

The Weight of History on European Cultural Integration: A Gravity Approach

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Cultural integration is a European obsession. Given the growing evidence on the role of culture as a determinant of economic development, this issue is of importance to economists. Some literature hypothesizes that the variation of the relative strengths of cultural assimilation and differentiation gave rise to different patterns of economic development (Quamrul Ashraf and Oded Galor 2007), while other literature emphasizes the importance of specific cultural traits for institutional and economic development. Among those, social trust has received particular attention. Recently, the literature has looked into the historical origins of social trust, relating contemporary cross regional differences in trust to historical events such as the free city states' experiences in northern Italy (Guido Tabellini 2008, Luigi Guiso, Paola Sapienza, and Luigi Zingales 2008) or the slave trades in Africa (Nathan Nunn and Leonard Wantchekon forthcoming). Going even further back in history, Ruben Durante (2010) links current regional differences in trust to climatic variability since the year 1500. While such evidence on the long-term persistence of cultural traits is intriguing, little remains understood concerning the rate at which cultural values change under the influence of such historical events.

Cultural persistence and cultural heterogeneity are the two sides of the same coin. Historians have hypothesized that one reason behind the complexity of European integration may be the fact that Europe, as opposed to China or North America, has never experienced a single unifying historical experience (Wim Blockmans 2006). The model in this paper estimates the contribution to cultural integration, or its counter

side heterogeneity, of a long history of division between the Ottoman, Habsburg, Russian, or Prussian empires in 21 countries of central, eastern, and southeastern Europe. By exploiting the variation in the duration of integration of different localities in different empires, this paper sheds light not only on the influence of political integration on cultural integration but also on the rate of cultural change.

This paper confirms that, indeed, history matters, even when spatial proximity or formal institutions are taken into account, and that cultural evolution is very slow. A lasting and significant effect of living under common institutions on social trust comes after 400 years of imperial rule. By contrast, more recent history, such as the former USSR or Yugoslavia, is not significantly associated with a reduction in cultural distances in terms of social trust. Even more strikingly, neither is the delimitation of current nation states, once history and geographic proximity are taken into account.

The rest of the paper is organized as follows. Section I presents a gravity model of cultural integration and the data. Section II presents the results. Section III concludes. More details on the model specification as well as all descriptive statistics, complete results, and additional specifications are included in a Web Appendix.

I. A Gravity Model of Cultural Integration, History, and Data

To study the determinants of cultural integration, this paper proposes a gravity approach. The model is an adaptation of a trade gravity model, which explains different intensities of trade integration as a function of the proximity of trading partners, and respective and common characteristics of locations. In this “cultural gravity model,” different intensities of cultural integration are regressed on common characteristics of localities, such as shared history or common contemporaneous institutions, controlling for spatial proximity between locations and

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respective sociodemographic characteristics. An interesting application of this approach is that it is possible to use a common metric (kilometers) in order to quantify the respective contributions of the different determinants of cultural values that have been discussed in the literature, such as history but also physical proximity (Tabellini 2008, Paola Giuliano, Antonio Spilimbergo, and Giovanni Tonon 2006), religion (Robert J. Barro and Rachel M. McCleary 2003), or current institutions and democratization (Pauline Grosjean and Claudia Senik 2011). Some of these determinants are likely to be correlated with history. For example, locations that are physically close are more likely to have experienced a common history. Also, part of the legacy of history may be captured through formal institutions. The dyadic model used in this paper makes it possible to control for such factors, which ensures that the effect of history is not confounded by that of physical proximity and goes beyond its legacy on formal institutions.¹

The data come from the *Life in Transition Survey* (LITS), conducted by the World Bank and the European Bank for Reconstruction and Development in 2006 in central, eastern, and southeastern Europe. The analysis is at the subnational level of a primary sampling unit, which corresponds to a village or suburb. There are 50 Primary Sampling Units (PSU) in each of 21 countries retained for analysis. The model can be applied to a variety of measures of culture, but the focus here is on social trust. The dependent variable reflects the absolute value of the difference between pairs of locations in average responses to the widely used social trust question: “*Generally speaking, would you say that most people can be trusted, or that you can’t be too careful in dealing with people?*” The unit of observation is a PSU pair.

The analysis takes advantage of three particularly appealing features of the data.

First, the region covered by the survey, with the notable exception of the central region of Montenegro, was divided, from the beginning of

the fourteenth century and until the eve of the First World War, between the Ottoman Empire, the Austro-Hungarian Empire, Prussia, and the Russian Empire, and the boundaries of the different empires shifted repeatedly. I exploit the variation in the duration of integration of different localities into different empires in order to shed light on the rate of cultural change. The Ottoman Empire’s territorial extension in southeastern Europe occurred in the fourteenth and fifteenth century and lasted until the Russian-Turkish War of 1877–1878 and the Balkan Wars of 1911–1912. The Austro-Hungarian Empire includes what was the Kingdom of Hungary and the Austrian Empire and became the Austria-Hungarian Empire after the 1867 Ausgleich. Successor states became independent after the Saint-Germain and Sevres treaties of 1918. Prussia encompasses Prussia per se (1525–1947) as well as Old Prussia (the Teutonic Order). Most Prussian territories outside of today’s Germany were lost at the Treaty of Versailles in 1919. The Russian Empire’s territorial expansion in Europe occurred mainly under Peter the Great and Catherine the Great in the seventeenth and eighteenth centuries. I use the Periodical Atlas of Europe in order to reconstruct empires’ delimitations and their evolution across time, from 1300, the start of empire consolidation in medieval Europe, to 2000. The influence of history is reflected through different dummy variables, which reflect how long each locality pair was included in the same empire. The minimum duration of integration is 100 years and the maximum 700 years.

Second, most successor states’ borders do not coincide with former empires’ borders. This is key to distinguishing the legacy of history on culture from its legacy on current institutions.

Third, LITS contains precise localization data and a very rich set of attitudinal questions and socioeconomic background information, which allows for controlling for several determinants of cultural distance discussed above.

II. Results and Applications

A. *The Long-Term Effects of History*

Table 1 presents estimation results of the “cultural gravity model,” in which the dependent variable reflects differences among location pairs in terms of social trust. A higher value

¹ For a description of the advantages of this dyadic gravity model over a traditional cross-sectional specification for the purposes of econometric identification, I refer the reader to the Web Appendix. I discuss namely how such a model deals with the reflection problem and with the spatial dependence associated with the horizontal transmission of cultural values.

TABLE 1—RESULTS

Dependent variable:	Cultural distance: social trust					
	(1)	(2)	(3)	(4)	(5)	(6)
Same empire more than 100 years	-0.061*		-0.042*		-0.041*	-0.041*
	[0.008]		[0.007]		[0.007]	[0.007]
Same empire 100 to 200 years				-0.011		
				[0.010]		
Same empire 200 to 400 years				-0.003		
				[0.011]		
Same empire more 400 years				-0.090*		
				[0.018]		
USSR					-0.016	
					[0.007]	
Yugoslavia					0.016**	
					[0.007]	
EU						-0.004
						[0.009]
Distance			0.031*	0.032*	0.031*	0.027*
			[0.004]	[0.004]	[0.005]	[0.004]
Same country		-0.066*	0.008	0.013		0.008
		[0.008]	[0.009]	[0.010]		[0.009]
Contiguous		-0.026**	0.009	0.015		0.002
		[0.006]	[0.006]	[0.007]		[0.005]
Sociodemo and eco controls	Yes	Yes	Yes	Yes	Yes	Yes
Observations	535,095	535,095	535,095	535,095	535,095	535,095
R ²	0.445	0.444	0.447	0.472	0.447	0.447

Notes: The dependent variable is the Manhattan distance measure of dissimilarity between PSU pairs in responses to the social trust question. *Distance* is expressed as the logarithm of the physical distance between PSUs in km. The *Same empire ...* dummies take value 1 if both PSUs have belonged to the same empire for the number of years indicated. *Same country* and *Contiguity* are dummy variables that take value 1 if members of the pair belong to, respectively, the same country or adjacent countries. *Sociodemo and eco controls* are Manhattan distance measures of dissimilarity between pairs of PSUs in terms of religious affiliation, social class composition, education, age, industrial index (see Grosjean and Senik 2011) and occupations. In column 6, variables that reflect whether members of the PSU pair are both candidate countries or whether one PSU belongs to a member state while the other to a candidate country are included, but the results are omitted. All regressions include a constant and location fixed effects. Robust standard errors are adjusted for clustering on any observation that contains either member of a pair, following the multiway clustering method by A. Colin Cameron, Jonah B. Gelbach, and Douglas L. Miller (forthcoming).

***Significant at the 1 percent level.

**Significant at the 5 percent level.

*Significant at the 10 percent level.

Sources: Life in Transition Survey 2009; Periodical Atlas of Europe 1300–2000.

of the dependent variable reflects more cultural heterogeneity.

History matters. Having belonged to the same former empire for more than 100 years has the consistent and robust effect of diminishing dissimilarities in social trust, even when physical distance between locations, sociodemographic, economic, and geopolitical conditions are taken into account. Such a persistent effect of past historical events, which are quite distant in time, is notable and sizeable and, strikingly, far outweighs the influence of current geopolitical

factors, in particular nation states' borders. Indeed, the *Same country* and *Contiguity* dummies, although significant and of the expected negative sign when included on their own (column 2), lose significance when spatial proximity between locations and history are taken into account (column 3). This may be explained by the fact that in this region, borders are quite recent—most borders were determined after the First World War or after the collapse of the Soviet Union and Yugoslavia—and, in many cases, arbitrary. Still, this is a striking result

in light of the strong country fixed effects that come out of cross country cultural comparisons, which generally ignore the role of history and the spatial processes of cultural diffusion.

In order to shed light on the rate of cultural change, the *Same empire* dummy is separated into three different dummies indicating whether two locations spent 100 to 200 years, 200 to 400 years, or more than 400 years in the same empire (column 4). The results illustrate the very slow nature of cultural change. The effect of history is not significant for less than 400 years of common imperial rule. Among the different empires, the Ottoman Empire and, to a lesser extent, Prussia are the most influential (see Web Appendix). A different specification of the model, in which the dependent variable reflects the direction in which history effects social trust, illustrates that the former Ottoman Empire has left a significantly negative imprint on social trust in southeastern Europe.

It is interesting to express the influence of each variable in terms of a common metric. Integration in the same empire for more than 100 years “reduces” cultural distance between two PSUs, in terms of social trust, by the equivalent of 1,394 km.² The average physical distance between two locations in the sample is 1,029 km. At the sample average, having belonged to the same empire reduces this distance by 349 km. By contrast, differences in religions increase the distance by 499 km, at the sample average.

Most of the other covariates have positive signs, as expected: dissimilarities in terms of social class composition, education, gender composition, religion or differences in industrial development contribute positively to cultural distance in social trust. Additional specifications show that the presence of geographical obstacles such as mountain ranges or differences in the degree of democratization between countries are significantly associated with larger cultural differences, but the effect of history remains robust to such additional controls.

² $10.29 \times (-0.042 / (0.031 / 100))$. 10.29 is equivalent to a one percent change in average distance.

B. More Recent History: USSR, Yugoslavia, and the European Union

Column 5 of Table 1 investigates the influence of more recent history. The variables *USSR* and *Yugoslavia* take the value 1 if both locations in the pair used to belong to, respectively, the former USSR and the former Yugoslavia. Strikingly, the former USSR appears to have no significant lasting effect on the differences in social trust. This is nevertheless in line with the previous result that it takes 400 years of political integration in order to have a sizeable impact on individual trust values. For the former Yugoslavia, the coefficient on social trust is positive, indicating greater dissimilarity. One reason could be the influence of war, a shocking enough event to have had such an impact, even in a short time span.

Several countries in our sample are also either member states of the European Union (EU) or candidate countries. Several dummy variables are constructed in order to reflect the status of each country in our sample relative to the EU. Results are displayed in column 6. There is no significant relationship between EU integration and similarity in terms of social trust.

III. Conclusion

This cultural gravity model provides a tool to investigate the determinants of cultural integration and can be applied to many dimensions of cultural integration. Here, the focus is on social trust, but the model could be applied to, for instance: the pattern of economic occupations, preferences for redistribution, corruption, or female labor force participation.

The main message of the paper is that history matters and cultural change is very slow. The significant effect of living under common institutions on the pattern of social trust appears after 400 years of common history. The Ottoman Empire has left the largest imprint on cultural values in the region. Shorter, albeit more recent events, such as the USSR, EU membership or even nation states are not significantly associated with social trust outcomes. This is consistent with the literature stressing that culture is a slow moving institution (Gérard Roland 2004).

The results also confirm not only that both history and spatial proximity play a role in cultural transmission but that they are also correlated.

This implies that proxying cultural distance by history alone and ignoring the impact of physical proximity will result in overestimating the impact of history, and vice versa. Similarly, ignoring physical proximity and history altogether—for example, by treating country averages as independent observations—will result in a large bias. In particular, country fixed effects will be overestimated. Therefore, this paper cautions against the use of national averages for cross-country comparisons in cultural studies.

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