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CULTURAL DISTANCE IN INTERNATIONAL TRADE: CONTRIBUTOR OR IMPEDIMENT?

ABSTRACT

The article aims at identifying and evaluating culture's effects to predict bilateral trade flows by constructing cultural distance measures with data derived from the large-scale empirical cross-cultural study. The application of values-tied and practices-tied data across 57 countries at different points in time in international trade gravity models reveals positive predictors, but only the former is statistically significant. The country-level results display variance in cultural distance effects in trade and also show that cultural differences might contribute more to bilateral trade for less developed countries but impede it for more developed countries. By challenging the "polarity" interpretation of cultural distance, the article contributes to the scholarly discussion surrounding culture's role in international trade by offering a more balanced view of cultural distance effects that may serve as both an inhibitor and facilitator, and by suggesting a "duality" explanation, one that has been largely overlooked.

Keywords: international trade, cultural distance, gravity model

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INTRODUCTION

Within our shifting international business environment, non-market factors, including culture, have a growing impact on determining effective international commerce options. However, modern debates about culture's significance in international business concede that "culture as a factor of economic development and international trade and investment flows became acceptable in mainstream economic research only in the past decade" (Cuypers et al., 2018: 1139).

While scholarly literature exhibits rich and comprehensive discussions of the measurements and interpretations of cultural differences and similarities that shape global business performance, it does not provide clear consensus on whether cross-cultural differences between trading partners contribute to or impede effective bilateral trade flows. On the one hand, cultural differences have traditionally been associated with barriers to cross-border trade, stemming from a lack of understanding and trust, and it has been assumed that cultural similarities remove those barriers or minimize cross-border transaction costs. On the other hand, cultural differences may contribute to effective cross-border trade when they enhance specialization in goods and services or push businesses in host countries toward lower-risk trading rather than higher-risk foreign direct investments (FDI) in an unfamiliar environment, which may also narrow the scope of trading options.

This article aims to identify and evaluate culture's effects on predicting bilateral trade flows by constructing cultural distance measures through gravity models used by economists in international trade research with values-tied and practices-tied data derived from a large-scale empirical cross-cultural study. This study displays cultural distance's complexity and multidirectional effects on global trade relations and finds that in bilateral trade, culture is more likely an impediment in the case of more developed countries and a contributor to trade in the case of less economically developed countries. Furthermore, by challenging the "polarity" interpretation of cultural distance effects in scholarly literature, this article offers a more nuanced and balanced view by exploring the largely overlooked "duality" explanation, perhaps due to lack of relevant empirical evidence or multidisciplinary perspective on the culture-trade relationship.

Accordingly, in the next section, we introduce a rationale for culture's effects on trade and address complexities that surface in its interpretation. Then, we outline predictive economic models of trade and explain the instrumentality of advanced empirical research on societal cultures, hence contributing to more comprehensive assessments by including cultural distance data in those models. After formulating working hypotheses, we assess

augmented gravity models for international trade that integrate cultural distance variables at an all-country (global) and country-by-country level. Finally, we present these novel findings and discuss the theoretical and practical implications that stem from our analysis.

TOWARD A COMPREHENSIVE ASSESSMENT OF CULTURAL DISTANCE EFFECTS IN INTERNATIONAL TRADE

Cultural distance in bilateral trade: economic effect and obstacles to interpretation

International trade as the exchange of goods and services across national borders has long been at the center of economists' and international business scholars' attention in their search for beneficial trade-related activities, institutions, and market-driven behaviors. Those, in turn, cannot be separated from the social processes embedded in the national cultures of trading partners as cultural contexts extend the rationale for trading decisions beyond differences in cost, technology, and natural resources.

Cultural differentiation reflects the ways in which people share norms, and consolidate their interests, consumption preferences, and choices about traded goods, foreign partners, and export-import transactions. Cultural distance "is an important concept in understanding diversity and the ways it affects human relationships" (Triandis, 1998: 1), and the construct measures "differences between national cultures" (Tihanyi, et al., 2005: 270) or more precisely the degree to which separate and distinct cultures are similar or different (Shenkar, 2001). This measure is used in interpreting investment and trade decisions, entry modes, trade channels, and firm performance, with a focus on societal grouping, typically found at a country rather than individual level (Beugelsdijk et al., 2018; Sousa & Bradley, 2006). Cultural distance is one of the key components in the multidimensional assessment of cross-national distance serving "to better understand when and why different types of distance have either a positive or negative impact on managerial decisions, country trade patterns, or even political relationships across countries" (Berry et al., 2000: 1461).

As such, critically evaluating culture builds acumen and insight. First, cultural differences shape trade specialization in terms of distinctive and competitive differentiated goods across international markets. This is often amplified in cultural industries (Acheson and Maule 2006) or encouraged in countries where access to unique or specialized goods is missing. The production and availability of such valued goods may be derived from the

historic and religious traditions of societies, as well as prevailing customs. In contrast, culture can also impose constraints on trading choices by limiting the access of certain product groups to specific markets (e.g., due to religious customs). Second, cultural distinctions shape countries' institutions and governance mechanisms that encourage international economic activities and promote trust within trade contracts, networks, and partnerships (Tabellini 2008; 2010), for example, substantiated in the case of Muslim countries (Turco and Maggioni, 2018). Third, cultural distinctions may inform international actors' assessments of the interplay between trade and investment (Dunning, 1993), evidenced in the bidirectional effects of cultural distance (Zwinkels and Beugelsdijk, 2010). Trade agreements undoubtedly impact bilateral trade flow volume, however additional effects related to culture endure. These effects may be observed not only in cross-border agreements but also in FDI-trade decision uncertainty stemming from a higher cultural distance. For example, in environments where home-host cultural distance is high, decision-makers may face complexities and complications that could harm firm profitability (Hutzscheneuter and Voll 2008) or expose trade transactions that offer lower risk, rather than pursuing FDI. Moreover, cultural differences may moderate the assessment of country risks in trade and entry mode decisions, thereby shifting trade versus investment options.

Despite a strong consensus that culture influences international trade flows (Dunning, 1993; Linneman, 1966; Neal, 1998; Srivastava and Green, 1986; Franco and Maggioni, 2022) and acknowledgment of the growing role of cultural arbitrage in MNEs' decision-making (Ghemawat, 2003: 78-79) identifying, measuring, and specifying those effects has remained problematic. There are various reasons underlying the difficulties in delineating culture's impact on international trade flows.

Initially, the complex effects that cultural differences exert on international trade suggest the need for a *multi-disciplinary* approach that integrates economic analyses and cultural studies; nonetheless, most economic analyses and cultural studies remain disparate. Maseland and Beugelsdijk (2010) note that traditionally, these two scientific streams have been separated by a fault line, with economics research emphasizing the universal structures of individual rational choice (i.e., norms), and culture-related research offering contextual interpretations of rational choice problems (i.e., deviations from norms). In the latter part of the twentieth century, cross-disciplinary connections emerged through the influence of both developmental economists who acknowledged social factors in their research (Caliscan and Callon, 2009; Nash, 1984; North 1981, 1990; Williamson, 1985), and behavioral science scholars who integrated economic aspects into the analysis of societal processes (Becker,

1993; Coleman, 1990; Mauss, 1979). As stated by Shenkar, "one important route the IB community can take towards further scholarly advancements on culture… is to expand and deepen interdisciplinary research" (2021:1). Elaborating further, Nakata (2009) notes that the deepened and enhanced concepts of culture and incumbent operational measures of cultural differences could significantly advance economic analyses. While recent scholarly publications (e.g., *Journal of Cultural Economics*) facilitate the integration of culture and economics in research, fundamental difficulties remain when attempting to bridge the abovementioned gap (Shenkar, 2021).

Another reason for the difficulties associated with evaluating culture with trade stems from the *methodological* diversity in the tools employed in prior analyses. To integrate non-economic variables (e.g., cultural distance) into quantitative economic research, it is necessary to measure cross-country differences. However, as noted by Hakanson (2014), the measurement of cultural dissimilarities is problematic and, until recently, general cross-cultural data has provided only limited measures (Beugelsdijk et al., 2018; Stahl et al., 2017). Addressing this issue, Fukuyama (2001) asserts that "the biggest challenge in studying culture and development is to find a way to incorporate cultural factors into theoretical and empirical models already in use by economists … the renewed interest in concepts like social capital may lead to the development of new data sources that will permit greater interaction between the ethnographic and model-building sides of social sciences" (2001:3134). Furthermore, inconsistencies mark the methodologies used to define and interpret cultural distance measures about the data (Hanges and Dickson, 2004; Hofstede, 1980; Schwartz, 2004) and computation indices (e.g. Euclidian distance, Kogut-Singh index, Mahalanobis' approach), such that each measure has its relative strengths and weaknesses (Li et al., 2016; Maseland et al., 2018; Beugelsdijk et al., 2018).

A final reason for the difficulties in delineating the impact of culture's complexities comes from results revealed through myriad research studies. Extant findings of culture influence on international trade tend to be mixed, displaying cultural distance as either an impediment or a contributor to trade. These contrasting results are dependent on factors such as the choice of country sample or type of traded goods, with some discussions falling prey to stereotypes that surface from insufficient or inaccurate generalizations of select studies (Li et al., 2016; Stahl et al., 2017; Stahl and Tung, 2015).

A "friction" view of differences traditionally associates barriers with cross-border trade because the consequent cultural distance can complicate trade relations (Liu et al.

2021). Conversely, cultural similarity and proximity may help remove barriers and minimize cross-border transaction costs (Zhou, 2011). This latter concept is derived from colonial ties, trade diasporas, trade-generated effects of immigration, language compatibility, religious similarities, or the tolerance of religious orientations (Zhou, 2010). Whereas cultural similarities and commonalities encourage and facilitate trade (Neal, 1998), the traditional "friction" view assumes that cultural distance increases the costs required to overcome it (Shenkar, 2001; Stahl et al., 2017). In their seminal research study, Dow and Karunaratna (2006: 582) state that "differences in national cultures will be negatively associated with the intensity of trade between countries." Moreover, when integrating cultural contrasts and asymmetries (language, norms, values, etc.) into a broader concept of psychic distance that addresses home-host perceptual and information differences (Beckerman, 1956; Linnemann, 1966; Guizo et al., 2009), scholars also observe the negative effects of psychic distance on trade (Hakanson, 2014). While acknowledging this, Hakanson also notes that "the importance of psychic distance as an impediment to trade can be expected to have declined due to the improvements in communication and information technologies of recent decades" (ibid.: 2111). Yet other research findings indicate that cultural differences may prompt more effective cross-border trade if they enhance the specialization of traded goods and services. Reflecting on these possibilities, studies across many countries tend to show mixed or positive cultural distance effects, driven by differences in production, specialization in trade, or partners' preferences for trade over FDI (Dunning, 1993; Lankhuizen and de Groot, 2016; Lewer and van den Berg, 2007; Mohlmann et al., 2010).

Considering these varied findings, further research is needed to better understand and interpret the complex interplay between home and host cultural environments (similarities and differences) and the effectiveness of trade flows among them. Cultural distinctions are rarely a major defining factor for structuring flows of commodities; however, they can markedly shape and influence countries' bilateral trade flows, in particular for differentiated goods. Therefore, noting the significance of cultural influence in trade relations remains a complex question warranting further investigation.

Predictive models for international trade

Modern economic and cross-disciplinary research on distance effects in trade facilitates a comprehensive multifactor analysis, by capitalizing on classical international trade models and leveraging the availability of new empirical data (Bergeijk and Brakman, 2010).

Historically, applied gravity models implemented ordinary least squares (OLS) equations to predict the effects of geographic distance and gross domestic product (GDP) on bilateral trade flows (Tinbergen, 1962). As explained by Baier and Bergstrand, scholars often examine basic measures "akin to Newton's Law of Gravity, whereby the bilateral trade flow from region *i* to region *j* was a multiplicative (or log-linear) function of the two countries' GDPs, their bilateral distance, and an array of bilateral dummy variables assumed to reflect the bilateral trade costs between that pair of regions" (2009, 77).

Simple in form, this classical model depicts trade as an increasing function of the economic size of countries and a decreasing function of geographic distance:

$$X_{ijt} = e^{\alpha_1} \cdot Y_{it}^{\alpha_2} \cdot Y_{jt}^{\alpha_3} \cdot D_{ij}^{\alpha_4} \cdot A_{ij}^{\alpha_5} \cdot u_{ijt}, \quad (1)$$

where

X_{ijt} = bilateral trade between countries *i* and *j*

Y_{it} = GDP for country *i*;

Y_{jt} = GDP for country *j*;

D_{ij} = measure of geographic distance from country *i* to country *j*;

A_{ij} = any factor that aids or limits trade; and

u_{ijt} = error term.

According to Bergeijk and Brakman (2010), this classical model can explain 70–80% of the variance in bilateral trade flows. Moreover, Disdier and Head (2008) confirm that across multiple studies, a 10% increase in geographic distance lowers bilateral trade by about 9% on average.

The gravity model also has been applied successfully to analyses of international trade using detailed data on differentiated versus non-differentiated goods (Hakanson and Dow, 2012), clusters of the five-digit Standard International Trade Classification (SITC) code across both goods and services sectors (Kimura and Lee, 2006), FDI and outsourcing flows (Bergstrand and Egger, 2010; Zwinkels and Beugelsdijk, 2010), and cross-border mergers and acquisitions (Brackman et al., 2010; Dikova and Sahib, 2013; Tu & Zhang, 2022). The research scope also varies from regional blocks (EU, NAFTA, CARICOM, MERCOSUR) to groupings based on economic development (e.g., OECD, G-7) to country-centered analyses such as for the United States (Slangen et al., 2011; Zwinkels and

Beugelsdijk 2010; Tadesse and White 2007), Russia (Iwasaki and Saganuma, 2013; Lissovolik and Lissovolik, 2004), or China (Gao, 2005; Liu et al., 2020). The determinants of trade have also been expanded to incorporate non-economic spheres such as historic (Sandberg et al., 2006), political and diplomatic (Afman and Maurel, 2010), as well as cultural factors akin to language, religion, and colonial legacy (Berry et al., 2010).

The analysis of culture's effects, considering both the negative and positive influences on trade flows and using comprehensive statistical analyses of product clusters, has thus increasingly emerged (Kimura and Lee, 2006). According to Mohlmann and colleagues (2010), the cultural distance measured with Hofstede's (1980) data has a negative effect on all one-digit SITC product groups, apart from machinery and transport equipment, for which the effect is significant and positive. They find that for food and live animals, the cultural distance coefficient reaches 0.05 and for beverages and tobacco, it is 0.16. Corroborating these findings, Linders and colleagues (2005) estimate the effects of cultural distance on trade with a positive coefficient of 0.06.

The gravity model in its classic form has been in use by economists for decades and its display is consistent with mainstream international trade research. The authors intend to emphasize this stream of analysis and highlight its historic roots (Tinbergen, 1962) and shed light on economic literature that has applied gravity models and incorporated cultural parameters, hence intertwining economics, international business, anthropology, and behavioral science perspectives. We anticipate that the integration of economic research on international trade with advances in cross-cultural studies may serve productive purposes, hence with this study, we propose augmented gravity models that reflect modern advances in empirical cultural research.

Baier and Bergstrand (2009) further acknowledged the strengths, weaknesses, and instrumentality of the OLS tool and advocated the use of structural systems of non-linear equations stemming from more recent works (Eaton and Kortum, 2002; Feenstra, 2004, Baier and Bergstrand, 2007). Hence, the modern gravity model literature displays a more traditional OLS estimates stream of research along with a more comprehensive and specific approach with non-linear equations. Consequently, researchers confront an onerous decision when "a customized NLS [non-linear least square] approach can potentially generate consistent, efficient estimates of gravity equation coefficients, but is computationally burdensome relative to OLS and subject to measurement error associated with internal distance measures" (Baier & Bergstrand, 2009, 78). In our follow-up analysis,

we adhere to the traditional OLS estimates while performing additional robustness checks for clarity.

The instrumentality of advanced cross-cultural studies for economic modeling

In mainstream research, multiple studies with gravity models address links of the *individual* (single criterion) cultural attribute (e.g., religion, language, diasporas, colonial ties) with international trade. For example, Gao (2005) calculates a positive direct impact of the shared Chinese language on investment flows between Southeast Asian countries. Srivastava and Green (1986) confirm that cultural similarity, in terms of shared religion and language, offers greater explanatory power regarding the intensity of merchandise trade. Analyzing trade across Middle Eastern countries, Mehanna (2003) confirms the positive role of British colonial ties, whereas an Islamic religion variable indicates statistically significant negative effects on trade. Lewer and van den Berg's (2007) cultural variable is an increasing function of the share of a country's population identifying with a particular religious culture. They confirm the direct and indirect institutional effects of religion, which might stimulate or stifle trade but find mainly positive effects for several major religions. By exploring trade diasporas, immigrant networks, and cross-border social networks, Rauch (1999, 2001) identifies the positive impacts of these factors on international trade due to cohesion, trust in the interaction, improved resource allocation, surpluses from cooperation, the effective overcoming of informal barriers, and quick learning. Whereas den Butter and Mosch (2003) identify positive, highly significant impacts of trust (formal and informal), Felbermayr and Toubal (2010) confirm a positive impact of cultural proximity on trade.

Rather than single-criterion comparisons of cultures, early work by scholars exploring complex, *multivariable* measures of the cultural profiles of local population subgroups, yielded dimensions that could be generalized to societal levels and further transformed into cultural distance measures. For example, the formative research by Douglas (1973) offered a two-dimensional grid for analyzing and comparing patterns of social control among societies (homogeneity vs. diversity). Follow-up studies proposed various combinations of societal dimensions for comparison. The four-dimensional model of Hofstede (1980), comprised of the cultural dyads and constructs such as individualism–collectivism, masculinity–femininity, uncertainty avoidance, and power distance (later enriched with additional dimensions of long-term orientation and indulgence), was originally applied across 40 countries. In research originating from the World Values Survey

of more than 80 countries, Ingelhart (1997) generated a two-dimensional model, which compared societies according to their traditional versus secular values or survival versus self-expression focus. In their seven-dimensional model designed to compare culturally endorsed communication patterns in more than 40 countries, Hampden-Turner and Trompenaars (2000) described how people control time and their environment, express emotions, or relate to others. Depicting a model of universal human values, Schwartz (1992, 2004) revealed three comparative dimensions including embeddedness vs. autonomy, mastery vs. harmony, and hierarchy vs. egalitarianism. Finally, through a 62-society study of culture (House et al., 2004; also see Chhokar et al. 2007), researchers involved in the Global Leadership and Organizational Behavior Effectiveness (GLOBE) study established a nine-dimensional model. Depicting both values and practices approaches to culture, GLOBE measured the dimensions of future orientation, performance orientation, humane orientation, uncertainty avoidance, power distance, institutional and group collectivism, gender egalitarianism, and assertiveness orientation.

Applications of *composite* (multi-criteria) cultural distance measures to the analysis of international trade (Dow and Karunaratna, 2006; Linders et al., 2005; Mohlmann et al., 2010)—similar to applications of distance measures to FDI (Barkema and Vermuelen, 1997; Kogut and Singh, 1988; Li et al., 2016; Slangen and van Tulder 2009) and parallel to the Uppsala School's broader set of cross-culture psychic measures (Hakanson, 2014; Tihanyi et al., 2005)—also have become more prevalent. In research using multidimensional measures of distance, the influence of Hofstede's (1980) model is clear; nearly three-quarters of all entry mode choice studies rely on Hofstede's measures of national culture as the sole indicator of distance (Dow and Larimo, 2009). The popularity of this approach likely stems from its support of simple, reasonable computations of composite indexes, including Euclidian distance measures or corrected by variance averaged squared distances proposed by Kogut and Singh (1988). Despite ongoing debate about the instrumentality of the latter index for computing cultural distances (Cuypers et al., 2018; Maseland et al., 2018) and persistent searches for alternative algorithms, this approach remains the most used and credible option available among extant comparative studies.

In an advanced application of Hofstedian/Kogut-Singh–derived measures of cultural distance to trade among 55 countries, Mohlmann and colleagues (2010) focus on differentiated goods, reference-priced goods, and goods traded in organized exchange, and they confirm Rauch's (1999) findings regarding network effects in trade. Their multidimensional cultural distance variable goes "beyond more traditional measures of cultural familiarity" (Mohlmann

et al., 2010: 234) to provide estimates of statistically significant, positive effects of cultural distance on total trade, particularly evident for trade in differentiated goods, which account for most total trade. However, the cultural distance analysis appears somewhat less compelling for more homogenous groups, commodities, and goods traded in organized exchanges. Recent analyses conducted by Lankhuizen and de Groot (2016) using a gravity model at the all-countries level with Hofstedian data from 100 countries not only confirm the positive effects but also add some specific variations. They argue that cultural distance is often a statistically significant contributor to trade. Noting this relationship as non-linear, however, these researchers posit that international trade increases with cultural distance at low levels then diminishes after a certain threshold level.

While Hofstedian data has been dominating the literature on culture's effects on international business, scholars are constantly challenged to seek alternative measures of cultural distance (Beugelsdijk et al., 2018) and their applications in modeling the relationship between culture and trade. This not only aligns with recommendations to adopt more than one distance measure (Ambos and Hakanson, 2014; Li et al., 2016), but also resonates with simulation studies assessing the influence of different factors on the predictive validity of single vs. multi-item measures, consequently favoring the latter (Diamantopoulos et al., 2012).

Exploring the range of cultural frameworks and searching for appropriate sources and optimal measures of culture (Caprar et al., 2015; Stahl et al., 2017; Tung and Verbeke, 2010) and in response to criticisms of the application of the cultural distance concept in international business research (Beugelsdijk et al., 2018) we find that the comprehensive development of the GLOBE research (Cieslewicz, 2014; Javidan et al., 2006; Li et al., 2016) constitutes an optimal model of culture to employ in this study. We acknowledge that in the scholarly literature its application to specifically predicting international trade flows has been limited (Mac-Dermott and Mornah, 2015). Accordingly, we integrate the GLOBE empirical findings into our proposed models of international trade, motivated by the following several justifications.

Firstly, from its inception, GLOBE research has highlighted connections between culture and economy. Although the GLOBE researchers did not address composite cultural effects in economic processes, they identified clear links between individual cultural dimensions and countries' economic health and development (Javidan and Hauser, 2004). Our study extends this line of thinking about the culture-trade relationship.

Secondly, although culture research commonly focuses on societal values, important nuances between the concepts of cultural values and cultural practices surfaced in the GLOBE study (Javidan et al., 2006). Comparative research shows some association between certain Hofstede (1980) culture values dimensions and GLOBE values dimensions, rather than with GLOBE practices dimension data (Tang and Koveos, 2008; Beugelsdijk et al., 2018). By combining behavioral norms (society "as is") and aspirational values (society "should be") in their assessments (Hanges and Dickson, 2004), GLOBE established a multifaceted understanding of the conceptually separate practices and values approaches to culture measurement where values are mutual ideals about what is desired in a culture, whereas practices are mutual insights regarding customary behavior in a culture (Frese, 2015). Our study incorporates both anthropological and behavioral science perspectives on the culture-trade relationship.

Thirdly, we advocate for a cautious approach in applying time invariant cultural measures as in the case of Hofstede (1980) data that was collected over decades and went beyond the initial 40 countries, with additional measurements applied later to 43 countries. We acknowledge that national cultures do not experience major transformation within a half-generation timespan (the U.N.- and OECD-defined average generation span is about 26 years, ranging between low 20s in developing countries and high 20s in developed countries) however the application of cultural measures that are separated from economic data by more than half-generation and even by decades creates a serious consistency problem. The application of the GLOBE data at two points in time within a half-generation timespan improves the consistency of the analysis of the culture-trade relationship.

Fourthly, in our study, cultural distance measures derived from the GLOBE data help predict bilateral trade flows at the all-country level (aggregate) and country-by-country level (country's trade with all other countries) of analysis. While the former prevails in cultural distance research, considering the various theoretical and methodological caveats noted earlier, country-by-country studies remain at an investigational stage. We posit that the latter assessments of cultural distance influences on trade may reveal divergent effects, ranging from impediments to contributors. Furthermore, we infer that under-recognized and under-valued variations across countries may be associated with countries' economic development. Although scant precedents exist in prior literature, we use these arguments and the GLOBE data in framing our effort to provide broadened insights into the role of cultural predictors in international trade.

Hypotheses

Based on the preceding discussion, we derive three working hypotheses to guide our analysis. We include a test of geographic proximity in all models to ensure the consistency of our study with previous economic research, predicting that geographic distance serves as an impediment to effective trade flows. We acknowledge that while the factor of geography has so far been on the periphery of cross-cultural scholars' attention, it was always emphasized by international trade economists who captured its effects in logistics, transportation cost, and risks, etc. Formally, we state:

> ***Hypothesis 1.*** *The effects of geographic distance on international trade, assessed by an augmented gravity model of international trade that includes cultural variables, are negative.*

We also consider the impact of cultural distance as an independent variable on trade flows. To check the consistency of the augmented model (which includes additional cultural variables), we apply gravity models to international trade flows at different points in time (2004 and 2014) and use data evaluated from both a "values" approach and "practices" approach to culture. In doing so, we emphasize the economic arguments of culture's effects and challenge prevailing notions of cultural distance as mainly an impediment to international trade, suggesting and assessing that cultural differences enhance cross-border trade flows at the all-countries level. Therefore, we posit:

> ***Hypothesis 2.*** *The effects of cultural distance on international trade, assessed by an augmented gravity model of international trade that includes values-tied cultural variables, are positive.*

> ***Hypothesis 3.*** *The effects of cultural distance on international trade, assessed by an augmented gravity model of international trade that includes practices-tied cultural variables, are positive.*

AUGMENTED GRAVITY MODEL FOR CULTURAL DISTANCE EFFECTS IN INTERNATIONAL TRADE

Data

The economic, geographic, and cultural data for this research represent 57 countries from all major regions of the world. The variables with status and data source are summarized in Table 1.

Table 1. Variables with status and data source

Variable	Status	Definition	Source
X_{ijt}	Dependent	Annual data on bilateral trade between countries i and j	(IMTS, 2012; ITS, 2016)
Y_{it} , Y_{jt}	Independent	Countries' real GDP at chained PPPs	(Feenstra et al., 2015; Heston et al., 2011)
D_{ij}	Independent	Measure of geographic distance from country i to country j	(Mayer and Zignano, 2011)
A_{ij}	Independent	Time-invariant cultural distance index for countries i and j	Computed with data from (House et al., 2004)
Comlang_off	Control	Official common language	(Melitz and Toubal, 2014)
Comlang_ethno	Control	Official ethnic language	(Melitz and Toubal, 2014)
Comcol	Control	Common colonizer	(Melitz and Toubal, 2014)
Colony	Control	Past colonial link	(Melitz and Toubal, 2014)

The number of countries included in this study was limited to those participating in the GLOBE research (Table 2).

We thus obtained 1,596 country pairs from publicly available GLOBE data (Globe Project, 2020; House et al., 2004). To strengthen the outcomes and validity of this research, we ran two separate sets of gravity models on economic data from 2004 and 2014.

The archival *economic* data on the target countries for regression analyses refer to the years 2004 and 2014, displaying countries' real GDP at chained PPPs (Feenstra et al., 2015; Heston et al., 2011) and annual data on foreign trade (IMTS, 2012; ITS, 2016).

For the correlation tests that follow the regression analyses, additional data on competitiveness draws from the World Economic Forum's annual reports on competitiveness (Schwab, 2005, 2015). Finally, data on life expectancy derives from the World Bank (2017) database.

Table 2. Countries included in regression analysis (with ISO codes)

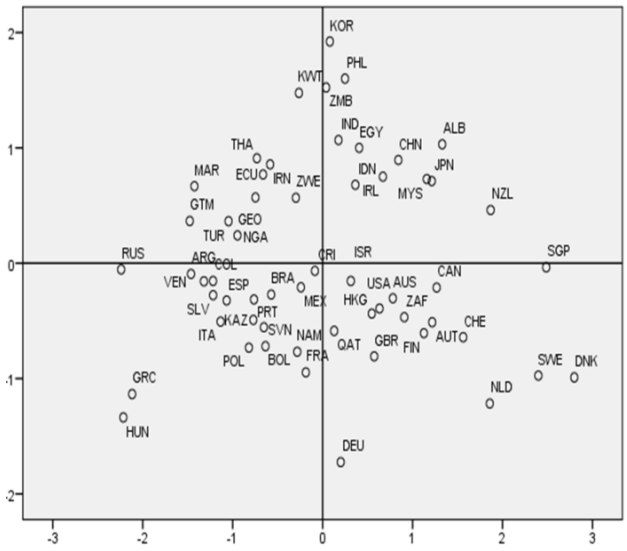
Albania (ALB)	Egypt (EGY)	Israel (ISR)	Poland (POL)
Argentina (ARG)	Spain (ESP)	Italy (ITA)	Portugal (PRT)
Austria (AUT)	Finland (FIN)	Japan (JPN)	Qatar (QAT)
Australia (AUS)	France (FRA)	Kazakhstan (KAZ)	Russia (RUS)
Bolivia (BOL)	U.K. (GBR)	S. Korea (KOR)	Singapore (SGP)
Brazil (BRA)	Georgia (GEO)	Kuwait (KWT)	El Salvador (SLV)
Canada (CAN)	Greece (GRC)	Morocco (MAR)	Slovenia (SVN)
Switzerland (CHE)	Guatemala (GTM)	Mexico (MEX)	Sweden (SWE)
China (CHN)	Hong Kong (HKG)	Malaysia (MYS)	Thailand (THA)
Colombia (COL)	Hungary (HUN)	Namibia (NAM)	Turkey (TUR)
Costa Rica (CRI)	Indonesia (IDN)	Nigeria (NGA)	U.S.A. (USA)
Germany (DEU)	India (IND)	Netherlands (NLD)	Venezuela (VEN)
Denmark (DNK)	Ireland (IRL)	New Zealand (NZL)	S. Africa (ZAF)
Ecuador (ECU)	Iran (IRN)	Philippines (PHL)	Zambia (ZMB)
			Zimbabwe (ZWE)

Geographic data for the 57 countries from the database developed by the Paris-based think tank Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) provides geodesic distances according to the great circle formula for either (1) country capitals or (2) the most important cities/agglomerations, in terms of population (Mayer and Zignano, 2011). The latter is more economically sound and differs from the use of capitals only for the following countries: the United States, Canada, Germany, Russia, Brazil, Kazakhstan, Turkey, Nigeria, and South Africa.

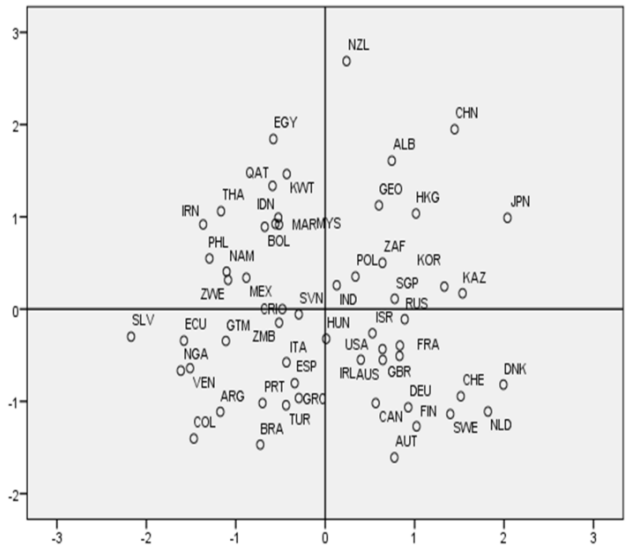
A distinctive feature of this study is the inclusion of empirically generated *cross-cultural* data in the gravity models. We use GLOBE measures of societal cultures, derived from questionnaire responses from middle managers about both the desired values they endorsed and behavioral practices they report. Measured on a 7-point scale, societal culture scores for all nine dimensions were calculated for each country, which represents consistent country-level vectors describing those cultures (House et al., 2004). Using behavioral practices and aspirational values measures, the GLOBE database provides information that we use to compute the cultural distance measures for the 1,596 country pairs. Applying multi-dimensional scaling to cultural distance matrices, we then created cross-cultural maps (Figure 2) to depict differences and similarities across country profiles for practice-related

cultural distance measures (R^2 = 0.84816) and values-related cultural distance measures (R^2 = 0.82603).

Figure 1. Cultural distance maps



(a) practices



(b) values

For three countries in which the original surveys were administered separately for culturally different populations (i.e., French and German samples in Switzerland, Eastern and Western samples in Germany, and Black and White samples in South Africa), we averaged the scores on each dimension to estimate the national cultural profile (Javidan et al., 2006).

Due to the concerns mentioned earlier, we test the model at two different points in time; one data set linked to the initial publication of the GLOBE study (data from 2004) and another data set representing the extension of about a half-generation of the former (data from 2014). We concur with scholars claiming that culture as a societal phenomenon would not change substantially within the timespan of this study, hence, performing further time-series analysis would not be warranted. Notwithstanding, we acknowledge that gradual cultural change in society may occur in response to major political transformations, advancements in communication, or exchanges between countries.

The CEPII database contains information about additional culture-related *control variables*. The language parameters show whether two countries share a common official language, or a language is spoken by at least 9% of the population in both countries. The history-related parameters reflect relationships between countries, independent of their level of economic development, according to whether two countries (1) had a common colonizer or colonial relationship after 1945, or (2) are currently in a colonial or commonwealth relationship (Melitz and Toubal, 2014).

Modeling culture's differential effects on international trade

Using all acquirable data for bilateral trade flows and acknowledging the discussion in the literature about employing log-linearizing equations (Silva and Tenreyro, 2006, 644), we use OLS as a feasible approach compatible with previous research on cultural distance effects in trade (Srivastava and Green, 1986; den Butter and Mosch, 2003; Mohlmann et al., 2010). In its log-linear form, Equation (1) is estimated as:

$$\log X_{ijt} = \alpha_1 + \alpha_2 \log Y_{it} + \alpha_3 \log Y_{jt} + \alpha_4 \log \cdot D_{ij} + \alpha_5 A_{ij} + \sum_k c_k z_{kij} + e_{ijt} \qquad (2)$$

,

where

$\log D_{ij}$ = time-invariant distance (in km);

A_{ij} = time-invariant cultural distance index for GLOBE countries *i* and *j*;

z_{kij} = k control variables; and

e_{ijt} = random error term.

In addition,

$$A_{ij} = \sum_{k=1}^{9} \left\{ \frac{\left(I_{kj} - I_{ki}\right)^2}{V_k} \right\} / 9 \quad (3)$$

,

where

I_{ki} = culture score on k-th GLOBE dimension for i-th country;

I_{kj} = culture score on k-th GLOBE dimension for j-th country; and

V_k = variance of the index of the k-th dimension.

To address the main research question regarding cultural determinants of trade flows at an all-country (global) level, we evaluate four models using economic data (2004 and 2014), geographical distance data, and cultural distance as independent variables. We use an ordinary least squares (OLS) regression separately for culture practices-approach and values-approach data (Models I and II), and further, augment our models with control variables (Models III and IV). Strengthening the validity, we also perform a heteroskedasticity check (Lu & White, 2014; Hayes & Cai 2007). To comprehend and interpret cultural distance effects on trade at the country-by-country level, we conduct separate OLS regressions for each country and its 56 trade partners, representing all major regions of the world. We perform regression analysis separately with 2004 and 2014 economic data, and separately with practices-approach and values-approach cultural data. The resulting set of coefficients may be interpreted, at a country-by-country level of analysis, as *cultural predictors of effective trade flows* within the global sample. Next, upon completion of the estimation of cultural distance effects for trade in gravity models, and with interest in additional distinctive patterns at a country-by-country level, we follow Javidan and Hauser (2004) and compute correlations between cultural predictors and secondary data on countries' economic development.

RESULTS

Tables 3 and 4 display cultural distance predictors in international trade separately for 2004 and 2014 data, and separately for culture practices-approach and values-approach data.

Table 3. Regression coefficients for gravity equations (2004 data)

Independent Variables	Models and Specifications			
	I Model with geographic and cultural distances/practices	II Model with geographic and cultural distances/values	III Model with geographic and cultural distances and control variables/practices/	IV Model with geographic and cultural distances and control variables/values
Log (Y_{it}*Y_{jt})	2.251	2.255	2.256	2.260
SE/robust SE	(0.056)***/(0.076)***	(0.057)***/(0.077)***	(0.057)***/(0.077)***	(0.057)***/(0.078)***
Log geo distance	-1.309	-1.325	-1.249	-1.249
SE/robust SE	(0.087)***/(0.075)***	(0.091)***/(0.082)***	(0.087)***/(0.074)***	(0.091)***/(0.081)***
Cultural distance (GLOBE)	0.210	0.021	0.270	0.082
SE/robust SE	(0.060)***/(0.047)***	(0.071)/(0.064)	0.061)***/(0.050)***	(0.071)/(0.065)
Official common language (comlang_off)			-0.509	-0.476
SE/robust SE			(0.211)**/(0.258)**	(0.212)**/(0.259)*
Common ethnic language (comlang_ethno)			0.941	0.819
SE/robust SE			(0.218)***/(0.230)***	(0.219)***/(0.225)***
Common colonizer (comcol)			0.871	0.892
SE/robust SE			(0.467)*/(0.471)*	(0.470)*/(0.482)*
Past colonial link (colony)			-0.09	-0.146
SE/robust SE			(0.455)/(0.289)	(0.458)/(0.285)
R^2	0.544	0.541	0.554	0.548
Adjusted R^2	0.543	0.540	0.552	0.546
Number of observations	1596	1596	1596	1596

* p <0.1; ** p<0.05; *** p<0.01; Models III and IV were estimated with the full set of dummies.

Table 4. Regression coefficients for gravity equations (2014 data)

Independent Variables	Models and Specifications			
	I **Model with geographic and cultural distances/practices**	**II** **Model with geographic and cultural distances/values**	**III** **Model with geographic and cultural distances and control variables/practices**	**IV** **Model with geographic and cultural distances and control variables/values**
Log (Y_{it}*Y_{jt}) (2014) SE/robust SE	2.300 (0.064)***/(0.084)***	2.273 (0.065)***/(0.084)***	2.276 (0.064)***/(0.084)***	2.246 (0.065)***/(0.083)***
Log geo distance SE/robust SE	-1.391 (0.087)***/(0.080)***	-1.431 (0.092)***/(0.089)***	-1.337 (0.087)***/(0.077)***	-1.403 (0.091)***/(0.087)***
Cultural distance (GLOBE-based) SE/robust SE	0.355 (0.061)***/(0.050)***	0.075 (0.071)/(0.072)	0.413 (0.061)***/(0.050)***	0.120 (0.072)*/(0.075)
Official common language (comlang off) SE/robust SE			-0.532 (0.210)**/(0.241)**	-0.487 (0.213)**/(0.245)**
Common ethnic language (comlang ethno) SE/robust SE			1.003 (0.218)***/(0.177)***	0.815 (0.220)***/(0.178)***
Common colonizer (comcol) SE/robust SE			-0.907 (0.464)*/(0.746)	-0.897 (0.471)*/(0.776)
Past colonial link (colony) SE/robust SE			0.574 (0.453)/(0.267)**	0.524 (0.46)/(0.251)**
R^2	0.488	0.477	0.499	0.485
Adjusted R^2	0.487	0.476	0.496	0.483
Number of observations	1596	1596	1596	1596

* p <0.1; ** p<0.05; *** p<0.01; Models III and IV were estimated with the full set of dummies.

To support the validity of the study we employed a heteroskedasticity-consistent standard error estimator HC3 of OLS parameter estimates (Hayes and Cai, 2007). The robust standard errors are quite similar to the original errors (as shown in Tables 3 and 4) and thus assure that our conclusions are not compromised by heteroskedasticity.

Geographic distance effects

The negative *geographic distance* regression coefficients are statistically significant at the 0.01 level in all models, ranging between -1.431 and -1.249. The estimation outcomes for geographical distance confirm the consistency of the proposed model augmented with cultural variables from previous studies.

In the mainstream literature, applications of the gravity model to bilateral trade flows return consistently negative results for the effects of geographic distance, usually at values around –1.0 for the regression coefficients. For example, Leamer and Levinsohn (1995) report geographic distance effects at a –0.6 level. Disdier and Head (2008) find average effects at the level of –0.87, and Redding and Venables (2003) identify effects ranging between -0.9 and -1.5. These results are consistent with Tinbergen's (1962) original findings of the effects of geographical distance, which suggest values in the range between -0.93 and -0.86. Overall, in line with Hypothesis 1, the results show a persistent negative effect of geographic distance on trade flows, computed with a large data set and cultural distance variables at the all-countries level.

Practices-tied cultural distance effects

The augmented gravity models with practices-tied data at the all-countries level indicate *positive and statistically significant cultural distance* effects in trade when computed on a broad range of countries representing all major parts of the world. In Model I, the regression coefficient for practices-approach cultural distance is positive (0.210 for 2004 and 0.355 for 2014) and significant at the 0.01 level. Adding cultural dummies to Model III increases the coefficient (0.270 for 2004 and 0.413 for 2014), with the same significance level.

The control variables capture additional cultural effects. The impact of a common language is statistically significant in all cases, at the 0.05 level for the official language and the 0.01 level for ethnic languages. However, the direction of their impacts differs; for a common ethnic language, the effects of distance are positive. An ethnic language typically is shared by populations of neighboring countries or at regional levels, and this commonality

attests to the importance of cross-border trade, especially when strengthened by regional integration among countries. The positive regression coefficients (statistically significant for 2004) of the impact of a common ethnic language range between 0.941 (2004) and 1.003 (2014) for culture practice-approach data. But a common official language produces negative effects with statistically significant coefficients of -0.509 (0.05 level; 2004) and -0.532 (0.01 level; 2014) for cultural practices-approach data which may be attributed to the fact that many countries adopt common official languages generally, and English as a "special language" for standardization specifically, which may be less relevant to cultural distinctions of individual societies. The research of Melitz and Toubal (2014) shows that the impact of combined linguistic factors has over twice more impact than a common official language on bilateral trade. Furthermore, the results partially support Hutchinson's (2002, 2005) findings that the role of English as an official language differentially impacts linguistic distance for exports and imports and for countries at different levels of economic development. The negative coefficient for a common official language is a puzzling result that merits further investigation.

History influences trading partners' cultures too, as reflected in their affiliations with common colonizers (typically, British, Spanish, Portuguese, or French). This factor contributes to intense trade flows, though the regression coefficients are not consistent over time. These results are positive, nearing significance (<0.1), and equal to 0.871 for culture practices-approach data in 2004. However, the results are negative, statistically significant (< 0.05), and equal to -0.907 for culture practices approach data in 2014.

Overall, our findings support Hypothesis 2.

A follow-up examination of practices-tied cultural distance effects in bilateral trade at the country-by-county level displayed mixed results. In 2004, 60% of country-level cases indicate practices-approach cultural distance as an impediment to effective trade; and in 2014, practices-approach cultural distance is noted as an impediment in 61% of country-level cases. However, most of these results are not statistically significant.

In the analysis of the 2004 data, practices-approach cultural distance data coefficients range from negative (lowest for Philippines, -0.891) to positive (highest for Namibia, 1.22). However, for just nine countries (16%) do the results near significance. In addition, the coefficient for Japan is significant at the 0.05 level, and for Albania is at the 0.01 level.

According to the 2014 data, practice-approach cultural distance data coefficients range from negative (lowest for the United Kingdom, -0.683) to positive (highest for Qatar,

2.524). Furthermore, consistent with the previous pattern, six countries (11%) approach significance, 12 counties (21%) are significant at less than 0.05, and three countries (5%) are significant at less than 0.01.

Values-tied cultural distance effects

The augmented gravity models with values-tied data at the all-countries level also indicate *positive cultural distance* effects in trade when computed on a broad range of countries. While for the culture values-approach data, the results are positive, the regression coefficients are much lower and not statistically significant in Model II (0.021 for 2004 and 0.075 for 2014) and Model IV with cultural dummies (0.082 for 2004 and 0.120 for 2014); the latter nearing significance at the 0.10 level. These differences across the two sets of cultural data, practices-tied and values-tied, likely reflect the greater influence of practices on trade decisions, relative to the impact of aspiration-driven values that might shape those behaviors. This is an important finding of our study.

As in the previous case, the control variables capture additional cultural effects. The impact of a common language is statistically significant at the 0.05 level for the official language and 0.01 level for ethnic languages. The direction of their impacts also differs; for a common ethnic language, the effects of distance are positive and statistically significant ranging between 0.819 (2004) and 0.815 (2014). A common official language, as in the previous case, produces negative effects with statistically significant coefficients of -0.476 (2004) and -0.487 (2014). History factors display the common colonizer effect as statistically significant at 0.1 level but positive (0.892) in 2004 and negative (-0.897) in 2014; and past colonial link effect as not statistically significant but negative (-0.146) in 2004 and positive (0.524) in 2014.

Overall, these findings partially support Hypothesis 2.

As in the case of practices-tied data, the augmented gravity model with values-tied data displayed mixed predictors at the country-by-country level of analysis. In 2004, 61% of country-level cases designate values-approach cultural distance as an impediment, and in 2014, in 47% of country-level cases.

For 2004, the coefficients range from negative (lowest for Costa Rica, -1.715) to positive (highest for Guatemala, 1.163), and the results nearing significance in 12 countries (28%; with three countries significant at less than 0.05 and one country at less than 0.01). For 2014, the values-approach cultural distance data produce coefficients that range from

negative (lowest for Israel, -2.925) to positive (highest for Namibia, 1.986). In one country (1.7%), the result near significance; seven countries (12%) are significant at less than 0.05, and 14 countries (25%) are at less than 0.01.

Testing relations between cultural distance predictors of bilateral trade and countries' economic development

We performed additional tests of cultural predictors for each country (trade with all other countries) in an effort to reveal potential distinctive patterns that may guide future research.

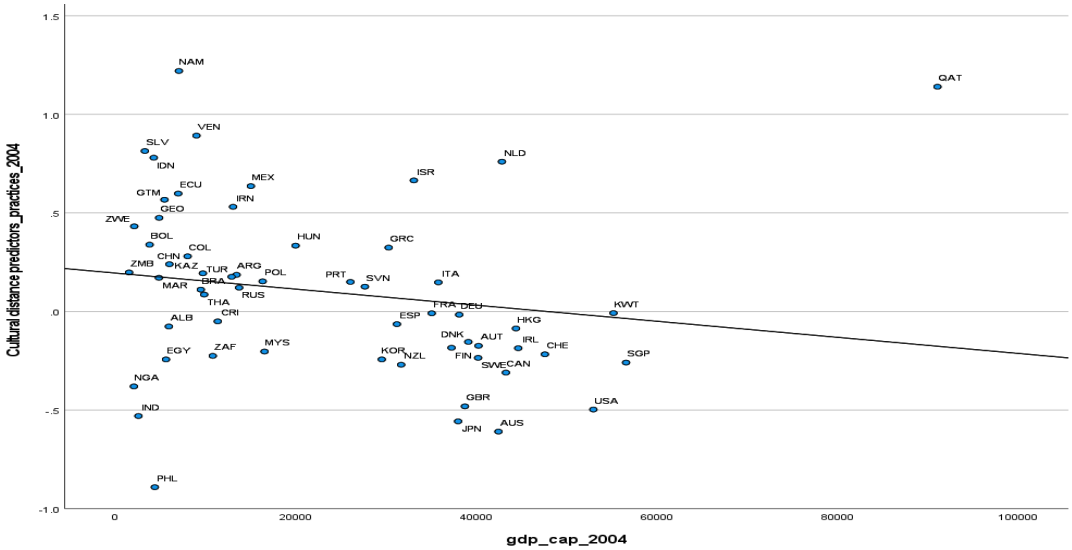
First, we compared cultural distance practices-tied results in 2004 and 2014 and found consistency in 80% of the countries; in the remaining 20% of the countries, we observed a switch from impediments to contributors or vice versa. Cultural distance values-tied results were consistent in 83% of country cases, whereas for 17% of the countries we see a change occur.

Second, we reviewed the Javidan and Hauser (2004) discussion of the conflicting approaches (Hofstede 2001; Smith 2002) to testing moderating effects of wealth and economic development when computing correlations between cultural factors and other types of secondary data and acknowledge their position (2004: 117-118) that "the relationships among wealth, national culture, and other archival variables are so intertwined that they cannot be easily isolated and cause and effect relationships although intuitively appealing, are hard to verify empirically". Given this, we cautiously follow Javidan and Hauser's pattern in reviewing the relationship between cultural predictors of international trade at the country-by-country level and countries' GDP per capita.

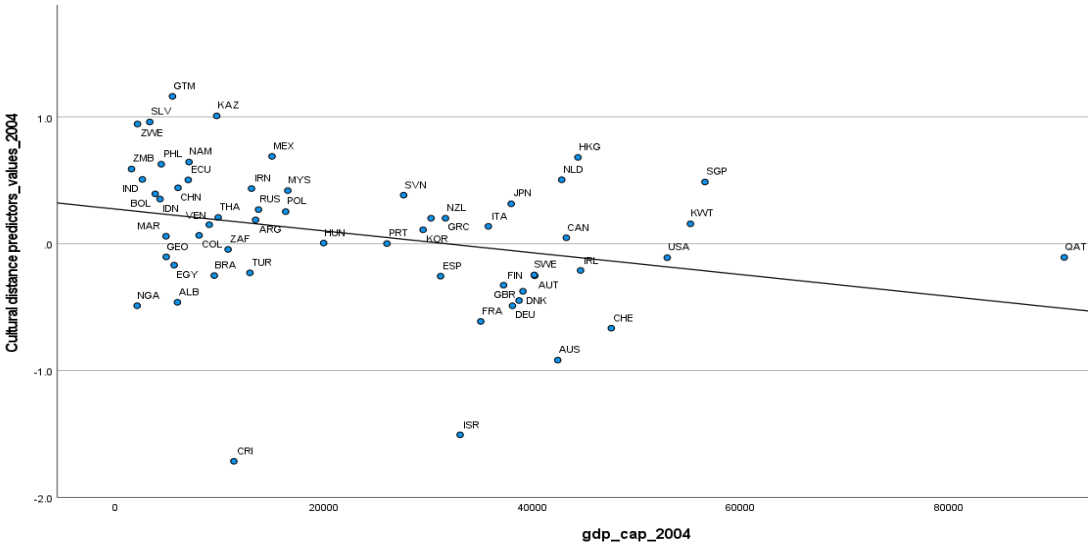
Our analysis shows that countries' cultural predictors are significantly (at <0.01) negatively correlated with GDP per capita on practices-approach data for 2004 (-0.517) and for 2014 (-0.097) and on values-approach data for 2014 (-0.488). Values-approach data for 2004 is also negative (-0.368) but not statistically significant. As a preliminary estimation, these findings suggest that cultural distance serves as an impediment for more developed countries and as a contributor for less developed countries (Figures 2 and 3).

Advancing the argument that competitiveness and life expectancy reflect countries' economic health and development, we performed additional correlation tests accordingly. Country-level cultural distance predictors for trade significantly (<0.01) negatively correlate with competitiveness on both practices-approach data (-0.517 for 2004 and -0.459 for 2014) and values-approach data (-0.386 for 2004 and -0.532 for 2014). This same pattern applied to life expectancy with correlation coefficients for practices-approach data (-0.346 for 2004

Figure 2. Cultural distance predictors in international trade (2004) relative to countries' economic development

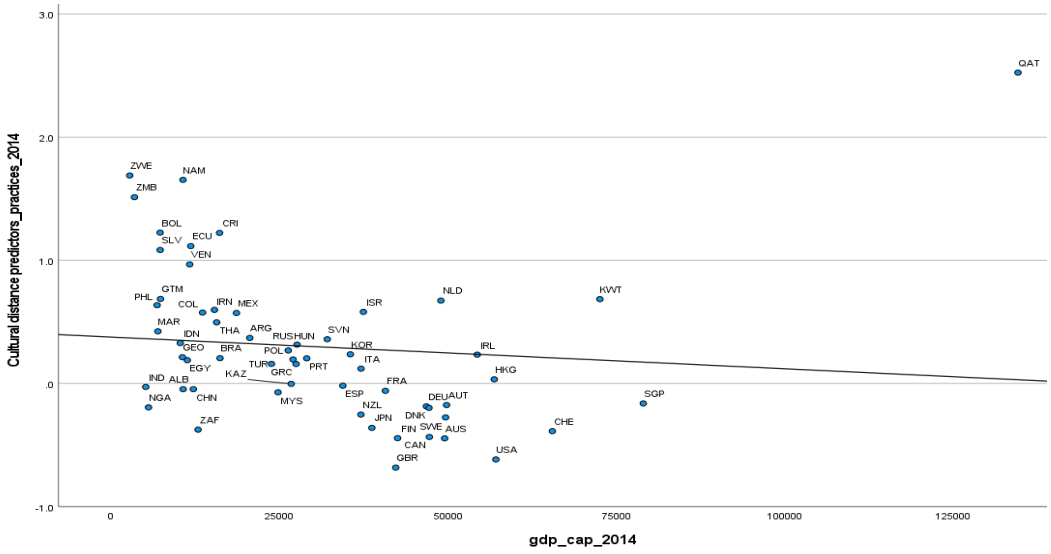


(a) practices

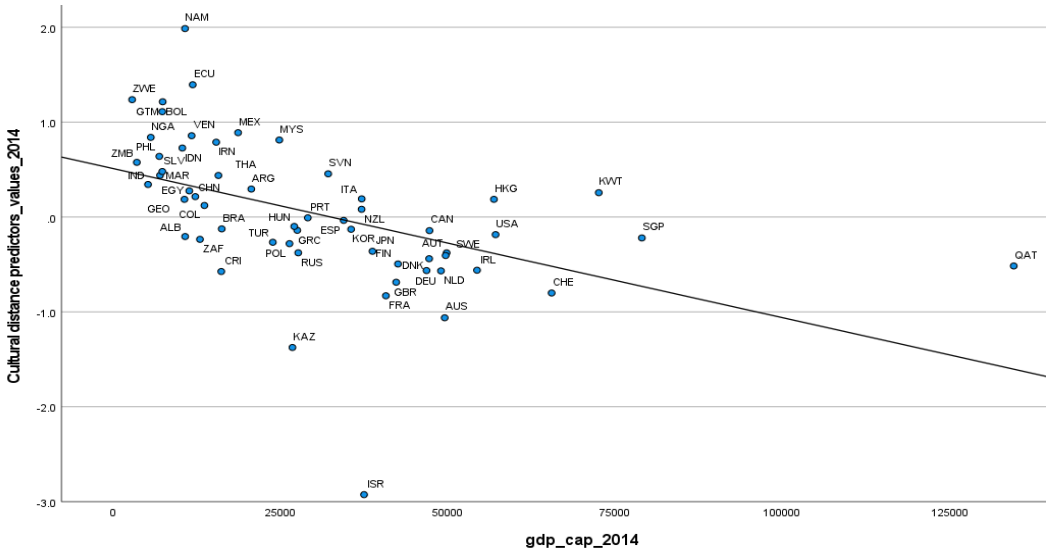


(b) values

Figure 3. Cultural distance predictors in international trade (2014) relative to countries' economic development



(a) practices



(b) values

and 0.468 for 2014) and values-approach data (-0.389 for 2004 and -0.398 for 2014). These findings strengthen the pattern that in more developed societies, cultural distance from trading partners tends to impede effective trade flows, but in less developed societies, this distance may contribute to trade.

In general, these additional test results support our initial estimates and arguments to consider the economic characteristics of trading partners, and acknowledge differences in cultural distance effects accordingly, however, emphasize the need for further examinations of cultural distance effects on trade at the country level.

DISCUSSION

This research is distinctive in terms of (a) integration of physical and contextual distance measures in modeling trade flows, (b) combination of practices-tied and values-tied cultural data in the analysis, and (c) connection between all-country aggregate data and country-by-country cultural distance predictors of bilateral trade. The findings, in turn, permit the arguments in support of a more balanced view on the culture-trade relationship and offer a *"duality" exploration of distance effects* instead of the "polarity" interpretation of distance as either a contributor or impediment.

By combining geographic distance and cultural distance in our augmented models we are not only consistent with the mainstream gravity models of trade but also respond to the discussion about the distinctions in cross-country physical distance and contextual distance in international business research (Beugelsdijk et al., 2018). Our findings integrate both in the analysis and confirm the economists' line of arguments about statistically significant negative effects of geographic distance on trade flows stemming from transportation time, costs, risks, etc.

The application of practices-tied and values-tied data in economic modeling enriches the discussion about cultures' effects on trade. While cultural values are intangible, aspirational, and likely to be more closely associated with desired behavior, practice approaches are often used when evaluating more specific strategies, intentions, behavior, or aspects of well-being (e.g., Filatotchev et al., 2020; Parboteeah et al., 2005). For example, to conceptually link these cultural approaches with trade, the concepts far-from-action and close-to-action (Locke and Latham, 1990) may be instrumental, with the former concept emphasizing broader aspirations and the latter focusing on specific goals (Szabo et al., 2001; Zander et al., 2020). Further organizational research (e.g., entrepreneurship) finds that

cultural practices exhibit a more direct influence on behaviors, while values have more indirect influence through other characteristics of culture such as ideal leadership prototypes, which are intangible and aspirational (Stephan and Pathak, 2016).

Our results highlight the stronger effects derived from practices-based rather than values-based approaches to measuring culture dimensions. Based on data from our sample of countries, cultural distance predictors are positive for GLOBE culture practices and values approaches, but only statistically significant for practices. Evaluating the influence of culture on trade, these findings imply the stronger effects of cultural behavioral practices, relative to cultural aspirational values. Extrapolating this discussion of cultural values and practice approaches with the consequences of cultural distance in international trade has theoretical implications for the interplay of economic and cultural research.

The key patterns in culture–trade relationships derived from our study also suggest that the effects of cultural distance on trade flows are more likely positive for less developed countries and more likely negative for more developed countries. The widespread assumption that cultural distance impedes international trade may have originated in early studies that primarily relied on data from leading economic powers (e.g., the United States, G-7 countries). For these countries, our findings are consistent with prior research confirming that cultural distance predictors are generally negative. Broader analyses, with data from developing and emerging economies, have been limited. Recent advances in cross-national studies that take a broader view and offer distance measures from regionally and economically diverse trading partners thus provide opportunities for a fresh look at variations in the cultural predictors across societies. In particular, our augmented gravity models do not support the persistent negative friction effects of cultural distance in international trade flows at a country level of analysis, indicating a more balanced, mixed role of such distance than has been predicted previously. Notably, most countries with negative cultural distance predictors are affiliated with the industrialized world, whereas positive predictors are greater and contributors more critical for less developed countries. These results highlight both the innovative merit of this research and intriguing patterns for follow-up investigations.

Our research contributes to the modern discussion surrounding the role of cultural distance in international business and our findings stress the importance of thoughtful conceptual definition and careful empirical measurement of approaches to culture and cultural distance, as well as its impact and implications for trade.

The prevailing view of cultural distance has asserted that increased differences between countries lead to increased friction or impediments to trade (Cuypers et al., 2018; Shenkar, 2001). This view, in which proximal cultural distance facilitates trade and distal cultural distance inhibits trade (Felbermayr and Toubal, 2010; Tadesse and While, 2007), has intuitive appeal and quantifiable economic applicability. But the idea of greater cultural distance as undesirable for trade may reflect only part of a larger picture. Sufficient evidence suggests that "international business and cross-cultural management literature has over-emphasized the difficulties, obstacles, and conflicts caused by cultural differences rather than the positive dynamics and outcomes that stem from such differences" (Stahl et al., 2017: 3), prompting a substantial imbalance of negative over positive assumptions. In revealing the more complex interplay of economic and cultural factors, our findings extend our understanding of cultural distance effects and shift toward *a more balanced interpretation of the role of culture in trade*. Using composite measurements, parallel data sets (practices and values), and different points in time, we find positive effects of cultural distance on international trade flows at an all-countries level and mixed effects, positive or negative, at a country level of analysis.

This study also reassesses the effects of cultural distance on trade flows by integrating more comprehensive databases, thereby responding to the weaknesses and ambiguities revealed in prior research. Previous quantitative assessments of culture's effects on trade (generalized to the all countries level) have often been limited by insufficiently reliable or comprehensive cross-cultural data for statistical analysis. In parallel, the dominance of a unidimensional approach to measuring cultural differences, rather than a multidimensional assessment or the application of composite indexes of cultural distance, has constricted theory and measurements of the relationships between cultural distance and trade. The common use of Hofstede's (1980) cultural values scores, pervasive in mainstream research, often undervalues problematic issues such as time invariance, data collection biases, and consistency gaps. By employing conceptually and empirically expanded sets of data from the GLOBE research, we hope to offer clearer insights into relationship between cultural distance and trade.

Together with the cultural determinants and parallel data sets, the augmented gravity model advances understanding and affirms the consistency of the reported results. Thus, our study supports the instrumentality of cross-cultural research and extends the applications of the GLOBE methodology and empirical data to economic analyses. The all-

countries results not only support a more balanced view on cultural distance effects in international trade but also imply *stronger effects of cultural behavioral practices*, relative to cultural aspirational values. The findings about cultural distance and international trade at the country-by-country level suggest a paradigmatic shift in our understanding of cultural distance's effects on international trade relations. In addition to calling for complex economic models to predict cultural distance's impact on bilateral trade flows, we advocate for a shift in focus, from the all-countries level of inquiry to a country-by-country level of investigation.

IMPLICATIONS AND CONCLUSIONS

Our results, presented through augmented culture-trade models analyzed with data from 57 countries at different points in time, challenge a common perception that culture distance is negative or disadvantageous. Across all countries in this study, we find predictors constructed with data based on cultural practices and cultural values approaches are positive; however, only the former is statistically significant, suggesting the importance of practice-driven more than values-driven culture configurations in trade. However, we acknowledge that the economic characteristics of trading partners should be considered in aggregate assessments of culture's effects. Our country-level results not only display variance in cultural distance effects in trade but also reveal intriguing relations between cultural distance predictors of effective trade flows and trading partners' economic development. Overall, cultural differences more likely contribute to bilateral trade for less developed countries but impede it for more developed countries.

This article adds to the scholarly discussion about the role of cultural distance in international trade by advocating for a balanced view of its effects that may serve as either an inhibitor or facilitator, as well as suggesting several theoretical directions at the intersection of economic and cultural research. This more complex "duality" interpretation of culture's effects suggests ways to bridge the gap between economic analysis and cultural studies. However, identifying and measuring culture's effects on international trade, then applying these measures to predict effective trade flows, have remained difficult, longstanding problems.

In addition, this research has practical and managerial implications. Our results encourage managers to move beyond simplified views of cross-cultural frictions as the just undesirable component of transaction costs. If the cultural distance of a trading partner is deemed an impediment to trade flows, managers should consider the differences. If it

contributes to effective trade though, then managers need to capitalize on the knowledge and "learn to reap the benefits of cultural differences … that are usually seen only as stumbling blocks to success" (Gratchev, 2001: 30). Managers' ability to comprehend and adjust their decision-making to these differences can benefit resource allocation, risk assessment, selection and training, and public relations. Our findings also emphasize insights into the interplay of trade-related and FDI-related moves in diverse international environments; and including advanced cultural data may lead to re-evaluations of existing instruments for country risk and project risk assessment too.

Hence, successful transactions in international trade depend on decision-makers' familiarity with cultural differences and similarities which can proxy, at least partially, for the information cost of doing business internationally. They include but are not limited to costs for acquiring culturally sensitive competencies (especially if trade-facilitated investments require after-sales services), maintaining public relations, building professional or social networks, and establishing mutual understanding and trust between trading partners. Furthermore, clustering cultural attributes of partners can help aggregate and elevate management decisions and shape cross-national team building, expatriate assignments, and training choices.

This research has limitations, particularly related to the level of the phenomena being studied, types of data, estimation techniques, and model constraints. The countries included in this study represent all major parts of the world, but the sample of 57 countries is not random; it reflects the availability of empirical data. The cultural data come from surveys of a specific social group (middle managers), generalized to the societal culture level. Although prior research has confirmed the generalizability of these data beyond the original sample (e.g., Stephan and Pathak, 2016), advanced exploration of cultures and countries' cultural profiles and attributes could further this line of research. We also consider particular (static) moments in time: 2004 data, tied to the release of the GLOBE survey results, and 2014 data within a half-generation timespan. Developing a dynamic model with time-series analyses and multiple forms of time-sensitive economic data could provide further insights. Estimation of a log-linearized gravity model by OLS also can be extended by non-linear least squares or pseudo-maximum-likelihood estimation techniques. The limited cultural control variables in the quantitative analyses also could be expanded to include additional important intangible factors. Furthermore, while the culture-tied control variables reflect the distinctive perspective on culture's consequences in trade examined in this study, in the

advanced modeling of culture-trade relations additional economic controls may strengthen the validity of the model and statistical results. Finally, the study of culture's significance in international trade should be aligned with parallel research into the impact of other non-market factors in trade (institutional distance, psychic distance, etc.).

To sum up. Our research suggests a way to bridge the gap between economic and cultural studies. In challenging the conventional wisdom about the role of cultural distance in trade, we provide a more comprehensively weighted, but also more complex, "duality" interpretation of culture's effects. Adjustments in managerial perceptions and practices should follow undesirable frictions, but a more in-depth considerations of cultural distance should also identify the ways it can contribute to success in international business.

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