Sanctions and Cultural Trade in Goods

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Abstract

Sanctions are often a tool in international conflict resolution. While their political effectiveness is still under question, the literature agrees that they create the intended damage on the targeted economy and its international trade. To the best of our knowledge, however, the literature offers no evidence on the effects of sanctions specifically for cultural trade. Gauging such effects deserves, nonetheless, attention both in its own merit and to fully assess the implications and effectiveness of sanctions. To the extent that limitations to cultural trade cause cultural divergence, they can also prolong the conflict. Moreover, when sanctions are not targeting the cultural sector specifically, their effect on cultural producers and consumers could be classed as "collateral damage".

In this paper, we fill the gap in the evidence base by investigating the impact of different types of sanctions (financial, trade, military, arms, travel) on the bilateral trade flows of cultural goods, and non-cultural goods for comparison. In the process, we also gather further evidence on more standard gravity determinants of cultural trade.

Ceteris paribus, overall trade sanctions reduce trade in cultural goods by around 23%. This effect, however, differs depending on the type of trade sanction: bilateral sanctions reduce trade by around 33% and those export-targeting by around 31%. Import sanctions, instead, do not seem to play a role. In terms of coverage, only partial trade sanctions significantly and negatively affect cultural trade. sanctions on arms, military assistance, financial, and travel reduce bilateral cultural trade by about 25%, 35%, 35%, and 33%, respectively. Since these sanctions do not explicitly target the cultural sector, their effect could be seen as collateral

damage on the cultural sector and should be included among the unforeseen consequences of sanctions in terms of economic welfare and political effectiveness.

We also explore the impact of sanctions on non-cultural trade and find that the type of sanctions that matters is different from cultural trade: bilateral and complete trade sanctions, travel and financial sanctions matter, whilst military assistance and arms sanctions, which matter for cultural trade, do not seem to matter for non-cultural trade.

y reducing cultural trade, it can be argued that sanctions facilitate cultural divergence with long-term negative effects on peacebuilding. Hence, while these measures may be necessary, their net effect in long-run may be negative. As soon as sanctions are lifted, cultural trade should be restored at the pre-sanctions level and further fostered to enhance its peace-building potential.

Some caveats apply to our paper. First, this paper is not set to discuss the moral ground for sanctions nor the political significance of the cultural sector in the exercise of soft power in conflict resolution, which would be an interesting but separate research question. Second, and related to the first, while we consider different types of sanctions and a comprehensive database, we do not have information on culture-specific sanctions, which, again, would represent a worthwhile effort in a separate study.

1. Introduction

Sanctions are often a tool in international conflict resolution. While their political effectiveness is still under question, the literature agrees that they create the intended damage on the targeted economy and its ability to conduct international trade. To the best of our knowledge, however, the literature offers no evidence on the effects of sanctions specifically on the cultural sector. Gauging such effects may, however, be useful to fully assess the implications and effectiveness of sanctions. To the extent that limitations to cultural trade cause cultural divergence, they can also prolong the conflict. Moreover, since often sanctions do not target the cultural sector specifically, their effect on cultural producers and consumers could be classed as indirect or even "collateral damage".

The recent war in Ukraine has escalated political tensions globally and revamped the debate on sanctions as a replacement for direct military action. While such debate is still unresolved when it comes to their effectiveness in conflict resolution, their negative impact on the level of trade of the sanctioned countries has been widely acknowledged in the literature. More uncertainty remains on which type of sanctions affects trade.

However, since trade also has the property of bringing people together, sanctions may also have the perverse effect of widening cultural distance and delaying the peace building process. This effect is particularly evident when it comes to the cultural sector. Culture is often seen as a tool of "soft power" and, even in the recent turmoil, politicians and commentators in both the US and the UK have called for sanctions on the cultural sector to put pressure on Russia.[1] The cultural sector has also explicitly been the objective of sanctions.[2]

These sanctions do not necessarily inflict large economic or financial damage, but their leverage may be significant in terms of "soft power". Indeed, cultural trade greatly relies on cultural and diplomatic ties and, since the cultural sector is seen as a beacon of national culture, it is often subject of controversy in trade agreements. Therefore, on one side, trade agreements

[1] https://www.artsprofessional.co.uk/magazine/352/feature/case-cultural-sanctions; https://www.museumsassociation.org/museums-journal/news/2022/03/cut-cultural-ties-with-russia-urges-dorries/; https://catalystmcgill.com/cultural-sanctions-the-art-world-responds-to-the-war-in-ukraine/;

[2] For example, after the Russian invasion of Ukraine, the United States imposed a partial sanction on Russia and targeted specific cultural goods, including paintings, antiques of an age exceeding 100 years, sculptures, collectable items, musical instruments, printed books, newspapers, pictures and other products of the printing industry. The US government requires a licence for export, re-export, and transfer (in-country) to or within Russia of these products (see https://www.bis.doc.gov/index.php/documents/regulation-docs/420-part-746-embargoes-and-other-special-controls/file, for greater detail). These sanctions are temporally not included in the sample considered here

often carry exclusions and limitations when it comes to the cultural sector (see Gouvriemont and Bernier, 2019); on the other, they often incorporate cultural cooperation either as a tool to strengthen ties or as an aspiration.[3] In some way, cultural trade can be seen as the economic ground to measure international cultural integration and do a temperature check of international controversies.

Against this background, and despite the growth of cultural trade over the last three decades (see UNCTAD, 2018, UNCTAD, 2022), there is still an overall lack of evidence on the determinants of cultural trade (see Fazio, 2021, for a review). This is also, unfortunately, the case when it comes to the role of sanctions. At times of political tensions, while they may be a necessary measure, their negative effects on cultural trade could also further increase cultural distance and, actually, exacerbate the conflict. The wider cultural distance created by the sanctions would eventually have to be reduced later on, when peace and diplomacy are hopefully restored. Given the current phase of international political turmoil, understanding the effects of sanctions on cultural trade is, then, of pressing importance and this paper offers, to the best of our knowledge, the first contribution to shed light on this matter.

International sanctions come in different forms and their effects can vary across types of trade. According to the Global Sanctions Database (GSDB), 1,101 publicly traceable sanction cases occurred between 1950 and 2019, with 75 occurring during 2016-2019 (Felbermayr et al., 2020). In the past, sanctions used to be mainly in the form of trade restrictions and economic blockades.[4] However, their scope, content, implementation, and goals have significantly changed in recent years. Investigating the GSDB, Felbermayr *et al*. (2020) note that the type of imposed sanctions has become more diverse, and while the share of trade-related sanctions has been falling, that of financial or travel-related sanctions has been rising. Thus, in this paper, we estimate the trade-reducing effects of different types of sanctions, namely trade sanctions, travel restrictions, military assistance sanctions, financial sanctions, and arms sanctions. We also particularly delve into investigating the heterogeneous effects of trade sanctions, which vary depending on their direction (export, import or both) and coverage (i.e., complete vs. partial trade sanctions).

The rest of this paper is organised as follows. In the next section we discuss the relevant literature on sanctions and trade to help us formulate the empirical strategy. Next, Section 3

[3] While most trade agreements signed by the EU (i.e., the EU – CARIFORUM, the EU – Korea, the EU – Central America) include a cultural cooperation chapter, Korea-US and Peru-Chile agreements do not.
[4] For example, UK vs. Germany (1914-18), US vs. Iran (1951-53), and US vs. Indonesia (1963-66).

presents the methodology and Section 4 describes the data. The empirical findings are discussed in Section 5 and Section 6 summarises and concludes the contribution of our paper.

2. A Review of the Literature on Sanctions and International Trade

Through the last two decades, the effectiveness of sanctions on international trade has often been assessed using gravity-like models. Different perspectives are often considered. The early literature focuses on United States (US) trade and sanctions. For example, using Rose's gravity dataset and separating sanctions into three categories (limited, moderate, and extensive sanctions),[5] Hufbauer *et al.* (2003) investigate the effects of economic sanctions on US trade with 175 trading partners for the years 1995 and 1999. They find significantly negative impacts of extensive sanctions on bilateral trade flows; the estimated coefficients for limited and moderate sanctions are, however, not statistically significant. Similarly, Caruso (2003) presents panel gravity estimates of bilateral trade between the US and 49 target nations over the period 1960-2000 and finds that economic sanctions (both financial and trade sanctions) have a significant negative impact on US bilateral trade. These results are corroborated by Yang *et al.* (2004) who use the structural gravity model for the period 1980-1998. Using the ordinary-least-square (OLS) regressions, they estimate the effects of economic sanctions not only on bilateral trade but also on exports and imports separately. They show that the economic sanctions imposed by the US have a major negative impact on the US bilateral trade, exports, and imports with sanctioned nations.[6]

Later papers look at global trade and use more comprehensive sanctions databases. For example, using a structural gravity model and the Threat and Imposition of Economic Sanctions (TIES) database (assembled Morgan *et al*., 2014) which includes 1153 cases involving 60 sanctioning and 143 sanctioned countries over the period 1960 - 2009, Afesorgbor (2018) finds significant differences between the impact of threatened and imposed trade sanctions on the international trade flows of essential products such as food and medical supplies. While imposed trade sanctions have a statistically significant negative effect on trade,

[5] minor trade, financial and travel sanctions, which, for example, include reduction or suspension of economic aid, are classified as "limited" sanctions, broader trade or financial sanctions, which, for instance, include more severe sanctions such as investment bans are classified as "moderate" sanctions. Finally, "extensive" sanctions refer to comprehensive trade and financial sanctions such as those against North Korea, and Cuba.

[6] Caruso (2003) and Yang et al. (2004) include both financial and trade sanctions in the same dummy variable and call it an economic sanction. We, instead, use these two indicators separately.

threatened trade sanctions actually seem to stimulate the international trade of essential products.

Using the GSDB, which extends and complements the TIES dataset, Felbermayr *et al.* (2020) investigate the effects of sanctions in the period 1950 – 2016, whilst controlling for time-varying exporter and importer fixed effects and a gravity model estimated using the Poisson Pseudo-Maximum-Likelihood (PPML) estimator.[7] The authors find economically and statistically significant adverse effects of sanctions on bilateral trade flows. *Ceteris paribus*, trade sanctions lead, on average, to 41 per cent decrease in bilateral trade flows between sanctioning and sanctioned countries. However, after augmenting the structural gravity model with country-pair fixed effects to mitigate the possible endogeneity concerns with respect to the role of sanctions, the negative effects of trade sanctions reduce to 15 per cent. Once they allow for the differential effects of trade sanctions depending on direction, they estimate highly significant adverse effects of export and bilateral trade sanctions, but obtain a positive and significant estimate of the impact of import sanctions. They also find highly significant negative effects of both complete and partial trade sanctions; however, their results suggest that the negative effects of complete trade sanctions are five times larger than those of partial sanctions (a drop in bilateral trade flows between senders and targets of 78% and 14%, respectively). Also, while they obtain significantly negative estimates of the effects of arms, military and travel sanctions, these effects turn out to be insignificant after the inclusion of country-pair fixed effects.

Similarly, using the same database of Felbermayr *et al.* (2020) for the years 1950-2016 and exporter-time, importer-time and country-pair fixed effects, Dai *et al.* (2021) investigate the evolution of the impact of sanctions on international trade. Their results suggest that, all else constant, complete trade sanctions reduce bilateral trade flows by about 77 per cent. However, once they include pre-and post-sanction indicators allowing for 10-year leads and 10-year lags, the negative impact of complete trade sanctions increases to 82 per cent which is roughly 6% higher than the previous estimate. Also, their pre-sanction estimate results reveal that sanctions produce a significantly negative impact before they are imposed. Specifically, the largest negative impact of sanctions occurs between one and four years prior to the

[7] The GSDB data complements and extends the TIES data in several ways. For example, it distinguishes sanctions by type (i.e., trade sanctions vs travel sanctions vs military sanctions), by type of trade sanctions (i.e., bilateral trade sanctions vs export sanctions vs import sanctions), by the extent of intervention (i.e., complete sanctions vs partial sanctions). While the GSDB data allows more in-depth analysis from 1950 to 2019, unlike the TIES dataset, it does not provide information regarding threatened trade sanctions.

imposition of sanctions. Finally, their post-estimate results suggest that the effect of sanctions last for around seven to eight years after they are lifted.

While there is a significant body of research on the effects of sanctions, spanning from political science to economics (e.g., Larch *et al.* 2022, Afesorgbor 2016, Kirilakha *et al.* 2021), no study has yet assessed the consequences of sanctions on cultural trade specifically. Thus, in this paper, we focus specifically on cultural goods trade, given the more extensive coverage in international statistics compared with cultural services trade and we contribute to the literature in three ways. First, we document the sensitivity of cultural trade to sanctions. Second, we add to the literature on the heterogeneous effects of sanctions depending on their type, coverage, and direction by providing evidence related to cultural trade. Third, we document that, while military assistance and arms sanctions have no influence on non-cultural trade, they do have a profoundly negative impact on cultural trade.

3. Methodology

Our starting model borrows its specification from Disdier *et al.* (2010) and augments the basic specification to incorporate our key variables of interest. In line with the above literature (e.g., Bapat *et al*., 2009; Felbermayr *et al.*, 2020; Besedeš *et al*., 2021; Larch *et al*., 2022), we then exploit the recent advances in the specification and estimation of gravity models of trade (Anderson and van Wincoop, 2003; Silva and Tenreyro, 2006; Baier and Bergstrand, 2007; Baier and Bergstrand, 2009; Head and Mayer, 2014).

In the first instance, we focus on the effects of trade sanctions only. Hence, our first estimating equation is as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_1(\ln DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t} \quad , \quad \textbf{(1)}$$

where $X_{ij,t}$ denotes total cultural goods' trade (in levels) between trading pairs *i* and *j* in a given year. Ln$DIST_{ij}$ is the natural logarithm of the bilateral physical distance between the most populated cities in each country in a pair. $CONTIG_{ij}$ and $COMLANG_{ij}$ are indicator variables which, respectively, capture the existence of common border and the same primary or official language between two countries. $COL45_{ij}$ is an indicator variable denoting whether country pairs *i* and *j* have or have had colonial relationship post 1945 and $COMRELIG_{ij}$ is a continuous

variable bounded between 0 and 1 denoting the religious proximity between country pairs. $FTA_{ij,t}$ and $CU_{ij,t}$, take a value of one if country pairs are part of the same free trade agreement or the same customs union in a given year, and zero otherwise. $WTO\_MEM_{ij,t}$ takes a value of one if country pairs *i* and *j* are the members of the WTO at time t, and zero otherwise. $TRADE\_SANCT_{ij,t}$ is another indicator variable which denotes the existence of a trade sanction between trading pairs *i* and *j* in a given year.

As it is now standard in the literature, following Anderson and van Wincoop (2003), Baldwin and Taglioni (2006), Silva and Tenreyro (2006), Baier and Bergstrand (2007), and Piermartini and Yotov (2016), we account for multilateral trade resistance terms (MRTs) by including directional time-varying (exporter-time and importer-time) fixed effects. Specifically, $\pi_{i,t}$ and $\chi_{j,t}$ in equation (1) denote the vectors of time-varying exporter and importer fixed effects, respectively. The unobservable multilateral resistances, as well as any other observable and unobservable characteristics that change over time for each exporter and importer, will be controlled by the directional time-varying fixed effects (Piermartini and Yotov, 2016).[8] The PPML estimates obtained from equation (1) are reported in column (1) of Table (1).

Another important empirical issue to take into consideration is the potential endogeneity of trade policies.[9] Weber and Schneider (2020) look at the likelihood of sanction imposition by the EU and, among the explanatory variables, they include lagged total trade flows (exports + imports) with the targeted countries and find that total trade flows make the onset of sanctions marginally less likely (coefficient of -0.013 significant at 10% level), but in regression specifications where all control variables with potential explanatory power for the

[8] As demonstrated by Anderson and van Wincoop (2003), estimates failing to account for unobserved price indices are potentially biased. They show that, while estimated gravity equations fairly match to the data, they are not theoretically grounded since trade costs are not quantified as multilateral trade costs in addition to the usual bilateral trade cost. Their idea is that "multilateral resistance terms" (MRTs) must be included in gravity equations to account for the fact that commerce between two trading nations is also influenced by their bilateral trade barriers compared to their average trade barriers with all their other trade partners. One solution that Anderson and van Wincoop (2003) suggested for solving this problem is to augment the structural gravity equation with time-varying exporter and importer fixed effects**.** Taglioni and Baldwin (2006) review the basic theory behind the structural gravity model and, as Anderson and van Wincoop (2003), they explain why failing to correct for the country-specific time-varying MRTs underestimates the impacts of trade policies.

[9] For decades, it was widely accepted in related research that countries were randomly allocated to trade policies such as regional trade agreements and that these agreements were treated as exogenous factors. However, this view has been challenged since Trefler (1993). Instead, following the "natural trading partners" hypothesis, countries are more likely to create trade agreements with partners with whom they are already substantially engaging in trade (Piermartini and Yotov, 2016). Therefore, treating trade policies as exogeneous variables could lead to severely biased and inconsistent estimates.

onset of sanctions are included in the model, the total trade flows variable becomes insignificant. So, although the evidence of the endogeneity of sanctions is weak, we further mitigate possible endogeneity concerns (also with respect to other bilateral trade policy variables like FTAs) augmenting the gravity equation with country-pair fixed effects, which is the most efficient way of doing so as argued by Baier and Bergstrand (2007). The country-pair fixed effects absorb all observable and unobservable time-invariant bilateral determinants of trade costs, as well as most of the linkages between trade policies and the remainder error term, $\varepsilon_{ij,t}$. The disadvantage of the use of country-pair fixed effects, then, is that the impacts of any time-invariant bilateral determinants of trade flows, such as common language, common religion, bilateral distance, etc…, which cannot be directly identified since they are absorbed by the country-pair fixed effects. However, as bilateral trade policies are time-varying, country-pair fixed effects do not prevent us from determining their effects. Hence, we follow Baier and Bergstrand (2007) and account for the potential endogeneity of trade policies by adding country-pair fixed effects, μ_{ij}, in equation (2):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad , \quad \textbf{(2)}$$

Where compared to equation (1), only the time-varying pair-specific variables and MTRs are left The PPML estimates from equation (2) are presented in column (2) of Table (1).

Next, in equations (3) – (5), we allow for the heterogeneous effects of trade sanctions by direction (i.e., bilateral trade sanctions vs export sanctions vs import sanctions), by coverage (i.e., complete trade sanctions vs partial trade sanctions), and by both direction and coverage. In equation (3), we first consider the direction of trade sanctions:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(EXP\_IMP\_SANCT_{ij,t}) + \beta_{10}(EXP\_SANCT_{ij,t}) + \beta_{11}(IMP\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad , \quad \textbf{(3)}$$

Where $EXP\_IMP\_SANCT_{ij,t}$, $EXP\_SANCT_{ij,t}$, and $IMP\_SANCT_{ij,t}$ indicators take a value of one if there is an imposition of bilateral trade sanctions, exports sanctions, and import sanctions in a given year, respectively, and zero otherwise.

In equations (4), we allow for the differential effects of trade sanctions by coverage:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(COMP\_SANCT_{ij,t}) + \beta_{10}(PART\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad , \quad \textbf{(4)}$$

Where $COMP\_SANCT_{ij,t}$ and $PART\_SANCT_{ij,t}$ indicators take a value of one if there is an imposition of complete trade sanctions, and partial trade sanctions in a given year, respectively and zero otherwise.

In equation (5), we allow for the differential effects of trade sanctions by both direction and coverage:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(COMPL\_EXP\_IMP\_SANCT_{ij,t}) + \beta_{10}(COMPL\_IMP\_SANCT_{ij,t}) + \beta_{11}(PART\_EXP\_IMP\_SANCT_{ij,t}) + \beta_{12}(PART\_EXP\_SANCT_{ij,t}) + \beta_{13}(PART\_IMP\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad , \quad \textbf{(5)}$$

Where $COMPL\_EXP\_IMP\_SANCT_{ij,t}$ and $COMPL\_IMP\_SANCT_{ij,t}$ take a value of one if bilateral trade sanctions and import sanctions are complete, and zero otherwise. $PART\_EXP\_IMP\_SANCT_{ij,t}$, $PART\_EXP\_SANCT_{ij,t}$, and $PART\_IMP\_SANCT_{ij,t}$ take a value of one if bilateral trade sanctions, export sanctions, and import sanctions are partial, and zero otherwise. Note that since there is not even a single case of complete export sanctions during 1999-2019 in our sample, the heterogeneous effects of complete export sanctions are not included in the set of presented regression (the PPML estimates obtained from equations (3) - (5) are reported in columns (3) - (5) of Table (1), respectively).

Finally, to assess the partial impact of each type of sanction, in equation (6) we augment equation (2) with all the other sanction types, namely arms sanctions, military assistance sanction, financial sanctions, travel restrictions, and other sanctions. The estimating equation is, then, as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(FTA_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(WTO\_MEM_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \beta_{10}(ARMS\_SANCT_{ij,t}) + \beta_{11}(MLTRY\_SANCT_{ij,t}) + \beta_{12}(FINCE\_SANCT_{ij,t}) + \beta_{13}(TRAVL\_SANCT_{ij,t}) + \beta_{14}(OTHER\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad \textbf{(6)}$$

where $ARMS\_SANCT_{ij,t}$, $MLTRY\_SANCT_{ij,t}$, $FINCE\_SANCT_{ij,t}$, $TRAVL\_SANCT_{ij,t}$, and $OTHER\_SANCT_{ij,t}$ indicators take a value of one if there is an imposition of arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and other sanctions in a given year, respectively, and zero otherwise. The dependent variable and the other trade policy

variables are the same as before. As mentioned earlier, the inclusion of country-pair fixed effects do not allow standard gravity variables to be used in the structural gravity setting and thus, we cannot estimate the effects of standard gravity variables (PPML estimates obtained from equation (6) are reported in column (2) of Table (3)).

We estimate equations (1) – (6) using the PPML estimator. As shown by Silva and Tenreyro (2006), one of the advantages of this estimator in a gravity setting is that it deals with the zero-trade flows issue. Most trade datasets contain significant amounts of zeros, and this issue is more severe in our dataset as we are dealing with a disaggregated data.[10] Also, we check the Ramsey Regression Specification Error Test (RESET) p-values which detect model specification errors, i.e., possible omitted variables. The only specification that passes the misspecification test is the PPML estimator with the complete set of exporter-time and importer-time fixed effects.[11] Like Silva and Tenreyro (2006), our estimates favour the PPML estimator with exporter-time and importer-time fixed effects over OLS. Therefore, throughout the paper, we limit our presentation to the results obtained by the PPML estimator.

Finally, according to Trefler (2004), trade flows adapt slowly to changes in trade costs, and he criticises the use of consecutive years. In addition to Trefler's argument, Cheng and Wall (2005) discuss that both explanatory and explained variables cannot fully adjust in a single year, and they also criticise the use of consecutive years in fixed-effects estimations. Therefore, to allow for the adjustment of cultural trade flows in response to trade policy changes, we use 5-year interval trade data from 1999 to 2019. All estimates in this paper are obtained using data for the years 1999, 2004, 2009, 2014, and 2019.[12]

4. Data

Following Disdier et al (2010), our primary variable of interest is the bilateral trade flows of core cultural products, which is obtained from *Centre d'Etudes Prospectives et d'Informations Internationales* (CEPII). CEPII provides annual bilateral trade flows of more

[10] According to Head and Mayer (2014), there is a systematic reason for two nations having zero commerce and eliminating data with zero trade results in the loss of potentially relevant information and sample selection bias.

[11] Model specification tests are not reported here but available upon request.

[12] We used 4-year intervals trade data for robustness check, and the estimation results are nearly identical. Results are not presented here but are available upon request.

than 5000 products from 1996 to 2019.[13,14] In 2005, UNESCO proposed a new cultural classification using the Harmonised System (HS) version 1996. The UNESCO categorization for core cultural products is shown in Appendix A. We extracted the cultural trade data from CEPII using the same classification.[15] The sample used in this paper covers disaggregated annual cultural trade data on 38 core cultural products for 221 trading pairs from 1999 to 2019 (in 5-year intervals).[16]

CEPII does not provide zero trade flows due to technical limitations, and the database does not contain estimates for missing data. However, they offer a zero-trade flow dummy (ztf2) to distinguish whether a missing value is a real missing value or a true zero. If the database indicates that ztf2 takes a value of one for a given *tij*, this suggests that all products *k* exported by *i* to *j* at year *t* for which no information is provided in the CEPII database are zero trade flows. If ztf2 takes a value of zero, then a missing flow from the CEPII database is likely not to correspond to a zero-trade flow but a lack of information on this flow. We use this indicator to distinguish if a missing value is a true zero or if we are in the absence of information.

While standard gravity variables such as common language ($COMLANG_{ij}$), colonial ties ($COL45_{ij}$), common religion ($COMRELIG_{ij}$), and distance ($DIST_{ij}$) are taken from CEPII's Gravity Database,[17] the contiguity ($CONTIG_{ij}$), free trade agreements ($FTA_{ij,t}$), customs unions ($CU_{ij,t}$), and joint WTO membership ($WTO\_MEM_{ij,t}$) indicators are obtained from the Dynamic Gravity Dataset constructed by the United States International Trade Commission (USITC).

Finally, the sanctions data comes from the Global Sanctions Database (GSDB).[18] The database covers all bilateral, multilateral, and plurilateral sanctions in the world during 1950-2019. According to the GSDB, 1,101 publicly traceable sanction cases happened between 1950

[13] It is worth noting here that values are reported in thousands of US dollars and trade flows below 1,000 US dollars are not included in the dataset.

[14] These annual bilateral trade flows are reconciled by CEPII. Two separate figures are given for the same trade flow when both exporting and importing nations report to the United Nations Statistics Division. Using both information, CEPII reconciles trade flows to get a single consistent figure of a bilateral trade flow. As CEPII considers double information on each trade flow to fill out the matrix of bilateral trade flows, the sole missing values in the CEPII dataset are those concerning trade between two non-reporting countries. This reconciliation procedure decreases the number of non-zero observations substantially. Therefore, one of the main advantages of the dataset is its extensive coverage (for more information regarding the reconciliation methodology, see Gaulier and Zignago, 2008).

[15] The dataset is available for download at:
http://www.cepii.fr/cepii/en/bdd_modele/bdd_modele_item.asp?id=37

[16] Each country-pair is represented twice as they are listed going in both directions (i.e., Italy-Turkiye exists, as does Turkiye-Italy).

[17] The dataset is available to download at:
http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=8

[18] The dataset is freely available upon request. For details, see https://www.globalsanctionsdatabase.com

and 2019, and 75 occurred during 2016-2019 (Felbermayr et al., 2020). The GSDB classifies these sanctions based on their type (e.g., trade, financial, travel restrictions, military assistance). Trade sanctions, according to the GSDB, are steps intended to restrain economic relations with a target country by restricting international trade. Based on the direction of trade flows, the GSDB divides trade sanctions into three types, namely export sanctions, import sanctions, and bilateral trade sanctions. Sanctions restricting exports from the sender to the target are classified as export sanctions, and those restricting imports from the sanctioned state to the sanctioning state are defined as import sanctions. Finally, sanctions targeting both exports and imports between a sender and a target are defined as bilateral trade sanctions. Also, based on the extent of intervention of trade sanctions, the GSDB classifies them as complete trade sanctions or partial trade sanctions. Specifically, sanctions targeting specific goods or sectors are defined as partial trade sanctions, and those that target all sectors or goods are classified as complete trade sanctions. Financial sanctions, however, frequently entail blocking the transfer of financial assets and investments. Using financial sanctions, sanctioning states usually freeze the target country's bank accounts. Cases limiting people ability to move freely are defined as travel restrictions. Restrictions or bans on arms' sales are classified as arms' sanctions, whereas sanctions which restrict or ban funding or training relating to the production, maintenance, supply, sales, and others, of military goods are defined as military assistance sanctions. All the other sanctions that are less frequently used as a diplomatic instrument, such as the interruption of diplomatic relations or flight restrictions, are categorized as other type of sanctions. Descriptive statistics of the dependent and explanatory variables are reported in Appendix B.

5. Results

5.1 The Effect of Trade Sanctions on Cultural Trade

Table 1 reports the parameter estimates of the specifications (1) – (5). In column (1), we estimate the effects of trade policies, standard gravity variables and trade sanctions on bilateral trade flows of cultural goods. To account for the MRTs, we use exporter-time and importer-time fixed effects. In terms of the now "standard gravity variables, our results reveal that while distance has a significantly negative effect, contiguity, colonial relationship, common language, and common religion all have significantly positive impacts on cultural trade. Specifically, a 10% increase in the physical distance between trading pairs *i* and *j* decrease bilateral trade flows of cultural goods by about 4%. Also, we obtain a positive and significant estimate of the effects of the contiguity indicator ($\hat{\beta}_2$=0.692, std. err. 0.154),

suggesting that, all else constant, cultural trade volumes of country pairs sharing a common border are 98% higher than those that do not have a common border.[19] We also obtain highly significant estimates of the effects of the common language and colonial relationship indicators. Results suggest that countries sharing the same primary or official language trade 151% more in cultural goods than those that do not share a common language. Similarly, the cultural trade volumes of country pairs that have or have had colonial relationships are 166% higher than those that did not have a colonial relationship. The estimate on the religious proximity index denotes the importance of religion for cultural trade: if the index goes up by 0.01, the expected cultural trade between trading pairs *i* and *j* increases by 2.67%, i.e., if the index goes from 0 to 1, the expected cultural trade increases by about 267%. From column (1) of Table (1), FTAs seem to have no significant effect on cultural trade. The estimate on $CU_{ij,t}$, however, shows that belonging to the same customs union increases members' cultural trade by about 42%. Similarly, joint WTO membership has significantly positive effects on cultural trade, suggesting that, all else being equal, trading pairs that are joint members of WTO have 238% higher cultural trade volumes than those that do not. More interestingly, our results in column (1) of Table (1) reveal that trade sanctions have no significant negative impact on cultural trade. One possible explanation for this result is, however, the potential endogeneity of trade policies that is not corrected in these regressions.

In column (2) of Table (1), then, following Baier and Bergstrand (2007), we augment the gravity equation with country-pair fixed effects to mitigate the endogeneity concerns of trade policies. After this introduction, the coefficient estimates for the FTAs become significant. Specifically, the formation of a free trade agreement and a customs union increase member states' cultural trade volumes by about 29% and 67%, respectively. The $WTO\_MEM_{ij,t}$ indicator, however, loses magnitude and is no longer significant at any level of significance.

More importantly, with respect to the objectives of this paper, the effect of trade sanctions becomes statistically significant and, specifically, the estimated coefficient on $TRADE\_SANCT_{ij,t}$ suggests that, all else constant, the imposition of a trade sanction decreases bilateral cultural trade volumes by about 23%.

As previously mentioned, the GSDB separates trade sanctions depending on whether they are bilateral or directional (i.e., bilateral sanctions, export sanctions, or import sanctions). Using this distinction, in column (3) of Table (1), we allow for differential effects of trade

[19] The formula used to compute the elasticities for binary variables is: $[e^{\widehat{\beta}} - 1] \times 100$, so that $(e^{0.692}-1) \times 100 = 98\%$.

sanctions. The estimates on the effects of the $FTA_{ij,t}$, $CU_{ij,t}$, and $WTO\_MEM_{ij,t}$ indicators are in line with those of column (2). The estimates for bilateral trade sanctions ($EXP\_IMP\_SANCTION_{ij,t}$) and export sanctions ($EXP\_SANCT_{ij,t}$) are significantly negative at 1% and 10% significance level, reducing bilateral trade volumes by about 33% in the case of bilateral sanctions and 31% in the case of export sanctions, respectively. The estimated coefficient of import sanctions ($IMP\_SANCTION_{ij,t}$) is negative but it is not statistically significant.

Also, depending on their coverage, the GSDB distinguishes trade sanctions by coverage (i.e., partial trade sanctions vs. complete trade sanctions). In column (4) of Table (1), we use this distinction. While the estimate for complete sanctions ($COMPL\_SANCT_{ij,t}$) is negative but insignificant, the estimate for partial sanctions ($PART\_SANCT_{ij,t}$) is negative and significant at 1% level, denoting that, all else being equal, the formation of a partial trade sanction reduces bilateral cultural trade volumes by about 23%. One potential explanation for this result is that since complete trade sanctions are more rare than partial ones, their occurrence could be even rarer in the case of cultural goods.

Next, in column (5) of Table (1), we investigate the heterogeneous impacts of trade sanctions by combining the sanctions per typology of coverage (complete vs. partial) with the direction of trade on which they are imposed (bilateral sanctions vs. export sanctions vs. import sanctions). We find that all coefficient estimates are negative, but only partial bilateral trade and partial export sanctions are significant. Specifically, the formation of a partial bilateral trade sanction reduces bilateral cultural trade volumes between a sender and a target state by about 33%, and the formation of a partial export sanction reduces bilateral trade flows of cultural goods by about 31%. Neither complete bilateral trade sanctions nor complete import sanctions play an important role in reducing cultural trade.[20]

5.2 Trade Sanctions on non-cultural trade

Following the same steps, for comparison, we estimate the effects of trade sanctions on non-cultural trade. After accounting for the potential endogeneity of trade policies in column (2) of Table (2), we obtain significantly positive estimates of the effects of $FTA_{ij,t}$, $WTO\_MEM_{ij,t}$, and $CU_{ij,t}$ indicators on non-cultural trade. Specifically, the estimate on $TRADE\_SANCT_{ij,t}$ is significantly negative, denoting that, the formation of a trade sanction

[20] Note that there is not a single occurrence of complete export sanctions during 1999-2019 in our sample. Thus, the heterogeneous effects of complete export sanctions are not included in the regression.

decreases the bilateral non-cultural trade volumes of sanctioning and sanctioned countries by about 17%. Trade sanctions reduce both cultural and non-cultural trade.

In columns (3)-(5) of Table (2), we examine the heterogeneous effects of trade sanctions on non-cultural trade. Results show that bilateral trade sanctions and import sanctions play a crucial role also in reducing non-cultural trade. All else constant, the imposition of a bilateral trade sanction reduces non-cultural trade by about 26%, and the imposition of an import sanction decreases bilateral non-cultural trade volumes by about 11%. Export sanctions, however, do not play a significant role on non-cultural trade. Overall, a comparison of the third columns of Tables (1) and (2) suggests that the direction of sanctions affects cultural and non-cultural trade differently: bilateral trade sanctions negatively impact both cultural and non-cultural trade, export sanctions have considerable negative impact only on cultural trade, and import sanctions significantly reduce only non-cultural trade.

We also investigate the effects of the coverage of sanction interventions on non-cultural trade. Findings presented in column (4) of Table (2) show that both complete and partial trade sanctions have significantly negative impacts on non-cultural trade. Specifically, the imposition of a complete trade sanction and a partial trade sanction reduces non-cultural trade volumes between a sanctioning and a sanctioned state by about 57% and 14%, respectively. Therefore, differently from cultural trade, non-cultural trade is affected the most by complete trade sanctions.

Finally, similarly to column (5) from Table (1), in column (5) of Table (2), we investigate the impacts of trade sanctions by combining the sanctions per typology of coverage (complete vs. partial) with the direction of trade on which they are imposed. Findings show that complete bilateral trade sanctions, partial bilateral trade sanctions, and partial import sanctions reduce non-cultural trade volumes between a sanctioning and a sanctioned state by about 67%, 25%, and 11%, respectively. However, quite puzzlingly, we obtain a significantly positive estimate for complete import sanctions producing an increase of non-cultural trade by 155%, whereas partial export sanctions have no significant impact on non-cultural trade.

5.3 Effects of Sanctions by Type

In this section, we discuss the impact of all types of sanctions on both cultural and non-cultural trade. Before analysing equation (6), we estimate the effects of any sort of sanctions on cultural trade using the indicator $ANY\_SANCT_{ij,t}$, which takes a value of one if there is any

type of sanctions between country pairs *i* and *j* in a given year, and zero otherwise. We constructed this indicator variable based on the information provided by the GSDB. Results are presented in column (1) of Table (3). The estimate suggests that, all else equal, the existence of any sort of sanction between trading pairs would reduce their cultural trade volumes by about 28%. The estimates of the other trade policy variables are nearly identical to those presented in Table (1).

Findings from equation (6) are reported in column (2) of Table (3). Specifically, the estimates for $TRADE\_SANCT_{ij,t}$, $MLTRY\_SANCT_{ij,t}$, and $FINCE\_SANCT_{ij,t}$ are significantly negative and, all else constant, they reduce bilateral cultural trade volumes by about 15%, 34%, and 31%, respectively. However, the estimates for $ARMS\_SANCT_{ij,t}$, $TRAVL\_SANCT_{ij,t}$, and $OTHER\_SANCT_{ij,t}$ indicators are insignificant. Given the fact that such sanctions tend to be highly correlated with each other, regressions lumping all sanctioning cases together might suffer from multicollinearity. Therefore, we investigate each sanction type separately. Results are reported in columns (3) – (8) of Table (3).

The estimates for each sanction type are significantly negative except for other sanctions. Specifically, the formation of trade, arms, military assistance, financial, and travel sanctions reduce bilateral cultural trade volumes between sanctioning and sanctioned states by about 23%, 25%, 35%, 35%, and 33%, respectively. Military assistance, financial, and travel sanctions have the largest negative effects on cultural trade.

Following the same steps, we examine the heterogeneous effects of sanctions on non-cultural trade. Results, presented in Table (4), show some differences compared with cultural trade. Specifically, the estimated coefficient for $ANY\_SANCT_{ij,t}$ suggests that the existence of any sort of sanction reduces non-cultural trade by 7%. The second column of Table (4) reveals that while the estimates on arms, military assistance, financial, travel sanctions are statistically insignificant, only trade sanctions play a significant trade-reducing role on non-cultural trade. Other sanctions seem to be trade promoting but this is significant at only 10% significance level.

In columns (3)-(8) of Table (4), we investigate each type of sanction individually. In addition to trade sanctions, the estimates of the effects of financial and travel sanctions on non-cultural trade volumes turn out to be significantly negative. Also, military assistance and arms sanctions remain insignificant and other sanctions also turn out to be insignificant.

Overall, we provide robust evidence that there are heterogeneous effects of sanctions depending on their type, coverage, and direction. We find that trade, arms, military assistance, financial, and travel sanctions have considerable negative impacts on cultural trade. However,

only trade, financial, and travel sanctions have significantly negative effects on non-cultural trade, whereas military assistance and arms sanctions do not have any impact. The evidence on the role of military sanctions for cultural trade but not for non-cultural trade could be taken as an indication of how cultural trade could become collateral damage with the risk of widening cultural distance.

6. Conclusions

This study exploits recent advances in gravity modelling of trade to estimate the effects of different types of sanctions on trade in cultural goods, and non-cultural goods for comparison. After tackling the potential endogeneity by augmenting the structural gravity model with country-pair fixed effects, we find that trade sanctions significantly and negatively affect both cultural and non-cultural trade. However, this impact differs depending on the type and coverage of trade sanctions. While bilateral sanctions impact on both, export sanctions only affect cultural trade and import sanctions only affect non-cultural trade. Only partial sanctions have an impact on cultural trade and both complete and partial trade sanctions have significantly negative effects on non-cultural trade.

In addition, our results suggest that military assistance and arms sanctions have considerably adverse effects on cultural trade, but they do not play a trade-reducing role in non-cultural trade. Given that these sanctions are not designed to target the cultural sector, their effectiveness and welfare impact should be assessed also in terms of their effects on cultural divergence and damage to this sector. Even though sanctions may be necessary, this latter result highlights how, as soon as they can be lifted, restoring and promoting cultural trade should be a priority in the aftermath of conflicts to facilitate cultural dialogue and the peace building process.

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Appendix A

Table A1: List of 38 Core Cultural Products

Product Category	HS 96	HS 96 label
1 Cultural Heritage		
	970500	Collections and collectors' pieces
	970600	Antiques of an age exceeding 100 years
2 Printed Matter		
	490199	Books, brochures, leaflets and similar printed matter
	490110	Printed matter: in single sheets, whether or not folded
	490191	Dictionaries, encyclopaedias and serial instalments thereof
	490300	Children's picture, drawing or colouring books
	490210	Newspapers, journals and periodicals: appearing at least four times a week
	490290	Newspapers, journals and periodicals: appearing less than four times a week
	490400	Music: printed or in manuscript, whether or not bound or illustrated
	490510	Globes: printed
	490591	Maps and hydrographic or similar charts: printed in book form
	490599	Maps and hydrographic or similar charts: printed other than in book form
	490900	Printed or illustrated postcards
	491000	Calendars: printed, of any kind, including calendar blocks
	970400	Stamps: postage or revenue
	491191	Printed matter: pictures, designs and photographs
3 Music & Performing arts		
	852410	Gramophone records, for sound or other similarly recorded phenomena
	852432	Discs for laser reading systems, for reproducing sound only
	852451	Magnetic tapes for reproducing sound or image, not exceeding 4mm
	852452	Magnetic tapes for reproducing sound or image, 4mm <= width < 6.5mm
	852453	Magnetic tapes for reproducing sound or image, width > 6.5mm
	852499	Media, recorded: for reproducing sound or image
4. Visual arts		
	970110	Paintings, drawings and pastels: executed entirely by hand
	970190	Artwork: collages and similar decorative plaques
	970200	Engravings, prints and lithographs: original
	970300	Sculptures and statuary: original, in any material
	392640	Plastics: statuettes and other ornamental articles
	442010	Wood: statuettes and other ornaments of wood
	691310	Ceramic statuettes and other ornamental ceramic articles, of porcelain
	691390	Ceramic statuettes and other ornamental ceramic articles: other than of porcelain
	830621	Statuettes and other ornaments: of base metal plated with precious metal

	830629	Statuettes and other ornaments: of base metal other than plated with precious metal
	960110	Ivory and articles thereof: worked
	960190	Bone, tortoise shell, horn, antlers, coral, mother-of-pearl
5 Audio & Audio-visual Media		
	950410	Video games: of a kind used with a television receiver
	370590	Photographic plates and film: exposed and developed
	370610	Cinematographic film: exposed and developed, of a width of 35cm or more
	370690	Cinematographic film: exposed and developed, of a width less than 35mm

Appendix B

Table B1 Descriptive Statistics of the Dependent and Independent Variables

Variable	Obs	Mean	Std. dev.	Min	Max
CLTRL_TRADE	173,068	1701.368	38483.39	0	6248968
NON_CLTRL_TRADE	169,021	283986.4	3872050	0	4.23e+08
lnDIST	226,248	8.823866	.7789334	2.349373	9.898699
COMLANG	226,248	.1755154	.3804081	0	1
COL45	226,248	.0063293	.0793051	0	1
CONTIG	239,156	.0126361	.1116982	0	1
COMRELIG	182,596	.1680336	.2425914	0	.997002
FTA	239,156	.1065413	.3085299	0	1
CU	239,156	.0346134	.1827989	0	1
WTO_MEM	239,156	.4642911	.4987243	0	1
ANY_SANCT	245,308	.1352341	.3419741	0	1
TRAVL_SANCT	245,310	.0377889	.1906858	0	1
TRADE_SANCT	245,310	.0167543	.1283498	0	1
MLTRY_SANCT	245,310	.0378745	.1908932	0	1
FINCE_SANCT	245,310	.0430639	.2030014	0	1
ARMS_SANCT	245,310	.0560148	.2299508	0	1
OTHER_SANCT	245,310	.015617	.1239885	0	1
EXP_IMP_SANCT	245,308	.0172396	.130163	0	1
EXP_SANCT	245,308	.0072929	.0850865	0	1
IMP_SANCT	245,308	.0072521	.0848501	0	1
COMPL_SANCT	245,308	.0029799	.0545074	0	1
PART_SANCT	245,308	.0287557	.1671195	0	1
COMPL_EXP_IMP_SANCT	245,308	.0029718	.054433	0	1
COMPL_IMP_SANCT	245,308	8.15e-06	.0028553	0	1

PART_EXP_IMP_SANCT	245,308	.0142189	.1183923	0	1
PART_EXP_SANCT	245,308	.0072929	.0850865	0	1
PART_IMP_SANCT	245,308	.007244	.0848028	0	1

Tables

Table 1: The Heterogeneous Effects of Trade Sanctions on Cultural Trade

VARIABLES	(1) SANCT	(2) SANCT, FEs	(3) DIRCT	(4) COMPL	(5) MAIN
lnDIST	-0.396***				
	(0.066)				
CONTIG	0.692***				
	(0.154)				
COMLANG	0.923***				
	(0.156)				
COL45	0.977***				
	(0.133)				
COMRELIG	0.983***				
	(0.225)				
FTA	0.077	0.253***	0.260***	0.253***	0.260***
	(0.100)	(0.081)	(0.082)	(0.081)	(0.082)
CU	0.352**	0.511***	0.511***	0.511***	0.511***
	(0.178)	(0.135)	(0.136)	(0.135)	(0.136)
WTO_MEM	1.219***	0.421	0.427	0.421	0.427
	(0.243)	(0.305)	(0.303)	(0.305)	(0.303)
TRADE_SANCT	0.167	-0.265***			
	(0.179)	(0.070)			
EXP_IMP_SANCT			-0.394***		
			(0.098)		
EXP_SANCT			-0.375*		
			(0.202)		
IMP_SANCT			-0.146		
			(0.095)		
COMPL_SANCT				-0.138	
				(0.476)	
PART_SANCT				-0.265***	
				(0.070)	
COMPL_EXP_IMP_SANCT					-0.244
					(0.543)
COMPL_IMP_SANCT					-0.026
					(0.393)
PART_EXP_IMP_SANCT					-0.395***
					(0.099)
PART_EXP_SANCT					-0.373*
					(0.203)
PART_IMP_SANCT					-0.146
i, t FEs	Yes	Yes	Yes	Yes	Yes
j, t FEs	Yes	Yes	Yes	Yes	Yes
i, j FEs	No	Yes	Yes	Yes	Yes
Observations	114,230	70,171	70,171	70,171	70,171
R-squared	0.706	0.744	0.743	0.744	0.743

Notes: Table (1) presents estimates of the effects of trade sanctions on cultural trade. The dependent variable is cultural trade in levels, and all estimates are obtained with the PPML estimator and time-varying exporter and importer fixed effects for the years 1999, 2004, 2009, 2014, and 2019. Column (1) presents estimates with the standard gravity variables and trade policies with exporter-time and importer-time fixed effects. Columns (2) – (5) introduce country-pair fixed effects to correct for the

potential endogeneity of trade policies. Column (2) introduces a trade sanction indicator variable, regardless of type. Column (3) examines the heterogeneous effects of trade sanctions depending on their type (e.g., bilateral trade sanctions, export sanctions, import sanctions). Column (4) distinguishes the effects of sanctions by the extent of intervention (e.g., complete sanctions, partial sanctions). Finally, column (5) allows for differential effects of the extent of directional or bilateral trade sanctions (e.g., complete bilateral sanctions, complete imp sanctions, partial bilateral sanctions, partial export sanctions, partial, import sanctions). Note that there is not even a single case of complete export sanctions during 1999-2019 in our sample. Thus, the heterogeneous effects of complete export sanctions are not reported in the table. Standard errors are clustered by country pair and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 2: The Heterogeneous Effects of Trade Sanctions on Non-Cultural Trade

VARIABLES	(1) SANCT	(2) SANCT, FEs	(3) DIRCT	(4) COMPL	(5) MAIN
lnDIST	-0.710***				
	(0.033)				
CONTIG	0.527***				
	(0.090)				
COMLANG	-0.045				
	(0.0762)				
COL45	0.552***				
	(0.167)				
COMRELIG	0.025				
	(0.100)				
FTA	0.311***	0.121***	0.123***	0.121***	0.123***
	(0.051)	(0.027)	(0.027)	(0.027)	(0.027)
CU	0.321***	0.317***	0.317***	0.317***	0.317***
	(0.089)	(0.055)	(0.056)	(0.055)	(0.056)
WTO_MEM	0.304**	0.225***	0.242***	0.225***	0.242***
	(0.147)	(0.086)	(0.093)	(0.086)	(0.093)
TRADE_SANCT	0.127**	-0.185***			
	(0.061)	(0.028)			
EXP_IMP_SANCT			-0.295***		
			(0.052)		
EXP_SANCT			-0.018		
			(0.066)		
IMP_SANCT			-0.118***		
			(0.041)		
COMPL_SANCT				-0.851*	
				(0.458)	
PART_SANCT				-0.184***	
				(0.028)	
COMPL_EXP_IMP_SANCT					-1.107**
					(0.459)
COMPL_IMP_SANCT					0.937***
					(0.178)
PART_EXP_IMP_SANCT					-0.292***
					(0.052)
PART_EXP_SANCT					-0.020
					(0.066)
PART_IMP_SANCT					-0.118***
					(0.040)
i, t FEs	Yes	Yes	Yes	Yes	Yes
j, t FEs	Yes	Yes	Yes	Yes	Yes
i, j FEs	No	Yes	Yes	Yes	Yes
Observations	110,834	71,360	71,360	71,360	71,360
R-squared	0.838	0.887	0.887	0.887	0.887

Notes: Table (2) presents estimates of the effects of trade sanctions on non-cultural trade. The dependent variable is non-cultural trade in levels, and all estimates are obtained with the PPML estimator and time-varying exporter and importer fixed effects for the years 1999, 2004, 2009, 2014, and 2019. Column (1) presents estimates with the standard gravity variables and trade policies with exporter-time and importer-time fixed effects. Columns (2) – (5) introduce country-pair fixed effects to correct for the potential endogeneity of trade policies. Column (2) introduces a trade sanction indicator variable, regardless of type. Column (3) examines the heterogeneous effects of trade sanctions depending on their type (e.g., bilateral trade sanctions, export sanctions, import sanctions). Column (4) distinguishes the effects of trade sanctions by the extent of intervention (e.g., complete trade sanctions, partial trade sanctions). Finally, column (5) allows for differential effects of the extent of directional or bilateral trade sanctions (e.g., complete bilateral sanctions, complete imp sanctions, partial bilateral sanctions, partial export sanctions, partial, import sanctions). Note that there is not even a single case of complete export sanctions during 1999-2019 in our sample. Thus, the heterogeneous effects of complete export sanctions are not reported in the table. Standard errors are clustered by country pair and reported in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$

Table 3: The Heterogeneous Effects of Sanctions on Cultural Trade

VARIABLES	(1) ANY	(2) SANCT, TYPE	(3) TRADE	(4) ARMS	(5) MLTRY	(6) FINCE	(7) TRAVL	(8) OTHER
FTA	0.226***	0.246***	0.253***	0.248***	0.234***	0.264***	0.259***	0.248***
	(0.081)	(0.081)	(0.081)	(0.081)	(0.081)	(0.082)	(0.083)	(0.081)
CU	0.481***	0.492***	0.511***	0.492***	0.479***	0.510***	0.507***	0.520***
	(0.131)	(0.133)	(0.135)	(0.133)	(0.133)	(0.135)	(0.136)	(0.134)
WTO_MEM	0.414	0.440	0.421	0.371	0.390	0.393	0.384	0.338
	(0.304)	(0.303)	(0.305)	(0.301)	(0.293)	(0.306)	(0.307)	(0.299)
ANY_SANCT	-0.329***							
	(0.073)							
TRADE_SANCT		-0.167*	-0.265***					
		(0.087)	(0.070)					
ARMS_SANCT		0.187		-0.287*				
		(0.175)		(0.167)				
MLTRY_SANCT		-0.420***			-0.436***			
		(0.079)			(0.077)			
FINCE_SANCT		-0.370***				-0.431***		
		(0.105)				(0.082)		
TRAVL_SANCT		0.191					-0.405***	
		(0.141)					(0.099)	
OTHER_SANCT		0.074						0.027
		(0.112)						(0.107)
i, t FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
j, t FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
i, j FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	70,171	70,171	70,171	70,171	70,171	70,171	70,171	70,171
R-squared	0.744	0.746	0.744	0.743	0.746	0.743	0.743	0.743

Notes: Table (3) presents estimates of the effects of sanctions on cultural trade. The dependent variable is cultural trade in levels, and all estimates are obtained with the PPML estimator and time-varying exporter and importer fixed effects, as well as country-pair fixed effects, for the years 1999, 2004, 2009, 2014, and 2019. Column (1) introduces any sanction indicator variable, regardless of type. Column (2) introduces trade, arms, military, financial, travel, and other sanctions. Columns (3)-(8) examine each of these sanctions individually. Standard errors are clustered by country pair and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 4: The Heterogeneous Effects of Sanctions on Non-Cultural Trade

VARIABLES	(1) ANY	(2) SANCT, Type	(3) TRADE	(4) ARMS	(5) MLTRY	(6) FINCE	(7) TRAVL	(8) OTHER
FTA	0.116***	0.123***	0.121***	0.118***	0.118***	0.122***	0.122***	0.118***
	(0.025)	(0.027)	(0.027)	(0.025)	(0.025)	(0.026)	(0.026)	(0.025)
CU	0.313***	0.312***	0.317***	0.308***	0.324***	0.317***	0.315***	0.325***
	(0.055)	(0.056)	(0.055)	(0.056)	(0.055)	(0.056)	(0.055)	(0.054)
WTO_MEM	0.173*	0.216**	0.225***	0.176*	0.149	0.176*	0.179**	0.145
	(0.090)	(0.085)	(0.086)	(0.092)	(0.094)	(0.090)	(0.090)	(0.089)
ANY_SANCT	-0.075***							
	(0.024)							
TRADE_SANCT		-0.150***	-0.185***					
		(0.037)	(0.028)					
ARMS_SANCT		-0.0891		-0.144				
		(0.110)		(0.091)				
MLTRY_SANCT		0.076			-0.005			
		(0.097)			(0.092)			
FINCE_SANCT		-0.023				-0.157***		
		(0.059)				(0.047)		
TRAVL_SANCT		-0.066					-0.188***	
		(0.088)					(0.062)	
OTHER_SANCT		0.114*						0.040
		(0.067)						(0.064)
i, t FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
j, t FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
i, j FEs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,360	71,360	71,360	71,360	71,360	71,360	71,360	71,360
R-squared	0.886	0.887	0.887	0.886	0.886	0.887	0.887	0.886

Notes: Table (4) presents estimates of the effects of sanctions on non-cultural trade. The dependent variable is non-cultural trade in levels and all estimates are obtained with the PPML estimator and time-varying exporter and importer fixed effects, as well as country-pair fixed effects, for the years 1999, 2004, 2009, 2014, and 2019. Column (1) introduces any sanction indicator variable, regardless of type. Column (2) introduces trade, arms, military, financial, travel, and other sanctions. Columns (3)-(8) examine the effects of each of these sanctions individually on non-cultural trade. Standard errors are clustered by country pair and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1