A   Cultural Distance and Interstate Conflicts Supplementary Material

A.1   Avenue for Future Research

There are a number of interesting questions to explore in future research, and in this section we identify three of them. Firstly, in the present study we make the assumption that countries are culturally homogeneous, and therefore we identify cultural divides only across countries.[1] As such we do not allow for within-country diversity. We are aware that this is a simplistic categorization, and some countries are fragmented into a multitude of ethnic groups; accordingly, a number of studies have explored whether ethnically diverse societies have a higher probability of ethnic conflicts, which may lead to civil war (e.g., Reynal-Querol, 2002; Montalvo & Reynal-Querol, 2005). Similarly, religion has always played a central role in social and economic issues, and religious affiliations can also affect the degree of cohesion within societies.

Distances between ethnic groups are a very important factor for the incidence of conflict and a famous study by Fearon (2003) argues that to obtain indicators of cultural diversity within countries, we need to measure ethnic distances across groups. An important extension of this study would be therefore the inclusion of more refined measures of cultural distance between countries, where we explicitly take into account the relative weight that each ethnic (or religious) group has in relation to the others within each country. In other words, for each country-pair we could sum up the dyadic distance between each ethnic group, weighted by the proportion of citizens belonging to each group in each country. Secondly, and related to this last point, a geo-referenced analysis of cultural zones, where we identify geographic areas which are homogeneous in terms of identity, would allow us to explore inter-zone relations, rather than inter-country relations. By changing the unit of analysis and focusing on a more meaningful representation of cultural bound-

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[1]See Section A.2 in the Online Appendix for a discussion of the conceptualization and the measurement of cultural distance.

aries, we would bring more nuanced estimations of the effect that cultural differences have on conflict behavior.

Thirdly, we briefly touch upon the issue of conflict escalation in footnote 8, one of the most debated concepts in the quantitative analysis of interstate conflict. To better understand this result, note that we run a two-stage model, where we first control for the selection into conflict (the likelihood that two countries are involved in an interstate militarized dispute), as focusing only on conflicting states implies using a non-random sample which biases the results. The outcome variable is coded based on the information on the hostility level of the dispute (from the Correlates of War Dataset). We code any "Display of Force" as conflict involvement, and any "Use of Force" and "Full Scale War" as escalation. We use Sartori (2003)'s selection model estimator, to avoid the unfortunate consequences of excluding one variable from the outcome equation, as the Heckman model requires, which is often theoretically unmotivated and may lead to an incorrectly specified selection equation. We find that cultural distance between countries does not significantly affect escalatory processes. This is a novel and interesting result, which has important implications for our understanding of interstate violence: cultural distance affects leaders' decisions about whether or not to engage in conflict with another country. Once the conflict starts, however, its conduct is not influenced by cultural divides. The self-selection mechanism into situations of conflict is determined, among other characteristics, by cultural features, and therefore different perceptions and more misunderstandings, which makes it more difficult to find a common ground. The same misperceptions might however turn out to be wrong or irrelevant after the occurrence of conflict has taken place. Moreover, as the theoretical literature on conflict suggests, while asymmetric information affects bargaining failures, better and more reliable information becomes available once the war starts, as the belligerents can observe each other's strategies, forces, goals and preferences. Although conflict involves a number of interrelated stages, common identities, ideas and preferences may in fact be unrelated to the conduct of the war, therefore to what happens after we have seen the onset of an interstate conflict. This result sheds new light on conflict resolution processes by

improving our understanding of when conflict de-escalates and both parties move from war to the negotiating table. Note that there are many additional ways to capture escalation and Braithwaite & Lemke (2011) explore the implications of how escalation is measured and show that only the presence of territorial issues consistently predict when disputes escalate. An interesting follow-up study might investigate when alternative measures of escalation, such as an indication of whether the target of the dispute responds at the same or higher level of militarized action, may lead to substantively different implications.

A.2 On the Conceptualization and Measurement of Cultural Distance

As this study shows, cultural distance affects various outcomes, ranging from conflict to trade or to foreign direct investment or to portfolio investment, etc. However, different researchers may operationalize cultural distance differently, and, as we show in our paper, may attempt to pin down a general pattern using a range of measures. Nevertheless, conceptualization of cultural distance remains an open question. In this section, we discuss some of the relevant literature and the approaches on the conceptualization of cultural distance.

There are various measures of cultural diversity that researchers employ in their studies. However, the choice of the measure remains a subject of discussion. For example, Gisselquist & McDoom (2015) provide a critique of the conceptualization and the measurement of ethno-religious diversity within a country. Using individual level census data, they exemplify local divisions in Mindano, Phillippines, and their evolution over time. They discuss the conceptual and theoretical underpinnings of eight measures of ethnic and religious cleavages: simple proportions, fractionalization, cultural (distance) fractionalization, polarization, segregation, intermarriage, horizontal inequality, and cross-cuttingness. They highlight the size and the number of groups as the key aspects in accounting for any complex configuration of a measure. Their findings are fourfold. First, the choice of a diversity measure

matters. Results in any study might depend on the choice of the measure, and all measures do not necessarily correlate well. Therefore, researchers should be careful in choosing the appropriate measure with reference to the underlying theory and the match with the proposed mechanism. Second, the categorization of ethnic or religious groups used to construct the measure is consequential. Thus, the categorization methodology to identify and classify various groups should be spelled out and justified. Third, diversity within a society evolves over time, and thus, when data are collected matters. Fourth, spatial unit of analysis matters, and different areal aggregations might yield different outcomes.

On a similar note, Tung & Verbeke (2010) provide an overview of conceptual and methodological issues. In doing so, they discuss which cultural dimensions to focus on, and how to operationalize those dimensions. They conclude with four challenges to researchers: what is the quality of the inputs that go into cultural distance measures; what inputs to use when calculating cultural distance measures; problems of how to aggregate different components into a compound index; and making more explicit theorizing about how cultural distance measures relate to a certain outcome. In addition, Shenkar (2001) challenges the underlying conceptual and methodological assumptions on the construct of cultural distance. The conceptual assumptions he criticizes are symmetry in distance, stability over time, linearity of the impact, causality, and discordance across different cultures. The methodological assumptions he criticizes are homogeneity within cultures and equivalence across various cultural dimensions. Furthermore, in a similar vein, Beugelsdijk *et al.* (2015) highlight the shortcomings of nation-to-nation comparisons of mean cultural values ignoring within-country cultural variation. Then, they propose to use variance-based measures of cultural distance that take into account within-country cultural variation. They test their hypotheses by using data from the World Value Survey and a data set on US foreign affiliates sales in about 40 countries between 1983-2008. They show that their variance-based measure of cultural distance outperforms the mean-based measure of cultural distance.

On the other hand, related to the point of Gisselquist & McDoom (2015)

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on how diversity evolves over time, Maystre *et al.* (2014) tackle the question of how cultural values evolve under globalization and product market integration, and show that, via a model of product-based cultural change, trade might lead to cultural convergence. They argue that consumption of differentiated goods, such as movies, music, books, clothes, etc., carry differential cultural symbols for different cultures. And a trade-related supply shock might alter the benefits of belonging to different cultures, and as a consequence, might result in a reduction of cultural distances.

A.3   Supplementary Tables

Table A.1: Summary Statistics, All Variables

	Mean	Std. Dev.	Min	Max	Obs
Militarized Interstate Dispute	0.006	0.074	0.0	1.0	203166
LogDistance	8.656	0.794	4.7	9.9	203166
Contiguity	0.031	0.175	0.0	1.0	203166
Sum Areas	25.008	2.619	13.0	32.8	203166
Colonial Link	0.021	0.143	0.0	1.0	203166
Common Official Language	0.191	0.393	0.0	1.0	203166
Number of Peaceful Years	62.386	38.036	0.0	130.0	203166
Alliance	0.111	0.314	0.0	1.0	203166
UN Vote Correlation	0.576	0.294	-1.0	1.0	203166
Sum of Democracy Indexes	1.093	0.547	0.0	2.0	203166
Number of Other Wars	1.512	2.334	0.0	56.0	203166
Log Distance to Nearest War	6.501	0.646	4.7	9.1	203166
Log Bilateral Opennes	-8.862	2.764	-17.5	2.1	203166
Log Multilateral Openness	-1.556	0.611	-9.0	3.1	203166
Zero Trade Dummy	0.432	0.495	0.0	1.0	203166
Free Trade Agreement	0.021	0.144	0.0	1.0	203166
Number of GATT members in the Dyad	1.397	0.648	0.0	2.0	203166
Lower of Democracy Score	-3.899	6.399	-10.0	10.0	360784
Lower of GDP per capita	7.672	0.819	5.6	10.7	360784
Trade to GDP ratio	0.000	0.002	0.0	0.2	360784
Capability Ratio	1.118	1.621	0.0	9.6	360784
Major Power	0.092	0.289	0.0	1.0	360784

Table A.2: Cultural Distance and International Conflict, Table 3 with All Variables

	i	ii	iii	iv	v
Language Barrier	0.420				
	(0.286)				
International Language Barrier		1.069***			
		(0.309)			
Cultural Distance (Kogut)			0.230***		
			(0.088)		
Cultural Distance (Kandogan)				0.178*	
				(0.097)	
Cultural Distance (WVS)					2.801*
					(1.543)
LogDistance	-0.832***	-0.819***	-0.692***	-0.661***	-2.026***
	(0.090)	(0.086)	(0.112)	(0.114)	(0.748)
Sum Areas	0.178***	0.176***	0.166***	0.162***	0.703***
	(0.029)	(0.028)	(0.043)	(0.043)	(0.263)
Colonial Link	0.168	0.171	0.352	0.313	-3.552*
	(0.225)	(0.220)	(0.374)	(0.370)	(1.877)
Common Official Language	0.401***	0.618***	0.417*	0.376	0.514
	(0.139)	(0.149)	(0.232)	(0.232)	(1.371)
Number of Peaceful Years	-0.019***	-0.020***	-0.024***	-0.024***	0.007
	(0.002)	(0.002)	(0.003)	(0.003)	(0.016)
Alliance	0.234**	0.277**	0.053	0.104	0.725
	(0.114)	(0.119)	(0.210)	(0.206)	(0.516)
UN Vote Correlation	-1.065***	-1.065***	-0.772***	-0.871***	1.545
	(0.160)	(0.156)	(0.209)	(0.210)	(2.198)
Sum of Democracy Indexes	-0.186	-0.194	-0.432**	-0.399**	4.566**
	(0.125)	(0.123)	(0.186)	(0.186)	(1.950)
Number of Other Wars	0.246***	0.243***	0.221***	0.222***	0.400***
	(0.012)	(0.011)	(0.016)	(0.016)	(0.118)
Log Distance to Nearest War	-0.104	-0.049	-0.068	-0.067	-0.070
	(0.076)	(0.073)	(0.128)	(0.129)	(0.619)
Log Bilateral Opennes	0.036	0.044*	0.015	0.021	-0.004
	(0.025)	(0.024)	(0.037)	(0.038)	(0.418)
Log Multilateral Openness	0.139	0.133	-0.041	-0.029	-0.405
	(0.103)	(0.100)	(0.136)	(0.135)	(1.800)
Zero Trade Dummy	-0.433***	-0.354**	-0.526*	-0.530*	
	(0.167)	(0.159)	(0.293)	(0.290)	
Free Trade Agreement	-0.175	-0.128	0.087	0.072	0.040
	(0.168)	(0.168)	(0.355)	(0.355)	(1.270)
Number of GATT members in the Dyad	0.093	0.108	-0.168	-0.187	0.574
	(0.087)	(0.083)	(0.137)	(0.136)	(1.567)
N	197422	203166	83409	83409	4568

$*p < 0.10, **p < 0.05, ***p < 0.01$

Robust standard errors are given in parentheses clustered by dyad.

Other Controls: time fixed-effects and past conflict dummies (last 20 years.)

Table A.3: Gartzke-Gleditsch Specification, Table 7 with All Variables

	i	ii	iii	iv	v
Language Barrier	0.740**				
	(0.356)				
International Language Barrier		1.313***			
		(0.370)			
Cultural Distance (Kogut)			0.262**		
			(0.118)		
Cultural Distance (Kandogan)				0.227*	
				(0.128)	
Cultural Distance (WVS)					1.510**
					(0.590)
LogDistance	-0.696***	-0.691***	-0.611***	-0.597***	-0.982***
	(0.118)	(0.110)	(0.125)	(0.127)	(0.206)
Contiguity	2.128***	2.206***	1.977***	1.919***	0.843
	(0.232)	(0.222)	(0.310)	(0.306)	(0.587)
Lower of Democracy Score	-0.072***	-0.069***	-0.099***	-0.100***	-0.115***
	(0.012)	(0.012)	(0.016)	(0.016)	(0.026)
Lower of GDP per capita	0.098	0.094	-0.088	-0.067	0.514**
	(0.092)	(0.089)	(0.135)	(0.136)	(0.238)
Trade to GDP ratio	-20.648	-22.568*	-7.268	-7.253	-10.995
	(14.963)	(13.217)	(10.199)	(10.114)	(24.936)
Capability Ratio	-0.041	-0.041	0.035	0.042	0.024
	(0.040)	(0.040)	(0.069)	(0.069)	(0.116)
Major Power	2.098***	2.044***	1.748***	1.759***	1.038***
	(0.191)	(0.191)	(0.216)	(0.219)	(0.356)
Alliance	-0.016	0.153	-0.260	-0.220	-0.534
	(0.183)	(0.180)	(0.281)	(0.278)	(0.516)
Peace Years	-0.283***	-0.282***	-0.283***	-0.282***	-1.786***
	(0.029)	(0.028)	(0.036)	(0.036)	(0.379)
N	360784	372402	122392	122392	6801

$*p < 0.10, **p < 0.05, ***p < 0.01$

Robust standard errors are given in parentheses clustered by dyad.

Other Controls: Cubic Splines.

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