ESSAYS ON CULTURAL TRADE

by

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ABSTRACT

Over the past three decades, international cultural trade has surged, yet empirical evidence on the impacts of trade policies remains sparse. This study examines the determinants of cultural trade, focusing on Free Trade Agreements (FTAs) and culture-specific provisions like Intellectual Property Rights (IPRs), audio-visual co-production agreements, and cultural cooperation. Findings indicate that signing an FTA correlates with a 28% increase in cultural trade among participating countries, with the presence of an IPR chapter playing a crucial role.

The research also investigates the effects of trade sanctions— including trade, financial, and arms sanctions—on both cultural and non-cultural trade. Results show that trade sanctions decrease cultural and non-cultural trade by 23% and 17%, respectively, with varying impacts based on their direction and coverage. Regarding other types of sanctions, the study demonstrates that the imposition of military assistance and arms sanctions leads to a significant reduction only in cultural trade. However, a more nuanced analysis, considering the heterogeneity of sanctions based on their origin, reveals that the United States (US)- and the European Union (EU)-imposed military assistance and arms sanctions have significantly negative impacts on their bilateral non-cultural trade. Because these sanctions are not culture- or economic-related, their impact on both cultural and non-cultural trade can be considered "collateral damage" in terms of economic welfare and political effectiveness.

Furthermore, the study explores whether cultural trade reflects the impacts of globalisation, particularly concerning physical distance. Unlike other sectors, cultural trade does not adhere to the "distance-elasticity puzzle," where distance's negative impact on trade remains consistent or intensifies over time. This research challenges existing views by demonstrating that cultural trade is less susceptible to the distance-elasticity puzzle observed in other sectors. Therefore, as a counterargument to Coe et al. (2002), I conclude that the distance-elasticity puzzle is everywhere but not in cultural trade.

DEDICATION

To my family

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This may be the hardest part of the thesis to write up. While doing a PhD is a life-changing experience, the process requires intellectual and psychological toughness. Without the outstanding assistance, guidance, and support I have received over the past four years, this research would not be possible. Now, it is time to thank everyone touching my life to complete the four-year journey.

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Except where stated otherwise by reference, the content presented in this work was authored by myself under the guidance of my supervisors, Sara Maioli and Giorgio Fazio. Chapters 1 and 2 involve collaborative efforts with my supervisors, where I actively contributed throughout the entire research process—from initiating the research idea for the second chapter, managing the dataset, conducting econometric analysis, to discussing the findings. I also clarify that this work has not been submitted for any other degree or professional qualification.

Muharrem Cevik

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General Introduction

Global cultural trade has experienced a substantial surge over the past two decades. The value of global cultural goods exports increased from US$132.3 billion in 2005 to US$271.7 billion in 2019 (UNCTAD, 2022). Cultural trade significantly impacts a country's overall economic performance. Scavia, Reguera, Olson, Pezoa, and Kristjanpoller (2021) find that cultural imports positively affect a nation's Gross Domestic Product (GDP) in the long run, while a rise in cultural exports leads to economic growth in the short run. These sectors offer benefits to other industries such as advertising, creative digital innovation, and marketing, which in turn make valuable contributions to various elements of the global economy (DCMS, 2023). They play a crucial role in promoting cultural diversity, addressing inequality, and fostering social inclusion (UNCTAD, 2022). For example, they have a significant level of female workforce participation and generate approximately 50 million jobs worldwide (UNESCO, 2022). Consequently, numerous countries and international organisations acknowledge the importance of the cultural sectors and frequently publish reports on the subject. The UK government has identified these sectors as one of the top five sectors of utmost importance in the 2023 Spring Budget (DCMS, 2023).

However, trade economists have not paid much attention to trade in cultural sectors. Therefore, employing the gravity model in all three chapters, I examine to what extent trade policies and globalisation impact cultural trade. The analysis begins with disaggregated annual cultural trade data on 38 core cultural products for 221 potential trading pairs from 1999 to 2019. These products are then classified into five categories: cultural heritage, printed matter, music and performing arts, visual arts, and audio and audio-visual media. I also incorporate the analysis of non-cultural trade in all three chapters for comparison.

Although there has been significant growth in cultural trade in recent decades, our understanding of the factors that influence cultural trade and the specific impact of trade agreements remains limited (see Fazio, 2021). FTAs can promote economic liberalisation and reduce or eliminate barriers to international trade, potentially leading to an increase in bilateral trade flows of cultural goods. UNESCO (2006) demonstrates that preferential agreements encourage bilateral trade and investment in the audio-visual industries. However, trade liberalisation often poses a threat to the preservation of national culture and the diversity of cultural expression. Conversely, cultural cooperation is seen as one of the drivers of economic integration agreements (see Guèvremont & Otašević, 2017; Guèvremont & Bernier, 2019).

Understanding the impacts of FTAs on cultural trade can highlight ways to boost cultural industries, contributing to broader economic development and employment growth in the cultural sector. To provide valuable insights for policymakers negotiating or renegotiating FTAs, and to help them understand the trade policy effects on cultural sectors and make informed decisions, the first chapter of this thesis focuses on the effects of FTAs on the bilateral trade flows of cultural goods. An initial phase of adaptation may delay the impacts of FTAs, causing bilateral cultural trade to not respond immediately, but rather experience a gradual increase over a certain duration. To determine whether FTAs exhibit phasing-in processes, I also investigate their lagged effects.

The impacts of FTAs on cultural trade can be contingent upon the existence of explicit provisions relevant to cultural sectors. For example, given the growing significance of digitalisation in the creation and consumption of cultural products, it is crucial to update existing IPRs to better suit the digital environment. IPRs are increasingly acknowledged and incorporated into trade agreements. The IPR provisions outlined in trade agreements include a range of legal safeguards designed to encourage and recognise innovative and distinctive efforts, such as copyright protection for literary and artistic works, as well as live or recorded performances.

Similarly, FTAs are progressively recognising and incorporating specific clauses regarding audio-visual co-production agreements. These provisions aim to facilitate co-productions in audio-visual fields such as films, animations, and broadcasting programmes, thereby fostering industry growth and promoting cultural trade. Additionally, cultural cooperation agreements, which offer preferential treatment for cultural sectors like broadcasting and audio-visual media, enhance market access and ease the movement of artists and cultural professionals involved in joint initiatives, can improve the effects of FTAs on cultural trade.

Therefore, I also look at whether FTAs that include culture-specific provisions—IPRs, audio-visual co-production, and cultural cooperation—have an effect beyond that of generic FTAs. Finally, different cultural products (e.g., films, music, and books) have unique market dynamics and trade patterns. Understanding how FTAs and culture-specific provisions affect each category can help tailor trade policies to support diverse cultural expressions and industries. Hence, I additionally investigate the effects of FTAs and culture-specific provisions on bilateral trade flows in each sub-category of cultural goods.

Especially after the Russian invasion of Ukraine, the global diplomatic arena has experienced a surge in political tensions. This has led to an increase in the threats and impositions of

sanctions. While there is still debate over the political effectiveness of sanctions, the scientific literature agrees that they do indeed cause harm to targeted states and their global trade connections. In the second chapter, I examine the effects of different forms of imposed sanctions, including financial, trade, military assistance, arms, and travel, on bilateral trade flows of cultural goods. Because trade sanctions vary depending on their direction and coverage, I put additional effort into analysing their heterogeneous impacts. In addition, I examine the uneven effects of sanctions depending on their origin and specifically investigate the effects of United Nations (UN)-, EU-, and US-imposed sanctions on cultural and non-cultural trade.

In recent years, the frequency of threatened sanctions has increased, and they are often considered effective diplomatic tools. Using game theory applications, Lacy and Niou (2004) show that the effects of threatened sanctions in international conflicts might be similar to those of imposed sanctions. Hence, I also examine the effects of threatened sanctions on cultural trade to determine whether they are comparable to the effects of imposed sanctions. Some of the above-mentioned sanctions are not related to culture or economics. Nevertheless, they can still exacerbate cultural differences between sanctioning and sanctioned countries, and their effects might be particularly noticeable in cultural trade.

Amidst the current backdrop of global political instability, gaining insight into the repercussions of sanctions on cultural industries offers a more holistic view of how these measures affect various economic sectors, including those often overlooked. Given the fact that international trade leads to cultural convergence (Franco & Maggioni, 2022), the effects of sanctions on cultural trade might intensify the cultural disparity between country pairs, potentially prolonging the conflict and delaying the peace process. This research highlights the importance of maintaining cultural ties even in times of political conflict and helps policymakers design strategies that support conflict resolution and peace processes. Overall, the motivation for this research is to provide a detailed and nuanced understanding of how sanctions affect cultural trade, which in turn has significant implications for economic policy, cultural diplomacy, social inclusion, and global cultural diversity.

The gravity model has garnered significant attention among academics, solidifying its status as a crucial instrument for analysing the dynamics of international trade. Although the model effectively identifies international trade patterns, it sometimes struggles to accurately quantify trade costs when estimating the coefficients of the standard gravity variables. This is especially evident in the coefficient estimates of physical distance. While globalisation fosters stronger

relationships between countries and reduces the barriers imposed by physical distance, empirical studies on international trade have not yet found evidence to support the notion that the negative effect of physical distance on international trade has decreased over time. The term distance-elasticity puzzle refers to a phenomenon in international trade literature where the negative impact of physical distance on international trade either remains consistent or intensifies with time (Borchert & Yotov, 2017).

Globalisation has become a defining characteristic of numerous cultural industries. Hollywood movies produced in foreign studios and musicians performing globally are examples of how this phenomenon has facilitated the increased movement of people and ideas across borders. Similarly, co-productions have become a prevalent trend in the international television and film industry, leading to a convergence of customer preferences and a blending of cultures (Baltruschat, 2002). Given these considerations, I hypothesise that cultural trade, unlike other industries, will be more likely to capture the impacts of globalisation over time and will not be subject to the distance-elasticity puzzle. Therefore, in the third chapter, I estimate the time-varying impacts of standard gravity variables and conduct a comparative analysis between cultural and non-cultural trade.

The rapid advancement of technology has transformed the way cultural products are created, distributed, and consumed. Analysing globalisation's impact on cultural trade can provide insights into how technological innovations are reshaping the cultural environment and what future trends might emerge. Also, because globalisation has influenced consumer preferences and market dynamics, leading to the convergence of tastes and the proliferation of global cultural products, this analysis will help businesses and cultural practitioners adapt to changing market conditions, tailor their offerings to global audiences, and capitalise on new opportunities. Overall, by exploring these aspects, policymakers can gain insights into the unique characteristics of cultural trade and identify areas where interventions may be necessary. This will help protect cultural heritage, promote fair trade practices, and ensure that cultural industries thrive in a globalised economy.

Chapter 1. Free Trade Agreements and Trade in Cultural Goods

1.1 Introduction

In the present era, we live in an increasingly globalised and interconnected world. Trade agreements, which are characterised as reciprocal preferential arrangements, allow member countries to set and negotiate the terms and conditions of bilateral trade. As detailed in Section 1.2, there has been a surge in the number of trade agreements over the past thirty years. Their proliferation has been accompanied by a notable evolution in terms of scope and content throughout time. One of the main implications of this process is the expansion of international trade flows of goods and services. With these developments in mind, the impacts of participation in trade agreements and their depth have been empirically examined from various perspectives in the past two decades. Among others, notable studies include those conducted by Magee (2003, 2008), Ghosh and Yamarik (2004a, 2004b), Baier and Bergstrand (2004, 2007, 2009), Carrère (2006), Egger and Larch (2008), Dai, Yotov, and Zylkin (2014), Kohl (2014), Anderson and Yotov (2016), and Baier, Bergstrand, and Clance (2018).

This chapter aims to contribute to an expanding body of literature on international trade agreements and analyse the impacts of trade policies on cultural trade—such as newspapers, movies, books, video games, and music—that are used as vehicles for the dissemination of ideas, symbols, and lifestyles (UNESCO, 2000; 2005a). I utilise gravity-like models to analyse a panel dataset that encompasses data on the cultural trade activities of 221 countries from 1999 to 2019.

There is currently a significant increase in the exchange of cultural goods, such as paintings, books, and films, as well as cultural services, such as computer services, advertising, and marketing, across international borders. According to UNESCO (2022), the value of cultural goods exports has surged from US$132.3 billion in 2005 to US$271.7 billion in 2019. Even more spectacularly, the export value from emerging nations experienced a notable upsurge, rising from US$40.5 billion in 2005 to US$144.5 billion in 2019. Visual arts and crafts comprised 66% of overall cultural goods exports in 2019. Similarly, the global exports of all cultural services reached a total of US$117.4 billion in 2019, a figure that was twice as high as the value reported in 2006. The information services sector experienced significant growth, reaching US$42.5 billion in 2019, which is three times greater than its value in 2006. The audiovisual sector maintained its position as the largest sector, experiencing 70% growth to reach a value of US$47.9 billion in 2019 (UNESCO, 2022).

Digitalisation has revolutionised the production, distribution, and consumption of certain goods and services. This transformation has been particularly evident in the cultural sector, where

traditional boundaries between goods and services have become increasingly blurred. Digital platforms like Netflix and Spotify, which offer cultural products in intangible forms like streaming and downloads, are supplanting physical formats like DVDs and CDs.

Digital platforms and online sales have enabled cultural services to transcend national borders, marking a significant evolution in the global trade of cultural products. Despite these advancements, comprehensive data on the trade of cultural services remains scarce, posing challenges for researchers and policymakers alike. Due to these data limitations, my analysis focuses exclusively on the trade of cultural goods. This expansion into digital services—spanning broadcasting, advertising, and digital content delivery—requires distinct regulatory frameworks and infrastructure compared to the trade of cultural goods. Another worthwhile effort would be to investigate the impact of trade policies on cultural services. Therefore, while this study makes significant contributions to the literature on international cultural trade, it acknowledges the broader trends shaping the cultural economy in the digital age, even as the focus remains on goods due to data constraints.

The cultural industries, including sectors such as visual arts and audio-visual media, play a crucial role in global employment. These industries are notable for their high rates of female employment, contributing to 6.2% of global employment and generating nearly 50 million jobs worldwide (UNESCO, 2022). According to UNCTAD (2022), the cultural sectors have become essential for fostering sustainable economic growth, addressing inequalities, promoting cultural diversity, fostering social inclusivity, and advancing human development. As of 2022, these sectors constitute approximately 3.1% of global GDP, thereby playing a significant role in achieving the Sustainable Development Goals (SDGs) outlined in the UN's 2030 Sustainable Development Agenda (UNCTAD, 2022).[1]

Moreover, trade in cultural goods enhances soft power and cultural diplomacy efforts. Countries often utilise their cultural exports to influence global perceptions, build international relationships, and promote their cultural identity. Consequently, many governments acknowledge the importance of cultural trade, and international organisations such as UNESCO and UNCTAD frequently publish reports on the cultural industries. The UK government, for example, has recognised cultural industries as one of the top five sectors that are of paramount importance in the 2023 Spring Budget (DCMS, 2023).

[1] The primary SDGs include the eradication of poverty, the promotion of gender equality, the creation of peaceful and inclusive societies, and the establishment of inclusive and sustainable economic growth.

Despite the significant growth in the trade of cultural goods over the past few decades and the heightened sensitivity surrounding the cultural sectors regarding trade regulations, trade economists have yet to pay much attention to trade in cultural goods (see Fazio, 2021). Therefore, the primary objective of this chapter is to empirically examine to what extent trade policy agreements — namely FTAs, Customs Unions (CUs), and joint World Trade Organisation (WTO) membership — impact the bilateral trade flows of cultural goods. A particular emphasis will be placed on FTAs.

In the 1990s, the major policy objectives of trade agreements were tariff reductions; however, nowadays, a broader spectrum of policy domains is being considered. Hofmann, Osnago, and Ruta (2019) and Mattoo, Mulabdic, and Ruta (2022) assess the depth of 279 trade agreements signed by 189 countries from 1958 to 2015, measuring the extent to which they address various regulatory issues and policy domains. Their research indicates a trend towards more comprehensive agreements, with increasing coverage of both border-related aspects (such as export taxes, customs procedures, and anti-dumping measures) and behind-the-border policy domains (including intellectual property rights, competition policy, and consumer protection).

Research by Dür, Baccini, and Elsig (2014) highlights that Preferential Trade Agreements (PTAs) have significant and positive impacts on international bilateral trade flows. They find these effects are particularly strong for PTAs that delve deeply into regulatory issues, suggesting that agreements covering behind-the-border policy areas enhance trade creation beyond the direct tariff reductions. Building on this understanding, I explore the influence of three culture-specific provisions within FTAs—namely IPRs, cultural cooperation, and audio-visual co-production—on the international trade flows of cultural goods.[2]

In 2005, the United Nations Educational, Scientific, and Cultural Organisation (UNESCO) published a report categorising cultural goods into five distinct sub-groups: cultural heritage (e.g., antiques, collections); printed matter (e.g., books, newspapers); music & performing arts (e.g., gramophone records, magnetic tapes); visual arts (e.g., paintings, sculptures); and audio & audio-visual media (e.g., video games, cinematographic film). Given the unique characteristics of each cultural product, trade policies may have diverse effects across these different sub-categories. Therefore, besides examining the implications of FTAs on overall cultural trade, this chapter also investigates how FTAs impact each sub-grouping of cultural

[2] Hofmann et al. (2019) demonstrate that a significant proportion of trade agreements, specifically 47.5%, have chapters related to IPRs. However, the inclusion of provisions about cultural cooperation and audio-visual matters is comparatively lower, with only 18% and 9% of these agreements encompassing such provisions, respectively.

goods. Lastly, the study in this chapter assesses the effects of FTAs on non-cultural trade to determine if there are differential impacts on cultural vs. non-cultural trade.

The findings indicate that, ceteris paribus, the establishment of an FTA has positive effects on both cultural and non-cultural trade among participating countries, leading to an approximate increase of 28% and 13%, respectively. Moreover, the analysis reveals significant positive impacts of FTAs on the trade of cultural heritage and visual arts, showing respective increases of 38% and 24%. However, the estimates of the impacts of FTAs on the trade of music & performing arts, audio & audio-visual media, and printed matter sub-categories are found to be statistically insignificant. Nonetheless, accounting for the lagged effects of FTAs over time, it becomes apparent that certain categories exhibit a gradual increase. Specifically, with four-, eight-, and twelve-year lags, the cumulative average treatment effects of FTAs on cultural heritage, printed matter, and non-cultural goods trade are 45%, 15%, and 12% of trade growth, respectively. Similarly, with four- and eight-year lags, the cumulative average treatment effect of FTAs on the visual arts category is 24% trade growth.

The findings regarding three culture-specific provisions reveal that the significant effect of FTAs on overall cultural trade is also contingent upon the presence of an IPR clause that extends beyond the scope of the Trade-Related Aspects of Intellectual Property Rights (TRIPS), introduced in the 1994–1996 Uruguay Round. Likewise, country pairs signing FTAs with IPR chapters tend to engage in more trade within the cultural heritage category. Other culture-specific provisions are less relevant in this context. Specifically, adopting an audio-visual provision affects the visual arts sub-group, but it has no statistically significant effect on overall cultural trade or the remaining sub-categories (see footnote 36). Lastly, provisions aimed at enhancing cultural cooperation show no statistically significant impact on cultural trade beyond what is observed with standard FTAs.

Additionally, the research outcomes concerning other trade policy variables indicate that, all else being equal, participation in the same CU has a significantly positive impact on bilateral cultural trade. More precisely, membership in the same CU is associated with a 68% increase in bilateral trade flows of cultural goods and a 38% rise in bilateral trade flows of non-cultural goods. Also, membership to a CU increases bilateral trade flows of printed matter and audio & audio-visual media products by 63% and 284%, respectively. Conversely, the estimates of the effects of joint WTO membership appear to be consistently insignificant.[3]

[3] The estimates on the joint WTO membership indicator justify Rose's (2004) findings that the WTO and its predecessor, the General Agreement on Tariffs and Trade (GATT), are ineffective in fostering international trade.

In relation to the estimates of the impacts of traditional gravity variables, the empirical findings typically align with the prevailing body of structural gravity literature. Specifically, the estimates of the effects of physical distance on overall cultural (-0.40) and non-cultural (-0.71) trade are found to be significantly negative. The coefficient estimates provided in parenthesis show that the adverse effect is noticeably greater in non-cultural trade than in cultural trade. The coefficients exhibit variations in magnitude across different sub-categories of cultural products. In particular, the coefficient linked to visual arts (-0.32) has a relatively smaller magnitude, while the coefficients related to audio & audio-visual media (-0.41), printed matter (-0.44), and music & performing arts (-0.55) demonstrate somewhat higher magnitudes.

Furthermore, the remaining standard gravity variables, namely common language, common religion, colonial relationship, and contiguity, have significant effects on overall cultural trade. However, these effects vary across sub-groupings of cultural goods, indicating specific characteristics peculiar to each sub-category. In contrast, overall non-cultural trade is predominantly influenced by contiguity (0.52) and colonial connections (0.55), with common language and common religion showing statistically insignificant impacts. This suggests that traditional gravity variables play a more substantial role in cultural trade compared to non-cultural trade.

The structure of this chapter is as follows: Section 1.2 delves into the background in greater detail. Section 1.3 conducts a thorough analysis and review of the relevant literature. Section 1.4 clarifies the research questions. Section 1.5 presents an overview of the data used in the study and specifies its sources. Section 1.6 provides a comprehensive overview of various econometric specifications. Section 1.7 elaborates on the findings. Finally, Section 1.8 summarises the chapter and concludes.

1.2 Background

As previously noted, there has been a significant increase in global exports of cultural goods between 2005 and 2019, more than doubling in value. During the same period, developing nations saw their export value of cultural goods nearly quadruple. However, the COVID-19 (coronavirus disease) pandemic and subsequent global lockdowns had profound impacts on the cultural industries. Buse (2020) analyses the effects of COVID-19 on the African cultural industries through a comparative analysis. According to his research, the COVID-19 pandemic

Employing a panel dataset covering 175 countries for 50 years, Rose (2004) evaluates the impacts of the WTO and its predecessor, the GATT, on international trade. His findings suggest that both organisations are unsuccessful in promoting international trade.

has had the most influence on the performing arts (e.g., live music, dancing, theatre), visual arts (e.g., photography, painting, sculpture), and heritage (e.g., museums, galleries) categories. During this period, a significant number of jobs, estimated to be up to ten million, were lost globally across various cultural industries (UNESCO, 2022). Specifically, according to Oxford Economics (2020), notwithstanding the implementation of the Coronavirus Job Retention Scheme (JRS),[4] the cultural industries experienced a decrease of 122,000 employees and a further loss of 287,000 job positions among self-employed individuals in comparison to the UK's employment levels recorded in 2019. Additionally, cultural industries in the UK experienced a decline in turnover of £77bn throughout the year 2020, representing a decrease of 31% in comparison to 2019 (Oxford Economics, 2020).

Moreover, the global outbreak of the COVID-19 pandemic and ensuing lockdown measures had significant implications for the export activities of specific cultural industries. The digital transformation of cultural products like films and music into digital formats rendered physical transactions less necessary, leading to a shift towards digital platforms for trade. Consequently, industries relying heavily on physical exchanges, such as visual arts and publishing, were more adversely affected than those with digital trading capabilities. While global goods exports overall saw a 7.2% decline, cultural goods exports experienced a sharper decrease of 12.5% in 2020 (UNCTAD, 2022). UNESCO (2022) suggests that this steeper decline in cultural goods exports may be attributed to the absence of physical exchanges crucial for the global art market, visual arts, publishing, and related sectors. Therefore, policymakers must acknowledge these challenges and devise sustainable recovery strategies to support the resilience and growth of cultural sectors.

In such challenging circumstances, the implementation of trade policy agreements, such as FTAs that incorporate explicit commitments for the cultural sectors, plays a pivotal role in facilitating international trade within these growing industries. They could facilitate full liberalisation, improve the accessibility of the global market, encourage co-production, particularly within the domains of cinematography and television, promote joint initiatives and local culture, and incentivise the mobility of artists, entertainers, and cultural professionals by providing them preferential treatments. For instance, UNESCO (2006), in its comprehensive analysis of the fundamental characteristics of the audio-visual sectors like television and film,

[4] The JRS was introduced by the UK government on 20th March 2020, to assist enterprises that were unable to sustain their existing employment due to the impact of the COVID-19 pandemic.

especially in developing nations, demonstrates that preferential arrangements such as FTAs and CUs foster trade and investment in the audio-visual industries.

According to the WTO, 50 Regional Trade Agreements (RTAs) were in force in 1990. However, as depicted in figure 1.1, the number of RTAs has witnessed a notable upsurge, reaching 355 as of December 2022.[5] The WTO categorises RTAs into four types: Partial Scope Agreements (PSAs), FTAs, CUs, and Economic Integration Agreements (EIAs). Since the early 2000s, FTAs and CUs have accounted for the majority of RTAs.[6] In this chapter, I examine the impacts of trade policies on cultural trade, with a specific emphasis on the role of FTAs.

One of the most contentious aspects of research is the lack of consensus regarding the distinction between the cultural and creative industries. The cultural industries produce consumer commodities, including books, newspapers, music, paintings, cinematographic films, video games, and crafts, which serve as vehicles for transmitting ideas, symbols, and lifestyles (UNESCO, 2000; 2005a). In contrast, the creative industries take a broader approach to the creative process compared to the traditional concept of cultural products, incorporating additional domains such as software, advertising, architecture, and business intelligence services (UNESCO, 2005a). Building on the differentiation between the cultural and creative industries, UNESCO distinguishes between core cultural goods (hereafter referred to as "cultural goods" or "cultural products"), which are inherently linked to cultural content (e.g., music, books, paintings, video games), and related cultural goods, which encompass tools and equipment used in creating, producing, and distributing cultural goods (e.g., musical instruments, photographic apparatus and equipment, video monitors) (UNESCO, 2005a).

Based on this distinction, using the most detailed level of classification, the Harmonised System (HS), version 1996, UNESCO (2005a) identifies 38 goods as cultural goods. The report also classifies these 38 cultural goods into five sub-groupings: cultural heritage, printed matter, music & performing arts, visual arts, and audio & audio-visual media. The aggregate trade of these 38 products constitutes total cultural trade. Table A1 in Appendix A provides a comprehensive overview of the products within the given categorisation and specific information regarding the sub-categories, including HS96 codes and labels. The study undertaken in this thesis will adhere to the classification provided by UNESCO (2005a) and focus exclusively on core cultural goods.

[5] The figure can be accessed at the following URL: https://www.wto.org/english/tratop_e/region_e/region_e.htm.
[6] Additional details pertaining to the distribution of each RTA category can be accessed at the following link: http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx.

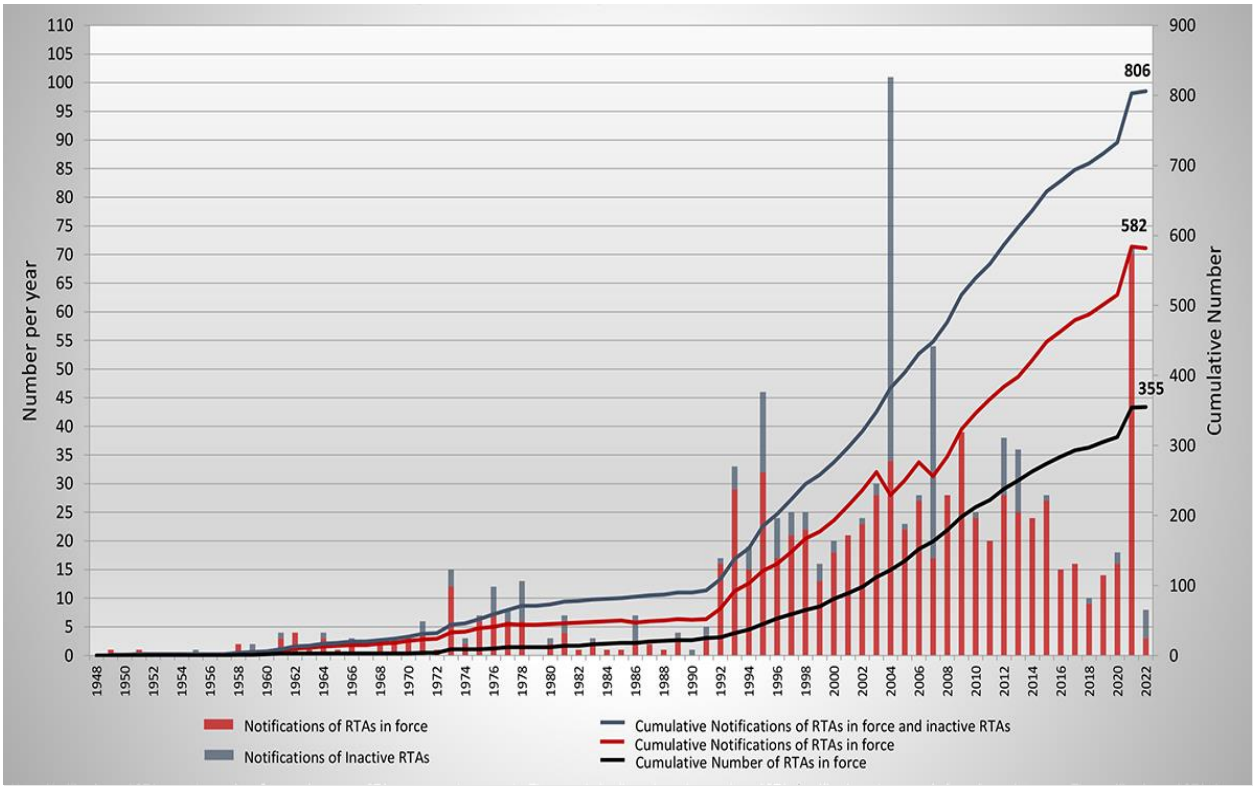

Figure 1.1: Evolution of regional trade agreements in the world, 1948–2022. Source: RTA Section, WTO secretariat, December 2022

I derive the empirical approach from the gravity model specification of cultural trade introduced by Disdier, Fontagné, and Mayer (2010). Initially, I augment their specification with variables capturing the presence of trade policies and focus on the consequences of FTAs on overall cultural trade. Since the production and consumption of these cultural goods can differ significantly on a global scale, each may be subject to a different set of trade barriers. As a result, FTAs may facilitate each to a different extent. Therefore, as a second point of consideration, I evaluate the effects of FTAs on the disaggregated cultural goods. This breakdown allows to determine whether FTAs have heterogeneous effects across different sub-groupings.

Many FTAs are typically implemented gradually over a period of around ten years. Baier and Bergstrand (2007) highlight examples such as the European Economic Community (EEC) agreement and the North American Free Trade Agreement (NAFTA), which both employed a phased-in approach over a decade. They argue that the effects of FTAs on bilateral trade flows may be delayed due to these phased-in periods. To assess the cumulative impacts of FTAs, the researchers introduce lagged FTA dummy variables and allow FTAs to phase in over time. Their findings reveal that "... an FTA approximately doubles two members' bilateral trade after 10 years" (p. 72). Following Baier and Bergstrand's (2007) approach, I use lagged FTA terms,

a widely adopted practice in the gravity literature, to explore whether the impact of FTAs has been strengthening over time.

Not only has the quantity of FTAs increased over time, but so has their content. As stated earlier, current FTAs encompass various policy domains about both border and behind-the-border matters. While the border policy aspects, such as TRIPS, tariffs, and export taxes, are under the current mandate of the WTO (referred to as "WTO+" or "WTO plus"), behind-the-border policy domains, such as IPRs, competition policy, audio-visual, and cultural cooperation, surpass those found in agreements established by the WTO (referred to as "WTO-X" or "WTO extra") (Hofmann et al., 2019).

For example, the WTO agreement on TRIPS is an extensive international agreement that establishes the minimum standards for safeguarding IPRs in many domains, such as patents, copyrights, trademarks, geographic indications, and so on. The agreement covers various obligations, including harmonisation of standards, enforcement of IPRs, national treatment, and most-favoured-nation treatment. All members of the WTO are obligated to ensure the achievement of the basic requirements and implement them effectively within their respective jurisdictions. However, safeguarding creative outputs in an international context presents greater challenges due to the involvement of multiple legal jurisdictions (Fazio, 2021). Therefore, IPRs are increasingly recognised and integrated into FTAs. The IPR-related provisions stated in trade agreements, commonly known as TRIPS-plus, surpass the obligations established in the TRIPS agreement by encompassing additional types and regulations of IPRs that fall outside the scope of the TRIPS agreement.

In addition to FTAs, Bilateral Investment Treaties (BITs) introduce an additional layer of rights and protections above and beyond those outlined in the TRIPS agreement. These protections can include clauses about technology transfer, intellectual property rights enforcement, and preventing illegal use of protected works. By raising the bar for IPR enforcement and protection, BITs contribute to the development of a more secure atmosphere for innovation and creativity. This encourages the flow of capital into IPR-intensive companies. This, in turn, fosters a more robust framework for global investment, promoting economic growth, technological advancement, and cultural exchange. As a result, both FTAs and BITs play a pivotal role in shaping the international landscape for trade and investment.

Despite the diligent endeavours of international organisations, such as the WTO and the World Intellectual Property Organisation (WIPO), to strengthen IPR protection all around the world, the issues of piracy and imitation persist as substantial challenges within the cultural sectors.

The monitoring and enforcement of bans on imitation and piracy in national economies, particularly in an international environment, pose significant challenges (Fazio, 2021). For instance, the illicit exploitation of audio-visual content continues to be a major issue in Africa, with estimates suggesting that piracy diverts a significant portion, ranging from 50% to 75%, of revenue generated by the film and audio-visual sectors (UNESCO, 2021).

Establishing consistent intellectual property regulations plays a crucial role in curbing the misuse of IPRs, combating piracy, and facilitating international trade flows of cultural goods. Moreover, as digitalisation has become increasingly important in the production and consumption of cultural goods and services over the past two decades, revising existing intellectual property laws, which are not adequately suited to the digital environment, is essential. FTAs provide a platform for countries to amend pre-existing IPR clauses. Consequently, the IPR provisions in FTAs encompass a range of legal protections aimed at incentivising and recognising creative and unique efforts, such as copyright for literary and artistic works and live or recorded performances. Therefore, they are fundamentally important for trade in the cultural industries, which have both economic and cultural dimensions and are commonly referred to as the "copyright-based industries" (Fazio, 2021).[7]

Furthermore, trade agreements provide a platform for parties to formalise audio-visual and cultural cooperation agreements. For example, the Peru-Australia and the Chile-Brazil FTAs include explicit provisions about audio-visual co-production agreements. Such provisions aim to facilitate co-productions in the audio-visual domains, such as films, animations, and broadcasting programmes, contribute to the growth of the audio-visual industries, and foster cultural trade (UNESCO, 2022). Similarly, cultural cooperation agreements provide preferential treatment for cultural sectors such as broadcasting and audio-visual, improve market accessibility, and facilitate the mobility of artists and cultural professionals engaged in collaborative projects. An instance of a challenge faced by artists and cultural professionals is the acquisition of a visa. Cultural cooperation agreements possess the potential to grant individuals the privilege of entering a foreign country without the need for a visa, enabling them to reach a broader range of audiences. For example, the Economic Partnership Agreement (EPA) signed between the Caribbean Forum of the African, Caribbean, and Pacific Group of

[7] The Department of Culture, Media, and Sports (DCMS) defines the creative industries as "those industries which have their origin in individual creativity, skill, and talent and which have a potential for wealth and job creation through the generation and exploitation of intellectual property" (DCMS, 2001, p. 3). On the other hand, the Inter-American Development Bank (IDB) defines the creative industries as "the group of activities through which ideas are transformed into cultural and creative goods and services whose value is or could be protected by intellectual property rights" (Benavente & Grazzi, 2017, p. 9).

States (CARIFORUM) and the EU has cultural cooperation provisions that allow cultural professionals to travel visa-free from CARIFORUM countries to the Schengen area. They also aim to facilitate the exchange of cultural goods and promote joint initiatives and local culture (KEA European Affairs, 2011; UNESCO, 2015). Therefore, the audio-visual and cultural cooperation provisions, which are less frequently used in trade agreements compared to IPR elements (see footnote 2), may also hold significant relevance in the context of cultural trade.

Therefore, by incorporating these three provisions into the structural gravity equation, I investigate whether culture-specific WTO-X provisions specified in FTAs have significant impacts on overall cultural trade, beyond the direct effects of FTAs themselves. Furthermore, because these provisions are industry-specific, it is critical to examine sub-categories within cultural goods. For example, provisions related to the audio-visual sectors are likely to have greater relevance for the audio-visual sub-grouping. Similarly, the lengths and strengths of IPR protection vary across different cultural goods (Fazio, 2021), potentially leading to varied impacts across different sub-groupings. Consequently, I also assess the effects of these culture-specific provisions on each sub-grouping of cultural goods and total non-cultural trade as a benchmark to identify any notable differences.

1.3 Related Literature Review

This section provides a comprehensive analysis of the relevant literature review. Considering the development of the gravity model and its theoretical justifications until the early 2000s, I commence by providing a concise overview of the model's theoretical underpinnings.

1.3.1 *Foundations of the gravity equation*

Over the last sixty years, following Tinbergen's seminal work in 1962, the gravity equation has evolved into the go-to empirical tool for assessing the effects of trade policies on international trade flows. Using the simplest version of the gravity equation, as shown in equation (1.1), Tinbergen (1962) estimates the impacts of the Benelux FTA and the British Commonwealth on the bilateral trade flows of member nations.

$$X_{ij} = \beta_0 {Y_i}^{\beta_1} {Y_j}^{\beta_2} {DIST_{ij}}^{\beta_3}. \quad \textbf{(1.1)}$$

Where X_{ij} indicates trade flow from country i to country j, which is proportional to the product of the two countries GDPs, denoted by Y_i and Y_j, and inversely proportional to their distance, $DIST_{ij}$,[8] and β_0 is a constant (Santos Silva & Tenreyro, 2006).

After log-linearising the simplest form of the gravity equation, I obtain equation (1.2):

$$\ln (X_{ij}) = \beta_0 + \beta_1 \ln (Y_i) + \beta_2 \ln (Y_j) + \beta_3 \ln (DIST_{ij}) + \varepsilon_{ij}. \quad \textbf{(1.2)}$$

Let Z_{ij} be the vector of the standard gravity variables, such as contiguous border, common language, and colonial ties, and FTA_{ij} be a binary variable showing the existence of an FTA between country pairs. Upon incorporating the variables Z_{ij} and FTA_{ij} into equation (1.2), the resulting equation is as follows:

$$\ln (X_{ij}) = \beta_0 + \beta_1 \ln (Y_i) + \beta_2 \ln (Y_j) + \beta_3 \ln (DIST_{ij}) + \beta_4 (Z_{ij}) + \beta_5 (FTA_{ij}) + \varepsilon_{ij}. \quad \textbf{(1.3)}$$

International trade economists have compiled a remarkable body of literature estimating this simplest version by the Ordinary Least Squares (OLS) method (e.g., Linnemann, 1966; Balassa, 1967; Aitken, 1973; Aitken & Obutelewicz, 1976; Hewett, 1976; Pelzman, 1977; Sapir, 1981). While appearing plausible from an intuitive standpoint, the early studies lacked theoretical justification because the classical theory of comparative advantage has fallen short in terms of offering clear instructions for empirical research (Ball & Linnemann, 1967).

One of the first attempts to justify the theoretical background of the gravity equation was made by Linnemann (1966). Considering comparative advantages as an endogenous component rather than an exogenous or autonomous factor, the author argues that the simplest version of the gravity equation offers limited insights into comprehending the volume of trade flows and the extent of foreign supply (Linnemann, 1966). According to Linnemann, "… the gravity equation can be derived from a four-equation partial equilibrium model of export supply and import demand, where prices are excluded since they merely adjust to equate supply and demand" (Erzan, Holmes, & Safadi, 1992, p. 12). To do so, Linnemann integrates the gravity equation into the trade factor proportions theory. Linnemann's approach was used in empirical studies until the early 1980s. Subsequently, the theoretical foundations of the gravity model were explored from several perspectives.

[8] Another version of the simplest gravity equation, as shown by Ghosh and Yamarik (2004a), is:
$X_{ij,t} = \beta_0 \frac{(GDP_{i,t} GDP_{j,t})^{\beta_1}}{(DIST_{ij})^{\beta_2}}$

The basic gravity equation is derived from rearranging a Cobb-Douglas expenditure system with prices set to remain constant at equilibrium levels, and the units are standardised to unity, signifying identical expenditure shares and income elasticities of unity for the gravity equation (Anderson, 1979). In this case, no tariffs, transportation costs, or price variables exist. However, under the Armington assumptions, where products are differentiated by origin, the exclusion of price variables results in a misspecified gravity model (Bergstrand, 1985). Therefore, using the Constant Elasticity of Substitution (CES) preferences and the Armington assumptions, Anderson (1979) extends Linnemann's approach and allows price differences to produce different expenditure shares. In addition to Anderson (1979), Bergstrand (1985) also recognises the importance of incorporating pricing variables into the gravity equation. To do this, the author introduces proxies for multilateral price terms for both importers and exporters. These price indices are then approximated using GDP deflators, leading to a reduced-form equation for bilateral trade. This matter will be revisited in the next section.

Helpman and Krugman (1985) provided another notable theoretical contribution to the gravity equation. Drawing upon the concepts of monopolistic competition and increasing returns to scale to motivate the gravity equation, they elucidate bilateral trade between nations that have similar relative factor endowments and labour productivity. However, in contrast to Anderson (1979) and Bergstrand (1985), they do not reflect trade costs as well as multilateral price terms. The authors conclude that "gravity equations tend to fit the trade pattern better, the more important are increasing returns" (Helpman & Krugman, 1985, p. 167). Furthermore, Bergstrand (1989, 1990) proposes the Heckscher-Ohlin (H-O) approach, which expands upon the microeconomic foundation and presents a conceptual framework for understanding the gravity equation that aligns with modern intra- and inter-industry trade theories. Assuming product differentiation between firms rather than between countries, the author incorporates the gravity equation with relative factor-endowment differences and non-homothetic preferences. Similar to Linnemann's (1966) approach, the author incorporates the gravity equation with the trade factor proportions theory and demonstrates that the gravity model equation is consistent with the H-O approach (see Deardorff, 1995a, for an alternative analysis of the H-O approach within the gravity framework). In addition, Eaton and Kortum (2002) developed a Ricardian model wherein the set of commodities is defined as independent of the country and specialisation is determined by comparative advantage (Eaton & Kortum, 2002). The authors show that the Ricardian model of international trade generates theoretically consistent econometric estimates with the gravity equation.

1.3.1.1 *Multilateral resistance terms*

Many trade theorists have justified the theoretical background of the gravity equation. However, Anderson and van Wincoop (2003) argue that estimated gravity equations, while exhibiting a reasonable degree of conformity with the data, lack a theoretical foundation since they fail to account for unobserved price indices, referred to as the Multilateral Resistance Terms (MRTs). The authors posit that the trade dynamics between two nations engaged in trading activities are subject to the influence of their average trade barriers with all trading partners in conjunction with their bilateral trade barriers. In order to accurately reflect the impact of trade barriers on the trade relationship between two nations, it is suggested by Anderson and van Wincoop (2003) that the MRTs be included in gravity equations. Using this as a starting point, the authors proceed to construct a comprehensive breakdown of trade resistance, consisting of three distinct components: (i) the bilateral trade barrier between region *i* and region *j*; (ii) the trade resistance of region *i* towards all other regions; and (iii) the trade resistance of region *j* towards all other regions (Anderson & van Wincoop, 2003). These terms are important components of the gravity equation, and their absence leads to the omitted variable bias. Several other researchers, including Eaton and Kortum (2002), Feenstra (2004), Redding and Venables (2004), and Baldwin and Taglioni (2006), have examined the fundamental principles that underlie the structural gravity equation, and they also explain the necessity of accounting for the MRTs in order to obtain unbiased estimates. Researchers have suggested several methodologies over time to address these terms and mitigate the potential bias arising from omitted variables.

Under the symmetric trade barriers assumption, Anderson and van Wincoop (2003) propose an implicit solution to the price indices as a function of all bilateral trade barriers and income shares and advocate a customised Non-Linear Least Squares (NLS) estimation technique. However, this technique presents computing issues, leading researchers to employ the reduced-form version of this method in empirical studies. These studies construct remoteness indices based on the values of exporter output and importer expenditure and integrate them into the gravity equation:

$$\ln (X_{ij,t}) = \beta_0 + \beta_1 \ln (Y_{i,t}) + \beta_2 \ln (Y_{j,t}) + \beta_3 \ln (DIST_{ij}) + \beta_4 (Z_{ij}) + \beta_5 (FTA_{ij,t}) + \beta_6 \ln (OUTPUT_{i,t}) + \beta_7 \ln (EXPEND_{j,t}) + \beta_8 \ln (REM\_EXP_{i,t}) + \beta_9 \ln (REM\_IMP_{j,t}) + \varepsilon_{ij}. \quad \textbf{(1.4)}$$

The variables ln ($OUTPUT_{i,t}$) and ln ($EXPEND_{j,t}$) represent the natural logarithms of the values of exporter output and importer expenditure, respectively. The last two variables in equation (1.4), pertaining to the exporter ($REM\_EXP_{i,t}$) and importer ($REM\_IMP_{j,t}$) sides, are formulated

as the logarithms of the output- and expenditure-weighted averages of bilateral distance, respectively (Piermartini & Yotov, 2016):

$$REM\_EXP_{i,t} = \ln\left(\sum_j DIST_{ij} \times \frac{EXPENDITURE_{j,t}}{OUTPUT_t}\right)$$

$$REM\_IMP_{j,t} = \ln\left(\sum_i DIST_{ij} \times \frac{OUTPUT_{i,t}}{OUTPUT_t}\right)$$

Nevertheless, this technique has faced criticism, particularly from Head and Mayer (2014). The contention put forth by the authors is that the indices fail to account for the MRTs accurately. Alternatively, Rose and van Wincoop (2001), Hummels (2001), Feenstra (2004), and Redding and Venables (2004) suggest a directional (exporter and importer) fixed-effects approach to dealing with the MRTs. Unlike Anderson and van Wincoop's (2003) computational programming approach, this simplified technique fully accounts for the MRTs. However, modern gravity estimates are based on several-year data sets, necessitating the consideration of time-varying fixed effects. Therefore, Olivero and Yotov (2012) extend this approach and augment the structural gravity equation with directional time-varying (exporter-time and importer-time) fixed effects. According to this, the gravity equation can be expressed as follows:

$$\ln(X_{ij,t}) = \beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(Z_{ij}) + \beta_3(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \varepsilon_{ij,t}. \qquad \textbf{(1.5)}$$

Where $\pi_{i,t}$ and $\chi_{j,t}$ stand for exporter-time and importer-time fixed effects, respectively. Exporter-time fixed effects account for the outward multilateral resistances, the output shares of various countries, and any other observable and unobservable exporter-specific characteristics that may have an impact on bilateral trade, whereas importer-time fixed effects account for the inward multilateral resistances, market thickness across destinations, and any other observable and unobservable features that might have an impact on bilateral trade (Fally, 2015; Piermartini & Yotov, 2016). However, since these fixed effects are country-specific, they are perfectly correlated with factors that are specific to exporters and/or importers, such as population and GDP. Hence, the variables $\ln(Y_{i,t})$ and $\ln(Y_{j,t})$ in equation (1.4) are absorbed by directional fixed effects in equation (1.5). Given that gravity and trade policy variables, such as common religion, physical distance, and FTAs, are bilateral-specific, they are not perfectly correlated with exporter and importer fixed effects.

1.3.1.2 *Zero trade flows*

The OLS estimator has been widely used as the primary approach for estimating structural gravity equations since the seminal work of Tinbergen. One of the limitations of this methodology is that after log-linearising the explained variable, we inadvertently exclude all instances of zero trade flows from the dataset, disregarding the valuable information embedded within these flows. Because there is a systematic rationale for why the two countries have no trade, the absence of data for two countries with zero trade flows results in the loss of potentially valuable information and sample selection bias (HM, 2014). According to Head and Mayer (2014), "The high frequency of zeros calls for two things. First, we need to adjust our trade models to accommodate zeros since they are an important feature of the data. Second, we need to revise our methods of estimation to allow for consistent estimates in the presence of a dependent variable that takes on zeros frequently" (p. 50). As a result, zero trade flows in trade data sets, particularly in disaggregated data, pose significant challenges.

Over the years, researchers have applied various solutions to address the phenomenon of zero trade flows. One of the most commonly applied methods is adding a one to the left-hand side (hereafter "LHS") variable and log-linearising it, ln ($X_{ij,t,}$+ 1). However, "The method should be avoided because results depend on the units of measurement. Thus, the interpretation of coefficients as elasticities is lost" (HM, 2014, p. 51). Rather than adding a fixed number, Eaton and Tamura (1994) estimate the number that is supposed to be added to the LHS variable using the Tobit estimator. However, this approach has also been criticised by Head and Mayer (2014) due to the inconsistent estimates it produces while operating under the Constant Variance to Mean Ratio (CVMR) assumption.

Helpman, Melitz, and Rubinstein (2008) proposed an alternative approach to address the challenge of zero trade flows. The methodology involves a typical Heckman (1979) two-stage estimation procedure. In the first stage, the authors utilise the Probit model to estimate the likelihood of trade between country pairs *i* and *j*. Considering the positive trade flows, the OLS estimator is used in the second stage to estimate the equation. The authors demonstrate that traditional estimates are biased and further reveal that the primary source of this bias is the absence of extensive margin rather than selection. Although the methodology deals with zero trade flows, it has difficulties in determining an exclusion restriction, and additional complexities emerge when applying it in the context of panel data (HM, 2014; Piermartini & Yotov, 2016).

Finally, Santos Silva and Tenreyro (2006) introduced the Pseudo-Maximum Likelihood (PPML) estimator as a solution for addressing zero trade flows. Using Monte Carlo simulations, the authors show that the PPML estimator performs effectively even with a large number of zero trade flows.[9] They also demonstrate that the estimates obtained from the PPML method are consistent, whereas the estimates derived from the OLS model are biased and inconsistent. Moreover, it has been shown by the authors that log-linear estimations of the gravity equation are subject to heteroskedasticity bias, even in the absence of zero trade flows. The presence of Jensen's inequality, where the expected value of the logarithm of a random variable is not equal to the logarithm of its expected value, exacerbates this issue. One key implication of Jensen's inequality is that in the presence of heteroskedasticity, the interpretation of the parameters of log-linearised models estimated by the OLS estimator can be quite deceptive (Santos Silva & Tenreyro, 2006). Consequently, the researchers infer that "… even controlling for fixed effects, the presence of heteroskedasticity can generate strikingly different estimates when the gravity equation is log-linearised, rather than estimated in levels" (Santos Silva & Tenreyro, 2006, p. 641). In accordance with Santos Silva and Tenreyro (2006), the structural gravity equation can be expressed as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(Z_{ij}) + \beta_3(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij}. \quad \textbf{(1.6)}$$

The variable $X_{ij,t}$ denotes bilateral trade flows (in levels) between country pairs *i* and *j* in a given year, and the other variables are the same as before.

1.3.1.3 *Endogeneity of trade agreements*

An inherent challenge frequently found in empirical gravity investigations is the endogeneity of trade policy variables. If any of the RHS variables, such as FTAs and CUs, exhibit correlation with the error term, ε_{ij}, that particular variable is regarded as endogenous.[10] For several decades, the prevalent assumption in related literature was that countries were randomly assigned to trade policies, with these policies being considered exogenous random variables influencing bilateral trade flows. In fact, countries select their trade policy partners for various reasons. For instance, it is plausible that the parties involved have previously engaged in substantial trading activities and seek to enhance their existing trade volumes. Similarly, the probability of selecting a country as an FTA partner is greater when the partners possess comparable economic attributes and expect to derive substantial economic advantages from the FTA (Magee, 2003). Baier and

[9] For additional simulation evidence on the performance of the PPML estimator, I refer the reader to Santos Silva and Tenreyro (2011).

[10] Wooldridge (2010) identifies various potential sources of endogeneity, which can be classified into three categories: measurement error, omitted variables, and simultaneity bias.

Bergstrand (2004) developed an econometric model to predict the likelihood of a pair of countries forming an FTA. Their findings indicate that the likelihood of two countries signing an FTA is positively influenced by their geographical proximity. As a result, treating trade policy variables as exogenous random variables may cause the effects of FTAs to be over- or under-estimated depending on the correlation between the FTA variable and ε_{ij} (Ghosh & Yamarik, 2004a; Baier & Bergstrand, 2007).[11]

Instrumental variables (IVs) are a commonly used econometric technique that aims to tackle the endogeneity of the RHS.[12] Trefler (1993) is an early cross-sectional examination of the potential endogeneity arising from simultaneity. The author employs IVs to address the issue of endogeneity in the context of Non-Tariff Barriers (NTBs) to trade. His findings show that the US manufacturing NTBs lowered US imports by $49.5 billion in 1983. More importantly, this amount is significantly greater, by a factor of ten, compared to the estimations obtained when NTBs were treated exogenously (Trefler, 1993). The same critique applies to trade agreements. Baier and Bergstrand (2002) employ the IV and Heckman procedures in their cross-sectional dataset analysis.[13] Their purpose is to tackle the issue of endogeneity in the context of FTAs and to account for any selection bias. The authors find that "… the coefficient estimate for the FTA dummy variable more than quadruples relative to the OLS estimate. This suggests that previous gravity equation estimates of the effects of an FTA on trade have been systematically underestimated due to the endogeneity of the FTA variable" (p. 24). Similarly, Magee's (2003) cross-sectional analysis employs IVs to account for the possible endogeneity of PTAs. The author uses the Two-Stage Least Squares (2SLS) method to estimate the influence of endogenous PTAs on trade flows and finds that the anticipated impact of the formation of a PTA on bilateral trade is greater if PTAs are treated endogenously. However, his findings vary significantly depending on the year chosen for cross-sectional research, the variables incorporated in the empirical model, and the estimation method. Therefore, Magee (2003) indicates that "… we should be cautious in using gravity equation estimates to draw strong conclusions about the effect of PTA formation on trade" (p. 19).

[11] If the error term and the FTA variable are positively correlated, we expect the FTA coefficient to be overestimated, whereas the FTA coefficient tends to be underestimated if there is a negative correlation between the two.

[12] For more details, I refer the reader to Heckman (1997) and Wooldridge (2010).

[13] The authors apply the Heckman procedure because "… instrumental variables will not yield consistent estimates in the presence of selection bias, that is, if the unobservable component of economic factors influencing the decision to form an FTA are correlated with unobservable economic factors influencing trade flows" (Baier & Bergstrand, 2002, p. 8).

However, these investigations are subject to criticism arising from the lack of reliable IVs, which should not be correlated with the gravity equation error term. For instance, most of Magee's (2003) instruments, including infrastructure factors like airports and waterways, democratic governments, and intra-industry trade, are correlated with the error term. Similarly, the instruments employed by Baier and Bergstrand (2002), including legal origins, national defence interests, national labour standards, and environmental policies, exhibit a correlation with the error term. In this case, traditional cross-sectional techniques employing IVs do not produce consistent and unbiased estimates because the estimated trade policy effects are subject to endogeneity bias. Baier and Bergstrand addressed the same issue again in 2007 and concluded that "… IV estimation is not a reliable method for addressing the endogeneity bias of the FTA binary variable in a gravity equation, despite trying a wide array of economic and political instrumental variables. An alternative method for estimating the ATE of FTAs uses Heckman's control-function approach. We have estimated similar specifications using this alternative approach with qualitatively similar findings; the control-function approach does not solve the endogeneity bias issue either" (Baier & Bergstrand, 2007, p. 83).

Nevertheless, Baier and Bergstrand do not share Magee's (2003) pessimistic view in terms of the effectiveness of the gravity model and argue that trade flows can also be estimated using a panel approach rather than a cross-section technique. They argue that "… the source of endogeneity bias in the gravity equation is unobserved time-invariant heterogeneity. In economic terms, we believe there are unobserved time-invariant bilateral variables — termed w_{ij} — influencing simultaneously the presence of an FTA and the volume of trade. Because these variables are likely correlated with FTA_{ij}, they are best controlled for using bilateral," fixed effects," as this approach allows for arbitrary correlations of w_{ij} with FTA_{ij}. By contrast, under "random effects" one assumes zero correlation between unobservables w_{ij} with FTA_{ij}, which seems less plausible" (Baier & Bergstrand, 2007, p. 84). In pursuit of this objective, they compile a panel dataset for every five years from 1960 to 2000 for 96 potential trading pairs and use country-pair and country-and-time fixed effects to examine the implications of FTAs on bilateral trade flows.[14] Their empirical findings reveal that "… traditional estimates of the effect of FTAs on bilateral trade flows have tended to be underestimated by as much as 75–85%" (Baier & Bergstrand, 2007, p. 74). As a result, Baier and Bergstrand (2007) advocate using a panel approach with country-pair and country-and-time fixed effects.

[14] To the best of my knowledge, Cheng (1999) and Wall (1999) represent the early endeavours to incorporate country-pair fixed effects within the structural gravity model as a means to address endogeneity issues.

Country-pair fixed effects effectively account for both observable and unobservable time-invariant factors that influence bilateral trade flows, such as common language, common religion, and distance, as well as most of the linkages between trade policies and the remainder error term, $\varepsilon_{ij,t}$ (Piermartini & Yotov, 2016). Therefore, this technique cannot identify the impacts of any time-invariant bilateral determinants of trade flows. However, because of the dynamic nature of trade policies, it is still possible to evaluate their impacts. Hence, in equation (1.7), following Anderson and van Wincoop (2003) and Baier and Bergstrand (2007), I augment the structural gravity equation with a complete set of country-pair and directional time-varying fixed effects.

$$X_{ij,t} = \exp[\beta_0 + \beta_1(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij}. \quad \textbf{(1.7)}$$

The variable μ_{ij} denotes the set of country-pair fixed effects, and the rest of the variables are the same as before.

1.3.2 *Trade agreements and international trade flows*

Nobel laureate Jan Tinbergen (1962) was the first to use the gravity equation to investigate the implications of FTAs on bilateral trade flows. The author examines the efficacy of the Benelux FTA and the British Commonwealth through a cross-sectional analysis of bilateral trade relations. According to his findings, both agreements resulted in about a 5% rise in bilateral trade flows among member countries. Linnemann (1966) provides empirical evidence that supports the conclusions of Tinbergen (1962), indicating that the British Commonwealth had a significantly positive influence on the bilateral trade flows of its member countries. Employing a temporal cross-sectional analysis, Aitken (1973) examines the effects of the EEC and the European Free Trade Association (EFTA) on European trade from 1951 to 1967. The author finds favourable trade creation impacts from both agreements. Similarly, Aitken and Obutelewicz (1976) examine the impacts of the association agreement between the EEC and the Associated African States and Madagascar (AASM) from 1958 to 1971.[15] The authors find statistically significant positive impacts of the association agreement on the export performance of both the AASM and EEC member countries. With a broader dataset encompassing 46 countries from 1954 to 1977, Brada and Mendez (1983) investigate the effects of five regional trade agreements on the volume of intra-member trade. The authors observe that the establishment of the EEC, EFTA, and Central American Common Market (CACM) has led to

[15] Under the Rome Treaty of 1958, a group of 18 newly independent African countries, referred to as the AASM, were admitted as associate members of the EEC.

statistically significant trade-creation effects. However, they find no trade-enhancing impacts of the Andean Pact or the Latin American Free Trade Area (LAFTA).

Bergstrand's (1985) cross-sectional analysis assesses the effects of the EEC and EFTA on the bilateral trade flows of member states for the years 1965, 1966, 1975, and 1976. Although the estimates of the impacts of the EEC are insignificant, the researcher discovers noteworthy trade-enhancing advantages associated with EFTA. Frankel, Stein, and Wei (1995) demonstrate that neither the Canada-US Free Trade Agreement (CUSFTA) nor EFTA had trade-creating effects. Conversely, the authors observe significantly positive impacts of the Andean Pact, Asia-Pacific Economic Cooperation (APEC), EEC, and the Southern Common Market (MERCOSUR). Frankel and Wei (1997) undertake a re-evaluation of the impacts of regional trade agreements, employing a modified methodology that takes into consideration the potential trade-diverting consequences associated with such agreements. The researchers identify the trade-creating impacts of the Andean Pact and the Association of Southeast Asian Nations (ASEAN) and the trade-diverting effects of CUSFTA and EFTA. Using nonfuel import data for 58 nations from 1980 to 1996, Soloaga and Wintersb (2001) investigate the effects of PTAs on members' bilateral trade flows. They find notable benefits for the EEC and EFTA and adverse effects for the Andean Pact, LAFTA, CACM, and MERCOSUR. These findings indicate that, after forty years of research, the empirical evidence about the efficacy of trade agreements in promoting trade remains inconclusive.[16]

However, the estimates of the effects of trade agreements from these earlier studies are potentially biased because they do not take into account unobservable price indices. According to Anderson and van Wincoop (2003), these indices are crucial components of the gravity equation and play a significant role in accounting for the MRTs. Following Anderson and van Wincoop (2003), several studies have included these terms in the gravity equation analysis. For example, with a dataset containing bilateral trade flows of 186 countries for the years 1970, 1975, 1980, 1985, 1990, and 1995, Ghosh and Yamarik (2004b) estimate the amount of trade creation and diversion effects of RTAs. They find that RTAs play an important role in intra-bloc trade, with more integrated RTAs exhibiting stronger trade-creating effects. Using extreme bounds analysis, Ghosh and Yamarik (2004a) provide a robustness analysis for twelve PTAs, such as the EU, EFTA, and NAFTA. Contrary to their previous findings, they do not find any trade creation effects of these RTAs, and they conclude that "**…** the pervasive trade creation

[16] I refer the reader to Abrams (1980), Sapir (1981), Brada and Mendez (1985), Rose (2000), Feenstra, Markusen, and Rose (2001), and Frankel and Rose (2002) for further instances where the gravity equation has been employed in a similar manner.

effect found in the literature reflects not the information content of the data but rather the unacknowledged beliefs of the researchers" (p. 369).[17]

Using panel data for 130 countries over the period 1962–1996, Carrère (2006) examines the ex-post RTAs. The author employs the remoteness indices approach to account for the MRTs and uses country-pair fixed effects to correct for the potential endogeneity of RTAs. As a result, she finds significantly positive impacts of RTAs on members' bilateral trade flows. Similarly, Baier and Bergstrand (2007) examine the impacts of FTAs on the bilateral trade flows of 96 potential trading pairs. The authors employ 5-year intervals from 1960 to 2000 to allow trade patterns to adjust for changes in trade policies. To account for the MRTs, they augment the gravity equation with directional time-varying fixed effects. Like Carrère (2006), Baier and Bergstrand use country-pair fixed effects to mitigate the endogeneity concerns of FTAs. Their findings reveal that FTAs play a significant trade-creating role. Moreover, the researchers introduce the lagged terms of FTAs to investigate whether FTAs exhibit a phasing-in process and find that, all else being equal, "… an FTA approximately doubles two members' bilateral trade after 10 years" (p. 74). Similarly, using directional time-varying and country-pair fixed effects, Magee (2008) estimates the effects of RTAs on the bilateral trade flows of 133 countries for each year from 1980 to 1998. The author finds significant trade growth during the four years leading up to the beginning of the RTAs and observes an 89% long-run impact of the RTAs after being in place for 18 years. Using the same dataset and utilising similar methodologies as Baier and Bergstrand (2007), Roy (2010) does a comparative analysis of the estimated effects of FTAs and CUs. The author perceives both FTAs and CUs as mechanisms that enhance trade but acknowledges that the impact of CUs is more significant. Mölders and Volz (2011) investigate the trade-creating effects of East Asian FTAs with a panel dataset covering the period of 1995–2007. The authors find significant anticipatory impacts of bilateral FTAs and insignificant anticipatory impacts of multilateral FTAs. Nevertheless, after employing various methodologies such as pooled OLS, Generalised Least Squares (GLS), and Tobit regression with random effects, the researchers obtain inconsistent empirical outcomes. Consequently, they conclude that "… results when using different regression techniques highlights the need not only for caution when interpreting the findings, but also for prudence in the selection of the most appropriate econometric methodology" (p. 445).

[17] Eicher, Henn, and Papageorgiou (2012) apply the Bayesian Model Averaging (BMA) technique to Ghosh and Yamarik's (2004a) data. In contrast to Ghosh and Yamarik's (2004a) findings, they show that PTAs have strong trade-creating effects.

Kohl (2014) examines the impact of EIAs by utilising a panel dataset encompassing 150 countries from 1950 to 2010. The author employs first-differencing techniques to mitigate the endogeneity concerns of EIAs and incorporates directional time-varying fixed effects to account for the MRTs. Kohl's (2014) findings reveal that EIAs increase members' bilateral trade by 50%. However, the researcher observes that only approximately 25% of EIAs actively contribute to the promotion of bilateral trade. Bergstrand, Larch, and Yotov (2015) analyse the effects of trade agreements on the eight manufacturing sectors, such as food, textiles, and chemicals, with a panel dataset covering 41 trading pairs. Following Yotov and Anderson (2011), the researchers use 4-year intervals from 1990 to 2002 instead of consecutive years. They find significant trade-enhancing effects of EIAs on manufacturing sectors. Additionally, they introduce lagged terms of EIAs to detect potential phasing-in effects of EIAs on bilateral trade flows. Their findings reveal statistically significant lagged effects of EIAs. Using NAFTA as a case study, Zylkin (2016) investigates whether trade agreements have differential impacts across member states bilateral trade flows. The author uses 2-year intervals from 1990 to 2002 instead of consecutive years. Employing the PPML estimator and incorporating the gravity equation with country-pair and directional time-varying fixed effects, Zylkin finds that Mexico and Canada derive more economic benefits from NAFTA compared to the US. The Canada-Mexico pairing, for instance, has gains from NAFTA that are at least eight times greater than those of the US-Canada pairing. Using 184 countries' annual aggregate bilateral trade flows for every four years from 1986 to 2006, Piermartini and Yotov (2016) analyse the effects of RTAs. Initially, the authors account for the MRTs with directional time-varying fixed effects and find that, all else being equal, the establishment of an RTA increases members' bilateral trade flows by about 21%. However, once they integrate country-pair fixed effects into the gravity equation, the influence of RTAs increases to almost 75%. The authors also find that the beneficial effects of RTAs persist over a period of twelve years following their adoption. Empirical studies employing the theoretically grounded gravity equation, as demonstrated in equation (1.7), commonly reveal substantial beneficial impacts of trade agreements.

1.3.2.1 *Depth of trade agreements and international trade flows*

Recent trade agreements increasingly embrace a diverse array of policy domains. Several empirical studies investigate the impacts of the depth of trade agreements on bilateral trade flows. For instance, employing the standard gravity model of international trade, Hicks and Kim (2012) analyse the coverage areas of 57 RTAs that were established between Asian countries during the period from 1970 to 2006. The authors contend that including a wide variety of provisions inside RTAs significantly influences their trade creation ability. To test

this, they undertake an examination of the extent of RTAs by developing a credibility metric that relies on provisions outlined in RTAs, such as those about dispute settlement and dumping resolution. Interestingly, the researchers find that both credibility and RTA metrics exhibit a lack of significance. Despite the absence of any discernible trade-creating effect in their credibility measures, the authors nonetheless observe a significant association between specific institutional provisions of RTAs and trade creation, albeit under certain conditions. After presenting a new dataset, the Design of Trade Agreements (DESTA), encompassing 536 PTAs involving 179 countries from 1945 to 2009, Dür et al. (2014) investigate the impacts of the depth of PTAs on intra-member trade by employing the gravity model. They formulate an additive index through the amalgamation of seven fundamental provisions, such as competition policy, IPRs, and public procurement, to assess the depth of PTAs. The authors observe that PTAs have significantly positive impacts on bilateral trade flows, with a significant portion of the benefits stemming from deeper PTAs.

Hayakawa, Kimura, and Nabeshima (2014) evaluate the extent to which nonconventional provisions, such as competition policy, dispute settlement, government procurement, and IPR protection, integrated into trade agreements promote international trade. While the researchers find insignificant estimates of the effects of IPR protection and government procurement, the study reveals a statistically significant positive coefficient for competition policy and a statistically significant negative coefficient for dispute settlement. The authors argue that the high correlation between the provisions may account for the lack of significance and the significantly negative estimations. Therefore, to avoid the problem of multicollinearity, the researchers conduct individual analyses on each of these provisions. The research findings demonstrate that the competition policy and government procurement provisions are vital in facilitating trade creation. However, they observe that the IPR protection and dispute settlement provisions do not exhibit the same level of significance in this regard. Baier, Bergstrand, and Feng (2014) employ the standard gravity equation to examine the depth of EIAs from 1962 to 2000. The researchers make a distinction between deeper and shallower EIAs, depending on their type. The research findings indicate that deeper EIAs, such as CUs and economic unions, affect member countries' bilateral trade flows more than shallower EIAs. Furthermore, a thorough examination of EIAs reveals that forming an EIA leads to a rise of approximately 101% in bilateral trade flows among its member countries after a decade of its establishment. Similarly, Kohl, Brakman, and Garretsen (2016) employ the gravity equation to assess the ramifications of deeper trade agreements using a dataset consisting of 296 agreements that were signed between 1948 and 2011. The authors develop several heterogeneity indices for trade

agreements based on 17 trade-related policy domains, such as investment, competition policy, and agriculture. They find that deeper trade agreements have greater impacts on enhancing intra-member trade. The researchers also find that trade agreements that conform to the standards set by the WTO, such as investment, state assistance, and public procurement, have significantly positive impacts on intra-member trade. On the other hand, trade agreements that go beyond the existing scope of the WTO are ineffective in promoting intra-member trade. Furthermore, the authors' empirical investigation reveals that the effectiveness of these provisions is contingent upon their ability to be legally enforced.

Falvey and Foster-McGregor (2018) examine the heterogeneity of PTAs in terms of their coverage areas. The authors use matching econometrics techniques on the World Bank Deep Trade Agreements (DTAs) database created by Hofmann et al. (2019). The DTAs database provides information on 279 trade agreements signed by 189 countries between 1958 and 2015 and identifies 52 policy domains integrated into these trade agreements. The authors develop a provision count index based on the policy domains stated in each trade agreement. Their empirical findings suggest that neither trade agreements with a small number of provisions nor those with a large number of provisions have statistically significant trade-creating impacts. Using the same dataset, Mulabdic, Osnago, and Ruta (2017) examine the impacts of the EU's own depth and the depth of the PTAs established by the EU and other countries on the bilateral trade activities of the UK. The researchers build a measure of depth based on the number of provisions covered in PTAs and augment the gravity equation with an interaction term to account for the effects of deep PTAs. Their findings show that deep trade agreements result in a 42% rise in the UK's goods and services trade with the rest of the EU countries as well as with other nations with whom the EU has signed PTAs. Using panel data for 110 countries from 1995 to 2013, Campi and Dueñas (2019) investigate whether trade agreements containing IPR chapters impact members' bilateral trade flows more than those without an IPR chapter. The researchers employ matching econometric techniques to conduct a comparative analysis of trade agreements. Their findings demonstrate that trade agreements have significantly positive impacts on bilateral trade flows, regardless of the presence of an IPR chapter. However, agreements without an IPR chapter have stronger immediate impacts, whereas agreements with IPR chapters have statistically significant impacts five years after their ratification. In order to examine whether deeper trade agreements have greater impacts on bilateral trade flows among member countries, using the DTAs database, Mattoo et al. (2022) construct several depth metrics based on provisions stated in trade agreements and their legal enforceability. The authors observe that deeper trade agreements have higher impacts compared to shallower trade

agreements, particularly the older ones that were concentrated on a limited number of policy domains. Once they improve their main specification with lags and leads of the depth variables, the researchers observe that deeper trade agreements require at least two years to increase member countries' bilateral trade flows significantly. Similarly, Fontagné, Rocha, Ruta, and Santoni (2023) examine whether the depth and content of trade agreements matter. Based on the DTAs database, the authors formulate a distinct quantitative indicator for the depth of PTAs and categorise PTAs into three distinct groups: deep, medium, and shallow. The researchers observe that all three categories exhibit substantial beneficial effects on bilateral trade, with deeper PTAs exerting the most pronounced benefit.

1.3.3 *Cultural trade*

According to UNESCO (2022), the cultural industry is one of the most rapidly growing industries within the global economy. However, despite its growing importance, research into the cultural industry is scarce. Marvasti's (1994) study stands as one of the earliest empirical investigations into the international trade flows of cultural goods. With a cross-sectional analysis, the researcher estimates the trade functions of cultural goods such as recorded music, films, books, and newspapers across many countries in the year 1985. The findings demonstrate that nations with higher per capita income exhibit a greater propensity to export books, newspapers, and films than those with lower per capita income. It has also been shown that countries with a significant prevalence of the English language tend to have a higher propensity for exporting books and films to foreign nations. Additionally, the research findings indicate that while subsidies have notable positive impacts, the absence of IPRs has substantial adverse effects on the net export of music. Conversely, the researcher finds insignificant estimates of the effects of religion on the net exports of cultural goods.

Furthermore, the researcher estimates the production functions using the Cobb-Douglas model to determine the presence of economies of scale in the production of cultural goods. The research findings indicate decreasing returns to scale in the production of books, while the production of newspapers and films exhibits constant returns to scale. Based on the results obtained from the production function estimations, recorded music is the only cultural good that exhibits increasing returns to scale.[18] Despite receiving criticism for the methodology and variables employed in estimating the production functions of cultural goods, [19] Marvasti (1994)

[18] Throsby (1994) is widely regarded as a seminal work that provides an in-depth examination of cultural products' production and consumption patterns. In this context, my focus is exclusively on the international trade of cultural products.

[19] Schulze (1999) asserts that the variables employed in Marvasti's (1994) study are not appropriate for estimating sectoral production functions, hence precluding the examination of scale economies.

is notable for being the first to examine the impact of quantitative restrictions, subsidies, IPRs, language, and religion on international trade flows of cultural goods.

Schulze (1999) undertakes a comprehensive analysis to assess the extent to which trade theory can be applied to explain trade in art. The author argues that reproducible art, such as music recordings, books, maps, and globes, is typically characterised by scale economies and differentiated products. Consequently, the application of trade theory can elucidate the variations observed in the trade of reproducible art. Nevertheless, unique art, such as paintings, sculptures, and ceramic statuettes, is primarily traded between consumers, which presents challenges in the context of trade theory. Following this distinction and employing the standard gravity model, the researcher assesses the determinants of bilateral trade in unique art with a dataset containing 49 countries' bilateral trade flows from 1990 to 1994. The results demonstrate that trade in unique art is significantly influenced by factors such as similarities in GDP and language and the geographical distance between pairs of countries. For instance, countries sharing the same language trade at least four times higher in unique art relative to those not sharing the same language.

Craig, Greene, and Douglas (2005) analyse the effects of cultural affinity on the box office success of US films in global markets. To assess cultural affinity, the authors construct the Americanisation index by utilising the number of McDonald's per capita outlets in each country. The researchers use the revenues collected from the top 50 US films from eight countries, such as the UK, Germany, Australia, and Spain, between 1999 and 2002. Employing a hierarchical random parameter regression model, they find that US films perform better in countries with a greater degree of Americanisation. Additionally, the research findings show that US films perform better in English-speaking nations like the UK and Australia. Similarly, Marvasti and Canterbery (2005) investigate the factors influencing the US motion picture industry's exports to 33 countries from 1991 to 1995. Employing the gravity model, the researchers find notable positive effects of education and common language on US motion picture exports. Conversely, the authors find that neither common religion nor contiguity plays a statistically significant role in US movie exports.

Using CEPII's international trade data for 1988–2004 and employing the standard gravity model, Disdier et al. (2010) investigate the determinants of bilateral trade flows of cultural goods. The research findings demonstrate that contiguity, language similarity, and historical colonial ties have significantly positive impacts on international trade flows of cultural goods. Moreover, the authors establish the concept of cultural trade as a surrogate measure for cultural

affinity and proceed to assess the impact of cultural trade on non-cultural trade. The findings indicate that the exchange of cultural goods has a notably favourable influence on non-cultural trade, leading the researchers to deduce that the trade in cultural goods can serve as a reliable indicator of cultural affinity. Cattaneo and Snowball (2019) examine South Africa's cultural goods and services trade with its BRICS partners for the period 2007–2016.[20] Even though there is no formal trade agreement between the BRICS countries, South Africa's participation in the BRICS trading bloc is strategically important. The researchers find that South Africa's participation in BRICS benefits its exports to other member countries, particularly in specific cultural industries such as crafts and audio-visual sectors. Using an extensive dataset comprising 14,773 films produced by 87 different countries and subsequently disseminated to 56 target countries from 2001 to 2015, Cabral and Natividad (2020) run a series of movie-country-pair regressions to investigate the international movie release strategy. The authors also use a political affinity index, namely UN voting behaviour, as a metric to gauge the level of country affinity between exporter and importer countries. The research findings reveal that a foreign movie tends to perform better if the level of cultural affinity increases.

1.4 Research Questions

In this section, I expound the research questions that are continuously pursued throughout the chapter. In particular, the first chapter is guided by the following research questions:

a) What are the effects of FTAs on the patterns of overall cultural trade?
b) Do FTAs have heterogeneous effects across different sub-groupings of cultural goods, and if so, which of the five sub-categories is affected most by FTAs?
c) Are FTAs more impactful on cultural trade compared to non-cultural trade?
d) Is there evidence suggesting gradual impacts (phasing-in effects) of FTAs on cultural trade?
e) Are the estimates of the effects of FTAs with culture-specific provisions greater in magnitude in comparison to FTAs without such provisions?
f) Do indicators related to customs unions and joint WTO participation exhibit statistically significant effects on overall cultural trade, overall non-cultural trade, and specific sub-groups of cultural goods?
g) What is the impact of standard gravity variables on total cultural trade, total non-cultural trade, and the sub-categories of cultural goods? Are these variables more relevant for cultural trade compared to non-cultural trade?

[20] The *BRICS* is an informal group of states comprising the Federative Republic of Brazil, the Russian Federation, the Republic of India, the People's Republic of China, and South Africa.

1.5 Data

This section provides a comprehensive analysis of the data utilised throughout Chapter 1 and elucidates its respective sources. In addition, I discuss the descriptive statistics about each variable that has been utilised in this chapter.

1.5.1 *Bilateral trade flows of cultural and non-cultural goods*

The main focus of the study revolves around the bilateral trade flows of cultural goods. UNESCO (2005a) classifies 38 products as cultural goods using the most granular classification level, the HS, version 1996. These products are further categorised into five sub-groupings: cultural heritage, printed matter, music & performing arts, visual arts, and audio & audio-visual media. Table A1 in Appendix A presents the UNESCO (2005a) classification and details for each sub-grouping. Using the UNESCO (2005a) classification as the basis for cultural goods categorisation, I acquire cultural trade data from CEPII (Centre d'Etudes Prospectives et d'Informations Internationales).[21] The trade values are reported in thousands of US dollars, and trade flows below 1,000 US dollars are not included in the dataset. Consequently, the sample covers disaggregated annual cultural trade data on 38 cultural goods for 221 countries from 1999 to 2019.[22] Table A2 in Appendix A shows the list of countries used in the empirical analysis.

According to Trefler (2004), the adjustment of trade flows to changes in trade policies occurs at a sluggish pace. Hence, he criticises the utilisation of consecutive years within a gravity framework. Similarly, Cheng and Wall (2005) contend that the adjustment of both explanatory and explained variables within a single year is insufficient, therefore raising concerns about the validity of utilising consecutive years in fixed-effects estimations. While Trefler (2004) addresses this issue using trade data with three-year intervals, Yotov and Anderson (2011) and Olivero and Yotov (2012) employ trade data with four- and five-year intervals, respectively (Piermartini & Yotov, 2016). As a result, to account for bilateral trade flow adjustments in response to changes in trade policies, like Olivero and Yotov (2012), I employ bilateral trade data at five-year intervals from 1999 to 2019, so the variables belong to the set of years {1999, 2004, 2009, 2014, and 2019}.

The CEPII database provides extensive information on more than 5,000 distinct products. There is a duplication of information about a particular trade flow when the exporting and importing

[21] The dataset can be accessed at: http://www.cepii.fr/cepii/en/bdd_modele/bdd_modele_item.asp?id=37.
[22] The country pairings are shown in both directions and are treated as distinct entries (i.e., Turkiye-Italy exists, as does Italy-Turkiye).

nations report their trade activities to the United Nations Statistics Division (UNSD). The import values are reported using the Cost, Insurance, and Freight (CIF) approach, whereas the export values are reported using the Free on Board (FOB) technique. Gaulier and Zignago (2010) undertake the process of reconciling export and import declarations in order to establish a comprehensive and cohesive portrayal of bilateral trade flows.

The authors compare import and export declarations using a methodology that excludes transportation costs from the declared import values. To do this, they employ the standard gravity model to estimate the CIF rates, taking into consideration physical distance, contiguity, and landlockness variables. Additionally, to calculate the average FOB-FOB mirror flows, the authors assess the accuracy of country declarations "… by computing an indicator of the reporting distance among partners (the absolute value of the natural log of the ratio of mirror flows) and decompose it using a (weighted) variance analysis" (Gaulier & Zignago, 2010, p. 3). Their objective is to mitigate the effects of geographic and sectoral specialisation from country declarations. The modified quality of country declarations is subsequently employed for mirror flow averaging.[23]

Since the CEPII dataset incorporates export and import declarations for every trade flow, missing trade flows are detected solely in instances where both pairs of countries neglect to disclose their respective reports.[24] Therefore, a notable benefit of the dataset lies in its comprehensive coverage, as the reconciliation technique significantly reduces the occurrence of missing trade flows. One further advantage of the dataset is its comprehensive coverage of all cultural goods outlined in the UNESCO (2005a) classification.

Due to technical constraints, CEPII does not offer data on zero trade flows. Alternatively, a zero-trade flow dummy (ztf2) is proposed to differentiate between a real missing value and a true zero. Suppose the variable ztf2 is equal to one for a specific combination of *tij*. In that case, it can be inferred that all trade flows of products exported from *i* to *j* at time *t*, for which no data is available from CEPII, are true zeros. If ztf2 is assigned a value of zero for a particular *tij*, it is probable that a missing trade flow does not signify a zero-trade flow but rather a lack of available information. Given the utilisation of a sectorally disaggregated dataset, it is important to acknowledge the presence of a considerable quantity of missing trade flows in the data. To distinguish if missing trade flows are real missing flows or true zeros, I employ the zero-trade flow indicator developed by the CEPII.

[23] I refer the reader to Gaulier and Zignago (2010) for a more comprehensive explanation of the reconciliation procedure.
[24] If one of the reports is absent, the non-missing statement is employed (Gaulier & Zignago, 2010).

Table A4 in Appendix A shows the descriptive statistics of total cultural trade and trade in sub-categories of cultural goods. The table reveals that the number of observations differs among various sub-categories. Although the printed matter category has the highest number of observations at 164,002, the cultural heritage category has the lowest, totalling 123,639 observations. This arises from country declarations, indicating that the likelihood of declaring trade in the printed matter category between country pairings is higher than that of trade in the cultural heritage category.

The printed matter category exhibits the highest mean value of 723.9, indicating that it is the most frequently traded category on average among the five categories considered. Conversely, the music & performing arts category demonstrates the lowest mean value of 97.3, showing that it is the least commonly traded category on average. The visual arts category exhibits the highest standard deviation of 17473.37, suggesting that trade flows within this category are characterised by a greater dispersion from the mean. Conversely, the music & performing arts category has the lowest standard deviation value with 2078.008.

The first bar graph in figure 1.2 depicts the export distributions of each sub-grouping of cultural goods within the total global cultural goods exports for the years 1999 and 2019. I observe that the visual arts and printed matter categories accounted for about 23% and 42% of the total global cultural goods exports in 1999, respectively. In 2019, the visual arts category emerged as the dominant category, accounting for approximately 48% of the overall global cultural goods exports, while the printed matter category had a decline, representing a reduced share of 38%. Moreover, there has been a noticeable decline in the export shares of the audio & audio-visual media and music & performing arts categories from 1999 to 2019. As an illustration, the proportion of the music & performing arts category declined from 14% to around 3% throughout the period. Also, the export share of the cultural heritage category has slightly increased from about 6% to 8% throughout the period.

The subsequent bar graphs in figure 1.2 present the relative proportion of each sub-grouping of cultural goods within the overall cultural goods exports of three selected countries: the UK, the US, and Germany. It is evident that the domains of printed matter and visual arts constitute the predominant share of the overall cultural goods exports in each of the examined countries in both years. There has been a significant rise in the export share of the visual arts category over time. For instance, the proportion of the US's visual arts exports increased from approximately 23% in 1999 to about 62% in 2019. These two categories are followed by audio & audio-visual media, music & performing arts, and cultural heritage.

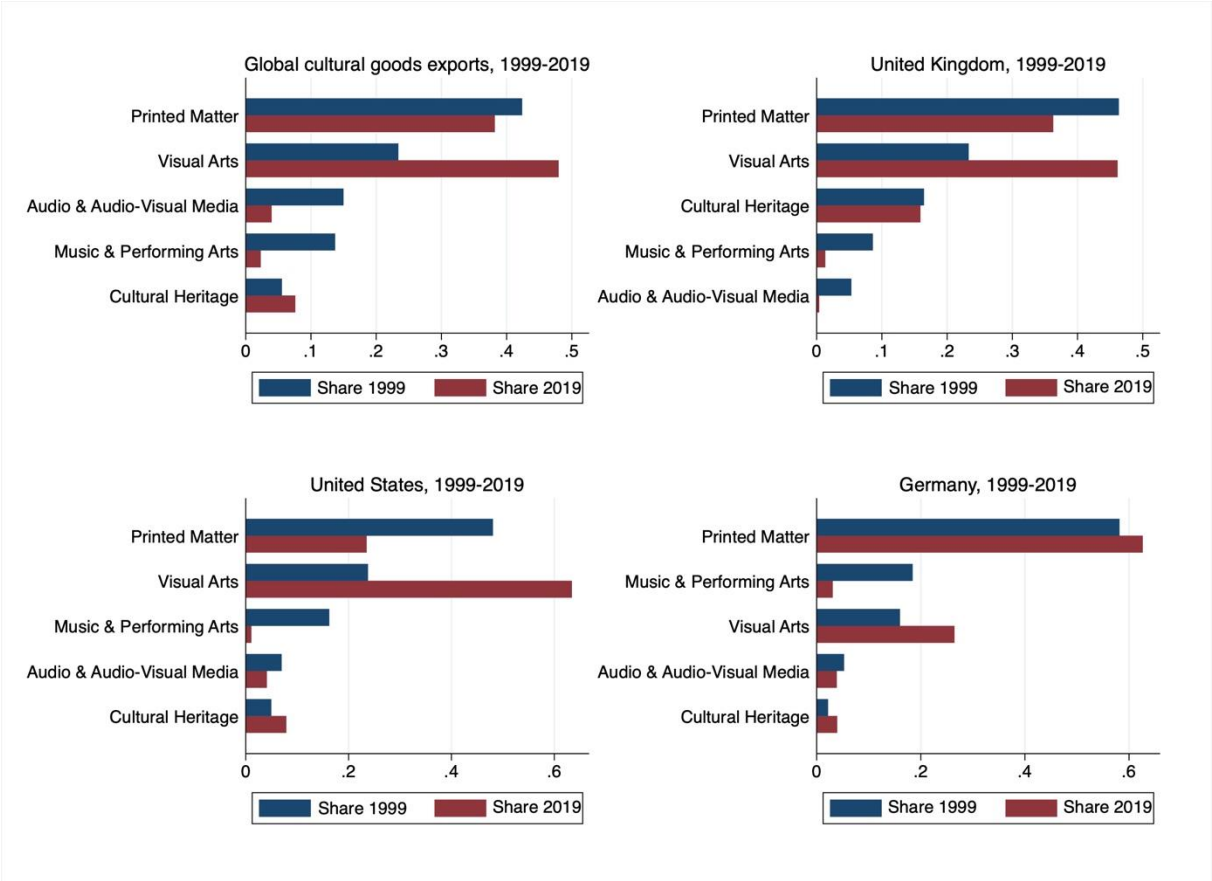

Figure 1.2: Sectoral share in overall cultural goods exports, 1999–2019. Data source: UN COMTRADE database

Furthermore, in figure 1.3, I provide the geographical orientation of the UK's and the US's cultural goods exports in the form of a bar graph. My goal in choosing these two culturally similar nations is to see if there are any notable differences in their geographic orientations. The bar graphs depict the proportion of the two countries' top 20 cultural goods export destinations for the years 1999 and 2019. The first bar graph indicates that the US remains the UK's primary cultural goods export destination. However, I observe a slight decrease in the US's percentage share from around 38% to 33% between the years 1999 and 2019. At the same time, other trading partners such as Germany, Ireland, Australia, and France have experienced a decline in prominence. In 2019, Hong Kong emerged as a prominent recipient of cultural goods exports from the UK, with its market share experiencing a significant rise from approximately 2% in 1999 to 14% in 2019.

The data presented in the second bar graph indicates a decline in the relative importance of the US's cultural goods exports to surrounding nations, such as Canada and Mexico, between 1999 and 2019. In 1999, Canada served as the primary recipient of the cultural goods exports of the US. However, its share has declined from approximately 31% to 14% between 1999 and 2019. Conversely, the UK emerged as the leading destination of the US's cultural goods exports in

2019. In a manner analogous to the initial bar graph, Hong Kong's proportion experienced a notable rise from 3% to 12% during the period. Consequently, Hong Kong emerged as the third most prominent destination for the US's cultural goods exports.

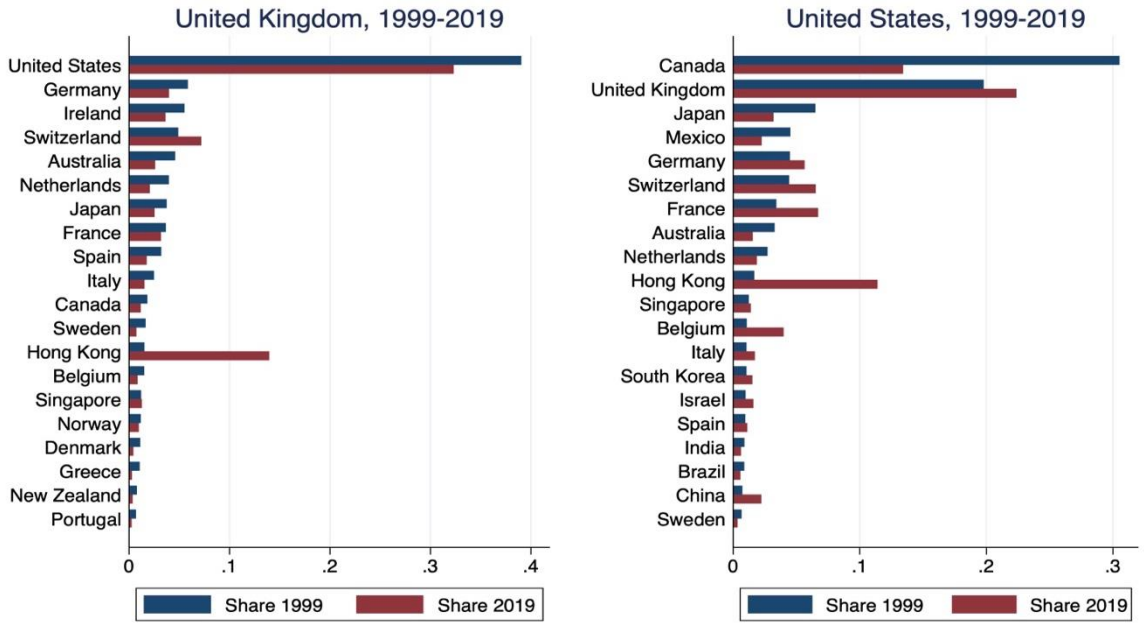

Figure 1.3: Top 20 cultural goods export destinations of the UK and the US, 1999–2019. Data source: UN COMTRADE database.

Finally, total trade flows between pairs of countries are obtained from the CEPII's gravity dataset. To establish total non-cultural trade taking place between country pairs, I subtract their total cultural trade flows in a given year from their total trade flows in the same year. Table A4 in Appendix A shows the descriptive statistics of total non-cultural trade.

1.5.2 *Standard gravity variables*

Standard gravity variables, namely common language ($COMLANG_{ij}$), colonial ties ($COL45_{ij}$), common religion ($COMRELIG_{ij}$), and physical distance (DIST), are sourced from CEPII's gravity database.[25] The contiguity ($CONTIG_{ij}$) variable is taken from the Dynamic Gravity Dataset (DGD) constructed by the US International Trade Commission (USITC).[26] ln $DIST_{ij}$ represents the natural logarithm of physical distance, measured in kilometres, between the most populated cities of country pairs. $COMLANG_{ij}$ is an indicator dummy variable that takes a value of one if country pairs *i* and *j* have a common official or primary language and zero otherwise. $COL45_{ij}$ represents the presence of colonial ties after the year 1945, whereas $CONTIG_{ij}$ indicates the existence of a contiguous border. Both variables are binary, taking a value of one

[25] The dataset can be accessed for download from the official website of CEPII at the following URL: http://www.cepii.fr/CEPII/en/bdd_modele/bdd_modele_item.asp?id=8.
[26] The DGD can be accessed for download at: https://www.usitc.gov/data/gravity/dgd.htm.

when the respective condition is met and zero otherwise. The $COMRELIG_{ij}$ metric is an index that measures the degree of religious proximity between country pairs. It is a continuous variable and takes any value within the range of 0 to 1, reaching its highest value if a nation pair shares a religion that constitutes a significant majority of the population or when the religions in both countries are identical.[27]

Table A4 in Appendix A provides descriptive statistics for the standard gravity variables. The indicator variable for common language has a mean value of 0.1755, which suggests that around 17.55% of the nation pairs in the sample have the same primary or official language. Also, the contiguity indicator has a mean value of 0.0126, indicating that 1.26% of the country pairs in the sample have a common border. The $COL4_{ij}$ variable has the lowest mean value of 0.0063, suggesting that a small proportion of country pairs, approximately 0.6%, have been associated with a colonial relationship either currently or historically. On the other hand, the mean values of the two continuous variables, namely ln $DIST_{ij}$ and $COMRELIG_{ij}$, are 8.824 and 0.168, respectively.

1.5.3 *Trade policy variables*

1.5.3.1 *Free trade agreements, customs unions, and the World Trade Organisation*

The $FTA_{ij,t}$ variable, which accounts for the existence of an FTA between country pairs, is obtained from the USITC. The binary variable $FTA_{ij,t}$ was created based on the "Date of Entry into Force" of FTAs. The variable is assigned a value of 1 when country pairings *i* and *j* jointly participate in at least one free trade agreement during the specified year and 0 otherwise. If an FTA becomes inactive, the variable switches from 1 to 0. The dataset tracks changes in member states over time. For instance, if any of the partner states exit an FTA, then the variable switches from 1 to 0 for that specific case. Similarly, the dataset tracks the accessions of new member countries to the existing FTAs. For instance, it records the admission of Iceland to the EFTA in 1970. In this case, the $FTA_{ij,t}$ variable transitions from 0 to 1 for combinations of countries involving Iceland after the year 1970. The dataset comprises a total of 233 currently operational FTAs and 109 FTAs that have been deactivated or are no longer in effect.[28] A full list of FTAs

[27] The index is derived by adding the proportions of the shares of Catholics, Protestants, and Muslims in both the exporting and importing countries. The data on the distribution of religion is derived from the study conducted by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1999). For further details, I refer the reader to the work of Disdier and Mayer (2007) and Conte, Cotterlaz, and Mayer (2022).

[28] The World Bank serves as a significant resource for accessing trade agreements. However, alternative sources such as the World Trade Law (https://www.worldtradelaw.net) and Dartmouth's Tuck Centre for International Business (CIB) Trade Agreements Database (http://www.dartmouth.edu/~tradedb/index.php) provide access to trade agreements. Additionally, the Council of the EU (https://www.consilium.europa.eu/) maintains a comprehensive record of trade agreements ratified between the EU and other international counterparts.

is displayed in Table A3 in Appendix A. The table also includes data on the duration of active and inactive periods for FTAs. The $CU_{ij,t}$ and $WTO\_MEM_{ij,t}$ indicators are obtained from the DGD.[29] The variable $CU_{ij,t}$ is assigned a value of 1 when trading pairs *i* and *j* are involved in the same customs union and 0 otherwise. Similarly, the variable $WTO\_MEM_{ij,t}$ is assigned a value of 1 when both the origin and destination nations are members of the WTO in a specific year and 0 otherwise. For more information about the construction of the trade policy variables, I refer the reader to the work of Gurevich and Herman (2018).

The descriptive statistics of trade policy variables are presented in Table A4. Briefly, the $FTA_{ij,t}$ variable has a mean value of 0.1065, signifying that 10.65% of the nation pairs have or have had an FTA. The mean value of the $CU_{ij,t}$ variable is 0.0346, indicating that 3.46% of country pairings are involved in the same customs union. Finally, 68.09% of the countries included in the sample are affiliated with the WTO. Additionally, the $WTO\_MEM_{ij,t}$ variable has a mean value of 0.4643, indicating that 46.43% of the trading pairs within the sample are joint members of the WTO.

1.5.3.2 *Culture-specific provisions*

Provision indicators are obtained from the World Bank DTAs database, which was constructed by Hofmann et al. (2019).[30] The database encompasses a total of 52 provisions and 318 trade agreements that have been officially reported to the WTO. I employ a selection of three behind-the-border policy domains that lie outside the current mandate of the WTO. The three culture-specific provisions are IPRs, audio-visual (hereafter "AV"), and cultural cooperation (hereafter "CC").

a) The IPR_{ij} variable is assigned a value of 1 when an FTA includes a provision that obligates parties to adhere to intellectual property treaties that are not explicitly mentioned in the TRIPS agreements. Otherwise, it is assigned a value of zero.[31]

[29] The WTO offers an extensive list of member nations and their respective dates of accession. The USITC develops and offers a joint WTO membership indicator using the data provided by the WTO.
[30] The dataset is available to download at: https://datatopics.worldbank.org/dta/table.html.
[31] In my thesis, I examine the effects of IPRs outlined in FTAs. However, as mentioned in Section 1.2, IPR provisions are also salient in BITs. While FTAs often include comprehensive chapters dedicated to IPRs, BITs reinforce these protections by offering additional legal mechanisms. When BITs and FTAs with IPR chapters coexist between country pairs, they can create a more robust legal framework for the protection of IPRs, leading to both enhancing and overlapping effects. However, due to data limitations, this analysis only utilises the IPR provisions stated in FTAs, as I do not have comprehensive information on which BITs contain IPR provisions. Further investigation into the overlapping and enhancing effects between BITs and FTAs would be a worthwhile effort for future research.

b) The AV_{ij} variable takes a value of 1 when an FTA contains a provision that aims to foster collaboration in audio-visual co-production between the involved parties. Otherwise, it is assigned a value of zero.

c) The CC_{ij} variable is assigned a value of 1 when an FTA has a cultural cooperation clause that is anticipated to facilitate joint initiatives and support local cultural activities. Otherwise, it is assigned a value of zero.[32]

Table A4 presents the descriptive statistics of the culture-specific provisions. Not all FTAs contain all three culture-specific provisions. While the IPR_{ij} variable has the highest mean value of 0.0461, the CC_{ij} and AV_{ij} variables have mean values of 0.0179 and 0.0112, respectively. These findings indicate that 4.61% of the sample possess an IPR chapter, whereas 1.78% and 1.12% possess CC and AV provisions, respectively. Table A5 in Appendix A presents a correlation matrix of culture-specific provisions. The table indicates that there is a strong positive correlation between the AV and CC provisions and the IPR and CC provisions, as well as a moderate positive correlation between the IPR and AV provisions.

1.6 Methodology

To analyse the effects of FTAs on the bilateral cultural trade activities of 221 countries between 1999 and 2019, I apply the structural gravity modelling of trade to a panel dataset. In this section, I provide a detailed discussion of the econometric specifications employed throughout Chapter 1. In the subsequent part, I begin with the basic specifications, allowing traditional gravity estimates, and afterwards ascertain the most suitable econometric methodology that aligns with the sample.

1.6.1 *Comparing alternative techniques for estimating the gravity equation in the context of cultural trade*

The present section is dedicated to the empirical specifications employed in the process of making decisions related to the selection of econometric models. Specifically, I look at the necessity of adequately accounting for the MRTs using remoteness indices and fixed effects methodologies. I provide the Ramsey Regression Equation Specification Error Test (RESET) p-values for the OLS and PPML estimates based on the two approaches. These p-values serve

[32] A quality index can be constructed to test whether the effect of each of these provisions depends on their nature, such as whether they are legally enforceable in each country or not. Such an index could provide valuable insights into the differential impacts of legally enforceable versus non-enforceable provisions on cultural and non-cultural trade, enhancing our understanding of the role of legal frameworks in international trade agreements. The necessary data on the legal enforceability and practical implementation of these provisions across different countries is not readily available. Therefore, I am unable to construct this quality index for my thesis.

to identify potential model specification errors, i.e., possible omitted variables. Finally, comparing the OLS and PPML estimation results, I decide which estimator fits the sample better.[33]

First, I augment the model specification adopted by Disdier et al. (2010) with the logarithms of the values of exporter output and importer expenditure in equation (1.8):

$$\ln (X_{ij,t} + 1) = \beta_0 + \beta_1 \ln (DIST_{ij}) + \beta_2 (CONTIG_{ij}) + \beta_3 (COMLANG_{ij}) + \beta_4 (COL45_{ij}) + \beta_5 (COMRELIG_{ij}) + \beta_6 \ln (OUTPUT_{i,t}) + \beta_7 \ln (EXPEND_{j,t}) + \varepsilon_{ij,t}. \quad \textbf{(1.8)}$$

The variable ln ($X_{ij,t}$ + 1) represents the natural logarithm of the country *i*'s total cultural goods trade with country *j* at time *t*, and β_0 is a constant. Due to variations in trade relationships between countries, bilateral trade flows can be non-existent or sporadic throughout time. This is especially the case when trade data is sectorally disaggregated. To prevent zero trade flows from being removed by the log-transformation process and take into account the information contained in zero trade flows that are highly prevalent in the sample, I add a value of one to the LHS, $X_{ij,t,}$+ 1, before transforming it into a logarithmic form. As defined earlier, ln $DIST_{ij}$ is the natural logarithm of the physical distance between the most populated cities of trading partners *i* and *j*. The variable $CONTIG_{ij}$ is a binary variable which takes a value of one if country pairs *i* and *j* have a common border and zero otherwise. $COMLANG_{ij}$ is another dummy variable that takes a value of one if country pairs *i* and *j* share the same official or primary language and zero otherwise. Similarly, $COL45_{ij}$ is a dummy variable that takes a value of one if country pairs *i* and *j* have or have had a colonial relationship after 1945 and zero otherwise. $COMRELIG_{ij}$ is a continuous variable that measures the degree of religious proximity between country *i* and country *j*. The variables ln ($OUTPUT_{i,t}$) and ln ($EXPEND_{j,t}$) are the natural logarithms of the values of exporter output and importer expenditure, respectively. Finally, $\varepsilon_{ij,t}$ represents the idiosyncratic error term.

The main reason I augment the structural gravity equation with ln ($OUTPUT_{i,t}$) and ln ($EXPEND_{j,t}$) is to approximate the MRTs with exporter and importer remoteness indices, which are expressed as the logarithms of the output- and expenditure-weighted averages of bilateral

[33] I use the user-written Stata packages *reghdfe* and *ppmlhdfe* to estimate the models. These packages take into account multiple sources of heterogeneity and estimate the regression models with multiple High-Dimensional Fixed Effects (HDFE) (Correia, Guimarães, & Zylkin, 2020). The number of observations displayed in the bottom panel of each table may differ depending on the regression specification used in the analysis. Some of the dummies are singletons, and they provide a clear explanation for the dependent variable. As a result, both *reghdfe* and *ppmlhdfe* exclude certain observations because they do not contribute to the estimation. While the procedure does not cause any sample selection issues, it accelerates estimations.

distance, respectively (Yotov, Piermartini, Monteiro, & Larch, 2016).[34] However, before proceeding to that step, I estimate equation (1.8) using the OLS estimator. The OLS estimates are reported in column 1 of table 1.1.

As demonstrated by Anderson and van Wincoop (2003), failing to account for the MRTs may lead to severe biases in the gravity equation estimates. Hence, in the next specification, I employ the remoteness indices approach to account for the MRTs and augment the gravity equation with $REM\_EXP_{i,t}$ and $REM\_IMP_{j,t}$:

$$\ln(X_{ij,t}+1) = \beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6 \ln(OUTPUT_{i,t}) + \beta_7 \ln(EXPEND_{j,t}) + \beta_8 \ln(REM\_EXP_{i,t}) + \beta_9 \ln(REM\_IMP_{j,t}) + \varepsilon_{ij,t}. \quad \textbf{(1.9)}$$

The OLS estimates derived from equation (1.9) are presented in column 2 of table 1.1.

An alternative way of accounting for the MRTs is the fixed effects approach, which aligns with the recommendations put forth by Rose and van Wincoop (2001), Hummels (2001), Redding and Venables (2004), and Feenstra (2004). To do this, I augment the structural gravity equation with directional (exporter and importer) time-varying fixed effects in equation (1.10):

$$\ln(X_{ij,t}+1) = \beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \pi_{i,t} + \chi_{j,t} + \varepsilon_{ij,t}. \quad \textbf{(1.10)}$$

Where $\pi_{i,t}$ and $\chi_{j,t}$ denote the vectors of time-varying exporter and importer fixed effects, respectively. The exporter-time fixed effects address the outward multilateral resistances and absorb all observable and unobservable exporter-specific characteristics, whereas the importer-time fixed effects account for the inward multilateral resistances and encompass all observable and unobservable importer-specific factors that have the potential to impact bilateral trade (Yotov et al., 2016). These terms are included to account for the fact that bilateral trade is influenced not solely by bilateral trade barriers but also by the multilateral trade barriers that exist across all trade partners. This approach offers the advantage of incorporating time-varying unobservable variables, such as pricing. Nevertheless, this methodology cannot estimate many variables, such as GDPs, due to their perfect collinearity with directional time-varying fixed effects. The OLS estimates obtained from specification (1.10) are presented in column 3 of

[34] To get further material regarding the construction of the two variables, I direct the reader to a comprehensive resource titled "An Advanced Guide to Trade Policy Analysis: The Structural Gravity Model", the work of Yotov et al. (2016).

table 1.1.

Even though I add a value of one to the LHS variable, the log-linear forms of equations (1.8)–(1.10) do not effectively handle the non-linearity of the data. This limitation arises from the abundance of zero trade flows present on the LHS. Moreover, the studies conducted by Santos Silva and Tenreyro (2006) and Head and Mayer (2014) provide empirical evidence suggesting that log-linear estimates of gravity equations are subject to heteroskedasticity bias, even when zero trade flows are absent. Hence, the OLS estimates tend to be biased and inconsistent. Instead, Santos Silva and Tenreyro's (2006) study shows that the PPML method yields consistent estimates, even when heteroskedasticity is present. Following Santos Silva and Tenreyro (2006), I proceed to recalibrate the specifications outlined in equations (1.9) and (1.10). In the next equation, I use the remoteness indices approach to account for the MRTs and employ the PPML estimator:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6 \ln(OUTPUT_{i,t}) + \beta_7 \ln(EXPEND_{j,t}) + \beta_8 \ln(REM\_EXP_{i,t}) + \beta_9 \ln(REM\_IMP_{j,t})] + \varepsilon_{ij,t}. \quad \textbf{(1.11)}$$

The variable $X_{ij,t}$ denotes total cultural trade (in levels) between trading pairs i and j at time t. This method is applied directly to trade flows because the LHS does not necessitate a logarithmic transformation. The PPML estimates derived from equation (1.11) are reported in column 4 of table 1.1.

Finally, to employ the recommended optimal approach, which is the PPML estimator with directional time-varying fixed effects, in the next equation (1.12), I augment the gravity equation with directional time-varying fixed effects:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t}. \quad \textbf{(1.12)}$$

The PPML estimates obtained from equation (1.12) are presented in column 5 of table 1.1.

To analyse whether the same criteria apply to the examination of non-cultural trade, I employ the optimal approach for non-cultural trade in the next specification:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t}. \quad \textbf{(1.13)}$$

Where $X_{ij,t}$ denotes the bilateral trade flows of non-cultural goods between country pairs *i* and *j* at time *t*. I simply excluded bilateral cultural trade flows from total bilateral trade flows. The PPML estimates obtained from equation (1.13) are reported in column 6 of table 1.1.

Likewise, I re-estimate equations (1.8)–(1.12) for each of the five sub-groupings of cultural goods. The rationale remains unchanged, mirroring the previous explanation. So that I can ascertain any quantitative differences in econometric model selection between total cultural trade and trade in each of the five sub-categories of cultural goods. In the upcoming specification, with the aim of ensuring brevity, I only describe the equation that represents the optimal approach, which is again the PPML estimator with directional time-varying fixed effects:

$$X_{k,ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t} \quad k = \{HRTG, PRINT, MUSIC, VISUAL, AUDIO_{ij}\}. \quad \textbf{(1.14)}$$

The variables *HRTG*, *PRINT*, *MUSIC*, *VISUAL*, and *AUDIO* represent bilateral trade flows in cultural heritage, printed matter, music & performing arts, visual arts, and audio & audio-visual media categories, respectively. The results obtained from the optimal approach for sub-groupings of cultural goods are presented in table 1.2. However, to maintain conciseness, the estimates obtained from the other techniques are presented in tables B1–B5 in Appendix B.

I discuss the empirical findings in detail in Sections 1.7.1.1 and 1.7.1.2. But before moving on to the next section, it is important to note that the PPML model with directional time-varying fixed effects is the only specification that passes the misspecification test for cultural trade, non-cultural trade, and sub-groupings of cultural goods.

1.6.2 *Empirical specifications for trade policy analysis*

In this section, I adhere to the guidelines outlined in Sections 1.4.1.1–1.4.1.3 and produce a set of gravity estimates. Specifically, I estimate the impacts of trade policy variables, namely FTAs, CUs, and joint WTO membership, on bilateral trade flows of cultural goods, non-cultural goods, and sub-groupings of cultural goods. The central emphasis of this chapter is on FTAs as a pivotal trade policy determinant. I outline each specification as a series of estimating equations and their corresponding findings, emphasising the significance of the factors that must be taken into account when assessing the impacts of trade policies.

To investigate the effects of trade policies on cultural trade, I augment equation (1.12) with trade policy variables. As per the previously outlined findings, I employ directional time-varying fixed effects as a means of accounting for the MRTs. The analysis is conducted in a systematic manner, commencing with the implementation of the OLS regression in equation (1.15):

$$\ln (X_{ij,t} + 1) = \beta_0 + \beta_1 \ln (DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \varepsilon_{ij,t}. \quad \textbf{(1.15)}$$

Where $\ln (X_{ij,t} + 1)$ indicates the natural logarithm of the cultural trade between country *i* and country *j* at time *t*. The $FTA_{ij,t}$ and $CU_{ij,t}$ indicators have a binary value of one when nation pairings are members of the same free trade agreement or customs union in a specific year and zero otherwise. The variable $WTO\_MEM_{ij,t}$ is assigned a value of one when both country pairings *i* and *j* are members of the WTO at time *t*. Otherwise, it is assigned a value of zero. The remaining variables adhere to the descriptions provided in the preceding section. The estimates obtained from equation (1.15) are reported in column 1 of table 1.3.

As previously mentioned, the only estimator that successfully passes the misspecification test is the PPML estimator, which incorporates directional time-varying fixed effects. Hence, in equation (1.16) presented herein, I proceed to reassess the impacts of trade policies on overall cultural trade utilising the PPML estimator:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln (DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t}. \quad \textbf{(1.16)}$$

The estimation results derived from equation (1.16) are reported in column 2 of table 1.3.

Thus far, I have addressed the MRTs, which are important components of the gravity equation. Nevertheless, it is imperative to acknowledge and confront the potential endogeneity of trade policies, as elaborated upon in Section 1.4.1.3. Countries choose their FTA partners based on a range of factors. A potential scenario exists wherein a substantial degree of trade has already been established among the parties concerned and there is a shared aspiration to augment the existing trade dynamics. To address the potential endogeneity of trade policies, I adopt the approach of Baier and Bergstrand (2007) by incorporating country-pair fixed effects into equation (1.17):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(1.17)}$$

The notation μ_{ij} represents the set of fixed effects for each pair of countries. Any connections between trade policy variables and the error term $\varepsilon_{ij,t}$ will be absorbed by country-pair fixed effects, thereby enabling control over potential endogeneity. One limitation of the technique is that it excludes any country-pair variables that remain constant over time, such as distance, contiguity, common language, and religious proximity. As a result, equation (1.17) excludes time-invariant variables. The estimates obtained from equation (1.17) are reported in column 3 of table 1.3.

In equation (1.18), to examine the potential presence of reverse causality between FTAs and cultural trade, I adopt the approach of Baier and Bergstrand (2007) and Wooldridge (2010) to conduct a straightforward examination of the strict exogeneity of FTAs. This technique determines whether the inclusion of country-pair fixed effects adequately addresses the issue of potential reverse causality between trade in cultural goods and FTAs. Specifically, I incorporate a future level (lead) of FTA into the model specification and proceed to estimate it using the PPML estimator:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(FTA_{ij,t+4}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(1.18)}$$

The $FTA_{ij,t+4}$ variable represents the future level of FTAs. If FTAs are exogenous to cultural trade flows, $FTA_{ij,t+4}$ should not be associated with the current cultural trade flows. In another word, while a statistically significant coefficient estimate of the future lead term implies a potential reverse causality between FTAs and bilateral trade flows, an insignificant coefficient estimate denotes that reverse causality is not present. Results obtained from equation (1.18) are presented in column 4 of table 1.3.

Furthermore, I examine the potential impacts of FTAs on the dynamics of cultural trade over an extended period, namely the lagged effects of FTAs. After the implementation of an FTA, trade volumes may not exhibit an immediate reaction but instead undergo a progressive expansion over a certain period of time. This gradual increase in trade volumes can be seen as a phasing-in process that occurs after an initial adjustment period. This is testable by adding time lags of the FTA indicator. Hence, I introduce various time lags of the FTA indicator in equations (1.19)–(1.21):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(FTA_{ij,t-4}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(1.19)}$$

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(FTA_{ij,t-4}) + \beta_{10}(FTA_{ij,t-8}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(1.20)}$$

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(FTA_{ij,t-4}) + \beta_{10}(FTA_{ij,t-8}) + \beta 11(FTAij_{,t-12}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(1.21)}$$

The variables $FTA_{ij,t-4}$, $FTA_{ij,t-8}$, and $FTA_{ij,t-12}$ are introduced to capture four-, eight-, and twelve-year lags. I introduce four-year lags only in equation (1.19), whereas four- and eight-year lags are introduced in equation (1.20). Finally, in equation (1.21), I introduce four-, eight-, and twelve-year lags. The PPML estimates obtained from equations (1.19) to (1.21) are presented in columns 5 to 7 of table 1.3. Additionally, I report the cumulative average treatment effects of FTAs at the bottom panel of the table.[35]

I use identical methodologies to conduct parallel examinations for non-cultural trade and trade within each of the five sub-categories of cultural products. The findings of non-cultural trade are displayed in table 1.4. To maintain conciseness, the results for cultural sub-groupings are listed in Appendix C, specifically tables C1 to C5. The findings from this section are thoroughly examined in Section 1.7.2.

1.6.3 *Empirical specification for the analysis of culture-specific provisions*

Up until this point, I directed my attention towards examining the impacts of trade policies on cultural trade, with a notable emphasis on FTAs. FTAs are becoming more comprehensive in nature, as they now include not only trade-related aspects but also other aspects that can potentially impact trade relations. Hence, in this section, I shift my focus beyond the impacts of FTAs and examine the significance of culture-specific clauses that are explicitly outlined in FTAs.

I test whether, beyond the effects of having an FTA in place, it makes any difference if agreements explicitly cover IPR, AV, and CC provisions. Due to the high degree of correlation

[35] The cumulative average treatment effects and related standard errors are calculated using the delta technique in Stata, specifically through the *lincom* command.

among the culture-specific provisions, a phenomenon known as multicollinearity, I separately introduce the above-described culture-specific provision dummies:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA)_{k,ij,t} + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}$$
$$k = \{IPR_{ij}, AV_{ij}, CC_{ij}\}. \quad \textbf{(1.22)}$$

The variables IPR_{ij}, AV_{ij}, and CC_{ij} take a value of one if two countries establish an FTA that includes terms related to IPRs, audio-visual sectors, and cultural cooperation, respectively. If two trading pairs do not have an FTA or the existing FTAs do not include the terms in question, the variables are assigned a value of zero. The hypothesis posits that FTAs incorporating culture-specific provisions will exhibit a higher degree of effectiveness in promoting cultural trade. Suppose the coefficient of the FTA variable exhibits statistical significance while the provision coefficient does not. This suggests that the provision does not exert a substantial influence beyond that of generic FTAs. It should be noted here that the equation is re-estimated for non-cultural trade and each sub-grouping of cultural products. The results obtained from equation (1.22) are presented in tables 1.5–1.7 and are discussed in Section 1.7.2.3.

1.7 Empirical Findings

This section presents a comprehensive analysis of the research outcomes derived from equations (1.1) to (1.22) pertaining to cultural trade, non-cultural trade, and trade in each sub-grouping of cultural goods. All tables are presented at the end of the chapter.

1.7.1 *The OLS vs. PPML with traditional gravity estimates*

In order to ascertain the most suitable econometric approach for analysing the samples of cultural goods, non-cultural goods, and sub-groupings of cultural goods, I conduct a series of regression analyses employing the PPML and OLS estimators. To account for the MRTs, I employ the remoteness indices and fixed effects approaches. For each specification, I provide Ramsey's RESET p-values to identify potential model misspecification errors and determine the optimal approach for the analyses. I commence by examining the outcomes acquired for cultural trade and non-cultural trade.

1.7.1.1 *Total cultural trade vs. total non-cultural trade*

The OLS estimates from equation (1.8) are presented in column 1 of table 1.1. Overall, the results are as expected. The econometric specification exhibits a strong fit, as indicated by an R-squared value of 0.62, which is consistent with the typical performance observed in empirical

gravity models documented in the existing literature. The estimates for all covariates are statistically significant at any significance level and have expected signs.

Turning to specific estimates, I find that an increase in physical distance significantly impedes bilateral trade flows of cultural goods. Contiguity, common language, colonial relationships, and common religion are all associated with increased levels of bilateral trade in cultural products. In general, the gravity estimates are widely acknowledged in the academic literature, affirming the sample's representativeness. Additionally, I see that the estimates of ln ($OUTPUT_{i,t}$) and ln ($EXPEND_{j,t}$) exhibit statistically significant positive values, aligning with my initial expectations. In terms of magnitude, it is noteworthy that the estimated effects of the two variables are smaller than expected, which contradicts the findings reported in the existing literature.[36]

In equation (1.9), in order to account for the MRTs, I compute two new variables on the exporter and importer sides, namely $REM\_EXP_{i,t}$ and $REM\_IMP_{j,t}$. The variables in question are obtained through the process of log-transforming the output- and expenditure-weighted averages of bilateral distance. The OLS estimates derived from equation (1.9) are reported in column 2 of table 1.1. The estimates of the effects of standard gravity variables and the output and expenditure covariates remain mostly unchanged when considering the remoteness variables. Even though the coefficients of the remoteness indices are too small, contrary to my expectations, I obtain significantly adverse effects from the remoteness indices, suggesting that regions more isolated or remote from the rest of the world tend to engage in less cultural trade with one another (Yotov et al., 2016).

In equation (1.10), to account for the MRTs, I add time-varying source and destination fixed effects. This approach will capture all potential exporter- and importer-specific factors that could impact bilateral trade, whether observable or unobservable. The OLS estimates from equation (1.10) are presented in column 3 of table 1.1. The estimates for all covariates are statistically significant at any level of significance and have expected signs. Certain quantitative differences exist between the outcomes derived from equation (1.10) and the findings acquired from the preceding two equations. For example, the estimate of the negative impact of physical distance on bilateral trade flows of cultural goods is larger in column 3 than the corresponding numbers in columns 1 and 2. Additionally, the estimate of the positive impact of colonial

[36] The coefficient estimates for $OUTPUT_{i,t}$ and $EXPEND_{j,t}$, similar to Yotov et al.'s (2016) findings, are indifferent from 1. However, according to Yotov et al. (2016), these are expected to be equal to 1. The difference might arise if the inclusion of both output and expenditure factors in the panel setting captures the influence of dynamic forces (Yotov et al., 2016).

relationships is significantly smaller than it was in the previous two findings. Furthermore, the positive effect of the religious proximity index is considerably higher in column 3 than the corresponding numbers in columns 1 and 2.

According to Santos Silva and Tenreyro (2006) and Head and Mayer (2014), the log-linear estimates of the gravity equation are subject to heteroskedasticity bias. Additionally, the OLS estimator tends to overstate the impact of certain gravity variables. Santos Silva and Tenreyro (2006) propose the PPML estimator for estimating gravity equations in a multiplicative form. This estimator effectively addresses heteroscedasticity while also dealing with zero trade flows. Therefore, in equation (1.11), I employ the PPML estimator and account for the MRTs with remoteness indices. The findings are presented in the fourth column of table 1.1. There are some quantitative differences between the estimates obtained with the PPML model and the preceding three OLS models. For example, the negative impact of physical distance on cultural trade exhibits a notable decrease compared to the previous estimates. The contiguity, common language, and colonial relationship estimations remain positive; nevertheless, their magnitudes have notably decreased. Also, the common religious proximity index estimate is no longer statistically significant. These results confirm Santos Silva and Tenreyro's (2006) findings that the log-linear estimates exacerbate the impacts of standard gravity variables.

Furthermore, I observe that the estimations for the natural logarithms of $OUTPUT_{i,t}$ and $EXPEND_{j,t}$ are positive, which aligns with my expectations. In relation to magnitude, it is noteworthy that the coefficient estimates remain smaller than expected. Additionally, like the outcomes obtained from equation (1.9), I obtain significantly negative estimates of the effects of the origin and source remoteness indices, $REM\_IMP_{j,t}$ and $REM\_EXP_{i,t}$. Even though the estimates are too small in magnitude, this is still contrary to my expectations. As previously mentioned, the adverse effects of the remoteness indices indicate that locations that are more isolated or remote from the global community engage in smaller cultural trade with one another.

Finally, in equation (1.12), I adopt the widely endorsed method of incorporating directional time-varying fixed effects for accounting for the MRTs and estimate the equation with the PPML estimator. The estimates are presented in column 5 of table 1.1. In comparison to the findings presented in the preceding columns, the PPML estimates presented in column 5 demonstrate notable variations in magnitude. For instance, I obtain a significantly negative estimate of the effects of physical distance ($\hat{\beta}_1$ = -0.481, std. err. 0.053). The interpretation of this finding in terms of the trade volume effect is that, all else being constant, a 10% increase

in physical distance results in a roughly 5% reduction in cultural trade.[37] Equivalently, a 1% increase in distance would lead to a 0.48% reduction in cultural trade. In contrast to column 3, the distance elasticity is comparatively lower under the PPML model compared to the elasticity observed with the OLS model. Overman, Redding, and Venables (2003) show that the negative effect of distance on bilateral trade flows typically falls between -0.9 and -1.5. In my case, the estimated elasticity of trade to distance deviates significantly from the conventional range observed in empirical studies. The findings demonstrate that the average negative effect of distance on cultural industries is considerably lower compared to its average adverse effects on other industries.

Furthermore, the analysis reveals a significantly positive estimate of the impact of the contiguity indicator, ($\hat{\beta}_2$ = 0.665, std. err. 0.154). In terms of the trade volume effect, this implies that, holding all other factors constant, cultural trade between country pairs sharing a common border is 94%, ($e^{0.665}$-1) x 100%, higher compared to pairs of countries that do not share a common border. Additionally, I obtain a significantly positive estimate for the common language indicator ($\hat{\beta}_3$ = 0.898, std. err. 0.161), suggesting that country pairs sharing the same primary or official language engage in cultural trade that is 145% higher compared to country pairs that do not share the same official or primary language. Similarly, the colonial relationship indicator, which serves as an additional control variable, yields a significantly positive effect ($\hat{\beta}_4$ = 0.934, std. err. 0.136), suggesting that, all else being equal, countries that have or have had colonial ties post-1945 engage in cultural trade with each other at a rate that is 154% higher compared to country pairs without such colonial connections. Ultimately, I obtain a significantly positive estimate of the impact of the religious proximity index ($\hat{\beta}_5$ = 1.014, std. err. 0.224), indicating that, holding all other factors constant, a 0.01-point increase in the religious proximity index corresponds to a 1.75% increase in bilateral cultural trade. Alternatively, if the religious proximity index transitions from 0 to 1, the expected trade in cultural goods rises by 175%.

To decide which estimator fits the sample better, I present Ramsey's RESET p-values in the lower panel of table 1.1. These p-values are used to identify potential model specification errors, such as omitted variables and heteroskedasticity. While the null hypothesis (H_0) implies that there are no specification errors in the model, the alternative hypothesis (H_A) implies that the

[37] The process of deriving trade volume effects from gravity estimations is contingent upon the characteristics of the variable in question, specifically whether it is a continuous or an indicator variable. While the formula used to compute the trade volume effects of continuous variables, such as physical distance or religious proximity, is _b[lnDIST] * 100 or _b[COMRELIG] * 100, the formula used to compute the trade volume effect of indicator variables, such as FTA and CU, is ($e^{\hat{\beta}} - 1$) x 100%, where $\hat{\beta}$ represents the estimated coefficient of an indicator variable defined in the gravity equation. For detailed information, I refer the reader to Yotov et al. (2016).

model is not correctly specified. A small p-value serves as evidence to reject the null hypothesis.[38]

In the first column, I obtain a Ramsey's RESET p-value of 0.000 and thus reject the null hypothesis of the heteroskedasticity-robust RESET test at the 5% significance level. This means that the logarithmic specification, which ignores the MRTs, is not correctly specified. In a similar way, the results in columns 2 and 3 show that the two additional OLS regressions, which use the remoteness indices and fixed effects methods, respectively, have Ramsey's RESET p-values of 0.000 and therefore fail to pass the misspecification test at a significance level of 5%. Also, the specification in column 4, where I use the PPML estimator with the remoteness indices approach, has a Ramsey's RESET p-value of 0.001, leading me to reject the null hypothesis.

According to the RESET p-values, the only specification that passes the misspecification test is the PPML estimator with directional time-varying fixed effects in column 5. It has a RESET p-value of 0.482; therefore, I fail to reject the null hypothesis at any level of significance, meaning that the functional form is accurate, and the model does not exhibit any issues with omitted variables. In sum, like the findings of Santos Silva and Tenreyro (2006), the results indicate a preference for the PPML estimator with directional time-varying fixed effects over the OLS estimator.

In equation (1.13), I employ the PPML estimator with directional time-varying fixed effects to re-estimate equation (1.12), specifically focusing on non-cultural trade. Results are reported in column 6 of table 1.1. Specifically, a 10% increase in physical distance is associated with an 8.2% decrease in non-cultural trade. Equivalently, a marginal increase of 1% in physical distance would result in a corresponding reduction of approximately 0.82% in non-cultural trade. These figures closely align with the traditional estimates for the trade elasticity with respect to distance, which have been previously noted to fall within the range of -0.9 to -1.5. Additionally, while I receive significantly positive estimates of the effects of the contiguity and colonial relationship variables, the common language and common religion variables do not exhibit any statistically significant effects on non-cultural trade. Specifically, country pairs with colonial connections after 1945 engage in 66%, ($e^{0.506}$-1) x 100%, more non-cultural trade compared to country pairs with no colonial ties. Similarly, the estimate of the effects of the contiguity indicator ($\hat{\beta}_2 = 0.534$, std. err. 0.094) suggests that, all else being equal, country pairs

[38] Alternatively, if the p-value is smaller than the critical value, there is strong evidence to reject the null hypothesis, indicating a potential misspecification of the model.

that share a common border engage in 71%, ($e^{0.534}$-1) x 100%, more non-cultural trade compared to country pairs without a common border. Based on the findings, it can be inferred that physical distance exerts a greater influence on non-cultural trade, whereas the remaining standard gravity variables have a stronger impact on cultural trade.

Finally, to ascertain whether the same criteria apply to the analysis of non-cultural trade, I provide Ramsey's RESET p-value. Similar to the earlier findings on cultural trade, I observe that the PPML estimator with directional time-varying fixed effects successfully satisfies the misspecification test for non-cultural trade at all levels of significance, as indicated by a p-value of 0.216. As a result, I fail to reject the null hypothesis, suggesting that the functional form is correct, and the model does not suffer from omitted variables.

1.7.1.2 *Trade in sub-groupings of cultural goods*

I re-estimate equation (1.12) for each of the five sub-groupings of cultural goods as specified in equation (1.14). As previously acknowledged, the preferred strategy for addressing the issue of the MRTs for the cultural and non-cultural trade samples is the PPML estimator with directional time-varying fixed effects. Hence, table 1.2 presents the estimates derived from the PPML estimator that incorporates directional time-varying fixed effects. For brevity, results obtained from alternative specifications are presented in tables B1 to B5 in Appendix B.

The estimation results of each of the five sub-groupings of cultural goods exhibit variations, suggesting industry-specific characteristics. For instance, the distance coefficients exhibit a range between -0.15 and -0.87, consistently demonstrating statistical significance at the 1% significance level, except for the cultural heritage category. The physical distance between country pairs does not play a significant role in the cultural heritage trade. The audio & audio-visual media and music & performing arts categories are affected most by physical distance. More precisely, a 10% increase in physical distance results in an 8.7% and 8.2% decrease in these two sub-groupings, respectively. These are close to the average negative effect of distance on international trade, which is, as previously said, between -0.9 and -1.5.

Additionally, while the estimates of the contiguity indicator on the cultural heritage and printed matter sub-groupings are significantly positive, the estimates on the audio & audio-visual media, visual arts, and music & performing arts categories are found to be insignificant. Specifically, the estimated coefficient for the printed matter category ($\hat{\beta}_2 = 0.980$, std. err. 0.156) indicates that, holding all other factors constant, countries that share a common border engage in printed matter trade that is 166% greater than countries that do not share a common border,

($e^{0.980}$-1) x 100%. Similarly, the estimate for the cultural heritage category reveals that country pairs with a common border trade 50% more in the specified category compared to country pairs without a common border.

The estimate of the common language indicator shows that the printed matter category is the most favourably influenced category by the common language. Specifically, the findings show that, all other factors being constant, trading pairs sharing the same language trade at a rate that is 372% greater than pairs where the countries do not share the same language, ($e^{1.552}$-1) x 100%. Similarly, countries with the same official or primary language trade 75%, 85%, and 130% more in the visual arts, cultural heritage, and music & performing arts categories with respect to those not sharing the same language. Upon initial examination, common language does not appear to have a significant trade-enhancing impact in the audio & audio-visual media category. Nevertheless, I further examine this and perform regression analyses on each individual product in the specified category.

I find that country pairs sharing the same language trade 357% more in cinematographic films exposed and developed to a width of 35cm or more compared to those not sharing the same language. Similarly, country pairs with a common language trade 322% higher in cinematographic films exposed and developed to a width of less than 35mm with respect to those not sharing the same language. On the contrary, the estimate of the common language indicator for video games of a kind used with a television receiver is found to be insignificant. Hence, the insignificant common language estimate observed in the audio & audio-visual media sub-grouping can be attributed mostly to the product of video games.[39]

The estimates on the colonial relationship indicator are significant in every category except for music & performing arts. The audio & audio-visual media category is the category that experiences the greatest impact from colonial ties, ($\hat{\beta}_4$ = 1.223, std. err. 0.446), suggesting that, all else being equal, countries with colonial ties trade 239% more in the audio & audio-visual category compared to country pairs with no colonial relationship, ($e^{1.223}$-1) x 100%. Similarly, trading partners with historical colonial affiliations exhibit significantly higher levels of trade in the domains of cultural heritage, visual arts, and printed matter, with an average increase of

[39] These findings suggest heterogeneity and good-specific characteristics even within the same sub-grouping of cultural goods. This study exclusively examines the five sub-categories of cultural products. The analysis of specific cultural products within these five sub-groupings is beyond the scope of this study, although the results are available upon request.

86%, 100%, and 105%, respectively, compared to trading partners without colonial connections.

Finally, the religion proximity index estimates are positive and statistically significant in every category except for audio & audio-visual media. The visual arts category exhibits a higher degree of susceptibility than other categories. Specifically, the estimate on the religious proximity index for the visual arts category, ($\hat{\beta}_5$ = 1.320, std. err. 0.341), suggests that a 0.01-point rise in the common religion index is associated with a 2.74% increase in visual arts trade. Equivalently, when the common religion index ranges from 0 to 1, there is a substantial 274% increase in the expected trade within the domain of visual arts. Similarly, when the religion proximity index experiences a 0.01-point increase, there is a corresponding rise of 1.67%, 1.78%, and 1.82% in trade within the printed matter, music & performing arts, and cultural heritage sectors, respectively.

More importantly, at the bottom panel of table 1.2, I present Ramsey's RESET p-values corresponding to each sub-grouping of cultural goods. As was the case for cultural and non-cultural trade, I cannot reject the null hypothesis for printed matter, music & performing arts, visual arts, and audio & audio-visual media categories at the 5% significance level, meaning that the models are correctly specified. I also cannot reject the null hypothesis for the cultural heritage category at the 10% significance level. As shown at the bottom panels of tables B1–B5 in Appendix B, none of the other models pass the misspecification test. All the findings suggest that the PPML estimator with directional time-varying fixed effects is the optimal approach for this study. Henceforth, I use the PPML estimator with directional time-varying fixed effects as the primary estimator in the forthcoming sections.

1.7.2 *Trade policy effects*

This section primarily focuses on the impacts of trade policies, with a specific emphasis on FTAs, on bilateral trade flows of cultural goods, non-cultural goods, and sub-groupings of cultural goods. I add the lead and lag terms to the gravity equation to find out if the samples present reverse causality between FTAs and the dependent variables and to identify the phasing effects of FTAs on bilateral trade. I begin with the empirical outcomes obtained for cultural and non-cultural trade.

1.7.2.1 *Total cultural trade vs. total non-cultural trade*

In equation (1.15), I estimate the effects of FTAs on cultural trade. The OLS estimates are presented in column 1 of table 1.3. The estimates of the effects of the standard gravity variables

are nearly identical to the corresponding numbers in column 3 of table 1.1, where I exclude trade policy variables. This means that the exclusion of trade policy variables from the equation does not bias the traditional gravity estimates. More importantly, I obtain significantly positive estimates of the effects of the FTA indicator ($\hat{\beta}_8$ = 0.522, std. err. 0.032). In terms of the trade volume effect, the coefficient estimate suggests that, holding all other factors constant, the establishment of an FTA leads to a 69% increase in cultural trade among member states, ($e^{0.522}$-1) x 100%.[40] The average decrease in tariff-equivalent resulting from the implementation of the FTA indicator is 10%.[41] This is both economically and statistically significant. Similarly, I obtain significantly positive estimates of the effects of the customs union and the joint WTO membership indicators. Specifically, country pairs that are part of the same customs union engage in 142% more cultural trade in comparison to country pairs that do not belong to the same customs union. Similarly, country pairs that are joint members of the WTO trade 37% more in cultural goods compared to those with no joint WTO membership.

I employ the PPML estimator for the same specification as presented in equation (1.16), whereby directional time-varying fixed effects are incorporated into the equation. The estimates are presented in column 2 of table 1.3. The estimates of the traditional gravity variables remain broadly unchanged and maintain statistical significance at the 1% significance level. Nevertheless, the analysis reveals that the coefficient estimate for the FTA indicator is statistically insignificant ($\hat{\beta}_8$ = 0.0636, std. err. 0.115), suggesting that there is no evidence to imply that FTAs have an impact on overall cultural trade. The estimate on the joint WTO membership indicator remains significantly positive and gains magnitude. However, the customs union indicator turns out to be statistically insignificant.

[40] Because I apply a logarithmic transformation to the dependent variable, the interpretation of the OLS coefficient is the same as the PPML interpretation.

[41] The structural gravity model provides a means for scholars and policymakers to convert the consequences of implementing various trade policy factors into an equivalent effect represented by a tariff. This allows for the identification of the specific ad-valorem tariff that, if eliminated, would have produced a comparable outcome to the trade policy being examined. The formula for determining the tariff-equivalent effect is expressed as ($e^{\widehat{\beta}/-\sigma}$ – 1) x 100%, with σ representing the trade elasticity of substitution. If the estimates of the trade elasticity of substitution can be acquired from external studies, there is no necessity to gather tariff data for the computation of the tariff-equivalent effect (Yotov et al., 2016). Therefore, following Anderson and van Wincoop (2004), Bergstrand et al. (2013), and Yotov et al. (2016), I use a value of 5 for the trade elasticity of substitution. In a study comparable to this research, Felbermayr et al. (2020) utilise a sigma value of 4. Consequently, the formula employed to compute the tariff-equivalent effect is expressed as ($e^{\widehat{\beta}/-5}$ – 1) x 100%. This formula can also be applied to the coefficient estimates of standard gravity variables and other trade policy variables. For a comprehensive analysis of the effects of various trade elasticities, I direct the reader to the research conducted by Felbermayr et al. (2015). In addition, for further details about the formulas and interpretations of the estimations generated from the structural gravity equation, please refer to the work of Yotov et al. (2016).

The insignificant estimates can arise from the fluctuation of the CU variable over time. Contrary to FTAs, the variability of the CU variable is expected to remain relatively constant once a country has joined a CU. The little variability over time for each nation-pair and year can lead to the issue of collinearity with the time-varying exporter and importer fixed effects. Heid, Larch, and Yotov (2021) show that the best solution for this problem is the inclusion of domestic trade flows into the analysis. However, due to data limitations, I rely solely on bilateral trade data. Chapter 3 will thoroughly discuss the data limitations that led me to solely rely on bilateral trade flows.

Equation (1.16) accounts for the MRTs while not addressing the potential endogeneity of FTAs. One potential explanation for the insignificant FTA coefficient is the potential endogeneity issue between FTAs and cultural trade. Thus, in equation (1.17), I augment the specification with country-pair fixed effects to account for the potential endogeneity of trade policies (controlling for all observed and unobserved pair-specific heterogeneity). The estimates are presented in column 3 of table 1.3. After incorporating country-pair fixed effects, the coefficient estimate on FTA ($\hat{\beta}_8 = 0.248$, std. err. 0.088) attains both statistical and economic significance. In terms of trade volume effect, this implies that, all else being equal, the establishment of an FTA results in an average increase of about 28%, $(e^{0.248} - 1) \times 100$, in bilateral cultural trade between member states. The average decline in tariff-equivalent resulting from the implementation of FTAs would be approximately 5%. The coefficient in question exhibits a greater magnitude when compared to the prior set of results, which aligns with the estimations made by Baier and Bergstrand (2007) and Piermartini and Yotov (2016). Similarly, when country-pair fixed effects are taken into account, the analysis shows a very positive estimate for the customs union indicator. The results suggest that nations participating in the same customs union exhibit a 68% higher level of cultural trade compared to those not involved in the same customs union. However, this time, the estimate on the joint WTO indicator turns out to be insignificant.

In equation (1.18), I examine the potential presence of reverse causality between trade in cultural goods and FTAs. To assess this, I employ a methodology inspired by Wooldridge (2010) that incorporates a straightforward test for the strict exogeneity of FTAs. This involves introducing lead terms for FTAs, denoted as $FTA_{ij,t+4}$, into the equation. As per Wooldridge's (2010) findings, the correlation between $FTA_{ij,t+4}$ and the current trade flow should be negligible if there is no influence of trade flows on FTAs. The findings are reported in column 4 of table 1.3. The empirical findings indicate a statistically significant positive effect of the future level of FTA on the current cultural trade flows. Hence, it is important to keep in mind that the

specification may still be subject to potential reverse causality arising from the relationship between cultural trade and FTAs.[42]

In equations (1.19)–(1.21), following Baier and Bergstrand (2007), I introduce the lags of FTAs to consider the possible phasing-in effects of FTAs on cultural trade. Columns 5–7 of table 1.3 present the lagged effects of FTAs with four-year, four-and-eight-year, and four-, eight-, and twelve-year lags, respectively. The cumulative average treatment effects of FTAs are documented in the lower panel of table 1.3. I find the coefficient estimates for the lag terms to be statistically insignificant, suggesting no evidence of phasing-in effects of FTAs on cultural trade.[43]

To compare whether FTAs have differential effects on cultural and non-cultural trade, I also estimate the effects of trade policies on non-cultural trade. Table (1.4) presents the results obtained for non-cultural trade. These results can be compared with those presented in column 2 of table 1.3, whereby the same specification was employed to analyse overall cultural trade. The integration of trade policy factors into the equation does not introduce any bias to the prior estimates of traditional gravity variables. The traditional gravity estimates are nearly identical in both columns.

Also, results in column 2 reveal that the estimates on the FTA, CU, and joint WTO membership indicators are all significantly positive, even in the absence of country-pair fixed effects. Specifically, the estimate on the FTA indicator ($\hat{\beta}_8 = 0.303$, std. err. 0.051) shows that the existence of an FTA leads to an average increase of 35% in the bilateral trade flows of non-cultural goods between member countries. Likewise, the analysis of the CU indicator reveals that country pairs belonging to the same customs union engage in non-cultural trade at a rate that is 37% higher compared to country pairings that do not share the same customs union. Ultimately, the findings of this study demonstrate that bilateral trade between countries that are both members of the WTO is 35% higher for non-cultural goods in comparison to nation pairs where at least one member is not part of the WTO.

[42] As I already use 5-year data points from 1999 to 2019, in addition to addressing the effects of the four-year future level of FTAs, $FTA_{ij,t+4}$, I also address the effects of the one-year future level of FTAs, $FTA_{ij,t+1}$, on the current cultural trade flows. The findings reveal that the effect of $FTA_{ij,t+1}$ on cultural trade flows is neither economically nor significantly different from zero, indicating the absence of reverse causality in the sample. Results are not presented here but are available upon request.

[43] In addition to the above-mentioned lags, I also introduced two-year, four-year, and six-year lags of FTAs to see if there are any statistically significant differences. Their coefficient estimates align with previous research findings and are statistically insignificant. The findings are not presented here but are available upon request.

When I introduce country-pair fixed effects in column 3, the FTA and CU indicators remain significantly positive, albeit with reduced magnitudes. However, the joint WTO membership indicator turns out to be insignificant. Specifically, the estimate on the FTA indicator ($\hat{\beta}_8$ = 0.118, std. err. 0.025) suggests that, all other factors being constant, the formation of an FTA leads to an average increase of about 13%, ($e^{0.118}$ – 1) x 100, in international trade flows of non-cultural goods between member states. Similarly, the findings indicate that country pairs that are part of the same customs union trade 38% more in non-cultural goods compared to those that are not part of the same customs union.

Furthermore, to investigate the potential reverse causality between non-cultural trade and FTAs, I analyse the $FTA_{ij,t+4}$ in column 4, representing a four-year future lead term. The coefficient of $FTA_{ij,t+4}$ on total non-cultural trade is statistically insignificant, suggesting no observable evidence of reverse causality within the examined sample.[44] Additionally, I provide the cumulative average treatment effects of FTAs on non-cultural trade with four-year, four- and eight-year, and four-, eight-, and twelve-year lags in columns 5–7 of table 1.4, respectively. While the cumulative average treatment effects with four- and eight-year, and four-, eight-, and twelve-year lags are statistically insignificant, it is significantly positive with a four-year lag (0.128), suggesting that, all else equal, the formation of an FTA leads to a 14% increase in the bilateral trade flows of non-cultural goods after a period of four years, ($e^{0.128}$ – 1) x 100%. Given that the FTA effect was 13% in column 3, the analysis suggests limited support for the notion that FTAs have gradual phasing-in effects on non-cultural trade.

1.7.2.2 *Trade in sub-groupings of cultural goods*

To examine the potential heterogeneity of the effects of trade policies, particularly FTAs, the above specifications are re-estimated for each of the five sub-groupings of cultural goods: cultural heritage, printed matter, music & performing arts, visual arts, audio & audio-visual media. This set of results can be compared with the estimates of total cultural trade reported in table 1.3. For brevity, estimation results obtained for the five sub-categories are listed in tables C1–C5 in Appendix C.

First, the estimates of the standard gravity variables presented in columns 2 of tables C1–C5 are nearly indistinguishable from those shown in table 1.2, whereby trade policy variables were disregarded. This suggests that the omission of trade policy variables does not bias the

[44] As a robustness check, I also introduce the one-year future lead term, $FTA_{ij,t+1}$, and further investigate the absence of reverse causality. The findings confirm that the sample does not exhibit reverse causality between non-cultural trade and FTAs. Results are not presented here but are available upon request.

traditional gravity estimates. Briefly, the coefficient on distance is not statistically significant for cultural heritage, whereas it is negative and statistically significant for all the other four sub-groupings. The magnitude of the coefficient is, however, different across sub-categories: it is smaller for visual arts (-0.317), while it is higher for printed matter (-0.439), audio & audio-visual media (-0.412), and music & performing arts (-0.548) (associated coefficients are given in parenthesis). Sharing a common border matters positively and significantly for cultural heritage goods (with a coefficient of 0.408) and, even more, for the printed matter sub-grouping (with a coefficient of 0.993). However, it is not a statistically significant driver of trade for other types of cultural goods. Sharing the same primary or official language has significantly positive impacts on the visual arts, music & performing arts, and printed matter categories. Remarkably, language similarity has 2.5 times larger positive effects on the printed matter category (with a coefficient of 1.573) than that reported for total cultural trade. However, the coefficient estimates of the effects of the common language indicator are not significant for the cultural heritage and audio & audio-visual categories (see 36). When examining the colonial connections, it becomes apparent that they are relevant solely to printed matter and audio & audio-visual media categories. Specifically, country pairs with colonial linkages trade 312% and 130% more in the audio & audio-visual media and printed matter categories with respect to those without colonial linkages. Finally, common religion positively and significantly increases trade for every category except for audio & audio-visual media, with the magnitude of the coefficients quite consistent across each category and similar to the coefficient obtained for total cultural trade.

More importantly, in regard to the effects of trade policies on the sub-groupings of cultural goods, it is noteworthy to highlight that, in contrast to the findings pertaining to overall cultural trade, the analysis reveals that, when not considering the potential endogeneity of trade policies, the FTA indicator demonstrates a positive and statistically significant effect at the 1% significance level in only two of the five sub-categories, which are music & performing arts and audio & audio-visual media. However, after I tackle the endogeneity issue in columns 3 of tables C1–C5, the coefficient estimates of FTAs on these two sub-groups become insignificant. Nevertheless, the findings reveal that the impacts of FTAs are notably beneficial for the cultural heritage and visual arts domains. In particular, after I tackle the potential endogeneity of FTAs, I observe that the formation of an FTA leads to an average 38% increase in cultural heritage trade, ($e^{0.323}$ – 1) x 100, and a 24% increase in visual arts trade, ($e^{0.218}$ – 1) x 100.

The coefficient estimates on the joint WTO membership indicator are significantly positive only for the audio & audio-visual media and printed matter categories. Specifically, there is a

284% increase in audio & audio-visual media trade between countries that are involved in the same customs unions, as opposed to countries that are not part of the same customs unions. Similarly, being part of the same customs union leads country pairs to trade 63% more in the printer matter category. Like total cultural trade, I obtain insignificant estimates of the effects of the joint WTO participation indicator on the sub-groupings of cultural goods (see footnote 3).

Additionally, I test the potential reverse causality between trade in each sub-grouping of cultural goods and FTAs. Results are presented in columns 3 of tables C1–C5. All the categories pass the strict exogeneity test except for audio & audio-visual media, where the magnitude is too small, and the coefficient is statistically significant only at the 10% significance level. The findings indicate that the phenomenon of reverse causality is not observed within sub-categories of cultural products.[45]

Finally, given the fact that FTAs may lead to benefits which are deferred over time, I introduce the lags of FTAs to consider the possible phasing-in effects of FTAs on each sub-grouping of cultural goods. The cumulative average treatment effects of FTAs are introduced at the bottom panel of tables C1–C5 in Appendix C. Specifically, the cumulative average treatment effects on the cultural heritage category with four-, eight-, and twelve-year lags is 0.371. This suggests that, holding all other factors constant, the establishment of an FTA leads to a 45% increase in the bilateral trade flows of cultural heritage goods after a twelve-year period, ($e^{0.371} - 1$) x 100%. Remember that the FTA effect was 38% in this category. Similarly, the cumulative average treatment effects of FTAs on the visual arts category with four- and eight-year lags is determined to be 0.429. This indicates that, following a period of eight years, the establishment of an FTA leads to a significant rise in the bilateral trade flows of visual arts, amounting to around 54%, ($e^{0.429} - 1$) x 100%), as observed in column 6 of table C4. I remind the reader that the FTA effect was only 24% in this category. Finally, with four-, eight-, and twelve-year lags, the cumulative average treatment effects of FTAs on printed matter is 0.137, suggesting that the formation of an FTA increases trade in this category by about 15% following a twelve-year period. The FTA coefficient itself was not statistically significant for this category. These results confirm that the average FTA effects on these sub-categories tend to occur over time.

[45] To ensure the reliability of the findings, I perform a robustness check by introducing the one-year future lead term, $FTA_{ij,t+1}$, and further investigate the absence of reverse causality in each sub-grouping of cultural goods. All sub-groups successfully pass the strict exogeneity test except for the music & performing arts category. Results are not presented here but are available upon request.

1.7.2.3 *The effects of culture-specific provisions*

In equation (1.22), the analysis focuses on the impacts of trade agreements that explicitly consider three culture-specific domains: IPRs, AV, and CC. Results are presented in tables 1.5–1.7. Specifically, I include two dummy variables: one takes a value of zero if there is an FTA in place that does not include the provision under consideration, whereas the second one takes a value of one when there is an FTA in place that incorporates the provision. These variables facilitate the distinction between FTAs that include provisions relevant to cultural trade and those that do not. Assuming that the coefficient of the FTA variable without a specific provision has statistical significance, whilst the coefficient of the other FTA variable that incorporates that provision does not reflect such significance. It can be inferred that the provision does not have a significant impact beyond the impacts of FTAs. Therefore, it is important to note that while a statistically significant and positive coefficient would indicate that agreements containing these provisions increase trade in cultural goods, it would not indicate whether they do so differently (more or less) than general FTAs.[46]

Table (1.5) presents the findings of a comparative analysis between FTAs that include IPR provisions (beyond the TRIPS, which prescribe the minimum standards of IPR protection that WTO members must guarantee) and those that do not. Results presented in column 1 of table 1.5 show that the coefficient estimates of the effects of FTAs (with and without IPR chapters) on overall cultural trade are both significantly positive. Specifically, the estimate of the effects of FTAs containing IPR provisions has a coefficient of 0.203, suggesting that, all else being equal, the formation of an FTA including an IPR chapter has additional trade-enhancing effects in addition to the effects already attributed to FTAs. The coefficient estimates obtained for each sub-grouping of cultural goods are presented in columns 2–6 of table 1.5. The estimates indicate that FTAs covering IPRs matter only for the cultural heritage category. Specifically, the coefficient estimate of the effects of FTAs including IPR chapters on bilateral trade flows of cultural heritage goods is found to be statistically significant, with a coefficient of 0.448, suggesting that, all else being equal, FTAs including IPR chapters increase bilateral trade flows of cultural heritage goods by about 56%. The effect of FTAs without IPR chapters, however, is found to be inconsequential. The previous FTA effect on this category was 38% (see column 3 of table C1 in Appendix C). This suggests that the main driver of this effect is the FTAs encompassing IPR chapters.

[46] This could be tested by including a dummy for all FTAs (with and without culture-specific provisions) and one denoting those FTAs with IPR, CC, or AV elements. In this alternative approach, the coefficient on the second dummy would say whether this effect is larger, smaller, or indistinguishable from the baseline of a non-specific FTA.

The estimates of the effects of FTAs containing IPR provisions are found to be insignificant for the other sub-categories of cultural goods. One potential explanation for this statistical insignificance may be that FTA members do not make any extra substantial commitments beyond TRIPS. Also, as I previously noted, there is heterogeneity and good-specific characteristics across products within the same sub-grouping of cultural goods. The effects of IPRs beyond those of generic FTAs may be observed for specific cultural products. As an illustration, there are a total of fourteen products categorised under the sub-grouping of printed matter. Certain products, such as books and dictionaries, may exhibit a higher degree of sensitivity towards IPR issues when compared to other printed matter products like newspapers, stamps, and calendars. The findings obtained for non-cultural trade are presented in column 7. It is evident that both FTA indicators, whether inclusive or exclusive of IPR chapters, exhibit notably positive coefficients. This implies that IPR chapters in FTAs contribute positively to the bilateral trade flows of non-cultural goods.

Furthermore, I examine if FTAs that include AV provisions yield impacts beyond those observed in standard FTAs. The findings presented in columns 1–7 of table 1.6 reveal that the existence of FTAs, irrespective of AV agreements, has significantly positive impacts solely on overall cultural trade (0.258), non-cultural trade (0.133), and the trade of cultural heritage (0.398). However, FTAs with clauses relevant to the AV sectors matter only for the trade in visual arts (0.638) and non-cultural goods (0.107). Surprisingly, AV provisions seem to play no trade-enhancing role in audio & audio-visual media. This, once again, could be explained by the fact that there are good-specific characteristics even within the same sub-groupings of cultural goods. Certain cultural products under the audio & audio-visual category, such as cinematographic films, may exhibit greater relevance when accompanied by AV provisions, in contrast to other products like video games.

Finally, I compare the estimates of the effects of FTAs with and without cultural cooperation provisions. The empirical findings are presented in table 1.7. The analysis reveals that FTAs without CC clauses have significantly positive impacts on the trade of cultural, non-cultural, and cultural heritage goods. Nevertheless, FTAs that include cultural cooperation clauses do not yield significant outcomes beyond those of conventional FTAs.

1.8 Concluding Remarks

Over the last two decades, there has been significant growth in the international trade of cultural products. The advent of digitalisation has greatly encouraged global cultural and economic activities, integrating the digital economy into our daily lives and impacting the consumption,

production, and dissemination of cultural goods. Many cultural goods have transitioned from physical objects to intangible digital formats, such as the replacement of DVDs and CDs by streaming services like Netflix and Spotify. Concurrently, globalisation has played an essential role in transforming cultural industries, bringing about changes in social dynamics, technological advancements, and the emergence of new types of economies. International trade agreements have adapted to these transformations, with the number of FTAs consistently growing each year. These agreements now encompass a broader range of policy domains, including an increasing number of provisions related to IPR protections, cultural cooperation, and audio-visual co-production agreements. As a result, cultural trade has experienced substantial growth and gained significant attention due to its influence on sustainable economic growth, the promotion of cultural diversity, the mitigation of inequalities, and the advancement of human development.

This chapter examines the effects of trade policies and culture-specific provisions on bilateral trade flows of cultural goods, non-cultural goods, and five sub-groupings of cultural goods. To this end, I have exploited the versatility of the gravity model, building upon the framework employed in a comparable study conducted by Disdier et al. (2010). Subsequently, I updated the sample to the latest available data and augmented the model with indicators capturing the existence of trade policies, such as FTAs, and their coverage of intellectual property rights, cultural cooperation, and audio-visual co-production provisions.

I examine the suitability of several econometric techniques through the application of various model specification tests to determine the model that best fits the cultural trade sample. The preferred choice of estimator is the PPML estimator, which incorporates a comprehensive set of directional time-varying fixed effects to account for the MRTs and country-pair fixed effects to address the potential endogeneity of FTAs. This estimator stands out as the only one that successfully satisfies the misspecification test.

The empirical findings suggest that the physical distance between country pairs has a greater negative impact on non-cultural trade than on cultural trade. Specifically, the estimated adverse effects of distance on bilateral trade flows of cultural and non-cultural goods are -0.40% and -0.71%, respectively. The coefficients reflect differences in magnitude across different sub-categories of cultural products. In particular, the coefficient associated with visual arts exhibits a relatively smaller magnitude (-0.317), whilst the coefficients corresponding to audio & audio-visual media (0.412), printed matter (0.439), and music & performing arts (0.548) demonstrate larger magnitudes (the associated coefficients are given in parenthesis).

All the other standard gravity variables—common language (0.927), common religion (0.977), colonial relationship (0.979), and common border (0.676)—play substantial trade-enhancing roles in total cultural trade, whereas non-cultural trade is primarily influenced by contiguity (0.517) and colonial connections (0.549). I observe heterogeneous effects across different sub-groupings of cultural goods. Precisely, contiguity matters for cultural heritage (0.408) and printed matter (0.993), while the presence of a common language is of importance in the domains of music & performing arts (0.815), visual arts (0.432), and printed matter (1.573). The presence of colonial connections has been found to have notable favourable effects on the categories of audio & audio-visual media (1.417) and printed matter (0.831). In contrast, common religion is found to be a significant driver of trade in the domains of cultural heritage (1.192), music & performing arts (1.111), visual arts (1.439), and printed matter (0.972).

With respect to the primary variable of interest, the estimates suggest that FTAs increase cultural trade by 28%. This surpasses the effects of FTAs on non-cultural trade by a factor of more than two, with the latter accounting for a mere 13%. Additionally, FTAs have favourable impacts on the bilateral trade flows of the visual arts (24%) and cultural heritage (38%) domains. These impacts become evident after employing the country-pair fixed effect approach, which effectively addresses the potential endogeneity of FTAs. Furthermore, some sub-categories of cultural products experience the consequences of FTAs several years after their implementation. Specifically, the impacts of FTAs on the categories of printed matter (15%), cultural heritage (45%), and visual arts (54%) exhibit a notable increase following a twelve-year timeframe.

In relation to the estimations concerning the impacts of other trade policy variables, the empirical investigation demonstrates that participation in the same customs unions significantly enhances bilateral trade flows of cultural goods by 68%, non-cultural goods by 38%, printed matter products by 63%, and audio & audio-visual media products by 284%. However, I find consistently insignificant estimates of the effects of the joint WTO membership indicator. These insignificant estimates support the conclusions drawn by Rose (2004) regarding the lack of effectiveness exhibited by the WTO and its precursor, the GATT, in promoting international trade.

Finally, I examine whether FTAs incorporating culture-specific provisions, namely IPRs, audio-visual co-production, and cultural cooperation, have additional impacts beyond generic FTAs. The empirical analysis reveals that the incorporation of IPRs into FTAs matters for the trade in cultural, non-cultural, and cultural heritage goods. FTAs with clauses relevant to the

audio-visual sectors matter only for the trade in visual arts and non-cultural goods. In contrast, FTAs incorporating provisions aimed at promoting cultural cooperation do not have any statistically significant impact beyond that of generic FTAs. The policy implications of these results are thoroughly discussed in the General Conclusion section at the end of the thesis.

This study highlights the importance of negotiating FTAs that include robust cultural provisions. Policymakers should prioritise these provisions to enhance bilateral cultural trade and support the growth of the cultural sector. Given the significant positive effects of IPR protections, these should be ensured in FTAs. Additionally, provisions related to audio-visual co-productions and cultural cooperation should be strengthened.

The evidence of phasing-in effects for certain cultural sectors suggests that policymakers should consider the long-term impacts of FTAs and provide ongoing support to help industries adjust and take full advantage of new trade opportunities. Businesses in the visual arts, printed matter, and cultural heritage sectors should explore opportunities in countries with which their home country has FTAs.

Cultural trade can contribute to sustainable economic growth, cultural diversity, and human development. Practitioners should promote cultural industries as a key component of economic development strategies. The growth of cultural trade can help mitigate inequalities by providing opportunities for diverse cultural expressions and access to global markets for cultural products from different regions.

The significant growth in cultural trade facilitated by FTAs can contribute to overall economic growth. By fostering cultural industries, countries can diversify their economies and reduce dependency on traditional sectors. Increased cultural trade promotes global cultural exchange, enhancing mutual understanding and cooperation between nations. This can lead to stronger diplomatic and cultural ties, benefiting international relations.

In summary, the study's findings highlight the importance of strategic trade policies and agreements that support cultural industries, the potential long-term benefits of such agreements, and the broader economic and social impacts of increased cultural trade. These insights can guide future policy decisions and trade negotiations to foster a more vibrant and inclusive global cultural economy.

	(1) lnCLTRL	(2) lnCLTRL	(3) lnCLTRL	(4) CLTRL	(5) CLTRL	(6) NON-CLTRL
lnDIST	-0.502***	-0.514***	-0.706***	-0.152***	-0.481***	-0.822***
	(0.017)	(0.017)	(0.016)	(0.050)	(0.053)	(0.029)
CONTIG	1.572***	1.553***	1.236***	0.770***	0.665***	0.534***
	(0.117)	(0.116)	(0.103)	(0.189)	(0.154)	(0.094)
COMLANG	0.578***	0.581***	0.530***	0.474***	0.898***	-0.023
	(0.032)	(0.032)	(0.030)	(0.169)	(0.161)	(0.079)
COL45	2.111***	2.095***	1.080***	0.497***	0.934***	0.506**
	(0.127)	(0.126)	(0.159)	(0.191)	(0.136)	(0.202)
COMRELIG	0.197***	0.197***	0.380***	0.130	1.014***	0.125
	(0.047)	(0.047)	(0.041)	(0.217)	(0.224)	(0.098)
lnOUTPUT	0.443***	0.446***		0.999***		
	(0.004)	(0.004)		(0.030)		
lnEXPEND	0.442***	0.450***		0.996***		
	(0.005)	(0.005)		(0.043)		
lnREM_EXP		-0.093***		-0.075***		
		(0.003)		(0.017)		
lnREM_IMP		-0.074***		-0.074***		
		(0.002)		(0.010)		
Constant	-2.407***	2.330***	7.747***	-12.53***	15.06***	22.51***
	(0.176)	(0.213)	(0.146)	(1.404)	(0.453)	(0.249)
i, t FEs	No	No	Yes	No	Yes	Yes
j, t FEs	No	No	Yes	No	Yes	Yes
Observations	114,251	114,251	116,381	114,251	114,230	110,834
R-squared	0.622	0.625	0.723	0.747	0.702	0.829
Reset p-vals	0.000	0.000	0.000	0.001	0.482	0.216

Table 1.1: Traditional gravity estimates for cultural trade

Notes: Columns 1–5 report a series of gravity estimates for cultural trade, whereas column 6 presents the estimates of the effects of standard gravity variables on non-cultural trade. All estimates are obtained with data for the years 1999, 2004, 2009, 2014, and 2019. Columns 1–3 use the OLS estimator. While column 1 ignores the MRTs, remoteness indices and directional time-varying fixed effects approaches are employed in columns (2) and (3), respectively. Columns 4–6 employ the PPML estimator. While column 4 uses remoteness indices, columns 5 and 6 augment the gravity equation with directional time-varying fixed effects to account for the MRTs. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) HRTG	(2) PRINT	(3) MUSIC	(4) VISUAL	(5) AUDIO
lnDIST	0.098	-0.622***	-0.821***	-0.145**	-0.868***
	(0.096)	(0.062)	(0.053)	(0.071)	(0.140)
CONTIG	0.616**	0.980***	0.163	0.287	0.194
	(0.240)	(0.156)	(0.178)	(0.180)	(0.327)
COMLANG	0.376**	1.552***	0.835***	0.560***	-0.045
	(0.158)	(0.178)	(0.185)	(0.171)	(0.249)
COL45	0.619***	0.718***	0.110	0.698***	1.223***
	(0.199)	(0.184)	(0.219)	(0.193)	(0.446)
COMRELIG	1.040**	0.982***	1.024***	1.320***	0.618
	(0.514)	(0.241)	(0.325)	(0.341)	(0.535)
Constant	9.035***	14.20***	14.75***	12.20***	18.41***
	(0.861)	(0.534)	(0.446)	(0.629)	(1.187)
i, t FEs	Yes	Yes	Yes	Yes	Yes
j, t FEs	Yes	Yes	Yes	Yes	Yes
Observations	53,228	105,907	50,310	93,375	51,152
R-squared	0.780	0.670	0.693	0.774	0.509
Reset p-vals	0.033	0.782	0.056	0.373	0.145

Table 1.2: Traditional gravity estimates for the sub-categories of cultural goods

Notes: Columns 1–5 present the estimates of the effects of standard gravity variables for cultural heritage, printed matter, music & performing arts, visual arts, and audio & audio-visual media, respectively. All estimates are obtained with the PPML estimator using data for the years 1999, 2004, 2009, 2014, and 2019. To account for the MRTs, time-varying exporter and importer fixed effects are used in all columns. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
lnDIST	-0.527***	-0.396***					
	(0.015)	(0.078)					
CONTIG	1.072***	0.676***					
	(0.088)	(0.168)					
COMLANG	0.498***	0.927***					
	(0.026)	(0.172)					
COL45	1.130***	0.979***					
	(0.156)	(0.246)					
COMRELIG	0.361***	0.977***					
	(0.036)	(0.269)					
WTO_MEM	0.316***	1.230***	0.339	0.303	0.325	0.314	0.312
	(0.027)	(0.285)	(0.418)	(0.424)	(0.419)	(0.421)	(0.420)
CU	0.885***	0.351	0.520***	0.524***	0.531***	0.534***	0.537***
	(0.045)	(0.275)	(0.141)	(0.142)	(0.142)	(0.142)	(0.142)
FTA	0.522***	0.064	0.248***	0.167**	0.263***	0.246***	0.237***
	(0.032)	(0.115)	(0.089)	(0.079)	(0.090)	(0.094)	(0.089)
FTA_LEAD4				0.231***			
				(0.081)			
FTA_LAG4					-0.044	-0.007	-0.006
					(0.075)	(0.072)	(0.072)
FTA_LAG8						-0.057	-0.013
						(0.079)	(0.160)
FTA_LAG12							-0.055
							(0.176)
Constant	5.891***	13.08***	11.59***	11.57***	11.61***	11.63***	11.63***
	(0.137)	(0.710)	(0.409)	(0.414)	(0.410)	(0.415)	(0.413)
Total FTA Effect					0.219**	0.183	0.164
					(0.102)	(0.128)	(0.120)
Observations	116,381	114,230	70,171	70,171	70,171	70,171	70,171
R-squared	0.730	0.705	0.743	0.743	0.743	0.743	0.743

Table 1.3: Trade policy effects on cultural trade

Notes: Columns 1–7 report the analysis of trade policy effects on bilateral trade flows of cultural goods using 5-year intervals. All estimates are obtained with data for the years 1999, 2004, 2009, 2014, and 2019. Column 1 employs the OLS estimator, whereas columns 2–7 employ the PPML estimator. Directional time-varying fixed effects are employed in all columns. Columns 3–7 add country-pair fixed effects to address the potential endogeneity of FTAs. Column 4 introduces the lead term to test for the potential reverse causality between cultural trade and FTAs. Columns 5–7 use FTA lags to address the potential phasing-in effects of FTAs. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
lnDIST	-1.429***	-0.713***					
	(0.029)	(0.034)					
CONTIG	1.135***	0.517***					
	(0.164)	(0.091)					
COMLANG	0.992***	-0.046					
	(0.046)	(0.077)					
COL45	1.411***	0.549***					
	(0.181)	(0.169)					
COMRELIG	0.208***	0.023					
	(0.066)	(0.100)					
WTO_MEM	0.591***	0.312**	0.148	0.145	0.152*	0.146	0.145
	(0.069)	(0.147)	(0.091)	(0.091)	(0.091)	(0.091)	(0.091)
CU	0.167*	0.315***	0.324***	0.325***	0.320***	0.324***	0.324***
	(0.089)	(0.090)	(0.054)	(0.054)	(0.055)	(0.054)	(0.055)
FTA	0.521***	0.303***	0.118***	0.116***	0.112***	0.106***	0.105***
	(0.053)	(0.051)	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)
FTA_LEAD4				0.008			
				(0.021)			
FTA_LAG4					0.017	0.028	0.028
					(0.023)	(0.024)	(0.024)
FTA_LAG8						-0.021	-0.017
						(0.023)	(0.028)
FTA_LAG12							-0.007
							(0.028)
Constant	16.86***	21.17***	15.95***	15.95***	15.95***	15.96***	15.96***
	(0.265)	(0.329)	(0.086)	(0.086)	(0.086)	(0.085)	(0.085)
CATE					0.128***	0.113***	0.109***
					0.031	0.036	0.039
Observations	112,597	110,834	71,360	71,360	71,360	71,360	71,360
R-squared	0.844	0.886	0.886	0.886	0.886	0.886	0.886

Table 1.4: Trade policy effects on non-cultural trade

Notes: Columns 1–7 report a series of gravity estimates on bilateral trade flows of non-cultural goods using 5-year intervals. All estimates are obtained with data for the years 1999, 2004, 2009, 2014, and 2019. While column 1 employs the OLS estimator, columns 2–7 employ the PPML estimator. Directional time-varying fixed effects are employed in every column. Columns 3–7 add country-pair fixed effects to account for the potential endogeneity of FTAs. Column 4 introduces the lead term to test for the potential reverse causality between non-cultural trade and FTAs. Columns 5–7 use FTA lags to address potential phasing-in effects of FTAs on non-cultural trade. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) CLTRL	(2) HRTG	(3) PRINT	(4) MUSIC	(5) VISUAL	(6) AUDIO	(7) NONCLTRL
WTO_MEM	0.427	-1.007*	0.734	0.333	-1.411***	0.874	0.161*
	(0.319)	(0.611)	(0.589)	(0.823)	(0.306)	(0.772)	(0.095)
CU	-0.064	1.002**	0.029	-1.245**	0.003	1.920***	0.530***
	(0.226)	(0.503)	(0.285)	(0.617)	(0.292)	(0.456)	(0.118)
1.FTA#0b.IPR	0.495*	-0.420	-0.036	-0.073	1.102***	-0.325	0.115*
	(0.268)	(0.391)	(0.110)	(0.391)	(0.248)	(0.422)	(0.060)
1.FTA#1.IPR	0.203***	0.448***	0.070	0.173	0.044	0.002	0.129***
	(0.076)	(0.147)	(0.048)	(0.214)	(0.157)	(0.440)	(0.029)
Constant	11.76***	11.61***	10.40***	8.979***	12.95***	11.28***	16.05***
	(0.313)	(0.592)	(0.555)	(0.774)	(0.294)	(0.757)	(0.087)
Observations	69,942	10,496	58,172	12,163	41,992	11,771	73,108
R-squared	0.739	0.798	0.743	0.858	0.812	0.545	0.882

Table 1.5: FTA–IPR effect on cultural trade

Notes: Columns 1–7 report a set of gravity estimates to investigate the effects of FTAs, with and without IPR provisions, on total bilateral trade flows of cultural, cultural heritage, printed matter, music & performing arts, visual arts, audio & audio-visual media, and non-cultural trade goods, respectively. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. All regressions include directional time-varying fixed effects and country-pair fixed effects. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) CLTRL	(2) HRTG	(3) PRINT	(4) MUSIC	(5) VISUAL	(6) AUDIO	(7) NONCLTRL
WTO_MEM	0.412	-1.008*	0.738	0.319	-1.623***	0.876	0.161*
	(0.324)	(0.612)	(0.586)	(0.820)	(0.385)	(0.764)	(0.096)
CU	-0.032	1.010**	0.019	-1.274**	0.172	1.878***	0.529***
	(0.228)	(0.510)	(0.285)	(0.627)	(0.308)	(0.454)	(0.118)
1.FTA#0b.AV	0.258***	0.398***	0.066	0.154	0.163	0.080	0.133***
	(0.087)	(0.146)	(0.052)	(0.217)	(0.137)	(0.488)	(0.029)
1.FTA#1.AV	0.136	0.566	0.035	0.056	0.638**	-0.535	0.107**
	(0.150)	(0.355)	(0.069)	(0.312)	(0.305)	(0.591)	(0.052)
Constant	11.82***	11.52***	10.36***	8.932***	13.28***	11.21***	16.04***
	(0.310)	(0.592)	(0.551)	(0.768)	(0.368)	(0.752)	(0.087)
Observations	69,942	10,496	58,172	12,163	41,992	11,771	73,108
R-squared	0.739	0.798	0.743	0.857	0.812	0.545	0.882

Table 1.6: FTA–AV effect on cultural trade

Notes: Columns 1–7 report a set of gravity estimates to investigate the effects of FTAs, with and without AV provisions, on total bilateral trade flows of cultural, cultural heritage, printed matter, music & performing arts, visual arts, audio & audio-visual media, and non-cultural trade goods, respectively. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. All regressions include directional time-varying fixed effects and country-pair fixed effects. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) CLTRL	(2) HRTG	(3) PRINT	(4) MUSIC	(5) VISUAL	(6) AUDIO	(7) NONCLTRL
WTO_MEM	0.418	-0.963	0.743	0.306	-1.625***	0.884	0.162*
	(0.325)	(0.612)	(0.587)	(0.816)	(0.381)	(0.771)	(0.096)
CU	-0.032	1.038**	0.018	-1.301**	0.171	1.868***	0.529***
	(0.228)	(0.511)	(0.286)	(0.615)	(0.304)	(0.450)	(0.117)
1.FTA#0b.CC	0.264***	0.426***	0.075	0.116	0.186	0.055	0.147***
	(0.090)	(0.145)	(0.046)	(0.220)	(0.138)	(0.547)	(0.028)
1.FTA#1.CC	0.146	0.192	0.006	0.225	0.360	-0.234	0.065
	(0.121)	(0.360)	(0.090)	(0.298)	(0.281)	(0.456)	(0.046)
Constant	11.82***	11.48***	10.36***	8.954***	13.28***	11.23***	16.04***
	(0.312)	(0.591)	(0.552)	(0.765)	(0.365)	(0.755)	(0.088)
Observations	69,942	10,496	58,172	12,163	41,992	11,771	73,108
R-squared	0.739	0.798	0.743	0.857	0.812	0.545	0.882

Table 1.7: FTA–CC effect on cultural trade

Notes: Columns 1–7 report a set of gravity estimates to investigate the effects of FTAs, with and without CC provisions, on total bilateral trade flows of cultural, cultural heritage, printed matter, music & performing arts, visual arts, audio & audio-visual media, and non-cultural trade goods, respectively. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. All regressions include directional time-varying fixed effects and country-pair fixed effects. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

Chapter 2. Sanctions and Trade in Cultural Goods

While developing this thesis, various sections have been presented at prestigious conferences and seminars, providing valuable feedback and insights that have shaped the final work. The second chapter, titled "Sanctions and Trade in Cultural Goods," were presented at the following conferences and seminars:

- **23rd Annual Conference of the European Trade Study Group (ETSG)**: Hosted by the University of Groningen in Groningen, Netherlands, on 8-10 September 2022.
- **Newcastle University PhD Economics Seminar Series**: Hosted by Newcastle University in Newcastle, UK, on 4 October 2022.
- **33rd International Trade and Finance Association (IT&FA) Conference**: Hosted by the University of Richmond in Richmond, Virginia, USA, on 24-26 May 2023.
- **Italian Trade Study Group (ITSG) Conference**: Hosted by the University of L'Aquila in L'Aquila, Italy, on 6-7 July 2023.

2.1 Introduction

Sanctions frequently serve as a mechanism for resolving international conflicts. While their political effectiveness is still under question,[47] scholarly literature concurs that they do succeed in inflicting the intended harm on targeted nations and their global trade relations. Extensive research has been dedicated to examining the effects of sanctions on international trade. Notable contributions in this field include studies by Hufbauer et al. (1997), Hufbauer and Oegg (2003), Caruso (2003), Yang et al. (2004), Bapat and Morgan (2009), Haidar (2017), Afesorgbor (2019), Felbermayr et al. (2020), Kirilakha et al. (2021), and Dai et al. (2021). However, the literature does not provide any empirical evidence about the effects of sanctions directly on the cultural industries and international trade flows of cultural goods.

This study aims to address this gap by investigating the impact of different types of sanctions, including financial, trade, military assistance, arms, and travel, on the bilateral trade flows of cultural goods. Even though some of these sanctions do not directly relate to culture or economics and may not yield significant economic or financial consequences, they can still significantly impact the dynamics of international trade. This is particularly relevant for industries that heavily depend on cultural, political, and diplomatic connections between nations, such as cultural industries. Evaluating these effects will provide a thorough understanding of the collateral damage that sanctions can have on both cultural and non-cultural trade.

The empirical findings suggest that the existence of a trade sanction has significantly negative impacts on the bilateral trade flows of cultural goods between nations imposing the sanction and those being sanctioned, resulting in a reduction of around 23%. The effects of trade sanctions exhibit heterogeneity contingent upon their direction and the degree of their coverage. For instance, bilateral trade sanctions, which encompass restrictions on both imports and exports, lead to a decrease of about 33%, whereas sanctions exclusively targeting export activities result in a reduction of 31% in the bilateral trade flows of cultural goods. According to the research outcomes, these adverse effects primarily stem from partial trade sanctions rather than complete trade sanctions.

Moreover, the study reveals that arms, military assistance, travel, and financial sanctions individually lead to reductions of approximately 25%, 35%, 33%, and 35%, respectively, in bilateral cultural trade flows between sanctioning countries and their targets. Further analysis

[47] See Pape (1997), Hufbauer et al. (2007), and Peksen (2019) for a detailed discussion about the political effectiveness of sanctions.

on the origin of sanctions highlights that UN-imposed trade sanctions reduce cultural trade between UN participants and targeted countries by around 54%, whereas US-imposed sanctions lead to a 25% decrease in US bilateral cultural trade with sanctioned countries. Additionally, US-imposed arms, military assistance, financial, and travel sanctions result in reductions of approximately 31%, 31%, 35%, and 36%, respectively, in US cultural trade with recipient nations.

Lastly, the study shows that both threatened and imposed sanctions demonstrate similar effectiveness in reducing bilateral trade flows of cultural goods between sender and recipient states. This underscores the significant impact of sanctions on cultural trade, affirming that even non-culture-specific or economic-related sanctions can exert considerable influence on international trade dynamics in the cultural sector.

This study also investigates the impact of sanctions on bilateral trade flows of non-cultural goods for comparative analysis. The empirical findings reveal that the imposition of trade sanctions between two countries leads to an average reduction of approximately 17% in their non-cultural trade. While export sanctions show no trade-reducing impact, bilateral trade sanctions and import sanctions reduce bilateral trade flows of non-cultural goods between sanctioning and sanctioned countries by around 26% and 11%, respectively. Moreover, complete trade sanctions result in a significant decrease of about 57% in non-cultural trade, whereas partial trade sanctions lead to a comparatively smaller reduction of 17%.

Additionally, financial and travel sanctions are observed to decrease bilateral trade flows of non-cultural goods between sender and target countries by approximately 15% and 17%, respectively. Conversely, military assistance and arms sanctions, despite their significant adverse effects on cultural trade, do not appear to exert a considerable influence on non-cultural trade. Initially, these findings might suggest that the collateral damage caused by arms and military assistance sanctions is unique to cultural trade rather than non-cultural trade. Further analysis of the heterogeneity of sanctions based on their origins reveals, however, that sanctions imposed by the US and EU, regardless of their specific type, significantly diminish non-cultural trade between sanctioning parties and sanctioned countries.

Specifically, EU-imposed trade, arms, military assistance, financial, and travel sanctions reduce non-cultural trade between EU member states and target countries by about 21%, 20%, 21%, 15%, and 20%, respectively. Similarly, US-imposed trade, military assistance, financial, and trade sanctions lead to an average reduction of around 26%, 14%, 24%, and 26%, respectively, in US non-cultural trade with sanctioned countries. Finally, while not as robust as it was in

cultural trade, this study provides evidence suggesting that the threats of sanctions have impact non-cultural trade as well.

The chapter's structure is as follows: Section 2.2 provides a detailed analysis of the contextual framework underpinning the study. Section 2.3 reviews relevant literature, while Section 2.4 discusses potential research questions. Section 2.5 offers an overview of the data used in the study and its sources. Section 2.6 introduces various model specifications based on the initial framework outlined in Chapter 1, and Section 2.7 presents and discusses the empirical findings. The chapter concludes with a summary in Section 2.8.

2.2 Background

Notwithstanding the significant expansion of cultural trade in the past three decades (UNCTAD, 2018; UNCTAD, 2022), empirical evidence on the impact of trade policies and sanctions on cultural trade remains sparse. Sanctions, increasingly viewed as effective diplomatic tools, have become more frequent in recent years. According to the Global Sanctions Database (GSDB), there were a total of 1,101 recorded sanction cases from 1950 to 2019, with 75 occurring specifically between 2016 and 2019 (Felbermayr et al., 2020). The GSDB provides several key insights into sanctions: Major sources include the US, Canada, Russia, the UK, China, and India, while African countries are frequent recipients. Additionally, international organisations such as the EU and the UN also play significant roles in imposing sanctions, with the EU currently enforcing sanctions on 33 nations.[48] There has been a noticeable evolution in the scope and nature of sanctions over time, with a decline in trade-related sanctions and a rise in financial and travel-related measures (Felbermayr et al., 2020).

Like all other industries, cultural industries can also be directly targeted by sanctions. Following the ongoing conflict between Russia and Ukraine, political figures and analysts in the UK and the US have called for direct sanctions to target Russia's cultural sector, arguing that isolating Russia culturally could have effects comparable to economic sanctions. Nadine Dorries, the former UK cultural secretary, has specifically proposed cultural sanctions as a strategy to pressure President Vladimir Putin's government (Adams, 2022).[49] Echoing this sentiment, cultural analysts Anna Marazuela Kim and James Doeser have also advocated for cultural

[48] For more information about these sanctions, see https://www.sanctionsmap.eu/#/main.
[49] I refer the reader to the following URL for more details about Dorries's speech: https://www.museumsassociation.org/museums-journal/news/2022/03/cut-cultural-ties-with-russia-urges-dorries/.

sanctions, suggesting that leveraging cultural diplomacy and soft power could effectively influence Russia's policies (Kim & Doeser, 2022).[50]

As previously mentioned in Section 1.1 of Chapter 1, UNESCO (2005) classifies cultural goods into five specific sub-categories: cultural heritage (such as antiques and collections), printed matter (including books and newspapers), music & performing arts (such as gramophone records and magnetic tapes), visual arts (including paintings and sculptures), and audio & audio-visual media (such as video games and cinematographic film). These goods possess significant cultural elements and so assume a pivotal function in disseminating ideas, symbols, and lifestyles, as well as in the transmission and construction of cultural values and the generation and perpetuation of cultural identity. Although cultural services also exhibit this phenomenon, data constraints limit this study's analysis to the trade in cultural goods.

Cultural trade plays a pivotal role as the primary conveyor of national cultural distinctiveness, deeply intertwined with cultural, political, and diplomatic affiliations. The audio-visual industries are often recognised as being among the most politically and culturally sensitive sectors (UNCTAD, 2008). For instance, Craig et al. (2005) explored how cultural affinity affects the international box office performance of US films, using metrics like the 'Americanisation index' based on McDonald's outlets per country. Their findings suggest that US films have higher success rates in countries with greater Americanisation. Similarly, Cabral and Natividad (2020) use a political affinity index (UN voting behaviour) and show a positive correlation between political affinity and film performance in foreign markets.

The threats and imposition of sanctions, accompanied by geopolitical tensions and political conflicts, have the potential to exacerbate cultural divergence between countries imposing sanctions and those subjected to them. This divergence becomes particularly pronounced when there are perceived threats to the preservation of national identity. To the extent that sanctions cause cultural divergence, they can also prolong the conflict. Thus, given the strong link between cultural trade and cultural and political affiliations, sanctions' impact on cultural trade could be notably significant. It is important to note that, due to data limitations, this study does not focus on the effects of culture-specific sanctions on cultural trade. Therefore, we should view the effects of these sanctions on cultural trade as unintended consequences, affecting both economic welfare and political effectiveness. I refer to this phenomenon as collateral damage.

[50] For more details about the authors' comments, see https://www.artsprofessional.co.uk/magazine/352/feature/case-cultural-sanctions.

The central hypothesis of this chapter posits that international trade fosters cultural convergence between trading partners, as documented by Franco and Maggioni (2022). Through increased exchange of goods and ideas, trade facilitates cultural interactions and mutual understanding. However, sanctions disrupt international trade relations, leading to a reduction in bilateral trade flows. This reduction not only impacts economic ties but also impedes cultural trade, resulting in a trend towards cultural divergence. As cultural interactions decrease, countries may become more inward-focused, reinforcing barriers to trade and further diminishing cultural trade.

This cyclical effect highlights the complex interplay between international trade policies, economic relations, and cultural dynamics. Moreover, the diminished cultural convergence resulting from sanctions can hinder efforts towards peace-building initiatives and international cooperation. Understanding these dynamics provides policymakers and researchers with valuable insights into the broader impacts of sanctions on both economic and cultural domains, underscoring the necessity for nuanced approaches to international relations and trade policy.

While extensive research exists on sanctions across disciplines such as political science and economics, there remains a notable absence of empirical studies investigating the collateral damage inflicted by sanctions on both cultural and non-cultural trade. Therefore, this study seeks to fill this gap by undertaking an initial scholarly exploration of this area. Drawing primarily from the Global Sanctions Database (GSDB), the analysis initially focuses on how trade sanctions impact bilateral trade flows of cultural goods. It also examines the diverse effects of trade sanctions based on their direction (bilateral, import, and export sanctions) and their coverage (complete versus partial). Additionally, the study investigates the implications of various types of sanctions, including financial, military assistance, and travel sanctions, using the same dataset. Using the Threat and Impositions of Sanctions (TIES) dataset created by Morgan, Bapat, and Kobayashi (2014), the study also looks at the effects of both threatened and imposed sanctions, trying to find out if the effects of threatened sanctions are the same as those of imposed sanctions. To explore if the same collateral damage applies to non-cultural trade, the study also includes non-cultural trade as a comparative benchmark.

2.3 Related Literature Review

Throughout the previous two decades, the effects of sanctions have been assessed from different perspectives. The early literature focuses on the impacts of US sanctions on the US's bilateral trade relations with sanctioned countries. For instance, using Hufbauer, Schott, and Elliott's

(1990) sanctions dataset (hereafter "HSE")[51] and separating economic sanctions into three distinct categories (limited, moderate, or extensive),[52,53] Hufbauer and Oegg (2003) investigate the effects of US sanctions on the US's bilateral merchandise trade with 175 trading partners for the years 1995 and 1999. Applying the OLS technique to the gravity model, the authors find significantly negative impacts of extensive economic sanctions on bilateral trade flows between the US and sanctioned countries. Specifically, the research conducted for the year 1995 demonstrates that the implementation of extensive economic sanctions resulted in a substantial decrease of 99% in total bilateral trade flows, accompanied by a significant loss of about 98% in US exports. The implementation of extensive economic sanctions yielded a comparatively reduced effect in 1999, resulting in a 95% decrease in bilateral trade and a 94% loss in US exports. However, the authors find statistically insignificant estimates of the effects of limited and moderate economic sanctions. Furthermore, the researchers develop a methodology to calculate the hypothetical level of trade that would take place between the US and sanctioned countries if there were no economic sanctions in effect and estimate the decline in bilateral merchandise trade resulting from economic sanctions. Based on their estimations, the bilateral merchandise trade between the US and nations subjected to sanctions experienced a reduction of US$9.1 billion in 1995 in comparison to the hypothetical scenario if sanctions were not in effect. Similarly, there was a decrease of around US$11.5 billion in bilateral trade flows between the US and sanctioned nations during the year 1999.[54]

Employing the gravity modelling of trade, Caruso (2003) investigates the impacts of US economic sanctions on the US's bilateral trade flows with 49 target nations over the period 1960–2000. The author applies the OLS technique to the HSE dataset. Like Hufbauer and Oegg's (2003) findings, he finds statistically significantly negative impacts of extensive economic sanctions on the bilateral trade flows between the US and sanctioned countries. However, his research findings demonstrate that limited and moderate economic sanctions do not exhibit the same level of significance in reducing bilateral trade flows. Additionally, through the utilisation of the gravity model on a panel dataset, the researcher investigates the

[51] The authors have consistently made updates to the HSE dataset throughout time.
[52] The authors incorporate financial and trade sanctions into a single dummy variable, which they refer to as an economic sanction. In this study, these two cases are examined independently.
[53] Minor trade and financial 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 investment bans, are classified as "moderate" sanctions. Finally, "extensive" sanctions refer to comprehensive trade and financial sanctions, exemplified by the measures imposed on nations like North Korea and Cuba.
[54] For more information about the impacts of economic sanctions on bilateral merchandise trade between the US and targeted countries, as well as their impacts on jobs and wages, see Hufbauer et al. (1997). The primary distinction between the two studies is in the choice of the database utilised. In Hufbauer and Oegg (2003), the authors utilise Rose's (2002) gravity model database, which encompasses data on 175 countries, whereas the initial analysis (Hufbauer et al., 1997) incorporates a more limited selection of countries.

effects of unilateral economic sanctions imposed by the US on the volume of bilateral trade between sanctioned countries and the remaining Group of Seven (G-7) countries. The empirical findings indicate that the implementation of extensive unilateral economic sanctions has a significantly adverse effect, whereas the imposition of limited and moderate unilateral economic sanctions has a minor positive influence on the bilateral trade flows between the other G-7 nations and sanctioned countries.

Similarly, Yang et al. (2004) empirically examine the effects of US economic sanctions on US exports, imports, and total trade by utilising the gravity model and applying the OLS approach to the HSE dataset. The study specifically focuses on the years 1980, 1985, 1990, 1995, and 1998. In addition, for the purpose of examining the potential ramifications of US economic sanctions on the trade relations of sanctioned countries with third-party nations, the authors include the main US trade rivals, the EU and Japan, in the study. The research findings reveal significantly negative impacts of extensive economic sanctions on US exports, imports, and total trade with countries that are subject to economic sanctions. Furthermore, the authors find that countries that are subject to extensive economic sanctions from the US increase their bilateral trade with the EU and Japan.

Using disaggregated Iranian non-oil exporter data for the period spanning from January 2006 to June 2011, Haidar (2017) investigates whether sanctions imposed against Iran cause Iranian firms to deflect their export activities. According to his research findings, exporting companies could redirect their export activities towards places that are politically aligned and favourable. More precisely, the author finds that approximately 66% of Iranian exports that were adversely affected by sanctions were redirected to non-sanctioning countries. Additionally, the research findings reveal that the impacts of sanctions exhibit heterogeneity, contingent upon various factors such as the exporters' characteristics, the nature of the products, and the characteristics of the destination countries. While larger exporters demonstrate greater capacity to redirect their exports, core and homogeneous products are more susceptible to redirection. Finally, countries where the exporters have already had trade relations are more likely to become the new destinations for redirected exports. As a result, the author concludes that in the context of a globalised economy where export deflection is feasible, the effectiveness of sanctions in achieving the objective of reducing aggregate exports may be questionable.[55]

[55] For more information about the efficacy of sanctions imposed against Iran, I refer the reader to Draca et al. (2019).

Game theory models have also been utilised to analyse the potential consequences of sanctions. According to Lacy and Niou (2004), the effects of threatened sanctions in international disputes can be equivalent to those of imposed sanctions, as evidenced by game theory applications.[56] Applying the gravity model to a cross-section dataset, Afesorgbor (2019) estimates the effects of threatened and imposed economic sanctions on international trade flows of essential products such as food and medical supplies. The author employs the TIES dataset, which has 1,153 cases from 1945 to 2005 involving 60 sanctioning countries and 143 sanctioned countries. The researcher exploits some of the recent advances in gravity modelling of trade. For instance, to account for the MRTs, he employs Baier and Bergstrand's (2009) proxy approach, which enables the utilisation of the OLS estimator for the gravity equation.[57] Additionally, because the author performs a cross-sectional analysis, he uses first-differencing, two-step system GMM estimator, and pre-intervention dip approaches to mitigate the endogeneity concerns of sanctions.[58,59] The findings of the study reveal notable disparities between the impacts of threatened and imposed economic sanctions. While imposed economic sanctions have significantly negative impacts, the author observes that threatened economic sanctions increase bilateral trade flows in essential products. They attribute the positive impacts of threatened economic sanctions to economic actors in both the sender and recipient countries engaging in pre-emptive stockpiling as a means to mitigate any potential negative effects of the sanctions before they are officially implemented.[60]

Using the first version of the GSDB,[61] which serves as an extension and complement to the HSE and TIES datasets, and employing the gravity modelling of trade, Felbermayr et al. (2019) examine the impacts of sanctions on international trade. Like Afesorgbor (2019), the authors exploit the recent advances in the gravity model. For instance, following Santos Silva and Tenreyro (2006), they employ the PPML estimator in the gravity equation, which integrates

[56] For further exploration of game theoretic applications of sanctions, I refer the reader to Tsebelis (1990), Smith (1995), Drezner (1998), and Weber and Schneider (2020).
[57] The MRTs are crucial parts of the gravity equation, and their absence leads to the omitted variable bias (Anderson & van Wincoop, 2003). Therefore, Baier and Bergstrand (2009) employ a first-order log-linear Taylor-series expansion of the MRTs to estimate the reduced-form gravity equation.
[58] For detailed information about the pre-intervention dip approach, see Berger et al. (2013).
[59] Because country-pair fixed effects necessitate a dynamic framework, for example, a panel dataset, and the task of identifying a reliable IV poses significant challenges, Afesorgbor (2019) avoids using the fixed effect or IV approaches to mitigate the potential endogeneity of sanctions.
[60] For further insights into the factors influencing the effectiveness of sanctions in the context of threatened vs. imposed sanctions, I refer the reader to the studies conducted by Bapat et al. (2013) and Whang, McLean, and Kuberski (2013).
[61] The GSDB's first version was officially released in July 2020, and version 2 came out in March 2021. For more information about the evolution of the dataset, see http://www.globalsanctionsdatabase.com/.

directional time-varying fixed effects as well as country-pair fixed effects.[62] The research findings suggest that, all else being equal, the existence of a trade sanction reduces bilateral trade flows between sanctioning and sanctioned countries by about 14%. However, the effects of trade sanctions differ depending on their direction and the extent of their intervention. More specifically, the researchers find significantly negative estimates of the effects of bilateral trade sanctions (-24%) and export sanctions (-36%), but the coefficient estimate for import sanctions is insignificant (the associated percentage effects are given in parenthesis). Also, the research findings demonstrate that the existence of complete trade sanctions and partial trade sanctions between pairs of countries reduces their bilateral trade flows by about 78% and 14%, respectively. Moreover, their analysis reveals substantial negative estimates of the effects of complete bilateral trade sanctions (-88%) and complete export sanctions (-63%), whereas the estimate of the effects of complete import sanctions is statistically insignificant. In addition to trade sanctions, the authors also investigate the impacts of other types of sanctions on bilateral trade flows. The research findings demonstrate insignificant estimates of the effects of arms, military assistance, and travel sanctions, whereas the presence of financial sanctions between country pairs reduces their bilateral trade flows by about 10%. Finally, the authors examine the effects of sanctions in the case of Iran. They find that, all else being constant, sanctions imposed against Iran reduce bilateral trade flows between Iran and sanctioning countries by about 55%.

By utilising monthly bilateral trade data sourced from UN COMTRADE and ITC TradeMap, Crozet and Hinz (2020) examine the impacts of sanctions being imposed between 37 Western countries and Russia over the conflict in Ukraine in 2014.[63] The researchers conduct a comprehensive analysis of general equilibrium counterfactual scenarios and evaluate the trade losses of each side. According to their research findings, the Russian Federation incurred

[62] According to Santos Silva and Tenreyro (2006), the OLS technique tends to generate biased estimates in the presence of heteroskedasticity, even accounting for the MRTs. In contrast, the PPML estimator produces reliable estimates even in the presence of heteroskedasticity. One further advantage of the estimator lies in its capacity to effectively address the problem of zero trade flows, a concern that is inadequately tackled by the OLS estimator (Santos Silva & Tenreyro, 2006). Furthermore, if the sanction variable demonstrates a correlation with the error term, then it is considered to be endogenous. In this case, the OLS estimator possesses the capacity to yield biased and inconsistent estimates of the effects of sanctions on bilateral trade flows. Baier and Bergstrand (2007) introduce country-pair fixed effects as a means to address potential endogeneity concerns associated with trade policies, suggesting that trade flows can be evaluated using a panel approach instead of a cross-section technique. The gravity studies described earlier fail to account for the MRTs and the potential endogeneity of sanctions. Therefore, the early gravity estimates of the effects of sanctions on bilateral trade flows are potentially biased and inconsistent. For more information about the MRTs and potential endogeneity of trade policies, I direct the reader to Sections 1.4.1.1–1.4.1.3.

[63] 27 EU countries, the UK, the US, Australia, New Zealand, and several non-EU European nations implemented financial sanctions against several Russian individuals and businesses who provided support for the annexation of the Crimean Peninsula in 2014 (Miromanova, 2023). Russia responded to these financial sanctions by implementing a ban on the imports of 49 products from the nations involved in the sanctions. These products encompass a range of items such as dairy products, meat, fish, fruits, and vegetables (Miromanova, 2023).

US$53 billion in total trade losses from 2014 to the end of 2015 due to financial sanctions. Additionally, the authors find that 37 Western countries imposing sanctions against Russia also suffered a total trade loss of US$42 billion during the same period. Similarly, Miromanova (2023) conducts an analysis of the economic ramifications that ensued following the imposition of financial sanctions against Russia subsequent to its invasion of the Crimean Peninsula in 2014. The author also explores the impacts of import sanctions imposed by Russia against sanctioning countries. Using the UN COMTRADE database for the period 2011–2015 and employing a quadruple difference approach, the researcher determines substantial adverse effects resulting from the financial sanctions imposed against Russia. Furthermore, the research findings reveal that there is a significant decrease of approximately 46% in Russia's propensity to engage in the importation of embargoed goods from nations that have imposed sanctions. As a result, the import embargos imposed by Russia on products from sanctioning countries resulted in an estimated total loss of around US$13.6 billion in Russian imports from these countries over a period of 1.5 years.[64]

Dai et al. (2021) investigate the evolution of the impacts of sanctions on international trade flows using the second version of the GSDB. As is now standard in the gravity literature, the researchers integrate directional time-varying fixed effects and country-pair fixed effects into the gravity equation and estimate it with the PPML estimator. Their findings suggest that, all else being constant, complete trade sanctions lead to a reduction of approximately 77% in bilateral trade flows between sanctioning and sanctioned countries. To comprehensively assess the long-term effects of trade sanctions, the authors incorporate lags and leads into the gravity equation that accounts for both the preceding and subsequent 10-year periods. Their findings reveal that the cumulative negative impacts of complete trade sanctions increase to 82%. Hence, they conclude that assessments of the impacts of sanctions that fail to account for both pre-sanction and post-sanction periods may underestimate the concurrent effects of sanctions. Also, their pre-sanction estimation results reveal that the effects of sanctions become evident before their actual imposition. This effect is particularly pronounced over the period ranging from one to four years preceding the imposition of the sanctions. Additionally, the analysis of post-sanction estimations indicates that the impact of sanctions persists for a duration of around seven to eight years after they are lifted. Furthermore, in order to gain insight into the time-varying effects of complete trade sanctions on bilateral trade, the researchers categorise each year of sanction implementation as either an early, mid, or late phase and re-estimate the effects

[64] For further information regarding the effects of sanctions imposed against Russia and the subsequent countersanctions imposed by Russia, refer to Ahn and Ludema (2019).

of complete trade sanctions separately for each phase. They find that the imposition of a complete trade sanction has a profound and immediate negative effect. Even though the differences observed between the phases are rather minimal and lack statistical significance, the authors find that the adverse effects of sanctions escalate over time.

Using monthly data from the German balance of payments statistic and employing the gravity equation, Besedeš, Goldbach, and Nitsch (2021) examine the commercial reactions of German non-financial firms in response to financial sanctions imposed by Germany against 23 countries between the years 1999 and 2014. Their research findings reveal that the imposition of a financial sanction by the German government leads to a significant decrease in German financial engagements with sanctioned nations. Additionally, the researchers observe that the German companies that are impacted by the German financial sanctions strategically expand their operations by partnering with non-sanctioned nations. Finally, their analysis reveals that financial sanctions do not have any discernible impact on broader indicators of company success, like employee levels and total sales.

Larch et al. (2022) examine the impacts of trade sanctions on international trade in the mining sectors, such as oil and natural gas. The authors apply the gravity modelling of trade and use the GSDB. Their findings reveal that the existence of a complete trade sanction leads to a significant reduction in bilateral mining trade between sanctioning and sanctioned countries. More precisely, complete trade sanctions reduce bilateral trade flows of coal and oil by about 91% and 44%, respectively. Nevertheless, the research findings demonstrate insignificant estimates of the effects of partial trade sanctions on mining trade. Furthermore, the authors examine the impacts of trade sanctions in the cases of Russia and Iran, with a specific emphasis on the petroleum and natural gas sectors. For the Russia case, they introduce separate dummies to allow differential impacts of sanctions imposed by the EU and non-EU (e.g., Australia, Canada, Switzerland, and the US) countries. Their findings reveal that while trade sanctions imposed against Russia by the EU countries lead to a reduction of around 38% in their bilateral trade flows with Russia, the coefficient estimate obtained for the non-EU indicator is statistically insignificant. Similarly, they introduce separate dummies for the EU countries and the rest of the world for the Iran case. Their research findings are consistent across different groups, demonstrating that the imposition of a trade sanction against Iran leads to a reduction

of around 42% in its trade with the EU and the rest of the world. Overall, the researchers conclude that the effects of sanctions can be quite heterogeneous.[65]

Hypothesising that the imposition of economic sanctions can facilitate trade in cultural goods as a means to nurture cultural ties between sanctioning and sanctioned entities, Doan and Tran (2023) examine the impacts of economic sanctions on trade in cultural goods. To test their hypothesis, the authors apply the gravity model to cultural trade data from 5,304 dyads over the period from 1996 to 2019, using the GSDB dataset. Their analysis reveals a positive relationship between the imposition of economic sanctions and bilateral cultural trade flows. Additionally, Doan and Tran find a positive relationship between the imposition of arms and military assistance sanctions and bilateral cultural trade. They argue that while sanctions are typically designed to isolate the sanctioned parties, they may inadvertently boost cultural trade as a form of soft diplomacy or cultural outreach. This could be due to various factors, such as efforts to maintain cultural ties, increase mutual understanding, or foster goodwill amidst political and economic tensions. By promoting cultural exchanges, sanctions may serve as a means of preserving and strengthening cultural connections, even in the face of economic and political adversities.

2.4 Research Questions

Within this section, I discuss the potential research questions that are consistently pursued throughout the chapter. In particular, the second chapter is guided by the following research questions:

a) To what extent do trade sanctions impact the bilateral trade flows of cultural goods and non-cultural goods between the sanctioning and sanctioned countries?
b) How do the impacts of trade sanctions vary based on their direction (import vs. export) and the extent of their coverage (complete vs. partial)?
c) Do other types of sanctions (e.g., arms, travel, and military assistance) cause collateral damage to cultural and non-cultural trade?
d) Are threatened sanctions as effective as imposed sanctions in reducing cultural and non-cultural trade?
e) Are the effects of sanctions that are threatened first and then imposed stronger in reducing cultural and non-cultural trade compared to either threatened or imposed sanctions alone?

[65] To obtain more comprehensive information regarding the impacts of sanctions on the oil, natural gas, and petroleum markets of Iran, Russia, and Venezuela, please refer to the works of Brown (2020), Katzman (2022), and Welt et al. (2022).

f) Are the overall impacts of sanctions greater on cultural trade compared to non-cultural trade? If so, what accounts for this difference?

2.5 Data

The main focus of this chapter is the bilateral trade flows of cultural products, which I have gathered from CEPII. I use a panel dataset comprising 221 countries' annual bilateral cultural trade flows from 1999 to 2019. Table A3 in Appendix A presents countries included in analysis. I specifically focus on 38 cultural products. The aggregate trade of these 38 products constitutes total cultural trade. Table A1 in Appendix A presents a thorough summary of each product (see Section 1.5.1 for detailed information).

Standard gravity variables, namely common language ($COMLANG_{ij}$), colonial ties ($COL45_{ij}$), common religion ($COMRELIG_{ij}$), and physical distance ($DIST_{ij}$), are obtained from CEPII's gravity database. The contiguity variable ($CONTIG_{ij}$) is sourced from the DGD constructed by the USITC. The variable $\ln DIST_{ij}$ denotes the natural logarithm of physical distance, measured in kilometres, between the most populated cities of country pairs. The variable $COMLANG_{ij}$ is a binary indicator that takes a value of one when country pairings i and j share an official or primary language and zero otherwise. The variable $COL45_{ij}$ signifies the persistence of colonial connections after 1945, while $CONTIG_{ij}$ denotes the presence of a common border between country pairs i and j. Both variables are dichotomous, taking a value of one when the corresponding condition is satisfied and zero otherwise. The $COMRELIG_{ij}$ variable measures the level of religious proximity between pairs of countries. This is a continuous variable and can take any value between 0 and 1. Its maximum value is attained when a pair of nations share a religion that comprises a substantial majority of their respective populations or when the faiths practised in both countries are identical (see Section 1.5.2 for more information about standard gravity variables).

The free trade agreement ($FTA_{ij,t}$), customs union ($CU_{ij,t}$), and joint WTO membership ($WTO\_MEM_{ij,t}$) variables are taken from the DGD. $FTA_{ij,t}$ is assigned a value of one if country pairs i and j collectively engage in at least one FTA during the specified year and zero otherwise. The $CU_{ij,t}$ is assigned a value of one when trading pairs i and j are involved in the same customs union in a given year and zero otherwise. The $WTO\_MEM_{ij,t}$ variable takes a value of one when both the origin and destination nations are members of the WTO in a specific year and zero otherwise (see Section 1.5.3.1 for a detailed discussion of the trade policy variables).

2.5.1 *Sanctions*

The data on sanctions originates from two different sources: the GSDB and TIES. This section presents a comprehensive examination of the categorization criteria and provides a concise analysis of descriptive statistics.

2.5.1.1 *The global sanctions database*

The initial dataset is the GSDB, which is a joint project of Hochschule Konstanz, Drexel University School of Economics, and the Austrian Institute of Economic Research. The GSDB encompasses a comprehensive collection of bilateral, multilateral, and plurilateral sanctions implemented worldwide between the years 1950 and 2019. According to Felbermayr et al. (2020), a total of 1,101 sanction instances occurred between 1950 and 2019. The GSDB indicates a gradual increase in the utilisation of sanctions over time. European countries are the primary senders of sanctions, whereas African countries are the highest recipients. The range of sanctions is expanding, as the proportion of trade sanctions decreases, and the proportion of financial and travel sanctions increases. The primary goals of sanctions are becoming more focused on democracy and/or human rights (Felbermayr et al., 2020).

The GSDB classifies sanctions into six distinct categories: trade sanctions, financial sanctions, travel restrictions, arms sanctions, military assistance sanctions, and other sanctions. Trade sanctions are measures implemented to limit economic interactions with a specific nation by imposing restrictions on international trade. The GSDB encompasses and analyses two important dimensions of trade sanctions. First, the GSDB divides trade sanctions into three types based on their direction: (i) export sanctions, which pertain to sanctions on exports from the sender to the target; (ii) import sanctions, which refer to sanctions on imports from the target to the sender; and (iii) bilateral trade sanctions, which encompass sanctions that apply to both exports and imports between the two sides simultaneously. Second, the GSDB classifies trade sanctions into two different categories based on their extent of intervention: (i) sanctions that exclusively target specific goods or sectors are defined as partial trade sanctions, and (ii) those that target all sectors or goods are classified as complete trade sanctions. The US, Canada, the EU, and North African countries have been the most proactive in implementing trade sanctions on other nations between 1999 and 2019. Conversely, Afghanistan, Russia, Ukraine, Syria, and Iran were the most frequent targets of these trade sanctions throughout the same period. The primary goals of these sanctions are to promote democracy, protect human rights, implement policy changes, avoid wars, and put an end to ongoing conflicts. One of the shortcomings of

the GSDB dataset is that it does not provide information about the content of trade sanctions. Consequently, we do not know which sectors are targeted by partial trade sanctions.

Financial sanctions constitute another important category within the GSDB. Financial sanctions frequently entail blocking the transfer of financial assets and investments. In practice, senders freeze bank accounts in sanctioned countries. Likewise, the imposition of financial sanctions might impede direct investment activities and potentially curtail access to credit for transactions involving the exchange of goods. According to Felbermayr et al. (2020), the prevalence of financial sanctions experienced a substantial increase over time, principally attributable to two key factors: The first aspect is the proliferation of worldwide economic endeavours, encompassing the amalgamation of financial markets, and the second aspect is the ease of implementation and enforcement of financial sanctions, which has been facilitated by technological advancements. Between 1999 and 2019, the US and EU countries were the most frequent senders of financial sanctions, primarily aimed at promoting human rights and democracy while also preventing wars. Afghanistan, Iran, Iraq, Myanmar, Nigeria, Venezuela, and India have been the primary recipients of these sanctions during the same period.

Sanctions are categorised as travel restrictions when they curtail the liberty of individuals to engage in geographical mobility. Travel restrictions encompass various measures that impose limitations on the mobility of individuals, encompassing both inbound travel to the nation implementing the sanctions and outbound travel from said nation to the targeted countries. The US, EU countries, Australia, Canada, and Switzerland are the primary states imposing travel sanctions, whereas Fiji, Ukraine, Sierra Leone, Syria, and Russia are the primary nations targeted by these sanctions between 1999 and 2019. The primary goals of travel sanctions are to combat terrorism, protect human rights, promote democracy, and achieve peace by stopping wars.

Arms sanctions impose limitations on the trade and transfer of weaponry. The GSDB serves the purpose of documenting the temporary prohibition of arms exports to and/or arms imports from a country that has been subjected to sanctions. Military assistance sanctions refer to a set of measures that impose restrictions or prohibitions on financial support or training activities associated with the development, upkeep, distribution, sale, and other aspects pertaining to military equipment. Like other sanctions, Afghanistan, Iran, Iraq, Libya, Myanmar, and Pakistan are the countries most frequently subject to these two sanctions, while the US, EU countries, Canada, Switzerland, and Australia are the primary nations routinely enforcing them. The main goals of military assistance and arms sanctions are to prevent and end wars. All the

other sanctions that are less frequently used as diplomatic instruments, such as the interruption of diplomatic relations or flight restrictions, are classified as other types of sanctions.

The dataset used in this chapter consists of 479 sanction cases from 1999 to 2019. Irrespective of the quantity of sanctions in place between pairs of nations, the occurrence of a sanction is only one out of the 479 observed cases. Table A6 in Appendix A enumerates all instances of sanction cases and provides comprehensive details about the countries subject to sanctions, their duration, and their classification. Figure 2.1 illustrates the categories and shares of imposed sanctions from 1999 to 2019. The data reveals that around 30.31% of the sanction cases imposed during the specified period include financial sanctions, while approximately 19.36% of them involve trade sanctions. Moreover, the proportions of instances involving arms travel restrictions, arms sanctions, military assistance sanctions, and other sanctions are 15.93%, 14.71%, 12.39%, and 7.3%, respectively.

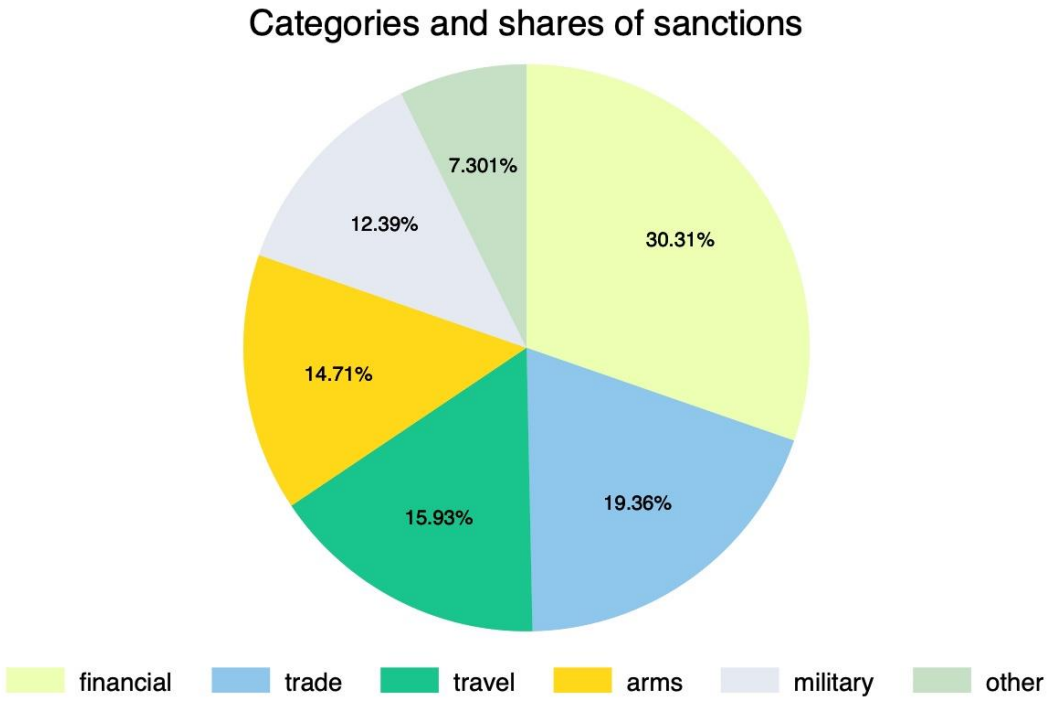

Figure 2.1: The categories and shares of sanctions, 1999–2019. Data source: The GSDB dataset

In figures 2.2 and 2.3, I distinguish trade sanctions based on their direction and coverage. The initial pie chart depicted in figure 2.2 illustrates that bilateral trade sanctions account for 38.86% of the total number of imposed trade sanctions. Additionally, export sanctions and import sanctions constitute 34.29% and 26.86% of the total trade sanctions, respectively. The second chart illustrates that a majority of trade sanctions, specifically 87.43%, are classified as partial trade sanctions, while a minority, comprising 12.57%, are classified as complete trade sanctions.

Finally, figure 2.3 represents the direction and coverage of trade sanctions together. I observe that partial export sanctions account for 33.91% of the total number of trade sanctions imposed over the period from 1999 to 2019. During the specified time frame, I also observe that partial bilateral trade sanctions, partial import sanctions, complete bilateral trade sanctions, and complete import sanctions account for 29.31%, 24.71%, 9.77%, and 2.3% of the total number trade sanctions, respectively. Table A7 in Appendix A presents a correlation matrix of sanction types. Certain types of sanctions exhibit a strong positive correlation. For instance, a strong positive correlation of 0.79 exists between financial sanctions and travel sanctions. Similarly, there is a substantial positive correlation of 0.81 between arms and military assistance sanctions.

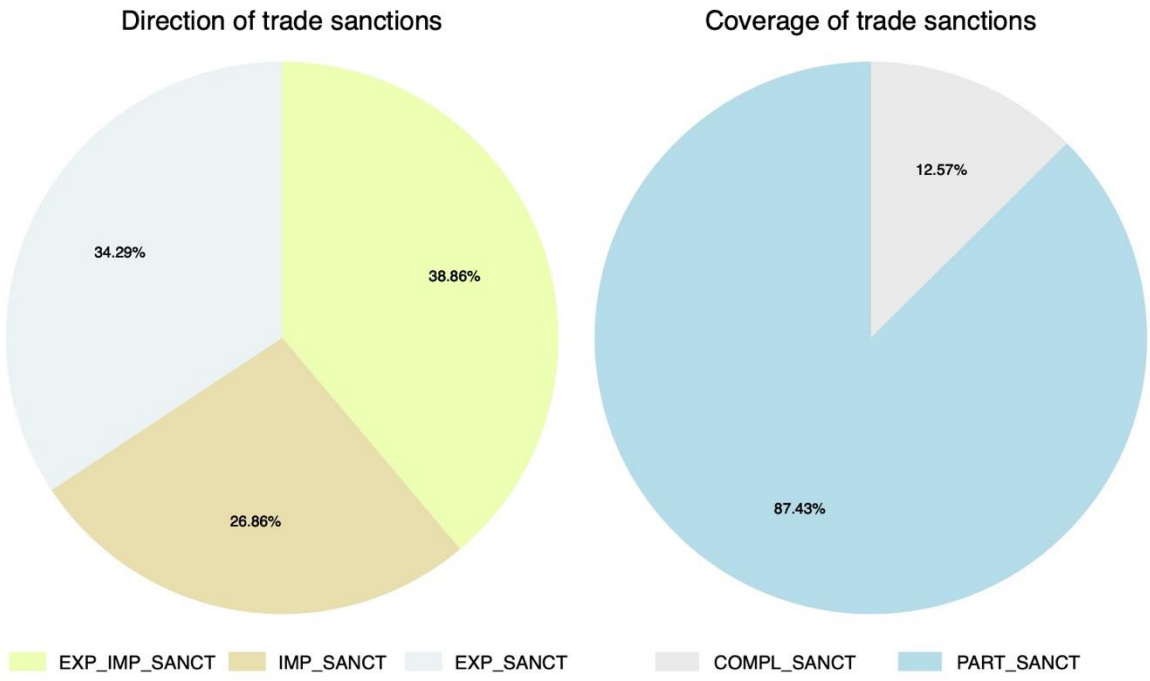

Figure 2.2: The direction and coverage of trade sanctions, 1999–2019. Data source: The GSDB dataset

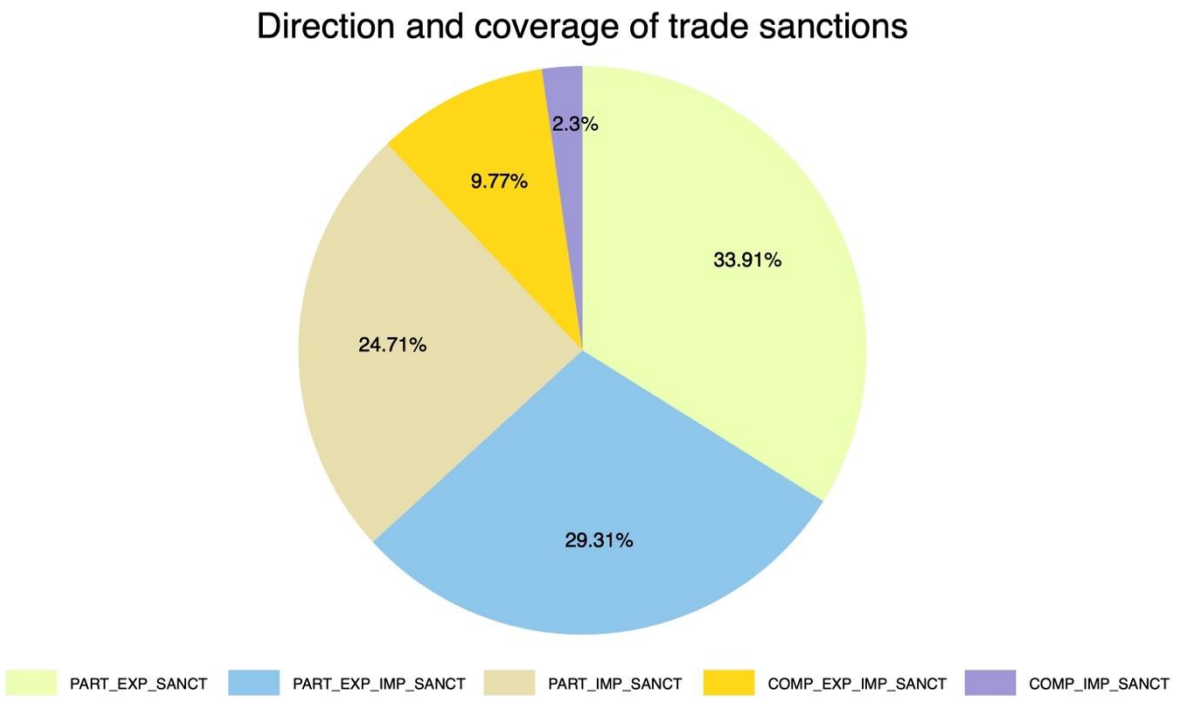

Figure 2.3: The combination of the direction and coverage of trade sanctions, 1999–2019. Data source: The GSDB dataset

2.5.1.2 *The threat and imposition of sanctions database*

In addition to the GSDB, I also use the TIES dataset obtained from the DGD.[66] The TIES dataset comprises a total of 1,153 distinct instances from 1945 to 2005, involving 60 sanctioning and 143 sanctioned countries. It also includes the termination dates for sanctions up until 2012, which is the most recent update of the dataset. The "as of" date in 2012 is provided for sanctions that were still enforced, indicating the most recent verification of their continued implementation. Also, the "as of" dates are employed to serve as the termination year for sanctions that are not accompanied by a verified end date.

Based on the TIES dataset, the DGD generates binary identifiers to indicate if a country has been subject to the threat of sanctions, the imposition of sanctions, or, in some circumstances, both. This is subsequently expanded to encompass additional indicators that delineate whether the sanctions being threatened or imposed are economic-related. One notable benefit of the dataset is its ability to distinguish between threatened and imposed sanctions. They are constructed independently, and it is not necessary for the threat of sanctions to be present for sanctions to be eventually imposed. According to the dataset, there were 567 instances where a sanction was solely threatened, 359 instances where a sanction was solely imposed, and 486

[66] The dataset is available to download at: https://sanctions.web.unc.edu/.

instances where a sanction was initially threatened and subsequently imposed, spanning the period from 1945 to 2005.

Here is the list of the sanction variables acquired from the DGD:

a) $THREAT\_ANY_{ij,t}$: The variable encompasses multiple categories of sanction types, including total economic embargo, partial economic embargo, import restrictions, export restrictions, blockade, asset freeze, termination of foreign aid, travel ban, and suspension of economic agreement. The variable takes a value of one if there exists a threat to impose any of the above-mentioned types of sanctions between country pairs *i* and *j* at time *t*, and zero otherwise.

b) $THREAT\_ECON_{ij,t}$: The variable comprises economic-related sanctions, such as total economic embargo, partial economic embargo, import restrictions, export restrictions, blockade, and asset freeze. It is assigned a value of one if there exists a threat to impose an economic-related sanction between the origin and destination countries *i* and *j* at time *t*, and zero otherwise.

c) $IMPOSED\_ANY_{ij,t}$: The variable takes a value of one if there exists an imposition of any type of sanction between country pairs *i* and *j* at time *t*, and zero otherwise.

d) $IMPOSED\_ECON_{ij,t}$: The variable is assigned a value of one if there exists an imposition of any type of economic-related sanctions between country pairs *i* and *j* at time *t*, and zero otherwise.

e) $THREAT\_IMPOSED\_ANY_{ij,t}$: The variable takes a value of one if there exists any type of sanction that is threatened first and then imposed between country pairs *i* and *j* at time *t*, and zero otherwise.

f) $THREAT\_IMPOSED\_ECON_{ij,t}$: The variable takes a value of one if there exists any type of economic-related sanction that is threatened first and then imposed between country pairs *i* and *j* in a given year, and zero otherwise.

Table A4 in Appendix A shows the descriptive statistics of sanctions obtained from the DGD. The $THREAT\_ANY_{ij,t}$ and $THREAT\_ECON_{ij,t}$ indicators have mean values of 0.0016 and 0.0008, respectively. This denotes that 0.16% of country pairs in the sample are either targets or senders of any kind of sanction threat anytime between 1999 and 2019, and 0.08% of trading pairs are either targets or senders of any kind of economic sanction threat within the stated time frame. Similarly, the $IMPOSED\_ANY_{ij,t}$ and $IMPOSED\_ECON_{ij,t}$ variables have mean values of 0.0020 and 0.0015, respectively. This suggests that 0.20% of country pairs in the sample are either senders or targets of any kind of imposed sanction anytime between 1999 and 2019, and

approximately 0.15% of trading pairs are either targets or senders of any kind of imposed economic sanctions during the same period. Finally, the $THREAT\_IMPOSED\_ANY_{ij,t}$ and $THREAT\_IMPOSED\_ECON_{ij,t}$ variables exhibit mean values of 0.0013 and 0.0007, respectively. This demonstrates that 0.13% of country pairs in the sample are either senders or targets of any kind of sanctions that are threatened first and then actually imposed anytime between 1999 and 2019. Similarly, 0.007% of country pairs are either targets or senders of any type of economic sanction that is threatened first and then actually imposed at any point between 1999 and 2019. Table A8 in Appendix A presents a correlation matrix of sanction types acquired from the TIES dataset. There is a high degree of correlation between each sanction type. For example, there is a high positive correlation of 0.86 between any sort of imposed sanctions and imposed economic sanctions. Similarly, the correlation between any type of threatened sanction and any type of imposed sanction is 0.73, indicating a strong positive correlation between the two.

Both the GSDB and TIES datasets have unique merits. The TIES dataset enables a quantitative evaluation and comparison of the impacts of threatened and/or imposed economic-related and travel sanctions between 1945 and 2005. The GSDB, on the other hand, serves as a valuable addition to the TIES dataset, offering complementary and expanded coverage in various aspects between 1960 and 2019. For example, it distinguishes trade sanctions depending on their direction (bilateral trade sanctions, export sanctions, or import sanctions) and their coverage (complete trade sanctions or partial trade sanctions). Unlike the TIES dataset, it also looks at other types of sanctions, such as military assistance sanctions, arms sanctions, and financial sanctions. The GSDB's bilateral structure and extensive dimensionality allow researchers to investigate the effectiveness of sanctions. A limitation of the GSDB is its exclusion of threatened sanctions, which are included in the TIES dataset. As a result, I employ both datasets individually and answer various research questions to fill in the evidence gaps on cultural trade.

2.6 Methodology

This section introduces and examines various empirical specifications utilising the GSDB and TIES datasets and explores the heterogeneous effects of different forms of sanctions on cultural and non-cultural trade.

2.6.1 *Empirical specifications for the analysis of trade sanctions using the GSDB*

I begin with an examination of the effects of trade sanctions on cultural trade. I adhere to the optimal approach, namely the PPML estimator with directional time-varying fixed effects, as

outlined and analysed in Sections 1.6 and 1.7 of Chapter 1. Hence, the first estimating equation (2.1) is as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_1 \ln(DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t}. \quad \textbf{(2.1)}$$

The variable $X_{ij,t}$ denotes total cultural trade (in levels) between trading pairs *i* and *j* in a given year. The variable $\ln DIST_{ij}$ represents the natural logarithm of the physical distance between the most populated cities of country pairs. The binary variables $CONTIG_{ij}$ and $COMLANG_{ij}$ capture the presence or absence of a common border and the same primary or official language between country pairs *i* and *j*, respectively. $COL45_{ij}$ is another binary variable denoting whether country pairs *i* and *j* have or have had colonial relationships post-1945 or not. The variable $COMRELIG_{ij}$ is a continuous variable that ranges from 0 to 1, representing the degree of religious proximity between country pairs. The binary variables $FTA_{ij,t}$ and $CU_{ij,t}$ denote the presence or absence of FTAs and CUs between country pairs in a given year. Likewise, $WTO\_MEM_{ij,t}$ is employed as a binary indicator denoting whether country pairs *i* and *j* are members of the WTO at time *t*. Finally, the binary variable $TRADE\_SANCT_{ij,t}$ denotes the presence or absence of a trade sanction between trading pairs *i* and *j* at time *t*. The binary variables take a value of one when the respective condition is met and zero otherwise.

As shown by Anderson and van Wincoop (2003), the MRTs are important components of the gravity equation. Hence, following Rose and van Wincoop (2001), Hummels (2001), Feenstra (2004), and Redding and Venables (2004), I augment the gravity equation with directional (exporter and importer) time-varying fixed effects to account for the MRTs. Specifically, $\pi_{i,t}$ and $\chi_{j,t}$ in equation (2.1) denote the vectors of time-varying exporter and importer fixed effects, respectively. The exporter-time fixed effects are used to account for the outward multilateral resistances and absorb all observable and unobservable exporter-specific characteristics that affect bilateral trade. Similarly, the importer-time fixed effects are used to account for the inward multilateral resistances as well as any other observable and unobservable importer-specific factors that have the potential to impact bilateral trade (Piermartini & Yotov, 2016) (see Section 1.4.1.1 in Chapter 1 for further details about the MRTs). The PPML estimates obtained from equation (2.1) are reported in column 1 of table 2.1.

Another important empirical issue to take into consideration is the potential endogeneity of sanctions. Weber and Schneider (2020) look at the likelihood of sanction impositions by

presenting a selection argument that centres on the intricate decision-making process undertaken by the EU in the implementation of sanctions. Their findings reveal that the EU is inclined to implement sanctions when there is a greater likelihood of substantial economic harm occurring within the country being targeted. Also, different levels of interdependence between multilateral senders and target countries cause distributional conflict, hence reducing the likelihood of imposing sanctions (Weber & Schneider, 2020). As a result, to mitigate the potential endogeneity of sanctions (and other bilateral trade policy variables like FTAs), in the following equation (2.2), I augment the gravity equation with country-pair fixed effects, which is the most efficient way of doing so, as argued by Baier and Bergstrand (2007) (see Section 1.4.1.3 in Chapter 1 for further information about the endogeneity of trade policies):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.2)}$$

The variable μ_{ij} represents the set of country-pair fixed effects, whereas the rest of the variables remain unchanged from the previous equation. The integration of country-pair fixed effects into the gravity equation accounts for both observable and unobservable time-invariant factors that influence trade costs across countries. Additionally, it captures a significant portion of the relationship between trade policies and the residual error term, $\varepsilon_{ij,t}$ (Piermartini & Yotov, 2016). One drawback associated with the utilisation of country-pair fixed effects is the inability to directly ascertain the effects of time-invariant bilateral factors that influence trade flows, such as common language, common religion, physical distance, and so on. These factors are absorbed by the country-pair fixed effects, making their specific impacts impossible to investigate. Nevertheless, sanctions have a dynamic nature. Once two governments impose sanctions on each other, they can also lift them if they achieve their policy objectives. I refer the reader to Table A6 in Appendix A for the beginning and ending periods of sanctions. As a result, I can still estimate the effects of sanctions on bilateral trade flows. The PPML findings obtained from equation (2.2) are presented in column 2 of table 2.1.

To deepen my understanding, I endeavour to explore the heterogeneous impacts of trade sanctions on cultural trade. As previously stated, the GSDB categorises trade sanctions into three distinct groups according to their direction: bilateral trade sanctions, export sanctions, and import sanctions. Hence, instead of $TRADE\_SANCT_{ij,t}$, I incorporate the gravity equation with these three groups in the following equation (2.3):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(EXP\_IMP\_SANCT_{ij,t}) + \beta_{10}(EXP\_SANCT_{ij,t}) + \beta_{11}(IMP\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.3)}$$

The variables $EXP\_IMP\_SANCT_{ij,t}$, $EXP\_SANCT_{ij,t}$, and $IMP\_SANCT_{ij,t}$ take a value of one if there is an imposition of bilateral trade sanction, export sanction, or import sanction between country pairs *i* and *j* in a given year, respectively, and zero otherwise. The PPML results obtained from equation (2.3) are reported in column 3 of table 2.1.

Additionally, the GSDB separates trade sanctions into two groups depending on their coverage: complete trade sanctions and partial trade sanctions. Following this distinction, I further investigate the heterogeneous effects of trade sanctions on cultural trade in the next equation (2.4):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(COMPL\_SANCT_{ij,t}) + \beta_{10}(PART\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.4)}$$

The variables $COMPL\_SANCT_{ij,t}$ and $PART\_SANCT_{ij,t}$ take a value of one if there is an imposition of a complete trade sanction or a partial trade sanction between country pairs *i* and *j* at time *t*, respectively, and zero otherwise. The PPML findings obtained from equation (2.4) are presented in column 4 of table 2.1.

In the subsequent equation (2.5), I proceed to conduct a more in-depth analysis of the effects of trade sanctions, taking into account their direction and coverage together:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(COMPL\_EXP\_IMP\_SANCT_{ij,t}) + \beta_{10}(COMPL\_IMP\_SANCT_{ij,t}) + \beta_{11}(PART\_EXP\_IMP\_SANCT_{ij,t}) + \beta_{12}(PART\_EXP\_SANCT_{ij,t}) + \beta_{13}(PART\_IMP\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.5)}$$

The variables $COMPL\_EXP\_IMP\_SANCT_{ij,t}$ and $COMPL\_IMP\_SANCT_{ij,t}$ are assigned a value of one when there is a complete bilateral trade sanction or a complete import sanction between country pairs *i* and *j* in a given year, respectively. Otherwise, they are assigned a value of zero. The variables $PART\_EXP\_IMP\_SANCT_{ij,t}$, $PART\_EXP\_SANCT_{ij,t}$, and $PART\_IMP\_SANCT_{ij,t}$ take a value of one when there exists a partial bilateral trade sanction, partial export sanction, or partial import sanction between trading pairs *i* and *j* at time *t*, respectively. Otherwise, they

are assigned a value of zero. Note that there is not even a single case of complete export sanctions within the sample from 1999–2019. Therefore, the regression analysis does not provide information about the impacts of complete export sanctions. The PPML findings obtained from equation (2.5) are reported in column 5 of table 2.1.

In accordance with the methodology described in equations (2.1)–(2.5), I examine the effects of trade sanctions on the bilateral trade flows of non-cultural goods. The PPML findings pertaining to non-cultural trade are displayed in table 2.2.

2.6.2 *Empirical specifications for the analysis of different types of sanctions using the GSDB*

In addition to examining the consequences of trade sanctions on bilateral trade flows of cultural goods, this study also explores the ramifications of several other forms of sanctions, including arms sanctions, military assistance sanctions, financial sanctions, and travel restrictions. To begin, I construct an indicator variable, denoted as $ANY\_SANCT_{ij,t}$, which serves the purpose of denoting the existence or non-existence of any form of sanctions between pairs of countries in a given year. I then augment the gravity equation with $ANY\_SANCT_{ij,t}$ in equation (2.6):

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(ANY\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.6)}$$

The variable $ANY\_SANCT_{ij,t}$ is assigned a value of one when there are any form of sanction in place between country pairs *i* and *j* in a given year and zero otherwise. The dependent variable and the other trade policy variables are the same as before. The PPML estimates obtained from equation (2.6) are presented in column 1 of table 2.3.

In the following equation (2.7), I incorporate each form of sanction into the gravity equation:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(TRADE\_SANCT_{ij,t}) + \beta_{10}(ARMS\_SANCT_{ij,t}) + \beta_{11}(MLTRY\_SANCT_{ij,t}) + \beta_{12}(FINCE\_SANCT_{ij,t}) + \beta_{13}(TRAVL\_SANCT_{ij,t}) + \beta_{14}(OTHER\_SANCT_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.7)}$$

The variables $ARMS\_SANCT_{ij,t}$, $MLTRY\_SANCT_{ij,t}$, $FINCE\_SANCT_{ij,t}$, $TRAVL\_SANCT_{ij,t}$, and $OTHER\_SANCT_{ij,t}$ take a value of one if there is an imposition of arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and other sanctions between country pairs *i* and *j* in a given year, respectively, and zero otherwise. The PPML findings obtained from equation (2.7) are reported in column 2 of table 2.3.

To avoid the problem of multicollinearity, which refers to the correlation between explanatory variables, I analyse the impacts of each sanction type separately in equation (2.8).

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(SANCT_{k,ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \; k = \{TRADE\_SANCT_{ij}, \; ARMS\_SANCT_{ij}, \; MLTRY\_SANCT_{ij}, \; FINCE\_SANCT_{ij}, \; TRAVL\_SANCT_{ij}, \; OTHER\_SANCT_{ij}\}. \quad \textbf{(2.8)}$$

The PPML estimates obtained from equation (2.8) are presented in columns 3–8 of table 2.3.

Following the prescribed techniques outlined in equations (2.6)–(2.8), I also investigate the impacts of each type of sanctions on the bilateral trade flows of non-cultural goods. The PPML findings pertaining to non-cultural trade are presented in table 2.4.

Finally, in the following equation (2.9), I analyse the uneven effects of sanctions by examining their heterogeneity based on their origins:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(SANCT_{k,ij,t}) + \beta_9(UN_{k,ij,t}) + \beta_9(EU_{k,ij,t}) + \beta_9(USA_{k,ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} k = \{TRADE\_SANCT_{ij}, \; ARMS\_SANCT_{ij}, \; MLTRY\_SANCT_{ij}, \; FINCE\_SANCT_{ij}, \; TRAVL\_SANCT_{ij}, \; OTHER\_SANCT_{ij}\}. \quad \textbf{(2.9)}$$

Specifically, I estimate the effects of sanctions imposed by the UN, EU, US, and the rest of the world. The PPML results of these estimations for cultural trade are presented in table 2.5, while the corresponding results for non-cultural trade are detailed in table 2.6. These tables provide a comprehensive comparison of how sanctions from each entity uniquely impact cultural and non-cultural trade flows.

2.6.3 *Empirical specifications for the analysis of sanctions utilising the TIES database*

In this section, to investigate the differential impacts of threatened vs. imposed sanctions on cultural trade, I merge the dataset with the TIES dataset provided by the DGD. The analysis is conducted in a systematic manner, commencing with the utilisation of the PPML estimator, which incorporates directional time-varying fixed effects. Hence, the first estimating equation is as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_1(\ln DIST_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) +$$

$\beta_9(THREAT\_ANY_{ij,t}) + \beta_{10}(IMPOSED\_ANY_{ij,t}) + \beta_{11}(THREAT\_ECON_{ij,t}) + \beta_{12}(IMPOSED\_ECON_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t}$. **(2.10)**

The variable $THREAT\_ANY_{ij,t}$ takes a value of one if there is any sort of sanctions threat between country pairs *i* and *j* in a given year and zero otherwise. Similarly, the variable $IMPOSED\_ANY_{ij,t}$ takes a value of one when there is any form of imposed sanctions between country pairs *i* and *j* at time *t* and zero otherwise. The variable $THREAT\_ECON_{ij,t}$ takes a value of one if there are any economic-related sanction threats between country pairs *i* and *j* in a given year and zero otherwise.[67] Finally, the variable $IMPOSED\_ECON_{ij,t}$ takes a value of one if there are any economic-related imposed sanctions between country pairs *i* and *j* in a given year and zero otherwise.[68] The explained variable, standard gravity variables, and other trade policy variables are the same as before. The PPML estimates obtained from equation (2.10) are reported in column 1 of table 2.7.

In the next equation (2.11), following Baier and Bergstrand (2007), I augment the gravity equation with country-pair fixed effects to account for the potential endogeneity of sanctions:

$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(THREAT\_ANY_{ij,t}) + \beta_{10}(IMPOSED\_ANY_{ij,t}) + \beta_{11}(THREAT\_ECON_{ij,t}) + \beta_{12}(IMPOSED\_ECON_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}$. **(2.11)**

The variable μ_{ij} denotes the set of country-pair fixed effects that absorb all time-invariant determinants of trade flows, such as common language, contiguity, and so on. The PPML estimates obtained from equation (2.11) are reported in column 2 of table 2.7.

Given that sanction cases are highly correlated with each other, regressions including all the sanction cases together might suffer from the problem of multicollinearity. Therefore, to avoid multicollinearity, I introduce and investigate each of these cases individually in equation (2.12):

[67] The TIES dataset integrates trade and financial sanctions under the term "economic sanctions". Hence, when utilising the TIES dataset, I employ the term economic sanctions instead of trade or financial sanctions.

[68] To avoid duplicating the consideration of sanction scenarios, the variable $THREAT\_ANY_{ij,t}$ is substituted with zeros in instances where there exists a threat to impose an economic-related sanction, namely $THREAT\_ECON_{ij,t}$. Similarly, if there exists an economic-related imposed sanction between pairs of countries in a specific year, namely $IMPOSED\_ECON_{ij,t}$, I substitute the variable $IMPOSED\_ANY_{ij,t}$ with a value of zero for the same rationale. This applies solely when both variables are used within the same regression analysis.

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(SANCT_{k,ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad k = \{THREAT\_ANY_{ij}, IMPOSED\_ANY_{ij}, THREAT\_ECON_{ij}, IMPOSED\_ECON_{ij}\}. \quad \textbf{(2.12)}$$

The PPML estimates obtained from equation (2.12) are presented in columns 3 to 6 of table 2.7.

In order to assess if the effects of any sort of sanctions that are threatened first and subsequently imposed are greater compared to the effects of $THREAT\_ANY_{ij,t}$ and $IMPOSED\_ANY_{ij,t}$, I construct an indicator variable, namely $THREAT\_IMPOSED\_ANY_{ij,t}$, utilising the DGD. The estimating equation is as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(THREAT\_IMPOSED\_ANY_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.13)}$$

The variable $THREAT\_IMPOSED\_ANY_{ij,t}$ takes a value of one if a sanctioning country threatens a target state with imposing any type of sanction before its actual imposition in a given year. Otherwise, it is assigned a value of zero. The PPML estimates obtained from equation (2.13) are presented in column 7 of table 2.7.

For the same reason, to investigate if the effects of economic-related sanctions that are threatened first and then actually imposed are stronger compared to the effects of $THREAT\_ECON_{ij,t}$ and $IMPOSED\_ECON_{ij,t}$, I construct an indicator variable, namely $THREAT\_IMPOSED\_ECON_{ij,t}$, based on the DGD. The estimating equation is as follows:

$$X_{ij,t} = \exp[\beta_0 + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \beta_9(THREAT\_IMPOSED\_ECON_{ij,t}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t}. \quad \textbf{(2.14)}$$

The variable $THREAT\_IMPOSED\_ECON_{ij,t}$ takes a value of one if a sanctioning state threatens a target state with imposing an economic-related sanction before its actual imposition in a given year. Otherwise, it is assigned a value of zero. The PPML findings obtained from equation (2.14) are presented in column 8 of table 2.7.

Following the same steps outlined in equations (2.10)–(2.14), I also examine the effects of sanctions on non-cultural trade as a point of comparison. The PPML results obtained for non-cultural trade are presented in table 2.8.

2.7 Empirical Findings

This section presents a thorough analysis of the research findings regarding the effects of sanctions on both cultural and non-cultural trade. In Section 2.7.1, I examine the effects of trade sanctions on cultural and non-cultural trade. In Section 2.7.2, I conduct an examination of the research findings pertaining to the impacts of other forms of sanctions on cultural and non-cultural trade. Finally, the findings about the effects of threatened and imposed sanctions on cultural and non-cultural trade are discussed in Section 2.7.3. All tables are presented at the end of the chapter.

2.7.1 *The effects of trade sanctions on cultural and non-cultural trade*

In this section, I discuss the research findings about the impacts of trade sanctions on cultural and non-cultural trade. Table (2.1) reports the parameter estimates obtained from equations (2.1)–(2.5). The estimates in column 1 show that the effects of standard gravity variables on cultural trade are almost the same as the previous estimates, which I discussed in Section 1.7.1.1 of Chapter 1. This suggests that the exclusion of the sanction variable does not bias the estimates. Without going into much detail, the research findings suggest that, all else being equal, a 10% increase in physical distance decreases bilateral trade flows of cultural goods by about 4%. The estimate on the contiguity indicator, ($\hat{\beta}_2 = 0.692$, std. err. 0.154), suggests that country pairs sharing a common border trade 100% higher in cultural goods compared to those not sharing a common border.[69] Country pairs sharing the same primary or official language trade 152% more in cultural goods compared to those not sharing the same official or primary language. Similarly, country pairs that have or have had colonial ties post-1945 trade 166% higher in cultural goods compared to those without such a relationship. Finally, the estimate on the religious proximity index reveals that a 0.01-point rise in the index corresponds to a 2.67% increase in the expected cultural trade between trading pairs *i* and *j*. In other words, a transition from 0 to 1 results in an approximate increase of 267% in expected cultural trade.

Regarding the trade policy variables, the research findings presented in column 1 reveal that FTAs have no statistically significant impact on cultural trade. However, belonging to the same customs union and joint WTO membership increase bilateral trade flows of cultural goods by about 42% and 238%, respectively. More importantly, the empirical findings demonstrate that trade sanctions have no statistically significant impact on cultural trade. One possible explanation for the insignificant estimate is the potential endogeneity of sanctions, which has not been accounted for in the analysis presented in column 1.

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

In column 2, I present the estimates, where I augment the gravity equation with country-pair fixed effects to mitigate the endogeneity concerns. After the introduction of country-pair fixed effects, the coefficient estimate for the FTA variable turns out to be significantly positive. In particular, the formation of an FTA increases bilateral trade flows of cultural goods between partner states by 29%. The coefficient estimate for the customs union indicator remains significantly positive and gains magnitude. More precisely, belonging to the same customs union increases cultural trade between country pairs by about 67%. The estimate on the joint WTO membership indicator loses magnitude and is no longer statistically significant at any level of significance. The estimated coefficients for the $CU_{ij,t}$, $FTA_{ij,t}$, and $WTO\_MEM_{ij,t}$ indicators are almost identical to the previous trade policy estimates discussed in Section 1.7.2.1 of Chapter 1.

With respect to the main objective of this chapter, the estimate of the effects of trade sanctions on cultural trade becomes statistically and economically significant after mitigating endogeneity concerns. Specifically, the estimate on $TRADE\_SANCT_{ij,t}$ suggests that, all else being equal, the formation of a trade sanction leads to a reduction of around 23% in bilateral cultural trade flows between sanctioning and sanctioned countries, calculated as $(e^{-0.265} - 1)$ x 100%. The average increase in tariff-equivalent resulting from the implementation of trade sanctions would be approximately 5%.

In column 3, I allow for the heterogeneous effects of trade sanctions depending on their direction. The empirical findings show that the estimates of the impacts of bilateral trade sanctions ($EXP\_IMP\_SANCTION_{ij,t}$) and export sanctions ($EXP\_SANCT_{ij,t}$) are highly negative and statistically significant at the 1% and 10% significance levels, respectively. The estimated coefficient for import sanctions ($IMP\_SANCTION_{ij,t}$) is negative; however, it lacks statistical significance. Specifically, the formation of a bilateral trade sanction and an export sanction leads to a reduction of around 33% and 31% in bilateral trade flows of cultural goods between sanctioning and sanctioned countries, respectively. The average tariff-equivalent increases of the implementation of bilateral trade sanctions and export sanctions are about 8.2% and 7.8%, respectively.

In column 4, I investigate the differential impacts of trade sanctions depending on their coverage. While the estimated coefficient for complete trade sanctions is insignificant, I obtain a significant negative estimate of the effects of partial trade sanctions. Specifically, all else being constant, the imposition of a partial trade sanction leads to a reduction of around 23% in

bilateral cultural trade flows between sanctioning and sanctioned countries (the corresponding tariff-equivalent effects are 5% increase).

Finally, in column 5, to enhance my comprehension, I conduct a more in-depth analysis of the heterogeneous effects of trade sanctions by examining both their direction and coverage. I observe negative coefficient estimates across all categories, with only partial bilateral trade sanctions and partial export sanctions showing statistical significance. According to the findings, the formation of a partial bilateral trade sanction and a partial export sanction leads to a reduction of around 33% and 31% in bilateral cultural trade flows between sender and target countries, respectively. Nevertheless, complete bilateral trade sanctions, complete import sanctions, and partial import sanctions do not appear to have a significant impact on impeding cultural trade. In the subsequent part of this section, I conduct a comparative analysis of the coefficient estimates of complete trade sanctions and partial trade sanctions for both cultural and non-cultural trade.

In accordance with the methodologies described in equations (2.1)–(2.5), I proceed to assess the impacts of sanctions on non-cultural trade as a means of establishing a reference point for comparison. The findings from each equation are displayed in columns 1 through 5 of table 2.2. Without going into much detail, all else being equal, a 10% increase in physical distance leads to a reduction of around 7.1% in non-cultural trade between country pairs. Also, countries with a common border trade 69% more in non-cultural goods compared to those without a common border. Similarly, trading partners with colonial ties post-1945 trade 74% higher in non-cultural goods in comparison to trading partners without any historical colonial relationship. The estimates of the other standard gravity variables are statistically insignificant.

In terms of trade policy variables, the empirical results shown in column 1 demonstrate that joining the same FTA and CU increases bilateral trade flows of non-cultural goods by about 36% and 38%, respectively. Additionally, bilateral trade flows in non-cultural goods between trading pairs that are both members of the WTO are 36% higher in comparison to nation pairs where at least one member is not part of the WTO. As was the case for cultural trade, the estimated coefficients for standard gravity variables and trade policy variables are almost identical to the previous findings, which are discussed thoroughly in Sections 1.7.1.1 and 1.7.2.1 of Chapter 1, respectively. This confirms that the exclusion of the sanction variable does not bias the standard gravity variable and trade policy variable estimates for non-cultural trade. With regard to the primary objective of this chapter, a notable positive estimation is derived concerning the impacts of trade sanctions on non-cultural trade. Upon initial examination, it

appears that the implementation of a trade sanction leads to a roughly 14% rise in non-cultural trade flows between sanctioning the sanctioned countries, ($e^{0.127}$ – 1) x 100%. One potential reason for the significantly positive coefficient estimate is the potential endogeneity problem related to sanctions.

In column 2, I resolve this matter by integrating country-pair fixed effects into the gravity equation. The estimated coefficients for the $FTA_{ij,t}$ (13%), $CU_{ij,t}$ (37%), and $WTO\_MEM_{ij,t}$ (25%) indicators continue to exhibit a statistically significant positive relationship, albeit their magnitudes diminish (the associated percentage effects are given in parentheses). More importantly, the estimated coefficient of $TRADE\_SANCT_{ij,t}$ turns out to be significantly negative, denoting that the formation of a trade sanction decreases the bilateral non-cultural trade flows of sanctioning and sanctioned countries by about 17%, ($e^{-0.185}$ – 1) x 100%. The research findings suggest that the specifications, which do not account for the potential endogeneity of trade policies, downward bias the estimates of the effects of trade sanctions.

In columns 3–5, I examine the heterogeneous effects of trade sanctions on non-cultural trade, taking into account their direction and coverage. According to the findings presented in column 3, bilateral trade sanctions and import sanctions have significantly negative impacts on non-cultural trade, whereas export sanctions play no statistically significant role. Specifically, all else being equal, the imposition of bilateral trade sanctions and import sanctions reduces non-cultural trade between sender and target countries by about 26% and 11%, respectively. A comparative analysis of the third columns in tables 2.1 and 2.2 reveals that the influence of sanctions on cultural and non-cultural trade varies depending on the direction of trade sanctions. Specifically, bilateral trade sanctions have a detrimental effect on both cultural and non-cultural trade. Export sanctions, on the other hand, exhibit a substantial negative impact solely on cultural trade. Import sanctions, conversely, significantly diminish non-cultural trade.

The research findings reported in column 4 demonstrate that both complete trade sanctions and partial trade sanctions have significantly negative impacts on non-cultural trade. In particular, all else being constant, the imposition of bilateral trade sanctions and partial trade sanctions reduces non-cultural trade between sanctioning and sanctioned countries by about 57% and 17%, respectively. The estimated coefficients from the study of cultural and non-cultural trade show that partial trade sanctions decrease both cultural and non-cultural trade, but complete trade sanctions reduce only non-cultural trade. Partial trade agreements often explicitly identify and specifically address cultural industries, which could potentially explain the insignificant estimate of complete trade sanctions on cultural trade.

For example, after the conflict between Russia and Ukraine, the US government imposed a partial trade sanction on Russia. This sanction focuses primarily on certain items, such as discrete chemicals, biologics, fentanyl and its precursors, and associated equipment, that have the potential to be used in Russia's chemical and biological weapons production. It also includes specific cultural goods such as paintings, antiques older than 100 years, sculptures, collectable items, musical instruments, printed books, newspapers, pictures, and other printing industry products. The US government requires individuals or entities seeking to export, re-export, or transfer these products to Russia to get an export licence from the US government.[70]

In my analysis, I examine the impacts of 31 trade sanctions, selecting them based on their coverage, direction, and the involved sender and target countries. Among these, I included the above-mentioned partial bilateral trade sanction imposed by the US on Russia. Table D1 in Appendix D presents a detailed investigation of the uneven effects of selected trade sanctions. Empirical findings reveal that the formation of this sanction leads to a 77% decrease in the bilateral cultural trade flows between the US and Russia, $(e^{-1.460} - 1)$ x 100%. As a result, sanctions specifically targeting cultural products, regardless of their coverage, can have a greater impact on cultural trade. Regrettably, as previously said, the sanctions under investigation are not culture-specific, and our knowledge of the content of trade sanctions is very limited. So, we do not know which sanctions include cultural products. Once data regarding the content of sanctions is available, it is worthwhile to conduct further research.

In column 5, I conduct a more detailed analysis of the heterogeneous impacts of trade sanctions on non-cultural trade by simultaneously considering their direction and the extent of their intervention. The research findings reveal that the formation of complete bilateral trade sanctions and partial bilateral trade sanctions reduces the trade of non-cultural goods between sanctioning and sanctioned countries by about 67% and 25%, respectively. Partial import sanctions, on the other hand, reduce non-cultural trade by about 11%. While partial export sanctions do not demonstrate a statistically significant influence on non-cultural trade, complete import sanctions, quite puzzlingly, have a notable positive influence on non-cultural trade between sanctioning and sanctioned countries, resulting in a 155% rise. I have a limited number of complete import sanctions in the sample. As shown in figure 2.3, only 2.3% of sanction cases are complete import sanctions. Hence, the significantly positive estimate of the effects of complete import sanctions may be attributed to the rarity of such trade sanctions.

[70] For more information about the details of the US sanction imposed against Russia, I refer the reader to the following source:
https://www.bis.doc.gov/index.php/documents/regulation-docs/420-part-746-embargoes-and-other-special-controls/file.

A comparative examination of the fifth columns in tables 2.1 and 2.2 shows that both complete and partial bilateral trade sanctions matter for non-cultural trade; however, only partial bilateral trade sanctions exhibit statistically significant negative impacts on cultural trade. Partial export sanctions matter only for cultural trade, whereas partial import sanctions exclusively impact non-cultural trade. Overall, the research findings demonstrate that the impacts of trade sanctions on cultural and non-cultural trade exhibit variation contingent upon their direction and coverage.

2.7.2 *The effects of different types of sanctions on cultural and non-cultural trade*

In this section, I discuss the empirical findings regarding the impacts of various forms of sanctions on cultural and non-cultural trade. The research findings are displayed in columns 1 through 8 of table 2.3. In the first column, I estimate the effects of the existence of any sort of sanction on cultural trade. The estimate on any sanction indicator is highly significant and negative, ($\hat{\beta}_9$ = -0.329, std. err. 0.073). In terms of the trade volume effects, the coefficient estimate suggests that, all else being equal, the imposition of any sort of sanctions reduces cultural trade between sender and target countries by 28%, ($e^{-0.329} - 1$) x 100% (equivalent to a 7% increase in tariffs). The estimates of the other trade policy variables are nearly identical to those presented in table 2.1.

In column 2, I estimate the impacts of each sanction type in the same regression. The estimates of the impacts of trade, military, and financial sanctions are significantly negative. More specifically, holding all other factors constant, these sanctions are found to decrease bilateral cultural trade flows between sanctioning and sanctioned countries by approximately 15%, 34%, and 31%, respectively. However, the estimates of the impacts of arms, travel, and other types of sanctions are found to be statistically insignificant.

Due to the high correlation among these sanctions (see Table A7 in Appendix A), regressions lumping all sanction categories together might suffer from multicollinearity. Thus, I examine the impacts of each sanction type individually. The findings obtained for each sanction category are reported in columns 3–8. These are the main findings that we need to rely on because we avoid multicollinearity in each specification. The research findings reveal significantly negative estimates for each sanction category, with the exception of other types of sanctions. In terms of trade volume effects, the empirical findings suggest that the imposition of trade sanctions, arms sanctions, military assistance sanctions, financial sanctions, and travel restrictions reduce bilateral cultural trade flows between sanctioning and sanctioned states by about 23%, 25%, 35%, 35%, and 33%, respectively (equivalent to a 6.8%, 7.4%, 11.5%, 11.4%, and 10.6%

increase in tariffs, respectively). Military assistance sanctions, financial sanctions, and travel restrictions have the largest negative impacts on cultural trade.

Following the same methodology, I proceed to analyse the impacts of each type of sanction on non-cultural trade. The research findings are presented in columns 1 through 8 of table 2.4. According to the estimates reported in column 1, the imposition of any sort of sanctions leads to a reduction of approximately 7% in bilateral trade flows of non-cultural goods between sanctioning and sanctioned countries. This indicates that the imposition of any sort of sanction leads to a four-fold larger decrease in cultural trade compared to non-cultural trade.

In column 2, I estimate the impacts of each sanction category in the same regression. The results indicate that the estimated impacts of trade sanctions are notably negative, whereas the estimated impacts of arms sanctions, military assistance sanctions, financial sanctions, and travel restrictions are statistically insignificant. Specifically, the imposition of a trade sanction leads to a reduction of around 14% in bilateral non-cultural trade flows between sanctioning and sanctioned countries. The coefficient estimate obtained for the category of others is positive and statistically significant, albeit only at a significance level of 10%.

To avoid the problem of multicollinearity, I proceed to do separate estimations for each type of sanction. The findings are presented in columns 3–8. While the estimate of the effects of trade sanctions remains significantly negative, the estimates of the effects of financial sanctions and travel restrictions turn out to be significantly negative. Specifically, all else being constant, the imposition of trade sanctions, financial sanctions, and travel restrictions reduces bilateral non-cultural trade flows between sanctioning and sanctioned states by about 17%, 15%, and 17%, respectively. Nevertheless, military assistance and arms sanctions remain statistically insignificant, and the category of others turns out to be statistically insignificant.

Last but not least, I investigate the uneven effects of sanctions by examining their origins. Specifically, I examine how sanctions imposed by different entities, such as the UN, EU, and US, affect cultural and non-cultural trade between the sanctioning entities and the sanctioned parties. Tables 2.5 and 2.6 present the results obtained for cultural trade and non-cultural trade, respectively.

The results in column 1 of table 2.5 reaffirm previous findings, illustrating that trade sanctions have a significant negative impact on bilateral cultural trade. However, the magnitude of these effects varies depending on the sanction's origin. For instance, UN-imposed trade sanctions lead to an average decrease of 54% in cultural trade between UN participants and sanctioned

countries, whereas US-imposed trade sanctions result in a 25% decrease in US bilateral cultural trade with sanctioned countries.

Further analysis in columns 2 and 3 reveals that US-imposed arms and military assistance sanctions have a negative impact on cultural trade, whereas those imposed by the UN and EU do not. More specifically, US-imposed arms and military assistance sanctions reduce US bilateral cultural trade with sanctioned countries by 31%. Additionally, although the estimates for the effects of UN- and EU-imposed financial and travel sanctions on cultural trade are statistically insignificant in columns 4 and 5, US-imposed financial and travel sanctions lead to a 35% and 36% reduction in cultural trade between the US and sanctioned countries, respectively.

Moving on to table 2.6, column 1 reveals that trade sanctions, regardless of their origin, have statistically significant and negative impacts on non-cultural trade. Among the three cases examined, UN-imposed trade sanctions have the most significant impact, with an average 56% reduction in non-cultural trade between UN participants and sanctioned countries. In comparison, US-imposed trade sanctions lead to an average reduction of 26% in US non-cultural trade with sanctioned countries, while EU-imposed trade sanctions result in an average decrease of 21% in non-cultural trade between EU members and sanctioned countries.

The analysis of arms and military assistance sanctions further highlights the varying impacts of sanctions based on the imposing party. Specifically, military assistance sanctions imposed by the EU and US diminish non-cultural trade between sanctioning parties and sanctioned countries by about 21% and 14%, respectively, whereas EU-imposed arms sanctions reduce non-cultural trade between EU members and sanctioned countries by 20%. The UN-imposed military assistance and arms sanctions are found to be statistically insignificant.

Similarly, both US- and EU-imposed financial and travel sanctions demonstrate statistically significant negative impacts on non-cultural trade, whereas those imposed by the UN do not. Specifically, US financial sanctions reduce US non-cultural trade with sanctioned countries by 24%, while EU-imposed financial sanctions lead to a 15% reduction in non-cultural trade among EU members and sanctioned countries. Similarly, US- and EU-imposed travel sanctions result in reductions of approximately 26% and 20% in bilateral non-cultural trade with sanctioned countries, respectively.

These empirical findings indicate that US and EU sanctions, regardless of their type, have significant unforeseen consequences for their non-cultural trade with sanctioned countries.

Overall, these results highlight the collateral and uneven effects of sanctions based on their origin, raising significant concerns about the collateral damage that sanctions may inflict on cultural and non-cultural trade.

As previously mentioned in Section 2.3, Doan and Tran (2023) also examine the impacts of sanctions on cultural trade. However, the findings presented in this chapter challenge their conclusions. According to Doan and Tran, economic, arms, and military sanctions have a significant positive impact on bilateral cultural trade flows. The differences between the two studies are due to differences in data utilisation.

To allow trade flows to reflect trade policy changes, as recommended by Trefler (2004) and Cheng and Wall (2005), I use five-year interval data points from 1999 to 2019. In contrast, Doan and Tran use consecutive yearly data from 1996 to 2019. To determine if the differences in findings are due to the use of different cultural trade data, I performed an additional analysis using consecutive yearly data from 1999 to 2019. The findings remain significantly negative, supporting the results obtained with the five-year interval data. For example, the findings obtained with this method show that the imposition of trade sanctions leads to a 50% reduction in bilateral cultural trade flows between sender and target countries.

The authors also mention that they exclude missing observations from their dataset. However, not only zero trade flows but also missing trade flows present significant challenges, particularly in highly disaggregated data such as cultural trade data. One major limitation of dropping missing trade flows from the dataset is that it overlooks the valuable information embedded within these missing trade flows, which can introduce sample selection bias.

To investigate whether the differences between their study and my thesis stem from the exclusion of missing trade flows, I conducted additional analyses in which I also excluded missing data from my dataset. By doing so, the estimates on the effects of trade sanctions on cultural trade turns out to be statistically insignificant. This suggests that excluding missing trade flows may have influenced the outcomes reported in their study, potentially masking important insights and nuances in the data.[71]

2.7.3 *The effects of threatened vs. imposed sanctions on cultural and non-cultural trade*

In this section, I specifically focus on the impacts of threatened and imposed sanctions on cultural and non-cultural trade, using a smaller sample. The findings are displayed in columns

[71] The estimation results are not presented here but are available upon request.

1 through 8 of table 2.7. The coefficient estimates pertaining to the standard gravity variables exhibit anticipated signs and magnitudes that are consistent with the prior research outcomes. Similarly, the estimated coefficients of the remaining trade policy variables demonstrate expected signs, albeit with reduced magnitudes in comparison to the previous findings. The reduced magnitudes may potentially be attributed to the limitations imposed by the sample size.

In column 1, I incorporate the gravity equation with the $THREAT\_ANY_{ij,t}$, $IMPOSED\_ANY_{ij,t}$, $THREAT\_ECON_{ij,t}$, and $IMPOSED\_ECON_{ij,t}$ indicators. Upon initial examination, I obtain statistically insignificant coefficient estimates for all the indicators, except for $IMPOSED\_ANY_{ij,t}$, which is significantly positive. These estimates may be attributed to the potential endogeneity of sanctions. Therefore, in column 2, I augment the gravity equation with directional time-varying fixed effects to account for the potential endogeneity of sanctions. While the coefficient estimates that were first deemed statistically insignificant continue to be insignificant, the coefficient estimate on $IMPOSED\_ANY_{ij,t}$ likewise turns out to be statistically insignificant. There is a high degree of correlation between each of these four cases in the sample. Therefore, it is plausible to consider multicollinearity as a factor behind the lack of significance in the coefficient estimates.

To mitigate the issue of multicollinearity, I conduct individual estimations for each sanction case. In column 3, I direct my attention towards the impacts of threats to impose any form of sanction. Following an independent analysis, the coefficient estimate on $THREAT\_ANY_{ij,t}$ becomes economically and statistically significant. In terms of trade volume effects, the findings suggest that, all else being equal, the existence of threats to impose any sort of sanction impedes cultural trade flows between sender and target countries by about 34%, $(e^{-0.413} - 1)$ x 100 (equivalent to a 11% increase in tariffs). Similarly, I conduct a separate investigation to estimate the impacts of the imposition of any sort of sanction in column 4. The empirical findings reveal a significantly negative coefficient estimate for the $IMPOSED\_ANY_{ij,t}$ indicator. Specifically, all else being equal, the imposition of any sort of sanction between trading pairs impedes their bilateral cultural trade flows by about 29%, $(e^{-0.342} - 1)$ x 100 (equivalent to a 9% increase in tariffs). The coefficient estimate for the $THREAT\_ECON_{ij,t}$ indicator is reported in column 5. Like the previous two findings, the coefficient estimate associated with this indicator also turns out to be significantly negative. The findings indicate that the existence of threats to impose economic sanctions reduces bilateral cultural trade flows between sender and target countries by about 19%, $(e^{-0.214} - 1)$ x 100 (equivalent to a 5.5% increase in tariffs). Finally, I present the estimate of the effects of imposed economic sanctions in column 6. The estimated coefficient on the variable $IMPOSED\_ECON_{ij,t}$ is also found to be statistically

significant and negative. Specifically, all else being constant, the imposition of economic sanctions reduces bilateral cultural trade flows between sanctioning and sanctioned countries by about 30%, ($e^{-0.360}$ – 1) x 100 (equivalent to a 9.4% increase in tariffs). This effect is one and a half times larger than the negative effect of threatened economic sanctions.

Furthermore, in order to deepen my understanding, I also estimate the coefficient of the *THREAT_IMPOSED_ANY*$_{ij,t}$ indicator, which I construct based on the *THREAT_ANY*$_{ij,t}$ and *IMPOSED_ANY*$_{ij,t}$ indicators. I aim to see what happens when a sanctioning country threatens a target state with the imposition of a sanction in whatever form and then actually imposes it. Based on the results reported in column 7, the presence of any form of sanctions, which are initially threatened and then imposed, has a significantly negative impact on cultural trade between sender and target countries, resulting in a reduction of around 35%, ($e^{-0.425}$ – 1) x 100 (equivalent to a 11.2% increase in tariffs). The magnitude of this effect surpasses that of any other instances observed in the preceding four columns.

Similarly, I construct the variable *THREAT_IMPOSED_ECON*$_{ij,t}$ based on the *THREAT_ECON*$_{ij,t}$ and *IMPOSED_ECON*$_{ij,t}$ indicators. The underlying justification remains unchanged. I aim to examine the effects of economic sanctions that are initially threatened and then implemented. The findings presented in column 8 reveal an economically and statistically insignificant coefficient estimate for the *THREAT_IMPOSED_ECON*$_{ij,t}$ indicator. The heterogeneous character of the imposed and threatened economic sanctions provided by the TIES dataset might be a potential reason behind the insignificant coefficient estimate.

Finally, I examine the effects of threatened and imposed sanctions on non-cultural trade by employing identical procedures. The findings are displayed in columns 1 through 8 of table 2.8. All the gravity variable estimates presented in the first column confirm the prior research outcomes. The coefficient estimates for the FTA and joint WTO membership indicators remain consistently insignificant, whereas the estimates for the CU indicator consistently exhibit significantly positive effects. As previously stated, the current sample size is quite smaller than the one I previously employed in the analysis of the GSDB. Hence, I solely focus on the effects of sanctions in this particular section.

Upon addressing the potential issue of endogeneity in relation to sanctions, the findings presented in column 2 reveal significantly negative estimates for the *THREAT_ANY*$_{ij,t}$ and *IMPOSED_ANY*$_{ij,t}$ indicators, whereas the estimates on *THREAT_ECON*$_{ij,t}$ and *IMPOSED_ECON*$_{ij,t}$ are statistically insignificant. Specifically, the research outcomes denote that the existence of threats to impose sanctions in whatever form reduces the bilateral non-

cultural trade flows between sender and target countries by about 39%, ($e^{-0.490}$ – 1) x 100 (equivalent to a 13% increase in tariffs). Similarly, the imposition of sanctions in whatever form reduces bilateral non-cultural trade flows between sanctioning and sanctioned countries by about 32%, ($e^{-0.379}$ – 1) x 100 (equivalent to a 10% increase in tariffs).

In order to mitigate the potential issue of multicollinearity, I proceed to assess the impacts of each of the four indicators separately. The empirical findings are presented in columns 3–6. The coefficient estimates on the $THREAT\_ANY_{ij,t}$ and $IMPOSED\_ANY_{ij,t}$ indicators remain significantly negative and gain magnitude. However, neither $THREAT\_ECON_{ij,t}$ nor $IMPOSED\_ECON_{ij,t}$ are found to be trade-reducing in non-cultural goods. Moreover, the findings presented in columns 7 and 8 reveal insignificant estimates of the effects of $THREAT\_IMPOSED\_ANY_{ij,t}$ and $THREAT\_IMPOSED\_ECON_{ij,t}$ on the bilateral trade flows of non-cultural goods between sanctioning and sanctioned countries. The lack of significance in the coefficient estimates could potentially be attributed to the diverse nature of the imposed and threatened sanctions. Additionally, as indicated before, I use a significantly smaller dataset in the analysis of the TIES dataset compared to the GSDB. Therefore, the primary reliance in this study is placed on the outcomes derived from the GSDB.

Overall, this study provides robust evidence that the effects of threatened sanctions in the context of cultural trade are comparable to the effects of imposed sanctions. This phenomenon is not limited solely to economic sanctions but rather extends to sanctions of any nature that are threatened or imposed. Similarly, I present compelling evidence that both threatened and imposed sanctions, irrespective of their kind, have substantial trade-reducing impacts on non-cultural trade. Nevertheless, I observe that economic sanctions, whether threatened or imposed, demonstrate inefficacy in diminishing non-cultural trade.

2.8 Concluding Remarks

Due to the positive correlation between cultural convergence and international trade, as shown by Franco and Maggioni (2022), this study posits that the imposition of sanctions, in any form, leads to a reduction in international trade. This reduction in trade, in turn, heightens the likelihood of cultural divergence. As trade diminishes, the exchange of cultural goods and ideas also declines, leading to a growing cultural gap between the sanctioning and sanctioned countries. This cyclical effect exacerbates the collateral damage to international trade relations, fostering a climate of distrust and isolation. Consequently, the sanctions not only disrupt economic ties but also impede cultural interactions, making it more difficult for nations to understand and relate to one another. This increased cultural divergence can prolong conflicts

and complicate peace-building efforts, as the lack of cultural exchange and mutual understanding reinforces barriers and hostilities. In essence, sanctions can create a vicious cycle where reduced trade leads to cultural divergence, which further hinders the restoration of normal trade relations and the achievement of lasting peace.

In this study, I examine the collateral damage caused by sanctions on cultural and non-cultural trade. Initially, I use the GSDB, as it facilitates a more comprehensive examination. Upon addressing the issue of the potential endogeneity of sanctions, the analysis reveals a large and adverse impact of trade sanctions on both cultural and non-cultural trade. More specifically, the imposition of trade sanctions reduces bilateral trade flows of cultural and non-cultural goods between sanctioning and sanctioned countries by around 23% and 17%, respectively. Nevertheless, the impacts of trade sanctions vary based on their direction and the extent of their intervention.

Through a comprehensive analysis of the direction of trade sanctions, I observe that bilateral trade sanctions (-33%) and export sanctions (-13%) have substantial effects on diminishing cultural trade, with the associated percentage effects given in parentheses. In non-cultural trade, bilateral trade sanctions (-26%) and import sanctions (-11%) have statistically and economically significant negative impacts.

After analysing the consequences of trade sanctions based on their level of intervention, I observe that both complete trade sanctions and partial trade sanctions have statistically significant negative effects on non-cultural trade, with reductions of 57% and 17%, respectively. However, in the case of cultural trade, only partial trade sanctions exhibit a significant negative impact, resulting in a 23% decrease.

In addition, I examine the effects of trade sanctions by considering both their direction and coverage. The empirical findings suggest that complete bilateral trade sanctions (-67%), partial bilateral trade sanctions (-25%), and partial import sanctions (-11%) have substantial adverse effects on non-cultural trade. However, when it comes to cultural trade, only partial bilateral trade sanctions (-33%) and partial export sanctions (-31%) exhibit significantly negative impacts.

As detailed in Section 2.7.1, the effectiveness of partial trade sanctions on cultural trade may be due to their specific targeting of cultural industries. This means that partial trade sanctions can more directly and effectively disrupt cultural trade flows compared to complete trade sanctions, which may have a broader but less focused impact on the cultural sector.

Furthermore, I investigate the impacts of the imposition of different types of sanctions. The empirical findings reveal that various types of sanctions, including arms sanctions (-25%), military assistance sanctions (-35%), financial sanctions (-35%), and travel restrictions (-33%), have statistically significant adverse effects on cultural trade. However, only financial sanctions (-15%) and travel restrictions (-17%) matter for non-cultural trade.

To deepen my understanding, I also examine the heterogeneity of sanctions depending on their origins. The findings reveal some important differences. For instance, EU- and US-imposed sanctions consistently exhibit substantial negative effects on both cultural and non-cultural trade, thereby disrupting economic interactions and cultural trade with sanctioned parties. This could be due to the extensive global economic and political influence wielded by the US and EU, which amplifies the reach and severity of their sanctions.

In comparison, UN-imposed sanctions, while still impactful, tend to have a lesser effect on trade flows than US and EU sanctions. This might be attributed to the UN's more collaborative and multilateral approach to international relations, which may result in sanctions that are perceived as less unilateral and hence slightly less disruptive. The results about the heterogeneity of sanctions depending on their origins indicate that a one-size-fits-all approach could be misleading in assessing the impacts of sanctions.

Finally, using the TIES dataset, I assess the implications of threatened vs. imposed sanctions on cultural and non-cultural trade. The empirical findings of this study indicate that both threatened sanctions (-34%) and imposed sanctions (-29%) have considerable negative effects on cultural trade, regardless of their specific form. Similarly, threatened economic sanctions (-19%) and imposed economic sanctions (-30%) have significantly negative impacts on bilateral trade flows of cultural goods between sanctioning and sanctioned countries. Moreover, the scenario in which a country threatens a target country with the implementation of a sanction and subsequently follows through with its imposition exhibits the greatest level of significance compared to the effects of the other four instances. This specific case reduces bilateral cultural trade flows between sender and target countries by about 35%. The empirical findings also demonstrate that both threatened sanctions (-45%) and imposed sanctions (-41%), irrespective of their type, have significantly negative impacts on bilateral trade flows of non-cultural goods between the sender and target countries.

Overall, these findings align with the main hypothesis, which posits that sanctions, irrespective of their form, lead to a reduction in cultural convergence. This reduction subsequently decreases bilateral trade between the sender and target parties. Reduced bilateral trade creates a cyclical

effect of increasing cultural divergence. This cyclical effect of increasing cultural divergence is particularly pronounced in the case of sanctions imposed by the EU and the US. When trade between nations flourishes, it promotes the exchange of cultural values, ideas, and norms, thereby bringing societies closer together.

In conclusion, this study offers policymakers a nuanced understanding of how different sanctions impact international trade and cultural relations, aiming to expose their collateral damage. By recognising the cyclical nature of reduced trade and cultural divergence, particularly with non-economic sanctions, policymakers can design sanctions that incorporate mechanisms for conflict resolution and reconciliation. This approach breaks the cycle of cultural divergence and bolsters sustainable peace initiatives. It is crucial to adopt a balanced approach that integrates sanctions with engagement strategies to uphold channels for cultural exchange and dialogue. Such a balance can effectively mitigate the adverse effects of sanctions on cultural and economic relations, while also supporting long-term peacebuilding efforts.

Some caveats apply to this study. First, the primary focus of this chapter is not on the ethical justification for sanctions or the political implications of the cultural sector in the use of soft power for conflict resolution. Although these topics are intriguing and warrant further investigation, they are distinct research questions that fall outside the scope of this chapter. Secondly, due to data limitations, this study does not consider culture-specific sanctions. Future research could explore this area to provide a more comprehensive understanding of how cultural-specific sanctions impact cultural trade and international relations.

	(1) SANCT	(2) SANCT, FEs	(3) DIRECT	(4) COVER	(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
					(0.256)
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

Table 2.1: Heterogeneous impacts of trade sanctions on cultural trade

Notes: Columns 1 and 2 investigate the effects of trade sanctions on cultural trade. Columns 3 and 4 examine the heterogeneous effects of trade sanctions depending on their direction and coverage, respectively. Finally, column 5 examines the heterogeneous impacts of trade sanctions, depending on both their direction and the extent of their intervention. There is not even a single case of complete export sanctions during 1999–2019 in the sample. Thus, the complete export sanctions are not reported in column 5. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) SANCT	(2) SANCT, FEs	(3) DIRCT	(4) COVER	(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

Table 2.2: Heterogeneous impacts of trade sanctions on non-cultural trade

Notes: Columns 1 and 2 investigate the effects of trade sanctions on non-cultural trade. Columns 3 and 4 examine the heterogeneous effects of trade sanctions depending on their direction and coverage, respectively. Finally, column 5 examines the heterogeneous impacts of trade sanctions, depending on both their direction and the extent of their intervention. There is not even a single case of complete export sanctions during 1999–2019 in the sample. Thus, the complete export sanctions are not reported in column 5. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(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

Table 2.3: Impacts of different types of sanctions on cultural trade

Notes: Columns 1–8 investigate the impacts of various types of sanctions on cultural trade. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. I introduce directional time-varying fixed effects and country-pair fixed effects in each column. Column 1 estimates the impacts of the existence of any type of sanction between country pairs. Column 2 introduces trade sanctions, arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and the category of other sanctions. To avoid the problem of multicollinearity, columns 3–8 examine each sanction type individually. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(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

Table 2.4: Impacts of different types of sanctions on non-cultural trade

Notes: Columns 1–8 investigate the impacts of various types of sanctions on non-cultural trade. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. I introduce directional time-varying fixed effects and country-pair fixed effects in each column. Column 1 estimates the impacts of the existence of any type of sanction between country pairs. Column 2 introduces trade sanctions, arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and the category of other sanctions. To avoid the problem of multicollinearity, columns 3–8 examine each sanction type individually. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) TRADE	(2) ARMS	(3) MLTRY	(4) FINCE	(5) TRVL	(6) OTHER
FTA	0.254***	0.248***	0.227***	0.264***	0.261***	0.247***
	(0.081)	(0.081)	(0.079)	(0.083)	(0.083)	(0.081)
CU	0.513***	0.519***	0.526***	0.518***	0.524***	0.522***
	(0.136)	(0.139)	(0.138)	(0.136)	(0.138)	(0.134)
WTO_MEM	0.415	0.341	0.317	0.419	0.377	0.352
	(0.306)	(0.312)	(0.316)	(0.300)	(0.304)	(0.294)
SANCT	-0.235**	-0.184	-0.263	-0.445*	0.280**	0.349***
	(0.112)	(0.247)	(0.242)	(0.237)	(0.119)	(0.126)
UN	-1.063**	-0.183	-0.395	0.453	0.169	3.279***
	(0.497)	(0.375)	(0.378)	(0.447)	(0.598)	(0.959)
EU	-0.225	-0.017	0.074	-0.251	-0.079	-0.308*
	(0.283)	(0.261)	(0.289)	(0.241)	(0.340)	(0.181)
US	-0.292***	-0.375*	-0.377***	-0.432***	-0.443***	-0.185
	(0.094)	(0.206)	(0.107)	(0.0947)	(0.104)	(0.270)
i,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
j,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
i,j FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	70,171	70,171	70,171	70,171	70,171	70,171
R-squared	0.744	0.743	0.743	0.743	0.743	0.743

Table 2.5: Uneven effects of sanctions on cultural trade

Notes: Columns 1–6 investigate the impacts of various types of US-, EU-, and UN-imposed sanctions on their cultural trade with target countries. Column trade sanctions, arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and the category of other sanctions are introduced in columns 1-6. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) TRADE	(2) ARMS	(3) MLTRY	(4) FINCE	(5) TRVL	(6) OTHER
FTA	0.124***	0.119***	0.116***	0.122***	0.124***	0.117***
	(0.027)	(0.025)	(0.025)	(0.027)	(0.027)	(0.025)
CU	0.317***	0.292***	0.295***	0.316***	0.308***	0.327***
	(0.056)	(0.057)	(0.056)	(0.056)	(0.055)	(0.054)
WTO_MEM	0.209**	0.200**	0.194**	0.175**	0.181**	0.147*
	(0.089)	(0.093)	(0.094)	(0.089)	(0.090)	(0.088)
SANCT	-0.027	-0.324**	0.093	0.074	0.170	-0.077
	(0.033)	(0.135)	(0.295)	(0.172)	(0.194)	(0.095)
UN	-0.823**	-0.094	-0.418	-0.079	-0.430	1.723*
	(0.374)	(0.233)	(0.303)	(0.231)	(0.334)	(0.905)
EU	-0.244***	-0.221**	-0.233**	-0.168***	-0.225**	0.094
	(0.081)	(0.091)	(0.113)	(0.065)	(0.095)	(0.079)
US	-0.300***	-0.050	-0.146***	-0.280***	-0.299***	-0.261*
	(0.045)	(0.137)	(0.039)	(0.042)	(0.056)	(0.147)
i,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
j,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
i,j FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	71,360	71,360	71,360	71,360	71,360	71,360
	0.887	0.886	0.886	0.887	0.887	0.886

Table 2.6: Uneven effects of sanctions on non-cultural trade

Notes: Columns 1–6 investigate the impacts of various types of US-, EU-, and UN-imposed sanctions on their non-cultural trade with target countries. Column trade sanctions, arms sanctions, military assistance sanctions, financial sanctions, travel restrictions, and the category of other sanctions are introduced in columns 1-6. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) SANCT	(2) SANCT, FEs	(3) THREAT ANY	(4) IMPOSED ANY	(5) THREAT ECON	(6) IMPOSED ECON	(7) THREAT IMPOSED ANY	(8) THREAT IMPOSED ECON
lnDIST	-0.426***							
	(0.073)							
CONTIG	0.580***							
	(0.148)							
COMLANG	1.071***							
	(0.157)							
COL45	0.914***							
	(0.174)							
COMRELIG	0.959***							
	(0.232)							
FTA	0.134	0.171*	0.175*	0.138	0.164*	0.147*	0.155*	0.156*
	(0.125)	(0.091)	(0.092)	(0.091)	(0.092)	(0.089)	(0.088)	(0.090)
CU	0.341	0.327**	0.299**	0.306**	0.283**	0.309**	0.296**	0.286**
	(0.218)	(0.138)	(0.137)	(0.134)	(0.135)	(0.133)	(0.135)	(0.135)
WTO_MEM	1.231***	0.737*	0.669	0.749*	0.646	0.755*	0.739	0.661
	(0.266)	(0.448)	(0.433)	(0.437)	(0.428)	(0.438)	(0.454)	(0.437)
THREAT_ANY	-0.650	-0.680	-0.413*					
	(0.647)	(0.727)	(0.228)					
IMPOSED ANY	0.552*	0.350		-0.342**				
	(0.294)	(0.355)		(0.149)				
THREAT_ECON	0.126	-0.075			-0.214*			
	(0.238)	(0.237)			(0.126)			
IMPOSED_ECON	0.012	-0.208				-0.360**		
	(0.198)	(0.220)				(0.141)		
THREAT_IMPOSED_ANY							-0.425***	
							(0.153)	
THREAT_IMPOSED_ECON								-0.125
								(0.172)
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	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	69,063	37,817	37,817	37,817	37,817	37,817	37,817	37,817
R-squared	0.744	0.815	0.800	0.796	0.776	0.797	0.800	0.775

Table 2.7: Impacts of threatened vs. imposed sanctions on cultural trade

Notes: Columns 1–8 examine the impacts of threatened and imposed sanctions on cultural trade. All estimates are obtained with the PPML estimator for the years 1999, 2004, and 2009. Each column has directional time-varying fixed effects that account for the MRTs. Columns 2–8 also have country-pair fixed effects that account for the possible endogeneity of sanctions. I introduce four types of sanctions in columns 1 and 2. To avoid the problem of multicollinearity, columns 3–6 examine each type of sanction individually. Columns (3) and (4) examine the impacts of threatened and imposed sanctions, irrespective of their type, respectively. Columns 5 and 6 estimate the impacts of threatened and imposed economic sanctions, respectively. Column 7 examines the effects of any sort of sanction that is threatened first and then imposed. Column 8 investigates the effects of economic sanctions that are threatened first and then imposed. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) SANCT	(2) SANCT, FEs	(3) THREAT ANY	(4) IMPOSED ANY	(5) THREAT ECON	(6) IMPOSED ECON	(7) THREAT IMPOSED ANY	(8) THREAT IMPOSED ECON
lnDIST	-0.680***							
	(0.034)							
CONTIG	0.567***							
	(0.084)							
COMLANG	-0.017							
	(0.076)							
COL45	0.548***							
	(0.175)							
COMRELIG	0.039							
	(0.102)							
FTA	0.338***	0.027	0.033	0.022	0.026	0.024	0.0251	0.0280
	(0.058)	(0.036)	(0.037)	(0.034)	(0.034)	(0.034)	(0.034)	(0.035)
CU	0.284***	0.247***	0.244***	0.235***	0.237***	0.238***	0.235***	0.237***
	(0.093)	(0.049)	(0.049)	(0.048)	(0.048)	(0.049)	(0.048)	(0.048)
WTO_MEM	0.371**	0.074	0.054	0.034	0.032	0.058	0.051	0.023
	(0.168)	(0.111)	(0.105)	(0.103)	(0.101)	(0.111)	(0.109)	(0.101)
THREAT_ANY	-0.285**	-0.490**	-0.600***					
	(0.144)	(0.227)	(0.169)					
IMPOSED ANY	-0.026	-0.379***		-0.520***				
	(0.169)	(0.129)		(0.113)				
THREAT_ECON	0.254***	0.042			0.065			
	(0.084)	(0.114)			(0.077)			
IMPOSED_ECON	-0.117	-0.099				-0.084		
	(0.084)	(0.114)				(0.095)		
THREAT_IMPOSED_ANY							-0.079	
							(0.118)	
THREAT_IMPOSED_ECON								0.094
								(0.075)
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	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	67,233	35,615	35,615	35,615	35,615	35,615	35,615	35,615
R-squared	0.867	0.924	0.907	0.910	0.908	0.908	0.886	0.886

Table 2.8: Impacts of threatened vs. Imposed sanctions on non-cultural trade

Notes: Columns 1–8 examine the impacts of threatened and imposed sanctions on non-cultural trade. All estimates are obtained with the PPML estimator for the years 1999, 2004, and 2009. Each column has directional time-varying fixed effects that account for the MRTs. Columns 2–8 also have country-pair fixed effects that account for the possible endogeneity of sanctions. I introduce four types of sanctions in columns 1 and 2. To avoid the problem of multicollinearity, columns 3–6 examine each type of sanction individually. Columns 3 and 4 examine the impacts of threatened and imposed sanctions, irrespective of their type, respectively. Columns 5 and 6 estimate the impacts of threatened and imposed economic sanctions, respectively. Column 7 examines the effects of any sort of sanction that is threatened first and then imposed. Column 8 investigates the effects of economic sanctions that are threatened first and then imposed. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

Chapter 3. Globalisation and Cultural Trade

3.1 Introduction

The gravity model has received considerable attention and recognition among scholars, positioning itself as a crucial tool in the examination of dynamics in international trade. Even though the model is effective in identifying cross-national trading patterns, it is sometimes unable to accurately incorporate trade-related costs into the coefficient estimates of the standard gravity variables. This phenomenon is particularly evident in the coefficient estimates of physical distance. Despite the ongoing trend of globalisation (more FTAs signed for example) and increased interconnectedness in our contemporary society, which are thought to promote stronger relationships between countries and decrease the obstacles posed by geographical distance, empirical research on international trade has yet to provide evidence supporting the idea that the impact of distance on international trade has diminished over time. The distance-elasticity puzzle is a term used in international trade literature to describe the situation where the negative effects of physical distance on international trade either remain constant or increase over time (Borchert & Yotov, 2017).

In order to assess the extent to which independent variables can effectively capture the impact of globalisation, I examine the time-varying effects of each explanatory variable on both cultural and non-cultural trade over the period 1999–2019. The analysis places particular attention on the role of physical distance. I provide robust evidence that non-cultural trade is subject to the phenomenon known as the distance-elasticity puzzle, whereas the negative effects of physical distance on cultural trade decline over time. These findings suggest that, in contrast to non-cultural trade, cultural trade has a greater tendency to reflect the impacts of globalisation over time with respect to physical distance. Additionally, the empirical findings reveal that the common border indicator has a progressively beneficial impact on cultural trade, whereas its positive effects on non-cultural trade show a diminishing pattern. This implies that non-cultural trade exhibits a higher propensity to manifest the effects of globalisation when compared to cultural trade in terms of contiguity. While common language does not matter for non-cultural trade, it is still an important driver of cultural trade. However, its influence has considerably declined over the years, indicating that the trade of cultural goods reflects the impact of globalisation in terms of linguistic similarity. In contrast, I observe no statistically significant changes in the coefficient estimates for the common religion and colonial relationship indicators for both cultural and non-cultural trade over the period 1999–2019. In relation to the trade policy variables, I present empirical evidence indicating that the positive impacts of FTAs on non-cultural trade have exhibited consistency over time, while experiencing a declining impact

in the case of cultural trade. However, there are no significant changes in the coefficient estimates of the customs union and the joint WTO membership indicators.

The structure of this chapter is as follows: I discuss the background of the chapter in more detail in Section 3.2. Section 3.3 provides a detailed discussion of the related literature. Section 3.4 explains the research questions. Section 3.5 explains the data used in the chapter and outlines the sources from which it was obtained. Section 3.6 presents various specifications based on the initial framework. I discuss the empirical findings in Section 3.7. The chapter concludes with a summary in Section 1.8.

3.2 Background

Globalisation is the process by which ideas, knowledge, and information are disseminated on a global scale. From an economic perspective, this pertains to the increasing interconnectedness witnessed among global economies and financial markets. The acceleration of globalisation was facilitated by notable technological developments as well as the reduction in costs associated with transportation, transactions, and communication. According to Evans and Harrigan (2005), air transport is generally preferred over ocean transport for long-distance shipments (Hummels, 2007). While perishable items, like flowers, are transported by air, high-volume, low-value goods, like wheat, are shipped by sea. "As the level of air transport costs drops relative to the level of ocean transport, long-distance trade becomes relatively more attractive" (Hummels, 2007, p. 151). As a result, it is reasonable to anticipate a gradual decrease in the negative impacts of geographical distance on international trade.

However, the existing body of academic research on international trade fails to provide evidence in support of this assertion. For example, analysing 1,467 distance estimates derived from 103 research findings, Disdier and Head (2008) find that contrary to the expectation of diminishing negative effects of physical distance on international trade over time, the estimates consistently demonstrate sustained high negative impacts. According to Overman et al. (2003), the elasticity of trade volumes in relation to physical distance is typically predicted to fall within the range of -0.9 to -1.5. These findings imply that although technological advancements enhance the appeal of cross-border trade, the influence of physical distance on international trade fails to fully capture the consequences of globalisation and is either stable or increases over time. The phenomenon is sometimes referred to as the distance-elasticity puzzle.

In a broader sense, "the failure of declining trade-related costs to be reflected in estimates of the standard gravity model of bilateral trade might be called the missing globalisation puzzle"

(Coe et al., 2002, p. 1). As per the authors' findings, the distance-elasticity puzzle is most apparent in the estimated distance coefficients documented in existing gravity literature. As a result, their findings lead them to the conclusion that "globalisation is everywhere but in estimated gravity models" (Coe et al. 2002, p. 3).

Yotov (2012) is among the first scholars who provide a straightforward solution to the distance-elasticity puzzle. The author argues that "the appropriate measure of globalisation is the increase in international economic integration relative to the integration of internal markets" (p. 795). As a result, it is imperative to assess the impacts of bilateral distance and international trade costs in comparison to internal distance and internal trade costs in order to comprehensively understand the implications of globalisation. The proposed measure, due to its intuitive nature, is expected to resolve the distance-elasticity puzzle, as it is assumed that the decline in external trade costs has outpaced the decline in internal trade costs (Yotov, 2012). Therefore, in order to solve the puzzle, the author proposes incorporating internal trade data alongside international trade data.

Because of the absence of domestic trade data on cultural goods, I cannot incorporate it into the analysis. In order to ascertain whether the sample exhibits the phenomenon known as the distance-elasticity puzzle, I utilise the methodology proposed by Yotov (2012) and examine the time-varying impacts of physical distance using five-year intervals. Similarly, I analyse the differential effects of other explanatory variables using the same underlying reasoning. Furthermore, following the same steps, I examine the differential effects of each independent variables on non-cultural trade as a means of comparison.

Despite the exclusive focus on international trade flows, this study makes a valuable contribution to the existing literature. Specifically, it challenges prevailing notions by demonstrating that the physical distance estimates for cultural trade are not subjected to the distance-elasticity puzzle, in contrast to non-cultural trade. This implies that cultural trade is a mechanism through which the impacts of globalisation are manifested, hence obviating the necessity to address the distance-elasticity puzzle in the context of cultural trade. Therefore, as a counterargument to Coe et al. (2002), I conclude that the distance-elasticity puzzle is everywhere but not in cultural trade.

3.3 Related Literature Review

The inadequacy of coefficient estimates of gravity variables in capturing the impact of globalisation on international trade has prompted scholarly discourse to focus on the estimates

generated from structural gravity equations. This is particularly evident in the coefficient estimates of the effects of physical distance on international trade. Yotov's (2012) study is one of the initial attempts to address the issue of the distance-elasticity puzzle. The author argues that in order to comprehensively capture the influence of globalisation on gravity variables, it is necessary to take into account the effects of internal distance and internal trade costs in addition to bilateral distance and international trade costs. Therefore, the researcher argues that the inclusion of intranational trade flows and internal distances into the gravity equation, along with international trade flows and bilateral distances, is the most appropriate benchmark for conducting a gravity model analysis.

Before implementing this idea, the author uses cross-section data at 20-year intervals to estimate the time-varying effects of physical distance on aggregate international trade flows in the manufacturing sector. The analysis focuses on the years 1965, 1985, and 2005. The researcher's findings confirm the existing body of literature about the distance-elasticity puzzle and demonstrate a consistent negative influence of physical distance on international trade flows over time. In order to solve the puzzle at hand, the researcher incorporates the aggregate manufacturing intranational trade flows into the gravity equation and introduces a new variable on the RHS to measure intranational distances. In contrast to the previous finding, the incorporation of domestic trade flows leads to a significant decrease in the detrimental impacts of physical distance on trade flows. More specifically, the study reveals a substantial decline of approximately 37% in the adverse impact of physical distance on trade between the years 1965 and 2005.

One limitation of Yotov's (2012) work is that the author does not account for the time-varying impacts of the other standard gravity variables as well as of the endogenous trade policy variables. Expanding on the theoretical framework proposed by Yotov (2012) and utilising a slightly modified approach, Bergstrand et al. (2015) estimate the changing impacts of all standard gravity variables and EIAs over time. The authors focus on international and intranational trade flows in aggregate manufacturing trade flows covering eight sectors (e.g., food, textile, chemicals, minerals) for 64 countries over the period 1990–2002. To allow for the adjustment of trade flows in response to trade policy changes, they use only the years 1990, 1994, 1998, and 2002. Yotov's (2012) research provides an estimation of the time-varying impacts of physical distance on a yearly basis, presenting the percentage change in coefficient estimates of physical distance across different years. In contrast, Bergstrand et al. (2015) include a set of year dummies that interacted with physical distance for the years 1994, 1998, and 2002 and determine the changing impacts of physical distance on trade flows relative to the

baseline year, which is 1990. The authors apply the same method for the other explanatory variables, such as language, contiguity, and EIAs. The study demonstrates that the gravity model analysis, which solely examines international trade flows, encounters the distance-elasticity puzzle. When the researchers include domestic trade flows in their analysis, they observe that the impact of physical distance on international trade in comparison to domestic trade decreases by about 13% over a 12-year period. This empirical evidence lends support to the notion of declining negative effects of physical distance in international trade, which has been challenging to ascertain. Finally, their findings ascertain that the positive impact of the formation of an EIA on international trade decreased by about 30% from 1990 to 2002. Consequently, this study concludes that international trade effectively reflects the effects of globalisation in relation to contiguity and physical distance.

Utilising the methodologies outlined in Yotov's (2012) study and replicating certain estimations, Piermartini and Yotov (2016) address the distance-elasticity puzzle. The authors use a panel of 69 nations, encompassing aggregate manufacturing trade flows over the period from 1986 to 2006. The researchers use a series of four-year intervals spanning from 1986 to 2006, encompassing the years 1986, 1990, 1994, 1998, 2002, and 2006. Their preliminary findings, which specifically examine international trade flows, demonstrate stable negative impacts of physical distance over time, confirming the presence of the distance-elasticity puzzle. However, when international and intranational trade flows are taken into account and the specification is re-evaluated, the distance-elasticity puzzle disappears. The researchers observe that the negative effects of physical distance decreased by about 10% from 1986 to 2006. Furthermore, the researchers assess the impacts of internal distance on domestic trade and compare the coefficient estimates with the findings obtained for the effects of bilateral distance on international trade. They find that the negative impact of bilateral distance on international trade is significantly higher compared to the effects of internal distance on intranational trade.

Borchert and Yotov (2017) investigate whether the coefficient estimates of the impacts of physical distance on trade reflect the impacts of globalisation. Also, the authors argue that the impacts of globalisation may be disseminated through other channels, such as contiguity and trade agreements. According to the researchers, newly produced products that have never been exported before might be exported to nearby countries first. Similarly, international value chains could initially form at the regional level, boosting trade among nearby nations (Borchert & Yotov, 2017). Therefore, using aggregate manufacturing trade data from 69 countries for the

years 1986, 1996, and 2006, the researchers investigate additional channels through which the impact of globalisation could spread.

In their baseline specification, the researchers estimate the gravity equation only using international trade flows. Their preliminary findings are subject to the distance-elasticity puzzle. Additionally, it has been shown that the positive effects on international trade of several independent variables, such as common language, contiguity, and trade agreements, have experienced a decline over time. However, their empirical findings are reversed when they incorporate domestic trade flows into their study. For example, the distance-elasticity puzzle disappears, and the authors find that the negative impacts of physical distance on trade have fallen by nearly 10% from 1986 to 2006. These findings confirm the results obtained by Piermartini and Yotov (2006). Additionally, in contrast to their previous findings, which solely rely on international trade, their findings demonstrate that there is a statistically significant increase in the positive impacts of contiguity and trade agreements between the years 1986 and 2006. Finally, to examine the heterogeneous impacts of physical distance on trade, the researchers allow for estimates to vary at different income groups. Their findings reveal that globalisation has had unequal effects, benefiting medium-income countries the most while appearing to not impact some of the poorest nations.

3.4 Research Questions

In this section, I explain the research questions that are pursued throughout the chapter. The research questions that will be addressed in this chapter are as follows:

a) Do the effects of physical distance on cultural and non-cultural trade decrease over time? If the samples present a distance-elasticity puzzle, what are the potential solutions to this problem?
b) Do the impacts of other standard gravity variables on cultural and non-cultural trade exhibit variation over time? Do they adequately capture the effects of globalisation?
c) How do the effects of trade policies on cultural and non-cultural trade change over time?

3.5 Data

In this chapter, I employ the same explained and explanatory variables as I did in the first chapter. The primary focus is the bilateral trade flows of 221 trading pairs on 38 core cultural products from 1999 to 2019, which I acquired from CEPII. The second dependent variable is non-cultural trade. To obtain non-cultural trade flows, I exclude cultural trade flows from the total bilateral trade flows obtained from CEPII (for more information on the dependent variables, see Section 1.5.1 of Chapter 1). Standard gravity variables, namely common language

($COMLANG_{ij}$), colonial ties ($COL45_{ij}$), common religion ($COMRELIG_{ij}$), and physical distance ($DIST_{ij}$), are taken from CEPII's gravity database. The contiguity ($CONTIG_{ij}$) variable is taken from the DGD (see Section 1.5.2 of Chapter 1 for more information on the standard gravity variables). The $FTA_{ij,t}$ variable, representing the presence of an FTA between pairs of countries, is acquired from the USITC. The variable is assigned a value of 1 if nation pairs *i* and *j* both participate in at least one free trade agreement during the specified year and 0 if they do not. The $CU_{ij,t}$ and $WTO\_MEM_{ij,t}$ indicators are obtained from the DGD. The variable $CU_{ij,t}$ is set to 1 if trading pairs *i* and *j* are part of the same customs union and 0 otherwise. Similarly, the variable $WTO\_MEM_{ij,t}$ is assigned a value of 1 when both the origin and destination states are members of the WTO in a specific year and 0 otherwise (see Section 1.5.3.1 of Chapter 1 for a detailed discussion of the trade policy variables).

As previously stated in Section 3.4, utilising data on domestic trade flows is advantageous and aligns with theoretical principles. Domestic trade flows for each country are constructed as the difference between total production and total exports. While it is relatively simple to compile aggregate domestic trade flows, the task gets more difficult when trying to construct disaggregated domestic trade flows, such as domestic cultural trade flows. The production data are usually reported using the International Standard Industrial Classification (ISIC). However, CEPII, where I acquire cultural trade flows on 38 cultural products, reports data using the six-digit level of classification, the HS version 1996. While there are concordance tables available for different nomenclatures, their usage requires thoughtful deliberation because the matches between classifications are not always flawless.

I tried to compile domestic cultural trade flows using the UN Industrial Development Organization's (UNIDO) Industrial Demand-Supply Balance Database (IDSB). This database reports data on aggregate production and total exports on 127 manufacturing categories at the level of ISIC revision 3 from 1990 to 2020.[72] However, some difficulties appeared in compiling the dataset. First, neither the UNSD nor the other trusty agencies provide the correspondence between the ISIC Rev. 3 and HS categories.[73] Nevertheless, the UNSD provides a correspondence table between the Standard International Trade Classification (SITC) revision 3 and HS version 1996. Therefore, I use an additional correspondence table between ISIC revision 3 and SITC revision 3 obtained from the European Statistics Agency (EUROSTAT). Hence, I fixed the correspondence table issue and matched the 38 cultural products from the

[72] The database can be accessed for download at the following URL: https://stat.unido.org/.
[73] For more information about different classifications on economic statistics and correspondence tables, I refer the reader to see https://unstats.un.org/unsd/classifications/Econ.

six-digit HS version 1996 to four-digit ISIC revision 3 utilising two different correspondence tables. After constructing domestic cultural trade flows from the IDSB, I realised there were two additional problems. First, not all countries in the sample report production and export data with ISIC revision 3. Additionally, because I worked with a highly disaggregated dataset, there were a lot of missing data points for each of the 38 cultural products. This has reduced the sample size a lot. To fix this, I used interpolation techniques and constructed new data points for the missing domestic cultural trade flows. After all these efforts, because I used two different correspondence tables, I realised that the products described in the correspondence tables do not exactly match with each other. This problem is arising from the level of each classification. While the HS classifies products at the six-digit level, the ISIC revision 3 classifies products at the four-digit level, which is not as detailed as the HS. The products described in ISIC revision 3 go beyond those of products described in HS version 1996 and contain related cultural products in addition to core cultural products. Therefore, I directed my attention to other sources. The World Bank's Trade, Production and Protection (TPP) database is another source that can be helpful for constructing domestic cultural trade flows.[74] This database covers 100 developing and developed countries for the period 1976-2004. The database is reported according to ISIC revision 2. Matching cultural products is a lot more difficult because ISIC revision 2 is at the three-digit level. Also, the length of time series is one of my important criteria and the TPP database is limited in terms of time. As a result, I was not able to construct consistent domestic cultural trade flows. However, as will be detailed in the next sections, contrary to the earlier empirical studies, the analysis demonstrates that trade in cultural products is not subject to the distance-elasticity puzzle. Although this implies that the solution to the puzzle does not require domestic cultural trade flows, given the contradictory coefficient estimates I obtain for the other standard gravity variables, I still believe that the inclusion of intranational trade flows can still result in notable changes, particularly in the coefficient estimates of the contiguity variable. Thus, additional analysis can be carried out as soon as the data is accessible.

3.6 Methodology

In the initial model, following the techniques introduced by Yotov (2012), I investigate if the distance-elasticity puzzle is present for cultural trade. I remind the reader that to allow for the adjustment of trade flows in response to trade policy changes, I use 5-year intervals from 1999 to 2019. As a result, I introduce lnDIST_1999, lnDIST_2004, lnDIST_2009, lnDIST_2014, and lnDIST_2019, in which I interact year indicators with physical distance. I then analyse the time-

[74] The database can be accessed at the following URL: https://datacatalog.worldbank.org/search/dataset/0039307.

varying impacts of physical distance on bilateral trade flows of cultural goods. Hence, the first estimating equation is as follows:

$$X_{ij,t} = \exp[\sum_{T=1999}^{2019} \beta_1^T(lnDIST\_T_{ij}) + \beta_2(CONTIG_{ij}) + \beta_3(COMLANG_{ij}) + \beta_4(COL45_{ij}) + \beta_5(COMRELIG_{ij}) + \beta_6(WTO\_MEM_{ij,t}) + \beta_7(CU_{ij,t}) + \beta_8(FTA_{ij,t}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t} \quad \textbf{(3.1)}$$

Where $X_{ij,t}$ represents cultural trade flows between country *i* and country *j* at time *t*. The variable $lnDIST\_T_{ij}$ is an interacted variable denoting the natural logarithm of the physical distance between the most populated cities of trading partners *i* and *j*, where T ∈ {1999, 2004, 2009, 2014, 2019}. The variable $CONTIG_{ij}$ is a binary variable that takes a value of one if country pairs *i* and *j* have a common border and zero otherwise. $COMLANG_{ij}$ is another binary variable that takes a value of one if country pairs *i* and *j* share the same official or primary language and zero otherwise. $COL45_{ij}$ is also a binary variable that takes a value of one if country pairs *i* and *j* have or have had a colonial relationship after 1945 and zero otherwise. $COMRELIG_{ij}$ is a continuous variable that measures the degree of religious proximity between country *i* and country *j*. The variable $WTO\_MEM_{ij,t}$ is a binary variable that takes a value of one if country pairs *i* and *j* are members of the WTO at time *t* and zero otherwise. The variables $FTA_{ij,t}$ and $CU_{ij,t}$ are also binary variables that take a value of one if country pairs *i* and *j* are part of the same free trade agreement or customs union in a given year and zero otherwise. Following Rose and van Wincoop (2001), Hummels (2001), Feenstra (2004), and Redding and Venables (2004), I augment the gravity equation with directional time-varying fixed effects. The terms $\pi_{i,t}$ and $\chi_{j,t}$ denote the vectors of time-varying exporter and importer fixed effects, respectively. These two terms are country-specific and are perfectly correlated with country-specific variables such as GDP and population. Therefore, I cannot include them in the equation. However, standard gravity variables are bilateral-specific and are not perfectly correlated with directional time-varying fixed effects. As a result, the equation produces reliable estimates of the standard gravity variables.

The PPML estimates obtained from equation (3.1) are reported in column 1 of table 3.1. To make a comparison, I modify the dependent variable in equation (3.1) to non-cultural trade and examine the time-varying effects of physical distance on non-cultural trade. The PPML estimates obtained for non-cultural trade are presented in column 2 of table 3.1.

In accordance with Bergstrand's (2015) study, I also analyse the time-varying impacts of all the other explanatory variables. This enables me to investigate the different pathways through which the consequences of globalisation may propagate. Hence, the next equation is as follows:

$$X_{ij,t} = \exp[\sum_{T=1999}^{2019} \beta_1^T (lnDIST\_T_{ij}) + \sum_{T=1999}^{2019} \beta_2^T (CONTIG\_T_{ij}) + \sum_{T=1999}^{2019} \beta_3^T (COMLANG\_T_{ij}) + \sum_{T=1999}^{2019} \beta_4^T (COL45\_T_{ij}) + \sum_{T=1999}^{2019} \beta_5^T (COMRELIG\_T_{ij}) + \sum_{T=1999}^{2019} \beta_6^T (WTO\_MEM\_T_{ij}) + \sum_{T=1999}^{2019} \beta_7^T (CU\_T_{ij}) + \sum_{T=1999}^{2019} \beta_8^T (FTA\_T_{ij}) + \pi_{i,t} + \chi_{j,t}] + \varepsilon_{ij,t} \quad \textbf{(3.2)}$$

Where I interact each of the RHS variables with year indicators. The PPML results from equation (3.2) are presented in column 3 of table 3.1. Employing the same equation, I also examine the time-varying impacts of all the RHS variables for non-cultural trade. The outcomes acquired for non-cultural trade are displayed in column 4 of table 3.1. Finally, in addition to cultural and non-cultural trade, I analyse the time-varying impacts of standard gravity variables on the sub-groupings of cultural products. Results are presented in table D2 in Appendix D.[75]

In the next equation (3.3), following Baier and Bergstrand (2007), I augment the gravity equation with country-pair fixed effects to account for the potential endogeneity of trade policies:

$$X_{ij,t} = \exp[\sum_{T=1999}^{2019} \beta_6^T (WTO\_MEM\_T_{ij}) + \sum_{T=1999}^{2019} \beta_7^T (CU\_T_{ij}) + \sum_{T=1999}^{2019} \beta_8^T (FTA\_T_{ij}) + \pi_{i,t} + \chi_{j,t} + \mu_{ij}] + \varepsilon_{ij,t} \quad \textbf{(3.3)}$$

The term μ_{ij} represents the set of country-pair fixed effects. This absorbs all time-invariant determinants of trade flows, such as common language, contiguity, and so on. Hence, I solely assess the impacts of time-varying determinants of trade flows. The PPML estimates derived from equation (3.3) are reported in column 5 of table 3.1. Finally, I re-estimate equation (3.3) for non-cultural trade. The estimates obtained for non-cultural trade are reported in column 6 of table 3.6.

3.7 Results

In this section, I discuss the research findings about the impacts of globalisation in terms of physical distance and other explanatory variables on cultural and non-cultural trade. Table (3.1)

[75] The interaction of trade policy variables, such as FTA and CU, with year indicators is perfectly correlated with directional time-varying fixed effects. While this was not the case for overall cultural trade, this is the case for the trade of sub-groupings of cultural goods. As a result, I only incorporate standard gravity variables into the equation and estimate it using the best strategy, namely the PPML estimator with time-varying directional fixed effects.

reports the parameter estimates obtained from equations (3.1)–(3.3). In column 1, I analyse whether cultural trade presents the distance-elasticity puzzle. According to the coefficient estimate of lnDIST_1999, a 10% increase in physical distance leads to a 4.3% decrease in bilateral trade flows of cultural goods. However, the coefficient estimate of lnDIST_2019 suggests that a 10% increase in physical distance leads to a 2.7% decrease in bilateral cultural trade flows. Contrary to the distance elasticity puzzle literature, the negative effects of physical distance on cultural trade have fallen by about 38% from 1999 to 2019, $\%\Delta \ln DIST_{1999–2019} = -38.399$ (std. err. 14.942).[76] The percentage changes in the coefficient estimates between 1999 and 2019 are reported in the bottom panel of table 3.1. Especially since 2009, the adverse effect of physical distance on cultural trade has decreased dramatically. The percentage change in the physical distance estimates between 2009 and 2019 denotes that there is a 43% decrease in the adverse effect of physical distance on cultural trade. As a result, I provide robust evidence that the distance-elasticity puzzle is not present in cultural trade, and cultural trade tends to capture the effects of globalisation in terms of physical distance.

In column 2, I estimate the time-varying impacts of physical distance on non-cultural trade. Between 1999 and 2019, the estimate of the negative impact of physical distance on non-cultural trade increased from -0.68 to -0.72. The percentage change in the coefficient estimates of the negative effects of physical distance between 1999 and 2019 is about 5%, $\%\Delta \ln DIST_{1999–2019} = 4.986$ (std. err. 2.861), and it is statistically significant at the 5% significance level. The empirical findings presented in Table D2 in Appendix D show that the sub-groupings of cultural goods are not as successful as overall cultural trade in reflecting the impact of globalisation. Specifically, there are no statistically significant changes in the negative impacts of physical distance on the trade of sub-categories of cultural goods from 1999 to 2019. Also, contrary to the previous findings for cultural trade, the estimates of the time-varying impacts of physical distance for non-cultural trade are increasing or at least stable over time. This is consistent with the distance-elasticity puzzle literature and demonstrates that non-cultural trade fails to account for the effects of globalisation in terms of physical distance.

In column 3, I examine various channels through which the effects of globalisation can spread in cultural trade. To do this, I allow the time-varying impacts of the other standard gravity variables and trade policy variables. There are quantitative differences in the elasticities of the physical distance when compared to the results in column 1. The findings presented in column 3 reveal that the negative impact of physical distance has increased between 1999 and 2019,

[76] Associated standard errors are computed with the Delta method.

indicating that the previous estimates of the effects of physical distance were biased due to the exclusion of the estimates of the time-varying effects of other variables. However, I observe a significant decrease in the negative impact of physical distance on cultural trade, particularly after 2009. More specifically, the percentage change in the estimates of physical distance between 2009 and 2019 is -49% (std. err. 16.976), implying that there is a 49% decrease in the adverse effect of physical distance on cultural trade in this period. Similarly, the percentage change in the physical distance estimates between 2014 and 2019 is -36% (std. err. 19.488), suggesting that the negative effect of physical distance has been reduced by around 36% from 2014 to 2019. These percentage changes are economically and statistically significant. Overall, I show that the negative impact of distance has consistently decreased, particularly after 2009. Therefore, it can be confidently asserted that cultural trade effectively reflects the impact of globalisation in terms of physical distance.

When it comes to the time-varying effects of the other variables, I observe a gradual increase in the positive effects of contiguity on cultural trade between 1999 and 2019. More specifically, the percentage change in the coefficient estimates of the effects of contiguity from 1999 to 2019 is about 56% (std. err. 47.813). However, it is important to note that this is not statistically significant at any level of significance. The percentage change in the coefficient estimates of the effects of having the same primary or official language between 1999 and 2019 is about -49% (std. err. 10.110), which is statistically significant at the 1% significance level. Even though the estimate of the positive effect of the common language indicator is 49% less in 2019 than it was in 1999, it continues to hold significance as an explanatory variable for cultural trade. The coefficient estimate of the impact of the colonial relationship indicator is 20% (std. err. 27.170) greater in 2019 compared to 1999. However, the percentage change does not exhibit statistical significance at any level of significance. Similarly, the coefficient estimate of the effect of common religion is about 7% (std. err. 34.071) higher in 2019 than it was in 1999, but the percentage change is not statistically significant at any level of significance. These findings suggest that the colonial relationship and common religion indicators in 2019 are not significantly different from their effects in 1999. Finally, the coefficient estimates of the time-varying impacts of contiguity, colonial relationships, and common religion on sub-groupings of cultural goods are statistically indifferent from each other between 1999 and 2019. However, the positive impact of common language on the bilateral trade flows of cultural heritage (-84%), printed matter (-31%), and visual arts (-39%) decreases significantly from 1999 to 2019 (the associated percentage changes are given in parenthesis).

While it is not the primary focus of this chapter, I also investigate the time-varying effects of trade policy variables on cultural trade in column 3. The estimates on the FTA indicator indicate a significant decline of approximately 107% (std. err. 15.624) in the effect of FTAs on cultural trade between 1999 and 2019. This is both economically and statistically significant. However, the estimates of the effect of the customs union and joint WTO membership indicators in 2019 are not significantly different from their effects in 1999. It is important to note that specification (3.2) does not include country-pair fixed effects. Hence, there is a possibility that I may overlook the potential endogeneity of trade policies, resulting in biased estimates.

I re-estimate the same specification for non-cultural trade. The findings are reported in column 4. In contrast to cultural trade, non-cultural trade continues to pose the distance-elasticity puzzle. The negative effect of physical distance in 2019 is 26% (std. err. 6.409) higher than it was in 1999. This percentage change is statistically significant at the 1% level of significance. The negative impact of physical distance on non-cultural trade progressively intensifies with time. In addition, the estimate of the impact of contiguity on non-cultural trade is around 30% (std. err. 11.003) lower in 2019 compared to 1999. The percentage change exhibits statistical significance at the 1% level of significance. The estimates of the effects of the colonial relationship indicator between 1999 and 2019 are statistically indifferent from each other. Also, neither common religion nor common language play a statistically significant role in explaining non-cultural trade.

When it comes to trade policy variables, I observe that the positive effect of FTAs on non-cultural trade drops substantially from 1999 to 2019. More specifically, the coefficient estimate of the FTA indicator is 53% (std. err. 11.178) lower in 2019 compared to 1999. Finally, the coefficient estimates of the customs unions and joint WTO membership indicators are statistically indifferent from each other between 1999 and 2019.

As previously stated, specification (3.2) does not account for the potential endogeneity of trade policies. In specification (3.3), I tackle this issue by incorporating country-pair fixed effects into the regression. Because bilateral fixed effects absorb all time-invariant determinants of bilateral trade flows, I exclusively analyse the effects of trade policy variables. The findings are reported in columns 5 and 6 for cultural and non-cultural trade, respectively.

After I introduce country-pair fixed effects, I do not observe significant changes in the percentage changes of the coefficient estimates of the effects of trade policy variables on cultural trade compared to the results presented in column 3. The estimates regarding the

impacts of the CU and joint WTO membership indicators in 2019 do not exhibit statistically significant deviations from their effects in 1999. However, the coefficient estimate of the FTA indicator experience a significant decrease of 80% (std. err. 26.126) from 1999 to 2019. Finally, the empirical findings presented in column 6 reveal that the estimates of the effects of trade policy variables on non-cultural trade remain stable over time. When compared to the estimates presented in column 4, the percentage change of the estimate of the FTA indicator turns out to be statistically insignificant and the percentage changes obtained for the CU and joint WTO membership indicators remain to be statistically insignificant.

3.8 Concluding Remarks

Globalisation is the process by which businesses, cultures, and economies become interconnected and reliant on a global scale. It involves the increasing interaction and flow of goods, services, information, ideas, capital, and people across national borders. Globalisation has emerged as a prominent characteristic of numerous cultural sectors. We observe this in various forms. For example, Hollywood has a long history of producing films that appeal to international audiences. By shooting films in foreign studios and casting international actors, Hollywood movies often incorporate diverse cultural elements, making them more relatable to worldwide viewers. International co-productions in television and film leverage the resources and expertise of multiple countries to produce content that has wide-ranging appeal. For example, Game of Thrones was a co-production involving the US, the UK, and several other countries. Its global appeal and massive following exemplify how co-productions can transcend national boundaries. Co-productions not only improve the quality and diversity of content but also influence global consumer preferences, creating a more interconnected and culturally rich world by fostering cross-border collaborations. Similarly, musicians tour globally, disseminating their cultural influences and adapting their performances to connect with audiences in different regions. This can promote a common cultural experience and shape global musical trends. These activities exemplify the convergence of consumer tastes, leading to the blending and dissemination of cultural ideas as well as a gradual rise in the international trade of cultural products over time (Zhang & Dai, 2021; Baltruschat, 2002).

The removal of international trade barriers, as well as advancements in transportation, transactions, and communication, facilitate globalisation. These factors have significantly reduced international trade costs and increased the efficiency of cross-border trade, investment, and financial flows. Gravity models can be used to analyse the impact of globalisation on international trade. They can incorporate variables that represent trade costs, such as physical distance and contiguity. The shorter the physical distance between countries, the more likely

they are to engage in cultural and economic exchanges. Countries sharing a border also frequently have long-standing cultural and economic ties, which can facilitate the spread of globalisation.

Despite the ongoing trend of globalisation, empirical research on international trade has not yet provided evidence that the impact of physical distance on international trade has diminished over time. This phenomenon is known as the distance-elasticity puzzle in international trade literature. As globalisation facilitates the exchange of cultural products and ideas, consumer preferences tend to converge. People around the world develop similar tastes in movies, music, fashion, and other cultural products. Therefore, I argue that cultural trade could have a greater tendency to capture the impact of globalisation compared to non-cultural trade. As a result, I examine the effects of globalisation on cultural and non-cultural trade, with particular emphasis on physical distance.

The empirical findings demonstrate that while non-cultural trade is subject to the distance-elasticity puzzle, cultural trade tends to capture the impacts of globalisation in terms of physical distance. To my knowledge, I am the first to suggest that the distance-elasticity puzzle may not apply to certain sectors, making this an important contribution to the international trade literature. Consequently, as a counterargument to Coe et al. (2002), I propose that the distance-elasticity puzzle exists in all areas except for cultural trade.

In addition, while contiguity plays an increasingly important role in cultural trade, empirical findings reveal a dramatic decline in the impact of contiguity on non-cultural trade over time. Grounded on the premise that globalisation diminishes the impacts of national borders in the context of international trade, I demonstrate that while non-cultural trade reflects the effects of globalisation in terms of contiguity, the same cannot be asserted for cultural trade. Also, I observe that the effects of common language experience a significant decrease in cultural trade, whereas it has no relevance for non-cultural trade. Although language similarity remains a crucial aspect of cultural trade, the notable decline in its impact indicates that cultural trade tends to reflect the consequences of globalisation in terms of language similarity. These findings suggest that while globalisation is influencing trade dynamics, the effects are varied and complex, with some factors becoming less significant and others maintaining their influence.

Overall, this study provides policymakers and businesses with a nuanced understanding to navigate the evolving landscape of international trade. Recognising that cultural trade may be more responsive to globalisation compared to non-cultural trade suggests the need for tailored approaches that preserve and promote cultural diversity while facilitating global economic

integration. Businesses involved in cultural sectors such as entertainment, media, and arts can leverage globalisation to expand their reach and influence. Understanding the convergence of consumer preferences in cultural products across borders can guide strategic decisions in content creation, distribution, and marketing to maximise global appeal.

	(1) CLTRL	(2) NON-CLTRL	(3) CLTRL	(4) NON-CLTRL	(5) CLTRL	(6) NON-CLTRL
lnDIST_1999	-0.433***	-0.681***	-0.261***	-0.571***		
	(0.076)	(0.036)	(0.087)	(0.036)		
lnDIST_2004	-0.456***	-0.718***	-0.408***	-0.698***		
	(0.069)	(0.034)	(0.074)	(0.034)		
lnDIST_2009	-0.467***	-0.709***	-0.529***	-0.726***		
	(0.072)	(0.035)	(0.082)	(0.038)		
lnDIST_2014	-0.389***	-0.721***	-0.417***	-0.773***		
	(0.069)	(0.034)	(0.076)	(0.038)		
lnDIST_2019	-0.267***	-0.715***	-0.268***	-0.720***		
	(0.079)	(0.034)	(0.099)	(0.035)		
CONTIG	0.668***	0.516***				
	(0.155)	(0.091)				
COMLANG	0.936***	-0.046				
	(0.156)	(0.077)				
COL45	0.964***	0.549***				
	(0.135)	(0.169)				
COMRELIG	0.978***	0.022				
	(0.226)	(0.100)				
FTA	0.034	0.304***				
	(0.104)	(0.052)				
CU	0.369**	0.314***				
	(0.183)	(0.090)				
WTO	1.216***	0.313**				
	(0.246)	(0.147)				
CONTIG_1999			0.550***	0.656***		
			(0.142)	(0.074)		
CONTIG_2004			0.580***	0.602***		
			(0.145)	(0.077)		
CONTIG_2009			0.630***	0.534***		
			(0.184)	(0.096)		
CONTIG_2014			0.674***	0.485***		
			(0.174)	(0.108)		
CONTIG_2019			0.856***	0.462***		
			(0.242)	(0.096)		
COMLANG_1999			1.349***	0.025		
			(0.167)	(0.067)		
COMLANG_2004			1.054***	-0.008		
			(0.167)	(0.072)		
COMLANG_2009			0.905***	-0.044		
			(0.174)	(0.088)		
COMLANG_2014			0.872***	-0.111		
			(0.185)	(0.084)		
COMLANG_2019			0.692***	-0.039		
			(0.168)	(0.084)		
COL45_1999			0.736***	0.618***		
			(0.154)	(0.186)		
COL45_2004			0.988***	0.477**		
			(0.186)	(0.186)		
COL45_2009			0.920***	0.523***		
			(0.200)	(0.181)		
COL45_2014			1.193***	0.554***		
			(0.149)	(0.188)		
COL45_2019			0.884***	0.588***		
			(0.156)	(0.146)		

COMRELIG_1999			0.943***	0.145		
			(0.227)	(0.115)		
COMRELIG_2004			1.182***	0.051		
			(0.237)	(0.107)		
COMRELIG_2009			0.739**	-0.045		
			(0.305)	(0.105)		
COMRELIG_2014			1.075***	-0.095		
			(0.257)	(0.112)		
COMRELIG_2019			1.008***	0.141		
			(0.313)	(0.108)		
FTA_1999			0.833***	0.573***	0.401***	0.091**
			(0.194)	(0.081)	(0.140)	(0.044)
FTA_2004			0.190	0.322***	0.302***	0.118***
			(0.133)	(0.069)	(0.115)	(0.035)
FTA_2009			-0.067	0.314***	0.276**	0.099***
			(0.145)	(0.062)	(0.107)	(0.031)
FTA_2014			-0.094	0.297***	0.149	0.120***
			(0.125)	(0.065)	(0.105)	(0.028)
FTA_2019			-0.056	0.268***	0.080	0.131***
			(0.128)	(0.060)	(0.097)	(0.033)
CU_1999			-0.102	0.274***	0.496***	0.326***
			(0.222)	(0.088)	(0.143)	(0.057)
CU_2004			0.389*	0.260***	0.782***	0.308***
			(0.227)	(0.095)	(0.161)	(0.059)
CU_2009			0.330	0.251**	0.740***	0.312***
			(0.223)	(0.103)	(0.179)	(0.060)
CU_2014			0.500***	0.217**	0.706***	0.294***
			(0.191)	(0.104)	(0.163)	(0.063)
CU_2019			0.393	0.424***	0.461*	0.312***
			(0.291)	(0.087)	(0.243)	(0.070)
WTO_1999			0.602	0.232	0.425	0.236*
			(0.373)	(0.240)	(0.343)	(0.139)
WTO_2004			1.597***	0.573***	0.008	0.373***
			(0.307)	(0.207)	(0.354)	(0.090)
WTO_2009			1.909***	0.258	-0.165	-0.102
			(0.353)	(0.222)	(0.340)	(0.122)
WTO_2014			1.961***	0.243	0.295	0.126
			(0.433)	(0.294)	(0.397)	(0.285)
WTO_2019			0.405	-0.625	-1.991***	-0.732*
			(0.948)	(0.565)	(0.599)	(0.378)
Constant	13.11***	21.18***	12.83***	21.46***	12.20***	16.19***
	(0.602)	(0.329)	(0.643)	(0.359)	(0.289)	(0.122)
$\%\Delta lnDIST_{1999\text{-}2019}$	-38.399***	4.986**	2.667	26.113***		
	(14.942)	(2.861)	(44.769)	(6.409)		
$\%\Delta CONTIG_{1999\text{-}2019}$			55.563	-29.573***		
			(47.813)	(11.003)		
$\%\Delta COMLANG_{1999\text{-}2019}$			-48.715***	-255.320		
			(10.110)	(692.408)		
$\%\Delta COL45_{1999\text{-}2019}$			20.111	-4.841		
			(27.170)	(19.817)		
$\%\Delta COMRELIG_{1999\text{-}2019}$			6.914	-2.284		
			(34.0712)	(70.199)		
$\%\Delta FTA_{1999\text{-}2019}$			-106.728***	-53.255***	-80.188***	44.441
			(15.624)	(11.178)	(26.126)	(67.804)
$\%\Delta CU_{1999\text{-}2019}$			-484.595	54.471	-6.959	-4.296
			(915.470)	(41.853)	(46.225)	(18.470)
$\%\Delta WTO\_MEM_{1999\text{-}2019}$			-32.669	-369.254	-568.508	-409.545

			(163.167)	(369.125)	(435.770)	(249.86)
i,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
j,t FEs	Yes	Yes	Yes	Yes	Yes	Yes
i,j FEs	No	No	No	No	Yes	Yes
Observations	114,230	110,834	159,853	154,706	76,307	79,246
R-squared	0.706	0.836	0.707	0.836	0.744	0.886

Table 3.1: Effects of globalisation on cultural trade vs. non-cultural trade

Notes: Columns 1 and 2 investigate the time-varying effects of physical distance on cultural and non-cultural trade, respectively. Columns 3 and 4 examine the time-varying effects of all explanatory variables on cultural and non-cultural trade, respectively. I use country-pair fixed effects to account for the potential endogeneity of trade policies in columns 5 and 6 and re-estimate the time-varying effects of trade policy variables on cultural and non-cultural trade, respectively. Exporter-time and importer-time fixed effects are introduced in each column. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. The bottom panel of the table reports the percentage changes in the estimates of the effects of explanatory variables between 1999 and 2019. Standard errors are clustered by country pair and reported in parentheses. Statistical significance levels are indicated by *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.

General Conclusion

Throughout the thesis, I investigate the impact of trade policies and globalisation on cultural trade compared to non-cultural trade. I employ the gravity model on a panel dataset covering cultural trade flows between 221 potential trading partners from 1999 to 2019. To address MRTs, I use the remoteness indexes technique proposed by Baier and Bergstrand (2009), as well as the directional time-varying fixed effects approach recommended by Anderson and van Wincoop (2003), Rose and van Wincoop (2001), Hummels (2001), Feenstra (2004), and Redding and Venables (2004). To mitigate the endogeneity of trade policy variables, I employ the country-pair fixed effects technique as suggested by Baier and Bergstrand (2007) and Agnosteva, Yotov, and Anderson (2014). The econometric model selection involves rigorous regression analyses and model specification tests, with the PPML estimator emerging as the preferred choice. This estimator, which incorporates directional time-varying and country-pair fixed effects, successfully passes the Ramsey RESET test, demonstrating its suitability for analysing cultural trade dynamics. Therefore, the main empirical findings discussed in this section are estimated using the PPML estimator with directional time-varying and country-pair fixed effects.

The first chapter examines the effects of FTAs on bilateral trade flows of cultural goods, non-cultural goods, and five cultural sub-groupings. The empirical findings reveal that the formation of an FTA leads to a 28% rise in cultural trade and a 13% increase in non-cultural trade between partner states. These findings are consistent with existing international trade literature, such as Baier and Bergstrand (2007), Kohl (2014), and Zylkin (2016). FTAs have heterogeneous effects across different sub-groups of cultural goods. The most affected sub-groups are cultural heritage and visual arts, while the estimates for the remaining sub-categories show statistical insignificance. The results also demonstrate that some sub-categories of cultural goods experience the consequences of FTAs several years after their implementation. Specifically, the impacts of FTAs on the categories of printed matter, cultural heritage, and visual arts demonstrate a significant rise over a period of twelve years. Furthermore, the findings show that FTAs that include IPR provisions have an effect beyond simple FTAs on overall cultural trade and trade in the visual arts sub-group. The audio-visual co-production agreement has positive impacts only within the visual arts industry. These findings underscore the nuanced and multifaceted impacts of FTAs on cultural trade dynamics.

To improve the efficiency of FTAs in cultural trade, policymakers can strengthen existing culture-specific provisions stated in FTAs, such as IPR protection, cultural cooperation, and audio-visual co-production. FTAs should outline e-commerce provisions to facilitate e-

commerce and digital trade, ensuring smooth cross-border transactions of digital cultural products. Visa agreements and reduced bureaucratic barriers can be provided to facilitate the mobility of artists and cultural professionals. FTAs could include a dispute resolution mechanism to promptly address cultural trade conflicts. Conducting regular impact assessments to evaluate the effectiveness of culture-specific provisions in trade agreements and establishing feedback mechanisms involving cultural stakeholders to gather insights and make necessary adjustments to trade policies can improve the efficiency of FTAs in promoting cultural trade.

In the second chapter, I examine the effects of sanctions on cultural vs. non-cultural trade. The research findings indicate that the presence of an imposed trade sanction reduces cultural and non-cultural trade between sanctioning and sanctioned countries by about 23% and 17%, respectively. The impact of imposed trade sanctions varies depending on their direction and coverage. Specifically, bilateral trade sanctions result in a decrease of cultural trade by 33%, whereas export sanctions lead to a reduction of cultural trade by 31%. Similarly, bilateral trade sanctions and import sanctions reduce non-cultural trade by 26% and 11%, respectively.

Furthermore, only partial trade sanctions (-23%) lead to a reduction in cultural trade, whereas both complete trade sanctions (-57%) and partial trade sanctions (-17%) reduce non-cultural trade, with the associated percentage effects given in parentheses. These findings align with the existing literature. For example, Felbermayr et al. (2019) demonstrate that trade sanctions between countries decrease their bilateral trade flows by approximately 13%, with effects varying based on the direction and coverage of sanctions.

I also provide robust evidence that the imposition of arms, military assistance, travel, and financial sanctions leads to a decrease of approximately 25%, 35%, 33%, and 35% in cultural trade between sender and target countries. In contrast, only financial sanctions (-15%) and travel restrictions (-17%) matter for non-cultural trade. At first glance, these findings suggest that cultural trade is more sensitive to sanctions than non-cultural trade, implying that the collateral damage of sanctions disproportionately affects cultural trade. While this is partially correct, an additional investigation of the effects of sanctions based on their origin brings another scenario to light.

The empirical findings highlight significant differences when examining sanctions imposed by the UN, EU, US, and the rest of the world. US-imposed sanctions, regardless of their specific type, have markedly negative impacts on cultural trade with target countries. Additionally, both US- and EU-imposed sanctions, irrespective of their type, significantly reduce non-cultural

trade. These findings demonstrate that the impact of sanctions varies significantly depending on their origin, and that sanctions adversely affect both cultural and non-cultural trade.

Finally, I demonstrate that the effects of threatened sanctions are comparable to the effects of imposed sanctions. Specifically, while any type of threatened sanctions, such as trade, financial, and travel, results in an average decline of approximately 34%, threatened economic sanctions lead to an average loss of 19% in cultural trade. Similarly, threatened sanctions, irrespective of their type, lead to an average decrease of about 45% in non-cultural trade.

Overall, international trade has been shown to increase cultural convergence (Franco & Maggioni, 2022). Therefore, the imposition of sanctions, which reduces bilateral trade flows, also reduces cultural convergence. This reduction in cultural convergence then leads to further decreases in bilateral trade, creating a cyclical effect. In this cycle, diminished cultural ties and decreased bilateral trade mutually reinforce each other, exacerbating the divide.

Ultimately, the imposition of sanctions sets off a chain reaction that negatively impacts both cultural and non-cultural trade. The diminished cultural trade not only affects economic interactions but also deepens the cultural divide, making it more challenging to restore bilateral trade and cultural ties in the future. This highlights the far-reaching consequences of sanctions, underscoring the need for policymakers to consider the broader cultural and economic impacts when implementing such measures.

To mitigate the negative impacts of sanctions on cultural trade, policymakers could consider granting exemptions to cultural goods from sanctions, ensuring cultural trade continues even in times of political crises. They can enhance and advocate for cultural exchange programmes that function autonomously in the face of political difficulties. Policymakers can implement reintegration programmes to assist cultural institutions and artists in rebuilding connections and re-establishing their presence in international markets. Despite the political necessity of sanctions, policymakers must prioritise the development of strategies to quickly restore and promote cultural trade after they are lifted. By implementing these strategies, policymakers can reduce the negative impacts of sanctions on cultural trade, promote cultural dialogue, and contribute to conflict resolution and peacebuilding efforts.

In chapter three, I investigate the effects of globalisation on cultural vs. non-cultural trade, with a particular focus on the role of physical distance. The research reveals a statistically significant reduction in the adverse effects of physical distance on cultural trade over time. Between 1999 and 2019, the negative impact of physical distance on cultural trade decreased by approximately

38%. Conversely, the impact of physical distance on non-cultural trade increased by 5% during the same period. These findings suggest that the distance-elasticity puzzle does not exist in cultural trade, whereas non-cultural trade is subject to it.

Therefore, I conclude that cultural trade, unlike non-cultural trade, tends to reflect the impacts of globalisation in terms of physical distance. To the best of my knowledge, this study is the first to provide evidence that the distance-elasticity puzzle may not apply to certain sectors or that some sectors are more likely to capture the effects of globalisation over time. This conclusion challenges the findings of Coe et al. (2002), suggesting that the distance-elasticity puzzle is prevalent in all sectors except for cultural trade.

Policymakers could encourage cultural trade by implementing policies that facilitate international cooperation, safeguard cultural variety, improve market entry, and effectively utilise digital platforms. Strong IP laws are essential for safeguarding the rights of creators and promoting innovation. Aligning IP legislation with international standards can enhance economic ties and safeguard cultural items in foreign markets. Additionally, policymakers could enforce grants, subsidies, and tax incentives specifically for cultural enterprises. Providing financial support can help cultural businesses expand their market presence by exporting their products, thereby reducing barriers for small businesses and promoting a diverse cultural environment. Providing training and resources to those involved in cultural production can enhance their capacity to compete in global markets. These efforts will not only enhance cultural trade and economic growth but also amplify the positive impacts of globalisation on cultural trade.

REFERENCES

Abrams, R. K. (1980). International trade flows under flexible exchange rates. *Economic Review*, *65*(3), 3-10.

Adams, G. K. (2022, March 4). *Cut cultural ties with Russia, urges Dorries*. Museums Association. https://www.museumsassociation.org/museums-journal/news/2022/03/cut-cultural-ties-with russia-urges-dorries/.

Afesorgbor, S. K. (2019). The impact of economic sanctions on international trade: How do threatened sanctions compare with imposed sanctions? *European Journal of Political Economy*, *56*, 11-26.

Agnosteva, D. E., Anderson, J. E., & Yotov, Y. V. (2014). *Intra-national trade costs: Measurement and aggregation*. (No. w19872). National Bureau of Economic Research (NBER) Working Papers. https://www.nber.org/papers/w19872.

Ahn, D. P., & Ludema, R. D. (2019). *Sword and the shield: The economics of targeted sanctions*. (No. 7620). Center for Economic Studies and Ifo Institute for Economic Research (CESifo) Working Papers. https://www.cesifo.org/en/publications/2019/working-paper/sword-and-shield-economics-targeted-sanctions.

Aitken, N. D. (1973). The effect of the EEC and EFTA on European trade: A temporal cross-section analysis. *The American Economic Review*, *63*(5), 881-892.

Aitken, N. D., & Obutelewicz, R. S. (1976). A cross-sectional study of EEC trade with the Association of African Countries. *The Review of Economics and Statistics*, *58*(4), 425-433.

Anderson, J. E. (1979). A theoretical foundation for the gravity equation. *The American Economic Review*, *69*(1), 106-116.

Anderson, J. E., & Van Wincoop, E. (2003). Gravity with gravitas: A solution to the border puzzle. *American Economic Review*, *93*(1), 170-192.

Anderson, J. E., & Van Wincoop, E. (2004). Trade costs. *Journal of Economic Literature*, *42*(3), 691-751.

Anderson, J. E. (2010). *The gravity model*. (No. 16576). NBER Working Papers. https://www.nber.org/papers/w16576.

Anderson, J. E., & Yotov, Y. V. (2016). Terms of trade and global efficiency effects of free trade agreements, 1990–2002. *Journal of International Economics*, *99*, 279-298.

Anderson, J. E., Larch, M., & Yotov, Y. V. (2018). GEPPML: General equilibrium analysis with PPML. *The World Economy*, *41*(10), 2750-2782.

Armington, P. S. (1969). A theory of demand for products distinguished by place of production (Une théorie de la demande de produits différenciés d'après leur origine) (Una teoría de la demanda de productos distinguiéndolos según el lugar de producción). *International Monetary Fund (IMF) Staff Papers*, *16*(1), 159-178. https://www.elibrary.imf.org/view/journals/024/1969/001/article-A007-en.xml.

Askari, H. G., Forrer, J., Teegen, H., & Yang, J. (2003). *Economic sanctions: Examining their philosophy and efficacy*. Westport Praeger Publisher.

Baier, S. L., & Bergstrand, J. H. (2002). *On the endogeneity of international trade flows and free trade agreements*. Unpublished manuscript. https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=35e19697eb36cea7ab56b4142b2b7c7f96342b46.

Baier, S. L., & Bergstrand, J. H. (2004). Economic determinants of free trade agreements. *Journal of International Economics*, *64*(1), 29-63.

Baier, S. L., & Bergstrand, J. H. (2007). Do free trade agreements actually increase members' international trade? *Journal of International Economics*, *71*(1), 72-95.

Baier, S. L., Bergstrand, J. H., Egger, P., & McLaughlin, P. A. (2008). Do economic integration agreements actually work? Issues in understanding the causes and consequences of the growth of regionalism. *World Economy*, *31*(4), 461-497.

Baier, S. L., & Bergstrand, J. H. (2009a). Bonus vetus OLS: A simple method for approximating international trade-cost effects using the gravity equation. *Journal of International Economics*, *77*(1), 77-85.

Baier, S. L., & Bergstrand, J. H. (2009b). Estimating the effects of free trade agreements on international trade flows using matching econometrics. *Journal of International Economics*, *77*(1), 63-76.

Baier, S. L., Bergstrand, J. H., & Mariutto, R. (2014). Economic determinants of free trade agreements revisited: Distinguishing sources of interdependence. *Review of International Economics*, *22*(1), 31-58.

Baier, S. L., Bergstrand, J. H., & Feng, M. (2014). Economic integration agreements and the margins of international trade. *Journal of International Economics*, *93*(2), 339-350.

Baier, S. L., Bergstrand, J. H., & Clance, M. W. (2018). Heterogeneous effects of economic integration agreements. *Journal of Development Economics*, *135*, 587-608.

Baier, S. L., Yotov, Y. V., & Zylkin, T. (2019). On the widely differing effects of free trade agreements: Lessons from twenty years of trade integration. *Journal of International Economics*, *116*, 206-226.

Balassa, B. (1967). Trade creation and trade diversion in the EEC. *Economic Journal*, *77*, 1-21.

Baldwin, R., & Taglioni, D. (2006). *Gravity for dummies and dummies for gravity equations*. (No. 12516). NBER Working Papers. https://www.nber.org/papers/w12516.

Ball, R. J., & Linnemann, H. (1967). An econometric study of international trade flows [Review of an econometric study of international trade flows]. *The Economic Journal*, *77*(306), 366–368.

Baltruschat, D. (2002). Globalization and international TV and film co-productions: In search of new narratives. *Media in Transition*, *2*, 10-12.

Bapat, N.A., & Clifton Morgan, T. (2009). Multilateral versus unilateral sanctions reconsidered: A test using new data. *International Studies Quarterly*, *53*(4), 1075–1094.

Bapat, N. A., Heinrich, T., Kobayashi, Y., & Morgan, T. C. (2013). Determinants of sanctions effectiveness: Sensitivity analysis using new data. *International Interactions*, *39*(1), 79-98.

Bayoumi, T., & Eichengreen, B. (1995). *Is regionalism simply a diversion? Evidence from the evolution of the EC and EFTA*. (No. 5283). NBER Working Papers. https://www.nber.org/system/files/chapters/c8599/c8599.pdf.

Benavente, J. M., & Grazzi, M. (2017). *Public policies for creativity and innovation: Promoting the Orange Economy in Latin America and the Caribbean*. Inter-American Development Bank Publications. https://publications.iadb.org/en/public-policies-creativity-and-innovation-promoting-orange-economy-latin-america-and-caribbean.

Bengoa, M., Sanchez-Robles, B., & Shachmurove, Y. (2020). Do trade and investment agreements promote foreign direct investment within Latin America? Evidence from a structural gravity model. *Mathematics*, *8* (11), 1882.

Berger, D., Easterly, W., Nunn, N., & Satyanath, S. (2013). Commercial imperialism? Political influence and trade during the Cold War. *American Economic Review*, *103*(2), 863-896.

Bergstrand, J. H. (1985). The gravity equation in international trade: Some microeconomic foundations and empirical evidence. *The Review of Economics and Statistics*, *67*(3), 474-481.

Bergstrand, J. H. (1989). The generalized gravity equation, monopolistic competition, and the factor-proportions theory in international trade. *The Review of Economics and Statistics*, *71*(1), 143-153.

Bergstrand, J. H. (1990). The Heckscher-Ohlin-Samuelson model, the Linder hypothesis, and the determinants of bilateral intra-industry trade. *The Economic Journal*, *100*(403), 1216-1229.

Bergstrand, J. H., Egger, P., & Larch, M. (2013). Gravity Redux: Estimation of gravity-equation coefficients, elasticities of substitution, and general equilibrium comparative statics under asymmetric bilateral trade costs. *Journal of International Economics*, *89*(1), 110-121.

Bergstrand, J. H., Larch, M., & Yotov, Y. V. (2015). Economic integration agreements, border effects, and distance elasticities in the gravity equation. *European Economic Review*, *78*, 307-327.

Besedeš, T., & Cole, M. T. (2017). Distorted trade barriers: A dissection of trade costs in a "distorted gravity" model. *Review of International Economics*, *25*(1), 148-164.

Besedeš, T., Goldbach, S., & Nitsch, V. (2021). Cheap talk? Financial sanctions and non-financial firms. *European Economic Review*, *134*, 103688.

Borchert, I., & Yotov, Y. V. (2017). Distance, globalization, and international trade. *Economics Letters*, *153*, 32-38.

Boulhol, H., & De Serres, A. (2010). Have developed countries escaped the curse of distance? *Journal of Economic Geography*, *10*(1), 113-139.

Brada, J. C., & Mendez, J. A. (1983). Regional economic integration and the volume of intra-regional trade: A comparison of developed and developing country experience. *Kyklos*, *36*(4), 589-603.

Brada, J. C., & Mendez, J. A. (1985). Economic integration among developed, developing and centrally planned economies: A comparative analysis. *The Review of Economics and Statistics*, *67*(4), 549-556.

Brown, P. (2020). *Oil market effects from US economic sanctions: Iran, Russia, Venezuela*. (No. R46213). Congressional Research Service Reports. https://sgp.fas.org/crs/row/R46213.pdf.

Brun, J. F., Carrère, C., Guillaumont, P., & De Melo, J. (2005). Has distance died? Evidence from a panel gravity model. *The World Bank Economic Review*, *19*(1), 99-120.

Buch, C. M., Kleinert, J., & Toubal, F. (2004). The distance puzzle: On the interpretation of the distance coefficient in gravity equations. *Economics Letters*, *83*(3), 293-298.

Buse, N. B. R. (2020). *COVID-19 and culture in Africa: A comparative analysis of economic impact studies*. Arts Management Reports. https://www.artsmanagement.net/Articles/COVID-19-and-culture-in-Africa-A-comparative-analysis-of-economic-impact-studies,4184.

Bureau of Industry and Security. (2022). *Embargoes and other special controls*. (No. 15 CFR Part 746). Department of Commerce. https://www.bis.doc.gov/index.php/documents/regulation-docs/420-part-746-embargoes-and-other-special-controls/file.

Burke, A. E. (1996). How effective are international copyright conventions in the music industry? *Journal of Cultural Economics*, *20*(1), 51-66.

Cabral, L., & Natividad, G. (2020). Movie release strategy: Theory and evidence from international distribution. *Journal of Economics & Management Strategy*, *29*(2), 276-288.

Campi, M., & Dueñas, M. (2017). Intellectual property rights, trade agreements, and international trade. *Research Policy*, *48*(3), 531–545.

Carrère, C., & Schiff, M. (2005). On the geography of trade: Distance is alive and well. *Revue Économique*, *56*(6), 1249–1274.

Carrere, C. (2006). Revisiting the effects of regional trade agreements on trade flows with proper specification of the gravity model. *European Economic Review*, *50*(2), 223-247.

Caruso, R. (2003). The impact of international economic sanctions on trade: An empirical analysis. *Peace Economics, Peace Science and Public Policy*, *9*(2).

Cattaneo, N., & Snowball, J. (2019). South Africa's trade in cultural goods and services with a focus on cultural trade with BRICS partners. *International Journal of Cultural Policy*, *25*(5), 582-601.

Chang, W., & Winters, L. A. (2002). How regional blocs affect excluded countries: The price effects of MERCOSUR. *American Economic Review*, *92*(4), 889-904.

Chang, P. L., & Lee, M. J. (2011). The WTO trade effect. *Journal of International Economics*, *85*(1), 53-71.

Cheng, I. H. (1999). *Three essays on political economy, trade, and international economic integration* [Doctoral dissertation, University of London].

Cheng, I. H., & Wall, H. J. (2005). Controlling for heterogeneity in gravity models of trade and integration. *Federal Reserve Bank of St. Louis*, *87*(1), 49–63.

Cheong, J., & Tang, K. K. (2015). Heterogeneous effects of preferential trade agreements: How does partner similarity matter? *World Development*, *66*, 222-236.

Coe, D. T., Subramanian, A., Tamirisa, N. T., & Bhavnani, R. (2002). The missing globalization puzzle. (No. 171). *IMF Working Papers*.

https://www.imf.org/external/pubs/ft/wp/2002/wp02171.pdf.

Coe, D. T., Subramanian, A., & Tamirisa, N. T. (2007). The missing globalization puzzle: Evidence of the declining importance of distance. *IMF Staff Papers*, *54*(1), 34-58.

Conte, M., Cotterlaz, P., & Mayer, T. (2022). *The CEPII gravity database*. (No. 2022-05). CEPII Working Papers. http://cepii.fr/PDF_PUB/wp/2022/wp2022-05.pdf.

Correia, S., Guimarães, P., & Zylkin, T. (2020). Fast Poisson estimation with high-dimensional fixed effects. *The Stata Journal*, *20*(1), 95-115.

Craig, C. S., Greene, W. H., & Douglas, S. P. (2005). Culture matters: Consumer acceptance of US films in foreign markets. *Journal of International Marketing*, *13*(4), 80-103.

Crozet, M., & Hinz, J. (2016). *Collateral damage: The impact of Russia sanctions on sanctioning countries' exports*. (No. 2016-16). CEPII Working Papers. http://www.cepii.fr/pdf_pub/wp/2016/wp2016-16.pdf.

Crozet, M., & Hinz, J. (2020). Friendly fire: The trade impact of the Russia sanctions and counter-sanctions. *Economic Policy*, *35*(101), 97-146.

Dai, M., Yotov, Y. V., & Zylkin, T. (2014). On the trade-diversion effects of free trade agreements. *Economics Letters*, *122*(2), 321-325.

Dai, M., Felbermayr, G. J., Kirilakha, A., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2021). *Timing the impact of sanctions on trade*. (No. 2021-07). Drexel Economics Working Papers.

DCMS. (2001). *Creative industries mapping document 2001*. DCMS Reports. https://www.gov.uk/government/publications/creative-industries-mapping-documents-2001.

DCMS. (2023). *Creative industries section vision: A joint plan to drive growth, build talent and develop skills.* DCMS Reports. https://assets.publishing.service.gov.uk/media/64898de2b32b9e000ca96712/Creative_Industries_Sector_Vision__accessible_version_.pdf.

Deardorff, A. V. (1995a). *Determinants of bilateral trade: Does gravity work in a neoclassical world?* (No. 5377). NBER Working Papers. https://www.nber.org/system/files/chapters/c7818/c7818.pdf.

Deardorff, A. V. (1995b). The appropriate extent of intellectual property rights in art. *Journal of Cultural Economics*, *19*(2), 119-130.

Disdier, A. C., & Mayer, T. (2007). Je t'aime, moi non plus: Bilateral opinions and international trade. *European Journal of Political Economy*, *23*(4), 1140-1159.

Disdier, A. C., & Head, K. (2008). The puzzling persistence of the distance effect on bilateral trade. *The Review of Economics and Statistics*, *90*(1), 37-48.

Disdier, A. C., Tai, S. H., Fontagné, L., & Mayer, T. (2010). Bilateral trade of cultural goods. *Review of World Economics*, *145*(4), 575-595.

Doan, N. T., & Tran, M. H. (2023). Quantifying the Effect of Economic Sanctions on Trade in Cultural Goods. *International Economic Journal*, *37*(3), 401-423.

Draca, M., Garred, J., Stickland, L., & Warrinnie, N. (2019). *On target? The incidence of sanctions across listed firms in Iran.* (No. 413). Centre for Institutions and Economic Performance (LICOS) Working Papers. https://www.econstor.eu/bitstream/10419/200497/1/1667981137.pdf.

Drezner, D. W. (1998). Conflict expectations and the paradox of economic coercion. *International Studies Quarterly*, *42*(4), 709-731.

Drezner, D. W. (2011). Sanctions sometimes smart: Targeted sanctions in theory and practice. *International Studies Review*, *13*(1), 96-108.

Dür, A., Baccini, L., & Elsig, M. (2014). The design of international trade agreements: Introducing a new dataset. *The Review of International Organizations*, *9*(3), 353-375.

Eaton, J., & Engers, M. (1992). Sanctions. *Journal of Political Economy*, *100*(5), 899-928.

Eaton, J., & Tamura, A. (1994). Bilateralism and regionalism in Japanese and US trade and direct foreign investment patterns. *Journal of the Japanese and International Economies*, *8*(4), 478-510.

Eaton, J., & Kortum, S. (2002). Technology, geography, and trade. *Econometrica*, *70*(5), 1741-1779.

Egger, P. (2000). A note on the proper econometric specification of the gravity equation. *Economics Letters*, *66*(1), 25-31.

Egger, P., & Pfaffermayr, M. (2003). The proper panel econometric specification of the gravity equation: A three-way model with bilateral interaction effects. *Empirical Economics*, *28*(3), 571-580.

Egger, P., & Larch, M. (2008). Interdependent preferential trade agreement memberships: An empirical analysis. *Journal of International Economics*, *76*(2), 384-399.

Egger, P., Larch, M., Staub, K. E., & Winkelmann, R. (2011). The trade effects of endogenous preferential trade agreements. *American Economic Journal: Economic Policy*, *3*(3), 113-143.

Eichengreen, B., & Irwin, D. A. (1996). *The role of history in bilateral trade*. (No. 5565). NBER Working Papers. https://www.nber.org/papers/w5565.

Eicher, T. S., & Henn, C. (2011). In search of WTO trade effects: Preferential trade agreements promote trade strongly, but unevenly. *Journal of International Economics*, *83*(2), 137-153.

Eicher, T. S., Henn, C., & Papageorgiou, C. (2012). Trade creation and diversion revisited: Accounting for model uncertainty and natural trading partner effects. *Journal of Applied Econometrics*, *27*(2), 296-321.

Erzan, R., Holmes, C., & Safadi, R. (1992). *How changes in the former CMEA Area may affect international trade in manufactures*. (No. 973). The World Bank Policy Research Working Papers. https://ideas.repec.org/p/wbk/wbrwps/973.html.

Evans, C. L., & Harrigan, J. (2005). Distance, time, and specialization: Lean retailing in general equilibrium. *American Economic Review*, *95*(1), 292-313.

Fally, T. (2015). Structural gravity and fixed effects. *Journal of International Economics*, *97*(1), 76-85.

Falvey, R., & Foster-McGregor, N. (2018). On the relationship between the breadth of preferential trading arrangements and trade flows. *The World Economy*, *41*(4), 1088-1110.

Fazio, G. (2021). *A review of creative trade in the economics literature*. Creative Industries Policy & Evidence Centre (PEC) Discussion Papers. https://pec.ac.uk/discussion-papers/a-review-of-creative-trade-in-the-economics-literature.

Feenstra, R. C., Markusen, J. R., & Rose, A. K. (2001). Using the gravity equation to differentiate among alternative theories of trade. *Canadian Journal of Economics*, *34*(2), 430-447.

Feenstra, R. C. (2004). *Advanced international trade: Theory and evidence*. Princeton University Press.

Felbermayr, G. J., & Kohler, W. (2006). Exploring the intensive and extensive margins of world trade. *Review of World Economics*, *142*(4), 642-674.

Felbermayr, G. J., Heid, B., Larch, M., & Yalcin, E. (2015). Macroeconomic potentials of transatlantic free trade: A high resolution perspective for Europe and the world. *Economic Policy*, *30*(83), 491-537.

Felbermayr, G. J., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2019). *On the effects of sanctions on trade and welfare: New evidence based on structural gravity and a new database*. (No. 7728). CESifo Working Papers. https://www.cesifo.org/en/publications/2019/working-paper/effects-sanctions-trade-and-welfare-new-evidence-based-structural.

Felbermayr, G. J., Kirilakha, A., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2020). The global sanctions data base. *European Economic Review*, *129*, 103561.

Felbermayr, G., Morgan, T. C., Syropoulos, C., & Yotov, Y. V. (2021). Understanding economic sanctions: Interdisciplinary perspectives on theory and evidence. *European Economic Review*, *135*, 103720.

Fontagné, L., Rocha, N., Ruta, M., & Santoni, G. (2023). The economic impact of deepening trade agreements. *The World Bank Economic Review*, *37*(3), 366-388.

Franco, C., & Maggioni, D. (2022). Does international trade favor proximity in cultural beliefs? *Eurasian Economic Review*, *12*(3), 449–477.

Francois, P., & Van Ypersele, T. (2002). On the protection of cultural goods. *Journal of International Economics*, *56*(2), 359-369.

Frankel, J., Stein, E., & Wei, S. J. (1995). Trading blocs and the Americas: The natural, the unnatural, and the super-natural. *Journal of Development Economics*, *47*(1), 61-95.

Frankel, J. A., Stein, E., & Wei, S. J. (1997). *Regional trading blocs in the world economic system*. Peterson Institute.

Frankel, J., & Rose, A. (2002). An estimate of the effect of common currencies on trade and income. *The Quarterly Journal of Economics*, *117*(2), 437-466.

Gaulier, G., & Zignago, S. (2010). *BACI: International trade database at the product-level (the 1994-2007 version)*. CEPII Working Papers. http://www.cepii.fr/pdf_pub/wp/2010/wp2010-23.pdf.

Ghosh, S., & Yamarik, S. (2004a). Are regional trading arrangements trade creating? An application of extreme bounds analysis. *Journal of International Economics*, *63*(2), 369-395.

Ghosh, S., & Yamarik, S. (2004b). Does trade creation measure up? A reexamination of the effects of regional trading arrangements. *Economics Letters*, *82*(2), 213-219.

Goldstein, J. L., Rivers, D., & Tomz, M. (2007). Institutions in international relations: Understanding the effects of the GATT and the WTO on World trade. *International Organization*, *61*(1), 37-67.

Guèvremont, V., & Otašević, I. (2017). *Culture in treaties and agreements: Implementing the 2005 Convention in bilateral and regional trade agreements*. UNESCO Reports. https://unesdoc.unesco.org/ark:/48223/pf0000249829.

Guèvremont, V., & Bernier, I. (2019). *Guide to the negotiations of cultural clauses in trade agreements*. UNESCO Reports. https://www.unescodec.chaire.ulaval.ca/sites/unescodec.chaire.ulaval.ca/files/guide_-_6_fevrier_2020_-_eng_-_final.pdf

Guiso, L., Sapienza, P., & Zingales, L. (2006). Does culture affect economic outcomes? *Journal of Economic Perspectives*, *20*(2), 23-48.

Gurevich, T., & Herman, P. (2018). *The dynamic gravity dataset: 1948-2016*. (No. 2018-02-A). USITC Working Papers. https://www.usitc.gov/data/gravity/dynamic_gravity_technical_documentation_v1_00_1.pdf.

Haidar, J. I. (2017). Sanctions and export deflection: evidence from Iran. *Economic Policy*, *32*(90), 319-355.

Haveman, J., & Hummels, D. (2004). Alternative hypotheses and the volume of trade: the gravity equation and the extent of specialization. *Canadian Journal of Economics*, *37*(1), 199-218.

Hayakawa, K., Kimura, F., & Nabeshima, K. (2014). Nonconventional provisions in regional trade agreements: Do they enhance international trade? *Journal of Applied Economics*, *17*(1), 113-137.

Head, K., Mayer, T., & Ries, J. (2010). The erosion of colonial trade linkages after independence. *Journal of International Economics*, *81*(1), 1-14.

Head, K., & Mayer, T. (2013). What separates us? Sources of resistance to globalization. *Canadian Journal of Economics*, *46*(4), 1196-1231.

Head, K., & Mayer, T. (2014). *Gravity equations: Workhorse, toolkit, and cookbook*. (No. 2013-27). CEPII Working Papers. http://www.cepii.fr/pdf_pub/wp/2013/wp2013-27.pdf.

Heckman, J. J. (1979). Sample selection bias as a specification error. *Econometrica: Journal of the Econometric Society*, *47*(1), 153-161.

Heckman, J. J. (1997). Instrumental variables: A study of implicit behavioral assumptions used in making program evaluations. *Journal of Human Resources*, *32*(3), 441-462.

Heid, B., Larch, M., & Yotov, Y. V. (2021). Estimating the effects of non-discriminatory trade policies within structural gravity models. *Canadian Journal of Economics*, *54*(1), 376-409.

Helpman, E., & Krugman, P. (1985). *Market structure and foreign trade*. MIT Press: Cambridge, MA

Helpman, E., Melitz, M., & Rubinstein, Y. (2008). Estimating trade flows: Trading partners and trading volumes. *The Quarterly Journal of Economics*, *123*(2), 441-487.

Herz, B., & Wagner, M. (2011). The 'real' impact of GATT/WTO–a generalised approach. *The World Economy*, *34*(6), 1014-1041.

Hewett, E. A. (1976). A gravity model of CMEA trade. *Quantitative and Analytical Studies in East-West Economic Relations*, 1-15.

Hicks, R., & Kim, S. Y. (2012). Reciprocal trade agreements in Asia: Credible commitment to trade liberalization or paper tigers? *Journal of East Asian Studies*, *12*(1), 1-29.

Hofmann, C., Osnago, A., & Ruta, M. (2019). The content of preferential trade agreements. *World Trade Review*, *18*(3), 365-398.

Horn, H., Mavroidis, P. C., & Sapir, A. (2010). Beyond the WTO? An anatomy of EU and US preferential trade agreements. *The World Economy*, *33*(11), 1565-1588.

Hufbauer, G. C., Schott, J. J., & Elliott, K. A. (1990). *Economic sanctions reconsidered: History and current policy* (Vol. 1). Peterson Institute for International Economics.

Hufbauer, G. C., Elliott, K. A., Cyrus, T., & Winston, E. (1997). *US economic sanctions: Their impact on trade, jobs, and wages*. (No. 97-04). Peterson Institute for International Economics Working Papers. https://www.piie.com/publications/working-papers/us-economic-sanctions-their-impact-trade-jobs-and-wages.

Hufbauer, G. C., & Oegg, B. (2003). *The impact of economic sanctions on US trade: Andrew Rose's gravity model*. (No. PB03-04). Peterson Institute for International Economics Working Papers. https://www.piie.com/publications/policy-briefs/impact-economic-sanctions-us-trade-andrew-roses-gravity-model.

Hufbauer, G. C., Schott, J. J., Elliott, K. A., & Oegg, B. (2007). *Economic sanctions reconsidered.* (3rd edition). Peterson Institute for International Economics.

Hufbauer, G. C., & Jung, E. (2020). What's new in economic sanctions? *European Economic Review*, *130*, 103572.

Hummels, D. (2001). *Toward a geography of trade costs*. (No. 1162). Global Trade Analysis Project (GTAP) Working Papers. https://www.gtap.agecon.purdue.edu/resources/res_display.asp?RecordID=1162.

Hummels, D. (2007). Transportation costs and international trade in the second era of globalization. *Journal of Economic Perspectives*, *21*(3), 131-154.

Jing, C., Kaempfer, W. H., & Lowenberg, A. D. (2003). Instrument choice and the effectiveness of international sanctions: A simultaneous equations approach. *Journal of Peace Research*, *40*(5), 519-535.

Kareem, F. O., Martinez-Zarzoso, I., & Brümmer, B. (2016). *Fitting the gravity model when zero trade flows are frequent: A comparison of estimation techniques using Africa's trade data* (No. 858-2016-60260). GlobalFood Working Papers. https://www.econstor.eu/bitstream/10419/126396/1/846927411.pdf.

Katzman, K. (2022). *Iran sanctions*. (No. RS20871). Congressional Research Service Reports. https://crsreports.congress.gov/product/pdf/RS/RS20871/318.

KEA European Affairs. (2011). *Implementing cultural provisions of CARIFORUM-EU EPA: How do they benefit the Caribbean?* (No. 118). European Centre for Development Policy Management Working Papers. https://ecdpm.org/work/implementing-cultural-provisions-how-do-they-benefit-the-caribbean-cultural-sector.

Kim, A. M., & Doeser, J. (2022, March 3). *The case for cultural sanctions*. ArtsProfessional. https://www.artsprofessional.co.uk/magazine/352/feature/case-cultural-sanctions.

Kirilakha, A., Felbermayr, G. J., Syropoulos, C., Yalcin, E., & Yotov, Y. V. (2021). *The Global Sanctions Data Base (GSDB): An update that includes the years of the Trump presidency*. Research Handbook on Economic Sanctions, 62-106.

Kohl, T. (2014). Do we really know that trade agreements increase trade? *Review of World Economics*, *150*(3), 443-469.

Kohl, T., & Trojanowska, S. (2015). Heterogeneous trade agreements, WTO membership and international trade: An analysis using matching econometrics. *Applied Economics*, *47*(33), 3499-3509.

Kohl, T., Brakman, S., & Garretsen, H. (2016). Do trade agreements stimulate international trade differently? Evidence from 296 trade agreements. *The World Economy*, *39*(1), 97-131.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., & Vishny, R. (1999). The quality of government. *Journal of Law, Economics, and Organization*, *15*(1), 222-279.

Lacy, D., & Niou, E. M. (2004). A theory of economic sanctions and issue linkage: The roles of preferences, information, and threats. *The Journal of Politics*, *66*(1), 25-42.

Larch, M., Norbäck, P. J., Sirries, S., & Urban, D. M. (2016). Heterogeneous firms, globalisation, and the distance puzzle. *The World Economy*, *39*(9), 1307-1338.

Larch, M., Wanner, J., Yotov, Y. V., & Zylkin, T. (2019). Currency unions and trade: A PPML re-assessment with high-dimensional fixed effects. *Oxford Bulletin of Economics and Statistics*, *81*(3), 487-510.

Larch, M., Shikher, S., Syropoulos, C., & Yotov, Y. V. (2022). Quantifying the impact of economic sanctions on international trade in the energy and mining sectors. *Economic Inquiry*, *60*(3), 1038-1063.

Limão, N. (2006). Preferential trade agreements as stumbling blocks for multilateral trade liberalization: Evidence for the United States. *American Economic Review*, *96*(3), 896-914.

Limão, N. (2007). Are preferential trade agreements with non-trade objectives a stumbling block for multilateral liberalization? *The Review of Economic Studies*, *74*(3), 821-855.

Lin, F., & Sim, N. C. (2012). Death of distance and the distance puzzle. *Economics Letters*, *116*(2), 225-228.

Linnemann, H. (1966). An econometric study of international trade flows. North-Holland Publishing Company, pp. xiv, 234.

McCallum, J. (1995). National borders matter: Canada-US regional trade patterns. *The American Economic Review*, *85*(3), 615-623.

Magee, C. S. (2003). Endogenous preferential trade agreements: An empirical analysis. *Contributions in Economic Analysis & Policy*, *2*(1), 1-17.

Magee, C. S. (2008). New measures of trade creation and trade diversion. *Journal of International Economics*, *75*(2), 349-362.

Martín, C., & Velázquez, F. J. (2002). Determinants of net trade flows in the OECD: New evidence with special emphasis on the former communist members. *Review of International Economics*, *10*(1), 129-139.

Martin, W., & Pham, C. S. (2020). Estimating the gravity model when zero trade flows are frequent and economically determined. *Applied Economics*, *52*(26), 2766-2779.

Marvasti, A. (1994). International trade in cultural goods: A cross-sectional analysis. *Journal of Cultural Economics*, *18*(2), 135-148.

Marvasti, A., & Canterbery, E. R. (2005). Cultural and other barriers to motion pictures trade. *Economic Inquiry*, *43*(1), 39-54.

Mattoo, A., Mulabdic, A., & Ruta, M. (2022). Trade creation and trade diversion in deep agreements. *Canadian Journal of Economics*, *55*(3), 1598-1637.

Mátyás, L. (1997). Proper econometric specification of the gravity model. *The World Economy*, *20*(3), 363-368.

Mayer, T., & Zignago, S. (2011). *Notes on CEPII's distances measures: The GeoDist database*. (No. 2011-25). CEPII Working Papers. http://www.cepii.fr/CEPII/en/publications/wp/abstract.asp?NoDoc=3877.

Melitz, M. J. (2008). Language and foreign trade. *European Economic Review*, *52*(4), 667-699.

Melitz, M. J., & Redding, S. J. (2015). New trade models, new welfare implications. *American Economic Review*, *105*(3), 1105-1146.

Miromanova, A. (2023). The effectiveness of embargoes: Evidence from Russia. *The World Economy*, *46*(4), 906-940

Morgan, T. C., Bapat, N., & Krustev, V. (2009). The threat and imposition of economic sanctions, 1971—2000. *Conflict Management and Peace Science*, *26*(1), 92-110.

Morgan, T. C., Bapat, N., & Kobayashi, Y. (2014). Threat and imposition of economic sanctions 1945–2005: Updating the TIES dataset. *Conflict Management and Peace Science*, *31*(5), 541-558.

Mölders, F., & Volz, U. (2011). Trade creation and the status of FTAs: Empirical evidence from East Asia. *Review of World Economics*, *147*(3), 429-456.

Mulabdic, A., Osnago, A., & Ruta, M. (2017). *Deep integration and UK-EU trade relations*. (No. 7947). The World Bank Policy Research Working Papers. https://documents1.worldbank.org/curated/en/853811484835908129/pdf/WPS7947.pdf.

Nakhoda. A. (2016). *A practical guide to trade policy analysis: A case study on Pakistan*. A Practical Guide to Trade Policy Analysis, Published by: UNCTAD and WTO. Geneva, Switzerland.

Obstfeld, M., & Rogoff, K. (2000). The six major puzzles in international macroeconomics: Is there a common cause? *NBER Macroeconomics Annual*, *15*(1), 339-390.

Olivero, M. P., & Yotov, Y. V. (2012). Dynamic gravity: Endogenous country size and asset accumulation. *Canadian Journal of Economics*, *45*(1), 64-92.

Overman, H. G., Redding, S., & Venables, A. J. (2003). *The economic geography of trade, production, and income: A survey of empirics*. In: Kwan-Choi, E., Harrigan, J. (Eds.), Handbook of International Trade. Basil Blackwell, Oxford, pp. 353–387.

Oxford Economics. (2020). *The projected economic impact of covid-19 on the UK creative industries*. Oxford Economics Reports. https://www.oxfordeconomics.com/resource/the-projected-economic-impact-of-covid-19-on-the-uk-creative-industries/.

Pape, R. A. (1997). Why economic sanctions do not work. *International Security*, *22*(2), 90-136

Peksen, D. (2019). When do imposed economic sanctions work? A critical review of the sanctions effectiveness literature. *Defence and Peace Economics*, *30*(6), 635-647.

Pelzman, J. (1977). Trade creation and trade diversion in the Council of Mutual Economic Assistance 1954-70. *The American Economic Review*, *67*(4), 713-722.

Piermartini, R., & Yotov, Y. V. (2016). *Estimating trade policy effects with structural gravity*. (No. ERSD-2016-10). WTO Staff Working Papers. https://www.wto.org/english/res_e/doload_e/doload_e.htm - Downloadingfiles.

Redding, S., & Venables, A. J. (2004). Economic geography and international inequality. *Journal of International Economics*, *62*(1), 53-82.

Rose, A. K. (2000). One money, one market: The effect of common currencies on trade. *Economic Policy*, *15*(30), 08-45.

Rose, A. K., & Van Wincoop, E. (2001). National money as a barrier to international trade: The real case for currency union. *American Economic Review*, *91*(2), 386-390.

Rose, A. K. (2004). Do we really know that the WTO increases trade? *American Economic Review*, *94*(1), 98-114.

Rose, A. K. (2005a). Which international institutions promote international trade? *Review of International Economics*, *13*(4), 682-698.

Rose, A. K. (2005b). Does the WTO make trade more stable? *Open Economies Review*, *16*(1), 7-22.

Rose, A. K. (2007). Do we really know that the WTO increases trade? Reply. *American Economic Review*, *97*(5), 2019-2025.

Roy, J. (2010). Do customs union members engage in more bilateral trade than free-trade agreement members? *Review of International Economics*, *18*(4), 663-681.

Santos Silva, J., & Tenreyro, S. (2006). The log of gravity. *The Review of Economics and Statistics*, *88*(4), 641-658.

Santos Silva, J., & Tenreyro, S. (2011). Further simulation evidence on the performance of the poisson pseudo-maximum likelihood estimator. *Economics Letters*, *112*(2), 220-222.

Sapir, A. (1981). Trade benefits under the EEC generalized system of preferences. *European Economic Review*, *15*(3), 339-355.

Scavia, J., Fernández De La Reguera, P., Olson, J. E., Pezoa, N., & Kristjanpoller, W. (2021). The impact of cultural trade on economic growth. *Applied Economics*, *53*(38), 4436-4447.

Schulze, G. (1999). International trade in art. *Journal of Cultural Economics*, *23*(1/2), 109–136.

Smith, A. (1995). The success and use of economic sanctions. *International Interactions*, *21*(3), 229-245.

Soloaga, I., & Wintersb, L. A. (2001). Regionalism in the nineties: What effect on trade? *The North American Journal of Economics and Finance*, *12*(1), 1-29.

Subramanian, A., & Wei, S. J. (2007). The WTO promotes trade, strongly but unevenly. *Journal of International Economics*, *72*(1), 151-175.

Throsby, D. (1994). The production and consumption of the arts: A view of cultural economics. *Journal of Economic Literature*, *32*(1), 1-29.

Tinbergen, J. (1962). *Shaping the world economy: Suggestions for an international economic policy*. Twentieth Century Fund.

Trefler, D. (1993). Trade liberalization and the theory of endogenous protection: An econometric study of US import policy. *Journal of Political Economy*, *101*(1), 138-160.

Trefler, D. (2004). The long and short of the Canada-US free trade agreement. *American Economic Review*, *94*(4), 870-895.

Tsebelis, G. (1990). Are sanctions effective? A game-theoretic analysis. *Journal of Conflict Resolution*, *34*(1), 3-28.

UNCTAD. (2008). *Creative economy report 2008: The challenge of assessing the creative economy: Towards informed policy-making*. (No. UNCTAD/DITC/2008/2). UNCTAD Reports. https://unctad.org/system/files/official-document/ditc20082cer_en.pdf.

UNCTAD. (2010). *Creative economy report 2010. Creative economy: A feasible development option*. (No. UNCTAD/DITC/TAB/2010/3). UNCTAD Reports. https://unctad.org/system/files/official-document/ditctab20103_en.pdf.

UNCTAD. (2018). *Creative economy outlook. Trends in international trade in creative industries: Country profiles 2005-2014*. (No. UNCTAD/DITC/TED/2018/3). UNCTAD Reports. https://unctad.org/system/files/official-document/ditcted2018d3_en.pdf.

UNCTAD. (2022). *Creative economy outlook 2022. The international year of creative economy for sustainable development: Pathway to resilient creative industries*. (No. UNCTAD/DITC/TSCE/2022/1). UNCTAD Reports. https://unctad.org/system/files/official-document/ditctsce2022d1_overview_en.pdf.

UNESCO. (2000). *Culture, trade, and globalisation: Questions and answers*. (No. CUA/286). UNESCO Reports. https://unesdoc.unesco.org/ark:/48223/pf0000121360.

UNESCO. (2005a). *International flows of selected cultural goods and services, 1994-2003*. (No. UIS/AP/05-01). UNESCO Reports. https://uis.unesco.org/sites/default/files/documents/international-flows-of-selected-cultural-goods-and-services-1994-2003-en_1.pdf.

UNESCO. (2005b). *The 2005 convention on the protection and promotion of the diversity of cultural expressions*. (No. CLT-2005/CONVENTION). UNESCO Reports. https://unesdoc.unesco.org/ark:/48223/pf0000246264?posInSet=1&queryId=85dde93e-9ef6-402b-bc9f-452e6a399382.

UNESCO. (2006). *Trends in audiovisual markets: Regional perspectives from the South*. (No. CI/COM/2006/PUB/10). UNESCO Reports. https://unesdoc.unesco.org/ark:/48223/pf0000146192.

UNESCO. (2015). *Reshaping cultural policies 2005 convention global report: A decade promoting the diversity of cultural expressions for development*. (No. CUA/440). UNESCO Reports. https://uis.unesco.org/sites/default/files/documents/reshaping-cultural-policies-a-decade-promoting-the-diversity-of-cultural-expressions-for-development-2015-en_0.pdf.

UNESCO. (2021). *The African film industry: Trends, challenges, and opportunities for growth*. (No. CUA/478). UNESCO Reports. https://unesdoc.unesco.org/ark:/48223/pf0000379165.locale=en.

UNESCO. (2022). *Reshaping policies for creativity: Addressing culture as a global public good*. (No. CUA/440/3). UNESCO Reports. https://www.unesco.org/reports/reshaping-creativity/2022/en/download-report.

United Nations. (2017). *Global indicator framework for the sustainable development goals and targets of the 2030 agenda for sustainable development*. (No. A/RES/71/313). United Nations Reports. https://undocs.org/Home/Mobile?FinalSymbol=A%2FRES%2F71%2F313&Language=E&DeviceType=Desktop&LangRequested=False.

Van Wincoop, A., & Anderson, J. E. (2001). *Borders, trade, and welfare*. (No. 8515). NBER Working Papers. https://www.nber.org/papers/w8515.

Wall, H. J. (1999). Using the gravity model to estimate the costs of protection. *Federal Reserve Bank of St. Louis*, *81*(1), 33–40.

Weber, P. M., & Schneider, G. (2020). How many hands to make sanctions work? Comparing EU and US sanctioning efforts. *European Economic Review*, *130*, 103595.

Welt, C., Kristin, A., Rebecca, M. N., & Dianne, E. R. (2022). *US sanctions on Russia*. (No. R45415). Congressional Research Service Reports. https://crsreports.congress.gov/product/pdf/R/R45415/12.

Whang, T., McLean, E. V., & Kuberski, D. W. (2013). Coercion, information, and the success of sanction threats. *American Journal of Political Science*, *57*(1), 65-81.

Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. Cambridge, Massachusetts: The MIT Press.

World Trade Organisation. (2022, December). *Evolution of regional trade agreements in the world, 1948-2022*. https://www.wto.org/english/Tratop_e/region_e/region_e.htm.

World Trade Organisation. (2024, January 21). *Regional trade agreements database*. http://rtais.wto.org/UI/PublicMaintainRTAHome.aspx.

Yang, J., Askari, H., Forrer, J., & Teegen, H. (2004). US economic sanctions: An empirical study. *The International Trade Journal*, *18*(1), 23-62.

Yotov, Y. V., & Anderson, J. E. (2011). *Terms of trade and global efficiency effects of free trade agreements, 1990-2002*. (No. 17003). NBER Working Papers. https://www.nber.org/papers/w17003.

Yotov, Y. V. (2012). A simple solution to the distance puzzle in international trade. *Economics Letters*, *117*(3), 794-798.

Yotov, Y. V., Piermartini, R., Monteiro, J., & Larch, M. (2016). *An advanced guide to trade policy analysis: The structural gravity model*. Co-published by the WTO and UNCTAD. https://www.wto.org/english/res_e/booksp_e/advancedwtounctad2016_e.pdf.

Zhang, X., & Dai, J. (2021). Cultural and creative production in the era of globalization: Exploring the trans-border mobility of Chinese media and entertainment celebrities. *Geoforum*, *120*, 198-207.

Zylkin, T. (2016). *Beyond tariffs: Quantifying heterogeneity in the effects of free trade agreements*. (No. GPN2016-006). National University of Singapore Global Production Networks Centre Faculty of Arts and Social Sciences Working Papers. https://fass.nus.edu.sg/gpn/wp-content/uploads/sites/31/2020/09/Thomas-Zylkin_GPN2016_006.pdf.

APPENDIX A

Category	HS 96	HS 96 label
Cultural heritage		
	970500	Collections and collectors' pieces
	970600	Antiques of an age exceeding 100 years
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
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
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

Continued on next page

	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
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

Table A1: List of 38 cultural products

Afghanistan	Libya
Albania	Lithuania
Algeria	Luxembourg
American Samoa	Macao
Andorra	Madagascar
Angola	Malawi
Antigua and Barbuda	Malaysia
Azerbaijan	Maldives
Argentina	Mali
Australia	Malta
Austria	Mauritania
Bahamas	Mauritius
Bahrain	Mexico
Bangladesh	Mongolia
Armenia	Moldova
Barbados	Montenegro
Belgium	Montserrat
Bermuda	Morocco
Bhutan	Mozambique
Bolivia	Oman
Bosnia and Herzegovina	Namibia
Botswana	Nauru
Brazil	Nepal
Belize	Netherlands
British Indian Ocean Territory	Curacao
Solomon Islands	Aruba
British Virgin Islands	Bonaire, Sint Eustatius and Saba
Brunei	New Caledonia
Bulgaria	Vanuatu
Myanmar	New Zealand
Burundi	Nicaragua
Belarus	Niger
Cambodia	Nigeria
Cameroon	Niue
Canada	Norfolk Island
Cape Verde	Norway
Cayman Islands	Northern Mariana Islands
Central African Republic	Micronesia
Sri Lanka	Marshall Islands
Chad	Palau
Chile	Pakistan

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China	Panama
Christmas Island	Papua New Guinea
Cocos (Keeling) Islands	Paraguay
Colombia	Peru
Comoros	Philippines
Mayotte	Pitcairn Islands
Congo, Rep. of the	Poland
Congo, Democratic Rep. of the	Portugal
Cook Islands	Guinea-Bissau
Costa Rica	Qatar
Croatia	Romania
Cuba	Russia
Cyprus	Rwanda
Czech Republic	Saint Helena
Benin	Saint Kitts and Nevis
Denmark	Anguilla
Dominica	Saint Lucia
domiepublic	Saint Pierre and Miquelon
Ecuador	Saint Vincent and the Grenadines
El Salvador	San Marino
Equatorial Guinea	Sao Tome and Principe
Ethiopia	Saudi Arabia
Estonia	Senegal
Falkland Islands	Serbia
Fiji	Seychelles
Finland	Sierra Leone
France	India
French Polynesia	Singapore
French Southern and Antarctic Lands	Slovakia
Djibouti	Vietnam
Gabon	Slovenia
Georgia	Somalia
Gambia	South Africa
Palestine	Zimbabwe
Germany	Spain
Ghana	Sudan + South Sudan
Gibraltar	Suriname
Kiribati	Eswatini
Greece	Sweden
Greenland	Switzerland
Grenada	Syria

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Guam	Tajikistan
Guatemala	Thailand
Guinea	Liberia
Guyana	Togo
Haiti	Tokelau
Honduras	Tonga
Hong Kong	Trinidad and Tobago
Hungary	United Arab Emirates
Iceland	Tunisia
Indonesia	Turkey
Iran	Turkmenistan
Iraq	Turks and Caicos Islands
Ireland	Tuvalu
Israel	Uganda
Italy	Ukraine
Cote d'Ivoire	North Macedonia
Jamaica	Egypt
Japan	United Kingdom
Kazakhstan	Tanzania
Jordan	United States of America
Kenya	Burkina Faso
North Korea	Uruguay
South Korea	Uzbekistan
Kuwait	Venezuela
Kyrgyzstan	Wallis and Futuna
Laos	Samoa
Lebanon	Yemen
Lesotho	Serbia and Montenegro
Latvia	Zambia

Table A2: List of countries

Free Trade Agreement	In Force	Inactive
Agadir Agreement	27-Mar-07	
Armenia - Kazakhstan	25-Dec-01	
Armenia - Moldova, Republic of	21-Dec-95	
Armenia - Turkmenistan	07-Jul-96	
Armenia - Ukraine	18-Dec-96	
ASEAN - Australia - New Zealand	01-Jan-10	
ASEAN - China	01-Jan-05	
ASEAN - India	01-Jan-10	
ASEAN - Japan	01-Dec-08	
ASEAN - Korea, Republic of	01-Jan-10	
ASEAN Free Trade Area (AFTA)	01-Jan-93	
Australia - Chile	06-Mar-09	
Australia - China	20-Dec-15	
Australia - New Zealand	01-Jan-83	
Australia - Papua New Guinea	01-Feb-77	
Brunei Darussalam - Japan	31-Jul-08	
Canada - Chile	05-Jul-97	
Canada - Colombia	15-Aug-11	
Canada - Costa Rica	01-Nov-02	
Canada - Honduras	01-Oct-14	
Canada - Israel	01-Jan-97	
Canada - Jordan	01-Oct-12	
Canada - Korea, Republic of	01-Jan-15	
Canada - Panama	01-Apr-13	
Canada - Peru	01-Aug-09	
Chile - China	01-Oct-06	
Chile - Colombia	08-May-09	
Chile - Costa Rica	15-Feb-02	
Chile - El Salvador	01-Jun-02	
Chile - Guatemala	23-Mar-10	
Chile - Honduras	19-Jul-08	
Chile - Japan	03-Sep-07	
Chile - Malaysia	25-Feb-12	
Chile - Mexico	01-Aug-99	
Chile - Nicaragua	19-Oct-12	
Chile - Viet Nam	01-Jan-14	
China - Costa Rica	01-Aug-11	
China - Hong Kong, China	29-Jun-03	
China - Korea, Republic of	20-Dec-15	
China – Macao, China	17-Oct-03	
China - New Zealand	01-Oct-08	
China - Singapore	01-Jan-09	
Colombia - Mexico	01-Jan-95	
Colombia - Northern Triangle	12-Nov-09	

Common Economic Zone (CEZ)	20-May-04
Commonwealth of Independent States	30-Dec-94
Costa Rica - Colombia	01-Aug-16
Costa Rica - Peru	01-Jun-13
Costa Rica - Singapore	01-Jul-13
Dominican R. – Central America	04-Oct-01
CAFTA - DR	01-Mar-06
EFTA	04-Jan-60
EFTA - Albania	01-Nov-10
EFTA - Bosnia and Herzegovina	01-Jan-15
EFTA - Canada	01-Jul-09
EFTA - Central America	19-Aug-14
EFTA - Chile	01-Dec-04
EFTA - Colombia	01-Jul-11
EFTA - Egypt	01-Aug-07
EFTA - Macedonia	01-May-02
EFTA - Hong Kong, China	01-Oct-12
EFTA - Israel	01-Jan-93
EFTA - Jordan	01-Sep-02
EFTA - Korea, Republic of	01-Sep-06
EFTA - Lebanon	01-Jan-07
EFTA - Mexico	01-Jul-01
EFTA - Montenegro	01-Sep-12
EFTA - Morocco	01-Dec-99
EFTA - Palestinian Authority	01-Jul-99
EFTA - Peru	01-Jul-11
EFTA - SACU	01-May-08
EFTA - Serbia	01-Oct-10
EFTA - Singapore	01-Jan-03
EFTA - Tunisia	01-Jun-05
EFTA - Turkey	01-Apr-92
EFTA - Ukraine	01-Jun-12
Egypt - Turkey	01-Mar-07
El Salvador- Honduras - Chinese Taipei	01-Mar-08
EU - Albania	01-Dec-06
EU - Algeria	01-Sep-05
EU - Bosnia and Herzegovina	01-Jul-08
EU - Cameroon	04-Aug-14
EU - CARIFORUM States EPA	01-Nov-08
EU - Central America	01-Aug-13
EU - Chile	01-Feb-03
EU - Colombia and Peru	01-Mar-13
EU - Colombia and Peru - Ecuador	01-Jan-17
EU - Cte d'Ivoire	03-Sep-16
EU - Eastern and Southern Africa States	14-May-12

EU - Egypt	01-Jun-04
EU - Faroe Islands	01-Jan-97
EU - Macedonia	01-Jun-01
EU - Georgia	01-Sep-14
EU - Iceland	01-Apr-73
EU - Israel	01-Jun-00
EU - Jordan	01-May-02
EU - Korea, Republic of	01-Jul-11
EU - Lebanon	01-Mar-03
EU - Mexico	01-Jul-00
EU - Moldova, Republic of	01-Sep-14
EU - Montenegro	01-Jan-08
EU - Morocco	01-Mar-00
EU - Norway	01-Jul-73
EU - OCT	01-Jan-71
EU - Palestinian Authority	01-Jul-97
EU - Papua New Guinea / Fiji	20-Dec-09
EU - Serbia	01-Feb-10
EU - South Africa	01-Jan-00
EU - Switzerland - Liechtenstein	01-Jan-73
EU - Syria	01-Jul-77
EU - Tunisia	01-Mar-98
EU - Ukraine	23-Apr-14
European Free Trade Association (EFTA)	03-May-60
Faroe Islands - Norway	01-Jul-93
Faroe Islands - Switzerland	01-Mar-95
Georgia - Armenia	11-Nov-98
Georgia - Azerbaijan	10-Jul-96
Georgia - Kazakhstan	16-Jul-99
Georgia - Russian Federation	10-May-94
Georgia - Turkmenistan	01-Jan-00
Georgia - Ukraine	04-Jun-96
GCC - Singapore	01-Sep-13
Hong Kong, China - Chile	09-Oct-14
Hong Kong, China - New Zealand	01-Jan-11
Iceland - China	01-Jul-14
Iceland - Faroe Islands	01-Nov-06
India - Bhutan	29-Jul-06
India - Japan	01-Aug-11
India - Malaysia	01-Jul-11
India - Singapore	01-Aug-05
India - Sri Lanka	15-Dec-01
Israel - Mexico	01-Jul-00
Japan - Australia	15-Jan-15
Japan - Indonesia	01-Jul-08

Japan - Malaysia	13-Jul-06
Japan - Mexico	01-Apr-05
Japan - Mongolia	07-Jun-16
Japan - Peru	01-Mar-12
Japan - Philippines	11-Dec-08
Japan - Singapore	30-Nov-02
Japan - Switzerland	01-Sep-09
Japan - Thailand	01-Nov-07
Japan - Viet Nam	01-Oct-09
Jordan - Singapore	22-Aug-05
Korea, Republic of - Colombia	15-Jul-16
Korea, Republic of - Australia	12-Dec-14
Korea, Republic of - Chile	01-Apr-04
Korea, Republic of - India	01-Jan-10
Korea, Republic of - New Zealand	20-Dec-15
Korea, Republic of - Singapore	02-Mar-06
Korea, Republic of - Turkey	01-May-13
Korea, Republic of - United States	15-Mar-12
Korea, Republic of - Viet Nam	20-Dec-15
Kyrgyz Republic - Armenia	27-Oct-95
Kyrgyz Republic - Kazakhstan	11-Nov-95
Kyrgyz Republic - Moldova, Republic of	21-Nov-96
Kyrgyz Republic - Ukraine	19-Jan-98
Kyrgyz Republic - Uzbekistan	20-Mar-98
Malaysia - Australia	01-Jan-13
Mexico - Central America	01-Sep-12
Mexico - Panama	01-Jul-15
Mexico - Uruguay	15-Jul-04
New Zealand - Malaysia	01-Aug-10
New Zealand - Singapore	01-Jan-01
North American Free Trade Agreement	01-Jan-94
Pacific Alliance	01-May-16
Pacific Island Countries Trade Agreement	13-Apr-03
Pakistan - China	01-Jul-07
Pakistan - Malaysia	01-Jan-08
Pakistan - Sri Lanka	12-Jun-05
Panama - Chile	07-Mar-08
Panama - Costa Rica	23-Nov-08
Panama - El Salvador	11-Apr-03
Panama - Guatemala	20-Jun-09
Panama - Honduras	09-Jan-09
Panama - Nicaragua	21-Nov-09
Panama - Peru	01-May-12
Panama - Singapore	24-Jul-06
Pan-Arab Free Trade Area (PAFTA)	01-Jan-98

Peru - Chile	01-Mar-09
Peru - China	01-Mar-10
Peru - Korea, Republic of	01-Aug-11
Peru - Mexico	01-Feb-12
Peru - Singapore	01-Aug-09
Russian Federation - Azerbaijan	17-Feb-93
Russian Federation - Serbia	03-Jun-06
Russian Federation - Tajikistan	08-Apr-93
Russian Federation - Turkmenistan	06-Apr-93
Russian Federation - Uzbekistan	25-Mar-93
Singapore - Australia	28-Jul-03
SAFTA	01-Jan-06
SADC	01-Sep-00
Switzerland - China	01-Jul-14
Thailand - Australia	01-Jan-05
Thailand - New Zealand	01-Jul-05
Trans-Pacific Strategic Economic Part.	28-May-06
CIS	20-Sep-12
Turkey - Albania	01-May-08
Turkey - Bosnia and Herzegovina	01-Jul-03
Turkey - Chile	01-Mar-11
Turkey - Macedonia	01-Sep-00
Turkey - Georgia	01-Nov-08
Turkey - Israel	01-May-97
Turkey - Jordan	01-Mar-11
Turkey - Malaysia	01-Aug-15
Turkey - Mauritius	01-Jun-13
Turkey - Moldova, Republic of	01-Nov-16
Turkey - Montenegro	01-Mar-10
Turkey - Morocco	01-Jan-06
Turkey - Palestinian Authority	01-Jun-05
Turkey - Serbia	01-Sep-10
Turkey - Syria	01-Jan-07
Turkey - Tunisia	01-Jul-05
Ukraine - Azerbaijan	02-Sep-96
Ukraine - Belarus	11-Nov-06
Ukraine - Macedonia	05-Jul-01
Ukraine - Kazakhstan	19-Oct-98
Ukraine - Moldova, Republic of	19-May-05
Ukraine - Montenegro	01-Jan-13
Ukraine - Tajikistan	11-Jul-02
Ukraine - Uzbekistan	01-Jan-96
Ukraine -Turkmenistan	04-Nov-95
United States - Australia	01-Jan-05
United States - Bahrain	01-Aug-06

United States - Chile	01-Jan-04	
United States - Colombia	15-May-12	
United States - Israel	19-Aug-85	
United States - Jordan	17-Dec-01	
United States - Morocco	01-Jan-06	
United States - Oman	01-Jan-09	
United States - Panama	31-Oct-12	
United States - Peru	01-Feb-09	
United States - Singapore	01-Jan-04	
Albania - Bosnia and Herzegovina	01-Dec-04	01-May-07
Albania - Bulgaria	01-Sep-03	01-Jan-07
Albania - Macedonia	01-Jul-02	01-May-07
Albania - Moldova	01-Nov-04	01-May-07
Albania - Romania	01-Jan-04	01-Jan-07
Albania - Serbia and Montenegro	01-Sep-04	01-May-07
Albania - UNMIC/Kosovo	01-Oct-03	01-May-07
Armenia - Russian Federation	25-Mar-93	17-Oct-12
Bulgaria - Bosnia and Herzegovina	01-Dec-04	01-Jan-07
Bulgaria - Estonia	01-Jan-02	01-May-04
Bulgaria - Macedonia	01-Jan-00	01-Jan-07
Bulgaria - Israel	01-Jan-02	01-Jan-07
Bulgaria - Latvia	01-Apr-03	01-May-04
Bulgaria - Lithuania	01-Mar-02	01-May-04
Bulgaria - Serbia and Montenegro	01-Jun-04	01-Jan-07
Bulgaria - Turkey	01-Jan-99	01-Jan-07
CEFTA	01-Mar-93	01-May-04
Costa Rica - Mexico	01-Jan-95	01-Jul-13
Croatia - Albania	01-Jun-03	01-May-07
Croatia - Bosnia and Herzegovina	01-Jan-01	01-May-07
Croatia - Macedonia	30-Oct-97	01-May-07
Croatia - Serbia and Montenegro	01-Jul-04	01-May-07
Czech Republic - Estonia	12-Feb-98	01-May-04
Czech Republic - Israel	01-Dec-97	01-May-04
Czech Republic - Latvia	01-Sep-97	01-May-04
Czech Republic - Lithuania	01-Jul-97	01-May-04
Czech Republic - Turkey	01-Sep-98	01-May-04
EC - Algeria	01-Jul-76	01-Sep-05
EC - Bulgaria Europe Agreement	01-Feb-95	01-Jan-07
EC - Czech Republic Europe Agreement	01-Feb-95	01-May-04
EC - Egypt Cooperation Agreement	01-Nov-78	01-Jun-04
EC - Estonia Agreement	01-Jan-95	01-May-04
EC - Hungary Europe Agreement	01-Feb-94	01-May-04
EC - Israel Agreement of 1975	01-Jul-75	01-Jun-00
EC - Jordan Cooperation Agreement	01-Nov-78	01-May-02
EC - Latvia Agreement	01-Jan-95	01-May-04

EC - Lebanon Cooperation Agreement	01-Nov-78	01-Mar-03
EC - Lithuania	01-Jan-95	01-May-04
EC - Morocco Cooperation Agreement	01-Nov-78	01-Mar-00
EC - Poland Europe Agreement	01-Feb-94	01-May-04
EC - Romania Europe Agreement	01-Feb-95	01-Jan-07
EC - Slovak Republic Europe Agreement	01-Feb-95	01-May-04
EC - Slovenia Interim Agreement	01-Jan-97	01-May-04
EFTA - Bulgaria	01-Jul-93	01-Jan-07
EFTA - Croatia	01-Apr-02	24-Nov-13
EFTA - Czech Republic Agreement	01-Jul-92	01-May-04
EFTA - Estonia Free Trade Agreement	01-Jun-96	01-May-04
EFTA - Hungary Agreement	01-Oct-93	01-May-04
EFTA - Latvia	01-Jun-96	01-May-04
EFTA - Lithuania	01-Aug-96	01-May-04
EFTA - Poland Agreement	15-Nov-93	01-May-04
EFTA - Romania Free Trade Agreement	01-May-93	01-Jan-07
EFTA - Slovak Republic Agreement	01-Jul-92	01-May-04
EFTA - Slovenia	01-Jul-95	01-May-04
Estonia - Faeroe Islands	01-Dec-98	01-May-04
EFTA - Slovak Republic Agreement	01-Jul-92	01-May-04
EFTA - Slovenia	01-Jul-95	01-May-04
Estonia - Faeroe Islands	01-Dec-98	01-May-04
Estonia - Latvia - Lithuania	01-Apr-94	01-May-04
Estonia - Ukraine	14-Mar-96	01-May-04
EU - Croatia	01-Mar-02	01-Jul-13
EU - Croatia	01-Feb-05	01-Jul-13
Faeroe Islands - Iceland	01-Jul-93	01-Nov-06
Macedonia - Bosnia and Herzegovina	15-Jul-02	01-May-07
Hungary - Estonia	01-Mar-01	01-May-04
Hungary - Israel	01-Feb-98	01-May-04
Hungary - Latvia	01-Jan-00	01-May-04
Hungary - Lithuania	01-Mar-00	01-May-04
Hungary - Turkey	01-Apr-98	01-May-04
Kyrgyz Republic - Russian Federation	24-Apr-93	13-Dec-13
Mexico - El Salvador	15-Mar-01	01-Sep-12
Mexico - Guatemala	15-Mar-01	01-Sep-13
Mexico - Honduras	01-Jun-01	01-Jan-13
Mexico - Nicaragua	01-Jul-98	01-Sep-12
Moldova - Bosnia and Herzegovina	01-May-04	01-May-07
Moldova - Bulgaria	01-Dec-04	01-Jan-07
Moldova - Croatia	01-Oct-04	01-May-07
Moldova - Macedonia	01-Dec-04	01-May-07
Moldova - Serbia and Montenegro	01-Sep-04	01-May-07
Poland - Faeroe Islands	01-Jun-98	01-May-04
Poland - Israel	01-Mar-98	01-May-04

Poland - Latvia	01-Jun-99	01-May-04
Poland - Lithuania	30-Dec-97	01-May-04
Romania - Bosnia and Herzegovina	24-Oct-03	01-Jan-07
Romania - Macedonia	01-Jan-04	01-Jan-07
Romania - Israel	01-Jul-01	01-Jan-07
Romania – Moldova	01-Jan-95	01-Jan-07
Romania – Serbia and Montenegro	01-Jul-04	01-Jan-07
Romania – Turkey	01-Feb-98	01-Jan-07
Russian Federation - Belarus	20-Apr-93	20-Sep-12
Russian Federation - Kazakhstan	07-Jun-93	08-Dec-12
Russian Federation - Republic of Moldova	30-Mar-93	09-Dec-12
Russian Federation - Tajikistan	08-Apr-93	20-Sep-12
Slovak Republic - Estonia	13-Mar-98	01-May-04
Slovak Republic - Israel	01-Jan-97	01-May-04
Slovak Republic - Latvia	01-Jul-97	01-May-04
Slovak Republic - Lithuania	14-Nov-97	01-May-04
Slovak Republic - Turkey	01-Aug-98	01-May-04
Slovenia - Bosnia and Herzegovina	01-Jan-02	01-May-04
Slovenia - Croatia	01-Jan-98	01-May-04
Slovenia - Estonia	01-Jan-97	01-May-04
Slovenia - Macedonia	01-Sep-96	01-May-04
Slovenia - Israel	01-Sep-98	01-May-04
Slovenia - Latvia	01-Aug-96	01-May-04
Slovenia - Lithuania	01-Mar-97	01-May-04
Turkey - Croatia	01-Jul-03	01-Jul-13
Turkey - Estonia	01-Jul-98	01-May-04
Turkey - Latvia	01-Jul-00	01-May-04
Turkey - Lithuania	01-Mar-98	01-May-04
Turkey - Poland	01-May-00	01-May-04
Turkey - Slovenia	01-Jun-00	01-May-04
Ukraine - Russian Federation	21-Feb-94	20-Sep-12

Table A3: List of Free Trade Agreements

Variables	Obs	Mean	Std. dev.	Min	Max
TOTAL_CLTRL_TRADE	173,068	1701.368	38483.39	0	6248968
NON_CLTRL_TRADE	169,021	283986.4	3872050	0	4.23e+08
CLTRL_HRTG_TRADE	123,639	136.7682	4975.148	0	765156
PRINT_TRADE	164,002	723.867	15860.05	0	2156751
VISUAL_ARTS_TRADE	151,979	634.9791	17473.37	0	2097322
MUSIC_TRADE	125,680	97.31619	2078.008	0	200699.2
AUDIO_TRADE	125,714	398.4654	16938.02	0	3559529
lnDIST	226,248	8.823866	0.7789334	2.349373	9.898699
COMLANG	226,248	0.1755154	0.3804081	0	1
COL45	226,248	0.0063293	0.0793051	0	1
CONTIG	239,156	0.0126361	0.1116982	0	1
COMRELIG	182,596	0.1680336	0.2425914	0	0.997002
FTA	239,156	0.1065413	0.3085299	0	1
CU	239,156	0.0346134	0.1827989	0	1
IPR	228,338	0.0461465	0.2098028	0	1
AV	228,338	0.011737	0.1077	0	1
CC	228,338	0.0178595	0.1324409	0	1
MEM_WTO_O	239,156	0.6809405	0.4661131	0	1
MEM_WTO_D	239,156	0.6809405	0.4661131	0	1
WTO_MEM	239,156	0.4642911	0.4987243	0	1
THREAT_ANY	141,920	0.0015854	0.0397856	0	1
THREAT_ECON	141,920	0.0008315	0.0288231	0	1
IMPOSED_ANY	141,920	0.0019659	0.044295	0	1
IMPOSED_ECON	141,920	0.0015149	0.0388928	0	1
THREAT_IMPOSED_ANY	141,920	0.0012965	0.0359838	0	1
THREAT_IMPOSED_ECON	141,920	0.0007399	0.0271903	0	1
ANY_SANCT	245,310	0.072142	0.2587233	0	1
TRAVL_SANCT	245,310	0.0377892	0.1906865	0	1
TRADE_SANCT	245,310	0.0167545	0.1283498	0	1
MLTRY_SANCT	245,310	0.0378748	0.1908939	0	1
FINCE_SANCT	245,310	0.0430642	0.2030021	0	1
ARMS_SANCT	245,310	0.0560153	0.2299517	0	1
OTHER_SANCT	245,310	0.0156171	0.123989	0	1
EXP_IMP_SANCT	245,310	0.0091681	0.0953103	0	1
EXP_SANCT	245,310	0.0036933	0.0606605	0	1
IMP_SANCT	245,310	0.0038931	0.062273	0	1
COMPL_SANCT	245,310	0.0016265	0.0402975	0	1
PART_SANCT	245,310	0.0151279	0.122062	0	1
COMPL_EXP_IMP_SANCT	245,310	0.0016225	0.040247	0	1
COMPL_IMP_SANCT	245,310	4.08e-06	0.002019	0	1
PART_EXP_IMP_SANCT	245,310	0.0075456	0.0865373	0	1
PART_EXP_SANCT	245,310	0.0036933	0.0606605	0	1
PART_IMP_SANCT	245,310	0.003889	0.0622405	0	1

Table A4: Descriptive statistics of the dependent and independent variables

	IPR	AV	CC
IPR	1		
AV	0.4935	1	
CC	0.5727	0.8002	1

Table A5: Correlation matrix of culture-specific provisions

Sanctioned_state	Sanctioning_state	Begin	End	Trade	Arms	Mltry	Fince	Trvl	Other
Afghanistan	EU +[77]	2002	2019	0	1	1	1	1	1
Afghanistan	EU +	1996	2001	0	1	1	0	0	0
Afghanistan	EU +	1999	2001	0	0	0	1	0	1
Afghanistan	EU +	2011	2019	0	1	1	1	1	0
Afghanistan	UN	1996	2000	0	1	0	0	0	0
Afghanistan	UN	1999	2002	0	0	0	1	0	1
Afghanistan	UN	2002	2019	0	1	1	1	1	1
Afghanistan	United States	1996	2002	0	1	0	0	0	0
Afghanistan	United States	1999	2002	1	0	0	1	0	1
Afghanistan	United States	2011	2019	0	1	1	0	0	0
Albania +	Russia	2015	2019	1	0	0	0	0	0
Algeria	United States	1992	2002	0	1	1	0	0	0
Angola	UN	1993	2002	1	1	1	0	0	0
Angola	UN	1997	2002	1	0	0	0	1	1
Angola	UN	1998	2002	1	0	0	1	0	0
Angola	United States	1993	2003	1	1	0	1	0	0
Argentina	Iran	2003	2007	1	0	0	0	0	0
Armenia	Azerbaijan	1989	2019	1	0	0	0	1	1
Armenia	Turkey	1993	2019	1	0	0	0	1	1
Australia	Russia	2014	2019	1	0	0	0	0	0
Azerbaijan	CSCE	1992	2019	0	1	0	0	0	0
Azerbaijan	United States	1992	2002	0	0	1	1	0	0
Belarus	Canada	2006	2016	1	0	0	0	0	0
Belarus	EU +	1998	1999	0	0	0	0	1	0
Belarus	EU +	2006	2011	0	0	0	1	1	0
Belarus	EU +	2011	2016	1	1	1	1	1	0
Belarus	Switzerland	2006	2016	0	0	0	1	1	0
Belarus	United States	1998	1999	0	0	0	0	0	1
Belarus	United States	2004	2006	0	0	0	1	0	0
Belarus	United States	2006	2019	1	0	0	1	1	0
Belize	EU	2001	2004	1	0	0	0	0	0
Belize	United States	1997	2004	1	0	0	0	0	0
Belize	United States	2012	2019	1	0	0	1	0	0
Belize	United States	2018	2019	0	0	0	1	0	0
Benin	EU	2009	2017	0	0	0	0	0	1

[77] "+" indicates that there are additional sanctioning countries besides the EU. I refer the reader to the GSDB dataset for the full list of sanctioning countries.

Benin	United States	2003	2005	0	0	1	0	0	0
Bosnia and Herzegovina	EU +	2011	2019	0	0	0	1	1	0
Bulgaria	EU	2008	2019	0	0	0	1	0	0
Burkina Faso	United States	2018	2019	0	0	0	1	0	0
Burundi	Belgium	1996	2005	0	0	1	0	0	0
Burundi	Belgium	2015	2019	0	0	0	1	0	0
Burundi	Congo +	1996	1999	1	1	0	0	0	0
Burundi	EU	1996	1999	0	0	0	1	0	0
Burundi	EU	1997	2001	0	0	0	1	0	0
Burundi	EU	2015	2019	0	0	0	1	1	0
Burundi	EU	2016	2019	0	0	0	1	0	0
Burundi	France	1996	2005	0	0	1	0	0	0
Burundi	African Unity	1996	1999	1	0	0	1	0	0
Burundi	United States	1995	1999	0	0	0	1	0	0
Burundi	United States	1996	1999	0	0	0	1	0	0
Burundi	United States	2015	2019	0	0	0	1	1	0
Burundi	United States	2016	2019	1	0	0	1	0	0
Cambodia	Australia	2018	2019	0	0	0	1	0	0
Cambodia	EU	1997	1999	0	0	0	1	0	0
Cambodia	Japan	1968	1999	0	0	0	1	0	0
Cambodia	United States	1997	2007	0	0	0	1	0	0
Cambodia	United States	2017	2019	0	0	0	0	1	0
Cambodia	United States	2018	2019	0	0	1	1	0	0
Cambodia	United States	2019	2019	0	0	0	1	1	0
Cameroon	United States	2019	2019	0	0	0	1	0	0
Canada	China	2003	2016	1	0	0	0	0	0
Canada	Japan	2003	2006	1	0	0	0	0	0
Canada	Korea, South	2015	2016	1	0	0	0	0	0
Canada	Mexico	2003	2016	1	0	0	0	0	0
Canada	Russia	2014	2019	0	0	0	0	1	0
Canada	United States	2003	2005	1	0	0	0	0	0
Central African Rep.	African Union	2003	2005	0	0	0	0	0	1
Central African Rep.	African Union	2013	2016	0	0	0	1	1	1
Central African Rep.	EU	2003	2005	0	0	0	1	0	0
Central African Rep.	EU	2013	2019	0	1	1	0	0	0
Central African Rep.	Kimberly Part.	2013	2016	1	0	0	0	0	0
Central African Rep.	UN	2013	2019	0	1	1	0	0	0
Central African Rep.	UN	2014	2019	0	0	0	1	1	0
Central African Rep.	United States	2002	2005	0	0	0	0	0	1
Central African Rep.	United States	2003	2005	0	0	0	1	0	0
Central African Rep.	United States	2012	2014	0	0	0	0	0	1
Central African Rep.	United States	2014	2019	0	0	0	1	1	0
China	EU	1992	2019	0	1	1	0	0	0
China	United States	1989	2019	0	1	1	0	0	0
China	United States	2017	2019	1	0	0	1	0	0

China	United States	2019	2019	1	0	0	0	1	0
Colombia	EU	2002	2016	0	0	0	1	0	0
Colombia	United States	2011	2014	1	0	0	1	0	0
Colombia	United States	2014	2018	1	0	0	1	0	0
Colombia	United States	2018	2019	0	0	0	1	0	0
Congo (Brazzaville)	EU	1997	2001	0	0	0	1	0	0
Congo, Dem. Rep.	EU	1997	2003	0	1	0	0	0	0
Congo, Dem. Rep.	EU	2003	2005	0	1	1	0	1	0
Congo, Dem. Rep.	EU	2005	2019	0	1	1	1	1	0
Congo, Dem. Rep.	UN	2003	2019	0	1	1	0	0	0
Congo, Dem. Rep.	UN	2005	2019	0	0	0	1	1	0
Congo, Dem. Rep.	United States	2006	2019	1	0	0	1	0	0
Congo, Dem. Rep.	United States	2012	2019	0	0	0	1	1	0
Congo, Dem. Rep.	United States	2016	2019	0	0	0	1	0	0
Costa Rica	United States	2001	2006	0	0	1	0	0	0
Costa Rica	United States	2003	2016	0	0	1	0	0	0
Cote d'Ivoire	Canada	2005	2017	0	1	1	1	1	0
Cote d'Ivoire	EU	1998	2002	0	0	0	1	0	0
Cote d'Ivoire	EU +	2005	2016	1	1	0	1	1	0
Cote d'Ivoire	EU +	2011	2016	0	0	0	1	1	0
Cote d'Ivoire	UN	2004	2016	0	1	1	1	1	0
Cote d'Ivoire	UN	2005	2014	1	0	0	0	0	0
Cote d'Ivoire	United States	2006	2017	0	0	0	1	0	0
Croatia	United States	2003	2006	0	0	1	0	0	0
Croatia	United States	2003	2008	0	0	1	0	0	0
Cuba	Org. Amer. St.	1962	2015	0	0	0	0	0	1
Cuba	United States	1958	2019	0	1	0	0	0	0
Cuba	United States	1961	2015	0	0	0	1	1	0
Cuba	United States	1962	2015	0	0	0	1	0	0
Cuba	United States	1962	2019	1	0	0	0	0	0
Cuba	United States	1982	2015	0	0	0	1	1	0
Cuba	United States	1992	2019	0	0	0	1	1	0
Cuba	United States	1996	2019	0	0	0	1	1	0
Cyprus	Turkey	1987	2019	0	0	0	0	0	1
Cyprus	United States	1987	2018	0	1	0	0	0	0
Dominica	United States	2003	2004	0	0	1	0	0	0
Dominican Republic	United States	2011	2019	1	0	0	1	0	0
ECOWAS	ECOWAS	1998	2019	0	1	0	0	0	0
EU	Canada	1996	2015	1	0	0	0	0	0
EU	Russia	2014	2019	1	0	0	0	0	0
Ecuador	United States	2013	2014	0	0	0	1	0	0
Egypt, Arab Rep.	African Union	2013	2014	0	0	0	0	0	1
Egypt, Arab Rep.	Canada	2011	2016	0	0	0	1	0	0
Egypt, Arab Rep.	EU	2013	2019	1	1	0	0	0	0
Egypt, Arab Rep.	EU +	2013	2019	0	1	0	0	0	0

Egypt, Arab Rep.	EU +	2011	2019	0	0	0	1	0	0
Egypt, Arab Rep.	Switzerland	2011	2019	0	0	0	1	0	0
Egypt, Arab Rep.	United States	2013	2015	0	1	1	1	0	0
Egypt, Arab Rep.	United States	2017	2018	0	0	1	0	0	0
Equatorial Guinea	EU	1993	2000	0	0	0	1	0	0
Ethiopia (excl. Eritrea)	EU	1999	2001	0	1	0	0	0	0
Fiji	Australia	2006	2014	0	0	1	0	1	0
Fiji	Australia	2011	2014	0	1	0	0	0	0
Fiji	Australia +	2009	2012	0	0	0	0	1	1
Fiji	Commonwealth	2006	2014	0	0	0	0	0	1
Fiji	EU	2007	2015	1	0	0	1	0	0
Fiji	New Zealand	2006	2014	0	0	1	1	1	0
Fiji	Pac. Islands For.	2009	2014	0	0	0	0	0	1
Fiji	United States	2000	2014	0	1	1	1	1	1
Fiji	United States	2006	2014	0	0	0	1	0	0
Fiji	United States	2006	2014	0	0	1	0	0	0
France	United States	1998	2017	1	0	0	0	0	0
Gambia	EU	2014	2017	0	0	0	1	0	0
Gambia	United States	1994	2002	0	0	1	1	0	0
Gambia	United States	2017	2019	0	0	0	1	0	0
Georgia	Russia	2006	2011	1	0	0	0	1	1
Georgia	Russia	2006	2013	1	0	0	0	0	0
Georgia	Russia	2006	2013	1	0	0	0	0	0
Georgia	Russia	2009	2011	1	1	0	0	0	0
Ghana	United States	2018	2019	1	0	0	1	0	0
Ghana	United States	2019	2019	0	0	0	0	1	0
Greece	United States	2013	2019	1	0	0	1	0	0
Guatemala	United States	1990	2005	0	0	1	0	0	1
Guatemala	United States	2011	2019	0	0	0	1	0	0
Guinea	African Union	2009	2010	0	0	0	1	1	1
Guinea	ECOWAS	2009	2011	0	1	0	0	0	1
Guinea	EU	2002	2006	0	0	0	1	0	0
Guinea	EU	2008	2013	0	0	0	1	0	0
Guinea	EU +	2009	2014	1	1	1	1	1	0
Guinea	EU +	2014	2019	0	0	0	1	1	0
Guinea	Switzerland	2009	2010	0	1	0	0	1	0
Guinea	Switzerland	2010	2014	1	1	1	1	1	0
Guinea	Switzerland	2014	2019	0	0	0	1	1	0
Guinea	United States	2003	2004	0	0	1	0	0	0
Guinea	United States	2009	2010	0	0	0	1	0	0
Guinea	United States	2009	2011	0	0	0	1	1	0
Guinea	United States	2017	2019	0	0	0	0	1	0
Guinea-Bissau	African Union	2012	2014	0	0	0	0	0	1
Guinea-Bissau	ECOWAS	2012	2019	0	0	0	1	1	1
Guinea-Bissau	ECOWAS	2018	2019	0	0	0	1	1	0

Guinea-Bissau	EU	2012	2014	0	0	0	1	1	0
Guinea-Bissau	Switzerland	2012	2019	0	0	0	1	1	0
Guinea-Bissau	UN	2012	2019	0	0	0	0	1	0
Guinea-Bissau	United States	2003	2004	0	0	1	0	0	0
Guinea-Bissau	United States	2012	2014	0	0	0	1	0	0
Haiti	EU	2001	2005	0	0	0	1	0	0
Haiti	United States	1994	2019	0	1	1	0	0	0
Haiti	United States	2001	2004	0	0	0	1	0	0
Honduras	EU	2009	2009	0	0	0	1	0	1
Honduras	Org. Amer. St.	2009	2011	0	0	0	0	0	1
Honduras	United States	2009	2009	0	0	1	1	1	0
Honduras	United States	2019	2019	0	0	0	0	1	0
Honduras	Venezuela	2009	2009	1	0	0	0	0	0
India	Australia	1998	2001	0	0	1	1	0	0
India	Canada	1974	2008	1	0	0	1	0	0
India	Canada	1998	2001	0	1	0	0	0	0
India	Denmark +	1998	2001	0	0	0	1	0	0
India	G8	1998	1999	0	0	0	1	0	0
India	Japan	1998	2001	0	0	0	1	0	0
India	United States	1974	2008	1	0	1	1	0	0
India	United States	1998	2001	1	1	1	1	0	0
Indonesia	Australia	2018	2019	0	0	0	1	0	0
Indonesia	EU	1999	2000	1	1	1	0	0	0
Indonesia	United States	1999	2005	0	1	1	0	0	0
Indonesia	United States	1999	2010	0	0	1	0	0	0
Indonesia	United States	2011	2019	1	0	0	1	0	0
Iran	Australia	2008	2016	1	1	1	1	1	0
Iran	Canada	2010	2016	1	1	0	1	0	0
Iran	Canada	2011	2016	1	0	0	0	0	0
Iran	Canada	2012	2016	0	0	0	0	0	1
Iran	Canada	2012	2016	1	0	0	1	0	0
Iran	Canada	2013	2016	1	0	0	1	0	0
Iran	Canada	2016	2019	1	0	0	1	0	0
Iran	EU	2007	2016	0	1	0	0	0	0
Iran	EU	2012	2016	1	0	0	0	0	0
Iran	EU +	2012	2016	1	0	0	1	0	0
Iran	EU +	2011	2016	0	0	0	1	1	0
Iran	Japan	2006	2016	1	0	0	0	0	0
Iran	Korea, South	2018	2019	1	0	0	0	0	0
Iran	Switzerland	2011	2016	1	0	0	1	1	0
Iran	UN	2006	2016	1	0	0	1	1	0
Iran	UN	2007	2016	0	1	0	0	0	0
Iran	UN	2008	2016	0	0	0	0	1	0
Iran	UN	2010	2016	1	1	1	1	0	0
Iran	United States	1984	2016	1	1	0	1	0	0

Iran	United States	1995	2016	1	0	0	0	0	0
Iran	United States	1996	2019	1	0	0	0	0	0
Iran	United States	2017	2019	0	0	0	0	1	0
Iran	United States	2019	2019	0	0	0	1	0	0
Iraq	EU	1990	2003	1	1	1	1	0	0
Iraq	EU	2003	2004	0	1	0	0	0	0
Iraq	EU	2004	2019	0	1	0	0	0	0
Iraq	UN	1990	2003	1	1	1	1	0	1
Iraq	UN	1991	2003	1	1	1	1	0	1
Iraq	UN	2003	2004	0	1	0	1	0	0
Iraq	UN	2004	2010	0	1	0	1	0	0
Iraq	UN	2010	2019	0	1	0	0	0	0
Iraq	United States	1990	2003	0	0	0	1	0	0
Iraq	United States	1997	2009	0	0	0	0	1	0
Iraq	United States	2019	2019	1	0	0	1	0	0
Ireland	United States	1998	2014	1	0	0	0	0	0
Israel	Lea. of Arab States	1950	2019	1	0	0	0	0	0
Israel	Spain +	2014	2019	1	1	0	0	0	0
Italy	Turkey	1998	1999	1	0	0	0	0	0
Jamaica	United States	2011	2019	1	0	0	1	0	0
Kenya	Norway	1990	2002	0	0	0	1	0	0
Kenya	UN	2012	2019	0	1	1	1	1	0
Korea, North	Australia	2006	2019	1	1	1	1	1	1
Korea, North	Burkina Faso	2017	2019	1	0	0	0	0	0
Korea, North	Canada	2011	2019	1	0	0	1	0	1
Korea, North	EU	2006	2019	1	1	1	1	1	0
Korea, North	Japan	2006	2019	1	0	0	1	0	1
Korea, North	Korea, South	2010	2019	1	0	0	0	1	1
Korea, North	UN	1951	2019	0	1	0	0	0	0
Korea, North	UN	2006	2019	1	1	1	1	1	1
Korea, North	UN	2013	2019	0	0	0	1	0	0
Korea, North	United States	1955	2008	1	0	0	1	0	0
Korea, North	United States	2002	2006	1	0	0	0	0	0
Korea, North	United States	2008	2019	0	0	0	1	0	0
Korea, North	United States	2008	2019	1	0	0	0	0	0
Korea, North	United States	2011	2019	1	0	0	0	0	0
Korea, North	United States	2017	2019	0	0	0	0	1	0
Kyrgyzstan	Uzbekistan	1999	2000	1	0	0	0	0	0
Kyrgyzstan	Uzbekistan	2013	2014	1	0	0	0	0	0
Kyrgyzstan	Uzbekistan	2014	2014	1	0	0	0	0	0
Laos	United States	2018	2019	0	0	0	0	1	0
League of Arab States	United States	1976	2019	0	0	0	1	0	0
Lebanon	EU	2006	2019	0	1	1	1	0	0
Lebanon	Libya	2003	2012	0	0	0	0	0	1
Lebanon	UN	2006	2019	0	1	1	0	0	0

Lebanon	United States	2007	2019	0	0	0	1	0	0
Lebanon	United States	2018	2019	1	0	0	1	0	0
Lesotho	United States	2003	2006	0	0	1	0	0	0
Liberia	EU	2001	2016	1	1	1	0	1	0
Liberia	UN	1992	2001	0	1	0	0	0	0
Liberia	UN	2001	2007	1	0	0	0	0	0
Liberia	UN	2003	2006	1	0	0	0	0	0
Liberia	UN	2003	2015	0	1	1	0	1	0
Liberia	UN	2004	2015	0	0	0	1	0	0
Liberia	UN	2015	2016	0	1	1	0	0	0
Liberia	United States	2004	2015	1	0	0	1	0	0
Libya	Australia	2011	2019	0	1	1	1	1	0
Libya	Canada	2011	2019	1	1	1	1	0	0
Libya	EU	1992	2004	0	1	0	0	1	0
Libya	EU +	2011	2019	1	0	0	1	1	0
Libya	Switzerland	2011	2019	1	0	0	1	1	0
Libya	UN	1992	2003	1	1	1	0	1	1
Libya	UN	1993	2003	1	0	0	1	0	0
Libya	UN	2011	2019	0	1	1	1	1	1
Libya	United Kingdom	1984	1999	0	0	0	0	0	1
Libya	United States	1978	2004	1	1	0	0	0	0
Libya	United States	1981	2004	1	0	0	0	1	0
Libya	United States	1982	2004	1	0	0	0	0	0
Libya	United States	1986	2004	1	0	0	1	0	0
Libya	United States	1996	2019	1	0	0	0	0	0
Libya	United States	2011	2019	0	0	0	1	0	1
Libya	United States	2016	2019	0	0	0	0	1	0
Libya	United States	2017	2019	0	0	0	0	1	0
Lithuania	Russia	2013	2014	1	0	0	0	0	0
Malawi	Japan	2018	2019	0	0	0	1	0	0
Malawi	United Kingdom	2014	2019	0	0	0	1	0	0
Mali	UN	2017	2019	0	0	0	1	1	0
Mali	United States	2019	2019	0	0	0	1	1	0
Mauritania	African Union	2008	2009	0	0	0	0	0	1
Mauritania	African Union	2009	2009	0	0	0	1	1	0
Mauritania	EU	2009	2009	0	0	0	1	0	0
Mauritania	United States	2008	2009	0	0	0	1	1	0
Moldova	EU +	2003	2019	0	0	0	0	1	0
Moldova	Russia	2013	2019	1	0	0	0	0	0
Moldova	United States	2012	2019	1	0	0	1	0	0
Myanmar	Australia	1991	2018	0	1	0	1	1	0
Myanmar	Australia	2012	2019	0	1	1	1	0	0
Myanmar	Canada	2007	2012	1	1	0	1	0	1
Myanmar	Canada	2012	2019	0	1	1	1	0	0
Myanmar	EU +	1996	2000	0	1	0	1	1	0

Myanmar	EU +	2003	2010	1	1	1	1	1	0
Myanmar	EU +	2013	2019	1	1	1	0	0	0
Myanmar	Germany	1989	2013	0	0	0	1	0	0
Myanmar	Switzerland	2000	2006	1	1	1	0	1	0
Myanmar	Switzerland	2006	2012	1	1	1	1	1	0
Myanmar	Switzerland	2012	2019	0	1	1	0	0	0
Myanmar	United States	1988	2016	0	1	0	1	0	0
Myanmar	United States	1989	2016	1	0	0	0	0	0
Myanmar	United States	1990	2016	1	0	0	0	0	0
Myanmar	United States	1997	2016	0	0	0	1	1	0
Myanmar	United States	2003	2016	1	0	0	1	0	0
Myanmar	United States	2007	2016	1	0	0	1	0	0
Myanmar	United States	2008	2016	1	0	0	0	0	0
Myanmar	United States	2018	2019	0	0	0	0	1	0
Myanmar	United States	2019	2019	0	0	0	1	0	0
Niger	ECOWAS	2009	2011	0	0	0	1	0	1
Niger	EU	2009	2011	0	0	0	1	0	0
Niger	France	1999	2000	0	0	0	1	0	0
Niger	United States	1996	2000	0	0	1	1	0	0
Niger	United States	2009	2011	0	0	0	1	1	0
Nigeria	Canada	1993	1999	0	0	1	0	0	0
Nigeria	Commonwealth	1995	1999	0	0	0	0	0	1
Nigeria	Commonwealth	1996	1999	0	1	0	1	1	0
Nigeria	EU	1993	1999	0	0	1	0	0	0
Nigeria	EU	1995	1999	0	1	0	1	0	0
Nigeria	UN	2014	2019	0	1	0	1	0	0
Nigeria	United Kingdom	1993	1999	0	0	1	1	1	0
Nigeria	United States	1993	1999	0	1	1	1	0	1
Nigeria	United States	1994	1999	0	0	0	1	0	0
Nigeria	United States	2003	2019	0	0	1	0	0	0
Nigeria	United States	2013	2019	1	0	0	1	0	0
Nigeria	United States	2019	2019	0	0	0	0	1	0
Norway	China	2010	2017	0	0	0	0	0	1
Norway	China	2010	2018	1	0	0	0	1	0
Norway	Russia	2014	2019	1	0	0	0	0	0
Pakistan	Australia	1998	2001	0	0	1	1	0	0
Pakistan	Canada, Germany	1998	2001	0	1	0	1	0	0
Pakistan	Commonwealth	1999	2004	0	0	0	0	0	1
Pakistan	G8	1998	1999	0	0	0	1	0	0
Pakistan	Japan	1998	2001	0	0	0	1	0	0
Pakistan	Netherlands	1998	2008	0	1	0	1	0	0
Pakistan	South Africa	1999	2001	0	1	0	0	0	0
Pakistan	United Kingdom	1999	2000	0	1	0	1	0	0
Pakistan	United States	1990	2001	0	1	1	1	0	0
Pakistan	United States	1998	2001	0	1	1	1	0	0

Pakistan	United States	1999	2001	0	0	0	1	0	0
Pakistan	United States	2018	2019	0	0	1	0	0	0
Pakistan	United States	2019	2019	0	0	0	0	1	0
Palestine	United States	2012	2016	1	0	0	1	0	0
Philippines	EU	2002	2019	0	0	0	1	0	0
Philippines	United States	2002	2019	0	0	0	1	0	0
Qatar	Maldives	2017	2019	0	0	0	0	0	1
Qatar	Mauritania +	2017	2019	0	0	0	0	0	1
Qatar	Saudi Arabia +	2017	2019	0	0	0	0	1	1
Russia	Australia	2014	2019	1	1	1	1	1	0
Russia	Canada	2014	2019	1	0	0	1	0	0
Russia	EU	2014	2019	1	1	1	1	0	0
Russia	EU +	2014	2019	0	0	0	1	1	0
Russia	EU +	2014	2019	1	0	0	0	0	0
Russia	Georgia	2008	2011	0	0	0	0	0	1
Russia	Japan	2014	2019	1	0	1	1	1	0
Russia	New Zealand	2014	2019	0	0	0	1	1	1
Russia	Switzerland	2014	2019	0	1	1	1	0	0
Russia	Switzerland	2014	2019	1	1	0	1	0	0
Russia	United States	2014	2019	1	0	0	1	1	0
Rwanda	EU	1994	2000	0	0	0	1	0	0
Rwanda	UN	1996	2008	0	1	1	0	0	0
Saudi Arabia	United States +	2018	2019	1	0	0	1	1	0
Sierra Leone	ECOWAS	1997	2003	1	0	0	1	1	0
Sierra Leone	EU	1998	2010	0	1	0	0	1	0
Sierra Leone	UN	1997	2010	0	1	0	0	1	0
Sierra Leone	United States	2017	2019	0	0	0	0	1	0
Sierra Leone	United States	2018	2019	1	0	0	1	0	0
Somalia	EU +	2002	2009	0	1	0	0	0	0
Somalia	EU +	2009	2019	0	1	1	1	1	0
Somalia	EU +	2012	2019	1	0	0	0	0	0
Somalia	Switzerland	2009	2019	1	1	1	1	1	0
Somalia	Switzerland	2013	2019	1	0	0	0	0	0
Somalia	UN	1992	2019	0	1	0	0	0	0
Somalia	UN	2008	2019	0	1	1	1	1	0
Somalia	UN	2012	2019	1	0	0	0	0	0
Somalia	United States	2010	2019	1	0	0	1	0	0
Somalia	United States	2012	2019	1	0	0	0	0	0
Somalia	United States	2017	2019	0	0	0	0	1	0
South Africa	United States	2019	2019	0	0	0	1	0	0
South Sudan	Canada	2014	2019	0	0	0	1	0	0
South Sudan	EU	2014	2019	0	0	0	1	1	0
South Sudan	EU +	2011	2019	0	1	1	1	1	0
South Sudan	United States	2014	2019	0	0	0	1	1	0
South Sudan	United States	2018	2019	0	1	0	0	0	0

South Vietnam	United States	2007	2016	0	1	0	0	0	0
Sudan	EU	1990	2005	0	0	0	1	0	0
Sudan	EU	2004	2005	0	1	1	0	0	0
Sudan	EU +	1994	2004	0	1	0	0	0	0
Sudan	EU +	2005	2019	0	1	1	1	1	0
Sudan	UN	1996	2001	0	0	0	0	1	1
Sudan	UN	2004	2019	0	1	1	0	0	0
Sudan	UN	2005	2019	0	0	0	1	1	0
Sudan	UN	2010	2019	0	0	1	0	0	0
Sudan	United States	1989	2019	0	0	0	1	0	0
Sudan	United States	1991	2019	0	0	1	1	0	0
Sudan	United States	1992	2019	0	1	0	0	0	0
Sudan	United States	1993	2019	0	0	0	1	0	0
Sudan	United States	1997	2019	1	0	0	1	0	0
Sudan	United States	2006	2017	1	0	0	1	1	0
Sudan	United States	2006	2019	1	0	0	1	0	0
Suriname	Netherlands	1998	2000	0	0	0	1	0	0
Syria	Australia	2011	2019	1	1	1	1	1	0
Syria	Canada	2011	2019	1	0	0	1	0	0
Syria	Canada	2012	2019	1	0	0	1	1	0
Syria	Canada	2013	2019	1	0	0	0	0	0
Syria	EU +	2013	2019	1	1	0	1	0	0
Syria	Lea. of Arab States	2011	2019	1	1	0	1	1	1
Syria	OIC	2012	2019	0	0	0	0	0	1
Syria	Switzerland	2012	2019	1	1	1	1	1	1
Syria	United States	2004	2019	1	0	0	1	0	1
Syria	United States	2006	2019	0	0	0	1	0	0
Syria	United States	2011	2019	1	0	0	1	0	0
Syria	United States	2017	2019	0	0	0	0	1	0
Syria +	United States	2019	2019	0	0	0	1	1	0
Tajikistan	Uzbekistan	2009	2009	1	0	0	0	0	0
Tanzania	EU +	2014	2015	0	0	0	1	0	0
Tanzania	Denmark	2018	2019	0	0	0	1	0	0
Tanzania	EU	2018	2019	0	0	0	1	0	1
Thailand	EU	2014	2017	0	0	0	0	0	1
Thailand +	Cambodia	2004	2007	1	0	0	0	0	0
Togo	EU	1993	2007	0	0	0	1	0	0
Togo	France	1993	2008	0	0	0	1	0	0
Togo	Germany	1993	2011	0	0	0	1	0	0
Togo	United States	1992	2019	0	0	1	1	0	0
Tunisia	Canada	2011	2019	0	0	0	1	0	0
Tunisia	EU +	2011	2019	0	0	0	1	0	0
Tunisia	Switzerland	2011	2019	0	0	0	1	0	0
Turkey	EU	2019	2019	0	0	0	1	0	0
Turkey	Greece	1986	1999	0	0	0	1	0	0

Uganda	Sweden	2014	2014	0	0	0	1	0	0
Ukraine	Australia	2014	2019	0	0	0	1	1	0
Ukraine	Canada	2014	2019	1	0	0	1	1	1
Ukraine	EU +	2014	2014	1	0	0	1	1	0
Ukraine	EU +	2014	2019	1	0	0	1	1	1
Ukraine	Japan	2014	2019	1	1	1	1	1	0
Ukraine	Russia	2009	2009	1	0	0	0	0	0
Ukraine	Russia	2014	2014	1	0	0	0	0	0
Ukraine	Switzerland	2014	2014	0	0	0	1	0	0
Ukraine	Switzerland	2014	2019	1	1	0	1	0	0
Ukraine	United States	2014	2019	1	0	0	1	1	0
United States	Brazil	2003	2016	1	0	0	0	0	0
United States	Canada	2003	2006	1	0	0	0	0	0
United States	Japan	2003	2013	1	0	0	0	0	0
United States	Russia	2014	2019	1	0	0	0	0	0
Uzbekistan	EU	2005	2009	1	1	1	0	1	0
Uzbekistan	Switzerland	2006	2009	1	1	1	0	1	0
Uzbekistan	United States	2003	2012	0	0	1	0	0	0
Venezuela	Canada	2017	2019	0	0	0	1	1	0
Venezuela	EU +	2017	2019	1	1	1	1	1	0
Venezuela	Peru	2017	2019	0	0	0	0	0	1
Venezuela	Switzerland	2018	2019	1	1	0	1	1	0
Venezuela	United States	2006	2019	0	1	0	0	0	0
Venezuela	United States	2015	2019	1	0	0	1	1	0
Venezuela	United States	2017	2019	0	0	0	0	1	0
Venezuela	United States	2017	2019	0	0	0	1	0	0
Venezuela	United States	2019	2019	0	0	0	1	0	1
Yemen, North	EU	2015	2019	0	1	1	1	1	0
Yemen, North	UN	2014	2019	0	0	0	1	1	0
Yemen, North	UN	2015	2019	0	1	1	0	0	0
Yemen, North	United States	2012	2019	0	0	0	1	0	0
Yemen, North	United States	2017	2019	0	0	0	0	1	0
Zimbabwe	Australia	2002	2019	0	1	1	1	1	0
Zimbabwe	Canada	2008	2019	0	1	1	1	0	1
Zimbabwe	EU +	2002	2019	1	1	1	1	1	0
Zimbabwe	Switzerland	2002	2019	1	1	1	1	1	0
Zimbabwe	United Kingdom	2002	2009	0	0	0	1	0	0
Zimbabwe	United Kingdom	2002	2019	1	0	1	0	0	0
Zimbabwe	United States	2003	2019	0	0	0	1	0	0

Table A6: List of sanctions

	Trade	Financial	Arms	Military	Travel	Other
Trade	1					
Financial	0.5285	1				
Arms	0.4498	0.6799	1			
Military	0.483	0.6702	0.8082	1		
Travel	0.4956	0.7863	0.6551	0.6839	1	
Other	0.3248	0.4247	0.3378	0.3648	0.4161	1

Table A7: Correlation matrix of different forms of sanctions

	Threat_Any	Threat_Econ	Imposed_Any	Imposed_Econ
Threat_Any	1			
Threat_Econ	0.7239	1		
Imposed_Any	0.7339	0.5672	1	
Imposed_Econ	0.595	0.6589	0.8613	1

Table A8: Correlation matrix of threatened and imposed sanctions

APPENDIX B

Tables B1–B5 report a series of gravity estimates for each sub-grouping of cultural goods. All estimates are derived using data from the years 1999, 2004, 2009, 2014, and 2019. The OLS estimator is used across all tables in columns 1–3. While the first columns ignore the MRTs, the second columns employ remoteness indices, and the third columns employ directional time-varying fixed effects to account for the MRTs. Finally, columns 4 and 5 in each table employ the PPML estimator. While the fourth columns use the remoteness indices approach to account for the MRTs, the fifth columns augment the gravity equation with directional time-varying fixed effects. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) OLS	(2) OLS, RMTNS	(3) OLS, FEs	(4) PPML, RMTNS
lnDIST	-0.191***	-0.192***	-0.082***	0.068
	(0.023)	(0.023)	(0.013)	(0.066)
CONTIG	0.945***	0.939***	0.875***	0.290
	(0.191)	(0.191)	(0.103)	(0.225)
COMLANG	0.180***	0.180***	0.051**	0.515***
	(0.040)	(0.040)	(0.020)	(0.178)
COL45	1.025***	1.023***	-0.266	-0.139
	(0.197)	(0.197)	(0.188)	(0.200)
COMRELIG	-0.005	0.001	-0.013	0.533*
	(0.050)	(0.049)	(0.023)	(0.294)
lnOUTPUT	0.225***	0.226***		0.949***
	(0.005)	(0.005)		(0.021)
lnEXPEND	0.212***	0.212***		0.949***
	(0.004)	(0.004)		(0.018)
lnREM_EXP		0.001		-0.069***
		(0.004)		(0.016)
lnREM_IMP		0.025***		0.017
		(0.003)		(0.016)
Constant	0.150	-0.559**	1.299***	-12.97***
	(0.213)	(0.225)	(0.114)	(0.746)
i, t FEs	No	No	Yes	No
j, t FEs	No	No	Yes	No
Observations	48,967	48,967	70,220	48,967
R-squared	0.516	0.517	0.752	0.869
Reset p-vals	0.000	0.000	0.246	0.028

Table B1: Traditional gravity estimates for the cultural heritage category

	(1) OLS	(2) OLS, RMTNS	(3) OLS, FEs	(4) PPML, RMTNS
lnDIST	-0.495***	-0.495***	-0.680***	-0.193**
	(0.018)	(0.018)	(0.017)	(0.081)
CONTIG	1.650***	1.648***	1.314***	1.240***
	(0.128)	(0.128)	(0.114)	(0.196)
COMLANG	0.567***	0.570***	0.553***	0.750***
	(0.031)	(0.031)	(0.030)	(0.171)
COL45	2.221***	2.212***	1.093***	0.797***
	(0.128)	(0.128)	(0.154)	(0.178)
COMRELIG	0.143***	0.142***	0.382***	-0.135
	(0.048)	(0.048)	(0.041)	(0.261)
lnOUTPUT	0.346***	0.347***		0.905***
	(0.003)	(0.003)		(0.035)
lnEXPEND	0.337***	0.341***		0.883***
	(0.006)	(0.006)		(0.049)
lnREM_EXP		-0.003		0.022
		(0.003)		(0.014)
lnREM_IMP		-0.039***		-0.033***
		(0.003)		(0.008)
Constant	-0.198	0.982***	7.182***	-12.63***
	(0.175)	(0.195)	(0.152)	(1.774)
i, t FEs	No	No	Yes	No
j, t FEs	No	No	Yes	No
Observations	105,455	105,455	108,121	105,455
R-squared	0.582	0.583	0.684	0.721
Reset p-vals	0.000	0.000	0.000	0.232

Table B2: Traditional gravity estimates for the printed matter category

	(1) OLS	(2) OLS, RMTNS	(3) OLS, FEs	(4) PPML, RMTNS
lnDIST	-0.361***	-0.354***	-0.318***	-0.442***
	(0.020)	(0.020)	(0.014)	(0.059)
CONTIG	1.121***	1.136***	1.082***	0.496**
	(0.156)	(0.156)	(0.117)	(0.214)
COMLANG	0.322***	0.323***	0.154***	0.495***
	(0.034)	(0.034)	(0.019)	(0.173)
COL45	1.064***	1.053***	0.336*	0.119
	(0.152)	(0.151)	(0.172)	(0.205)
COMRELIG	-0.074	-0.076	0.064***	-0.107
	(0.047)	(0.047)	(0.025)	(0.257)
lnOUTPUT	0.214***	0.214***		0.872***
	(0.003)	(0.003)		(0.032)
lnEXPEND	0.181***	0.185***		0.841***
	(0.004)	(0.004)		(0.033)
lnREM_EXP		0.007		-1.066***
		(0.009)		(0.110)
lnREM_IMP		-0.049***		1.106***
		(0.009)		(0.110)
Constant	1.859***	2.992***	3.347***	-10.60***
	(0.183)	(0.209)	(0.122)	(1.042)
i, t FEs	No	No	Yes	No
j, t FEs	No	No	Yes	No
Observations	43,572	43,572	72,102	43,572
R-squared	0.512	0.513	0.697	0.637
Reset p-vals	0.000	0.000	0.004	0.032

Table B3: Traditional gravity estimates for the music & performing arts category

	(1) OLS	(2) OLS, RMTNS	(3) OLS, FEs	(4) PPML, RMTNS
lnDIST	-0.304***	-0.306***	-0.407***	-0.001
	(0.017)	(0.017)	(0.014)	(0.063)
CONTIG	1.137***	1.135***	0.938***	0.132
	(0.120)	(0.119)	(0.089)	(0.266)
COMLANG	0.222***	0.227***	0.237***	0.448**
	(0.031)	(0.031)	(0.025)	(0.206)
COL45	1.204***	1.188***	0.350**	-0.0391
	(0.142)	(0.141)	(0.158)	(0.226)
COMRELIG	0.070*	0.064	0.157***	0.750***
	(0.042)	(0.042)	(0.034)	(0.251)
lnOUTPUT	0.310***	0.312***		0.983***
	(0.004)	(0.004)		(0.019)
lnEXPEND	0.310***	0.316***		1.001***
	(0.004)	(0.004)		(0.024)
lnREM_EXP		-0.067***		-0.222***
		(0.004)		(0.021)
lnREM_IMP		-0.041***		-0.001
		(0.002)		(0.013)
Constant	-0.872***	2.209***	4.723***	-10.53***
	(0.166)	(0.187)	(0.125)	(0.848)
i, t FEs	No	No	Yes	No
j, t Fes	No	No	Yes	No
Observations	93,104	93,104	96,963	93,104
R-squared	0.566	0.569	0.720	0.779
Reset p-vals	0.000	0.000	0.000	0.019

Table B4: Traditional gravity estimates for the visual arts category

	(1) OLS	(2) OLS, RMTNS	(3) OLS, FEs	(4) PPML, RMTNS
lnDIST	-0.341***	-0.334***	-0.318***	-0.286***
	(0.025)	(0.025)	(0.016)	(0.101)
CONTIG	1.143***	1.143***	1.110***	0.808**
	(0.177)	(0.176)	(0.134)	(0.369)
COMLANG	0.276***	0.281***	0.123***	-0.103
	(0.042)	(0.042)	(0.024)	(0.295)
COL45	0.685***	0.676***	0.115	0.907**
	(0.200)	(0.200)	(0.210)	(0.402)
COMRELIG	-0.285***	-0.284***	-0.006	-0.513
	(0.058)	(0.058)	(0.030)	(0.503)
lnOUTPUT	0.208***	0.207***		0.967***
	(0.003)	(0.003)		(0.042)
lnEXPEND	0.172***	0.174***		0.954***
	(0.004)	(0.004)		(0.066)
lnREM_EXP		0.095***		-0.211**
		(0.009)		(0.098)
lnREM_IMP		-0.053***		-0.091
		(0.007)		(0.078)
Constant	1.974***	0.747***	3.363***	-3.807**
	(0.226)	(0.252)	(0.147)	(1.719)
i, t FEs	No	No	Yes	No
j, t FEs	No	No	Yes	No
Observations	42,518	42,518	72,083	42,518
R-squared	0.531	0.532	0.670	0.741
Reset p-vals	0.000	0.000	0.011	0.000

Table B5: Traditional gravity estimates for the audio & audio-visual media category

APPENDIX C

Tables C1–C5 report the analysis of trade policy effects on bilateral trade flows of cultural heritage, music & performing arts, audio & audio-visual media, visual arts, and printed matter goods, respectively. All estimates are obtained with data for the years 1999, 2004, 2009, 2014, and 2019. The first columns in each table employ the OLS estimator, whereas columns 2–7 employ the PPML estimator. Directional time-varying fixed effects are employed in all columns. Columns 3–7 add country-pair fixed effects to address the potential endogeneity of FTAs. Column 4 introduces the lead term to test for the potential reverse causality between cultural trade and FTAs. Columns 5–7 use FTA lags to address the potential phasing-in effects of FTAs. Standard errors are clustered by country pair and reported in parentheses. Asterisks signify statistical significance levels, with (***), (**), and (*) denoting p-values less than 0.01, 0.05, and 0.1, respectively.

	(1) OLS	(2) PPML	(3) PPML	(4) PPML	(5) PPML	(6) PPML	(7) PPML
lnDIST	-0.077***	-0.088					
	(0.011)	(0.088)					
CONTIG	0.868***	0.408*					
	(0.083)	(0.219)					
COMLANG	0.047***	0.247					
	(0.017)	(0.233)					
COL45	-0.274*	0.434					
	(0.160)	(0.417)					
COMRELIG	-0.022	1.192***					
	(0.020)	(0.445)					
WTO_MEM	0.055***	-1.101	0.118	0.128	0.126	0.112	0.127
	(0.012)	(0.683)	(0.700)	(0.699)	(0.700)	(0.704)	(0.703)
CU	-0.072*	-1.329***	-0.366	-0.375	-0.392	-0.389	-0.397
	(0.042)	(0.263)	(0.611)	(0.611)	(0.614)	(0.613)	(0.613)
FTA	0.115***	0.185	0.323**	0.350**	0.311**	0.304**	0.313**
	(0.036)	(0.192)	(0.144)	(0.155)	(0.129)	(0.131)	(0.136)
FTA_LEAD4				-0.059			
				(0.118)			
FTA_LAG4					0.045	0.061	0.064
					(0.142)	(0.210)	(0.209)
FTA_LAG8						-0.025	-0.131
						(0.184)	(0.201)
FTA_LAG12							0.125
							(0.223)
Constant	1.217***	11.79***	10.30***	10.29***	10.28***	10.30***	10.28***
	(0.102)	(1.045)	(0.679)	(0.678)	(0.681)	(0.684)	(0.684)
CATEs					0.357	0.340	0.371*
					(0.205)	(0.213)	(0.222)
Observations	70,220	53,228	12,487	12,487	12,487	12,487	12,487
R-squared	0.752	0.787	0.985	0.985	0.985	0.985	0.985

Table C1: Trade policy effects on the cultural heritage category

	(1) OLS	(2) PPML	(3) PPML	(4) PPML	(5) PPML	(6) PPML	(7) PPML
lnDIST	-0.203***	-0.548***					
	(0.011)	(0.071)					
CONTIG	0.954***	0.245					
	(0.094)	(0.163)					
COMLANG	0.131***	0.815***					
	(0.017)	(0.159)					
COL45	0.390**	0.282					
	(0.152)	(0.218)					
COMRELIG	0.069***	1.111***					
	(0.022)	(0.355)					
WTO_MEM	0.089***	0.321	0.234	0.213	0.170	0.156	0.155
	(0.014)	(0.364)	(0.662)	(0.661)	(0.663)	(0.661)	(0.661)
CU	0.580***	0.366	0.171	0.173	0.207	0.216	0.227
	(0.046)	(0.223)	(0.282)	(0.280)	(0.276)	(0.274)	(0.272)
FTA	0.485***	0.744***	0.189	0.176	0.211	0.204	0.158
	(0.035)	(0.152)	(0.179)	(0.191)	(0.174)	(0.176)	(0.186)
FTA_LEAD4				0.074			
				(0.144)			
FTA_LAG4					-0.173**	-0.140*	-0.142*
					(0.084)	(0.079)	(0.079)
FTA_LAG8						-0.118	0.306
						(0.148)	(0.549)
FTA_LAG12							-0.475
							(0.551)
Constant	2.221***	11.78***	9.089***	9.074***	9.181***	9.192***	9.218***
	(0.105)	(0.704)	(0.646)	(0.641)	(0.647)	(0.646)	(0.647)
CATEs					0.038	-0.055	-0.153
					(0.188)	(0.250)	(0.259)
Observations	72,102	50,310	14,705	14,705	14,705	14,705	14,705
R-squared	0.705	0.710	0.842	0.842	0.842	0.842	0.842

Table C2: Trade policy effects on the music & performing arts category

	(1) OLS	(2) PPML	(3) PPML	(4) PPML	(5) PPML	(6) PPML	(7) PPML
lnDIST	-0.168***	-0.412**					
	(0.014)	(0.204)					
CONTIG	0.966***	0.374					
	(0.108)	(0.399)					
COMLANG	0.094***	0.019					
	(0.020)	(0.276)					
COL45	0.208	1.417**					
	(0.180)	(0.628)					
COMRELIG	0.004	0.695					
	(0.026)	(0.664)					
WTO_MEM	0.070***	1.158	0.479	0.469	0.653	0.699	0.649
	(0.014)	(0.717)	(0.749)	(0.749)	(0.727)	(0.730)	(0.726)
CU	0.751***	1.172*	1.346***	1.314***	1.229***	1.203***	1.278***
	(0.054)	(0.607)	(0.332)	(0.331)	(0.334)	(0.334)	(0.360)
FTA	0.545***	0.722***	-0.004	-0.089	-0.188	-0.127	-0.144
	(0.044)	(0.265)	(0.394)	(0.385)	(0.420)	(0.422)	(0.430)
FTA_LEAD4				0.574*			
				(0.345)			
FTA_LAG4					0.460**	0.295	0.315
					(0.186)	(0.211)	(0.208)
FTA_LAG8						0.290	0.682
						(0.199)	(0.558)
FTA_LAG12							-0.521
							(0.669)
Constant	1.924***	12.97***	10.99***	10.80***	10.76***	10.67***	10.73***
	(0.127)	(1.849)	(0.751)	(0.765)	(0.726)	(0.732)	(0.727)
CATEs					0.273	0.458	0.331
					(0.359)	(0.383)	(0.417)
Observations	72,083	51,152	14,581	14,581	14,581	14,581	14,581
R-squared	0.680	0.515	0.546	0.546	0.546	0.546	0.546

Table C3: Trade policy effects on the audio & audio-visual media category

	(1) OLS	(2) PPML	(3) PPML	(4) PPML	(5) PPML	(6) PPML	(7) PPML
lnDIST	-0.313***	-0.317***					
	(0.013)	(0.088)					
CONTIG	0.854***	0.253					
	(0.077)	(0.206)					
COMLANG	0.218***	0.432**					
	(0.022)	(0.218)					
COL45	0.381***	0.624					
	(0.134)	(0.411)					
COMRELIG	0.149***	1.439***					
	(0.031)	(0.363)					
WTO_MEM	0.132***	-0.970*	-1.515***	-1.509***	-1.470***	-1.450***	-1.473***
	(0.019)	(0.507)	(0.314)	(0.321)	(0.324)	(0.323)	(0.326)
CU	0.428***	-0.873***	-0.165	-0.140	-0.212	-0.239	-0.209
	(0.041)	(0.287)	(0.282)	(0.327)	(0.327)	(0.328)	(0.325)
FTA	0.327***	-0.068	0.218*	0.201	0.174	0.241*	0.192*
	(0.031)	(0.150)	(0.127)	(0.130)	(0.126)	(0.128)	(0.118)
FTA_LEAD4				0.048			
				(0.119)			
FTA_LAG4					0.129	-0.006	-0.016
					(0.109)	(0.094)	(0.091)
FTA_LAG8						0.195*	0.426**
						(0.114)	(0.204)
FTA_LAG12							-0.295
							(0.248)
Constant	3.761***	14.69***	12.99***	12.98***	12.94***	12.90***	12.94***
	(0.119)	(0.912)	(0.307)	(0.336)	(0.344)	(0.348)	(0.351)
CATEs					0.303**	0.429**	0.306
					(0.176)	(0.211)	(0.200)
Observations	96,963	93,375	46,868	46,868	46,868	46,868	46,868
R-squared	0.723	0.784	0.810	0.810	0.810	0.810	0.811

Table C4: Trade policy effects on the visual arts category

	(1) OLS	(2) PPML	(3) PPML	(4) PPML	(5) PPML	(6) PPML	(7) PPML
lnDIST	-0.497***	-0.439***					
	(0.016)	(0.086)					
CONTIG	1.156***	0.993***					
	(0.097)	(0.175)					
COMLANG	0.521***	1.573***					
	(0.028)	(0.206)					
COL45	1.143***	0.831***					
	(0.178)	(0.258)					
COMRELIG	0.364***	0.972***					
	(0.037)	(0.265)					
WTO_MEM	0.270***	1.118***	0.495	0.511	0.521	0.534	0.539
	(0.026)	(0.316)	(0.586)	(0.581)	(0.586)	(0.584)	(0.585)
CU	0.891***	0.741**	0.488***	0.491***	0.477***	0.474***	0.468***
	(0.050)	(0.294)	(0.140)	(0.139)	(0.139)	(0.139)	(0.140)
FTA	0.528***	0.185	0.015	0.043	-0.014	-0.002	0.015
	(0.035)	(0.138)	(0.040)	(0.044)	(0.043)	(0.044)	(0.044)
FTA_LEAD4				-0.092**			
				(0.041)			
FTA_LAG4					0.077*	0.043	0.039
					(0.044)	(0.042)	(0.042)
FTA_LAG8						0.055	-0.023
						(0.035)	(0.049)
FTA_LAG12							0.105*
							(0.057)
Constant	5.317***	11.36***	10.47***	10.50***	10.44***	10.42***	10.40***
	(0.144)	(0.809)	(0.643)	(0.550)	(0.558)	(0.556)	(0.558)
CATEs					0.063	0.095	0.137**
					(0.055)	(0.065)	(0.066)
Observations	108,121	105,907	64,006	64,006	64,006	64,006	64,006
R-squared	0.693	0.062	0.066	0.066	0.066	0.066	0.066

Table C5: Trade policy effects on the printed matter category

APPENDIX D

	(1) CLTRL	(2) NON-CLTRL
FTA	0.278***	0.114***
	(0.0803)	(0.0277)
CU	0.505***	0.314***
	(0.136)	(0.0538)
WTO_MEM	0.615**	0.163*
	(0.309)	(0.0855)
TRADE_SANCT	-0.0881	-0.200***
	(0.104)	(0.0482)
CANADA_MYANMAR_COMPL_EXP_IMP	-0.805*	-5.978***
	(0.483)	(0.212)
RUSSIA_GEORGIA_COMPL_EXP_IMP	-0.183	-0.513***
	(0.281)	(0.104)
US_BELARUS__PART_EXP_IMP	-0.657***	-0.364*
	(0.227)	(0.196)
US_COLOMBIA_PART_EXP_IMP	0.203	-0.0255
	(0.167)	(0.114)
US_CHINA_PART_EXP_IMP	-0.442***	-0.256***
	(0.120)	(0.0401)
US_CONGO_PART_EXP_IMP	-1.119**	-0.442***
	(0.443)	(0.166)
US_DOM_PART_EXP_IMP[78]	-0.762***	-0.357***
	(0.181)	(0.0952)
US_GREECE_PART_EXP_IMP	0.164	-0.412***
	(0.253)	(0.0787)
US_MOLDOVA_PART_EXP_IMP	-0.246	-0.564**
	(0.194)	(0.275)
US_RUSSIA_PART_EXP_IMP	-1.460***	0.170
	(0.351)	(0.109)
US_SYRIA_PART_EXP_IMP	-4.465***	-0.0813
	(0.291)	(0.400)
EU_IRAN_PART_EXP_IMP	-1.312**	-1.401***
	(0.632)	(0.223)
EU_SYRIA_PART_EXP_IMP	-2.081***	-1.052**
	(0.297)	(0.412)
EU_UKRAINE_PART_EXP_IMP	-0.449	0.288**
	(0.342)	(0.146)
EU_RUSSIA_PART_EXP_IMP	-0.630**	-0.175*
	(0.269)	(0.0897)
AUSTRALIA_IRAN_PART_EXP_IMP	-0.890**	-2.238***
	(0.420)	(0.185)
CANADA_INDIA_PART_EXP_IMP	-0.576*	-0.117
	(0.344)	(0.0745)
CANADA_SYRIA_PART_EXP_IMP	-1.534***	-1.712***
	(0.394)	(0.407)
EU_ZIMBABWE_PART_EXP	-0.526*	-1.067***
	(0.278)	(0.241)

[78] DOM stands for Dominican Republic.

EU_EGYPT_PART_EXP	-0.885***	-0.0909
	(0.157)	(0.115)
AUSTRALIA_RUSSIA_PART_EXP	-0.267	-0.187*
	(0.223)	(0.110)
CANADA_BELARUS_PART_EXP	-0.792***	0.351**
	(0.234)	(0.158)
CANADA_RUSSIA_PART_EXP	-0.825***	-0.243***
	(0.233)	(0.0874)
US_INDIA_PART_EXP	-0.855**	-0.242***
	(0.346)	(0.0602)
US_IRELAND_PART_IMP	-1.480***	-0.426***
	(0.113)	(0.0553)
US_SOMALIA_PART_IMP	-3.665***	0.720
	(0.768)	(0.832)
US_FRANCE_PART_IMP	0.0733	-0.106***
	(0.149)	(0.0376)
CHINA_CANADA_PART_IMP	-0.399*	0.0167
	(0.237)	(0.0570)
CHINA_NORWAY_PART_IMP	0.323***	-0.183***
	(0.0913)	(0.0597)
JAPAN_RUSSIA_PART_IMP	-0.203	0.598***
	(0.231)	(0.0913)
MEXICO_CANADA_PART_IMP	0.124	-0.00466
	(0.209)	(0.0467)
Constant	11.33***	15.96***
	(0.301)	(0.0807)
i, t FEs	Yes	Yes
j, t FEs	Yes	Yes
i, j FEs	Yes	Yes
Observations	70,171	71,360
R-squared	0.744	0.887

Table D1: Uneven effects of selected trade sanctions on cultural vs. non-cultural trade

Notes: Columns 1 and 2 present the estimates of the impacts of 31 selected trade sanctions on cultural and non-cultural trade, respectively. In each instance, the first country listed is the sanctioning country, and the second is the sanctioned country. For example, in "CANADA_RUSSIA_PART_EXP," Canada is the sanctioning country, while Russia is the sanctioned country. The abbreviations EXP, IMP, and EXP_IMP indicate whether the trade sanctions are export sanctions, import sanctions, or bilateral trade sanctions, respectively. Similarly, PART and COMPL denote whether the trade sanctions are partial or complete. All estimates are obtained using the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. Each column employs directional-time varying fixed effects and country-pair fixed effects. Standard errors are clustered by country pair and reported in parentheses. Asterisks indicate statistical significance levels: ***($p < 0.01$), **($p < 0.05$), and *($p < 0.1$).

	(1) HRTG	(2) PRINT	(3) MUSIC	(4) VISUAL	(5) AUDIO
lnDIST_1999	0.102	-0.568***	-0.853***	-0.170**	-0.618***
	(0.141)	(0.0535)	(0.0759)	(0.0760)	(0.143)
lnDIST_2004	0.164	-0.649***	-0.822***	-0.134	-0.874***
	(0.123)	(0.0562)	(0.0521)	(0.0832)	(0.143)
lnDIST_2009	0.00815	-0.654***	-0.860***	-0.149*	-1.091***
	(0.0901)	(0.0642)	(0.306)	(0.0896)	(0.160)
lnDIST_2014	0.194**	-0.678***	-1.980***	-0.209**	-0.767***
	(0.0949)	(0.0719)	(0.224)	(0.0861)	(0.260)
lnDIST_2019	0.000805	-0.571***	-0.727***	-0.0976	-0.857***
	(0.145)	(0.0920)	(0.0685)	(0.0859)	(0.307)
CONTIG_1999	0.887***	0.938***	0.119	0.427**	0.271
	(0.339)	(0.142)	(0.210)	(0.203)	(0.350)
CONTIG_2004	0.906**	0.907***	0.139	0.294	0.130
	(0.386)	(0.144)	(0.203)	(0.219)	(0.342)
CONTIG_2009	0.254	0.989***	2.582**	0.505**	-0.171
	(0.294)	(0.155)	(1.190)	(0.241)	(0.377)
CONTIG_2014	0.537*	0.879***		0.219	0.614
	(0.298)	(0.166)		(0.196)	(0.509)
CONTIG_2019	0.685*	1.170***	0.412**	0.223	1.429
	(0.388)	(0.258)	(0.210)	(0.251)	(1.125)
COMLANG_1999	0.560**	1.791***	1.110***	0.814***	0.438
	(0.260)	(0.163)	(0.218)	(0.191)	(0.355)
COMLANG_2004	0.214	1.735***	0.706***	0.663***	-0.469
	(0.270)	(0.170)	(0.201)	(0.241)	(0.319)
COMLANG_2009	0.288	1.601***	1.087***	0.273	0.0381
	(0.231)	(0.182)	(0.405)	(0.316)	(0.268)
COMLANG_2014	0.756***	1.406***	0.464	0.659***	-0.429
	(0.253)	(0.211)	(0.523)	(0.205)	(0.332)
COMLANG_2019	0.0921	1.237***	0.344*	0.494***	1.310
	(0.221)	(0.209)	(0.197)	(0.187)	(0.893)
COL45_1999	1.026***	0.422***	-0.111	0.979***	0.433
	(0.368)	(0.159)	(0.317)	(0.220)	(0.440)
COL45_2004	1.181***	0.610***	0.403*	0.456**	1.524***
	(0.312)	(0.191)	(0.207)	(0.230)	(0.523)
COL45_2009	0.639**	0.886***	0.735	0.210	0.865
	(0.281)	(0.194)	(0.690)	(0.263)	(0.618)
COL45_2014	0.275	0.921***	0.0544	0.827***	1.555***
	(0.206)	(0.219)	(0.521)	(0.269)	(0.400)
COL45_2019	0.566	0.669***	-0.141	0.790***	2.287***
	(0.359)	(0.244)	(0.274)	(0.200)	(0.632)
COMRELIG_1999	0.969	0.904***	0.559	-0.117	0.0782
	(0.966)	(0.250)	(0.391)	(0.343)	(0.842)
COMRELIG_2004	1.378*	0.961***	1.464***	1.023**	1.593**
	(0.708)	(0.249)	(0.419)	(0.422)	(0.724)
COMRELIG_2009	2.161***	0.801***	5.163**	0.941**	0.316
	(0.617)	(0.242)	(2.321)	(0.419)	(0.713)
COMRELIG_2014	0.888	1.142***	1.502	1.542***	0.956
	(0.751)	(0.264)	(2.366)	(0.361)	(0.650)
COMRELIG_2019	0.300	1.075***	0.820	1.887***	-0.718
	(0.898)	(0.304)	(0.560)	(0.535)	(1.507)

Constant	9.058***	14.22***	14.77***	12.22***	18.60***
	(0.876)	(0.534)	(0.456)	(0.624)	(1.179)
$\%\Delta lnDIST_{1999\text{-}2019}$	-99.210	0.488	-14.797	-42.498	38.581
	(141.609)	(14.026)	(9.709)	(44.747)	(59.336)
$\%\Delta CONTIG_{1999\text{-}2019}$	-22.782	24.709	245.617	-47.747	428.015
	(43.954)	(27.406)	(563.840)	(57.138)	(814.067)
$\%\Delta COMLANG_{1999\text{-}2019}$	-83.553**	-30.920***	-68.995	-39.359*	198.863
	(39.413)	(8.475)	(16.877)	(23.653)	(335.352)
$\%\Delta COL45_{1999\text{-}2019}$	-44.782	58.471	26.435	-19.317	428.186
	(32.156)	(66.618)	(361.735)	(19.787)	(556.214)
$\%\Delta COMRELIG_{1999\text{-}2019}$	-69.069	18.818	46.637	-1718.349	-1018.423
	(85.549)	(32.285)	(138.954)	(4941.16)	(10015.94)
Observations	70,670	148,987	65,822	133,217	66,146
R-squared	0.703	0.671	0.699	0.775	0.511

Table D2: Effects of globalisation on sub-groupings of cultural goods

Notes: Columns 1 and 5 examine the time-varying effects of standard gravity variables on the cultural heritage, printed matter, music & performing arts, visual arts, and audio & audio-visual media sub-groupings, respectively. Directional time-varying fixed effects are used in each column. All estimates are obtained with the PPML estimator for the years 1999, 2004, 2009, 2014, and 2019. The bottom panel of the table reports the percentage changes in the estimates of the effects of explanatory variables between 1999 and 2019. Standard errors are clustered by country pair and reported in parentheses. Statistical significance levels are indicated by *** for $p<0.01$, ** for $p<0.05$, and * for $p<0.1$.