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Economic Preferences, Trade and Institutions

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November 2020

Abstract

We make use of a comprehensive trade panel data set that includes intra-national flows to identify the effect of national economic preferences - patience, risk attitude, negative reciprocity and pro-social preferences from the Global Preference Survey (GPS) - on external trade in a gravity approach, while still being able to crucially control for multilateral resistances by the proper fixed effects. We use a series of further identification approaches to compare the results and to disentangle channels for the impact of economic preferences on trade. We find that especially patience and risk aversion tend to foster external trade across the board. Additionally, we formally analyze the interaction effects of preferences and institutions. Our findings suggest that preferences may act as substitutes for bad formal institutions to some extent.

Keywords: Trade determinants; Non-Tariff Barriers; Economic preferences; Sociocultural variation.

JEL Classification Numbers: F10, F14, D01, D91, Z10.

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1 Introduction

The interest in the effect of formal as well as informal institutions - including cultural factors - on international trade (and on development through trade) and in the interplay among these features has been steadily increasing over the past years. Bringing together aspects from behavioral economics and international trade, we perform an extensive empirical gravity analysis on a comprehensive panel data set of intra- and international trade flows and "economic preferences", using a new state-of-the art identification strategy. As preference measures, we use data from a recent data set of new and unique quality, the Global Preference Survey (GPS) by Falk *et al.* (2018). It includes carefully designed and experimentally validated measures of patience, risk attitude, negative reciprocity and pro-social preferences (positive reciprocity, altruism and trust). We view the observed set of preferences as an interesting bridge on the way from fuzzy definitions of attitudes and cultural proximity towards hard economic transactions and contracts and thereby hope to provide a deeper understanding on the channels between informal and formal institutions and trade.

Exploiting the differential impact on intra- vs. international flows, we identify effects of national economic preferences on external trade while still being able to use the proper exporter- and importer-time fixed effects, which is crucial in order to control for multilateral resistances (Anderson and van Wincoop, 2003). Most prominently, both patience and risk aversion are consistently identified as positive and statistically significant trade-boosting features. In addition to comparing the results with other identification methods and trying to further disentangle the effect channels of preferences on trade, we analyze the interactions between preferences and formal institutions and uncover a substitutive nature between them.

From a theoretical perspective, the observed set of economic preferences may affect trade through several different channels. Can a high level of patience, for example, establish a comparative advantage? Does risk aversion increase the cost of international exchange? While said preferences can arguably play a role in any kind of transaction and contract, several factors are particularly aggravated when it comes to international trade.[1] The shipment of goods may take a significant amount of time, such that a certain degree of patience is needed. As trade relationships are often only intensified over time (e.g. Araujo *et al.*, 2016), more patient firms might also be more willing to build up such long-term partnerships. Also, payments may be delayed or defaulted and the same holds true for the physical delivery of goods. While paying upfront can alleviate some concerns, a considerable degree of risk and a need to trust the partner remain for at least one side of the partnership. Informational frictions are naturally higher about foreign firms and foreign markets in general, which, for example, increases uncertainty about the quality of differentiated goods in particular. Contract

[1] Apart from trust (e.g. Guiso *et al.*, 2009), the dimensions of economic preferences have seldom been the direct focus of the trade literature. Still, features like patience have been found to have important complementary roles (see Defever *et al.* (2016), for example).

enforcement also becomes more difficult over distance, often dealing with different or weak institutional frameworks. However, some proposed channels may often work in different directions. For example, a high degree of risk-aversion may certainly induce firms to shy away from the uncertainties associated with international trade, but it might also provide an intensive for diversification in the sense of insuring against local shocks - both in terms of ensuring constant streams of turnover or in terms of ensuring sufficient goods input. Another example is negative reciprocity, which increases costs of a breach of contract. On one hand, this may diminish the incentive to deviate and thus foster healthy long-term relationships, but the prospect of higher potential costs may also prevent firms to engage in contracts with negatively reciprocal partners in the first place. At a bilateral level, differences or similarities between preferences may again have countervailing effects. While shared perceptions in these dimensions may provide a common ground for negotiating contractual features and align expectations, differences with respect to patience and risk aversion, for example, can also create an additional incentive to trade. When impatient or risk-averse players are willing to pay a respective time or risk premium, this can be exploited by paying in advance or otherwise re-allocating some of the risk burden for patient and more risk-tolerant agents. In the end, the question on the net effect of (each of these) economic preferences on trade becomes an empirical one to a large extent.

Thus, we analyze the direct impact of national preferences on international trade flows via a structural gravity equation. To that extent, we make use of recent methodological advancements in the area of cleanly identifying unilateral effects. The core analysis of the paper builds upon the growing literature that considers and uses intra-national "trade" flows in addition to standard international flows. The effect is then identified as the effect on international trade flows *relative* to internal trade flows. The main advantage of this method is that it allows identification of country-specific, unilateral effects while still being able to control for multilateral resistance terms. Since standard practice does so by using (time-varying) importer and exporter fixed effects (cf. Baldwin and Taglioni, 2007), all exporter- or importer-specific effects get absorbed in these fixed effects since they are perfectly collinear. Therefore, several authors perform regressions without the country fixed effects or using one-sided fixed effects only, see Nordås and Rouzet (2017) and Álvarez *et al.* (2018) for examples from analyses on service regulation and institutional quality, respectively. Still, failing to control for the multilateral resistances has the potential to severely bias gravity estimates, as Anderson and van Wincoop (2003) show in their seminal work. Another approach that is often used is to construct bilateral variables from the respective importer and exporter values, e.g. distance measures. Examples, again from the context of institutions and trade, are Anderson and Marcouiller (2002) and Yu *et al.* (2015), but the interpretation of such effects is not trivial and does not always represent the direct effect that a unilateral variable has on a country.

As another alternative, Head and Mayer (2014) and Piermartini and Yotov (2016) suggest a two-step approach that first estimates a gravity equation with the proper fixed effects and then extracts the exporter and importer fixed effects to regress them on the unilateral variable of interest and other country-specific controls in a second stage. Donaubauer *et al.* (2018) is a recent example and we performed a first analysis on the effect of economic preferences on trade using this technique ourselves (Korff and Steffen, 2019). However, this approach comes with its own challenges and, more importantly, Sellner (2019) provides Monte Carlo simulation evidence that the resulting estimators may again be biased and inconsistent. In contrast, the estimates from the intra-national identification are the only ones that prove to be unbiased and consistent.

While the general use of internal trade flows and the importance of the need to take them into account has initially been brought forward as a way to solve the "distance puzzle" (Yotov, 2012), it has been gradually developed to additionally be used as said method of identifying the effects of unilateral variables by Heid *et al.* (2017) and Beverelli *et al.* (2018). In the context of a variable that may directly affect both domestic and international trade - as is the case for example for the quality of institutions and also the preference variables of interest in this paper here - it is only possible to identify the overall effect on international trade (imports *and* exports) relative to internal trade[2]. The econometric implementation is very simple: the (unilateral) variable of interest only needs to be interacted with a dummy variable on intra-national trade that takes a value of 1 for all domestic "flows" (i.e. the amount of local production that is not exported) and a value of 0 else. This interaction term becomes a bilateral variable by definition and can still be identified in the presence of exporter- and importer-(time) fixed effects. The actual challenge preventing wide-spread use of this method is the availability of data on intra-national trade. It needs to be calculated as the difference of *gross production value - total exports*, data which is not trivially available for all countries, time periods and trade categories. In this paper, we use a comprehensive consistently constructed data set featuring data on 45 countries over 20 years from 27 manufacturing sectors[3].

While we did not find an instrument for an IV approach, the concern for endogeneity of results is generally limited with this type of approach, as Beverelli *et al.* (2018) argue. First, all observable and unobservable country characteristics are controlled for by the use of proper exporter- and importer-time fixed effects. Additionally, drawing from an analogy of the intra dummy to a treatment variable that is independent of any given trade partner choice and does not vary systematically with the preference levels, we know that estimates from such an interaction term are consistent even in the presence of omitted variables (Nizalova and Murtazashvili, 2016).

[2]In the case, for example, of a non-discriminatory trade policy that is only affecting external trade by definition, differential impacts on exports and imports can be identified as well (Heid *et al.*, 2017).

[3]The data has been kindly provided to us by Thomas Zylkin.

Qualitatively, our analysis touches upon several further strands of literature: adding on to the first tentative results from our first analysis on this topic (Korff and Steffen, 2019), we obtain statistically significant estimates on the effect of several dimensions of economic preferences on trade flows in a much broader and more robust setting by using a panel with intra-national trade flows and interactions with institutions and distance. In particular, high levels of both patience and risk aversion appear to consistently positively affect external trade flows across the board. This does not only inform the literature on culture and trade (cf. Guiso *et al.*, 2009, Lameli *et al.*, 2015, Melitz and Toubal, 2014, and many more), but also the broader literature on preferences' importance for individual as well as aggregate outcomes (e.g Dohmen *et al.*, 2016, Falk *et al.*, 2018).

Another big field that we touch upon is the one of (formal and informal) institutions. Aside from their effect on general economic performance (e.g. Acemoglu *et al.*, 2001, La Porta *et al.*, 1997), the interplay of institutions and trade has received large attention itself (Anderson and Marcouiller, 2002, Araujo *et al.*, 2016, Nunn, 2007, ...) and has been identified as a driver of comparative advantage and specialization patterns, by lowering information and transaction costs, improving the enforcement of contracts and more. Another aspect is the (at least partial) substitutability between formal institutions and informal institutions like shared culture or migrant networks (Briant *et al.*, 2014, Nunn and Trefler, 2014). Another important discussion often included in these analyses is the one of how poor or developing countries are affected by these factors in particular (Beverelli *et al.*, 2018, Lanz *et al.*, 2019, Pascali, 2017). We add to the institutional literature by explicitly examining the interaction effects between formal institutions and economic preferences and find that the preferences can act as an informal substitute in some dimensions and also check for differential effects for trade between poor and rich countries.

The remainder of the paper is structured as follows. Section 2 provides a recap of the gravity framework, discusses the challenges and solutions for determining the effects of country-specific variables -like the national preference levels in our case- and describes the data. In section 3, we present the results of our main identification strategy based on the differential intra- vs. international effect, followed by several interaction and disentanglement analyses and alternative specifications. We end with some concluding remarks and a brief outlook in section 4.

2 Empirical strategy and data

2.1 Gravity framework

We base our analysis on the well-established gravity framework by Anderson and van Wincoop (2003) that represents bilateral trade flows X_{ij}, between exporter $i = 1, ..., I$ and importer $j = 1, ..., J$ in the following micro-founded equation[4]

$$X_{ij} = T_{ij} \frac{Y_i E_j}{\Pi_i P_j}. \tag{1}$$

T_{ij} traditionally stand for trade costs, with geographic distances standing out as the main driving force in increasing said costs. They may decrease on the other hand through factors such as trade agreements, a shared language and many more. As Beverelli *et al.* (2018) note, T_{ij} can actually include any trade determinant between countries i and j, including unilateral trade drivers (or impediments) such as institutions, or - in our case - national preferences. Y_i and E_j denote the total value of exporter production and importer expenditure, respectively. Π_i and P_j, finally, represent the outward and inward multilateral resistance terms that capture the remoteness of a country:

$$\Pi_i = \sum_j \frac{T_{ij} E_j}{P_j} \tag{2}$$

and

$$P_j = \sum_i \frac{T_{ij} Y_i}{\Pi_i} \tag{3}$$

Two countries will c.p. trade the more with each other, the more isolated each of them is from all other countries. These average trade barriers will be higher if a country is far away (T_{ij}) from (large) markets (E_j, Y_i). Since the two multilateral resistance terms are cross-wise dependent of each other and potentially include unobserved or unobservable factors it becomes computationally and practically challenging to capture these terms empirically.

Depending on the main variable of interest $V_{i(j)(t)}$, an example for a standard modern empirical gravity specification may look like this

$$X_{ij(t)} = exp\left(\beta_1 lndist_{ij} + \beta_2 cntg_{ij} + \beta_3 lang_{ij} + \beta_4 clny_{ij} + \beta_5 RTA_{ij(t)} + \delta V_{i(j)(t)} + \eta_{i(t)} + \mu_{j(t)}\right) + \epsilon_{ij(t)} \tag{4}$$

[4]See Head and Mayer (2014), Yotov *et al.* (2016) for encompassing reviews on the origins and recent developments of the theoretical and empirical gravity literature. The notation loosely follows Beverelli *et al.* (2018)

The established standard has become to circumvent the problem of directly estimating multilateral resistances by using directional (and time-varying) country fixed effects $\eta_{i(t)}$ and $\mu_{j(t)}$ that control for *all* observable (e.g. output, expenditure, population etc.) and unobservable exporter- and importer-specific characteristics, including the multilateral resistances.[5] Exports X_{ij} (in year t for panel specifications) from country i to country j are a function of bilateral trade cost proxies, a variable of interest $V_{(.)}$ and the exporter- and importer(-time) fixed effects that inherently control for the multilateral resistances. While non-exhaustive, some of the most commonly used trade cost controls included here are the geographical distance $dist_{ij}$ and dummy variables for contiguity, a common language, colonial history and the presence of an active RTA agreement between countries i and j.

Following best practice, the regressors enter the equations in their exponential form as they should be estimated with the Poisson Pseudo Maximum Likelihood (PPML) estimator, first proposed by Santos Silva and Tenreyro (2006). Use of the PPML method has important advantages over standard OLS methods. It is robust towards heteroskedasticity of the data, a problem which is often present in trade data. Another feature naturally given in trade data are "zero trade" flows, at least to some extent, depending on the level of aggregation of the data and depending on the observed country sample. The PPML estimator allows to incorporate these zero trade flows into the regression and thereby capture the information that these missing trade flows carry with them. Zero trade flows cannot be used in standard OLS estimations, as the process of log-linearizing would require empirically and theoretically problematic ad-hoc solutions for zero trade flows.

If possible, i.e. when the variable of interest is a bilateral variable with sufficient variation over time, country-pair fixed effects γ_{ij} should be used as well, which additionally control for all observed and unobserved time-invariant characteristics of each i and j pair.

$$X_{ijt} = exp\left(\beta_5 RTA_{ijt} + \delta V_{ijt} + \eta_{it} + \mu_{jt} + \gamma_{ij}\right) + \epsilon_{ijt} \tag{5}$$

It becomes apparent that any time-invariant unilateral country characteristics would be completely absorbed in both cases. In the following, we will describe our main method of identification that deals with this problem and also discuss some alternative approaches.

2.2 Identification of country-specific effects

The main variables of interest that this paper is concerned with are the economic preferences that are measured at national levels. As just discussed, any exporter- and importer-specific variables are absorbed by exporter-time and importer-time-fixed effects, which are needed to properly control for multilateral resistance

[5] Refer to Baldwin and Taglioni (2007) for a good overview of the proper use of dummies in gravity equations

as derived from structural gravity. I.e., no factors affecting a country's propensity to export to all destinations or to import from all origins may be identified in such a standard empirical gravity model (cf. Head and Mayer, 2014). While we will also discuss some previously used alternative methods, recent work by Sellner (2019) shows in an extensive simulation study that the identification method making use of the differential impact between intra- vs. international flows, as originally proposed by Heid *et al.* (2017), is the only one that produces unbiased and consistent estimates.

Intra-national identification. Implementation of the intra-national identification method is simple in principle and only requires two easy modifications to a standard empirical specification. First, intra-national flows need to be included in addition to a standard trade matrix with international flows only. While simple in the final implementation, data on intra-national flows is not trivially available in most cases. Usually they need to be constructed as the difference between *gross* production values - and not *value added* measures - and total exports. Even if the reporting of such gross production values is gaining more prevalence, this data is not readily available for all countries, periods and all forms of trade, let alone more disaggregate data.

As a second modification, a border dummy $BRDR_{ij}$ is introduced that takes a value of one for all international flows $i \neq j$ only and a value of zero for all *intra*-national flows[6]. This dummy is then interacted with the unilateral variable of interest V:

$$X_{ijt} = exp\left(\boldsymbol{GRAV}_{ij(t)}\boldsymbol{\beta} + \delta_0 BRDR \times V + \eta_{it} + \mu_{jt}\right) + \epsilon_{ijt} \tag{6}$$

The effect of the variable of interest on international trade will then be represented by the coefficient of the interaction term $BRDR \times V$. In equation (6), we are using a vector of potential trade cost controls $\boldsymbol{GRAV}_{ij(t)}$ - which is here also including the non-interacted base of the border dummy variable $BRDR_{ij}$ - instead of the examples in equation (4) for the sake of brevity. Equation (6) will form the basis of our empirical analysis in Section 3.[7]

While a differential impact between exports and imports can additionally be identified for variables such as unilateral trade policies (which may only apply to exports *or* imports by definition), Beverelli *et al.* (2018) show from the example of national institutions that variables potentially applying equally on exports and imports can only be identified in their relative effect on overall international trade vs. internal trade. From a technical side, this means that in the case of national institutions and preferences, the interaction variable $BRDR \times V$ may only be defined from one side, i.e. either as $BRDR_{ij} \times V_i$ or as $BRDR_{ij} \times V_j$. The results will be exactly the same, no matter which of the two is used and both can only identify the effect of a country's

[6]The dummy may also be defined vice versa, the qualitative results will be exactly the same as Beverelli *et al.* (2018) show, respectively with reversed signs

[7]The main estimations are performed using the *ppmlhdfe* command by Correia *et al.* (2019a,b).

preference, institution, etc. on overall imports plus exports relative to domestically consumed production.[8] The same holds true for our preference variables of interest. Besides of the trade cost variables and the main interaction of interest, we are using both exporter- and importer-time fixed effects η_{it} and μ_{jt} to control for, most importantly, multilateral resistances as discussed above and other unilateral characteristics. The remainder error term is described by ϵ_{ijt}.

Alternative methods. Before describing our data and empirical results, we want to briefly discuss some of the previously used methods in dealing with unilateral variables of interest. We will incorporate these into the analysis as sensitivity checks and to provide additional angles of observation. There are two simplistic solutions to circumvent the problem of absorbed variables of interest[9]: one is to use one-sided or alternating fixed effects only, i.e. no importer and exporter fixed effects at the same time or even no country fixed effects at all. Of course, results may be potentially severely biased as they cannot control for multilateral resistances and suffer from the critique brought forward by Anderson and van Wincoop (2003).

The other often used ad-hoc solution is to create a - sometimes more, sometimes less theoretically justified - bilateral combination of the i and j variables (also cf. Head and Mayer, 2014, for a brief overview). While such measures do not violate the structural properties of the gravity model, some of them may be unnatural compared to their unilateral motivation, the effect of a , e.g., distance measure can deviate starkly from the direct effects and the interpretation can become diffuse in any case.

As another alternative, Head and Mayer (2014) and Piermartini and Yotov (2016) suggest a more complex two-step approach that first estimates a gravity equation with the proper fixed effects and then extracts the exporter and importer fixed effects to regress them on the unilateral variable of interest and other country-specific controls in a second stage. Donaubauer *et al.* (2018) is a recent example and we performed a first analysis on the effect of economic preferences on trade using this technique before (Korff and Steffen, 2019). However, this two-step procedure comes with its own challenges and, more importantly, Sellner (2019) provides Monte Carlo simulation evidence that the resulting estimators may again be biased and inconsistent. In contrast, the estimates from the intra-national identification are the only ones that prove to be unbiased and consistent.

While having to take the two-step results with a grain of salt, this approach potentially allows us, however, to cross-check our main results and gain some additional insights through which channels the preferences affect trade, i.e. in how far do they affect the multilateral resistance terms captured as part of the extracted country fixed effects. Also, this method provides a natural point to proceed from towards some additional disentanglement exercises regarding the overall effect of preferences on trade: loosely following the analysis

[8] We refer to Beverelli *et al.* (2018), Heid *et al.* (2017) for the full derivations and proofs of these results.
[9] See Section 1 for some recent examples from the literature making use of these.

by Donaubauer *et al.* (2018), we follow up the two-step procedure with a regression analysis of two direct measures of trade costs. After estimating basic equation (5), we extract both the importer and exporter fixed effects as well as the pair fixed effects. As part of the basic two-step method (Head and Mayer, 2014), we regress the estimated exporter-time fixed effects $\hat{\eta}_{it}$ on the preference variables V_i, country-specific controls $\boldsymbol{C_i}$ like GDP and on an average trade cost term $\overline{\boldsymbol{GRAV}}_i = (1/N)\sum_j \boldsymbol{grav}_{ij}$:

$$ln\ \hat{\eta}_{it} = \beta_0 + \overline{\boldsymbol{GRAV}}_i\boldsymbol{\beta} + \boldsymbol{C_i\lambda} + \delta_1 V_i + \kappa_t + \psi_{it} \tag{7}$$

κ_t and ψ_{it} describe a time dummy and the error term, respectively. We proceed analogously for the importer-time fixed effects $\hat{\mu}_{it}$.

Similarly to the directional effects, we can also extract estimates of the pair fixed effects $\hat{\gamma}_{ij}$ from equation (5) and use them to construct a direct estimate of bilateral trade costs T_{ijt}:[10]

$$\hat{T}_{ijt} = exp\left(\boldsymbol{GRAV}_{ijt}\hat{\boldsymbol{\beta}} + \hat{\gamma}_{ij} + \hat{\epsilon}_{ijt}\right) \tag{8}$$

Another measure for bilateral trade cost can be calibrated from the directly observed internal and external trade flows with the odds-ratio method (Head and Ries, 2001, Novy, 2013). The resulting tariff equivalent τ_{ij} can be interpreted as a wedge between the observed revealed level of trade costs and a frictionless world:

$$\tau_{ij} \equiv \left(\frac{t_{ij}t_{ji}}{t_{ii}t_{jj}}\right)^{\frac{1}{2}} - 1 = \left(\frac{X_{ii}X_{jj}}{X_{ij}X_{ji}}\right)^{\frac{1}{2(\sigma-1)}} - 1. \tag{9}$$

For this calculation, σ will be set to a value of eight, following Jacks *et al.* (2011). Both the estimated and the calibrated cost measure will then be regressed on the preference variables and controls.

2.3 Data

Before we show and discuss the results of our empirical analysis in Section 3, we describe our data in Section 2.3. The two main distinguishing factors of our data set are the inclusion of intra-national flows with the trade data on one hand and, on the other hand, the set of economic preferences from the Global Preference Survey (GPS) by Falk *et al.* (2018). The intra- and international trade data from 27 manufacturing sectors (ISIC Rev.2, codes 311-389) is available for a total of 69 countries over a period of 20 years, 1986-2006. The preference data is available for a total of 76 countries. However, not all of them match the countries that we have available with intra-national flows. Thus, the final main data set consists of 45 countries for which both preference and intra-national flow data are available.

[10] See Donaubauer *et al.* (2018) for details on these procedures.

Economic preferences. The main variables of interest are the economic preferences from the GPS[11] which measures countries' preference structures with respect to patience, risk attitude, negative reciprocity, positive reciprocity, trust and altruism. Preferable features of this survey are its broad scale and comparability of the data for a large set of countries and its careful design and experimental validation. Full details on the design and implementation of the survey are described in Falk *et al.* (2016) and Falk *et al.* (2018).

The first dimension, *patience*, is a straight-forward measure of time preference. More patient agents are more willing to give up something in the present day in order to benefit more at a later point in time. The most patient countries in the sample are Sweden, Netherlands and USA, while the least patient countries include Hungary, Cameroon and Jordan.[12] The measure of *risk attitude* is another standard concept and represents the willingness to take risks and the valuation of more certain payouts compared to risky potentially higher payouts. Countries with the highest degree of risk aversion are Portugal, Cameroon and Hungary. South Africa, Tanzania and Malawi are the most risk tolerant.

Negative reciprocity covers a willingness to take revenge when treated very unfairly, even when doing so comes at additional personal costs, and also a general propensity to punish unjust behavior. The Republic of Korea, France and Turkey tend to behave negatively reciprocal the most, while Morocco, Costa Rica and Malawi are the least negatively reciprocal countries in the sample. Morocco is also among the most positively reciprocal countries together with Egypt and Iran, but overall, the correlation between positive and negative reciprocity is surprisingly low, i.e. close to zero. The measure of *positive reciprocity* encompasses a willingness to return favors and to exchange "gifts", both in a literal sense and in the sense of the seminal gift exchange literature (cf. Akerlof, 1982). Countries with the lowest levels of positively reciprocal behavior are Mexico, Tanzania and South Africa.

Trust is a simple survey measure of trust towards people in general in the GPS. The most trusting countries are Egypt, China and Hungary, while Cameroon, Japan and Malawi have the lowest tendency to trust others. Last, *altruism* represents the principle of concern for the well-being of others and is measured by a willingness to donate. Countries that show the highest levels of altruism are Egypt, Iran and Morocco. Mexico, Hungary and Tanzania are on the lower end of the scale.

By construction, each preference dimension is normalized to a mean of zero and a standard deviation of one. Thus, positive values represent deviations above the world mean and negative values need to be interpreted as degrees that are below the mean. For most parts of the analysis in this paper, we will use a pro-sociality index that is also reported in the GPS data. It groups the latter three dimensions together that also exhibit high levels of correlation amongst each other and can be conceptually summarized under

[11] The data set is available at `https://www.briq-institute.org/global-preferences/home`.
[12] Full country rankings for the preference dimensions are presented in Fig. 1 in the Appendix.

"pro-social preferences". For the analysis of this paper, we assume the set of preferences to be completely constant over time. There is no time variation in the preference variables, both from a practical side as the data was only technically collected in the year 2012[13], but also from a conceptual side. While the preferences can change over time and over different characteristics at the individual level, the observed national leanings in preferences are usually argued to be by and large persistent.[14]

Trade and intra-national flows. As a standard feature, international trade flows are obtained from the United Nations' Commodity Trade Statistics Database (COMTRADE)[15] and is complemented with data from the Trade, Production and Bilateral Protection (TradeProd)[16] database from CEPII for missing observations. In addition, intra-national flows are crucially needed for the implementation of our identification strategy. As mentioned above, while simple in the final implementation, data on intra-national flows is not often trivially available. They are calculated as the difference between total (manufacturing) production and total (manufacturing) exports. For consistent results, both variables need to be reported in *gross* values. For this, production data from the United Nations' Industrial Statistics database UNIDO is used together with data from the Trade, Production and Protection (TPP)[17] database of the World Bank and again from CEPII'S TradeProd dataset. Baier *et al.* (2019) describe the process in more detail.[18]

Gravity variables. The standard gravity variables including bilateral *and* intra-national distances and dummies for a shared official language, contiguous borders and a colonial relationship are obtained from CEPII's GeoDist database (Mayer and Zignago, 2011).[19] Unilateral variables such as population, GDP and other national characteristics are also used from CEPII (Head *et al.*, 2010) for our alternative specifications. Data on regional trade agreements (RTAs) comes from Mario Larch's Regional Trade Agreements Database[20] from Egger and Larch (2008), who bases it on the original RTA data from the WTO[21].

Institutions and development. In order to complement our gravity and preference data and to construct the interaction terms of preferences and institutional quality, we employ data from the World Bank's World Governance Indicators (WGI) database.[22] The WGI data includes measures of formal institutional quality in the six dimensions of Voice and Accountability, Political Stability and Absence of Violence, Government Effectiveness, Regulatory Quality, Rule of Law, and Control of Corruption. To keep our analysis concise, we

[13]See again Falk *et al.* (2018) for details on the process and timing of the data collection.
[14]Refer for example to the studies on the "ancient origins" of preferences by Galor and Özak (2016) or Becker *et al.* (2018).
[15]The data may be accessed online at `http://comtrade.un.org`.
[16]The TradeProd database is available from `http://www.cepii.fr/CEPII/en/bdd_modele/presentation.asp?id=5`.
[17]TPP data is available from `http://go.worldbank.org/4Z6UU7TO40`, UNIDO at `http://stat.unido.org/`.
[18]A data set including such consistently constructed intra-national flows has been kindly provided to us by Thomas Zylkin.
[19]It is available from `http://www.cepii.fr/cepii/en/bdd_modele/presentation.asp?id=6`.
[20]`http://www.ewf.uni-bayreuth.de/en/research/RTA-data/index.html`
[21]`http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx`
[22]The dataset and a detailed documentation can be accessed at `https://info.worldbank.org/governance/wgi/`.

use a single averaged institutional quality index for most parts of the paper. Like the data on preferences, the institutional variables are centered around zero with values roughly ranging from -2 to 2.

Following the methodological procedure by Beverelli *et al.* (2018), we complement our analysis by distinguishing flows and effects into those between poor and rich countries and vice versa, as opposed to in-group flows. For the classification into the rich and poor categories, we use another database from the World Bank, the Country and Lending Groups classification. Those economies that are reported with 'low-income' or 'lower-middle income' are grouped together as poor countries, while the rest - 'upper-middle income' and 'high-income' countries - is grouped as a rich country. Please refer to the Appendix for a full list and classification of included countries.[23]

Table 1: Summary statistics

Variable	**Mean**	**Std. Dev.**	**Min.**	**Max.**
Internal trade (million US$)	250.94	581.690	0.3	4233.436
Ext. trade (million US$)	1.38	7.142	0	241.537
Patience	0.078	0.418	-0.431	1.071
Risk aversion	0.011	0.294	-0.971	0.792
Negative reciprocity	0	0.268	-0.488	0.665
Prosociality	0.017	0.381	-1.059	0.868
Institutional Quality	0.427	0.893	-1.265	1.97
Distance (km)	7505.67	4498.48	52.47	19369.96
Shared Border	0.031	0.172	0	1
Shared Language	0.116	0.32	0	1
Colonial History	0.035	0.183	0	1
RTA	0.277	0.448	0	1
CU	0.061	0.24	0	1
GDP (million US$)	596344.14	1461834.316	1181.80	13855900

3 Results

3.1 Main

We start out the analysis with the results of our main identification strategy:

$$X_{ijt} = exp\left(\beta_1 lndist_{ij} + \beta_2 cntg_{ij} + \beta_3 lang_{ij} + \beta_4 clny_{ij} + \beta_5 RTA_{ijt} + \beta_6 BRDR_{ij} + \delta_0 BRDR \times V + \eta_{it} + \mu_{jt}\right) + \epsilon_{ijt} \tag{10}$$

[23] Details on the methodology and the data itself are available from `https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups`. A graphical overview is available at `https://datatopics.worldbank.org/world-development-indicators/the-world-by-income-and-region.html`.

Following the procedure from Beverelli *et al.* (2018), now using the preference variables only instead of institutions[24] provides the results on the effect of preferences on trade, reported in Table 2 and described in the following.

The bilateral control variables are largely in line with standard gravity results. The distance coefficient is significantly negative and the compensating factors mostly have the expected positive signs, even if not all are significant in all specifications. The first addition in columns (1) and (2) compared to a classic gravity estimation is the cross-border dummy (BRDR) that is taking a value of 1 for all international trade flows and is zero for all intra-national flows. The dummy on cross-border flows is negative, large and highly significant throughout, representing a considerable "home bias" effect c.p. That is, a country will on average trade a lot more with itself than with any single given bilateral partner. Columns (3)-(8) also control for the general *globalization trend* by including time-varying cross-border dummies. Full results with the yearly coefficients are reported in Table A.2 in the appendix and show that the magnitude of the negative border effect has indeed been decreasing over time.

Regarding the analyzed set of preferences, most prominently, higher patience leads to more external relative to internal "trade"[25] for the aggregate sample in columns (3) and (4) as well as for the split samples using trade in differentiated sectors only compared to trade in mostly homogeneous sectors[26] in columns (5)-(8). This is in line with the proposition that patient countries are more willing to deal with the time-intensiveness involved in international dealings. As argued earlier, international trade naturally takes more time compared to local trade in terms of actual shipment, but also with respect to communication, negotiation, control and more. Also, patient agents will be more likely to invest in growing relationships with foreign partners that are often only slowly developing and increasing over time, for example by building up a personal reputation.

More risk-averse countries also appear as more trade-intensive overall, which is in contrast to the first intuition that the inherent risk involved in trading internationally may deter risk-averse agents from external trade. This natural effect appears to be compensated by other trade-boosting channels such as a desire to diversify via trade as a form of insurance against local or regional shocks. It makes sense that the effect appears to be more pronounced for trade in differentiated goods. By definition and nature of a homogeneous good, it will be more easily substituted, both in the case of replacing supply channels as well as outlet markets. Hence, the diversification incentive will naturally be at least decreased for homogeneous goods.

The effect for the interaction of the border dummy with negative reciprocity also suggests to be boosting external trade, even if the PPML result is only significant for homogeneous goods. Apparently, the proposed

[24] Akin to Table 1 from their analysis.

[25] Throughout the discussion, the term "trade" will be used synonymously with external trade. Whenever we want to talk about intra-national flows, the terms will be specified as "internal trade" or "domestic trade" alternatively.

[26] The manufacturing sectors are assigned to differentiated or homogeneous trade according to the commonly used (Rauch, 1999) classification

Table 2: Economic preferences

	All				Hom.		Diff.	
	(1) OLS	(2) PPML	(3) OLS	(4) PPML	(5) OLS	(6) PPML	(7) OLS	(8) PPML
ln Distance	-1.204**	-0.907**	-1.170**	-0.799**	-1.300**	-0.888**	-1.269**	-0.799**
	(0.061)	(0.057)	(0.060)	(0.057)	(0.058)	(0.052)	(0.065)	(0.066)
Shared Border	0.098	0.384**	0.125	0.376**	0.059	0.307*	0.188	0.439**
	(0.241)	(0.147)	(0.250)	(0.133)	(0.217)	(0.128)	(0.300)	(0.162)
Shared Language	0.535**	0.142	0.597**	-0.021	0.434**	-0.125	0.740**	0.048
	(0.124)	(0.147)	(0.124)	(0.143)	(0.118)	(0.131)	(0.130)	(0.169)
Colonial History	0.522**	0.115	0.460**	0.002	0.559**	0.167	0.462**	-0.072
	(0.161)	(0.164)	(0.160)	(0.164)	(0.149)	(0.158)	(0.163)	(0.176)
RTA	0.046	0.216*	0.044	0.177+	0.053	0.361**	0.074	0.110
	(0.069)	(0.105)	(0.066)	(0.105)	(0.072)	(0.082)	(0.071)	(0.118)
Cross-border dummy	-3.842**	-2.620**	-3.741**	-3.371**	-3.757**	-3.716**	-3.734**	-2.926**
	(0.380)	(0.159)	(0.316)	(0.205)	(0.318)	(0.163)	(0.353)	(0.266)
Patience × BRDR			3.410**	2.165**	2.812**	1.930**	4.168**	2.031**
			(0.530)	(0.249)	(0.554)	(0.180)	(0.562)	(0.333)
Risk aversion × BRDR			2.628**	1.126**	1.553+	0.643+	3.410**	1.104+
			(0.991)	(0.437)	(0.906)	(0.337)	(1.140)	(0.575)
Neg. Rec. × BRDR			2.461**	0.227	2.327**	0.764**	2.350**	-0.213
			(0.758)	(0.259)	(0.739)	(0.213)	(0.871)	(0.325)
Prosociality × BRDR			0.411	-0.420+	0.471	-0.313*	0.209	-0.348
			(0.476)	(0.231)	(0.459)	(0.148)	(0.588)	(0.289)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Globalization trend	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40730	42525	40730	42525	39167	42525	39335	42525
R^2	0.874	0.987	0.880	0.991	0.832	0.993	0.896	0.988

This table reports estimation results from a series of econometric models that study the impact of national preferences on international trade. The dependent variables are bilateral exports $X_{ij,t}$ for all PPML regressions and exports in logs for OLS regressions, respectively. Columns (1) & (2) report standard gravity estimates with the addition of a dummy for cross-border trade (BRDR). Columns (3) & (4) introduce the interaction of preferences with the BRDR dummy for aggregate trade flows. Columns (5) & (6) and columns (7) & (8) respectively repeat the estimations for homogeneous vs. differentiated goods only. Standard errors are clustered by country pairs and are reported in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

effect in stabilizing contracts is dominating potential trade deterrence effects here. The missing effect for differentiated goods in the preferred PPML specification can be explained by the fact that contracts for differentiated goods should tend to be more stable anyway, since the lack of substitutability translates to a lack of choice in possible replacement partners as well. To further alleviate endogeneity concerns and to check the assumed persistence of the preference variables, we repeat the analysis with a cross-section for the year 1986 only. Results are reported in Table A.3 in the Appendix[27] and - with the caveat of losing statistical power - largely confirm the observed patterns from the panel analysis. Patience has a significant

[27]Separate cross-section results for all further years are again qualitatively and quantitatively similar and are available upon request.

positive effect throughout all specifications while risk aversion appears to matter particularly for trade in differentiated goods and negative reciprocity for trade in homogeneous goods. In line with the "globalization trend" argument, the border effect is significantly stronger for the year 1986 than for the average over the full time period. The fact that the preference data, technically measured in 2014, has significant effects on trade in 1986 supports the idea that the observed national preferences are at its core largely persistent and not, for example, reversely shaped via trade in more recent years.

3.2 Institutions

In a next step, we control for institutional quality. Full results from OLS and PPML regressions are available in Tables A.4 and A.5 in the appendix, while we present the concise PPML results in Table 3 for the main analysis here. On its own, institutional quality (also interacted with the border dummy) has the expected significant positive effect on external trade relative to internal trade. Adding both preferences and institutions together into the regressions signals a strong interrelation between the two as the institutional coefficient becomes indistinguishable from zero in the aggregate PPML regression[28]. Splitting the sample by homogeneous and differentiated goods, results are more in line with the ones without institutions. While the institutional quality effect becomes significantly positive again for homogeneous goods, it es even negative at a slightly significant level for differentiated goods. Negative reciprocity still has a significant positive effect for homogeneous goods only, confirming the observation that the stabilizing effect emerges when the breaking up of partnerships would be less costly otherwise. On the other hand, the relative importance of patience and risk aversion seems to become more pronounced for differentiated goods, which naturally come with higher uncertainty and a need for more complex and time-intensive relationships and contracts.

Overall, these results suggest a strong interrelation between institutions and preferences, with patience in particular. As a matter of fact, patience and institutional quality are also highly correlated (0.73). Falk *et al.* (2018) themselves deduce that patience is "arguably not the product of institution", but a high level of patience (i.e. long-term orientation) may certainly play a role in the decision to build up high-quality institutions allowing sustained development (Dohmen *et al.*, 2016). While this particular question shall not be the one of this paper, we introduce an additional interaction term between preferences and institutions to check more explicitly for possible substitutive mechanisms between these two sets of factors.

Interaction. Introducing a formal interaction term regains significance for both (border interacted) base variables of institutional quality and preferences in OLS and PPML estimations. The strong and significant interaction effects with a negative sign indeed suggest that patience and risk-aversion may indeed substitute

[28]In the OLS results,it is the patience and risk preference variables that lose their significance while the institutional interaction stays significant, again representing an important interrelation between these factors.

Table 3: Preferences and institutions

					Hom.	Diff.		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln Distance	-0.923**	-0.970**	-0.799**	-0.852**	-0.938**	-0.842**	-0.792**	
	(0.060)	(0.066)	(0.057)	(0.061)	(0.055)	(0.067)	(0.053)	
Shared Border	0.398**	0.368*	0.376**	0.354**	0.302*	0.410*	0.364**	
	(0.150)	(0.167)	(0.133)	(0.135)	(0.118)	(0.164)	(0.122)	
Shared Language	0.154	0.002	-0.021	-0.016	-0.100	0.078	0.019	
	(0.145)	(0.152)	(0.143)	(0.139)	(0.130)	(0.161)	(0.147)	
Colonial History	0.098	-0.080	0.002	-0.002	0.153	-0.092	-0.012	
	(0.165)	(0.155)	(0.164)	(0.160)	(0.157)	(0.168)	(0.155)	
RTA	0.158	-0.112	0.177+	0.125	0.267**	0.077	0.198*	0.165*
	(0.106)	(0.117)	(0.105)	(0.108)	(0.088)	(0.120)	(0.095)	(0.073)
Cross-border dummy	-2.336**	-2.599**	-3.371**	-3.148**	-3.603**	-2.633**	-3.350**	
	(0.162)	(0.232)	(0.205)	(0.212)	(0.174)	(0.259)	(0.192)	
Inst. Quality × BRDR		0.630**		-0.083	0.276**	-0.338+	0.384*	0.036
		(0.105)		(0.154)	(0.100)	(0.188)	(0.169)	(0.111)
Patience × BRDR			2.165**	2.160**	1.348**	2.388**	3.501**	
			(0.249)	(0.354)	(0.244)	(0.474)	(0.515)	
Risk aversion × BRDR			1.126**	1.117**	0.514+	1.266**	1.471**	
			(0.437)	(0.372)	(0.302)	(0.487)	(0.403)	
Neg. Rec. × BRDR			0.227	0.018	0.734**	-0.452	-0.744	
			(0.259)	(0.251)	(0.219)	(0.304)	(0.510)	
Prosociality × BRDR			-0.420+	-0.381	-0.050	-0.535+	-0.634*	
			(0.231)	(0.263)	(0.159)	(0.324)	(0.323)	
Patience × Inst. Q. × BRDR							-1.603**	0.990**
							(0.280)	(0.271)
Risk aversion × Inst. Q. × BRDR							-1.195**	-0.865
							(0.455)	(0.566)
Neg. Rec. × Inst. Q. × BRDR							0.283	-0.568
							(0.407)	(0.366)
Prosociality × Inst. Q. × BRDR							0.081	-0.345
							(0.350)	(0.276)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pair FE	No	No	No	No	No	No	No	Yes
Globalization trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	42525	16200	42525	16200	16200	16200	16200	16200
R^2	0.987	0.988	0.991	0.990	0.993	0.986	0.991	0.998

This table reports results from a series of PPML estimations that study the joint impact of national preferences and formal institutional quality on international trade. The dependent variable is bilateral exports $X_{ij,t}$. Column (1) reports basic gravity estimates with standard bilateral controls, where columns (2) & (3) add the border-interacted institutional quality and preference variables individually and column (4) includes them jointly for the aggregate sample. Columns (5) & (6) split the sample into estimations for homogeneous vs. differentiated goods only. Columns (7) & (8) add an explicit interaction term between preferences and institutional quality, where column (8) also includes country pair fixed effects. Standard errors are clustered by country pairs and are reported in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

for bad institutions and vice versa to some extent. The results suggest that a country with bad institutional quality (i.e. IQ_BRDR< 0) can soften the negative direct effect of this if it is patient. Potential trading partners would c.p. be deterred by the insecurities associated with a bad institutional quality. However, patient agents would be more willing to convince and reassure partners through external and informal means. In fact, this result is in line with recent results from the trade contract literature from Defever *et al.* (2016),

Kukharskyy (2016), who show that only sufficiently patient firms are able to establish efficient long-term supplier collaborations in the face of weak institutions and contract enforcement. In terms of risk attitude, a verbatim interpretation of substitution is not really sensible. However, we can note that a country that has both high institutional quality and is risk-averse will tend to trade less externally than the sum of the direct effects would suggest. As good institutions at home both provide a certain degree of insurance against local shocks and increase the relative risk of dealing with foreign partners, this is a natural result. On the other hand, a more risk-tolerant country would then still trade relatively more externally, even given its "safe haven" at home and a risk-averse country with bad institutions at home would try to find relatively safer options externally.

Given the time variation in the institutional variable, we can also try to identify an effect with pair fixed effects added into the regression. However, the overall variation is limited in the observed time frame of 1996-2006 as few countries significantly changed their level of institutions. Also note that the overall trend was actually negative. Given these caveats, the observed reversed sign for the interaction of patience and institutions should be treated with caution. Still, we try to further disentangle this surprising result by first looking again at potential differences between homogeneous and differentiated goods. While this is not the case for patience, we again see a significant effect emerging for negative reciprocity in homogeneous goods only. This reinforces the earlier argument that the need for stabilizing existing contracts is only present in more easily substituted homogeneous goods trade. Here, the negative sign for the interaction signals that negative reciprocity can even achieve this stabilizing function in substitute of low quality formal institutions. Regarding patience, the last columns show that the substitutive nature at this level of marginal changes in institutional quality only holds when patience and institutions go in opposite directions. That is, above average levels in patience can substitute for bad institutional quality and below average patience can be overcome by good institutions. However, when both go in the same direction, the effects are rather aggravated.

Rich vs. poor. Another angle of this is represented in the results from distinguishing between trade flows when poor and rich countries trade with each other, following again the subsequent analysis of Beverelli *et al.* (2018). Accordingly, we also define for example $IQ_P \times BRDR_{PR}$ for exports of poor to rich countries and continue analogously for each preference (e.g. $Patience_P \times BRDR_{RP}$) and the respective $Preference \times IQ$ interactions. In each case, we substract the two new PR and RP variables from the base variables $IQ \times BRDR$, $Preference \times BRDR$ and $Preference \times IQ \times BRDR$. This allows us to interpret each coefficient independently instead of interpreting it as a deviation from the average effect (cf. Beverelli *et al.*, 2018).

In the final column of Table 4 we observe that the substitutive effect (represented by a negative sign of the interaction coefficient) in the pair fixed effects setting re-emerges for exports from poor to rich countries.

Table 4: Trade of poor nations

	(1)	(2)	(3)	(4)	(5)	(6)
Inst. Quality × BRDR	0.384*	0.665**		0.362*	0.036	0.105
	(0.169)	(0.112)		(0.184)	(0.111)	(0.166)
Inst. Quality$_P$ × BRDR$_{PR}$		0.217		0.457		-0.417*
		(0.295)		(0.313)		(0.195)
Inst. Quality$_P$ × BRDR$_{RP}$		0.826**		0.961**		0.247
		(0.233)		(0.239)		(0.183)
Patience × BRDR	3.501**		2.262**	4.756**		
	(0.515)		(0.283)	(0.857)		
Patience$_P$ × BRDR$_{PR}$			2.318**	2.542**		
			(0.318)	(0.894)		
Patience$_P$ × BRDR$_{RP}$			1.718**	2.646**		
			(0.314)	(0.940)		
Risk aversion × BRDR	1.471**		1.199*	2.156**		
	(0.403)		(0.532)	(0.710)		
Risk aversion$_P$ × BRDR$_{PR}$			0.941**	0.877		
			(0.357)	(0.557)		
Risk aversion$_P$ × BRDR$_{RP}$			0.944*	0.807		
			(0.420)	(0.549)		
Neg. Rec. × BRDR	-0.744		0.159	-1.418**		
	(0.510)		(0.282)	(0.535)		
Neg. Rec.$_P$ × BRDR$_{PR}$			1.046*	0.958*		
			(0.438)	(0.475)		
Neg. Rec.$_P$ × BRDR$_{RP}$			0.756$^+$	0.739		
			(0.443)	(0.568)		
Prosociality × BRDR	-0.634*		-0.693**	-1.154**		
	(0.323)		(0.250)	(0.308)		
Prosociality$_P$ × BRDR$_{PR}$			-0.084	0.320		
			(0.219)	(0.363)		
Prosociality$_P$ × BRDR$_{RP}$			-0.283	0.405		
			(0.216)	(0.320)		
Patience × Inst. Q. × BRDR	-1.603**			-2.283**	0.990**	0.980**
	(0.280)			(0.496)	(0.271)	(0.313)
Patience$_P$ × Inst. Q.$_P$ × BRDR$_{PR}$				-2.700*		-1.957*
				(1.264)		(0.963)
Patience$_P$ × Inst. Q.$_P$ × BRDR$_{RP}$				-2.907*		-0.444
				(1.327)		(0.888)
Risk aversion × Inst. Q. × BRDR	-1.195**			-1.415*	-0.865	-1.314*
	(0.455)			(0.670)	(0.566)	(0.643)
Risk aversion$_P$ × Inst. Q.$_P$ × BRDR$_{PR}$				-1.880*		-2.215**
				(0.830)		(0.777)
Risk aversion$_P$ × Inst. Q.$_P$ × BRDR$_{RP}$				-2.777**		-0.772
				(0.869)		(0.797)
Neg. Rec. × Inst. Q. × BRDR	0.283			0.794$^+$	-0.568	-0.908*
	(0.407)			(0.434)	(0.366)	(0.400)
Neg. Rec.$_P$ × Inst. Q.$_P$ × BRDR$_{PR}$				2.069*		-0.790
				(0.982)		(0.768)
Neg. Rec.$_P$ × Inst. Q.$_P$ × BRDR$_{RP}$				2.360*		-0.800
				(1.072)		(0.773)
Prosociality × Inst. Q. × BRDR	0.081			0.370	-0.345	-0.119
	(0.350)			(0.344)	(0.276)	(0.255)
Prosociality$_P$ × Inst. Q.$_P$ × BRDR$_{PR}$				0.301		-0.224
				(0.683)		(0.326)
Prosociality$_P$ × Inst. Q.$_P$ × BRDR$_{RP}$				1.658*		-1.095**
				(0.670)		(0.275)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Pair FE	No	No	No	No	Yes	Yes
Globalization trend	Yes	Yes	Yes	Yes	Yes	Yes
Bilateral controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	16200	16200	42525	16200	16200	16200
R^2	0.991	0.988	0.992	0.992	0.998	0.999

This table reports results from a series of PPML estimations that study the differential impact of national preferences and formal institutional quality on international trade of poor with rich countries. Columns (1) and (5) replicate columns (7) and (8) from Table 3. Columns (4) and (6) distinguish the full set of institutional and preference variables into poor-rich variables, while columns (2) and (3) respectively consider institutional quality and preferences separately. Standard errors are clustered by country pairs and are reported in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

As opposed to a lack in the quality of importer institutions which can be relatively easily circumvented by payment in advance, potential problems of bad exporter institutions such as delivery in time and with sufficient quality cannot be easily overcome upfront. In that sense, the patience of a poor exporter can apparently help to overcome such issues, e.g. by patiently building up a growing long-term relationship and establishing a trustworthy reputation over time. The other results from the basic introduction of preferences, the interaction of preferences and the inclusion of pair fixed effects largely go through when specifically looking at North-South trade.

4 Robustness

To further check the robustness of the general effect of preferences on trade, we extend the analysis in several different dimensions in this subsection.[29] First, we take "two steps forward and one step back" in a naive baseline by adding the base un-interacted preferences as well as a preference distance measure, at the expense of being able to use the full exporter- and importer-time fixed effects. This is in order to at least get a tentative idea from which direction the overall effect on external vs. internal trade is coming from.

At the same time, we are still importantly controlling for a differential effect on intra- vs. international flows except in columns (1) and (2) in Table 5. To ease interpretation, we use the reversed dummy that is taking a value of one for all intra-national flows only, here. I.e., the results can be read in such a way that, for example, a patient country has relatively less domestic consumption (negative coefficient on the INTRA interaction) and exports and/or imports more than an average country. We see the general importance of adding intra-national flows from the fact, that the initially suggested negative effect on imports for risk-averse countries vanishes once we control for the effect of reduced internal consumption. The effect on the exporter side, however, remains positive and significant, suggesting that risk attitude mainly affects trade through the supply side, i.e. through an incentive to diversify firm sales to a broad range of markets. The higher trade intensity of patient countries is also reiterated and appears to be driven by both higher exports and imports, while no clear picture emerges for the effect of negative reciprocity.

One interesting observation to draw from the squared difference measure in preferences is the positive sign for risk attitude, which is at least slightly significant in most specifications. As suggested at the outset, a match between more risk-averse and more risk-tolerant partners can be mutually beneficial and thus foster trade between such countries. Agents that are trying to rid themselves of trade risks and are willing to pay a risk premium should be more likely to find such a suitable partnership in countries that are generally more risk-tolerant.

[29] Additional robustness checks that repeat part of the analyses with extended specifications, for a larger country sample and with disaggregate data from 27 sectors, are reported in the Appendix.

Table 5: Robustness

	(1)	(2)	(3)	(4)	(5)	(6)
Patience$_{exp}$	0.675**	0.742**	1.219**	1.339**	1.183**	
	(0.134)	(0.125)	(0.143)	(0.147)	(0.134)	
Risk aversion$_{exp}$	0.927**	0.912**	1.286**	1.354**	1.160**	
	(0.294)	(0.236)	(0.372)	(0.316)	(0.309)	
Negative reciprocity$_{exp}$	0.092	0.148	0.236	0.337*	0.211	
	(0.136)	(0.124)	(0.169)	(0.170)	(0.157)	
Prosociality $_{exp}$	0.031	0.148	-0.028	0.104	0.092	
	(0.098)	(0.090)	(0.154)	(0.118)	(0.107)	
Patience$_{imp}$	0.106	0.219+	0.717**	0.857**		0.730**
	(0.116)	(0.119)	(0.132)	(0.153)		(0.138)
Risk aversion$_{imp}$	-0.533**	-0.322+	-0.041	0.160		-0.030
	(0.180)	(0.171)	(0.201)	(0.197)		(0.185)
Negative reciprocity$_{imp}$	-0.100	-0.031	0.061	0.166		0.053
	(0.126)	(0.117)	(0.140)	(0.129)		(0.130)
Prosociality$_{imp}$	0.262**	0.404**	0.259+	0.370**		0.378**
	(0.096)	(0.088)	(0.137)	(0.102)		(0.090)
Sq.diff. Patience		-0.029		-0.483	-0.181	-0.140
		(0.274)		(0.310)	(0.294)	(0.293)
Sq.diff. Risk aversion		1.889**		1.606*	0.974	1.277+
		(0.508)		(0.724)	(0.816)	(0.767)
Sq.diff. Neg. Rec.		0.123		-0.011	-0.008	-0.087
		(0.347)		(0.357)	(0.339)	(0.330)
Sq.diff. Prosociality		0.809**		1.295**	1.102**	1.322**
		(0.295)		(0.400)	(0.333)	(0.364)
INTRA			4.509**	4.805**	3.969**	4.455**
			(0.283)	(0.276)	(0.218)	(0.231)
Patience × INTRA			-2.319**	-2.574**	-2.507**	-2.592**
			(0.282)	(0.308)	(0.309)	(0.305)
Risk aversion × INTRA			-1.408*	-1.652**	-1.640**	-1.752**
			(0.621)	(0.567)	(0.470)	(0.494)
Neg. Rec. × INTRA			-0.275	-0.484	-0.464+	-0.490+
			(0.313)	(0.299)	(0.261)	(0.258)
Prosociality × INTRA			0.055	-0.176	0.068	0.021
			(0.303)	(0.237)	(0.196)	(0.200)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes
Exporter-time FE	No	No	No	No	No	Yes
Importer-time FE	No	No	No	No	Yes	No
Bilateral controls	Yes	Yes	Yes	Yes	Yes	Yes
Unilateral controls	Yes	Yes	Yes	Yes	Yes	Yes
Globalization trend	No	No	Yes	Yes	Yes	Yes
Observations	41580	41580	42525	42525	42525	42525
R^2	0.930	0.932	0.982	0.983	0.989	0.990

This table reports results from a series of PPML estimations studying the impact of economic preferences on trade flows with a varying set of controls & fixed effects. The dependent variable is bilateral exports $X_{ij,t}$. Columns (1) & (2) use international flows only, while columns (3)-(8) add intra-national flows & the respective time-varying intra-national dummies to control for globalization effects. Columns (5) & (6) add one-sided fixed effects for importers & exporters respectively. Standard errors are clustered by country pairs and are reported in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01.

The estimations in Table 6 again control for the full set of exporter-time and importer-time fixed effects and show that our main results on the differential effects of patience and risk attitude on external trade and the interaction with institutional quality are robust towards including the preference distance measure and a currency union control variable.

4.1 Two-step

As described in Section 2.2, we complement the analysis with the results from a standard two-step approach as suggested by Head and Mayer (2014), where we extract the estimated exporter and importer fixed effects from a first-stage full gravity estimation as equation (5). The first-stage results are reported in column (1) of Table 7. In the second stage, we regress the estimated fixed effects on the set of national economic preferences as our unilateral variable of interest and on further country-specific control variables (cf. equation 7). Column (2) reports the results for the extracted exporter-time FEs and column (3) represents the analogous estimation using importer-time FEs. Columns (4)-(6) and columns (7)-(9) repeat the same exercise while using only subsets of mostly homogeneous sectors and differentiated goods trade only, respectively.

Following again Donaubauer *et al.* (2018), we include population and GDP p.c. as unilateral control variables, which have a large and positive effect as expected. In concordance with Head and Mayer (2014), average measures for the bilateral controls are also included in the second stage estimations (cf. equation (7)). Here, the expected signs for these average trade cost terms are reversed compared to a standard gravity estimation (also cf. Moore, 2018). The reason is the following: by construction, the extracted fixed effects can basically be interpreted as part of the prediction of a trade flow between *each* pair of countries A and B. That is, for example, a high average distance from country A to all countries j, which also implies a high average distance to all countries $j \neq B$, means that country A is generally more remote and thus we can somewhat unintuitively expect higher trade flows between A and B. On the other hand, high average values for trade-cost-reducing factors like a shared language imply a reduced remoteness and thus, less predicted trade flows with any arbitrary partner country. E.g. if country A shares a common language with relatively many countries, we will expect it to trade relatively more with those countries and less with any given random other country.

In light of the aforementioned Sellner (2019) results, we keep the discussion on the preference results short, as the two-step technique does not necessarily provide unbiased and consistent estimates in contrast to the main intra- vs. international identification used before. Still, some of the previous results like the

Table 6: Robustness: Institutions

	(1)	(2)	(3)	(4)
ln Distance	-0.788**	-0.709**	-0.776**	-0.736**
	(0.062)	(0.059)	(0.062)	(0.059)
Shared Border	0.388**	0.405**	0.363**	0.393**
	(0.127)	(0.121)	(0.118)	(0.117)
Shared Language	0.023	0.110	0.051	0.101
	(0.169)	(0.133)	(0.135)	(0.134)
Colonial History	0.001	0.070	0.042	0.032
	(0.160)	(0.152)	(0.157)	(0.150)
RTA	0.119	0.213*	0.167+	0.203*
	(0.100)	(0.087)	(0.097)	(0.092)
CU	0.119	0.284**	0.155	0.177+
	(0.152)	(0.101)	(0.113)	(0.106)
INTRA	3.389**	3.949**	3.690**	3.844**
	(0.223)	(0.242)	(0.237)	(0.232)
Patience × INTRA	-2.138**	-2.397**	-1.910**	-3.203**
	(0.252)	(0.306)	(0.415)	(0.558)
Risk aversion × INTRA	-1.101*	-1.345**	-1.022*	-1.523**
	(0.440)	(0.440)	(0.406)	(0.525)
Neg. Rec. × INTRA	-0.198	-0.380	-0.177	0.154
	(0.257)	(0.251)	(0.228)	(0.482)
Prosociality × INTRA	0.402	0.088	-0.115	0.189
	(0.256)	(0.189)	(0.176)	(0.193)
Sq.diff. Patience		-0.013	-0.146	0.343
		(0.305)	(0.295)	(0.321)
Sq.diff. Risk aversion		1.178	0.542	0.446
		(0.746)	(0.692)	(0.683)
Sq.diff. Neg. Rec.		-0.081	0.020	-0.073
		(0.320)	(0.315)	(0.322)
Sq.diff. Prosociality		1.312**	1.523**	1.104**
		(0.377)	(0.407)	(0.419)
Institutional Quality × INTRA			-0.170	-0.575**
			(0.181)	(0.168)
Institutional Quality × Patience × INTRA				1.480**
				(0.311)
Institutional Quality × Risk aversion × INTRA				1.399**
				(0.486)
Institutional Quality × Neg. Rec. × INTRA				0.109
				(0.368)
Institutional Quality × Prosociality × INTRA				0.072
				(0.260)
Exporter-time FE	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes
Globalization Trend	Yes	Yes	Yes	Yes
Observations	42525	42525	16200	16200
R^2	0.991	0.992	0.991	0.991

This table reports results from a series of PPML estimations studying the interaction of economic preferences and formal institutions in their effect on trade flows. The dependent variable is bilateral exports $X_{ij,t}$. Column (1) repeats the estimation from column (4) of Table 2 which includes the main (border/intra-interacted) preference variables and the full set of exporter- and importer-time fixed effects. The following columns add preference distance measures, where estimations (3) and (4) respectively add an aggregate measure of formal institutional quality and an interaction between institutional quality and preferences. Standard errors are clustered by country pairs and are reported in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01.

Table 7: Two-step

	All			Hom.			Diff.		
	(1) 1st stage: gravity	(2) 2nd stage: exporter	(3) 2nd stage: importer	(4) 1st stage: gravity	(5) 2nd stage: exporter	(6) 2nd stage: importer	(7) 1st stage: gravity	(8) 2nd stage: exporter	(9) 2nd stage: importer
ln Distance	-0.613**			-0.846**			-0.558**		
	(0.044)			(0.044)			(0.052)		
Shared Border	0.436**			0.341**			0.473**		
	(0.094)			(0.077)			(0.115)		
Shared Language	0.352**			0.264**			0.400**		
	(0.087)			(0.085)			(0.094)		
Colonial History	-0.054			0.134			-0.166		
	(0.109)			(0.100)			(0.123)		
RTA	0.528**			0.394**			0.571**		
	(0.070)			(0.066)			(0.083)		
CU	0.375**			0.426**			0.343**		
	(0.103)			(0.101)			(0.126)		
Pop		0.914**	0.753**		0.777**	0.788**		1.160**	0.763**
		(0.061)	(0.036)		(0.080)	(0.032)		(0.105)	(0.045)
GDPpc		0.950**	0.822**		0.942**	0.716**		1.274**	0.860**
		(0.088)	(0.035)		(0.113)	(0.031)		(0.129)	(0.044)
Distance_avg		0.691*	0.407**		0.927*	0.499**		0.303	0.488**
		(0.270)	(0.137)		(0.338)	(0.149)		(0.421)	(0.155)
Border_avg		-3.018	-2.209		1.333	-3.966*		-6.573	-1.838
		(2.563)	(1.476)		(3.008)	(1.605)		(4.412)	(1.665)
Language_avg		-2.987**	-0.528		-1.064	-0.371		-4.781**	-0.598
		(0.766)	(0.450)		(0.947)	(0.426)		(1.550)	(0.509)
Colony_avg		1.209	0.532		0.199	-0.824		2.673	0.877
		(1.347)	(0.643)		(1.308)	(0.612)		(2.560)	(0.774)
RTA_avg		0.080	-0.205		0.132	-0.244		-0.131	-0.118
		(0.411)	(0.234)		(0.568)	(0.226)		(0.730)	(0.281)
CU_avg		-1.435+	-0.307		-0.535	-0.164		-2.720+	-0.051
		(0.737)	(0.411)		(0.681)	(0.458)		(1.314)	(0.477)
Patience		0.940*	0.025		0.350	-0.012		1.592**	0.031
		(0.341)	(0.136)		(0.361)	(0.125)		(0.557)	(0.147)
Risk		0.279	-0.303		-0.331	-0.206		0.932	-0.405+
		(0.497)	(0.188)		(0.552)	(0.137)		(0.756)	(0.198)
Neg.Rec.		-0.430	0.022		-0.461	0.378+		-0.786	-0.059
		(0.290)	(0.162)		(0.306)	(0.191)		(0.482)	(0.177)
Prosocial		-0.226	0.196+		-0.100	0.278**		-0.578	0.207
		(0.258)	(0.100)		(0.284)	(0.092)		(0.442)	(0.121)
Exporter-time FE	x			x			x		
Importer-time FE	x			x			x		
Time FE		x	x		x	x		x	x
Observations	41580	916	928	41580	928	926	41580	918	924
R^2		0.927	0.954		0.882	0.958		0.887	0.941

This table reports estimation results from a two-step procedure (Head and Mayer, 2014) studying the impact of economic preferences on trade through country fixed effects. The dependent variables are bilateral exports $X_{ij,t}$ in the first stage and estimated exporter- or importer(-time) fixed effects respectively in the second stage. Columns (1)-(3) represent the results from the aggregate data. Columns (4)-(6) and (7)-(9), respectively, repeat the procedure for sub-samples of homogeneous and differentiated goods. Standard errors are multi-way clustered by exporter or importer & year and are reported in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01.

export-boosting effects of patience are reiterated, but a large share of the preferences on importer and exporter side exhibits insignificant effects.

4.2 Trade costs

Making further use of the estimation results from equation 7 and deriving the estimated and calibrated trade cost measures from equations 8 and 9 allows us to further decompose and determine the direct effect of preferences on trade costs. We invert the effects, such that we can directly interpret a decrease in trade costs ultimatively as an increase in trade flows. Table 8 reports the results.

The coefficients for the bilateral control variables are comparable to a similar analysis from Donaubauer *et al.* (2018) and are reported in the appendix. Our main results of interest are qualitatively comparable between calibrated and estimated costs. Again, the effects of preferences on trade are confirmed, here through its effect on bilateral trade costs. That is, bilateral trade costs appear to be lower between countries that are patient and risk-averse, thus increasing overall trade flows of such countries. In its effect on trade costs, negative reciprocity is now also highly significant and in comparable magnitude to patience and risk. Compared to the previous results, the trade cost channel appears as the one that negative reciprocity mainly works through.

Overall, especially the calibrated results are particularly reassuring for the general importance of the preference channels as the calibration exercise does not rely on potentially problematic or biased pre-estimation or extraction of a trade cost measure. Instead, this measure of trade costs is directly theoretically motivated and relies only on actually observed trade flows.

However, part of this revealed information is incomplete or lost for the ensuing regression, as trade costs for any country pair with a zero trade flow in at least one direction are set to infinity for that year by definition. I.e., while we can deduce that trade costs are prohibitively high in that case, we cannot tell how high exactly and thus cannot mathematically use this information in a non-arbitrary way.

4.3 Distance interactions

Given the aforementioned frictions and risks associated with international trade, they tend to become particularly aggravated over increasing distances between trading partners. Thus, it is natural to check if the importance of the observed set of economic preferences is also increasing with larger geographical distances. In Table 9, we interact the set of preferences with the geographical distance between the countries in addition to a basic gravity equation. Most prominently, the significant positive signs across the board for the interaction with patience imply that patience becomes more and more important when countries

Table 8: Bilateral Trade Costs

	Estimated				Calibrated			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Patience$_{exp}$	5.984**	6.512**	4.568*	7.201**	0.697**	0.724**	0.391^{+}	0.664*
	(0.923)	(0.901)	(1.607)	(1.779)	(0.106)	(0.106)	(0.183)	(0.222)
Risk aversion$_{exp}$	4.634*	5.167**	4.142^{+}	4.681**	0.505*	0.560**	0.424^{+}	0.518*
	(1.898)	(1.592)	(1.845)	(1.300)	(0.222)	(0.185)	(0.216)	(0.174)
Negative reciprocity$_{exp}$	4.633**	4.844**	5.323**	5.237**	0.533**	0.574**	0.619**	0.595**
	(1.210)	(1.217)	(1.219)	(1.207)	(0.139)	(0.141)	(0.142)	(0.152)
Prosociality$_{exp}$	0.437	0.763	1.231	0.800	0.080	0.112	0.157	0.110
	(0.962)	(0.909)	(0.980)	(0.872)	(0.097)	(0.097)	(0.110)	(0.094)
Patience$_{imp}$	4.491**	5.019**	3.416*	3.234^{+}	0.697**	0.724**	0.391^{+}	0.375^{+}
	(0.878)	(0.841)	(1.321)	(1.386)	(0.106)	(0.106)	(0.183)	(0.192)
Risk aversion$_{imp}$	3.225*	3.746**	3.020^{+}	2.938^{+}	0.505*	0.560**	0.424^{+}	0.414
	(1.482)	(1.230)	(1.342)	(1.424)	(0.222)	(0.185)	(0.216)	(0.224)
Negative reciprocity$_{imp}$	4.576**	4.778**	5.016**	5.065**	0.533**	0.574**	0.619**	0.621**
	(1.157)	(1.147)	(1.133)	(1.150)	(0.139)	(0.141)	(0.142)	(0.145)
Prosociality$_{imp}$	0.916	1.248	1.304	1.236	0.080	0.112	0.157	0.150
	(0.837)	(0.758)	(0.822)	(0.858)	(0.097)	(0.097)	(0.110)	(0.115)
Sq.diff. Patience		-2.225^{+}	-2.432^{+}	-1.152		0.067	0.003	0.130
		(1.113)	(1.097)	(1.036)		(0.164)	(0.155)	(0.157)
Sq.diff. Risk aversion		4.625	3.304	2.668		0.738^{+}	0.543	0.514
		(3.130)	(3.065)	(2.576)		(0.356)	(0.406)	(0.370)
Sq.diff. Neg. Rec.		-1.582	-1.433	-1.352		-0.058	0.004	-0.001
		(1.197)	(1.171)	(1.195)		(0.142)	(0.147)	(0.144)
Sq.diff. Prosociality		4.290*	6.074*	5.189^{+}		0.300	0.804*	0.717*
		(2.012)	(2.322)	(2.289)		(0.261)	(0.272)	(0.267)
Institutional Quality$_{exp}$			1.146	1.259^{+}			0.199^{+}	0.225*
			(0.744)	(0.568)			(0.091)	(0.074)
Institutional Quality$_{imp}$			1.054	1.018			0.199^{+}	0.193^{+}
			(0.571)	(0.597)			(0.091)	(0.094)
Patience × Institutional Quality				-2.567*				-0.312*
				(1.050)				(0.130)
Risk aversion × Institutional Quality				-2.891^{+}				-0.493*
				(1.312)				(0.164)
Neg. Rec. × Institutional Quality				-2.498				-0.248
				(1.488)				(0.166)
Prosociality × Institutional Quality				-2.645				-0.229
				(1.411)				(0.132)
Time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bilateral controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39785	39785	15611	15611	38870	38870	15438	15438
R^2	0.518	0.536	0.556	0.589	0.430	0.437	0.463	0.484

This table reports estimation results from a series of regressions studying the direct impact of economic preferences on trade costs. The dependent variables are inverted logarithmic bilateral trade costs, tij,s. The estimated bilateral trade cost measure in columns (1)–(4) are constructed using estimated pair fixed effects from a full gravity model. Columns (5)–(8) use a calibrated measure of trade costs according to Jacks et al. (2011) and Novy (2013). Standard errors are multi-way clustered by exporter, importer & year and are reported in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01.

Table 9: Distance

	All		Hom.		Diff.	
	(1) OLS	(2) PPML	(3) OLS	(4) PPML	(5) OLS	(6) PPML
ln Distance	-1.364**	-0.938**	-1.456**	-0.978**	-1.525**	-1.080**
	(0.053)	(0.068)	(0.058)	(0.062)	(0.056)	(0.080)
Shared Border	0.110	0.451**	0.048	0.350**	0.155	0.492**
	(0.181)	(0.083)	(0.183)	(0.075)	(0.207)	(0.093)
Shared Language	0.434**	0.425**	0.322**	0.260**	0.544**	0.536**
	(0.103)	(0.083)	(0.106)	(0.086)	(0.105)	(0.092)
Colonial History	0.518**	-0.080	0.611**	0.133	0.552**	-0.174
	(0.148)	(0.097)	(0.147)	(0.087)	(0.140)	(0.116)
RTA	0.196**	0.571**	0.128+	0.397**	0.260**	0.628**
	(0.062)	(0.065)	(0.070)	(0.064)	(0.065)	(0.075)
CU	0.389**	0.406**	0.476**	0.458**	0.470**	0.386**
	(0.101)	(0.087)	(0.112)	(0.103)	(0.094)	(0.102)
Exporter Preferences						
Dist. × Patience	0.735**	0.241**	0.497**	-0.152*	0.985**	0.576**
	(0.060)	(0.070)	(0.066)	(0.067)	(0.060)	(0.088)
Dist. × Risk aversion	0.361**	0.161	0.093	-0.500**	0.817**	0.676**
	(0.137)	(0.152)	(0.150)	(0.154)	(0.138)	(0.180)
Dist. × Negative reciprocity	0.243**	0.124+	0.074	0.001	0.427**	0.217**
	(0.086)	(0.067)	(0.096)	(0.066)	(0.089)	(0.073)
Dist. × Prosociality	0.259**	0.215**	0.126	0.021	0.251**	0.291**
	(0.079)	(0.059)	(0.087)	(0.051)	(0.082)	(0.077)
Importer Preferences						
Dist. × Patience	0.524**	0.427**	0.560**	0.412**	0.531**	0.479**
	(0.067)	(0.063)	(0.076)	(0.070)	(0.064)	(0.077)
Dist. × Risk aversion	0.578**	0.128	0.454**	0.138	0.601**	0.181
	(0.124)	(0.150)	(0.139)	(0.167)	(0.124)	(0.164)
Dist. × Negative reciprocity	0.724**	0.320**	0.621**	0.381**	0.683**	0.307**
	(0.090)	(0.070)	(0.099)	(0.074)	(0.097)	(0.078)
Dist. × Prosociality	0.329**	-0.062	0.250*	-0.127+	0.353**	-0.050
	(0.091)	(0.056)	(0.100)	(0.073)	(0.098)	(0.062)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	39785	41580	38222	41580	38390	41580
R^2	0.883	0.975	0.823	0.962	0.904	0.976

This table reports results from a series of estimations studying the varying importance of economic preferences over distance. The dependent variable is bilateral exports $X_{ij,t}$ from all sectors in columns (1) and (2) and from homogeneous vs. differentiated goods sectors only in columns (3) and (4) and (5) and (6) respectively.
+ p < 0.1, * p < 0.05, ** p < 0.01.

that are far apart trade with each other. As preparation, communication, execution and eventual post-dealings of trade relations take more time over longer distances, it is highly intuitive that especially those countries that are patient build up and intensify such relationships relatively more. The proposed potential for negative reciprocity to act as a informal enforcement channel also appears to be confirmed by the increasing importance over distance. In terms of risk aversion, the effect is most robust and clear for exports in differentiated goods. Given the earlier observation that risk diversification against local shocks seems to play a dominant role, it makes sense that risk-averse countries would trade particularly more with the most geographically distant countries. The negative coefficient for homogeneous goods exports on the patience and risk interaction connects to the findings in Korff and Steffen (2019) and points towards a notion of specialization, as both patient or risk-averse countries shift their production and export mix towards differentiated goods, while they rather import homogeneous goods in return.

5 Conclusion

The question of how informal institutions, including cultural and behavioral factors, can influence international trade flows and economic activity in general has been gaining importance and interest in recent years. In this paper, we provide the most robust evidence to date on the unilateral effects of economic preferences as measured by the GPS on trade. We achieve this by making use of a novel identification strategy that is technically exploiting a unilateral country-specific variable's differential impact on intra- and international trade flows in order to identify an international trade effect while still being able to control for multilateral resistances by the proper fixed effects in a structural gravity type estimation. A recent simulation study by Sellner (2019) has shown that this method - introduced by Heid *et al.* (2017) and further developed by Beverelli *et al.* (2018) - exhibits a superior performance compared to previously suggested identification methods on unilateral effects and is the only one so far that is able to provide unbiased and consistent estimation results.

Constructing a comprehensive trade panel data set with intra-national flows and the behavioral measure of national economic preferences - patience, risk attitude, negative reciprocity and pro-social preferences from the Global Preference Survey (GPS) - and a large set of control variables, we find that especially patience and risk aversion tend to consistently increase external trade. Also analyzing the interaction effects of preferences with formal institutions, we find that high patience may act as a substitute for bad formal institutions and vice versa, while the interplay of institutional quality and risk attitudes provides a systematic picture consistent with motives of risk avoidance and diversification. We provide several robustness checks that further support the observed effects.

The existing analysis can already provide cautious policy implications and additional aspects to consider in the implementation of institutional reforms, foreign aid and more. In particular, policymakers need to be aware of national preference compositions that may work in substitutive or aggravating ways towards formal institutional changes. For example, an improvement in formal institutional quality is likely to be more fruitful with respect to increasing trade flows, i.e. providing higher gains, in countries that are hindered by their lack in patience. In another perspective, firms in generally more risk-averse countries would appear to shift more of their sales or (intermediate) consumption to foreign countries when the national institutional quality falls.

However, driven by the still somewhat limited availability of intra-national trade flow and preference data, the analysis can only provide a restricted look into the effect channels of preferences on trade. Most importantly, the final data set contains a large, but far from world-wide set of 45 countries up until the year 2006 and the flow data only comes from the manufacturing sector. Given that some of the results seem to be driven by distinct specialization patterns, a look into other sectors, later years and more countries could potentially provide more distinguished and further insights. Another interesting avenue for further research is the connection and potential trade-off between trade flows and FDI, given the observed international differences in preference profiles.

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A Figures and supplementary Tables

Table A.1: List of countries - countries classified as poor in 2006 in bold

Argentina (ARG), Australia (AUS), Austria (AUT), **Bolivia (BOL)**, Brazil (BRA), **Cameroon (CMR)**, Canada (CAN), Chile (CHL), **China (CHN)**, **Colombia (COL)**, Costa Rica (CRI), **Egypt, Arab Rep. (EGY)**, Finland (FIN), France (FRA), Germany (DEU), Greece (GRC), Hungary (HUN), **India (IND)**, **Indonesia (IDN)**, **Iran, Islamic Rep. (IRN)**, Israel (ISR), Italy (ITA), Japan (JPN), **Jordan (JOR)**, **Kenya (KEN)**, Korea, Rep. (KOR), **Malawi (MWI)**, Mexico (MEX), **Morocco (MAR)**, Netherlands (NLD), **Nigeria (NGA)**, **Philippines (PHL)**, Poland (POL), Portugal (PRT), Romania (ROU), South Africa (ZAF), Spain (ESP), **Sri Lanka (LKA)**, Sweden (SWE), Switzerland (CHE), **Tanzania (TZA)**, **Thailand (THA)**, Turkey (TUR), United Kingdom (GBR), United States (USA)

Table A.2: Economic preferences w/ globalization trend

	All				Hom.		Diff.	
	(1) OLS	(2) PPML	(3) OLS	(4) PPML	(5) OLS	(6) PPML	(7) OLS	(8) PPML
ln Distance	-1.204**	-0.907**	-1.170**	-0.799**	-1.300**	-0.888**	-1.269**	-0.799**
	(0.061)	(0.057)	(0.060)	(0.057)	(0.058)	(0.052)	(0.065)	(0.066)
Shared Border	0.098	0.384**	0.125	0.376**	0.059	0.307*	0.188	0.439**
	(0.241)	(0.147)	(0.250)	(0.133)	(0.217)	(0.128)	(0.300)	(0.162)
Shared Language	0.535**	0.142	0.597**	-0.021	0.434**	-0.125	0.740**	0.048
	(0.124)	(0.147)	(0.124)	(0.143)	(0.118)	(0.131)	(0.130)	(0.169)
Colonial History	0.522**	0.115	0.460**	0.002	0.559**	0.167	0.462**	-0.072
	(0.161)	(0.164)	(0.160)	(0.164)	(0.149)	(0.158)	(0.163)	(0.176)
RTA	0.046	0.216*	0.044	0.177+	0.053	0.361**	0.074	0.110
	(0.069)	(0.105)	(0.066)	(0.105)	(0.072)	(0.082)	(0.071)	(0.118)
Cross-border dummy	-3.842**	-2.620**	-3.741**	-3.371**	-3.757**	-3.716**	-3.734**	-2.926**
	(0.380)	(0.159)	(0.316)	(0.205)	(0.318)	(0.163)	(0.353)	(0.266)
Patience × BRDR			3.410**	2.165**	2.812**	1.930**	4.168**	2.031**
			(0.530)	(0.249)	(0.554)	(0.180)	(0.562)	(0.333)
Risk aversion × BRDR			2.628**	1.126**	1.553+	0.643+	3.410**	1.104+
			(0.991)	(0.437)	(0.906)	(0.337)	(1.140)	(0.575)
Neg. Rec. × BRDR			2.461**	0.227	2.327**	0.764**	2.350**	-0.213
			(0.758)	(0.259)	(0.739)	(0.213)	(0.871)	(0.325)
Prosociality × BRDR			0.411	-0.420+	0.471	-0.313*	0.209	-0.348
			(0.476)	(0.231)	(0.459)	(0.148)	(0.588)	(0.289)
INTL_BRDR_1986			-1.222**	-0.817**	-0.803**	-0.635**	-1.588**	-0.963**
			(0.185)	(0.065)	(0.181)	(0.039)	(0.244)	(0.093)
INTL_BRDR_1987			-1.163**	-0.786**	-0.712**	-0.626**	-1.538**	-0.939**
			(0.173)	(0.065)	(0.175)	(0.037)	(0.229)	(0.094)
INTL_BRDR_1988			-1.090**	-0.689**	-0.638**	-0.515**	-1.448**	-0.846**
			(0.173)	(0.064)	(0.166)	(0.033)	(0.225)	(0.094)
INTL_BRDR_1989			-0.978**	-0.641**	-0.554**	-0.495**	-1.290**	-0.782**
			(0.167)	(0.066)	(0.173)	(0.045)	(0.217)	(0.092)
INTL_BRDR_1990			-0.923**	-0.558**	-0.613**	-0.455**	-1.145**	-0.655**
			(0.158)	(0.062)	(0.159)	(0.045)	(0.205)	(0.087)
INTL_BRDR_1991			-0.834**	-0.538**	-0.491**	-0.467**	-1.066**	-0.623**
			(0.148)	(0.060)	(0.144)	(0.041)	(0.187)	(0.084)
INTL_BRDR_1992			-0.752**	-0.506**	-0.437**	-0.457**	-0.924**	-0.589**
			(0.138)	(0.049)	(0.149)	(0.038)	(0.168)	(0.073)
INTL_BRDR_1993			-0.649**	-0.482**	-0.442**	-0.469**	-0.687**	-0.553**
			(0.128)	(0.045)	(0.143)	(0.031)	(0.160)	(0.066)
INTL_BRDR_1994			-0.542**	-0.404**	-0.306*	-0.410**	-0.660**	-0.452**
			(0.112)	(0.043)	(0.121)	(0.027)	(0.147)	(0.061)
INTL_BRDR_1995			-0.394**	-0.374**	-0.244*	-0.352**	-0.449**	-0.423**
			(0.113)	(0.039)	(0.112)	(0.025)	(0.129)	(0.055)
INTL_BRDR_1996			-0.440**	-0.354**	-0.292**	-0.360**	-0.450**	-0.388**
			(0.103)	(0.037)	(0.098)	(0.024)	(0.124)	(0.052)
INTL_BRDR_1997			-0.263*	-0.255**	-0.179+	-0.282**	-0.260*	-0.271**
			(0.107)	(0.035)	(0.101)	(0.022)	(0.131)	(0.051)
INTL_BRDR_1998			-0.243*	-0.193**	-0.166+	-0.220**	-0.223+	-0.224**
			(0.096)	(0.030)	(0.099)	(0.025)	(0.122)	(0.046)
INTL_BRDR_1999			-0.273**	-0.214**	-0.226*	-0.277**	-0.259*	-0.229**
			(0.093)	(0.033)	(0.099)	(0.023)	(0.113)	(0.044)
INTL_BRDR_2000			-0.232*	-0.117**	-0.252**	-0.225**	-0.279*	-0.101*
			(0.094)	(0.032)	(0.092)	(0.023)	(0.112)	(0.041)
INTL_BRDR_2001			-0.184*	-0.109**	-0.286**	-0.238**	-0.131	-0.076*
			(0.087)	(0.026)	(0.095)	(0.023)	(0.109)	(0.035)
INTL_BRDR_2002			-0.231**	-0.153**	-0.261**	-0.268**	-0.216*	-0.149**
			(0.077)	(0.021)	(0.097)	(0.022)	(0.089)	(0.028)
INTL_BRDR_2003			-0.158**	-0.122**	-0.133+	-0.223**	-0.147+	-0.124**
			(0.055)	(0.015)	(0.079)	(0.022)	(0.077)	(0.024)
INTL_BRDR_2004			-0.096+	-0.061**	-0.153*	-0.127**	-0.069	-0.045**
			(0.051)	(0.011)	(0.071)	(0.012)	(0.057)	(0.014)
INTL_BRDR_2005			-0.078*	-0.053**	-0.072	-0.050**	-0.056	-0.073**
			(0.037)	(0.009)	(0.065)	(0.008)	(0.045)	(0.015)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40730	42525	40730	42525	39167	42525	39335	42525
R^2	0.874	0.987	0.880	0.991	0.832	0.993	0.896	0.988

This table reports estimation results from a series of econometric models that study the impact of national preferences on international trade. The dependent variables are bilateral exports $X_{ij,t}$ for all PPML regressions and exports in logs for OLS regressions, respectively. Columns (1) & (2) report standard gravity estimates with the addition of a dummy for cross-border trade (BRDR). Columns (3) & (4) introduce the interaction of preferences with the BRDR dummy for aggregate trade flows. Columns (5) & (6) and columns (7) & (8) respectively repeat the estimations for homogeneous vs. differentiated goods only. Standard errors are clustered by country pairs and are reported in parentheses. + p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

Table A.3: Economic preferences - 1986

	All				Hom.		Diff.	
	(1) OLS	(2) PPML	(3) OLS	(4) PPML	(5) OLS	(6) PPML	(7) OLS	(8) PPML
ln Distance	-1.074**	-0.868**	-1.056**	-0.760**	-1.062**	-0.840**	-1.138**	-0.828**
	(0.078)	(0.101)	(0.077)	(0.078)	(0.080)	(0.073)	(0.080)	(0.100)
Shared Border	0.089	0.330+	0.123	0.303+	-0.004	0.266	0.147	0.309
	(0.296)	(0.188)	(0.307)	(0.177)	(0.292)	(0.179)	(0.348)	(0.229)
Shared Language	0.194	0.269	0.271+	0.087	-0.056	-0.200	0.642**	0.203
	(0.160)	(0.176)	(0.159)	(0.140)	(0.178)	(0.153)	(0.171)	(0.177)
Colonial History	0.980**	0.198	0.897**	-0.009	0.932**	0.132	0.881**	0.016
	(0.204)	(0.222)	(0.203)	(0.206)	(0.205)	(0.189)	(0.209)	(0.220)
RTA	0.427**	0.485**	0.343*	0.262	0.495**	0.416**	0.472**	0.145
	(0.138)	(0.171)	(0.134)	(0.168)	(0.154)	(0.134)	(0.144)	(0.204)
Cross-border dummy	-4.944**	-3.320**	-5.356**	-4.523**	-5.280**	-4.449**	-5.795**	-4.488**
	(0.423)	(0.268)	(0.334)	(0.256)	(0.334)	(0.227)	(0.349)	(0.349)
Patience × BRDR			4.093**	2.611**	3.164**	2.033**	4.746**	3.182**
			(0.528)	(0.363)	(0.536)	(0.267)	(0.569)	(0.526)
Risk aversion × BRDR			2.568**	1.024	1.268	0.044	2.936**	1.884+
			(0.813)	(0.726)	(0.791)	(0.598)	(0.831)	(1.103)
Neg. Rec. × BRDR			1.874*	0.775*	1.463+	0.767**	1.864+	0.591
			(0.825)	(0.335)	(0.784)	(0.274)	(0.956)	(0.445)
Prosociality × BRDR			0.107	-0.723**	0.404	-0.619**	0.203	-0.602
			(0.513)	(0.267)	(0.470)	(0.211)	(0.634)	(0.367)
Exporter FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1804	2025	1804	2025	1688	2025	1674	2025
R^2	0.834 @	0.990 @	0.840 @	0.994 @	0.798 @	0.994 @	0.878 @	0.993 @

This table reports estimation results from a series of econometric models that study the impact of national preferences on international trade. The dependent variables are bilateral exports $X_{ij,t}$ for all PPML regressions and exports in logs for OLS regressions, respectively. Columns (1) & (2) report standard gravity estimates with the addition of a dummy for cross-border trade (BRDR). Columns (3) & (4) introduce the interaction of preferences with the BRDR dummy for aggregate trade flows. Columns (5) & (6) and columns (7) & (8) respectively repeat the estimations for homogeneous vs. differentiated goods only. Standard errors are clustered by country pairs and are reported in parentheses. + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$. See text for further details.

Table A.4: Institutions with OLS

	All								Hom.		Diff.	
	(1) OLS	(2) PPML	(3) OLS	(4) PPML	(5) OLS	(6) PPML	(7) OLS	(8) PPML	(9) OLS	(10) PPML	(11) OLS	(12) PPML
ln Distance	-1.206**	-0.923**	-1.205**	-0.970**	-1.170**	-0.799**	-1.189**	-0.852**	-1.356**	-0.938**	-1.321**	-0.842**
	(0.061)	(0.060)	(0.064)	(0.066)	(0.060)	(0.057)	(0.063)	(0.061)	(0.068)	(0.055)	(0.068)	(0.067)
Shared Border	0.097	0.398**	0.136	0.368*	0.125	0.376**	0.152	0.354**	0.067	0.302*	0.172	0.410*
	(0.241)	(0.150)	(0.248)	(0.167)	(0.250)	(0.133)	(0.250)	(0.135)	(0.236)	(0.118)	(0.315)	(0.164)
Shared Language	0.536**	0.154	0.637**	0.002	0.597**	-0.021	0.668**	-0.016	0.536**	-0.100	0.836**	0.078
	(0.124)	(0.145)	(0.127)	(0.152)	(0.124)	(0.143)	(0.127)	(0.139)	(0.131)	(0.130)	(0.134)	(0.161)
Colonial History	0.521**	0.098	0.337*	-0.080	0.460**	0.002	0.316*	-0.002	0.516**	0.153	0.211	-0.092
	(0.162)	(0.165)	(0.158)	(0.155)	(0.160)	(0.164)	(0.158)	(0.160)	(0.155)	(0.157)	(0.161)	(0.168)
RTA	0.039	0.158	0.098	-0.112	0.044	0.177+	0.102	0.125	0.088	0.267**	0.050	0.077
	(0.069)	(0.106)	(0.073)	(0.117)	(0.066)	(0.105)	(0.072)	(0.108)	(0.083)	(0.088)	(0.079)	(0.120)
IQ_BRDR			1.770**	0.630**			1.260**	-0.083	1.309**	0.276**	1.312**	-0.338+
			(0.285)	(0.105)			(0.425)	(0.154)	(0.410)	(0.100)	(0.473)	(0.188)
patience_exp_brdr					3.410**	2.165**	1.005	2.160**	0.432	1.348**	1.625+	2.388**
					(0.530)	(0.249)	(0.838)	(0.354)	(0.803)	(0.244)	(0.983)	(0.474)
risktaking_exp_brdr					2.628**	1.126**	1.353	1.117**	0.339	0.514+	2.263+	1.266**
					(0.991)	(0.437)	(1.027)	(0.372)	(0.960)	(0.302)	(1.306)	(0.487)
negrecip_exp_brdr					2.461**	0.227	2.504**	0.018	2.756**	0.734**	2.549**	-0.452
					(0.758)	(0.259)	(0.714)	(0.251)	(0.730)	(0.219)	(0.889)	(0.304)
social_exp_brdr					0.411	-0.420+	0.663	-0.381	0.809	-0.050	0.355	-0.535+
					(0.476)	(0.231)	(0.592)	(0.263)	(0.551)	(0.159)	(0.762)	(0.324)
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Globalization Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	40730	42525	15971	16200	40730	42525	15971	16200	15540	16200	15684	16200
R^2	0.874		0.888		0.880		0.890		0.839		0.902	
Adj. R^2		0.987		0.988		0.991		0.990		0.993		0.986

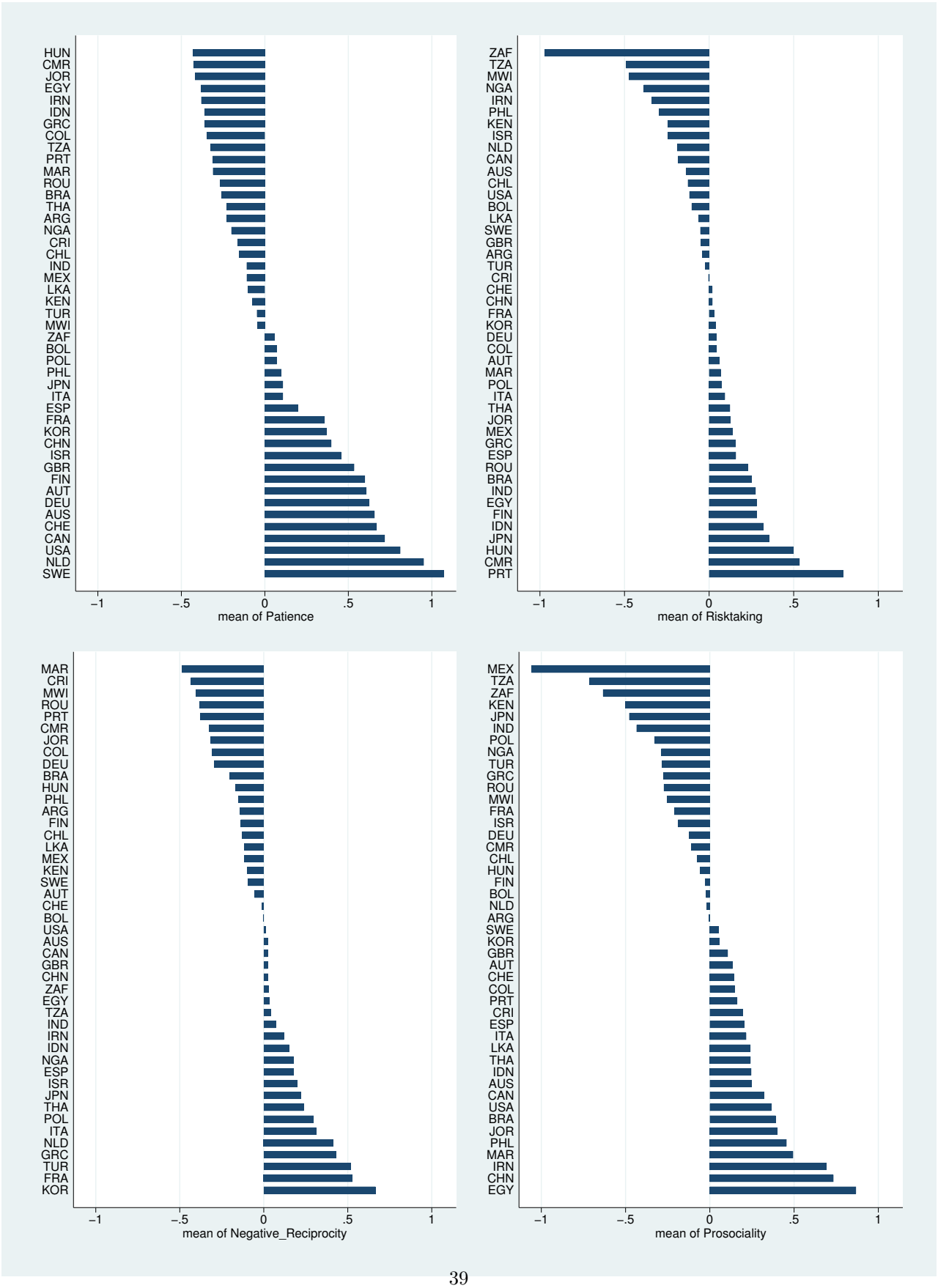
This table reports estimation results from a series of econometric models that study the impact of national preferences on international trade. The dependent variables are bilateral exports $X_{ij,t}$ for all PPML regressions and exports in logs for OLS regressions, respectively. Columns (1) & (2) report standard gravity estimates with a dummy for intra-national trade. Columns (3) & (4) introduce the interaction of preferences with the intra-national dummy for aggregate trade flows. Columns (5) & (6) and columns (7) & (8) respectively repeat the estimations for homogeneous vs. differentiated goods only. Standard errors are clustered by country pairs and are reported in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

Table A.5: Interactions with OLS

	Agg.						Hom.		Diff.		Agg. PPML			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	OLS	PPML	OLS	PPML	OLS	PPML	OLS	PPML	OLS	PPML	Pat< 0 IQ> 0	Pat> 0 IQ< 0	Both< 0	Both> 0
ln Distance	-1.189**	-0.852**	-1.196**	-0.792**										
	(0.063)	(0.061)	(0.063)	(0.053)										
Shared Border	0.152	0.354**	0.141	0.364**										
	(0.250)	(0.135)	(0.252)	(0.122)										
Shared Language	0.668**	-0.016	0.675**	0.019										
	(0.127)	(0.139)	(0.126)	(0.147)										
Colonial History	0.316*	-0.002	0.314*	-0.012										
	(0.158)	(0.160)	(0.158)	(0.155)										
RTA	0.102	0.125	0.098	0.198*	0.068	0.180*	0.059	-0.016	0.083	0.342**	0.177+	-0.154	0.183*	0.012
	(0.072)	(0.108)	(0.072)	(0.095)	(0.063)	(0.072)	(0.075)	(0.062)	(0.070)	(0.107)	(0.097)	(0.145)	(0.078)	(0.061)
IQ_BRDR	1.260**	-0.083	1.392**	0.384*	0.295	0.021	0.253	0.080	0.208	-0.284+	-0.991	8.426**	2.007**	-0.405+
	(0.425)	(0.154)	(0.339)	(0.169)	(0.250)	(0.110)	(0.297)	(0.147)	(0.294)	(0.157)	(1.329)	(1.450)	(0.426)	(0.217)
patience_exp_brdr	1.005	2.160**	2.627**	3.501**										
	(0.838)	(0.354)	(0.953)	(0.515)										
risktaking_exp_brdr	1.353	1.117**	1.735*	1.471**										
	(1.027)	(0.372)	(0.773)	(0.403)										
negrecip_exp_brdr	2.504**	0.018	1.887*	-0.744										
	(0.714)	(0.251)	(0.804)	(0.510)										
social_exp_brdr	0.663	-0.381	0.414	-0.634*										
	(0.592)	(0.263)	(0.465)	(0.323)										
Patience_exp × Inst. Q._exp			-1.517*	-1.603**	-0.029	1.011**	-0.254	0.861**	1.142	1.371**	-10.739*	-57.693**	5.712**	1.333**
			(0.603)	(0.280)	(0.657)	(0.259)	(0.693)	(0.278)	(0.747)	(0.341)	(5.376)	(7.529)	(1.874)	(0.415)
Risk aversion_exp × Inst. Q._exp			-1.895*	-1.195**	-0.891	-0.755	-2.115+	-0.865	-0.923	0.353				
			(0.805)	(0.455)	(1.124)	(0.553)	(1.106)	(0.659)	(1.454)	(0.717)				
Neg. Rec._exp × Inst. Q._exp			-0.409	0.283	0.019	-0.416	0.258	-1.874**	-0.068	0.660				
			(0.949)	(0.407)	(0.975)	(0.365)	(1.106)	(0.431)	(1.173)	(0.511)				
Prosociality_exp × Inst. Q._exp			-1.845**	0.081	-1.319+	-0.311	-1.378+	0.149	-0.445	0.300				
			(0.664)	(0.350)	(0.720)	(0.269)	(0.824)	(0.356)	(0.753)	(0.468)				
Exporter-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Importer-time FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
dir_id	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Globalization Trend	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	15971	16200	15971	16200	15969	16200	15528	16088	15674	16136	2790	1035	5805	6480
R^2	0.8896		0.8906		0.9707		0.9488		0.9678					
Adj. R^2		0.9902		0.9910		0.9995		0.9994		0.9992	0.9992	0.9999	0.9994	0.9997

This table reports estimation results from a series of econometric models that study the impact of national preferences on international trade. The dependent variables are bilateral exports $X_{ij,t}$ for all PPML regressions and exports in logs for OLS regressions, respectively. Columns (1) & (2) report standard gravity estimates with a dummy for intra-national trade. Columns (3) & (4) introduce the interaction of preferences with the intra-national dummy for aggregate trade flows. Columns (5) & (6) and columns (7) & (8) respectively repeat the estimations for homogeneous vs. differentiated goods only. Standard errors are clustered by country pairs and are reported in parentheses.
+ p < 0.1, * p < 0.05, ** p < 0.01. See text for further details.

Figure 1: Country rankings for patience, risk aversion, negative reciprocity and the prosociality index



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