

Zoller-Rydzek, Benedikt; Strecker, Nora; Keller, Florian

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# The causal impact of trade and migration flows on bilateral attitudes

Nora M. Strecker\*

Benedikt Zoller-Rydzek<sup>†</sup>

Florian Keller<sup>‡</sup>

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## Abstract

The impact of trade and migration have been a persistent subject of political discourse on both the national and international stage. Policy proposals advocating for open borders often encounter significant skepticism, driven by concerns over potential negative economic impacts domestically, as well as reservations towards the receiving country and its citizens. Our research demonstrates that increased exports and emigration flows can improve such negative attitudes towards the receiving country. Using a panel data set of 620 country pairs between 2007 and 2015, and utilizing an instrumental variable approach, we establish a positive causal relationship between a country's export and emigration flows and its attitudes towards the receiving country. This positive relationship has far-reaching implications. By providing greater access to domestic markets, policy makers can enhance their country's standing with foreign partners, leading to mutual benefits from labor market access or trade liberalization. Additionally, the improved attitudes will foster more harmonious relationships and lead to more prosperous interactions between states.

*JEL classification:* C26; F6; F13; F14; F22

*Keywords:* Attitude; Trade; Migration; Instrumental variables

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\*University College Dublin, School of Economics, Newman Building G205, Dublin, Ireland. E-mail: nora.strecker@ucd.ie

<sup>†</sup>ZHAW School of Management and Law, Theaterstrasse 17, 8400 Winterthur, Switzerland. E-mail: benedikt.zoller@zhaw.ch

<sup>‡</sup>ZHAW School of Management and Law, Theaterstrasse 17, 8400 Winterthur, Switzerland. E-mail: florian.keller@zhaw.ch

# 1 Introduction

While the dictionary may define attitude as “the way you think and feel about someone or something”, the scholarly debate about the precise definition of attitude (Chaiklin, 2011) has been ongoing for over hundred years. In 1919, Thomas and Znaniecki (1919) defined attitude as “a process of individual consciousness which determines real or possible activity of the individual in the social world.” Declared attitude can thus be seen as the verbal expression of potential behavior. Any attempt to reduce prejudice and discrimination should therefore focus on changing the associated attitude, see Chaiklin (2011). By exploring the formation of attitudes and the effect that policy choices can have in altering attitudes, it may be possible to reduce discrimination and prejudice. While domestic policies are principally tailored to affect domestic attitudes, changing the attitudes of inhabitants of one country towards the inhabitants of another can have far-reaching implications, such as preserving national security and fostering international co-operation. Much of the everyday contact with the rest of the world comes from exposure to migrants and foreign products in a broader sense. While it is easy to understand that attitudes towards a country will influence trade and immigration policies, the reverse is equally significant: the effect of trade and migration flows on the attitude towards the respective trade and migration partner. This paper will establish a causal link between global factor flows and attitude by using an instrumental variable approach.

In Figure 1, we observe more positive attitudes towards countries with significant trading relationships and migration flows. Both flows are positively correlated with the recorded average attitude towards the respective trade/migration destination countries.<sup>1</sup> The generally positive relationship between trade and attitude has been found in several previous studies. For example, Kleinberg and Fordham (2010) found that trade reduces foreign policy hostility between countries in the majority of trade relationships. This effect is particularly driven by exports. Along the same lines, Schlipphak (2013) found that citizens from countries with a negative trade balance with the EU tend to have a more sceptical attitude towards the institution. Jones and van der Bijl (2004) showed that attitudes in different EU member states towards an accession candidate are more positive if the

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<sup>1</sup>Specifically, the correlation coefficient of migration is 0.0045 (0.0023) and for total trade it is 0.035 (0.0044), standard error in parentheses.

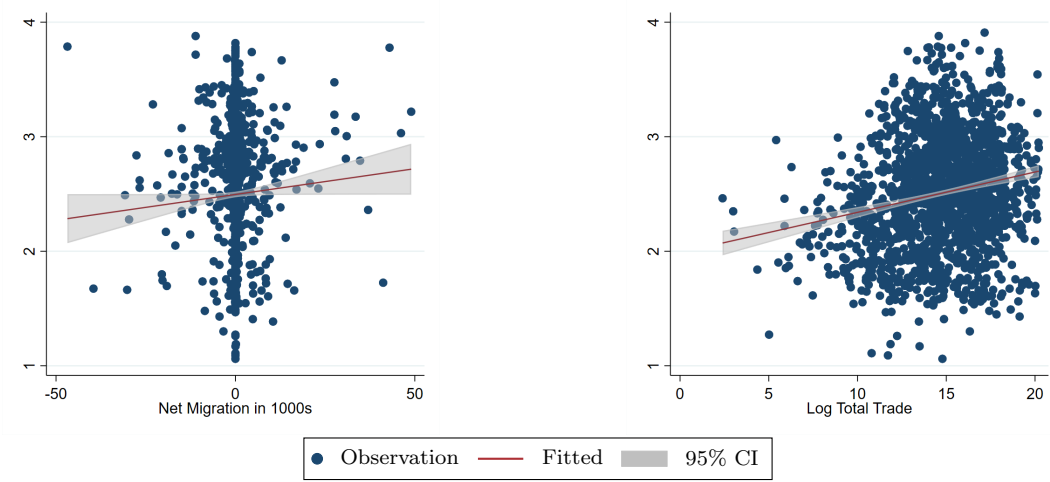


Figure 1: Scatter plots of bilateral attitude given by the Pew Global Attitudes Project surveys and net migration flows (left) and log total trade (right). For a better visual inspection net migrations flows were truncated at 50 and -50.

candidate state imports more from the surveyed member state. Similarly, Keller and Zoller-Rydzek (2021) found that imports of differentiated goods are positively correlated with attitudes towards the EU.

In contrast to the straightforward-to-interpret, positive relationship between trade and attitude, the relationship with net migration is slightly more complex. Several studies in sociology explored the impact of migration on attitude, finding that interpersonal concerns have a greater effect on negative sentiments towards immigration (see among others Hainmueller and Hopkins, 2014; Igarashi and Laurence, 2021). These findings are underlined by Bilal et al. (2003), who formulate a trade-theory model of attitudes towards migration and find that workers in import-competing sectors, with lower skills, or facing increasing inequality will have worse attitudes towards immigration.

The findings above describe a positive correlation between trade and net migration flows and bilateral attitude, but do not yet establish a fully causal relationship. Rose (2016) and Bao et al. (2020) use instrumental variables to establish a causal effect of trade. Rose (2016) shows that a more positive attitude of the importing country towards the exporting country causes higher imports. While this is an important finding of the reverse causality, for policy makers the other direction might be more important, i.e., do higher exports or imports alter the attitude between two countries. The issues of reverse causality are readily seen in Figure 1, where higher trade and

net migration are associated with higher attitude, but where the reverse is equally true. The causal relationship is likely to run in both directions: a more positive attitude increases trade, while trade also impacts the bilateral attitude. Similarly, causal studies of migration and attitude have explored both causal directions. Bakewell and Jolivet (2015) explore for the positive effect that exposure to positive representations and attitudes have on subsequent migration choices. On the other hand, Dustmann et al. (2018) causally studied the effects of a certain type of migration, namely refugee inflows, on electoral outcomes, the ultimate expression of attitudes. Finding large rightward shifts in electoral outcomes in localities with more refugee assignments; however, this effect varies widely between urban and rural locations.

In this paper we find that, *ceteris paribus*, higher exports and net migration flows from a domestic country towards a foreign country are improving the attitude of the domestic country towards the foreign country. Thus, changes in the trade and migration policies of the foreign country would directly allow to influence the attitude in the domestic country, and vice versa. Specifically, for policies in the foreign country this implies that allowing for more imports and more migration will improve the attitude and (indirectly) reduce the prejudice and discrimination in the domestic country. This would not only improve the bilateral relationships, i.e., reduce the potential for conflict and foster international collaboration, but can also improve business environments, see Davidson et al. (2010). Moreover, exploring these causal relationships might encourage policy makers to pursue policies that might *ex-ante* be seen as critical by the general population, but *ex-post* generate a more positive attitude between countries and hence gain more support over time. We are focusing explicitly on policies that will impact the attitude in another country, yet usually these kinds of policies are simultaneously implemented in both countries. Usually, two or more countries agree on regional trade agreements or on the international free movement of labor and hence the attitude in all participating countries is affected. The Transatlantic Trade and Investment Partnership (TTIP) would have been such a policy. *Ex-ante* Europeans and Americans were highly sceptical, not only because of potential negative distributional effects of free trade, but more generally about the differences in values and customs (see, among others, Ville and Siles-Brügge, 2017) in the other region. According to the European Commission (2017), TTIP could have increased bilateral trade by roughly 30% (27% increase in EU exports to the US, and 35.7% increase in EU imports from

the US), along with potential increases in GDP (0.5%) and wages (0.3%), led to an expansion of migration between the two regions (Larch and Sirries, 2014), and would thus have created a more positive attitude towards one another on both sides of Atlantic.<sup>2</sup>

The paper proceeds as follows. The next section will discuss how individuals form opinions and attitudes in an international context by relying on established frameworks from political science, sociology, and psychology. Section 3 presents the empirics of global factor flows and attitude and establishes baseline results. Section 4 tackles the endogeneity issues that prevail in the relationship of attitude and factor flows to estimate the causal effects of trade and migration. Section 5 presents robustness checks of the causal effects results and Section 6 concludes.

## 2 Attitude formation in a globalized world

The positive relationship between bilateral trade and attitude can be explained by a utilitarian approach to attitude formation: An individual's attitude towards an international entity (country) is formed by their beliefs on whether their own country and its citizens benefit from the relationship with this institution (see among others Gabel, 1998; Herzog and Tucker, 2010, and Machida, 2009).

However, the influence of trade and migration on attitudes can also be explained by a more ideational approach following the contact theory (see Allport et al., 1954; Pettigrew and Tropp, 2006). Keller and Zoller-Rydzek (2021) found that exports of differentiated goods from the EU are positively correlated with attitudes towards the EU. Consumers associate the properties of their imported goods with the country of origin, thus affecting the overall attitude towards the source countries of differentiated, higher quality goods. Similar effects can be found for migration: Improved communication channels, and specifically social media, increase the knowledge about potential destination countries, see Dekker and Engbersen (2014) and Dekker et al. (2016). The additional information flows can shape a more positive attitude towards the host country and there is evidence that individuals can reduce their negative attitudes towards migrants when more information is available (see Grigorieff et al., 2020).

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<sup>2</sup>The negative effects of free trade and migration have occupied economists for a years; however, as recent findings indicate, domestic policy has often failed to ward off the negative effects or in fact worsened them (see Rodrik, 1997; Egger et al., 2019b).

Using the ideational approach, Stein et al. (2000) state that any sort of frequent and non-negative contact between groups will reduce prejudicial attitudes. By contrast, utilitarian scholars argue for the opposite relationship between migration and attitude. While trade, and particularly exports, might be seen as beneficial, a larger presence of immigrants is perceived as negative for one's well being (see among others Schissel et al., 1989; Jackman and Volpert, 1996; Raijman et al., 2003). Several studies (such as Ha, 2010; DeWaard, 2015) argue that perceived vulnerability to the competition of immigrants is enough to induce more negative attitudes. Similarly, Davenport et al. (2021) look at import competition and the negative correlation with the attitude towards trade. Thus, it is not surprising that several studies have sought to explore possible drivers for an increasing unease with respect to globalization, see Francois and Hoekman (2010) or Rodrik (1997, 2018, 2021).

While the studies above indicate an influence of trade and migration on attitudes, others argue that the effect goes in the opposite direction. Disdier and Mayer (2007) show that bilateral opinions have statistically robust effects on imports in European countries. Their large country pair analysis indicates that if the public attitude in one country increases by one standard deviation, the imports to that respective country increase by 9.09 percentage points. Along the same lines, Michaels and Zhi (2010) study shifts in trade between the U.S. and France after a dispute over the second Iraq war between the two countries. The effect of bilateral attitude on imports has also been found by Bao et al. (2020). Placing their findings in the context of classical gravity models (such as Anderson and van Wincoop, 2003), Bao et al. (2020) argue that attitude should be understood as an additional factor to be considered alongside classical economic factors, such as economic size or multilateral resistance. Similarly, Rose (2016) focused on the perception of a trade partner as having “a mainly positive or negative influence in the world” to explain trade flows, where he found, that countries perceived as having a positive global influence can export more to a respective partner country.

Lastly, as Figure 1 indicates, both migration and trade are positively correlated with attitudes; moreover, they are positively correlated with each other, see, among others, Egger et al. (2012) or Felbermayr et al. (2015). Along with the established findings on migration and trade mentioned above, this strong correlation indicates that trade and migration should be considered jointly for their impact on bilateral attitudes.

### 3 An empirical model of attitude, trade, and migration

To explore the relationship between bilateral attitudes and global factor flows in the form of migration and trade, we turn to data provided by the Pew Research Center. The Pew Research Center (2021) *Global Attitudes Project* samples, surveys, and collects consistent data (across time and place) on the different opinions and attitudes of different countries towards science, trade, society, as well as one another. In the survey, respondents are asked to rate their attitude regarding certain countries or topics on a 1 to 4 Likert scale, with 1 being equal to "Very unfavorable" attitude and 4 having a "Very favorable" attitude.

Several studies have explored the results of the *Global Attitudes Project* surveys across different areas, such as Wike and Grim (2010) for the attitude towards Muslims or Davenport et al. (2021) for the attitude towards trade. Based on telephone and face-to-face interviews, the surveys are drawn from each country's population at large; however, the samples of China, India, Morocco, and Pakistan are largely (or disproportionately) urban.<sup>3</sup> Between 2007 and 2015, the Pew Research Center surveyed 46 different countries, with 620 country-pairs and 1,700 bilateral attitude observations. The set of surveyed countries varies slightly from year to year, as well as the number of countries that are in the questionnaire. For example in the year 2009 only 14 nations were surveyed, while in 2014, 44 countries participated. We measure the attitude as the average answer of all respondents in the domestic country  $o$  vis-à-vis a foreign country  $d$  in survey year  $t$ .

Average bilateral attitudes are naturally determined by several factors. In addition to the average respondent's age and the gender distribution within country-year survey sample, the base level of attitude derives from fixed factors in a country pair, such as common languages, colonial ties, and common borders (see Mayer and Zignago, 2011). Further, attitudes between countries depend on the relative social, economic, and military positions of the country pairs, see Whittington (2017). To control for these factors, we turn to  $o$ - and  $d$ -specific country-level measures of education (years of schooling), incomes (as GDP per capita) and military expenditures (military spending as a share of GDP) from World Bank (2021a). The importance of income and education in determining attitudes towards migrants has been explored in Haubert and Fussell (2006), who find both to be positively

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<sup>3</sup>Since most economic activity is focused on urban areas in BRICS and developing countries, this focus on urban areas should not adversely affect our results.



correlated with positive attitudes towards migrants in the U.S.. This finding is also supported by Schlipphak (2013) and Rose (2016), among others. The relevance of military expenditures in determining attitudes is also a key finding in Rose (2016).

However, beyond personal, fixed country-pair specific and relative factors, the global ties between countries have a clear influence on the attitudes of one country towards another. We explore this relationship using bilateral trade flows from the World Bank (2021b) World Integrated Trade Solution (WITS) database, which tracks bilateral trade flows across time. As mentioned above, together with trade, net migration flows also play a significant role in causally determining attitudes towards other countries. While a small section of the public may decry immigration and demand higher entry barriers, globally, positive views on immigration (regardless of country of origin) are in the majority (see Pew Research Center, 2019). To establish the relationship between attitude and migration, we rely on yearly net migration flows, which we obtain by computing the change in the migrant stock from country  $o$  in country  $d$  between two years. The OECD migration statistics (OECD, 2021) provide yearly data on many developed countries. Roughly half of the country pairs in our sample are covered by the OECD data. Migration stocks for the remaining country pairs are obtained using data from the UN Migration Database (United Nations, 2019). The UN database provides bilateral migrant stock data in 5-year intervals, covering the years 2000, 2005, 2010, and 2015 in our sample. We impute yearly migrant stocks by linear interpolation for all country pairs.<sup>4</sup> Our focus on net migration, rather than on the effect of immigration, is a significant deviation from prior work on the effect of migration on attitudes. Net migration acknowledges that migrants in the current era maintain strong familial and social ties to their home countries and have growing opportunities communicate their experiences in their new location. The population in the origin country thus faces both an influence of immigration and emigration, which the data are able to capture in net migration.

Table 1 provides the descriptive statistics of all the variables. The countries in our sample are quite

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<sup>4</sup>This interpolation generates equal net migration flows during the 5-year periods, which is unlikely to reflect actual migration flows. However, given our later instrumental variables approach, this issue should be minimized as long as the real net migration flows do not alternate between positive and negative rates within a 5-year time window. For example, a constant migrant stock within an interval in the UN data would imply zero net migration flows during the time. Yet, the constant migrant stock could be also achieved by a combination of a net migration inflow in one year and an equal net migration outflow in the other year. This would leave the migrant stock in the UN data constant, but potentially significant flows could have occurred during that time. However, such a pattern is never observed in the yearly OECD migrant stock data.

heterogeneous, i.e., for most variables the standard deviation is quite substantial. Moreover, there seems to be a clear difference between the surveyed and rated countries. The surveyed countries are statistically significant less populous, spend less on military in percent of their GDP, and have a lower GDP per capita than the rated countries. Yet, this effect might be fully driven by a selection of surveyed and rated countries. For example, the U.S. and China are rated in every survey while surveyed countries vary much more.

Table 1: Descriptive statistics: include attitude for completeness

	Mean	Median	Min	Max	Std. Dev.
attitude <sub>odt</sub>	2.499	2.489	1.061	3.909	.489
female share <sub>ot</sub>	.514	.509	.326	.672	.039
age <sub>ot</sub>	41.649	40.920	31.656	54.243	5.769
log GDPpc <sub>ot</sub>	8.871	8.967	5.498	11.002	1.447
log GDPpc <sub>dt</sub>	9.271	9.139	6.895	10.948	1.158
education <sub>ot</sub>	10.048	10	5	14	2.037
education <sub>dt</sub>	10.074	9	6	14	1.738
military expenditures <sub>ot</sub>	1.902	1.523	0.370	6.584	1.273
military expenditures <sub>dt</sub>	2.915	2.749	0.370	13.326	1.488
net migration flow <sub>odt</sub>	0.636	0	-463.875	467.624	20.856
log exports <sub>odt</sub>	13.355	13.802	-2.313	19.832	3.265
log imports <sub>odt</sub>	13.875	14.252	0	20.002	2.963
log total trade <sub>odt</sub>	14.664	14.820	2.398	20.216	2.689
log trade balance <sub>odt</sub>	-0.583	-0.391	-11.473	9.700	1.841
log population <sub>ot</sub>	17.622	17.634	14.733	21.039	1.394
log population <sub>dt</sub>	19.062	18.781	15.902	21.039	1.204
Observations	1,700				

*Notes:* Years 2007 to 2015. 27 rated countries, 46 rating countries. 602 country pairs. Net migration flows are measured in thousands.

Relying on the Pew *Global Attitudes Project* surveys creates an unbalanced panel, i.e, some countries are surveyed or rated only in specific years. In total 46 different countries are surveyed between 2007 and 2015. The left hand side of Figure 2 shows a map of the surveyed countries. About 25% of our surveyed country-year observations are European countries, followed by 17% in Sub-Saharan Africa. The right-hand side of Figure 2 depicts the 27 rated countries. In some years there is an overlap between the surveyed and the rated countries. However, this is the exception rather than

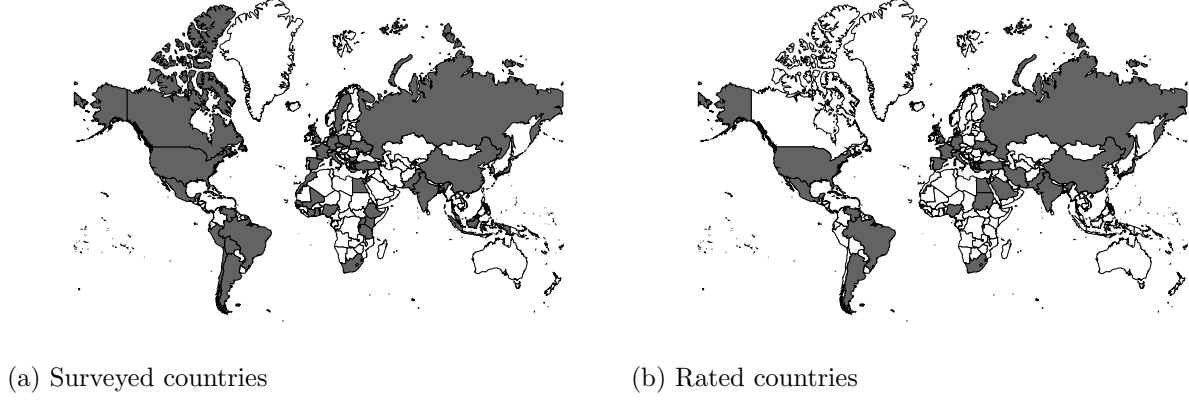


Figure 2: Countries covered by the Pew *Global Attitudes Project* surveys, 2007-2015. Countries that are surveyed with regard to their attitude towards other countries (left) and countries that were rated by the former countries (right).

the norm. A closer look at both halves of Figure 2 also indicates that while the Pew *Global Attitudes Project* survey question large, economically significant countries about other large, economically significant countries, the surveys also take into consideration present-day geopolitics, by asking about countries with more difficult relationships with the rest of the world, such as Venezuela, Iran, and Cuba.

In total, the country pairs in our sample account for around 32% of global exports, 42% of global imports, and 34% of migrant flows. As Figure 2 illustrates, some of the most significant trading and migrant relationships are captured, such as U.S.-China, U.S.-Mexico, and India-Pakistan.

### 3.1 Baseline specification

Let us denote the average attitude in a domestic country  $o$  towards a foreign country  $d$  at time  $t$  by  $a_{odt}$ . Empirically, we establish the following baseline relationship between this attitude and the factors that have been shown to influence it:

$$a_{odt} = \alpha + \beta l_{odt} + \gamma x_{odt} + \zeta m_{odt} + K_{ot} + J_{dt} + \Theta_{od} + \iota_t + \epsilon_{odt}, \quad (1)$$

where  $\alpha$  is a constant,  $l_{odt}$  are the net migration flows from country  $o$  to country  $d$  at time  $t$ .  $x_{odt}$  represents the log exports of country  $o$  to country  $d$ , while  $m_{odt}$  is the log imports of country  $o$  from country  $d$  in year  $t$ .  $K_{ot}$  is a vector of country  $o$  specific variables, such as log GDP per

capita, average respondents' age, shares of women in the survey sample, average schooling, and military expenditures in percent of the GDP in year  $t$ .  $J_{dt}$  represents the same vector of variables for country  $d$ .  $\Theta_{od}$  and  $\iota_t$  are country-pair and time fixed effects, respectively.  $\Theta_{od}$  subsumes all country-pair specific time-invariant variables such as distance, common borders, common language, common cultural heritage, etc. Finally,  $\epsilon_{odt}$  is the error term.

We expect that higher levels of net migration will have a positive impact on the attitude in country  $o$  towards country  $d$ . Note that we use net migration, hence a greater immigration into than emigration from  $o$ , i.e., a negative net migration, would still be consistent with a positive sign of the regression coefficient  $\gamma$ . We also expect positive coefficients for the trade variables  $x_{odt}$  and  $m_{odt}$ , as more trade between two countries implies higher attitudes. To account for the press attention of the trade balance and its politicized dimension, see Belke et al. (2020), we also test total trade and the trade balance, as alternative combinations of exports and imports.<sup>5</sup>

### 3.2 Ordinary least squares results

In a first step, we estimate the model from equation (1). This establishes the correlation between net migration, trade flows, and the bilateral attitude using standard OLS estimation. As stated above, we are including time and country-pair fixed effects. Column (1) tests the model without global factor flows. Column (2) accounts for only net migration flows, while Columns (3) and (4) account for migration and log exports and log imports, respectively. Column (5) accounts for net migration flows, log imports, and log exports. This reflects our baseline specification in equation (1). Columns (6) and (7) present the alternative specifications using total trade and the trade balance, respectively.

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<sup>5</sup>We compute the log total trade as log exports plus imports and the log trade balance as log exports less log imports.

Table 2: OLS: Reduced form estimation

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
net migration flows <sub>od</sub>		0.001*** (0.000)	0.001*** (0.000)	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)	0.001** (0.000)
log exports <sub>od</sub>			0.037** (0.014)		0.036*** (0.010)		
log imports <sub>od</sub>				0.013 (0.025)	0.001 (0.023)		
log total trade <sub>od</sub>						0.016 (0.031)	
log trade balance <sub>od</sub>							0.020* (0.011)
female share <sub>o</sub>	-0.123 (0.583)	0.226 (0.525)	0.260 (0.532)	0.507 (0.531)	0.539 (0.535)	0.518 (0.534)	0.541 (0.533)
age <sub>o</sub>	-0.011 (0.013)	-0.012 (0.013)	-0.012 (0.013)	-0.012 (0.013)	-0.013 (0.013)	-0.012 (0.013)	-0.012 (0.013)
log GDP pc <sub>o</sub>	-0.088 (0.069)	-0.124* (0.066)	-0.140** (0.062)	-0.138** (0.052)	-0.143** (0.052)	-0.133** (0.055)	-0.112* (0.063)
log GDP pc <sub>d</sub>	0.025 (0.114)	0.022 (0.138)	-0.030 (0.133)	0.004 (0.156)	-0.034 (0.150)	-0.007 (0.151)	0.009 (0.138)
education <sub>o</sub>	0.031*** (0.008)	0.032*** (0.007)	0.031*** (0.007)	0.035*** (0.007)	0.034*** (0.007)	0.035*** (0.007)	0.035*** (0.007)
education <sub>d</sub>	-0.027 (0.025)	-0.032 (0.034)	-0.032 (0.032)	-0.032 (0.033)	-0.032 (0.031)	-0.031 (0.032)	-0.033 (0.033)
military expenditures <sub>o</sub>	-0.059 (0.049)	-0.067 (0.045)	-0.068 (0.045)	-0.064 (0.045)	-0.065 (0.044)	-0.065 (0.045)	-0.064 (0.043)
military expenditures <sub>d</sub>	-0.082* (0.046)	-0.089 (0.055)	-0.096* (0.052)	-0.092 (0.058)	-0.098* (0.056)	-0.095 (0.057)	-0.091 (0.055)
adj. R <sup>2</sup>	0.554	0.553	0.555	0.558	0.559	0.558	0.559
Obs.	1,700	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level.

Consistent with the simple correlations found by Spring and Grossmann (2016), the results of the reduced form OLS regressions indicate that the correlation between net migration and bilateral attitude has a consistently positive sign and is highly significant. However, the effect is relatively small – a one standard deviation increase in net migration only explains about 4% of one standard deviation in the attitude between two countries. In contrast to migration, but consistent with previous findings increasing log exports by one standard deviation leads to a positive increase

of 0.121 units in the attitude between two countries, i.e., about 25% of a standard deviation of attitude. Similar effects can be observed for changes in the trade balance. Thus, while migration is a very significant factor, quantitatively exports are driving the attitude between countries.

The remaining factors in equation (1) either provide statistically insignificant or results consistent with previous work for all specifications, i.e., a higher per capita GDP in surveyed country is, *ceteris paribus*, associated with worsened attitudes towards other countries, while more education in  $o$  is positively correlated with bilateral attitudes. Moreover, military spending in the rated country is associated with worse attitudes towards it, consistent with Whittington (2017).

As previously mentioned, our main variables of interest: net migration, exports, and imports are prone to significant endogeneity. An important factor for individuals when choosing a possible migration destination is the overall attitude toward or reputation of destination. Yet, destinations that have a greater stock of migrants could appear more attractive as migrants might be able to enjoy network effects (Casella and Rauch, 2002; Beine et al., 2015) to ease their adjustment to the new environment. Thus, there exists a clear problem of reverse causality when regressing the attitude between two countries on their net migration flow. Similarly, a better attitude towards a certain country might foster more trade agreements and greater similarity of tastes, thus increasing the trade between these countries. The regression coefficients of interest in equation (1),  $\beta$ ,  $\gamma$ , and  $\zeta$ , are therefore likely to be biased and do not reflect a causal relationship.

## 4 Attitude and factor flows: A causal approach

To deal with the reverse causality, we apply an instrumental variables approach with three different instrumental variables to account for migration, exports, and imports. While previous work on the relationship between trade/migration and attitude relied on lagged variables to instrument for the simultaneity, this can be problematic, according to Wang and Bellemare (2020), if “dynamics among the endogenous explanatory variable and the unobserved confounders cannot be ruled out”. We focus on (i) shift-share (Bartik) migration flows and (ii) exports towards all countries except country  $d$  and imports from all other countries except  $d$ , (see Rose, 2016). The first proposed instrument (i) clearly corresponds to the endogenous migration flows, while the instruments in (ii)

tackle the endogeneity of inward and outward trade flows. While our baseline regression would be just identified using instruments (i) and (ii), we pursue an overidentified strategy, following Frankel and Romer (1999), and include the population sizes of both countries as additional instruments.

#### 4.1 Instrumenting migration Flows

A shift-share (Bartik) instrument for exogenous variation of net migration flows has been applied in different migration contexts, such as the labor market outcomes for less-skilled native workers in Altonji and Card (1991), studies of firm productivity and trade networks in Egger et al. (2019a), and for migration and voting behaviour in Devillanova (2020).

We construct our instrument for migration as follows

$$\tilde{l}_{odt} = \sum_d L_{odt=2000} l_{ot}, \quad (2)$$

where  $L_{odt=2000}$  is the share of migrants (stock) from country  $o$  in country  $d$  in the year 2000 and  $l_{ot}$  is the total flow of migrants from country  $o$  in year  $t$ . The shift share instrument is the weighted average of expected national flow rates (shifts), where the weights are determined by the initial shares of migrants in a given location (shares). In order to be a valid instrument it is crucial that the initial shares in the year 2000 are uncorrelated with the attitude. In 2000, information flows on a global scale were much more limited. Only about 7% of the global population had direct access to the internet (Roser et al., 2015) and most of the available direct communication channels at the time were expensive, slow, or both. Traditional mass media was the main source of information about politics and events in foreign countries. This changed in later years with technological advances and greater information exchange. By 2007, over 20% of the global population had direct access to the internet, increasing to more than 40% by 2015. Migrants in the late 2000s were able to obtain more information about the treatment of migrants in different countries, when positive and negative experiences of (and opinions on) migrants were often amplified by social media (see Mai, 2006; Heidenreich et al., 2020, among others).<sup>6</sup> Better communication channels also improved information flows regarding local labor market conditions and general legal barriers for migrants.

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<sup>6</sup>In 2008, a mere four years after its creation, Facebook had about 100 million active users per months. 7 years later it increased to over 1.6 billion active users per month, see Ortiz-Ospina (2019).

All this has a potentially impact on migrant shares in later years, but were not available or present in 2000. Thus, potential migrants were more likely to choose a certain location based on other factors such as distance, common borders, common language, or colonial relationships, as well as their own migrant-specific tastes, than on perceived general attitudes towards a potential destination country. Moreover, we believe the migration flows of 2000 are sufficiently removed from our sample period to be unrelated to the attitudes in 2007-2015. Table 3 shows the correlation between the initial migrant share weights of the destination countries  $d$  in the year 2000 and the attitude between country  $o$  and  $d$  for the years 2007 to 2015. Clearly, the correlation is quite low and with a general downward trend. Thus, we are confident that the share of migrants in  $d$  in the year 2000 is indeed orthogonal to the general attitudes towards that particular destination country after 2007.

Table 3: Migration: IV construction

Year (t)	Correlation	Observations
Weight and attitude		
2007	0.174	297
2008	0.320	156
2009	0.071	90
2010	0.211	111
2011	0.197	118
2012	0.093	146
2013	0.093	210
2014	0.024	82
2015	0.083	203

*Notes:* Unconditional correlations between the migrant share weight of country  $o$  in country  $d$  in the year 2000 and the attitude of country  $o$  towards country  $d$  in year  $t$ .

Since we condition on country-pair fixed effects in the first stage, our identification arises from the interaction between the initial distribution of migrants of the domestic country in all other countries in the world and the overall migration flows of the domestic country for each year.



## 4.2 Instrumenting trade Flows

To obtain instruments for exports and imports, we deviate from the instrumentation strategy used above for migration.

For exports we estimate a simple instrument that sums exports from country  $o$  to the rest of the world other than the rated country  $d$

$$\tilde{x}_{odt} = \sum_{j \neq d, o}^{\Omega} x_{ojt}, \quad (3)$$

where  $\Omega$  is the set of all foreign countries (other than  $d$ ) in the world. This instrumental approach was also used by Rose (2016) when analysing the relationship between trade and soft power.

Similarly, the imports of the country  $o$  from all countries other than the rated country  $d$  is used as an instrument for imports.

$$\tilde{m}_{odt} = \sum_{j \neq d, o}^{\Omega} m M_{ojt}. \quad (4)$$

The trade flows between the origin country  $o$  and any country other than the foreign country of interest,  $d$ , are informative about the trade flows between country  $o$  and country  $d$ . Theoretically, two channels exist to motivate this relationship. First, a more direct channel follows the Autor et al. (2013) productivity shock argument. A productivity shock in country  $o$  affects its exports to all countries in the world in a similar way and thus trade flows towards other countries can be used as an instrumental variable for trade flows towards one particular country  $d$ . Analogously, this applies to a demand shock in country  $o$ , wherein imports from other countries can be used to instrument for trade flows from on particular country  $d$ .

Second, a more indirect channel relies on the fact that any change in exports or imports between two countries also implies a change in the relative price and, consequently, the multilateral resistance terms of a standard gravity framework. Specifically, in a general equilibrium trade model the prices or quantities traded by a third country can be seen as an exogenous factor that affects the prices and quantities traded by any other country pair in the world, see Eaton and Kortum (2002); Ahlfeldt

et al. (2015), and Egger et al. (2020) for applications of this relationship.<sup>7</sup> Yet, the trade flows between country  $o$  and third parties are orthogonal to the attitude of country  $o$  towards country  $d$ . Higher exports from country  $o$  to country  $j \neq d$  should thus not (directly) depend on the attitude between the respective countries. Again, we are conditioning on country-pair fixed effects and hence any the remaining variation for each country-pair over time is used to construct our import and export instruments.

### 4.3 First-stage results

Table 4 presents the F-statistics and  $R^2$  values for just-identified specifications. Following the order of columns in Table 2, Column (1) represents the instrumentation with only net migration, Column (2) and (3) includes log exports and log imports, respectively. Column (4) accounts for log exports and imports jointly, while Columns (5) and (6) account for total trade and trade balance, respectively. While the highest F-statistic is achieved by only instrumenting for net migration, the increased explanatory power obtained by additionally accounting for international trade would indicate that we should account for both trade and migration in the second stage estimations.

Table 4: IV: First stage: (just identified) Migration and Trade Flows

	(1)	(2)	(3)	(4)	(5)	(6)
<b>IV: Migration and Trade</b>						
Weak IV (F)	542	9.55	4.91	2.48	5.57	4.06
$R^2$	0.664	0.664 / 0.978	0.664 / 0.978	0.664 / 0.978 / 0.978	0.664 / 0.977	0.664 / 0.985
Obs.	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year and country-pair fixed effects. Clustering at the foreign country level. Kleibergen-Paap test for weak instruments.

### 4.4 Instrumenting trade flows: Frankel and Romer (1999)

While the estimates above are just identified, we adapt the identification strategy of Frankel and Romer (1999) by including two additional instruments in our estimation strategy. Frankel and Romer (1999) use a simple ad-hoc gravity equation that depends on distance and other geographical factors that determine trade costs, as well as the size of the two trading economies. GDP is commonly used as a measure of size, which can be decomposed into population and GDP per capita.

<sup>7</sup>While Egger et al. (2020) argue that exogenous bilateral trade costs can be used as a general-equilibrium-theory-consistent instrument in this context, here we rely on the direct impact of third country trade flows.

Both factors clearly have a positive impact on bilateral trade. Following Frankel and Romer (1999), we use the log populations of countries  $o$  and  $d$  (by World Bank, 2021a) as additional instrumental variables for bilateral trade. As for reverse causality, it is very unlikely that the attitude towards a specific country will have a direct impact on the fertility decisions and growth rates in a given country. Thus, the populations of country  $d$  and  $o$  can be seen as exogenous and as satisfying the exclusion restriction.

Table 5: IV: First-stage: Migration and Trade Flows

	(1)	(2)	(3)	(4)	(5)	(6)
<b>IV: Migration and Trade</b>						
Weak	542	7.64	3.8	1.78	4.99	2.57
Overidentification						
p-value		0.761	0.371	0.456	0.336	0.656
R <sup>2</sup>	0.664	0.978 / 0.978	0.978 / 0.665	0.979 / 0.977 / 0.985	0.979 / 0.985	0.979 / 0.907
Obs.	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year and country-pair fixed effects. Clustering at the foreign country level. Kleibergen-Paap test for weak instruments. Sargan-Hansen test for overidentification: the corresponding p-value was derived from the  $\chi^2$  distribution.

Table 5 presents the F-statistics and overidentification p-values for all our specifications. Note that first columns in Tables 4 and 5 are identical. Once again, the highest F-statistic is achieved by only instrumenting for net migration; nevertheless, we proceed by including both trade and migration in order to benefit from the increased explanatory power and take into account the strong correlation between trade and migration in the second stage regressions.

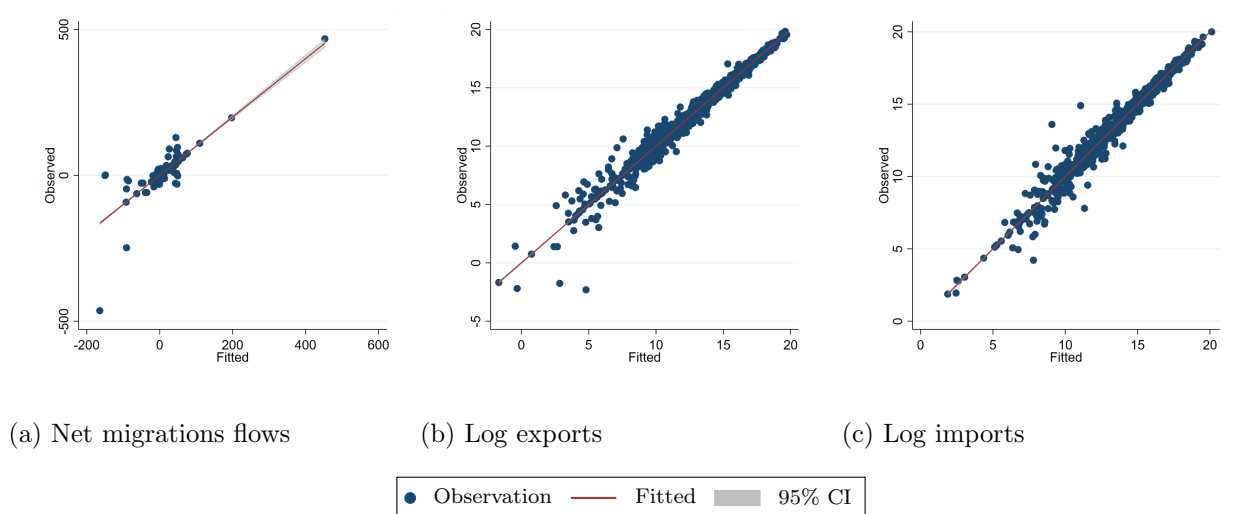


Figure 3: Scatter plots and linear regression lines for the fitted IVs and the factor flows.

In a last check of our instrumentation strategy, we plot the fitted first-stage estimates (for net migration, log exports, and log imports) against the actual observed variables in Figure 3. All the fitted values are very highly correlated with their observed counterparts, as already indicated by the high  $R^2$  values in Table 5.

We provide the complete set of first-stage regression results for both the just identified and the overidentified strategies in Appendix A.

## 4.5 Second-stage results

Consistent with the results of the reduced form OLS regressions in Section 3.2, we present the results of the second-stage instrumental variables regressions in Tables 6 and 7. Table 6 uses the just-identified strategy for migration and trade flows instruments. The coefficients on net migration are extremely consistent both in sign, significance, and magnitude with the reduced form results in Table 2. One standard deviation increase in net migration will only induce a 4% of a standard deviation increase in the bilateral attitude. This is in line with prior findings on the relationship between migration and attitudes, which found that the relationship is more complex and less easily swayed.

Table 6: IV: Second Stage (just identified) Migration and Trade

	(1)	(2)	(3)	(4)	(5)	(6)
net migration <sub>od</sub>	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
log exports <sub>od</sub>		0.112** (0.049)		0.113** (0.054)		
log imports <sub>od</sub>			-0.038 (0.085)	-0.113 (0.082)		
Log total trade <sub>od</sub>					0.007 (0.092)	
log trade balance <sub>od</sub>						0.113** (0.050)
female share <sub>o</sub>	0.228 (0.410)	0.308 (0.436)	0.527 (0.399)	0.628 (0.394)	0.523 (0.407)	0.628 (0.404)
age <sub>o</sub>	-0.012 (0.010)	-0.012 (0.010)	-0.012 (0.010)	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)
log GDP pc <sub>o</sub>	-0.125** (0.051)	-0.191*** (0.071)	-0.089 (0.121)	-0.081 (0.112)	-0.125 (0.118)	-0.082 (0.053)
log GDP pc <sub>d</sub>	0.021 (0.108)	-0.118 (0.087)	0.064 (0.144)	0.011 (0.114)	0.001 (0.122)	0.010 (0.126)
education <sub>o</sub>	0.033*** (0.005)	0.028*** (0.005)	0.037*** (0.004)	0.036*** (0.005)	0.035*** (0.005)	0.036*** (0.004)
education <sub>d</sub>	-0.033 (0.026)	-0.034 (0.022)	-0.034 (0.029)	-0.037 (0.027)	-0.032 (0.027)	-0.037 (0.026)
military expenditures <sub>o</sub>	-0.067* (0.035)	-0.069* (0.036)	-0.062* (0.034)	-0.064** (0.032)	-0.065* (0.034)	-0.064** (0.032)
military expenditures <sub>d</sub>	-0.088** (0.043)	-0.106*** (0.034)	-0.081* (0.042)	-0.084** (0.037)	-0.094** (0.039)	-0.084* (0.044)
Pseudo R <sup>2</sup>	0.742	0.742	0.745	0.740	0.747	0.740
Obs.	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level.

However, compared to the reduced form results, instrumentation increases the coefficients for log exports more than three fold, while the effect of the trade balance increased nearly five fold. Increasing the trade balance by one standard deviation improves the attitude towards these countries by 42% of a standard deviation. Thus, the results that take the endogeneity of trade and migration into consideration are quantitatively very significant.

The coefficients for log imports remain statistically indistinguishable from zero even after instrumen-

tation. This contrasts with Keller and Zoller-Rydzek (2021), who find a strong positive correlation of imports; however, they distinguish between homogeneous and differentiated goods and only find an effect of imports for differentiated goods. Moreover, they only consider exports to and from EU countries to a set of largely developed countries. Thus, the more diverse country pairs in the current sample and the more general imports explain the absence of significant effects of imports.

The results for other covariates in the instrumental variables regressions remain largely consistent, with the exception of a significant negative effect of domestic military spending, which was not present in the OLS regressions in Table 2.

Table 7 presents the second-stage results of the overidentified strategy for trade flows, accounting for the log of domestic and foreign population, in line with Frankel and Romer (1999). The subsequent model contains more instruments than instrumented variables; however, from Section 4.4 we know that our strategy passes the overidentification tests in all instances. As with the just identified second stage results, the coefficients on net migration are extremely consistent both in sign, significance, and magnitude with the reduced form results in Table 2. Additionally, all other coefficients only change slightly and are not statistically different from the just-identified estimations in Table 6. Thus, including the additional instruments does not greatly alter the results.

Table 7: IV: Second Stage (overidentified) Migration and Trade

	(1)	(2)	(3)	(4)	(5)	(6)
net migration <sub>od</sub>	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)	0.001*** (0.000)
log exports <sub>od</sub>		0.126*** (0.047)		0.113** (0.053)		
log imports <sub>od</sub>			0.035 (0.068)	-0.058 (0.074)		
Log total trade <sub>od</sub>					0.057 (0.078)	
log trade balance <sub>od</sub>						0.099** (0.051)
female share <sub>o</sub>	0.228 (0.410)	0.316 (0.447)	0.501 (0.398)	0.605 (0.398)	0.510 (0.403)	0.616 (0.399)
age <sub>o</sub>	-0.012 (0.010)	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)
log GDP pc <sub>o</sub>	-0.125** (0.051)	-0.200*** (0.074)	-0.161 (0.113)	-0.136 (0.107)	-0.169 (0.113)	-0.086 (0.054)
log GDP pc <sub>d</sub>	0.021 (0.108)	-0.134* (0.077)	-0.025 (0.101)	-0.054 (0.085)	-0.048 (0.102)	0.010 (0.123)
education <sub>o</sub>	0.033*** (0.005)	0.027*** (0.005)	0.034*** (0.005)	0.033*** (0.005)	0.033*** (0.005)	0.036*** (0.004)
education <sub>d</sub>	-0.033 (0.026)	-0.035 (0.022)	-0.032 (0.027)	-0.036 (0.025)	-0.030 (0.026)	-0.037 (0.026)
military expenditures <sub>o</sub>	-0.067* (0.035)	-0.069* (0.037)	-0.064* (0.035)	-0.064** (0.033)	-0.066* (0.035)	-0.064** (0.032)
military expenditures <sub>d</sub>	-0.088** (0.043)	-0.108*** (0.033)	-0.097*** (0.035)	-0.096*** (0.032)	-0.102*** (0.037)	-0.085** (0.043)
Pseudo R <sup>2</sup>	0.744	0.740	0.748	0.744	0.748	0.742
Obs.	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level.

Based on the second stages of the just identified and overidentified instrumental variables estimations, we can establish a significant and positive causal relationship between net migration and bilateral attitude, exports and bilateral attitude, and the trade balance and bilateral attitude.

While greater migration flows might lead to more resentment in the destination country (see Beutin et al., 2007; Facchini and Mayda, 2008; Hatton, 2016), we find that, in terms of net migration flows, the effect is strictly positive, albeit relatively small. Greater flows slightly, but statistically

significantly, improve the attitude towards the destination country. In contrast to Spring and Grossmann (2016) who find that there is no causal relationship between bilateral trust or attitude and migration, we establish an opposing causal relationship. Positive net migration improves the attitude at least from the origin country towards the destination country. As emigrants today are able to communicate in real time with their family, relatives, and friends at home and hence have greater opportunities to communicate a more positive image of the destination country back home. Thus, the reception of migrants from  $o$  in  $d$  plays a significant role in shaping attitudes towards  $d$ .

In terms of bilateral trade flows only exports and the trade balance matter for attitude formation towards a foreign destination country. Greater exports to a certain country convey a more beneficial relationship with this country and contribute towards a more positive attitude, as described by Gabel (1998), Machida (2009), and Herzog and Tucker (2010). Additionally, higher exports are commonly linked to higher employment levels in a country (see Egger et al., 2020), which would further contribute to a more positive attitude. In contrast import competition might be seen more negative as it potentially endangers employment possibilities, see Autor et al. (2013, 2016) or Dauth et al. (2017). Yet, the consumption effect of imports as described by Michaels and Zhi (2010) and Keller and Zoller-Rydzek (2021) might partly offset this effect.

Lastly, the positive impact of the trade balance could be fully mechanical since the trade balance is computed as the difference between log exports and log imports,  $\log(x_{odt}) - \log(m_{odt})$ . However, in our instrumental variables regressions the coefficients for log exports and log imports in Columns (4) of Tables 6 and 7 do not add up to the coefficient on the log trade balance in Column (6) of the respective table. The positive impact of the trade balance is also consistent with Schlipphak (2013). A trade surplus was and is still perceived as desirable by many policy makers and the wider population, it is therefore reasonable that it also contributes towards a more positive attitude regarding a trading partner.

## 5 Robustness checks

In our estimation strategy so far we’ve encountered two lines of issues that require robustness checks for the key results. In establishing the first-stage results of our just identified and overidentified



strategies (Sections 4.3 and 4.4), we found weaker F-statistics for the joint instrumentation for trade and migration; therefore, we re-estimate both the just identified and the overidentified strategies using trade only. Moreover, as mentioned in Section 3, our imputation of migration stocks induces more variation by including OECD data in the imputed UN migration stocks. We test for the robustness of our results by excluding the OECD (2021) migrant stocks and only rely on the UN migration stocks to estimate both the migrant flows and the instrument and rerun our estimation.

## 5.1 Trade only

The first-stage results in Tables 4 and 5 might lead to doubts about the strength and persistence of the causal relationship between trade and attitude. To ensure the robustness of our results we repeat the previous analysis, while excluding migration from the estimation. Table 8 presents the F-statistics for the just identified and the overidentified trade only specifications of the first-stage regressions. Where appropriate the overidentification p-values are also provided. The full first stage regressions are delegated to Appendix A.

Table 8: IV: First-stage: Trade only

	(2)	(3)	(4)	(5)	(6)
<b>(a) IV: Trade only</b>					
Weak IV (F)	16.9	12.5	4.15	13.2	5.67
Overidentification					
p-value				0.051	0.944
R <sup>2</sup>	0.974	0.978	0.974 / 0.978	0.984	0.897
Obs.	1,679	1,694	1,673	1,673	1,673
<b>(b) IV 2.0: Trade only</b>					
Weak IV (F)	8.29	8.79	2.45	7.63	3.12
Overidentification					
p-value	0.810	0.225	0.339	0.218	0.532
R <sup>2</sup>	0.974	0.979	0.974 / 0.978	0.985	0.897
Obs.	1,679	1,694	1,673	1,673	1,673

*Notes:* All estimations include year and country-pair fixed effects. Clustering at the foreign country level. Kleibergen-Paap test for weak instruments. Sargan-Hansen test for overidentification: the corresponding p-value was derived from the  $\chi^2$  distribution.

Following the order of columns in Table 2, Column (1) is omitted, Column (2) and (3) includes

log exports and log imports, respectively. Column (4) accounts for log exports and imports jointly, while Columns (5) and (6) account for total trade and trade balance, respectively.

Table 9: IV: Second Stage (just identified) Trade

	(1)	(2)	(3)	(4)	(5)
log exports <sub>od</sub>	0.127*** (0.038)		0.133*** (0.036)		
log imports <sub>od</sub>		-0.048 (0.074)	-0.127 (0.078)		
log total trade <sub>od</sub>				0.007 (0.082)	
log trade balance <sub>od</sub>					0.131*** (0.037)
female share <sub>o</sub>	0.029 (0.547)	0.111 (0.444)	0.280 (0.499)	0.111 (0.462)	0.279 (0.492)
age <sub>o</sub>	-0.012 (0.011)	-0.012 (0.010)	-0.013 (0.011)	-0.012 (0.010)	-0.013 (0.010)
log GDP pc <sub>o</sub>	-0.169** (0.074)	-0.043 (0.111)	-0.049 (0.116)	-0.093 (0.109)	-0.044 (0.058)
log GDP pc <sub>d</sub>	-0.126* (0.071)	0.080 (0.099)	0.013 (0.081)	0.008 (0.098)	0.019 (0.111)
education <sub>o</sub>	0.025*** (0.005)	0.036*** (0.005)	0.033*** (0.006)	0.033*** (0.005)	0.033*** (0.005)
education <sub>d</sub>	-0.028* (0.016)	-0.029 (0.023)	-0.033 (0.022)	-0.026 (0.020)	-0.033 (0.022)
military expenditures <sub>o</sub>	-0.060 (0.039)	-0.053 (0.036)	-0.055 (0.035)	-0.057 (0.036)	-0.054 (0.035)
military expenditures <sub>d</sub>	-0.103*** (0.027)	-0.073** (0.033)	-0.078*** (0.029)	-0.088*** (0.031)	-0.077** (0.037)
Pseudo R <sup>2</sup>	0.738	0.745	0.735	0.746	0.735
Obs.	1,679	1,694	1,673	1,673	1,673

*Notes:* All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\*significant at the 1 percent level, \*\*significant at the 5 percent level, \*significant at the 10 percent level.

Table 10: IV: Second Stage (overidentified) Trade only

	(1)	(2)	(3)	(4)	(5)
log exports <sub>od</sub>	0.136*** (0.038)		0.141*** (0.033)		
log imports <sub>od</sub>		0.028 (0.066)	-0.082 (0.071)		
log total trade <sub>od</sub>				0.057 (0.073)	
log trade balance <sub>od</sub>					0.122*** (0.039)
female share <sub>o</sub>	0.038 (0.562)	0.096 (0.453)	0.277 (0.513)	0.109 (0.468)	0.268 (0.486)
age <sub>o</sub>	-0.012 (0.011)	-0.012 (0.010)	-0.013 (0.011)	-0.012 (0.010)	-0.013 (0.010)
log GDP pc <sub>o</sub>	-0.174** (0.078)	-0.117 (0.110)	-0.099 (0.112)	-0.135 (0.108)	-0.047 (0.059)
log GDP pc <sub>d</sub>	-0.135** (0.065)	-0.010 (0.077)	-0.049 (0.062)	-0.042 (0.084)	0.019 (0.109)
education <sub>o</sub>	0.025*** (0.005)	0.032*** (0.005)	0.031*** (0.006)	0.031*** (0.005)	0.033*** (0.005)
education <sub>d</sub>	-0.028* (0.016)	-0.026 (0.020)	-0.031 (0.020)	-0.024 (0.019)	-0.033 (0.022)
military expenditures <sub>o</sub>	-0.060 (0.039)	-0.056 (0.037)	-0.055 (0.035)	-0.059 (0.037)	-0.055 (0.035)
military expenditures <sub>d</sub>	-0.104*** (0.027)	-0.089*** (0.028)	-0.089*** (0.026)	-0.097*** (0.030)	-0.078** (0.037)
Pseudo R <sup>2</sup>	0.736	0.746	0.737	0.746	0.737
Obs.	1,679	1,694	1,673	1,673	1,673

*Notes:* All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\*significant at the 1 percent level, \*\*significant at the 5 percent level, \*significant at the 10 percent level.

The results presented in Tables 9 and 10 are consistent with the main findings that the effect of exports is strictly positive and significant. Moreover, the coefficient for log exports and the log trade balance are not statistically significantly different from those in Tables 6 and 7. The coefficients for the remaining covariates differ very little from the mainline estimates. Only the coefficients on domestic military expenditures have changed and are no longer statistically insignificant.

## 5.2 UN migration stocks only

As mentioned in Section 3, we impute migration stocks by combining migration stocks data from the UN, available in 5-year intervals in 2000, 2005, 2010, 2015, with data on annual migration stocks from the OECD (2021), which are available for roughly half of the country-pair-year observations.

By excluding the information from the OECD migration stocks, this UN-only version of the net migration stock requires a little more than double the interpolation. Naturally, this implies that some of the observations are much less reflective of reality than others. To ensure the consistency of our results, we repeat the main analysis by reconstructing our net migration variable and instrument solely based on the UN data.

While we relegate the table of full results to Appendix B, our results remain consistent using only the UN migration data. The results are quantitatively very similar. The coefficient on net migration using the original (combined) migration data set averages at about 0.0012 in our key estimates. Using the UN migration data it own, results in an average coefficient on net migration of 0.0016 across all specifications. In both cases, the point estimates are highly significant. Moreover, all other coefficients in the regressions remain consistent and the interpolation of migrant stocks in the UN data maintains all qualitative findings. Thus, the greater variation achieved by including the annual OECD migrant stocks does not dramatically alter the results.

## 6 Conclusion

In this paper we establish a causal relationship between bilateral trade flows, net migration flows, and the attitude of one country towards the other. To this end, we employ an instrumental variable approach for migration and trade flows. In our empirical analysis we rely on extensive fixed effects, by including both time fixed effects and country-pair fixed effects. The latter control for all time invariant country-pair-specific factors, such as common language, distance, colonial status, etc. We also control for many country-specific variables such as GDP per capita, education levels, and military spending.

Empirically we find that higher exports are the main driver of a more positive attitude of individuals living in the exporting country towards the importing country. The same applies to a more positive

trade balance. Yet, imports alone have no significant impact. In terms of migration flows we find that a higher net migration to a destination country also improves the attitude towards this country. Quantitatively, the effect of exports is much greater than for net migration flows. Increasing either by one standard deviation increases the attitude towards a certain country by 75% (exports) or 4% (migration) of a standard deviation.

These findings have significant implications for trade and migration policies. The general public is often very critical with regard to these two policies. Import competition and competition on the labor markets through migrants are fears of many and thus politicians seeking (re-)election will attempt to minimize these effects. In international negotiations around trade agreements, countries normally aspire, first and foremost, to gain as much barrier-free access as possible to their trading partners' markets while keeping its own market protections in place. The removal of trade barriers is often seen as a concession to the opposite party. The same goes for migration policy. Allowing foreign nationals into one's market is seen as disadvantageous to local workers. However, our results employ a new perspective on this relationship. Allowing imports and immigration improves attitudes in the sender country towards the receiving country. Better attitudes or standing in the world in general pays off by expanding a country's soft power and/or reducing the hostile policies a country may face abroad. A striking example of a sharp reduction in positive attitudes caused by the re-imposition of trade and migration restrictions has been the BREXIT process over the last few years. When the United Kingdom left the European single market, bilateral trade and migration stocks diminished significantly. At the same time, the U.K. faced a significant shift in bilateral attitudes. This increased the divisions the U.K. and the European Union further, leading to even more prejudice and discrimination in both regions. One might speculate that a pre-BREXIT U.K. would have shown greater reluctance about entering into a trade deal with the U.S. and Australia, knowing it would harm major French interests than was the case in September 2021 (see Jones, 2021 (Online accessed 29-September-2021)).

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# A Full first stage estimations

Table 11: IV: First stage (just identified) Migration and Trade

	(1)	(2/3)	(2)	(3)	(4/5/6)	(4)	(4)	(5)	(6)
	Net Migration	Net Migration	log Exports	log Imports	Net Migration	log Exports	log Imports	log Total Trade	log Trade Balance
IV net migration <sub>od</sub>	38.598*** (1.658)	38.590*** (1.633)	-0.016 (0.022)	-0.045 (0.041)	38.603*** (1.630)	-0.015 (0.022)	-0.041 (0.040)	-0.028 (0.026)	0.026 (0.023)
IV log exports <sub>od</sub>		-0.388 (2.481)	1.004*** (0.230)		-1.399 (2.542)	0.909*** (0.247)	0.049 (0.083)	0.252*** (0.106)	0.861*** (0.250)
IV log imports <sub>od</sub>				1.152*** (0.367)	4.649 (2.767)	0.393*** (0.161)	1.164*** (0.388)	0.984*** (0.241)	-0.771 (0.514)
female share <sub>o</sub>	8.767 (8.282)	9.024 (8.738)	-0.920 (1.266)	-0.089 (0.324)	7.450 (7.814)	-0.979 (1.208)	-0.020 (0.260)	-0.200 (0.367)	-0.960 (1.096)
age <sub>o</sub>	-0.036 (0.113)	-0.036 (0.121)	0.003 (0.004)	-0.003* (0.001)	-0.038 (0.122)	0.003 (0.004)	-0.004** (0.002)	-0.002 (0.001)	0.007 (0.006)
log GDP pc <sub>o</sub>	2.155 (1.964)	2.440 (2.988)	0.022 (0.191)	0.113 (0.242)	-0.410 (2.481)	-0.208 (0.265)	0.087 (0.253)	-0.032 (0.203)	-0.295 (0.424)
log GDP pc <sub>d</sub>	3.062 (2.723)	2.992 (2.710)	1.164*** (0.289)	1.248** (0.596)	3.126 (2.721)	1.183*** (0.285)	1.208** (0.575)	1.016*** (0.357)	-0.025 (0.304)
education <sub>o</sub>	-0.642 (0.400)	-0.666 (0.420)	0.059 (0.042)	0.025 (0.018)	-0.754 (0.467)	0.053 (0.044)	0.030* (0.017)	0.038*** (0.012)	0.023 (0.056)
education <sub>d</sub>	3.334 (2.951)	3.338 (2.955)	0.018 (0.055)	-0.040 (0.083)	3.331 (2.959)	0.013 (0.054)	-0.037 (0.080)	-0.040 (0.052)	0.050 (0.071)
military expenditures <sub>o</sub>	0.678 (0.605)	0.672 (0.618)	0.010 (0.143)	-0.070 (0.196)	0.287 (0.464)	-0.023 (0.132)	-0.083 (0.211)	-0.048 (0.167)	0.060 (0.108)
military expenditures <sub>d</sub>	-2.428 (2.028)	-2.441 (2.036)	0.133 (0.123)	0.207 (0.216)	-2.481 (2.007)	0.135 (0.124)	0.200 (0.209)	0.156 (0.144)	-0.065 (0.122)
R <sup>2</sup>	0.664	0.664	0.978	0.978	0.644	0.978	0.978	0.977	0.985
Obs.	1,579	1,566	1,566	1,573	1,560	1,560	1,560	1,560	1,560

Notes: All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\*significant at the 1 percent level, \*\*significant at the 5 percent level, \*significant at the 10 percent level.

Table 12: IV 2.0: First-stage (overidentified) Migration and Trade

	(1) Net Migration	(2/3) Net Migration	(2) log Exports	(3) log Imports	(4/5/6) Net Migration	(4) log Exports	(4) log Imports	(5) log Total Trade	(6) log Trade Balance
IV net migration <sub>od</sub>	38.598*** (1.658)	38.613*** (1.625)	-0.018 (0.020)	-0.046 (0.039)	38.640*** (1.622)	-0.017 (0.020)	-0.043 (0.039)	-0.029 (0.024)	0.027 (0.022)
IV exports <sub>od</sub>		0.159 (2.702)	0.955*** (0.242)		-1.216 (2.604)	0.882*** (0.249)	0.015 (0.085)	0.223*** (0.100)	0.867*** (0.248)
IV imports <sub>od</sub>				1.099*** (0.325)	6.671 (4.103)	0.348 (0.232)	1.126*** (0.355)	1.007*** (0.268)	-0.779 (0.520)
log population <sub>o</sub>		32.382 (32.061)	-3.666 (2.742)	-4.770 (3.735)	30.099 (30.649)	-3.788 (2.657)	-4.560 (3.761)	-3.822 (2.547)	0.772 (2.912)
log population <sub>d</sub>		-11.708 (9.784)	0.960 (0.703)	0.753 (0.468)	-16.423 (12.703)	0.687 (0.784)	0.714 (0.433)	0.239 (0.378)	-0.026 (0.639)
female share <sub>o</sub>	8.767 (8.282)	12.055 (10.877)	-1.142 (1.246)	-0.236 (0.397)	12.107 (10.730)	-1.118 (1.187)	-0.150 (0.308)	-0.193 (0.272)	-0.968 (1.047)
age <sub>o</sub>	-0.036 (0.113)	-0.045 (0.127)	0.003 (0.004)	-0.002* (0.001)	-0.054 (0.130)	0.003 (0.004)	-0.004** (0.002)	-0.002 (0.002)	0.007 (0.006)
log GDP pc <sub>o</sub>	2.155 (1.964)	2.610 (2.917)	0.011 (0.188)	0.123 (0.236)	-1.326 (2.802)	-0.186 (0.294)	0.105 (0.246)	-0.041 (0.227)	-0.292 (0.427)
log GDP pc <sub>d</sub>	3.062 (2.723)	3.771 (3.169)	1.077*** (0.233)	1.136** (0.502)	3.920 (3.181)	1.095*** (0.226)	1.103** (0.481)	0.931*** (0.291)	-0.008 (0.276)
education <sub>o</sub>	-0.642 (0.400)	-0.656 (0.412)	0.058 (0.041)	0.027 (0.019)	-0.774 (0.478)	0.053 (0.044)	0.030 (0.018)	0.037*** (0.012)	0.023 (0.056)
education <sub>d</sub>	3.334 (2.951)	3.421 (2.939)	0.008 (0.059)	-0.053 (0.089)	3.397 (2.945)	0.003 (0.059)	-0.049 (0.085)	-0.050 (0.058)	0.052 (0.071)
military expenditures <sub>o</sub>	0.678 (0.605)	0.383 (0.454)	0.037 (0.144)	-0.036 (0.182)	-0.226 (0.386)	0.005 (0.134)	-0.053 (0.198)	-0.032 (0.167)	0.058 (0.104)
military expenditures <sub>d</sub>	-2.428 (2.028)	-2.211 (1.843)	0.109 (0.116)	0.178 (0.156)	-2.264 (1.835)	0.112 (0.115)	0.172 (0.152)	0.134 (0.100)	-0.060 (0.113)
R <sup>2</sup>	0.664	0.978	0.978	0.665	0.979	0.977	0.985	0.985	0.907
Obs.	1,579	1,566	1,573	1,560	1,560	1,560	1,560	1,560	1,560

Notes: All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\*significant at the 1 percent level, \*\*significant at the 5 percent level, \*significant at the 10 percent level.

Table 13: IV: First Stage (just identified) Trade

	(1)	(2)	(3)	(4)	(5)	
	log Exports	log Imports	log Exports	log Imports	log Total Trade	log Trade Balance
IV exports <sub>od</sub>	1.034*** (0.252)		0.985*** (0.278)	0.031 (0.076)	0.294* (0.158)	0.953*** (0.284)
IV imports <sub>od</sub>		1.152*** (0.326)	0.198 (0.204)	1.195*** (0.366)	0.901*** (0.196)	-0.997* (0.554)
female share <sub>o</sub>	-1.397 (1.473)	-0.124 (0.288)	-1.416 (1.403)	-0.084 (0.240)	-0.320 (0.396)	-1.332 (1.306)
age <sub>o</sub>	0.005 (0.005)	-0.003** (0.001)	0.005 (0.006)	-0.004** (0.002)	-0.002 (0.001)	0.009 (0.007)
log GDP pc <sub>o</sub>	0.022 (0.194)	0.126 (0.242)	-0.087 (0.287)	0.093 (0.266)	-0.002 (0.235)	-0.181 (0.468)
log GDP pc <sub>d</sub>	1.147*** (0.287)	1.240* (0.603)	1.161*** (0.284)	1.201** (0.580)	1.037** (0.383)	-0.040 (0.324)
education <sub>o</sub>	0.060 (0.043)	0.025 (0.016)	0.057 (0.047)	0.029* (0.015)	0.041*** (0.014)	0.028 (0.056)
education <sub>d</sub>	0.019 (0.053)	-0.049 (0.082)	0.015 (0.053)	-0.047 (0.078)	-0.042 (0.055)	0.062 (0.062)
military expenditures <sub>o</sub>	-0.005 (0.137)	-0.066 (0.195)	-0.021 (0.123)	-0.080 (0.210)	-0.044 (0.163)	0.059 (0.113)
military expenditures <sub>d</sub>	0.136 (0.123)	0.210 (0.216)	0.139 (0.124)	0.205 (0.210)	0.176 (0.153)	-0.066 (0.122)
R <sup>2</sup>	0.974	0.978	0.974	0.978	0.984	0.897
Obs.	1,679	1,694	1,673	1,673	1,673	1,673

*Notes:* All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level.

Table 14: IV 2.0: First Stage (overidentified) Trade only

	(1)	(2)	(3)		(4)	(5)
	log Exports	log Imports	log Exports	log Imports	log Total Trade	log Trade Balance
IV exports <sub>od</sub>	0.992*** (0.260)		0.955*** (0.276)	-0.003 (0.077)	0.264* (0.148)	0.958*** (0.284)
IV imports <sub>od</sub>		1.126*** (0.295)	0.176 (0.245)	1.187*** (0.347)	0.934*** (0.215)	-1.010* (0.554)
log population <sub>o</sub>	-4.196 (3.236)	-5.131 (3.814)	-4.261 (3.173)	-4.950 (3.828)	-4.337 (2.826)	0.689 (2.732)
log population <sub>d</sub>	0.772 (0.664)	0.674 (0.441)	0.632 (0.741)	0.616 (0.390)	0.246 (0.345)	0.016 (0.622)
female share <sub>o</sub>	-1.566 (1.474)	-0.273 (0.387)	-1.553 (1.437)	-0.208 (0.318)	-0.340 (0.383)	-1.345 (1.267)
age <sub>o</sub>	0.005 (0.005)	-0.002* (0.001)	0.005 (0.006)	-0.004** (0.002)	-0.002 (0.001)	0.009 (0.007)
log GDP pc <sub>o</sub>	0.009 (0.191)	0.112 (0.244)	-0.086 (0.303)	0.088 (0.267)	-0.024 (0.257)	-0.174 (0.470)
log GDP pc <sub>d</sub>	1.052*** (0.222)	1.123** (0.504)	1.065*** (0.218)	1.090** (0.481)	0.942*** (0.310)	-0.025 (0.299)
education <sub>o</sub>	0.060 (0.043)	0.027 (0.017)	0.057 (0.046)	0.029* (0.016)	0.040*** (0.014)	0.028 (0.055)
education <sub>d</sub>	0.009 (0.060)	-0.061 (0.087)	0.005 (0.061)	-0.059 (0.083)	-0.053 (0.060)	0.063 (0.061)
military expenditures <sub>o</sub>	0.020 (0.138)	-0.037 (0.183)	0.004 (0.126)	-0.054 (0.199)	-0.028 (0.162)	0.058 (0.108)
military expenditures <sub>d</sub>	0.107 (0.117)	0.176 (0.153)	0.111 (0.117)	0.172 (0.149)	0.148 (0.104)	-0.061 (0.116)
Obs.	1,679	1,694	1,673	1,673	1,673	1,673
R <sup>2</sup>	0.974	0.979	0.974	0.978	0.985	0.897

*Notes:* All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level.

## B Migration and Trade Flows using only UN Migration Data

Table 15: IV: Second Stage UN Migration

	(1)	(2)	(3)	(4)	(5)	(6)
net migration <sub>od</sub>	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)	0.002*** (0.000)
log exports <sub>od</sub>		0.123** (0.048)		0.111** (0.053)		
log imports <sub>od</sub>			0.033 (0.067)	-0.058 (0.071)		
log total trade <sub>od</sub>					0.054 (0.077)	
log trade balance <sub>od</sub>						0.097** (0.049)
female share <sub>o</sub>	0.224 (0.413)	0.309 (0.451)	0.498 (0.400)	0.599 (0.403)	0.506 (0.406)	0.610 (0.405)
age <sub>o</sub>	-0.012 (0.010)	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)	-0.012 (0.010)	-0.013 (0.010)
log GDP pc <sub>o</sub>	-0.132*** (0.045)	-0.206*** (0.069)	-0.167 (0.105)	-0.142 (0.099)	-0.173 (0.106)	-0.095** (0.047)
log GDP pc <sub>d</sub>	0.022 (0.106)	-0.128* (0.074)	-0.020 (0.098)	-0.050 (0.083)	-0.043 (0.099)	0.011 (0.121)
education <sub>o</sub>	0.033*** (0.005)	0.027*** (0.005)	0.034*** (0.005)	0.033*** (0.005)	0.033*** (0.005)	0.035*** (0.004)
education <sub>d</sub>	-0.027 (0.024)	-0.029 (0.019)	-0.026 (0.024)	-0.030 (0.023)	-0.025 (0.024)	-0.031 (0.024)
military expenditures <sub>o</sub>	-0.062* (0.037)	-0.064* (0.038)	-0.059 (0.037)	-0.061* (0.034)	-0.061* (0.037)	-0.060* (0.034)
military expenditures <sub>d</sub>	-0.095** (0.044)	-0.112*** (0.034)	-0.103*** (0.038)	-0.102*** (0.035)	-0.107*** (0.039)	-0.093** (0.044)
<b>First stage</b>						
Weak	863	7.67	3.98	1.76	5.33	2.56
Overidentification						
p-value		0.787	0.381	0.468	0.335	0.667
R <sup>2</sup>	.664	.978 / .978	.978 / .665	.979 / .977 / .985	.979 / .985	.979 / .907
Obs.	1,579	1,566	1,573	1,560	1,560	1,560

*Notes:* All estimations include year fixed effects and country-pair fixed effects. Robust standard errors in parentheses. Clustering at the foreign country level. \*\*\* significant at the 1 percent level, \*\* significant at the 5 percent level, \* significant at the 10 percent level. Kleibergen-Paap test for weak instruments. Sargan-Hansen test for overidentification, the corresponding p-value was derived from the  $\chi^2$  distribution.