enjoy visa-free access to more than (the sample median of) 74 countries. When separating the effect between the exporter and the importer, visa policies seem to be of relevance for both sides of a trade relationship, with a larger effect for the importer.

4. Conclusions

Cross-border mobility is often associated with cross-border economic exchange. In fact, in view of this relationship, restrictions to travel have also been frequently applied as a tool in economic diplomacy.

In this short paper, I examine the empirical association between a country's visa policies and its international trade, using a specification of the gravity model that avoids the endogeneity problem of analyses of the pairwise association between ease of travel between countries and the extent of bilateral economic activity. In particular, I make use of a new data set which allows me to construct a dyadic measure of travel mobility that is independent of the actual diplomatic relationship between the two countries. In line with other, previously reported (and potentially biased) estimation results, I find that mobility benefits cross-border exchange: Countries which engage in diplomacy and manage to issue powerful passports experience more international trade.

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Table 1: The Effect of Visa Policies on Trade

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependent Variable:	Ln(Exports)	Ln(Imports)	Ln(Trade)	Ln(.01+Exports)	Exports	Ln(Exports)	Ln(Exports, 2015)
Estimation Method:	OLS	OLS	OLS	OLS	Poisson	OLS	OLS
Pairwise Product Visa-Free Score	1.966** (0.260)	2.179** (0.250)	1.743** (0.244)	1.792** (0.265)	0.180 (0.599)	1.137** (0.287)	1.766** (0.263)
Log (Distance)	-1.491** (0.024)	-1.462** (0.022)	-1.396** (0.021)	-1.339** (0.024)	-0.765** (0.033)	-1.374** (0.029)	-1.512** (0.024)
Border	1.096** (0.116)	0.872** (0.110)	1.069** (0.110)	1.563** (0.152)	0.611** (0.104)	0.788** (0.115)	1.101** (0.117)
Common Language	0.737** (0.052)	0.792** (0.048)	0.731** (0.048)	0.890** (0.045)	0.114 (0.086)	0.483** (0.050)	0.766** (0.052)
Other Dyadic Controls	No	No	No	No	No	Yes	No
Exporter Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of Obs.	22,044	23,645	26,734	38,025	38,025	17,965	21,888
Pseudo R²					0.94		
Adjusted R²	0.74	0.75	0.79	0.77		0.76	0.74

Notes: Regressand and estimator are specified at the top of each column. Other dyadic controls are: log product land area, number landlocked, number islands, common colonizer, common country, ever colony, currently colonized, same country, and regional FTA membership. Standard errors robust to clustering at the country pair level are in parentheses. ** denotes significant at the 1% level.

Table 2: Alternative Visa Policy Measures

	(1)	(2)	(3)	(4)	(5)
Pairwise Minimum Visa-Free Score	0.006** (0.001)				
Both with Visa-Free Score > Median		0.282** (0.058)			
Both with Visa-Free Score > 75%			0.512** (0.056)		
Visa-Free Score Exporter				0.004** (0.000)	
Visa-Free Score Importer					0.010** (0.000)
Log (Distance)	-1.486** (0.024)	-1.500** (0.023)	-1.484** (0.024)	-1.500** (0.023)	-1.500** (0.023)
Border	1.097** (0.116)	1.109** (0.116)	1.126** (0.116)	1.109** (0.116)	1.109** (0.116)
Common Language	0.736** (0.052)	0.735** (0.052)	0.742** (0.052)	0.735** (0.052)	0.735** (0.052)
Log (GDP Exporter)				0.822** (0.007)	
Log (GDP Importer)					1.053** (0.008)
Exporter Fixed Effects	Yes	Yes	Yes	No	Yes
Importer Fixed Effects	Yes	Yes	Yes	Yes	No
Number of Obs.	22,044	22,044	22,044	21,163	21,344
Adjusted R²	0.74	0.74	0.75	0.71	0.68

Notes: OLS estimation. Regressand is log exports. Standard errors robust to clustering at the country pair level are in parentheses. ** denotes significant at the 1% level.

Figure 1: Visa-Free Scores over Time



Notes: Data are obtained from Arton Capital (<https://www.passportindex.org>).