Bilateral Trade of Cultural Goods

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SUMMARY

One of the most contentious issues of current multilateral trade negotiations relates to liberalization of trade in cultural goods and services. On the one hand, countries such as the United States would like to see cultural goods and services subjected to the same requirements for national treatment and non-discrimination as standard commodities. Opposing this, countries such as France and Canada have advocated a "cultural exception." Therefore, it is essential to identify the determinants of flows of cultural goods and to understand their insertion in international trade.

The first difficulty of such a study is the absence of a consensus about the definition of cultural goods and services. Consequently, these products are often defined by what they are not, rather than what they are. However, a report published in 2005 by the UNESCO suggests a new definition based on the notion of cultural content and a list of cultural goods and services identifiable in the current international and production classifications. We follow this definition, which will undoubtedly become the standard reference. The UNESCO report draws a distinction between "core" and "related" cultural goods and services. The purpose of the analysis is to be able to distinguish between "content products" and those products that make possible their creation, production and distribution. Our study focuses on the first ones. Furthermore, the international comparison of export performance of different producing countries involves to have data on bilateral flows of cultural products. However, due to the unavailability of consistent statistics on bilateral trade in cultural services, we restrict our analysis to goods. Besides, the "nationality" of the imported cultural good is not always obvious because of the outsourcing strategies of firms. Thus, statistics including the production place of the cultural content rather than the export place of the cultural good would be more reliable. However, such statistics are now available only for the cinema's industry. All in all, it is important to use different statistical sources, each of them having advantages and drawbacks.

Up to now few studies have been carried out on trade in cultural goods and the question arises what is the best suited theoretical background to study such peculiar goods. However, the new trade theory provides a suitable framework for analyzing trade flows of *reproducible* cultural goods (like recorded music, books and movies). This sector is characterized by scale economies and differentiated goods. Gravity equation is the standard tool for studying trade determinants of such goods. This equation, in its simplest form, explains bilateral trade between two partners by their respective economic sizes and the geographic distance separating them. Different variables are usually included in the estimation to account for countries' adjacency, shared languages, belonging to a preferential trade agreement, past colonial links, etc. This theory has recently received extensive theoretical foundations.

We first study the determinants of flows of cultural goods. Our results suggest that trade in cultural goods presents some specific characteristics. Besides, common language fosters exchanges of cultural goods with a written support. It raises flows of books by a factor of 4.6, everything else equal. On the other hand, past colonial relationships seem to influence consumers' preferences for cultural heritage goods. Having had past colonial links multiplies countries' bilateral trade in cultural heritage goods by nearly 4. This strong influence of past colonial links on heritage goods also shows that networks effects could reduce information asymmetries.

A related issue is how cultural proximity and the associated exchange of cultural information

actually impact trade in other categories of goods. Existing works proxy countries' cultural proximity with traditional and indirect measures (shared language for example). Unlike these studies, we use trade in cultural goods as a direct measure of this cultural proximity. These data will help us describe the "impact factor" of cultures in terms of their spread and the evolution of these revealed preferences. We show that cultural flows influence significantly all trade relationships. A 10% increase in cultural exchanges raises overall trade by 3.2%. Thus, the evaluation of policies supporting culture should also include these more global effects.

ABSTRACT

International trade flows of cultural goods have grown very rapidly over the last decades and their liberalization will be one of the important issues of future multilateral trade negotiations. Despite these stakes, cultural flows have, to date, not been much studied by trade economists.

In this paper, we focus on bilateral trade in cultural goods, such as books, recorded media, visual arts, audio visual media, and we investigate its determinants. Furthermore, we use trade in cultural goods as a proxy for countries' cultural proximity and study if countries with proximate cultural tastes tend to have more intense bilateral exchanges.

Our estimations show a positive and significant influence of cultural flows on overall trade, suggesting that regulations fostering domestic cultural creation might have impacts going beyond what is generally expected.

JEL classification: F10, Z10
Key words: Cultural tastes, international trade, gravity.

LE COMMERCE BILATERAL DE BIENS CULTURELS

RÉSUMÉ

La libéralisation des échanges des biens et services culturels est actuellement l'un des aspects les plus discutés lors des négociations commerciales multilatérales. Plusieurs pays, comme les Etats-Unis, souhaitent voir les produits culturels soumis aux mêmes règles de traitement national et de non-discrimination que les marchandises standards. A l'opposé, des pays comme la France et le Canada défendent la notion d'"exception culturelle". Dans ce contexte, identifier les déterminants des échanges internationaux des biens culturels, comprendre leur insertion dans le développement des échanges mondiaux et ses modalités est essentiel.

La première limite rencontrée lors de l'étude des échanges de biens et services culturels est l'absence de consensus quant à une définition précise de ces produits. En conséquence, ces produits sont souvent définis par la négative, "par ce qu'ils ne sont pas". Néanmoins, un rapport de l'UNESCO daté de 2005 propose une nouvelle définition basée sur le contenu culturel et une liste de biens et services culturels identifiables dans les grandes classifications internationales de commerce et de production. Nous adoptons cette définition, qui fera sans nul doute référence, et permet une mesure statistique du phénomène clairement délimitée. Le rapport distingue ainsi entre les biens et services culturels "de base" et "connexes". Le but de l'analyse consiste à distinguer entre les "produits de contenu" et les produits qui permettent leur création, leur production et leur distribution. Notre étude se concentre uniquement sur les premiers. En outre, la comparaison internationale des performances exportatrices des différents pays producteurs implique de disposer de données bilatérales d'échanges de contenus culturels. Or face à l'indisponibilité de statistiques cohérentes sur les échanges bilatéraux de services culturels, nous limitons notre recherche aux échanges de biens. Par ailleurs, la "nationalité" du bien culturel importé est une information moins évidente à collecter qu'il n'y paraît en raison des stratégies d'outsourcing des entreprises de ce secteur. Le phénomène que nous cherchons à étudier est certainement dès lors mieux cerné par des statistiques qui prennent en compte le lieu de production du contenu culturel, plus que le lieu d'exportation (et donc de dernière étape d'assemblage) du support physique de ce contenu culturel. Toutefois, les statistiques de cette sorte ne sont pour l'instant disponibles que pour l'industrie cinématographique. Au total, il est donc important de multiplier les sources statistiques car chacune présente des avantages et des inconvénients pour l'analyse.

Les échanges de biens et services culturels ont été jusqu'à présent peu étudiés par les chercheurs en économie internationale. Pourtant, la nouvelle théorie du commerce international constitue un cadre explicatif du commerce des biens culturels reproductibles (comme la musique enregistrée, les livres et les films). Ce secteur se caractérise en effet par la présence d'économies d'échelle et les produits y sont différenciés. L'équation de gravité est l'outil "standard" utilisé maintenant depuis plusieurs décennies par les économistes pour étudier les déterminants les flux d'échanges dans ce contexte. Fondée initialement sur une analogie avec la loi de Newton, cette équation fait dépendre les échanges entre deux partenaires, dans sa forme la plus simple, de leur taille économique respective et de la distance géographique les séparant. Différentes variables sont généralement ajoutées afin notamment de capter certaines spécificités de la relation bilatérale comme le partage d'une frontière terrestre, une langue commune, l'appartenance de l'un ou des deux partenaires à un accord de commerce préférentiel, l'existence d'anciens liens coloniaux, pour ne citer que les plus habituels.

Nous avons dans un premier temps voulu étudier les déterminants des échanges culturels.

Nos résultats mettent en avant un certain nombre de spécificités de ces échanges. La langue commune est le facteur principal de pénétration dans les biens culturels impliquant l'écrit (ce facteur multiplie les flux de livres par 4.6) alors que l'histoire des liens coloniaux des pays a certainement façonné les préférences des consommateurs du pays importateur pour les biens du patrimoine, ce facteur colonial multipliant les flux par presque 4. Cette forte influence des liens coloniaux sur les échanges de biens du patrimoine révèle aussi l'importance des effets de réseaux sur l'asymétrie informationnelle.

Les travaux existants ont tenté d'approximer la proximité culturelle des pays par des variables indirectes comme la langue commune par exemple. Nous proposons au contraire d'utiliser les échanges de biens culturels comme mesure directe de cette proximité culturelle, et ceci afin de décrire la capacité des cultures à se diffuser et l'évolution de ces préférences révélées. Nos résultats montrent que les flux de biens culturels ont un impact avéré et conséquent sur les flux des autres biens : une hausse de 10% des échanges de biens culturels accroît le commerce de biens traditionnels de 3.2%. Les politiques en faveur de la culture ont donc des effets devant se juger à l'aune de leurs effets plus globaux.

RÉSUMÉ COURT

Les échanges internationaux de biens culturels ont cru très rapidement au cours des dernières décennies et leur libéralisation sera l'un des principaux enjeux des futures négociations commerciales multilatérales. Malgré leur importance, les flux culturels ont été jusqu'à présent peu étudiés par les chercheurs en économie internationale.

Dans cet article, nous nous concentrons sur le commerce bilatéral de biens culturels (comme les livres, les médias enregistrés, les arts visuels, les médias audiovisuels) et analysons ses déterminants. En outre, nous utilisons le commerce de biens culturels comme approximation de la proximité culturelle des pays et étudions si les pays, dont les goûts culturels sont proches, ont des échanges bilatéraux plus importants.

Nos estimations montrent l'existence d'une influence positive et significative des flux culturels sur le commerce global, suggérant ainsi que les dispositions visant à favoriser la création culturelle domestique peuvent avoir des effects allant au-delà de ce qui est généralement attendu.

Classification *JEL* : F10, Z10
Mots Clefs : Goûts culturels, commerce international, gravité.

BILATERAL TRADE OF CULTURAL GOODS[1]

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1 INTRODUCTION

In most developed countries, household expenditures on recreation and culture[6] account for at least 5% of GDP. In 2005, this share was 6.4% in the United States (US), 5.5% in Canada, 7.7% in the United Kingdom (UK) and 5.2% in France. In 1970, those were 4.5% in the US, 4.9% in Canada, 5.1% in the UK and 4.3% in France (OECD, 2007). Apart from the increase in income per capita and from the overall increase in the relative price of services, a frequent and presumably important explanation of this growth of cultural expenditures over the last decades is the emergence of the information society, combined with the development of leisure and of cultural tourism. This growth in consumption has been associated with an impressive rise in trade. Between 1980 and 1998, world imports of cultural goods[7] have increased by 347% going from 47.8 to 213.7 billion of US dollars (UNESCO, 2000) ; This is to be compared with a 189% increase in world imports of all commodities. [8] An unexpected outcome is that in 1996, cultural products became the largest export industry of the United States, surpassing, for the first time, traditional manufacturing industries.[9] These cultural trade flows are highly concentrated : most of world trade in cultural goods is the fact of a remarkably small number of countries. In 2002, the US, the UK, China (including Hong Kong and Macao), Germany and France accounted for 55.5% of total exports and 53.5% of

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[6] Household expenditures on recreation and culture include purchases of audio-visual, photographic and computer equipment ; CDs and DVDs ; musical instruments ; camper vans ; caravans ; sports equipment ; toys ; domestic pets and related products ; gardening tools and plants ; newspapers ; tickets to sporting matches, cinemas and theatres ; and spending on gambling (including lottery tickets) less any winnings.

[7] Cultural goods included in this (UNESCO) definition are printed matter, literature, music, visual arts, cinema, photography, radio, television, games and sporting goods.

[8] According to United Nations Comtrade data.

[9] http ://portal.unesco.org/culture/

total imports (UNESCO, 2005). For global trade, these percentages were 39.7% for exports and 45.3% for imports.

Furthermore, the liberalization of trade in cultural goods and services was one of the most sensitive issues of recent -and current- multilateral negotiation rounds. Discussions set the partisans of free trade in cultural goods against the advocates of a "cultural exception". The latter consider that cultural goods and services reflect countries' identities and individuals' diversity and as such should not be submitted to GATT/WTO general principles, for fear of generating a worldwide standardization of tastes and behaviors.[10]

As a consequence of this growing importance, there has been a recent surge of academic interest in "cultural economics", understood as the quest for cultural origins of various economic outcomes such as regional development (Tabellini, 2007), diffusion of innovations (Spolaore and Wacziarg, 2006) or labour market performance (Algan and Cahuc, forthcoming).

However, despite this wide interest in the topic, trade in cultural good has not received much attention in the literature. What the related literature essentially did, was to shed light on the impact of bilateral cultural "affinity" on trade patterns (e.g., Guiso et al., 2007, on bilateral trust or Disdier and Mayer, forthcoming, on bilateral opinions). Also related to this literature are the issues of linguistic proximity (Boisso and Ferrantino, 1997; Melitz, 2003), and past colonial links (Rose, 2000; Eichengreen and Irwin, 1998) or the link between immigration and trade (Wagner et al., 2002). However, these papers have to rely on proxies that often cover a low number of countries, and/or do not exhibit time variance. Trade in cultural goods has the advantage of world coverage and large changes over time.[11]

In this paper, we investigate the determinants and the influence of bilateral trade in cultural goods. A first estimation is based on a gravity equation where the dependent variable is bilateral yearly trade in *core* cultural goods, as defined by the UNESCO classification. These goods are identified at the most detailed level of the classification, namely the Harmonized System at the six digit level (HS6 thereafter) and grouped within seven categories : cultural heritage goods (e.g. Antiques); Books; Newspapers; Other printed matter (e.g. photographs); Recorded media (e.g. CDs); Visual arts (e.g. paintings); Audiovisual media (e.g. video games). It must be stressed that this definition comprises reproducible as well as non-reproducible goods, that musical instruments, radio receivers and other devices related to cultural goods are not taken into account, and lastly that trade in services is not taken into account. We focus on the sensitivity of cultural flows to usual spatial friction and cultural proximity variables and assess specific issues such as addiction in the consumption and import of cultural goods. In a second step, we use bilateral trade in cultural goods as a measure of countries' cultural proximity and explain overall trade in goods. Used as a proxy for bilateral preferences, these data help shed light on the spatial spread of cultures and their impact on trade flows. A final contribution of our paper is to provide up-to-date estimates in terms of gravity equation estimation technology.

Our results first show that cultural goods are traded over shorter distances than non-cultural ones. Besides, common language fosters trade of cultural goods with a written support, while past colonial relationships influence consumers' preferences for cultural heritage goods and visual arts. Current cultural flows are also strongly influenced by past ones, which suggests the presence of what has been analyzed as addictive behavior in the literature. Finally, we

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[10]François and van Ypersele (2002) provide academic justification for this view.

[11]Felbermayr and Toubal (2007) is another very recent paper using bilateral votes in the Eurovision song contest to measure changes in bilateral cultural affinity over time.

show that cultural flows have a positive and significant influence on overall trade and capture countries' cultural proximity better than traditional measures do. This last result differs from the one obtained for genetic distance, a measure of cultural proximity recently used in the literature. Giuliano et al. (2006) suggest that genetic distance between countries captures the impact of transportation costs and not of cultural differences in trade flows.

The paper proceeds as follows. The related literature is briefly surveyed in the next section. Section 3 describes our data and specifies the gravity model used. In section 4, we provide results for the determinants of trade in cultural goods and for its influence on flows of other commodities. Section 5 concludes.

2 RELATED LITERATURE

2.1 Trade in cultural goods

Few trade economists have investigated trade in cultural goods.[12] Schulze (1999) asks whether new trade theory can be applied to trade in art. His analysis suggests that this theory is a good candidate to explain exchanges in reproducible art (e.g. recorded music, books, movies), which are characterized by scale economies and product differentiation. However, it seems to be a less likely explanation for unique art (like paintings and sculptures), which is dominated by exchanges between consumers. Schulze (1999) also emphasizes that trade patterns are influenced by a second characteristic of art products, namely the addictive character of their consumption.[13] As a first consequence, trade between very dissimilar countries will be limited, since there is not enough accumulation of "cultural consumption capital" to raise reciprocal appreciation in terms of art. Second, trade in cultural goods should exhibit a strong hysteresis effect, reinforcing the position of countries that currently dominate exports of cultural goods.

Schulze's (1999) empirical application focuses on non-reproducible art products only.[14] Marvasti and Canterbery (2005) investigate the determinants of US motion pictures exports to 33 countries. The estimation of a gravity equation over the period 1991-1995 reveals a positive impact of language, education and religion on exports. Interestingly, their analysis shows that protection and trade barriers applied by importing countries are endogenous and grow up as US exports rise. Recent studies on cultural goods have also focused on the welfare impact of trade policy. Francois and van Ypersele (2002) show that barriers to trade could raise welfare in both countries when cultural goods are characterized by fixed costs in production and heterogeneity in consumers' tastes. In the same way, Janeba (2007) model cultural identity as the result of the interaction of individual consumption decisions, suggests that

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[12]For a very detailed analysis of production and consumption of arts, see Throsby (1994). Here, we focus only on international trade in cultural goods.

[13]Early theory of rational addiction has been developed by Stigler and Becker (1977) and Becker and Murphy (1988). Those authors show that the level of art consumption influences positively the marginal utility of consumer and its capacity to appreciate art. The latter is also positively affected by past consumption.

[14]His data come from the DOTS database and are averaged over the 1990-1994 period. He estimates a naive gravity equation with a sample that covers the 49 largest importing countries. As traditionally found, coefficients obtained for GDPs are significant at the 1% level and not statistically different from one, distance has a negative and significant impact on trade. Sharing a language strongly increases trade. Everything else equal, linguistic similarity raises trade by a factor of 4.38.

- under certain conditions - free trade does not Pareto-dominate autarky. Olivier, Thoenig and Verdier (2007) rely on a microfounded dynamics of cultural identity interacting with an international trade equilibrium. Cultural identity is associated with a positive externality among agents sharing culture or consumption patterns. Within this framework, integrating standard goods markets leads to cultural divergence. In contrast, trade in cultural goods may result in either cultural convergence or cultural divergence.

2.2   Cultural proximity, transaction costs and tastes

Our study is also related to the recent literature on the economic impact of cultural proximity. Different papers (e.g., Boisso and Ferrantino, 1997 ; Melitz, 2003 ; Rose, 2000 ; Eichengreen and Irwin, 1998 ; Wagner et al., 2002 ; Guiso et al., 2007 ; Disdier and Mayer, forthcoming)[15] have focused on cultural proximity between countries and found it to have a positive influence on trade. Linguistic similarity, past colonial links, migrants, and bilateral trust and opinions have all been shown to be trade-enhancing. The main explanation provided by this literature for this positive effect is the reduction of trade costs induced by cultural proximity.

Our paper provides two contributions to this literature. First, we use trade in cultural goods as a proxy for cultural preferences. This new measure of countries' cultural proximity presents two main advantages : it varies over time (which is not the case for traditional measures based on common language or colonial links, or for genetic distance used more recently) and does not suffer from a problem of availability and coverage (like migrations or bilateral trust and opinions).

Second, using this measure, we make use of most recent advances in gravity equation estimation. In particular, we follow the recommendations of Baldwin (2006), and try to avoid most usual mis-specifications. This involves in particular using importer and exporter fixed effects that all theoretical derivations of the gravity require. We also use the Poisson estimator suggested by Santos Silva and Tenreyro (2006). The authors show that in the presence of heteroskedasticity, ordinary least squares (OLS) method can yield biased estimates and argue that the most robust estimation method for multiplicative equations like gravity is Poisson pseudo-maximum likelihood (PPML). In their specification, the dependent variable is measured in levels,[16] although it provides estimates that are comparable to elasticity estimates from the standard linear-in-logs specification.

Contrary to the recent findings on genetic distance (Giuliano et al., 2006), our results suggest that trade in cultural goods is an appropriate measure of countries' cultural proximity.[17]

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[15]See Disdier and Mayer (forthcoming) for a review of this literature.

[16]This specification therefore adequately deals with the zero-value observations problem. The issue is quite frequent in gravity equations, specially when using disaggregated data, like it is the case here.

[17]The debate on whether genetic distance is a legitimate proxy for cultural distance is still open. Focusing on the diffusion of development, Spolaore and Wacziarg (2006) show that genetic distance provides an ideal summary of divergence in slowly-changing genealogically-transmitted characteristics, including culturally-transmitted traits (habits, customs, etc.) and find a positive and significant relationship between measures of genetic distance and cross-country income differences. Guiso et al. (2007) also dispute the critique of genetic distance by Giuliano et al. (2006).

3 DATA AND ECONOMETRIC SPECIFICATION

3.1 Data

Our main variable of interest is bilateral trade in cultural goods. One of the major difficulties of our study is the absence of a consensus about the definition of cultural products. Consequently, these products are often defined by what they are not, rather than what they are. In 2005, the UNESCO proposed a new classification, which distinguished between core cultural products (such as books, recorded media, visual arts) and related ones (such as blank CDs or television receivers) using the notion of cultural content. Table 1 presents the UNESCO classification for cultural goods.[18] Core cultural goods are essentially produced by "cultural" industries, while related ones are made by "creative" industries. According to UNESCO, creative industries take into account a wider view of the creative process than cultural ones and include areas such as software, advertising, architecture and business intelligence services. *Our study will be restricted to core goods.*

UNESCO (2005) also provides a clear definition of trade in cultural goods. Trade is defined "as the exports and imports of tangibles and intangibles conveying cultural content that might take either the form of a good or a service". It also includes "the goods and services which are required to produce and disseminate such content [...] as well as ancillary services even if they are only partly cultural in their content". The aim of such a definition is to take into account the large changes that have occurred over the last decade in the Information and Communication Technologies.

Different statistical sources offer data on international flows of core cultural goods. In our paper, we mainly use the United Nations Comtrade database. Its main advantage is its exhaustiveness. It covers many countries over a long period of time[19] and all cultural goods mentioned in the UNESCO 2005 report.

Table 2 shows the export shares of cultural goods, as defined here, for various countries. There is considerable variation over time. The first striking observation is the decreasing share of the US, contrasting with the common perception. Over the period considered, the US share decreased from 22.3 to 15.9 percent. Other large exporters such as the UK, France, Germany and Italy also face a decline in their export share. The surge of China is impressive (from less than one percent up to a share similar to the one of the US). Lastly, Canadian (and UK) exports are positively impacted by outsourcing strategies of US firms (cf. *infra*). In the UK case, it limits the observed erosion.

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[18]Our analysis focuses only on goods and does not study cultural services.

[19]Comtrade covers the 1962-2004 period. However, the third revision of the SITC (Standard International Trade Classification) classification used in the UNESCO report, is available only from 1988 onwards. We therefore focus on the 1988-2004 period.

TAB. 1 – Core and related cultural goods - UNESCO Classification

CORE CULTURAL GOODS	RELATED CULTURAL GOODS
Cultural Heritage	**Equipment/support material**
- Collections and collectors' pieces	- Musical instruments
- Antiques of an age exceeding 100 years	- Sound player recorder and recorded
Books	sound media
- Books, brochures, leaflets, etc	- Cinematog. and photographic supplies
- Children's pictures, drawing/coloring books	- Television and radio receivers
Newspapers and periodicals	**Architecture plans and drawing trade**
Other printed matter	**and trade advertisement material**
- Printed music	
- Maps	
- Postcards	
- Pictures, designs and photographs	
Recorded media	
- Gramophone records	
- Discs for laser-reading systems for	
reproducing sound only	
- Magnetic tape (recorded)	
- Other recorded media for sound	
Visual arts	
- Paintings	
- Other visual arts (statuettes, sculptures,	
lithographs, etc.)	
Audiovisual media	
- Video games used with a television receiver	
- Photographic and cinematograph films,	
exposed and developed	

Source : UNESCO (2005).

TAB. 2 – Exports Share - Comtrade Database.

Year	Japan	Germany	Hong Kong	Russia	India	UK	Italy	France	US	China	Canada
1988	3.07	14.67	1.81	.	0.27	10.29	6.07	10.99	22.27	0.86	0.46
1989	8.16	11.30	2.33	.	0.24	10.70	5.58	11.08	19.35	1.53	2.08
1990	7.86	11.15	1.99	.	0.21	10.63	5.03	13.07	19.54	1.74	1.59
1991	8.54	12.15	2.45	.	0.27	10.80	5.17	7.71	20.24	2.41	1.66
1992	10.14	11.34	3.16	0.07	0.27	9.70	4.64	6.15	20.00	4.74	1.84
1993	10.40	10.30	2.93	0.20	0.36	8.65	3.65	5.46	22.31	6.00	2.23
1994	7.27	10.15	2.47	0.07	0.50	9.34	3.83	5.51	24.31	6.41	2.10
1995	6.31	10.30	2.46	0.10	0.39	9.55	4.12	5.27	22.98	6.91	2.15
1996	6.41	10.19	2.35	0.14	0.39	9.79	4.08	5.88	22.43	7.61	2.35
1997	9.37	8.79	2.16	0.23	0.46	9.43	3.80	5.95	22.66	7.89	2.21
1998	8.71	9.13	1.95	0.19	0.44	9.13	3.91	6.28	21.60	8.02	2.34
1999	7.51	9.06	2.14	0.16	0.42	9.06	3.78	6.68	21.41	8.91	2.63
2000	6.82	8.99	2.03	0.36	0.41	8.55	3.44	6.86	20.64	10.92	2.71
2001	7.77	9.62	1.79	0.34	0.43	8.16	3.36	6.51	19.26	11.22	2.61
2002	5.83	10.16	1.98	0.19	0.40	7.66	3.38	5.96	18.11	13.31	2.60
2003	3.85	11.33	1.69	0.23	0.40	8.03	3.68	5.74	16.53	16.08	2.68
2004	3.63	11.46	1.66	0.34	0.40	8.18	3.73	6.32	15.92	15.62	2.62

The determinants of trade in our seven categories of cultural goods draw a very contrasted picture. As an illustration of differences across different goods, the average distance between partners for cultural trade is 6,005 kilometers. For individual categories of goods, the average distances are as follows : cultural heritage goods (6,616 km), books (5,868 km), newspapers and periodicals (5,316 km), other printed matter (5,693 km), recorded media (5,930 km), visual arts (6,328 km), and audiovisual media (5,787 km). By comparison, for overall trade, the average distance is 7,271 kilometers. This suggests first that non-cultural goods are traded over longer distances than cultural ones. Next, among cultural goods, the average distance is the highest for heritage goods and visual arts. Interestingly, one can note that cultural heritage goods and visual arts essentially include non-reproducible goods. Thus, non-reproducible cultural goods are traded over longer distances than reproducible ones. This suggests to estimate separately the determinants of bilateral trade in the different categories of cultural goods.

A closer look at flows included in this database however suggests the likely presence of large scale outsourcing of movies from the United States to mainly Canada and the United Kingdom.[20] The common official language and other similarities in the structure of the motion picture industry in these three countries can naturally explain this outsourcing phenomenon. The privileged commercial access of UK to the European market and the geographical proximity of Canada (together with preferential trading relationships under NAFTA) can also be part of the explanation. This phenomenon could bias our results.[21] We will therefore check the robustness of our results by using two alternative statistical sources : the UNESCO and Eurostat-AUVIS databases (cf. section 4.3). The latter databases exhibit however a low coverage. The UNESCO database focuses only on movies. The Eurostat-AUVIS data does not report flows of cultural goods in the traditional sense but the number of cinema entries in each country disaggregated by nationality of films. For this latter dataset, few countries and years are available.

3.2   Econometric specification

Our theoretical foundation for trade patterns is the standard monopolistic competition-CES demand-Iceberg trade costs model first introduced by Krugman (1980).[22] Producers operating under increasing returns in each country produce differentiated varieties that they ship, with a cost, to consumers in all countries.The parameter ϕ_{ijt} measures the bilateral free-ness of trade between country i and country j in year t, involving both actual price-raising trade impediments and the sensitivity of consumers to an increase in price. The utility function used here contains a preference term of consumers in j for varieties produced in i (a_{ijt}). The total value of exports from i to j in t can be written in logs as (see Redding and Venables,

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[20]Since 1986, US imports of cultural goods from Canada are reported to be bigger than the ones of Canada from the US. In 1989, 1990, 1994 and 2000, US imports from the UK are also bigger than the reverse flow.

[21]A movie with an American scenario and American actors will be perceived in the rest of the world as an American movie although it is included in the statistics as an export from the UK or Canada.

[22]Alternative theoretical foundations of the gravity equations include very different assumptions : perfect competition with technology differences as in Eaton and Kortum (2002), monopolistic competition with different functional forms as in Melitz and Ottaviano (2005), or heterogenous firms operating in a Dixit-Stiglitz environment as in Chaney (2007). All of those however yield a strictly equivalent estimable specification for our purposes.

2004 for instance) :

$$\ln x_{ijt} = \ln(n_{it}p_{it}^{1-\sigma}) + \ln \phi_{ijt} + (\sigma - 1)\ln a_{ijt} + \ln(Y_{jt}P_{jt}^{\sigma-1}), \qquad (1)$$

with n_{it} and p_{it} representing respectively the number of varieties and prices in country i in t, and Y_{jt} and P_{jt} representing the expenditure and price index of the importer in t.

Different specifications of this equation have been estimated. The usual practice consists in proxying $n_{it}p_{it}^{1-\sigma}$ and $Y_{jt}P_{jt}^{\sigma-1}$ with the GDPs and GDPs per capita of both countries before estimating equation (1) with OLS. However, the relevance of this specification has been recently questioned for its distance to theory. Therefore, we follow Hummels (1999) and Redding and Venables (2004), and include fixed effects for each importer and exporter. These fixed effects incorporate the size effects, but also the price and number of varieties of the exporting country and the size of demand and the price index of the importing country. We also use the Poisson estimator suggested by Santos Silva and Tenreyro (2006).

The next step is to specify free-ness of trade (ϕ_{ijt}) and bilateral preferences (a_{ijt}). Transaction costs that reduce ϕ_{ijt} are assumed to include two different elements : transport costs and information costs. Bilateral distance (d_{ij}) and common border (cbord$_{ij}$) are standard proxies for transport costs. Common language (clang$_{ij}$) and colonial links (colony$_{ij}$) are used to proxy for information channels about profitable trade opportunities between the two countries.

$$\ln \phi_{ijt} = \zeta \ln d_{ij} + \lambda_\phi \text{cbord}_{ij} + \mu_\phi \text{clang}_{ij} + \nu_\phi \text{colony}_{ij}. \qquad (2)$$

Bilateral distances are calculated as the sum of the distances between the biggest cities of both countries, weighted by the share of the population living in each city. cbord$_{ij}$ is a dummy variable set to 1 for pairs of countries that share a border. Similarly, clang$_{ij}$ and colony$_{ij}$ are dummies equal to one if both partners share a language or have had a colonial relationship. Data for these variables are extracted from the CEPII database on distance and geographical variables.[23]

Bilateral preferences are a function of countries' cultural proximity. In addition to an unobservable random term, we assume that these preferences are influenced by adjacency, common language, colonial links but also, for overall trade, by exports of cultural goods.

$$\ln a_{ijt} = \lambda_a \text{cbord}_{ij} + \mu_a \text{clang}_{ij} + \nu_a \text{colony}_{ij} + \xi \ln x_{ijt}^c + \varepsilon_{ijt}. \qquad (3)$$

On this basis we specify two equations, addressing the two issues raised by trade in cultural goods. First, what are the determinants of bilateral trade in cultural goods ; Two, what is the actual impact of trade in cultural goods on overall trade, provided that trade in cultural goods is a valuable proxy of cultural proximity.

The specification for trade in cultural goods is as follows :

$$\begin{aligned} \ln x_{ijt}^c = {} & \alpha^c \ln \text{gdp}_{it} + \beta^c \ln \text{gdp}_{jt} + \gamma^c \ln(\text{gdp/cap})_{it} + \delta^c \ln(\text{gdp/cap})_{jt} \\ & + \zeta^c \ln d_{ij} + \lambda^c \text{cbord}_{ij} + \mu^c \text{clang}_{ij} + \nu^c \text{colony}_{ij} \\ & + \text{fe}_i^c + \text{fe}_j^c + \epsilon_{ijt}^c. \end{aligned} \qquad (4)$$

Similarly, our preferred equation for estimating the determinants of overall trade (excluding

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[23]http ://www.cepii.fr/anglaisgraph/bdd/distances.htm

trade in cultural goods from the dependent variable) is therefore :

$$
\begin{aligned}
\ln x_{ijt} = {} & \alpha \ln \mathrm{gdp}_{it} + \beta \ln \mathrm{gdp}_{jt} + \gamma \ln(\mathrm{gdp/cap})_{it} + \delta \ln(\mathrm{gdp/cap})_{jt} \\
& + \zeta \ln d_{ij} + \lambda\, \mathrm{cbord}_{ij} + \mu\, \mathrm{clang}_{ij} + \nu\, \mathrm{colony}_{ij} + \xi \ln x^c_{ijt} \\
& + \mathrm{fe}_i + \mathrm{fe}_j + \epsilon_{ijt},
\end{aligned} \tag{5}
$$

where $\epsilon_{ijt} = (\sigma - 1)\varepsilon_{ijt}$, and $x = x_\phi + (\sigma - 1)x_a$, for $x = \lambda$, μ and ν.

In all regressions, the correlation of errors across years for a same country-pair is taken into account by appropriate clustering and heteroscedasticity is corrected with White's (1980) method.

4 RESULTS

4.1 Determinants of trade in cultural goods

We first estimate the determinants of bilateral flows of cultural goods. Table 3 presents the results. The time-period covered is 1988-2004. Year fixed effects are included in all our regressions. The first column reports the linear in logs fixed effects estimation, while all other columns use the PPML estimator.[24]

The first two columns report results pooling all cultural goods, whereas columns (3)-(9) detail results for each core cultural good identified by the UNESCO (2005) (see Table 1). In the first two columns, cultural goods specific fixed effects are included and set relative to cultural heritage goods.

Our results in column (1) are in line with the gravity literature. Distance has a negative and significant impact on trade flows, while economic growth, contiguity, common language and past colonial links foster bilateral trade. Income per capita has a more surprising effect, negative for the exporter and insignificant for the importer. Remember however that the specification identifies the effect of income per capita on its variation over time only. Spanning over the different columns of Table 3, one can notice the very strong instability of those coefficients on income per capita.

The PPML estimation causes changes in the results (column 2). The coefficients on distance and common language are still significant at the 1% level but their magnitude is reduced. Furthermore, the coefficient on colonial links loses significance to reach the 10% level only.[25]

Also, the relative change in economic size of the country (remind that we introduced country and time fixed effects) becomes either not significant (exporter) or weakly significant (importer).

Our results for estimations on each of the seven categories of cultural goods (columns 3 to 9) show some differences, which suggests the existence of good-specific characteristics. Distance coefficients are ranging between -0.37 and -0.96 (always significant at the 1 percent level). Not surprisingly, Newspapers are the most adversely affected by geographical distance. Common language fosters exchanges of cultural goods with a written support. For

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[24]To prevent observations with zero flows from being dropped from the fixed effects regression, we add the first percentile value of positive flows to exports in column (1). These zero observations are not a problem for the PPML estimation since the dependent variable is measured in levels.

[25]Santos Silva and Tenreyro (2006) also show that common colonial links have strong effects under OLS, whereas Poisson estimates reveal no significant effect.

example, it raises flows of books by a factor of $\exp(1.53) = 4.6$ and flows of newspapers and periodicals by a factor of $\exp(1.63) = 5.1$, everything else equal. On the other hand, past colonial relationships seem to influence consumers' preferences for cultural heritage goods and visual arts. Having had past colonial links makes countries' bilateral trade in cultural heritage goods $\exp(1.38) - 1 = 297\%$ larger (95% larger for trade in visual arts). The results are quite expected if trade in cultural goods reflects similarity in cultural tastes and this tends to make us confident for our later use of cultural trade as a proxy for cultural proximity.

TAB. 3 – Determinants of trade in cultural goods

Dep. var. & Specification	Ln(imports), FE		Imports, PPML						
Model:	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Cultural goods:	Pooled	Pooled	Cult. Herit.	Books	Newspapers	Print. matter	Record. media	Visual arts	Audiov.
Ln GDP, origin	1.08^a	0.26	3.58^a	1.02^b	-0.12	1.76^c	-1.18	0.63	0.90
	(0.10)	(0.52)	(1.05)	(0.45)	(0.56)	(0.92)	(0.95)	(0.75)	(1.80)
Ln GDP, destination	0.58^a	1.02^c	2.66^c	-0.06	-0.01	1.30^c	0.33	1.93^c	0.92
	(0.10)	(0.54)	(1.39)	(0.38)	(0.58)	(0.75)	(0.86)	(1.04)	(1.39)
Ln GDP/Pop., origin	-0.79^a	0.53	-3.41^a	-0.27	0.87	-1.13	1.37	0.17	1.43
	(0.10)	(0.54)	(1.06)	(0.56)	(0.59)	(1.00)	(1.00)	(0.74)	(1.91)
Ln GDP/Pop., destin.	0.04	-0.39	-2.01	0.64	0.54	-0.79	0.71	-1.36	-0.64
	(0.10)	(0.57)	(1.41)	(0.40)	(0.57)	(0.84)	(0.90)	(1.10)	(1.29)
Ln distance	-0.63^a	-0.54^a	-0.37^a	-0.41^a	-0.96^a	-0.57^a	-0.74^a	-0.51^a	-0.54^a
	(0.02)	(0.05)	(0.08)	(0.05)	(0.08)	(0.05)	(0.04)	(0.09)	(0.13)
Common border	0.62^a	0.62^a	0.10	0.80^a	0.76^a	0.90^a	0.04	0.91^a	0.72^b
	(0.07)	(0.14)	(0.21)	(0.14)	(0.17)	(0.13)	(0.14)	(0.16)	(0.29)
Common language	0.57^a	0.45^a	0.22	1.53^a	1.63^a	0.62^a	0.38^b	-0.04	0.28
	(0.04)	(0.14)	(0.16)	(0.12)	(0.18)	(0.13)	(0.16)	(0.17)	(0.24)
Colonial links	0.34^a	0.29^c	1.38^a	-0.01	0.41^b	0.125	-0.111	0.67^a	-0.68^c
	(0.06)	(0.16)	(0.14)	(0.12)	(0.19)	(0.13)	(0.15)	(0.18)	(0.37)
Cultural heritage goods	-	-							
Books	0.56^a	0.65^a							
	(0.04)	(0.22)							
Newspaper and period.	0.70^a	1.19^a							
	(0.05)	(0.27)							
Other printed matter	-0.57^a	-1.20^a							
	(0.03)	(0.23)							
Recorded media	0.22^a	0.81^a							
	(0.04)	(0.24)							
Visual arts	0.53^a	0.93^a							
	(0.03)	(0.20)							
Audiovisual media	-0.44^a	0.40							
	(0.04)	(0.36)							
Nb. Obs. & R^2	757579 & R^2= 0.96	757579	31880	127169	30986	135284	121633	256486	54141

Note : Time & country fixed effects are included in all estimations. Std errors are country-pair clustered. ^{a}, ^{b}, ^{c} denote significance at the 1%, 5%, 10% levels.

As emphasized in the literature review, the consumption of cultural goods can be thought to be addictive. The most common approach in the empirical trade literature to test for such an hysteresis effect consists in simply adding lagged imports to the specification (see for example, Eichengreen and Irwin, 1998). Results are reported in Table 9 in the appendix. The positive and significant estimated coefficients on this lagged one-year variable confirm the presence of an addictive behavior.[26]

To test for the hysteresis effect, one can also refer more directly to the literature on addiction and introduce the addictive stock of past consumption in the estimation. Our calculation is based on Chaloupka (1991). The author uses Becker and Murphy's (1988) model of rational addiction to derive and estimate cigarette demand equations that explicitly account for the addictive nature of cigarette smoking. In his model, a stock consumption variable is elaborated considering a yearly depreciation of past consumption by a factor δ (see Appendix for a detailed presentation). The choice of the depreciation rate depends on the expected influence of past consumption. For Chaloupka (1991), high depreciation rates do not mean a lower addiction but rather a faster decline of the addiction after the end of the consumption. In our study, we use a depreciation rate of 0.7. As shown in the Appendix, this choice does not affect significantly the results of our estimations. Results are presented in Table 4. When applied to cultural trade, estimated coefficients on the stock variable are weaker than the ones obtained on lagged imports (Table 9) but remain positive and significant. Put together, those results validate the presence of an hysteresis effect in cultural goods consumption. Such an hysteresis effect is important since it will tend to reinforce strong and long-established market positions in cultural exports. Furthermore, those self-reinforcing patterns have larger consequences than just trade in cultural goods, since those actually impact more general trade flows as we will see in the next section.

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[26]We also estimated the hysteresis effect for overall trade. Estimations (not reported here) suggest a weaker addictive behavior than the one observed for cultural trade.

TAB. 4 – Test of the hysteresis effect (using the addictive stock of past consumption)

Dep. var. & Specification	Ln(imports), FE		Imports, PPML						
Cultural goods :	Pooled	Pooled	Cult. Herit.	Books	Newspapers	Print. matter	Record. media	Visual arts	Audiov.
Ln GDP, origin	1.69^a	1.41^b	4.53^a	1.45^a	0.17	1.81^a	-0.94^c	1.80^a	4.88
	(0.11)	(0.60)	(1.16)	(0.52)	(0.58)	(0.68)	(0.56)	(0.62)	(3.99)
Ln GDP, destination	-0.70^a	0.14	3.15^b	-0.73^c	-0.55	0.06	-0.10	0.23	-0.27
	(0.13)	(0.63)	(1.48)	(0.43)	(0.76)	(0.64)	(0.66)	(1.12)	(1.54)
Ln GDP/Pop., origin	-1.62^a	-1.14^c	-4.53^a	-0.96^c	0.46	-1.46^c	0.81	-1.67^a	-3.24
	(0.11)	(0.61)	(1.22)	(0.57)	(0.63)	(0.75)	(0.62)	(0.64)	(3.94)
Ln GDP/Pop., destination	0.93^a	0.35	-2.63^c	1.42^a	1.17	0.41	0.80	-0.01	0.51
	(0.13)	(0.62)	(1.48)	(0.49)	(0.76)	(0.67)	(0.69)	(1.05)	(1.43)
Ln distance	-0.39^a	-0.14^a	-0.13^b	-0.18^a	-0.72^a	-0.22^a	-0.13^a	-0.19^a	-0.24^a
	(0.02)	(0.02)	(0.05)	(0.02)	(0.09)	(0.04)	(0.02)	(0.03)	(0.08)
Common border	0.51^a	0.06	0.17	0.22^a	0.57^a	0.31^a	0.00	0.11	0.20
	(0.06)	(0.05)	(0.13)	(0.06)	(0.13)	(0.07)	(0.04)	(0.07)	(0.16)
Common language	0.35^a	0.07	0.10	0.57^a	1.22^a	0.18^a	0.02	-0.03	0.01
	(0.04)	(0.05)	(0.11)	(0.06)	(0.13)	(0.06)	(0.05)	(0.06)	(0.14)
Colonial links	0.16^a	0.15^b	0.85^a	0.01	0.28^b	0.07	-0.13^b	0.37^a	-0.38^b
	(0.05)	(0.08)	(0.10)	(0.05)	(0.14)	(0.07)	(0.06)	(0.09)	(0.19)
Ln addict. stock past imp.	0.24^a	0.81^a	0.47^a	0.66^a	0.23^a	0.67^a	0.90^a	0.77^a	0.59^a
	(0.01)	(0.02)	(0.05)	(0.02)	(0.06)	(0.03)	(0.02)	(0.03)	(0.04)
Cultural heritage goods	-	-							
Books	0.36^a	0.22^a							
	(0.03)	(0.08)							
Newspaper and period.	0.49^a	0.25^a							
	(0.04)	(0.08)							
Other printed matter	-0.43^a	-0.35^a							
	(0.03)	(0.09)							
Recorded media	0.12^a	0.39^a							
	(0.03)	(0.09)							
Visual arts	0.32^a	0.31^a							
	(0.03)	(0.07)							
Audiovisual media	-0.31^a	0.39^a							
	(0.03)	(0.11)							
Nb. Obs. & R^2	757579 & R^2 = 0.47	757579	31880	127169	30986	135284	121633	256486	54141

Note : Time & country fixed effects are included in all estimations. Std. errors are country-pair clustered. ^{a}, ^{b}, ^{c} denote significance at the 1%, 5%, 10% levels.

4.2 The impact of cultural proximity on overall trade

We ask in this section if bilateral trade is more important when both countries have proximate cultural tastes.

The existing literature (Giuliano et al., 2006 or Guiso et al., 2007) uses the level of bilateral trust, genetic, somatic or linguistic distances, and historical variables such as the number of wars fought as proxies and/or instruments for cultural proximity. While there is a lot of debate in this literature about the adequacy of each of those variables, a common feature is that they rely on the cross-sectional variance only to measure their impact.

Accordingly, in addition to the traditional measures of cultural proximity considered in the literature (shared language, colonial links, etc.), we use trade in cultural goods as a proxy for proximity in cultural tastes. Our variable has the advantage of allowing for both bilateral and time variances in the measurement of cultural proximity.[27]

Results are reported in Table 5. As previously, we rely on the seven categories of core cultural goods defined by the UNESCO (2005). Our dependent variable is the yearly total value of bilateral imports minus bilateral imports of cultural goods. Trade data are extracted from the Comtrade database. Trade in cultural goods represents on average 1.4% of overall trade between 1988 and 2004.

Estimations cover the period ranging from 1988 to 2004. We start by considering the impact of aggregated cultural goods. The first two columns use the PPML estimator with country fixed effects. Columns (3) and (4) report regressions using country dyads fixed effects with an OLS estimator and a PPML estimator, respectively. The remaining columns use the PPML estimator with country fixed effects, and are estimated using alternatively as an explanatory variable each of the seven categories of cultural goods.

In column (1), the simple gravity equation including only traditional proxies of cultural proximity controls for the representativeness of our sample.[28] The results are very similar to the ones usually found in the literature : the coefficient on distance is negative and statistically significant ; adjacency and common language have a positive impact on trade ; and as in Santos Silva and Tenreyro's (2006) study, the estimated coefficient on colonial links is not significantly different from 0.

In column (2), we test for the potential influence of cultural tastes on trade in goods by introducing the total value of bilateral cultural goods' imports. This inclusion causes several changes : the coefficient on importer's GDP becomes non significant and the one on exporter's GDP is now significant only at the 10% level. The impact of distance and common

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[27]A question arising with the latter estimations is the potential endogeneity of trade in cultural flows. Whether this variable is correlated with a non observed variable is the key issue here. We are rather confident in the specification used however, since time and country fixed effects are included in all specifications. Also, columns (3) and (4) replace the exporter and importer individual effects by country-pair fixed effects. In all specifications, and for all categories of cultural goods, the positive impact on overall trade is ascertained. As a last check, in order to instrument, we estimated a PPML in a first stage and a lagged OLS as a second stage. This confirmed the positive and significant impact of the 'cultural heritage', 'audiovisual', 'book' and 'visual art' import variables when the lag is three years. With only two lags it is not significant. Given this instability of the results, potentially associated with large year-to-year changes in the variables, we instead used a 4 years moving average of the variables. This confirmed the positive and significant impact of the 'cultural heritage', 'book' and 'visual art' import variables. Results are not reported here but available on request.

[28]To allow comparisons of results, we restrict our sample to observations for which there is trade in cultural goods.

border is reduced, and common language is no longer significant. The estimated coefficient on the log of cultural goods imports is significant at the 1% level and positive, suggesting that cultural flows influence all trade relationships. A 10% increase in cultural exchanges raises overall trade by 3.2%.

The comparison of columns (1) and (2) shows that the inclusion of cultural flows significantly affects the estimated coefficients on the other proximity variables (common language and colonial links) as well as on the distance and contiguity variables. All these results indicate the existence of collinearity between distance, traditional proximity variables and trade in cultural goods. This collinearity was expected and means, first, that cultural flows are partially determined by countries' cultural proximity. It also suggests that our variable of cultural flows better capture cultural proximity than traditional measures.

In columns (3) and (4), we exploit the panel dimension of our data and perform pooled cross-section time-series regressions. Both regressions include country-pair fixed effects. Coefficient estimates on total imports of cultural goods are smaller than the one obtained in column (2) but remain positive and significant at the one percent level. These results suggest that countries' cultural proximity is partially captured by an unobservable time-invariant component. However, the time variance of cultural proximity also explains overall trade. This last result confirms the relevance of using a time-varying variable for measuring countries' cultural proximity.

Columns (5)-(11) report the results for each cultural good separately. Distance and common border are significant in each regression. Furthermore, all estimated coefficients on cultural flows are positive and significant. Finally, the coefficient on cultural heritage goods is significantly weaker than the six other ones.

TAB. 5 – Impact of cultural proximity on overall trade‡

Dep. Var. & Specification & Model :	Tot. imp. PPML (1)	(2)	Ln(tot. imp.) FE (3)	Tot. imp. PPML (4)	(5)	(6)	(7)	Tot. imp. PPML (8)	(9)	(10)	(11)
Ln GDP, origin	0.65^a (0.18)	0.36^c (0.19)	0.50^a (0.11)	0.57^a (0.15)	0.69^b (0.28)	0.25 (0.18)	0.64^a (0.24)	0.22 (0.26)	0.45^b (0.20)	0.44^b (0.22)	0.81^a (0.23)
Ln GDP, destination	0.50^a (0.19)	0.14 (0.15)	0.93^a (0.10)	0.63^a (0.18)	0.24 (0.31)	0.38^c (0.21)	0.43^c (0.25)	0.24 (0.17)	0.11 (0.21)	0.12 (0.14)	0.32 (0.25)
Ln GDP/Pop., origin	-0.07 (0.19)	-0.01 (0.21)	-0.07 (0.11)	-0.11 (0.16)	-0.05 (0.29)	0.11 (0.18)	-0.20 (0.25)	0.22 (0.27)	-0.05 (0.20)	-0.05 (0.23)	-0.39^c (0.24)
Ln GDP/Pop., destination	0.21 (0.19)	0.24 (0.15)	-0.20^b (0.10)	-0.06 (0.18)	0.34 (0.30)	0.15 (0.21)	0.15 (0.25)	0.29 (0.17)	0.38^c (0.22)	0.28^b (0.14)	0.30 (0.26)
Ln distance	-0.68^a (0.03)	-0.45^a (0.02)			-0.61^a (0.03)	-0.51^a (0.02)	-0.44^a (0.03)	-0.49^a (0.02)	-0.51^a (0.02)	-0.45^a (0.03)	-0.55^a (0.02)
Common border	0.57^a (0.09)	0.38^a (0.06)			0.61^a (0.10)	0.37^a (0.06)	0.42^a (0.07)	0.35^a (0.07)	0.48^a (0.07)	0.42^a (0.06)	0.47^a (0.08)
Common language	0.19^b (0.08)	-0.01 (0.06)			0.18^b (0.08)	-0.11^c (0.06)	-0.02 (0.06)	0.03 (0.06)	0.08 (0.06)	0.10 (0.06)	0.09 (0.07)
Colonial links	0.01 (0.10)	-0.13 (0.08)			-0.15 (0.10)	-0.05 (0.08)	-0.13^c (0.08)	-0.13 (0.09)	-0.02 (0.08)	-0.20^b (0.09)	0.01 (0.09)
Ln total imports of cultural goods			0.10^a (0.01)	0.15^a (0.01)							
Ln imports of cult. heritage goods					0.04^a (0.01)						
Ln imports of books						0.24^a (0.01)					
Ln imports of newspapers & period.							0.16^a (0.01)				
Ln imports of other printed matter								0.23^a (0.01)			
Ln imports of recorded media									0.21^a (0.01)		
Ln imports of visual arts										0.30^a (0.02)	
Ln imports of audiovisual media											0.14^a (0.01)
Nb. Obs. & R^2	106631	106631	106631, R^2=0.20	103688	23356	65351	30986	50142	55043	88587	32243

Note : ‡ : imports of cultural goods not included. Time & country fixed effects are included in the estimations. Columns (3) & (4) include country-pair effects instead of importer & exporter effects. Std. errors are country-pair clustered. ^{a}, ^{b}, ^{c} denote significance at the 1%, 5%, 10% levels.

4.3 Robustness checks

In this section we test the robustness of our results. To do so, we consider two alternative data sources : the UNESCO and Eurostat-AUVIS databases. Both databases provide the production place of the cultural content rather than the export place of the cultural good and thus are not affected by the outsourcing phenomenon referred to above. However, their coverage is more restrictive. Comparisons with results from the previous sections should be made carefully, because of differences in the coverage of samples.

The UNESCO database focuses on *trade in movies*. It provides for about 135 countries the number of produced films and the number of copies imported by country of origin. However, disaggregated statistics are available only for main countries of origin, namely the United States, France, Germany, Russia, Japan, India, Hong-Kong, the United Kingdom, and Italy. Other exporters are aggregated in a group "other countries". Data cover the years 1970-1977, 1980, 1985, and 1990-1999.[29] Table 6 reports the exports share of main producers every 5 years between 1970 and 1990 and then every year. It shows a strong increase of the US share at the expense of all other major producers of movies. Some exporting countries like France seem to resist to this trend ; Others (United Kingdom and India) have succeeded to reinforce their position after several years of deep crisis. Italy and Russia lost most of their initially large market shares.

TAB. 6 – Movies Exports Share - UNESCO Database.

Year	Japan	Germany	Hong Kong	Russia	India	UK	Italy	France	US
1970	2.53	4.46	1.71	7.74	8.6	8.05	13.2	10.41	39.02
1975	1.67	2.89	8.84	9.14	8.24	8.99	12.24	10.33	34.48
1980	1.53	3.41	4.69	8.46	4.25	8.23	10.97	8.55	32.81
1985	0.95	3.22	3.15	4.8	4.56	5.6	6.18	11.24	44.71
1990	1.72	2.37	4.36	2.35	3.93	3.68	3.97	8.97	56.95
1991	1.65	2.01	4.79	1.32	4.38	3.72	3.9	8.69	61.06
1992	0.76	1.69	3.25	6.96	5.34	3.78	3.48	10.82	54.39
1993	0.76	1.45	3.19	6.51	6.87	3.18	2.41	9.48	56.66
1994	1.65	1.59	2.51	2.3	2.56	3.26	2.77	6.37	66.16
1995	1.23	2.06	2.25	2.54	2.54	4.55	3.75	8.08	61.62
1996	0.53	1.05	2.68	1.22	2.81	4.78	2.64	6.94	67.66
1997	0.19	0.84	2.48	2.24	3.47	3.89	2.74	7.08	67.26
1998	0.56	1.26	1.03	1.81	2.13	5.36	3.68	7.56	72.81
1999	0.89	1.46	1.47	1.83	3.44	6.21	3.68	6.92	69.46

The second alternative source we use is the Eurostat-AUVIS database. Data do not concern the international flows of movies but the *number of movie theater entries* in each country disaggregated by nationality of origin. The coverage is low both in terms of countries and years available. Our sample includes entries for films made in various EU15 countries and in the United States, and viewed in Denmark, Finland, France, Italy, the Netherlands, Portugal,

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[29]Recent years are available on the web : http ://www.uis.unesco.org/. Previous years are taken from the statistical yearbooks of UNESCO.

Spain and Sweden over the period 1980-2001.

We first investigate the determinants of cultural flows. Results are reported in the two first columns of Table 7. Data in column (1) come from the UNESCO. The dependent variable is the share of movies imports coming from the main producers (United States, France, Germany, Russia, Japan, India, Hong-Kong, United Kingdom and Italy). Regressions use the PPML estimator. The estimated coefficient on distance is relatively close, but slightly lower, than the ones obtained with the Comtrade database (Table 3). Furthermore, cultural and historical proximity strongly influences movies imports.[30] The colonial relationship raises the share of bilateral imports by a factor of $\exp(0.52) = 1.68$, while sharing a language makes bilateral trade $\exp(0.54) - 1 = 72\%$ larger. Countries like France and the United Kingdom benefit from the links created by historical movements of population, similarity of institutions, close cultural tastes. On average, their movies' exports to one of their former colonies with which they share a language are three times larger than their exports to a similar country but with which they have neither colonial nor linguistic links.

Column (2) reports the results using the Eurostat-AUVIS database. The dependent variable is the number of entries by movie's nationality. The distance coefficient is quite small. But this could result from our sample, which mainly includes European countries and the United States. More interestingly, our results confirm the strong influence of the common language variable.

The last three columns study the effect of cultural proximity on overall trade. Imports of cultural goods have been subtracted from overall trade. Column (3) includes only traditional measures of countries' cultural proximity (common language, colonial links). In column (4), we include the share of imported movies as an explanatory variable. In column (5), we add the log of cinema entries. Both coefficients on the share of imported movies and the log of cinema entries are statistically significant and positive, suggesting the existence of a positive effect of cinema imports on overall trade. The magnitude of both coefficients is smaller than the one obtained with the Comtrade data (Table 5). However, this result might be explained by the lower representativeness of the UNESCO and Eurostat data, which do not cover all cultural goods.

5   CONCLUSION

There is considerable concern in the civil society as well as among policy makers with regards to (free) trade in cultural goods and services. We ask here whether there is something special about trade in cultural goods, using various databases and applying recent developments in trade theory and empirics.

Using Comtrade data for the period 1988-2004, covering a wide range of importing and exporting countries, and a number of cultural goods, we estimate a gravity equation taking into account the large presence of zero trade flow values as well as heteroscedasticity. Beyond the traditional results (positive impact of economic size and negative impact of distance),

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[30]These two variables are introduced separately in the estimated equation, despite their eventual links. The correlation between Language and Colony is 0.31 on the 2,905 observations in column (4) and 0.26 on the 485 observations in column (5). Hence there remains enough variance to introduce these two variables separately.

TAB. 7 – Robustness checks (alternative cultural trade datasets)

Dependent variable :	% imported movies	Cinema entries	Total Imports♮		
Source (for the dep. variable) :	UNESCO	Eur.-AUVIS	Comtrade		
Specification	PPML	PPML	PPML		
Model :	(1)	(2)	(3)	(4)	(5)
Ln GDP, origin	3.13^a	8.90^a	0.62^a	1.37	-0.21
	(0.72)	(2.81)	(0.17)	(1.38)	(1.47)
Ln GDP, destination		5.45^b	0.54^a	3.66^a	0.48
		(1.98)	(0.19)	(1.37)	(5.37)
Ln GDP/Pop., origin	-3.87^a	-9.06^a	-0.03	-1.30	0.64
	(0.77)	(2.83)	(0.18)	(1.42)	(1.47)
Ln GDP/Pop., destination	-0.10	-5.56^a	0.19	-2.90^b	0.08
	(0.07)	(1.95)	(0.19)	(1.38)	(5.08)
Ln distance	-0.39^a	-0.23^b	-0.69^a	-0.64^a	-0.22
	(0.07)	(0.10)	(0.03)	(0.06)	(0.14)
Common border	-0.18	-0.30^a	0.56^a	0.52^a	0.39^a
	(0.16)	(0.15)	(0.09)	(0.13)	(0.10)
Common language	0.54^a	2.23^a	0.20^b	0.18	0.30
	(0.16)	(0.40)	(0.08)	(0.16)	(0.23)
Colonial links	0.52^a	0.18	0.02	0.09	0.30
	(0.13)	(0.26)	(0.11)	(0.19)	(0.21)
Shr imported movies (UNESCO)				0.08^a	
				(0.02)	
Ln cinema entries (Eurost.-AUVIS)					0.05^b
					(0.03)
Nb. Obs.	6347	645	213999	2905	485

Note : ♮ : imports of cultural goods not included. Time & country fixed effects are included in all estimations. Std errors are country-pair clustered. ^{a}, ^{b} and ^{c} denote significance at the 1%, 5% and 10% levels.

trade in cultural goods presents some specificities : common language fosters bilateral flows, in particular of books and newspapers. Besides, having had past colonial links reinforces bilateral trade in cultural heritage. Last, the consumption of cultural goods is shown to be addictive. The robustness of these results is tentatively addressed using two alternative data sources (UNESCO and Eurostat-AUVIS) on international exchange of movies. Both databases provide information on the production place of the cultural content and thus get rid of the problem of outsourcing present in Comtrade. Results are overall robust, despite more limited samples.

While trade flows of cultural goods seem overall impacted by the same factors than goods in general, we might however argue that the specificity of cultural trade is to impact deeply values, perceptions, etc. of the importing country, as often stressed out by politicians. From an economic point of view, an empirical validation of such an hypothesis implies that cultural trade has a facilitating impact on non-cultural trade. This hypothesis is considered empirically here by adding to the traditional measures of cultural proximity (shared language, colonial links, etc.), trade in cultural goods as a proxy for proximity in cultural tastes. Bilateral trade is more important when both countries have close cultural tastes and trade more in cultural goods. What is the causality between trade in cultural goods and the proximity of tastes remains indeed an open question.

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APPENDIX : DEPRECIATION OF THE PAST CONSUMPTION STOCK OF CULTURAL GOODS

The addictive stock of past consumption is defined as follows (Chaloupka, 1991) :

$$A(t) = \sum_{i=0}^{t-1} (1 - \delta)^{t-1-i} C(i)$$

where δ is the constant rate of depreciation of the addictive stock over time and $C(t)$ the consumption in year t. This equation can be rewritten as :

$$A(t) = \sum_{i=0}^{t-1} C(i)D(i) = t\overline{CD} + t\text{cov}(C(i)D(i))$$

where $D(i) = (1 - \delta)^{t-1-i}$ and $\overline{CD}$ is the product of the mean value of D and the mean consumption. The covariance is assumed to be relatively small and is ignored.

Following Chaloupka (1991), we assume high depreciation rates considering that withdrawal effects shortly disappear after consumption cessation. If rates of depreciation are between 60% and 90%, remaining consumption effects last between 2 and 5 years. By comparison if $\delta = 20\%$, remaining consumption effects last more than 20 years. Results are described in Table 8. In this Table, we normalize initial consumption to 1 and consider that the effects persist until remaining consumption represents only 1% of the initial one. Moreover, past consumption stock tends to stabilize after some years. We consider that the stock is stabilized if its variation from one year to another is less than 5%. If δ is set to 60%, the stock variation is equal to 4.1% between the third and fourth years. Therefore in such case, the number of years before stabilization is 4. Similarly, if $\delta = 70\%$, the stock variation is 1.9% between the third and fourth years and the number of years before stabilization is 4. If $\delta = 80\%$, the variation is 3.3% between the second and third years and we conclude that the stock is stabilized after 3 years. In our study, we set δ to 0.7.

TAB. 8 – Depreciation rate and consumption effects

Depreciation rate (δ)	0.6	0.7	0.8	0.9
Remaining consumption effects (nb. of years) $t = ln(y)/ln(1-\delta)$ with y : remaining consumption (y=0.01)	5	3.8	2.9	2
Years of consumpt. before stock stabilization	4	4	3	2
Coeff. on the stock of past consumption	0.572 (0.037)	0.573 (0.037)	0.574 (0.037)	0.574 (0.037)

Using these depreciation rates, we estimate gravity equations for the aggregate value of cultural goods imports. The stock of past imports is included among explanatory variables. Coefficient estimates on this stock are reported in Table 8. These estimates are not significantly affected by the value of the depreciation rate. Thus, the choice of a depreciation rate depends essentially on the expected time of influence of past consumption.

TAB. 9 – Test of the hysteresis effect (using lagged imports)

Dep. var. & Specification	Ln(imports), FE	Imports, PPML							
Cultural goods :	Pooled	Pooled	Cult. Herit.	Books	Newspapers	Print. matter	Record. media	Visual arts	Audiov.
Ln GDP, origin	0.11^b	-0.52^a	-0.01	-0.38^a	-0.01	-0.72^a	-1.11^a	-0.61^a	0.90
	(0.04)	(0.14)	(0.39)	(0.12)	(0.25)	(0.26)	(0.23)	(0.19)	(1.16)
Ln GDP, destination	-0.15^a	-0.68^a	-0.19	-0.23	-0.53^a	-0.48^c	-1.13^a	-0.85^c	-0.17
	(0.05)	(0.23)	(0.61)	(0.14)	(0.19)	(0.26)	(0.20)	(0.44)	(0.72)
Ln GDP/Pop., origin	-0.13^a	0.52^a	0.04	0.37^a	0.06	0.79^a	1.02^a	0.55^a	-0.09
	(0.04)	(0.14)	(0.38)	(0.12)	(0.26)	(0.29)	(0.25)	(0.19)	(1.22)
Ln GDP/Pop., destination	0.46^a	0.86^a	0.53	0.55^a	0.87^a	0.71^a	1.33^a	0.94^b	0.16
	(0.05)	(0.21)	(0.57)	(0.16)	(0.20)	(0.26)	(0.22)	(0.40)	(0.72)
Ln distance	-0.10^a	-0.04^a	-0.07^a	-0.03^a	-0.10^a	-0.07^a	-0.05^a	-0.05^a	-0.08^a
	(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.03)
Common border	0.10^a	0.01	0.04	0.03^b	0.09^a	0.07^a	0.01	0.01	0.13^b
	(0.01)	(0.01)	(0.06)	(0.01)	(0.02)	(0.03)	(0.01)	(0.01)	(0.06)
Common language	0.11^a	0.02^c	0.05	0.11^a	0.17^a	0.02	0.03^b	0.01	0.01
	(0.01)	(0.01)	(0.05)	(0.01)	(0.03)	(0.02)	(0.01)	(0.02)	(0.06)
Colonial links	0.05^a	0.03^c	0.42^a	-0.01	0.04^c	0.04	-0.04^b	0.07^a	-0.17^b
	(0.01)	(0.02)	(0.06)	(0.01)	(0.02)	(0.03)	(0.02)	(0.02)	(0.08)
ln lagged one-year imports	0.82^a	0.94^a	0.71^a	0.93^a	0.87^a	0.89^a	0.93^a	0.93^a	0.80^a
	(0.01)	(0.01)	(0.03)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Cultural heritage goods	-	-							
Books	0.13^a	0.05^b							
	(0.01)	(0.02)							
Newspaper and period.	0.17^a	0.05^c							
	(0.01)	(0.02)							
Other printed matter	-0.09^a	-0.08^a							
	(0.01)	(0.03)							
Recorded media	0.06^a	0.11^a							
	(0.01)	(0.03)							
Visual arts	0.14^a	0.08^a							
	(0.01)	(0.02)							
Audiovisual media	-0.09^a	0.11^a							
	(0.01)	(0.04)							
Nb. Obs. & R^2	531622 & R^2= 0.77	531622	20911	90156	22867	94562	85169	181627	36330

Note : Time & country fixed effects are included in all estimations. Std errors are country-pair clustered. ^{a}, ^{b}, ^{c} denote significance at the 1%, 5%, 10% levels.

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