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The Long Economic and Political Shadow of History Volume III. Europe and the Americas

Edited by Stelios Michalopoulos and Elias Papaioannou



A VoxEU.org Book

CEPR Press

The long economic and political
shadow of history -
Volume 3. Europe and the
Americas

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Volume 3: Europe and the Americas

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Stelios Michalopoulos and Elias Papaioannou

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Foreword

This third and final volume from CEPR's economic history series traces the legacies of landmark events, drawing on seminal works from European and American history. Economists show how these moments of historical significance have shaped both contemporary economic outcomes and people's beliefs and attitudes.

Starting with the American continent, the authors assess the modern-day consequences of colonial forced-labour practices in Peru; missionary activity in South America; the sugar-cane and gold booms in Brazil; the Native population's forced coexistence in the US reservation system; the transition to a mechanised agricultural economy; and how an influx of European refugee scientists in the early 20th century shaped the US inventive capacity. Focus then turns to Europe, with the rise of city states in Italy; the Protestant reformation; the birth of the modern corporation; the origins and impact of anti-Semitism and the Holocaust; and finally, the legacies of the communist era in Germany and the Nazi occupation of Italy.

Investigating historic events enables their outcomes and consequences to be better measured and accounted for. The parameters of the models in this book are logical and thorough, creating an exemplary guide to applied econometric techniques which can be used for future policy research.

CEPR is grateful to Professors Elias Papaioannou and Stelios Michalopoulos for their joint editorship of this eBook. Our thanks also go to Sophie Roughton and Simran Bola for their excellent and swift handling of its production. CEPR, which takes no institutional positions on economic policy matters, is delighted to provide a platform for an exchange of views on this crucially important topic.

Tessa Ogden
Chief Executive Officer, CEPR
March 2017

i Series Introduction: Historical legacies and contemporary development

Stelios Michalopoulos and Elias Papaioannou

Brown University and CEPR; London Business School and CEPR

Study the past if you would define the future.

Confucius

We are made by history.

Martin Luther King, Jr.

1 The emergence of New Economic History

Those 18th and 19th century philosophers who shaped economic thought (David Ricardo, Adam Smith, Karl Marx, John Stuart Mill), in company with early 20th century scholars such as John Maynard Keynes and Joseph Schumpeter, believed in the blending of core economic ideas (value maximisation, incentives, market laws) with history. Political economy – as economics was referred to at the time – was a discipline that combined elements from a wide array of social sciences and interpreted them with its new tools. Yet, efforts to draw insights from history and related disciplines with which to shed light on economic questions lost steam during the latter part of the last century.

The neoclassical approach would leave little room for a deeper understanding of important historical events in the growth process, such as colonisation, institutional changes and cultural traits that most people would instinctively see as fundamental drivers of comparative development. Not modelling explicitly the role of history, geography-ecology, and culture (religion, beliefs, family ties, norms), led to these features being viewed empirically as a ‘residual’ of the growth process driven by capital deepening, either in the physical sense of tools and machines or in the human sense of education and health.

And, while new growth theories show how small differences in initial endowments may translate into large differences, when it comes to urbanisation, agglomeration, and well-being, they were agnostic on the origins of these initial conditions, naturally rooted in the historical record. But economists' disregard for history was not confined to the growth literature or macroeconomics. The total number of published economic history papers in 'top' general-interest journals declined (McCloskey 1976, Abramitzky 2015), as economists moved from relatively simple, intuitive theories and applied methods to more complex, often esoteric, mathematical models and elaborate quantitative-econometric empirical approaches (see also Temin 2013).¹ However, since the late 1990s there has been a revival; a 'new economic history' literature has emerged that studies important historical episodes, with the goal of tracing their consequences on contemporary outcomes. This new literature applies economic models and econometric techniques to examine the shadow that history casts over various aspects of the economy and the polity.²

As is typical with history, the process of being 'rediscovered' among economists – learning from the past and uncovering its legacy – has been gradual; and clearly there were important works of economic history between the 1950s and 1990s, such as Douglass North's *Structure and Change in Economic History* in 1981 and Avner Greif's work on the interplay of culture and institutions (Greif 1993, 1994). Yet, the tipping point seems to be a trio of influential works that appeared in the late 1990s. Acemoglu *et al.* (2001, 2002, 2005) put forward the '*colonial origins of comparative development*' thesis, where the type of colonial strategy and early colonial institutions influenced subsequent economic and political development. The '*law and finance*' works of La Porta, Lopez de-Silanes, Shleifer, and Vishny (1997, 1998, 2006) showed that legal

- 1 The origin of this paradigm shift seems to be the publication of Paul Samuelson's revolutionary textbook, *The Foundations of Economic Analysis* in 1947. While the use of mathematics goes back to Alfred Marshall, John Hicks, Edgeworth, and others, Samuelson is rightly credited for trying to synthesise and mathematically formalise economic reasoning (see Temin 2013).
- 2 The global financial meltdown of 2007-2009 and the associated deep recession renewed the interest of macro-economists working on business cycles, monetary and fiscal policy in economic history. Somewhat paradoxically, as "dynamic macro" didn't have much of an interest in history, two of the main protagonists of policymaking in the aftermath of the crisis, Ben Bernanke and Christina Romer, were among the best scholars of the Great Depression and other historical crisis periods.

origins transplanted during colonisation have a significant bearing on contemporary contractual institutions and finance. Engerman and Sokoloff (1997, 2002) argued that colonial-era inequality, shaped by the type of colonial strategy employed (mining, plantations), explains the divergent development paths of Southern and Northern America. The analysis of historical events was also fuelled by important theoretical contributions; the development of ‘unified growth theory’ (Galor and Weil 1999, 2000, Galor 2011) which brought to the foreground the study of pre-industrial (Malthusian) and modern economies in a unified framework; and the game-theoretic modelling of both institutions and ‘class struggles’ (Acemoglu and Robinson 2000, 2001). For a textbook treatment see Acemoglu and Robinson (2006) and Besley and Persson’s (2011) that study jointly the co-evolution of economic and political development, through the lens of ethnic fragmentation, inequality and conflict, which, in turn, may be shaped by geographic, cultural or historical forces.

At the same time, the profession was greatly influenced by Jared Diamond’s magnum opus, *Guns, Germs, and Steel*. Blending insights from geography, biology (zoology), cultural anthropology, sociology, and even archaeology, Diamond provided a powerful thesis on economic and political development over the long run. While Diamond stressed the importance of geography-ecology in shaping institutional, political, and societal traits, which in turn impact development, in parallel work David S. Landes (1998) stressed the role of family ties, religion, beliefs and norms, arguing forcefully that “*culture makes all the difference*”. Besides their original contributions, these works also brought to the forefront old ideas that had been side-lined – for example, Max Weber’s thesis on the importance of Protestantism in the Industrial and Commercial Revolution, or Friedrich Hayek’s ideas linking legal-origin traditions to economic freedom and prosperity.

The new economic history follows an inter-disciplinary approach, integrating historical narratives and insights from other-than-economics social sciences (mostly sociology, political science and anthropology) with mathematical models, and formally tests long-standing, influential conjectures with econometric techniques. This eBook series summarises contributions aimed at uncovering *The long economic and political shadow of history*³.

3 Nunn (2009, 2014) provides a thorough overview of this body of research. See also Spolaore and Wacziarg (2014).

Some of the themes of these works transcend continents (like colonisation), some are regional (e.g., the spread of Protestantism in Europe or the slave trades in Africa), while others are country(ies)-specific (e.g., the French Revolution's impact in France and Germany, the impact of the Holocaust in Russia, the Nazi occupation of Italy, and the impact of communism). The works covered in this eBook series differ in their focus. Some stress the role of cultural traits, such as religion (e.g., Becker and Woessman 2009) and beliefs (Voigtländer and Voth 2012, Grosfeld and Zhuravskaya 2013); others emphasise the importance of 'early' institutional structures, related to colonial practices (Naritomi, Soares, and Assunção 2012), colonial 'indirect-rule' (Acemoglu, Reed, and Robinson 2014, Iyer 2011), 'forced labour' systems (Dell 2010, Lowes and Montero 2016) and the forced placement of indigenous tribes in special reserves (Dippel 2013); others stress the impact of the environment, geography, and ecology (e.g., Hornbeck and Naidu 2015, Ashraf and Galor 2003); and Fenske and Kala provide, in Volume I, a synopsis of 'Environmental Economic History'. Some studies analyse the long-lasting effects of colonial investments in roads and railroads (Jedwab, Kerby, and Moradi 2016) and ports (Jia 2014), or the effect of Christian missions on education, health, and beliefs (Cage and Rueda 2016, Valencia 2016) whereas others explore the legacies of relatively recent historical events, examining the impact of the Holocaust (Acemoglu *et al.* 2014), communism (Alesina and Fuchs-Schundlen 2007), and Nazi occupation (Fontana *et al.* 2016) not only on economic development, but also on inequality, beliefs and political participation. Some works analyse the long-lasting effect of specific migration movements – for example Moser *et al.* (2014) examine the impact of Jewish émigré scientists leaving Nazi Germany on US innovation, while Grosjean and Khattar (2015) and Grosjean and Brooks (2016) study the impact of convict transportation from England to Australia, during the 18th and 19th century, on contemporary culture.

While there have been many influential contributions, there are many open issues. As the literature has tackled important and highly controversial subjects, there is naturally a debate and therefore more research is needed to develop a clearer view of these topics. For example, while there is not much ambiguity that the type of colonisation, or the identity of the colonial power, was consequential for contemporary development, there is still debate on the exact mechanisms at work. This is a hard task, as such large-scale episodes affect not only the economy, but also beliefs and norms, institutions, and the distribution of economic, and political power.

Another open issue regards the potential interactions of historical events with critical junctures in the process of development; for example, the negative consequences of forced labour systems in Latin America and Africa may be large and long-lasting, since they prevented industrialisation at a time of massive technological innovation. In line with this, Pascali (2017) finds that the trade and growth benefits of the introduction of the steam engine, during the first era of globalisation, were especially large in countries with strong executive constraints and checks-and-balances. Likewise, the high levels of civicness in Medieval Italian city-states, which correlate strongly with beliefs and development (Guiso *et al.* 2016), may have been especially important during the Enlightenment and the subsequent Commercial and Industrial Revolution.

While the papers summarised in this eBook series all reveal considerable persistence, they do not imply that development is entirely determinist; leadership and policies promoting investment and human capital accumulation or policies and technologies enabling trade integration do matter⁴. So, while on the surface, there may seem to be a tension between studies uncovering the shadow of history and the ability of policy to affect development (Banerjee and Duflo 2014), the works below can be viewed as showing that important policy decisions occurring in ‘critical’ times do have long-lasting effects (that subsequent policy-makers find hard to reverse). For example, as the chapter of La Porta, Lopez-de-Silanes, Shleifer and Vishny puts it, while laws often change, the associated legal environment and culture is much harder to modify, since they depend on judges and lawyers’ training, legal tradition, precedent, and social norms. The works summarised in this eBook series, as well as other important studies in the same genre, carry an obvious, yet often neglected, lesson. The success of any policy implemented crucially depends on the underlying institutional and cultural heritage of a given society, therefore it is vital for policymakers, development actors and investors to understand the historical context, so as to model incentives and design effective interventions.

Despite the wide-ranging topics that contributions to this eBook series cover, there are many, often not fully-appreciated, similarities across them.

4 See for example Jones and Olken’s (2005, 2010) innovative studies on the role of leadership on growth.

First, an element that quickly stands out across all chapters is their inter-disciplinary approach.⁵ Many entries, for example, carefully investigate the economic and cultural consequences of historical events and test influential conjectures put forward by political scientists and sociologists. For example, Nunn (2008) quantifies the legacy of Africa's slave trades, testing long-established theories in political science. Going over the papers, summarised in the chapters of this eBook series, the reader learns a lot, not only about the economics, but also about the context, the protagonists, and the key issues at stake. This inter-disciplinary approach has been a major step forward and must be continued (Lamoreaux 2015). Related to this, most of the recent contributions come from scholars who cannot be identified as 'economic historians', since their contributions span several fields (e.g., Daron Acemoglu, Andrei Shleifer, Luigi Zingales, Guido Tabellini, Ross Levine, and Oded Galor, to name but a few).

Second, most papers use (typically, self-collected) high-quality historical data that are combined with contemporary proxies of economic, institutional, and financial development. Some of the data collection and compilation efforts are remarkable, as economists have cleaned and digitised hard-to-access historical archives: for example, Nunn (2008) has digitised records on the hundreds of shipments of slaves out of Africa; building on earlier work of Philip Curtin, Acemoglu *et al.* (2001) compiled data reflecting settler mortality rates during the colonial time, using newspaper articles from the 19th century; Voth and Voitalander (2012) digitised data on Jewish pogroms in German lands during the Black Death; Cage and Rueda (2016) and Valencia (2016) geo-located the Catholic and Protestant missions in Africa and Latin America; and Acemoglu *et al.* (2014) constructed a dataset tracing all paramount chiefs installed by the British during their indirect rule of Sierra Leone. Using a plethora of original sources and meticulous efforts, Easterly and Levine (2016) have unearthed data on the share of Europeans, during the colonial times, for more than 100 contemporary countries, in order to assess their initial presence and long-lasting effects. And many papers are based on digitised historical and anthropological maps, portraying, for example, the spatial distribution of African ethnicities at the time of colonisation (Nunn 2008, Nunn and Wantchekon 2011, Michalopoulos and Papaioannou 2016), or of Native American tribes (Dippel 2013).

5 This is an important step forward, because, as Mancur Olson famously argued it is hard conducting interdisciplinary research without losing discipline.

Many use data from anthropologists (e.g., George Peter Murdock's mapping of ethnicities and codification of key economic, cultural, and institutional traits), as well as geo-referenced high-resolution data on geography (e.g., soil quality, terrain ruggedness, suitability of land for particular crops, among others). Some works employ data produced by population geneticists and evolutionary biologists (Spolaore and Wacziarg 2014 and Ashraf and Galor 2016). In addition, some of the papers summarised in this eBook series have compiled novel data for the most recent period. La Porta *et al.* (1997, 1998) have gone over the corporate and bankruptcy laws of many countries to construct quantitative measures capturing the strength of minority shareholders' and creditors' rights. Going over the historical record regarding the independence period for each African country, Wantchekon and Ponce (2016) have classified independence movements into rural and urban based.

Third, the works in this eBook series share an important feature: they are ambitious. Employing state-of-the-art econometric techniques and intuitive theoretical constructs, they aim to understand the consequences of events, such as the role of colonial strategies in Brazil (Naritomi *et al.* 2012), the impact of the Holocaust (Acemoglu *et al.* 2011), the artificial drawing of those colonial borders in Africa that survived independence (Michalopoulos and Papaioannou 2016), the role of Jewish immigrant scientists in US innovation (Moser *et al.* 2014), the role of the steam ship in advancing commerce and institutions (Pascali 2017), the long-lasting effect of communism on attitudes and values (Alesina and Fuchs-Schundlen 2007), or the contemporary legacies of city-states during Medieval times (Guiso *et al.* 2016). For each of these topics there are thousands of pages of excellent work in the areas of history, political science and sociology, along with a plethora of qualitative studies. To this corpus of excellence, economists bring along formal theorising and sound econometric tools, complementing and building upon the existing research. Naturally, ambition is at the same time a strength and a shortcoming. This is because, almost by default, it is impossible to perfectly explain and trace the legacy of history. Yet economists have been open to critique and in many instances they have gone back to the original archival data, re-examined and re-codified the entries, and improved upon the findings of these influential works.

Clearly, the massive amount of work in history and political science, that rightly studies detailed aspects of these events, should and will not be ‘replaced’ by some simplified economic model that (by necessity) abstracts from many relevant aspects to focus on some key channels; and the vast body of historical evidence should not be swept under the carpet because of some interesting econometric technique. But economics does offer a fresh new angle. Continuing and strengthening the ongoing cross-pollination between economists and scholars in other disciplines can only prove beneficial to the cause; that of understanding whether, how and why history matters in terms of shaping the observed variation in outcomes today across regions.

Fourth, as the revival of the ‘new economic history’ coincided with the ‘credibility revolution in empirical economics’ (Angrist and Pischke 2010), many of the papers rely on modern state-of-the art econometric methods, such as difference-in-difference estimation, ‘matching’ methods, regression discontinuity, instrumental variables, and ‘natural experiments’. These methods – while not perfect – attempt to account for unobserved or hard-to-measure confounding factors, or to exploit some form of ‘quasi-random’ variation in the historical record. For example, in her study on the impact of British direct rule of Indian states (as compared to indirect rule via local kings), Iyer (2010) exploits experimental variation stemming from the lapse rule, applied by the British between 1848-1856; under this system the British would take under direct rule only those Indian states where the dying native ruler did not have an heir. To identify the impact of colonisation, Feyrer and Sacerdote (2009) focus on small islands and use variation in wind patterns to obtain quasi-random variation on the timing and duration of European contact. History is full of idiosyncratic events, accidents and mistakes that economists (and more recently political scientists) exploit to credibly identify relationships. For example, scholars assess the effects of (unexpected) environmental shocks, as Hornbeck and Naidu (2014) examine the impact of the Great Mississippi Flood of 1927 on black out-migration and subsequent agricultural development in the US South. Likewise, Fenske and Kala (2015) link enslavement raids in Africa to temperature shocks.⁶ Even though historical variation entails often random elements, history is shaped by

6 There is a related large literature on environmental shocks and civil conflict (see Burke, Hsiang, and Miguel 2015, for a review).

people, leaders, technology, and the environment; so the impact of historical events cannot be evaluated via formal experimental tools (such as lab experiments or randomised-control trials), which are quite useful for the evaluation of various narrow policy interventions. Yet this does not invalidate their strength; quite the contrary. The studies reviewed in this eBook series exploit some unique aspect of the historical landscape or try to account as carefully as possible for confounding factors to examine the legacy of events that affect people's views, beliefs, country institutions, and the economy.

A fifth shared principle of these works is the conscious effort of the authors to make their findings accessible not only to specialists but also to the general public. The papers are widely accessible and fun-to-read (even when you disagree). Some authors, most notably Acemoglu and Robinson (2012) and Mokyr (2016) have written important books for the general public that build on this recent research agenda. And almost all authors have written non-technical summaries and Op-Eds. We hope that this eBook series will contribute to that ongoing effort.

Below we illustrate broadly the patterns of persistence over long periods of time. We then briefly go over the original works summarised in the 33 chapters of the three volumes of this eBook series.

2 Long-Term Persistence

2.1 The Evidence

Economic development appears quite persistent.⁷ Figure 1a provides a visualisation of the correlation of the logarithm of GDP per capita in 2014 and the respective statistic in 1960. The regression yields a close-to-unity elasticity (0.925), implying that countries that were 10% percent richer than other nations in the 1960s are (on average), today, 9.25% more developed.

⁷ Clearly there is noise in the GDP numbers, especially when one goes back to the pre-1960 period. If measurement error takes the classical form (i.e., is unrelated to country's output), then the correlations will be attenuated, indicating lower (than the true) persistence.

And one can explain half of the variation in contemporary performance with that of 1960 – the first year of (relatively) high-quality data from the Penn World Table (the elasticity and in-sample fit are similar if one uses Angus Maddison’s data). Clearly during the past 6 decades, there have been success stories of rapid structural transformation and industrialisation, most notably in East Asian (Japan, South Korea, Taiwan, and Singapore) and Southern Europe. There are also episodes of decline, such as those of Haiti, Venezuela, and of many African countries. Yet, as Figure 1a reveals, such episodes are the exception rather than the rule; output per capita is quite persistent. And, if anything, persistence is stronger, if one examines output in levels rather than in per capita terms.

Even if one examines the link between current GDP per capita (p.c.) and pre-WWI output p.c., the correlation remains quite high. Using data from Angus Maddison, Figure 1b illustrates the correlation of log GDP p.c. in 2008 and in 1913; the elasticity is 0.90 and the in-sample fit is considerable, with an R-squared of around 0.50. While there are some evident success cases (the East Asian countries) and some failure cases (Africa, Nepal, North Korea, and Argentina), most countries are close to the regression line. And, as Figure 1c illustrates, the pattern is similar when we associate contemporary log GDP p.c. (in 2008) with GDP p.c. before the first wave of globalisation and during the Second Industrial Revolution (in 1870). The elasticity is almost 1 and log GDP in 1870 again explains half of the variability in contemporary GDP p.c. (R-squared continues to be around 0.50). The correlation falls only when we go back to the 1820s, when most countries were still in the pre-industrial phase and per capita income differences were negligible compared to today’s large differences, even then the correlation exceeds 0.35

Figure 1a

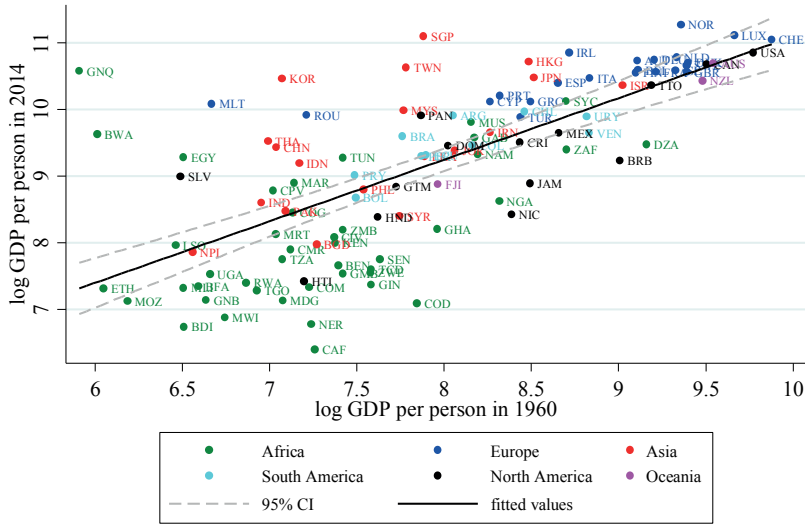


Figure 1b

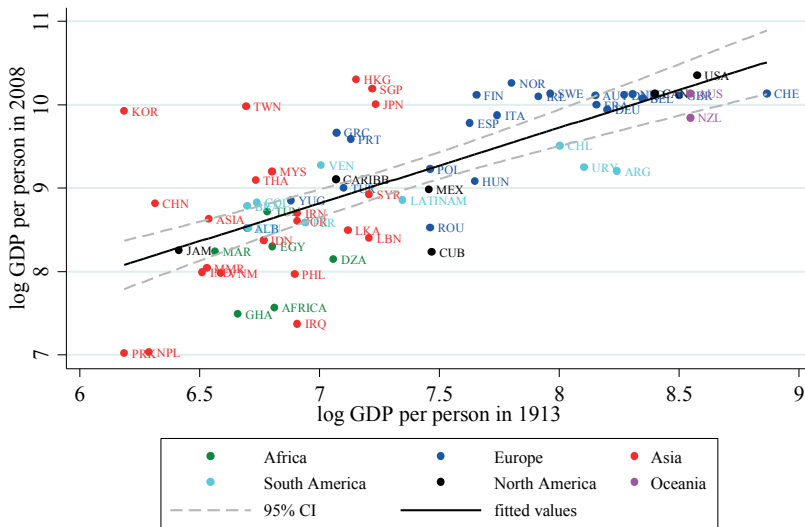
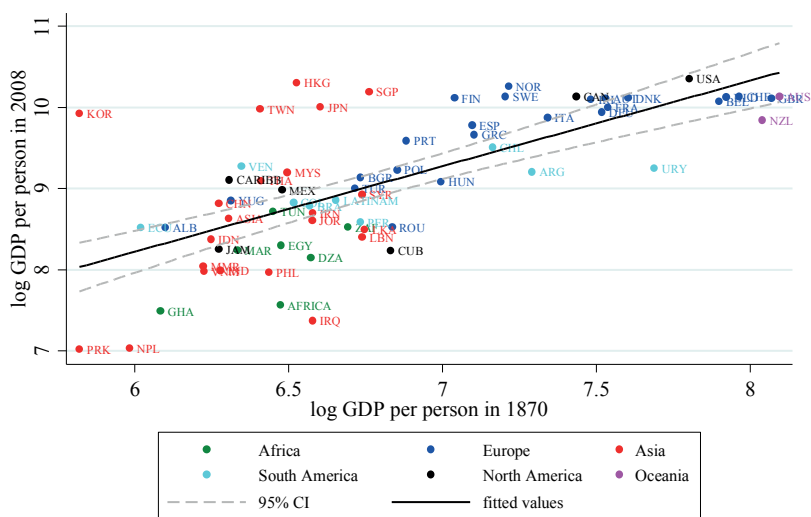


Figure 1c



REGRESSION FIT: $\log(\text{GDPcap}2008) = 1.8967 + 1.0542 * \log(\text{GDPcap}1870) + c$
 R-squared = 0.50
 Source: Maddison

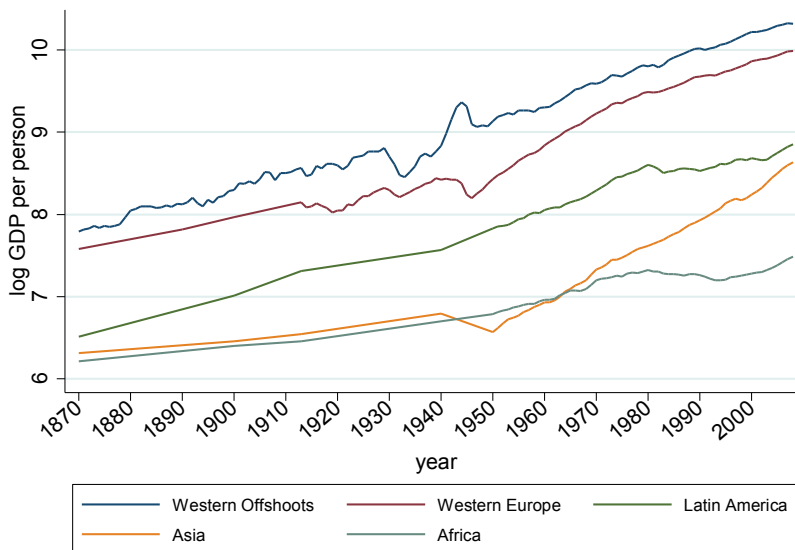
The patterns in Figures 1a-1c summarise (in a crude way) a large body of research revealing considerable persistence in income, output, and urbanisation, during at least the post-colonial period. There seems to be a ‘structural break’ only when one goes back to the Columbian exchange and the early stages of colonisation, a pattern that Acemoglu *et al.* (2002) have eloquently coined ‘reversal of fortune’⁸. While obtaining reliable data on income and output for the pre-colonial times becomes tricky and there are natural questions on data quality, many works reveal persistence, even when one takes a very long-run perspective (Comin *et al.* 2010, and Ashraf and Galor 2013). Perhaps more importantly, there is persistence on income per capita and population density, even when one looks across regions within the same countries. For example, Maloney and Valencia (2015) report strong correlations between pre-colonial and contemporary population densities across regions in 18 countries in North, Central and Latin America (population density is the appropriate metric for development in Malthusian pre-Industrial societies). For 12 (7) countries the correlation exceeds 0.5 (0.75). Similarly, Broda and Weinstein (2002) report high correlations on population densities across Japanese regions over a four-century period.

8 Chanda, Cook, and Putterman (2014) show that when one conducts the analysis at the population (rather than the territorial) level, then persistence increases.

Maloney and Valencia (2015) also uncover strong positive correlations between contemporary regional (log) income and (log) pre-colonial population density. Likewise, Tabellini (2010) finds sizable persistence between contemporary regional income across eight European countries and historical proxies of development.

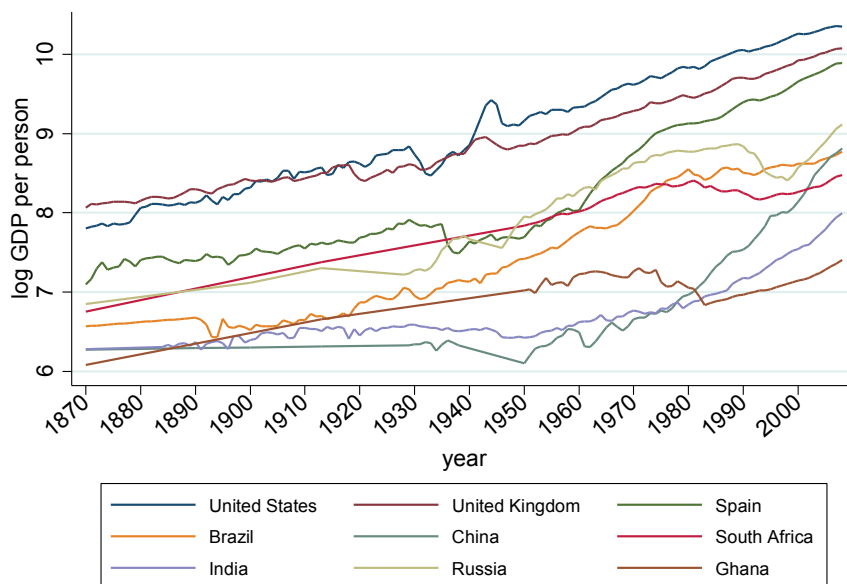
The evidence on persistence hints that there are deep-rooted, historical factors shaping development, at least partly. This finding is, at first-glance, puzzling, as there have been watershed events in the past couple of centuries, including colonisation, two world wars, numerous regional conflicts, revolutionary regime changes, the Industrial Revolution, the tremendous rise in globalisation. During the past two centuries the world population experienced an unprecedented increase in standards of living, as incomes rose, poverty fell (especially since the 1990s), fertility rates declined, and life expectancy and health improved. Yet the gains have been highly asymmetric, and, if one takes a medium to long-run perspective, there is evident divergence. This is revealed in Figures 2a-2b where, using the historical GDP series of Maddison, we plot output per capita since 1870 for continents and some countries.

Figure 2a



Source: Maddison

Figure 2b



Source: Maddison

Understanding persistence appears crucial, therefore, as a combined reading of Figures 1a-1c with Figures 2a-b suggests that countries/regions with a small-to-modest head start managed to gain the most, both from the technological innovations of the 19th and 20th centuries and from the global spur of commerce.

2.2. Explanations

The literature has bundled the potential explanations of persistence and divergence into four broad (and quite often interrelated) categories (see Acemoglu and Robinson 2012):

- i. those related to historical institutions, such as colonial extractive rules, pre-colonial political legacies and enslavement;
- ii. those stressing the role of cultural traits, related to religion, trust, family ties, beliefs and norms;
- iii. those related to geography-ecology, such as the impact of floods, temperature shocks, terrain ruggedness and isolation, soil variability, etc.;
- iv. others that emphasise historical accidents, such as the artificial drawing of colonial borders in Africa.

The chapters of this eBook series summarise works that explain contemporary economic development (as well as political development and attitudes) via different mechanisms, some geographic, some related to cultural traits, some stressing the legacies of institutional features, and some emphasising the role of accidental events. We view these contributions as complementary and, as many of the chapters will reveal, culture and institutions are interlinked and quite often share geographic origins (see Alesina and Giuliano 2016, Ashraf and Galor 2016).

Volume 1 of the eBook series starts with chapters reviewing works on the spatial distribution of economic activity across the globe and its main correlates. Next, it includes chapters summarising works which explore watershed events that have global repercussions. The chapters in Volume 2 summarise research on the deep origins of African development as well as works on the legacy of colonial practices in India, China, and Australia. Volume 3's chapters summarise studies on historical legacies in Latin and North America and then surveys works on the shadow of history in Europe.

References

Abramitzky, Ran (2015), “Economics and the Modern Economic Historian”, *Journal of Economic History*, 75(4): 1240-1251.

Acemoglu, Daron; Tarek Hassan, and James A. Robinson (2011), “Social Structure and Development: A Legacy of the Holocaust in Russia”, *Quarterly Journal of Economics*, 126(2): 895-946.

Acemoglu, Daron; Simon Johnson, and James A. Robinson (2001), “The Colonial Origins of Comparative Development: An Empirical Investigation”, *American Economic Review* 91(5): 1369–1401.

Acemoglu, Daron; Simon Johnson, and James A. Robinson (2002), “Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution”. *Quarterly Journal of Economics* 117(4): 1231–1294.

Acemoglu, Daron; Simon Johnson, and James A. Robinson (2005). “Institutions as a Fundamental Cause of Long-Run Growth”, in *The Handbook of Economic Growth*, edited by Philippe Aghion, and Steven. N. Durlauf, pp. 109.139. Elsevier North-Holland, Amsterdam, Netherlands.

Acemoglu, Daron, Tristan Reed, and James A. Robinson (2014), “Chiefs: Economic Development and Elite Control of Civil Society in Sierra Leone”, *Journal of Political Economy*, 122(2): 319–68.

Acemoglu, Daron and James A. Robinson (2012), *Why Nations Fail. The Origins of Power, Prosperity, and Poverty*, Crown, New York.

Alesina, Alberto and Nicola Fuchs-Schundeln (2007), “Good-Bye Lenin (or Not?): The Effect of Communism on People’s Preferences”, *American Economic Review*, 97(4): 1507-1528.

Alesina, Alberto and Paola Giuliano (2015), *Culture and Institutions*, *Journal of Economic Literature*, 53(4): 898-944.

Ashraf, Quamrul, and Oded Galor (2011), “Dynamics and Stagnation in the Malthusian Epoch”, *American Economic Review*, 101 (5): 2003–41.

Ashraf, Quamrul and Oded Galor (2013), “The ‘Out of Africa’ Hypothesis, Human Genetic Diversity, and Comparative Economic Development”, *American Economic Review*, 103(1): 1-46.

Ashraf, Quamrul and Oded Galor (2013), “The Macrogenoeconomics of Comparative Development”, *Journal of Economic Literature*, forthcoming.

Angrist, Joshua D. and Jorn-Steffen Pischke (2010), “The Credibility Revolution in Empirical Economics: How Better Research Design Is Taking the Con out of Econometrics”, *Journal of Economic Perspectives*, 24(2): 3-30.

Banerjee, Abhijit V. and Esther Duflo (2014) “Under the Thumb of History? Political Institutions and the Scope for Action”, *Annual Review of Economics*, 6(2): 951-971.

Becker, Sascha O. and Ludger Woessmann (2009), “Was Weber Wrong? A Human Capital Theory of Protestant Economic History”, *Quarterly Journal of Economics* 124(2): 531-596.

Besley, Timothy and Thorsten Persson (2011), *Pillars of Prosperity*, Princeton University Press, Princeton, New Jersey

Burke, Marshall; Solomon M. Hsinag, and Edward Miguel (2015), “Climate and Conflict”, *Annual Review of Economics*, 7(1): 577-617.

Cagé, Julia and Valeria Rueda (2016a), *The Long-Term Effects of the Printing Press in sub-Saharan Africa*, *American Economic Journal: Applied Economics* 8(3): 69-99.

Cagé, Julia and Valeria Rueda (2016b), “Sex and the Mission: The Conflicting Effects of Early Christian Investments on sub-Saharan Africa’s HIV Epidemic,” Working Paper, Paris School of Economics.

Chanda, Areendam, C. Justin Cook, and Louis Putterman (2014), “Persistence of Fortune: Accounting for Population Movements, There Was No Post-Columbia Reversal”, *American Economic Journal*, 6(3): 1-28.

Comin, Diego; William Easterly, and Erick Gong (2010), “Was the Wealth of Nations Determined in 1000 B.C.?” *American Economic Journal: Macroeconomics*, 2(3): 65-97

Davis, Donald R. and David Weinstein (2002), “Bones, Bombs, and Break Points: The Geography of Economic Activity”, *American Economic Review*, 92(5): 1269-1289.

Dell, Melissa (2010), “The Persistent Effects of Peru’s Mining Mita”. *Econometrica* 78(6): 1863-1903.

Dell, Melissa (2012), “Path Dependence in Development: Evidence from the Mexican Revolution”, Working paper, Harvard University, Department of Economics.

Diamond, Jared (1997), *Guns, Germs, and Steel. The Fates of Human Societies*, W.W. Norton and Company, New York and London.

Dippel, Christian, “Forced Coexistence and Economic Development: Evidence from Native American Reservations”, *Econometrica* 82(6): 2131-2165.

Dittmar, Jeremiah E. (2011), “Information Technology and Economic Change: The Impact of the Printing Press”, *Quarterly Journal of Economics*, 126(3): 1133-1172.

Easterly, William and Ross Levine (2016), “The European Origins of Economic Development”, *Journal of Economic Growth* 21(3): 225–257.

Engerman, Stanley L. and Kenneth Lee Sokoloff (1997), “Factor Endowments, Institutions, and Differential Paths of Growth Among New World Economies”, in Stephen Haber, ed., *How Latin America Fell Behind*, Stanford: Stanford University Press, 1997.

Engerman, Stanley L. and Kenneth Lee Sokoloff (2002), “Factor Endowments, Inequality, and Paths of Development among New World Economies, *Economia*, 3(1)

Fenske James and Namrata Kala (2015), “Climate and the Slave Trade”, *Journal of Development Economics*, 112(1): 19-32.

Feyrer, James and Bruce Sacerdote (2009), “Colonialism and Modern Income: Islands as Natural Experiments”, *The Review of Economics and Statistics* 91(2): 245-262.

Franck, Raphael and Stelios Michalopoulos (2017), “The French Revolution in Long Duree”, working paper, Brown University, Department of Economics

Galor, Oded and David Weil (1999), “From Malthusian Stagnation to Modern Growth”, *American Economic Review*, 89(2): 150-154.

Galor, Oded and David Weil (2000), “Population, Technology, and Growth: From Malthusian Stagnation to the Demographic Transition and Beyond”, *American Economic Review*, 90(4): 806-828.

Galor, Oded (2011), *Unified Growth Theory*, Princeton University Press, Princeton, NJ.

Glaeser, Edward, Rafael La Porta, Florencio Lopez-de-Silanes and Andrei Shleifer (2004), “Do Institutions Cause Growth?”, *Journal of Economic Growth*, 9 (3): 271-303.

Greif, Avner (1994), “Cultural Beliefs and the Organization of Society: Historical and Theoretical Reflection on Collectivist and Individualistic Societies”, *Journal of Political Economy*, 102(3): 912-50

Greif, Avner (1993), “Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders’ Coalition”, *American Economic Review*, 83(3): 525-548.

Grosfeld Irena, Alexander Rodnyansky and Ekaterina Zhuravskaya (2013), “Persistent Antimarket Culture: A Legacy of the Pale of Settlement after the Holocaust”, *American Economic Journal: Economic Policy*, 5(3): 189-226.

Hassan, Tarek and Nicola Fuchs-Schundlen, “Natural Experiments in Macroeconomics”, in *The Handbook of Macroeconomics*, Taylor, John B. and Harald Uhlig (eds.): Elsevier, Vol. 2a, 2016, 923-1012.

Hornbeck, Richard, (2012), “[The Enduring Impact of the American Dust Bowl: Short- and Long-run Adjustments to Environmental Catastrophe](#)”, *American Economic Review* 102(4): 1477-1507

Hornbeck, Richard and Suresh Naidu (2014), “[When the Levee Breaks: Black Migration and Economic Development in the American South](#)”, *American Economic Review* 104(3): 963-990.

Jedwab, Remi and Alexandre Moradi (2016), “[The Permanent Effects of Transportation Revolutions in Poor Countries: Evidence from Africa](#)”, *Review of Economics and Statistics*, forthcoming.

Jones, Charles I. and Robert Hall (1999), “[Why Do Some Countries Produce So Much More Output per Worker than Others?](#)”, *Quarterly Journal of Economics*, 114(1): 83-116.

Jones, Benjamin and Benjamin Olken (2005), “[Do Leaders Matter? National Leadership and Growth Since World War II](#)”, *Quarterly Journal of Economics*, 120(3): 835-864.

Jones, Benjamin and Benjamin Olken, (2009), “[Hit or Miss? The Effect of Assassinations on Institutions and War](#)”, *American Economic Journal: Macroeconomics*, 1(2): 55-87.

Iyer, Lakshmi (2010), “[Direct versus Indirect Colonial Rule in India: Long-term Consequences](#)”, *Review of Economics and Statistics*, 92(4): 693-713,

Lamoreaux, Naomi R. (2015), “[The Future of Economic History Must Be Interdisciplinary](#)”, *Journal of Economic History*, 75(4): 1251-1257

Landes, David S. (1999), [The Wealth and Poverty of Nations](#), W.W. Norton and Company, New York and London.

Levine, Ross (2005), “[Finance and Growth Theory and Evidence](#)”, in *The Handbook of Economic Growth*, edited by Philippe Aghion, and Steven. N. Durlauf, pp. 109.139. Elsevier North-Holland, Amsterdam, Netherlands.

La Porta, Rafael; Florencio Lopez-de-Silanes, and Andrei Shleifer (2008), “[The Economic Consequences of Legal Origins](#)”, *Journal of Economic Literature*, 46(2): 285-332.

Lowes, Sara and Eduardo Montero (2017), “[Blood Rubber: The Effects of Labour Coercion on Institutions and Culture in the DRC](#)”, Working paper, Harvard University, Department of Economics.

Maloney, William F. and Felipe Valencia Caicedo (2015), “[The Persistence of Subnational Fortune](#)”, *Economic Journal*, 126: 2363-2401.

Mc Closkey, Deidre (1976), “[Does the Past Have Useful Economics?](#)”, *Journal of Economic Literature*, 14(2): 434-461.

Michalopoulos, Stelios and Elias Papaioannou (2014), “[National Institutions and Subnational Development in Africa](#)”, *Quarterly Journal of Economics*, 129(1): 151-213.

Michalopoulos, Stelios and Elias Papaioannou (2016), “[The Long-Run Effects of the Scramble for Africa](#)”, *American Economic Review*, 106(7): 1802-1848.

Mokyr, Joel (2016), *A Culture of Growth: The Origins of the Modern Economy*, Princeton University Press, Princeton, NJ.

Mokyr, Joel (2005), “[Long-Term Economic Growth and the History of Technology](#)”, In *The Handbook of Economic Growth*, Volume 1B, edited by Philippe Aghion and Steven N. Durlauf, pp. 1113–80. Amsterdam: Elsevier, North-Holland.

Moser, Petra, Alessandra Voena, and Fabian Waldinger (2014), “[German-Jewish Émigrés and U.S. Invention](#)”, *American Economic Review*, 104 (10): 3222-3255.

Naritomi, Joana, Rodrigo R. Soares, and Juliano J. Assunção (2012), “[Institutional Development and Colonial Heritage within Brazil](#)”, *Journal of Economic History* 72(2): 393-422.

Nunn, Nathan (2008), “[The Long Term Effects of Africa’s Slave Trades](#)”, *Quarterly Journal of Economics*, 123(1), 139-176.

Nunn, Nathan (2009), “The Importance of History for Economic Development”, *Annual Review of Economics*, 1(1): 1-28.

Nunn, Nathan (2014), “Historical Development”, in *The Handbook of Economic Growth*, edited by Philippe Aghion, and Steven. N. Durlauf, Volume 2A, Chapter 7 pp. 347-402. Elsevier North-Holland, Amsterdam, Netherlands.

Nunn, Nathan and Leonard Wantchekon (2011), “The Slave Trade and the Origins of Mistrust in Africa”, *American Economic Review* 101(7): 3221-3252.

Pascali, Luigi (2017) “The Wind of Change: Maritime Technology, Trade and Economic Development”, *American Economic Review*. Forthcoming

Spolaore, Enrico and Romain Wacziarg (2009), “The Diffusion of Development”, *Quarterly Journal of Economics*, 124(2): 469-529.

Spolaore, Enrico and Romain Wacziarg (2014), “Long-Term Barriers to Economic Development”, in Philippe Aghion and Steven Durlauf (eds.), *Handbook of Economic Growth*, vol. 2A, Chapter 3, pp. 121-176. Amsterdam: North Holland.

Tabellini, Guido (2010), “Culture and Institutions: Economic Development in the Regions of Europe”, *Journal of the European Economic Association*,

Temin, Peter (2013), “The Rise and Fall of Economic History at MIT”, MIT Department of Economics, Working Paper Series 13-11.

Valencia Caicedo, Felipe (2016), “The Mission: Economic Persistence, Human Capital Transmission and Culture in South America”, Mimeo. University of Bonn.

Voth, Joachim and Nico Voigtländer (2012), “Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany”, *Quarterly Journal of Economics*. 127(3): 1339-1392.

Wantchekon, Leonard, and Omar Garcia Ponce (2014), “Critical Junctures: Independence Movements and Democracy in Africa”, working paper, Princeton University, Department of Politics.

Woodberry, Robert D. (2012), “The Missionary Roots of Liberal Democracy”, *American Political Science Review*, 106(2), pp. 244-274

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His research has been recognized with the inaugural 2013 European Investment Bank Young Economist Award, 2005 Young Economist Award by the European Economic Association and the 2008 Austin Robinson memorial prize by the Royal Economic Association. Elias consultants for international organisations, investment banks, hedge funds, and institutional investors on macroeconomic developments in the EU and Greece.

1 Introduction

Stelios Michalopoulos and Elias Papaioannou

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The first part of Volume III (Chapters 2-7) discusses work on the deep-rooted factors of development in the Americas, covering the period from the colonisation of North and South America up to World War II. The papers summarised in this volume assess the legacy of colonial forced labour practices in Peru; the long-lasting effects of missionary activity in South America, via education; the impact on contemporary subnational institutions of the sugar-cane and gold booms in Brazil; the lasting effects of forced population resettlement of the native North American tribes onto reservations across the United States; the development effect of the transition to mechanised agriculture in the US, following the 1927 Mississippi Flood; and the role of the influx of European scientists, fleeing Europe before World War II, on US inventive capacity.

The second part of Volume III (Chapters 8-15) focuses on recent empirical works, studying the long-lasting legacies of important aspects of European history: the rise of city states in medieval Italy that still seems to shape civicness and trust; the Protestant Reformation; the birth of the legal structure of the modern (limited liability) corporation; the consequences and origins of anti-Semitism and the Holocaust; and the legacies of the communist era in Germany and of the Nazi occupation of Italy.

In Chapter 2, Joana Naritomi summarises her work (with Rodrigo Soares and Juliano Assunção) on the colonial heritage in Brazil exploiting regional variation in colonial practices on contemporary development outcomes (Naritomi *et. al.* 2012). The starting point of the empirical analysis is the identification of the regions that were most impacted by two of Brazil's most important colonial episodes: the sugar-cane and gold booms. The author(s) then explore whether municipalities affected by sugar-cane plantations and gold mining are systematically different today.

The empirical analysis uses data from 4,971 municipalities and focuses on three local characteristics in 2000: the distribution of economic power, as measured by land inequality (land Gini); access to justice, reflected in the local availability and performance of courts; and the quality of local government practices. The econometric exploration reveals that, within the constant *de jure* macro-institutional setting of Brazil, those areas affected by these extractive episodes, and under stronger influence of Portugal during the colonial period, have worse outcomes today.

In Chapter 3, Melissa Dell looks at a major extractive institution in South America, that of the *mita* system of forced labour, applied by the Spanish conquistadores in Peru and Bolivia during 1573-1812 (Dell 2010). Under this system, villages within a well-defined area had to send one-seventh of their adults to work at either the silver mines in Potosi or the mercury mine in Huancavelica. Dell (2010) presents compelling evidence that the legacy of the *mita* system is still present today. Consumption is lower and childhood stunting is higher for individuals residing in areas that were historically under the *mita* system. Dell's estimates push crucially on causation as, applying a spatial regression discontinuity approach, she compares outcomes in nearby areas (villages and towns) on either side of the *mita* border. Compiling data from historical records and colonial censuses, Dell (2010) makes an effort to identify the mechanisms at play. She shows that *mita* regions had historically lower investment in road and school infrastructure, partly driven by the absence of large land owners, who could not locate themselves inside the *mita* area, due to labour shortage. So, the *mita* shaped early inequality, which in turn affected the location of colonial investments in roads and schools, influencing contemporary differences in development.

In Chapter 4, Felipe Valencia Caicedo investigates an under-appreciated angle of the colonial influence in South America, when he examines whether local populations benefited from their exposure to the colonial missionaries who brought into the 'new world' new skills, technologies and values. He focuses on Jesuit missions founded during the 17th Century amongst the Guarani, a semi-nomadic indigenous group split between modern-day Argentina, Brazil and Paraguay. The fact that Jesuits were expelled from the Americas in 1767 and never returned to the Guarani area allows him to cleanly identify the influence of the historical exposure to the missionaries.

Some 250 years after the missionaries were expelled, Valencia Caicedo finds substantial positive effects of Jesuit missions on modern-day human capital and incomes. To rationalise these enduring educational and income differences, he uses historical censuses, finding that Jesuit missions had an even larger effect on human capital during intermediate historical periods. Finally, collecting novel data via lab-in-the-field experiments in Southern Paraguay and Northern Argentina he finds that respondents in former missionary areas score higher in non-cognitive skill tests and behave more pro-socially. The findings support the view that historical investments in human capital can have long-lasting consequences, altering communal culture and individual behavior. This work is also related to Chapter 7 in Volume II, by Cage and Rueda, who uncover sizeable positive effects of proximity to Protestant missions on human capital and political participation across African regions.

In Chapter 5, Christian Dippel focuses on Native American reservations, so as to study the effect of *forced coexistence*, the ‘shoe-horning’ of independent jurisdictions into a shared polity. His work speaks to a large literature documenting the negative consequences of ethno-linguistic fractionalisation and artificial jurisdictions. Dippel finds that, according to the 2000 US Census, forced coexistence decreases per capita incomes on reservations by about 30%. Interestingly, he shows that the effect of forced coexistence was relatively small from 1970 to 1990, implying that more than two-thirds of the cross-sectional effect estimated in 2000 appeared after 1990, when local governance began to really matter on reservations. To glean further evidence on the local governance channel, he investigates the relationship between forced coexistence and political conflict directly. In the absence of measures of actual conflict, he uses newspaper databases to generate counts of reported episodes of internal political conflict and corruption. Consistent with the local governance mechanism, Christian finds that forced coexistence significantly increases reported episodes of both internal conflict and corruption. The effect is stronger for conflict that involves local governance institutions. Moreover, Dippel documents that indigenous North American tribes with a (relatively) high degree of political centralisation before the arrival of Europeans are more developed today, a result that is present also in Latin America (Chiovelli 2016) and Africa (Gennaioli and Rainer 2007, Michalopoulos and Papaioannou 2013).

In Chapter 6, Suresh Naidu and Richard Hornbeck show how large environmental shocks can potentially alter long-standing patterns of political inequality and economic development. They examine the 1927 Mississippi Flood, which drastically altered black labour supply and forced white planters to transition to a mechanised agricultural economy. The availability of rich historical data allows the authors to examine short-run, medium-run, and long-run effects of the flood, by comparison of changes among flooded and non-flooded counties. The authors show that from 1920 to 1930 flooded counties experienced a 14% decline in their black population share, relative to non-flooded counties. Following the 1927 flood, this short-run decline in black population share persisted until 1970. At the same time and by 1940, the value of agricultural capital increased substantially in flooded counties relative to non-flooded counties. Flood-induced black out-migration encouraged planters' adoption of capital-intensive technologies and larger-scale farm operation in a manner consistent with contemporary and historical qualitative accounts. These findings reveal how historical environmental accidents may drastically alter the initial social and economic equilibrium of a given locality (James Fenske and Namrata Kala summarise "environmental economic history" in Volume I).

In Chapter 7, Petra Moser, Alessandra Voena, and Fabian Waldinger investigate an important episode of international migration: the arrival of German Jewish refugees from Nazi Germany in the United States over the period 1920-1932. Anecdotal evidence suggests that German-Jewish émigrés revolutionised US science and innovation. For example, émigrés such as Leo Szilard, Eugene Wigner, Edward Teller, John von Neumann, and Hans Bethe were instrumental in the Manhattan project that developed the atomic bomb and shaped physics post World War II. To investigate the émigrés' influence on innovation, the authors compare changes in numbers of patents per year, after 1932, by domestic US inventors in the research fields of German-Jewish émigrés with changes in annual US patents by domestic US inventors in the research fields of other German chemists. Baseline regression estimates indicate that the arrival of German-Jewish émigrés led to a 31% increase in innovation after 1933 in the corresponding fields. Co-inventors of the émigré professors, and co-inventors of co-inventors of the émigrés also substantially increased their inventive activity in émigré fields after 1933, revealing the network externalities of the latter.

In Chapter 8, Sascha O. Becker and Jared Rubin review the consequences of one of the defining events of European history over the last millennium; the Protestant Reformation. Max Weber famously put the protestant ethos at the root of the Industrial Revolution, innovation, scientific endeavor, and eventually development. The authors focus on two channels, through which the Reformation affected long-run economic development: human capital and governance. The human capital channel has been highlighted in a number of recent papers (Becker and Woessmann 2008, 2009). They show that Prussian counties with a larger share of Protestants had higher literacy rates in 1871. To address concerns about endogeneity of the Protestant share, the authors use distance to Wittenberg as a source of ‘semi-exogenous’ variation. The idea is that the Reformation spread concentrically from Luther’s city of Wittenberg. Another channel through which the Reformation affected long run outcomes was through its transformative effect on the manner in which Protestant polities were governed. Greif and Rubin (2016) and Rubin (2017) suggest that the Reformation undermined the capacity of the Catholic Church to legitimise rule and Protestant monarchs therefore turned to parliaments for legitimacy and resources.

In Chapter 9, Luigi Guiso, Paola Sapienza, and Luigi Zingales test Robert Putnam’s influential conjecture tracing the origins of the sizeable North-South divide in economic performance in Italy to heterogeneity in their type of rule during the late Middle Ages. The authors show that Italian cities that achieved self-governance in the Middle Ages, forming ‘free city-states’, have a higher level of civic capital today, when compared to similar cities in the same area that did not. The size of this effect increases with the length of the period of independence and its intensity. This association persists, even after accounting for the fact that cities did not become independent randomly. Building on Putnam’s work, the authors conjecture that the Middle-Age experience of self-government fostered belief in one’s own ability to complete tasks and reach goals and that this positive attitude, transmitted across generations, enhances civic capital today. Consistently, they find that eighth-graders in former free city-states exhibit stronger self-efficacy beliefs and that these beliefs are correlated with a higher level of civic capital.

In Chapter 10, Giuseppe Dari-Mattiacci and Enrico Perotti trace the development of the fundamental elements of the corporate form over time. The authors stress how the onset of colonial trade exposed the limitations of the pre-existing contractual system and spurred the legal establishment of the corporation. Trade with Asia required massive capital investments of a kind that could be sustained only if capital was collected from a large base and had a long-term horizon. The lack of legally enforceable ways to commit one's capital meant that the standard way of financing trade, until the end of the 16th century, was per voyage. It was the Dutch East India Company (VOC), chartered in 1602 in Amsterdam that produced the missing legal innovation. Was this strategy beneficial? The data unambiguously shows a Dutch dominance in Asian trade over the period considered. So, why didn't the English adopt this contractual innovation? A strong merchant elite in the Dutch Republic had resisted an abusive foreign ruler, – Philip II – and declared its independence. In contrast, under England's relatively strong monarchy and little parliamentary oversight, withdrawal at will gave individual traders a veto power on continuation and protected them from the most outrageous forms of potential expropriation.

In Chapter 11, Nico Voigtländer and Hans-Joachim Voth explore the extent to which cultural transmission predisposes people to hate others, in a fashion similar to that of their ancestors. The authors explore this question in the context of anti-Semitism in Germany. They exploit regional variation in anti-Semitism at two critical junctures: in the Middle Ages, when the Black Death was blamed on the Jews; and, 600 years later, after World War I, when growing anti-Semitism made the persecution of German-Jews more likely. Voigtländer and Voth document that towns and cities where Jews were persecuted in the Middle Ages during the Black Death were also much more likely to show signs of anti-Semitism in the 1920s and 1930s. How can racial hatred persist over centuries? The authors examine two particular channels. First, they show that in cities that grew quickly during the 19th century the transmission was lower. Second, they examine the interplay of a city's economic function and long-term transmission, finding that two types of cities, the Hanseatic trading cities of the North and the trade-oriented Southern German cities, showed much lower long-term transmission. This seems to suggest that, where financial self-interest is at variance with a hate-fuelled view of the world, persistence can be systematically lower.

In Chapter 12 Daron Acemoglu, Tarek A. Hassan, and James A. Robinson shed light on the long-lasting economic and political effect of the persecution and mass murder of Jews by the Nazis during World War II. They find that an occupied city with a 1% share of Jewish population in 1939 is 7.7% smaller in 1989 than it would otherwise be. Because the share of the city population that is of Jewish origin is typically small (it is on average 2.01% for occupied cities and 0.45% for non-occupied cities), this sizeable effect cannot be accounted for by the direct effect of the Holocaust on the Jewish population, suggesting that it had a much more far-reaching impact on the economic development of the affected cities. Acemoglu, Hassan, and Robinson suggest that this negative impact may be due to its adverse effect on the social structure of the cities, particularly by lowering the size of the middle class.

In Chapter 13, Irena Grosfeld and Ekaterina Zhuravskaya explore how the historical ethnic animosity may shape current attitudes as they examine the presence (and eventual removal) of Jews in Russia, where they were confined within a special area called the Pale of Jewish Settlement. The authors argue that due to traditional occupations of Jews as market intermediaries, the non-Jewish population developed a stigma associated with such activities, at the time when Jews and non-Jews co-existed in Eastern Europe, and that this culture persists to this date. As a result of the Holocaust, after the war the ethnic and religious composition of the population on the two sides of the old border of the Pale settlement became indistinguishable, and, therefore, any discontinuity at the Pale border today cannot be driven by the differences in the ethnic structure of the population and must represent the causal long-run legacy of the former presence of Jews on one side of the border. Exploiting a spatial regression discontinuity design, Grosfeld and Zhuravskaya find that current urban residents of the Pale area exhibit significantly higher aversion to markets and market reforms. This evidence is important, as they uncover the impact of history on contemporary beliefs and social norms that, in turn, shape development.

In Chapter 14, Nicola Fontana, Tommaso Nannicini, and Guido Tabellini investigate how political attitudes have been shaped by historical events, as they focus on the legacy of the resistance movement in Italy during World War II. The authors uncover the lasting impact on Italian politics of the Nazi occupation and the bloody civil war towards the end of World War II.

The battlefield between Germans and the Allied Forces remained stuck for about six months near the so-called Gothic line, cutting Northern-Central Italy from West to East. The position of the line was determined by ‘accidental’ (irrelevant for development) military criteria, and municipalities close to, but on opposite sides of, the battlefield line are very similar in most respects. The authors compare municipalities just above and just below the Gothic line. Post-war election outcomes are starkly different across the Gothic line. In municipalities just North of the line, where the Nazi occupation lasted longer, the communist party is on average much stronger. What mechanisms lie behind this effect? The authors find that exposure to violence during WWII is robustly associated with a persistent increase in communist vote shares.

In Chapter 15, Alberto Alesina and Nicola Fuchs-Schündeln exploit the separation and then reunification of Germany to shed light on whether different preferences across countries lead to different policies or different preferences are in fact caused by different policies. As result of the separation of Germany after WWII a ‘randomly’ determined portion of Germans lived for sixty years in a communist regime, where the state played a leading role in determining the individual financial situation, while in the liberal democracy of West Germany the role of the state was much smaller. The authors examine whether the differential experiences of living in the East and the West have generated divergent contemporary views about the role of the state. Using data from the German Socioeconomic Panel the authors find that East Germans are significantly more likely to have preferences in favour of state provision of financial security in all domains. Overall, their work provides strong evidence that individual preferences are rather deeply shaped by the political regime in which people live, pointing to crucial interaction between institutions and cultural attributes.

2 Type of colonisation and Latin American development

Joana Naritomi

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The role of institutions and the initial distribution of economic power as determinants of long-term development has received increased attention over the past decade. A vast array of cross-country empirical literature has emerged, following in the footsteps of the seminal contributions of Daron Acemoglu, Simon Johnson, and James Robinson.¹ At first, much of this literature evolved around the idea that the geographic pattern of development, observed across countries, reflects the different institutional arrangements that are inherited from different experiences of colonisation. Initial circumstances and geographic conditions were associated with particular paths of colonisation, which in turn translated into the establishment of different types of institutions. Institutions then, through their effects on property rights, political competitiveness, and governance, led to good policies and, ultimately, development. In this view, the adoption of distinct ‘macro-institutions’ – determined at the country level, and related to the political and judicial systems and to the enforcement of laws – would be the intervening force in the observed correlation between geography and development.²

The geographic pattern of development within Brazil raised a series of questions in relation to the interpretation of the cross-country evidence and the conclusions of this debate.

1 Acemoglu, Johnson, and Robinson, “The Colonial Origins of Comparative Development”. Other literature contends that the geographic pattern of development reflects the direct impact of geography on income per capita, through its effects on the disease environment, agricultural productivity, and access to trade. See, for example, Gallup, Sachs, and Mellinger, “Geography and Economic Development”.

2 See review in Nunn, “The Importance of History for Economic Development”

The positive correlation between distance to the equator and income per capita – often used as a motivation figure in the academic literature – is stronger and tighter within Brazil than across countries. The R^2 is 0.56 and the coefficient on latitude is 0.053, while across countries the R^2 is 0.32 and the coefficient is 0.038.³ At the same time, the regions of Brazil shared a single coloniser and a single language, and Brazil has a very centralised federal system. The ‘macro-institutions’ typically highlighted in the interpretation of the cross-country evidence, as well as the historical variables identified as their sources of variation, are – and for the most part have always been – constant within the territory. This evidence challenges the understanding that the correlation between geography and development reflects mostly the effect of climate and endowments on the type of ‘macro-institutions’ that were ultimately adopted at the country level.

Two non-mutually exclusive possibilities arose from this challenge. Geographic factors may be important on their own as direct determinants of long-term development, which would contradict the main consensus of the literature. Or, even within a constant *de jure* setting, different geographic characteristics may still be associated with different *de facto* institutional arrangements and distributions of economic and political power, which would then be relevant determinants of local development. In the study “Institutional Development and Colonial Heritage within Brazil” (Naritomi *et al.* 2012), summarised in this chapter, we focus on the second possibility. Specifically, we identify the areas of Brazil that were actively involved in two of its most important colonial episodes: the sugar-cane and gold booms. These were the main periods of economic expansion during Brazilian colonial history. Both were associated with the initial occupation of certain areas and intrinsically connected with the development of extractive activities by Portugal. These booms can be delimited both chronologically and geographically, so that some municipalities can trace their origins back to a specific episode of extractive enterprise. One can then ask whether municipalities affected by these two historical episodes are systematically different today.

3 Cross-country data are from the Penn World Tables. The more complete set of geographic variables used in the paper explains up to 65% of the variation in income per capita across Brazilian municipalities.

Moreover, because these colonial resource booms differ in important ways, our study also sheds light on how different technologies of colonial extractive industries may have different long-run effects on local development.

Resource booms in Brazilian colonial history

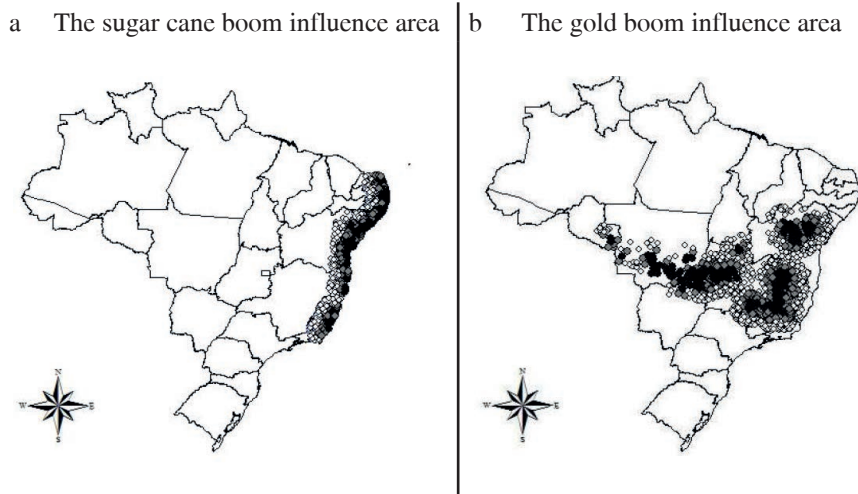
Between 1500 and 1822, Brazil was a colony of Portugal. Through most of the colonial period, Portuguese rule was characterised by the establishment of successive waves of extractive endeavours, varying in form and institutional characteristics, according to the goods being demanded in Europe and the production possibilities offered by the colony. Proximity to Portugal was an important factor during the first centuries of colonisation. For this reason, and because of its climatic features, the Northeast was the area first occupied by the metropolis. There was no direct and constant intervention for most of the Southern part of the country, where settlers operated at the margin of the colonial enterprises supported by the metropolis. Overall, the costs and difficulties related to trade with Portugal constituted an important determinant of the degree of intervention. Arno Wehling argues that “*The physical distance between Lisbon ... turned into months or years the timing of decisions ... It imposed, therefore, an ‘administrative time’ that delayed decisions and limited the efficacy of the government apparatus.*”⁴

In general, the goods that constituted valuable commodities for the Portuguese were determined by European demand. Local climatic and geographic conditions, together with distance to Portugal, determined the viability and location of the different activities in the Brazilian territory. Contrary to parts of Spanish America, there were no complex societies or densely populated areas in Brazil, prior to the arrival of the Portuguese. Therefore, there was very little impact of previously existing social arrangements or labour supply on decisions regarding location of production. In this sense, both the activities developed and their location in the Brazilian territory can be understood as shocks to the economic and political history of the country. If the local institutional setting associated with the extractive activities persisted through time, it would still be possible to capture its long-term effects today.

4 Wehling, *Formação do Brasil Colonial*, p.302, translated by the authors.

Among the extractive activities developed by Portugal, two deserve particular attention: sugar-cane plantations and gold mining.⁵ We focused our analysis on these two episodes for three reasons: one, they are typically regarded as the most important, both in terms of economic relevance and area of influence; two, they were characterised by an essentially extractive socioeconomic organisation and an openly extractive logic; and three, they marked the initial occupation of important areas of the country, as shown in Figure 1. During their most prosperous periods, both sugar-cane and gold mobilised the attention of Portugal, marking the initial occupation of the Northeast and Central portions of Brazil. The metropolis committed its physical resources, labour, and institutional apparatus in a coordinated way to maximise rent extraction. Once these rents started to dwindle, even though the activity itself persisted, the mobilisation of attention and resources was dismantled, and a new extractive opportunity was sought.

Figure 1.



Notes: Municipalities affected by the sugar cane boom correspond to areas located less than 200 kilometers from the coast and founded before the end of the sugar boom in 1760 in the current states of Rio Grande do Norte, Paraíba, Pernambuco, Alagoas, Bahia and Espírito Santo, and to the region of Campos dos Goytacazes, in the state of Rio de Janeiro (Figure 1a). Municipalities affected by the gold boom are identified in historical accounts through the specific location of mines in the states of Bahia, Goiás, Mato Grosso, Minas Gerais, and Rondônia (Figure 1b). All municipalities highlighted in the maps are within the 200km of a directly affected municipality, and darker colours indicate greater proximity to these municipalities.

5 See, for example, Simonsen, *História Econômica do Brasil*.

The sugar-cane boom.

The initial phase of colonisation took place mainly along the Northeastern coast and led to a boom in the sugar production that caused Brazil to become the main world producer of sugar by 1700. The sugar economy was a plantation system built on three essential elements: 'latifundio' (a large estate with a single owner), monoculture, and slave labour. Sugar-cane brought the large rural estate and a patriarchal and slavery-based society to Brazil and the rest of colonial America. Sugar-mills displayed economies of scale; thus, land was given to individuals who had enough funds to invest in the purchase of large numbers of African slaves. The sugar-cane society, therefore, was built on extreme social inequality, and very small economic and political elites with concentrated powers.

The polarisation between landlord and slave and the dominance of the plantation system targeted at exports to Europe constituted the foundations of the social, economic, and political structures associated with sugar production. The colonial rule exacerbated the concentration of resources and the extractive nature of the sugar activity. These initial conditions of the socio-economic landscape of the sugar cane boom areas in Brazil could persist through the overruling of state power and *de jure* institutions by economic power and *de facto* institutions run by the elites themselves. Landed aristocracies throughout Latin America were often a symbol of the political landscape created by the sugar-cane society.

The gold boom.

In 1695 explorers made the first significant discoveries of gold. Brazilian production peaked in 1760 and soon after started to decline, already losing most of its relevance by the end of the 18th century.⁶ A quarter of a century after the initial discoveries, the Central-South region, which was mostly uninhabited previously, accounted for 50% of the colonial population. The collapse of the mining economy was similarly fast.

6 From 1700 to 1770, Brazilian gold production was roughly the same as the entire production of the rest of the Americas between 1492 and 1850, and corresponded to 50% of the production of the rest of the world between the 16th and 18th centuries.

The main urban centre of the region fell from 20,000 inhabitants in 1740 to just 7,000 in 1804. Despite the widespread use of slaves, the technology and the scale of production were very different from the sugar areas. Celso Furtado noted: “(...) *the mining economy in Brazil opened possibilities to people with limited resources, since exploration was not based on large and deep mines – as in the case of silver in Peru and Mexico – but on alluvium metal deposited in the bottom of rivers.*”⁷ Hence, although mining also led to slavery and inequality, the social structure was less rigid and the distribution of endowments across the civil population was relatively more equal.

In contrast, the availability of rents from gold, coupled with the tremendous efforts of the Portuguese crown to monitor every single step of production and trade of precious metals, led to an overgrown, extremely focused and extractive government apparatus. The political science literature on the resource curse has stressed the perverse effects that the possibility of rent extraction, decoupled from productive activities and political representation, may have. In the context of colonial Brazil, where the governing state (Portugal) was in fact formally detached from local population, these effects are likely to have been even stronger. Therefore, the implications of the gold boom are likely to be related to the effectiveness of government, the provision of public goods, and the relationship between local population and state power.

The long-run effects of colonisation

The empirical analysis uses data from 4,971 municipalities in Brazil and focuses on three local characteristics in the year 2000: the distribution of economic power, as measured by the distribution of land (land Gini); access to justice, reflected in the local availability of courts; and quality of local government practices, as indicated by an index of administrative efficiency.⁸ We identify the degree to which a municipality was affected by a colonial episode from the initial location and timing of the sugar activity (Figure 1a), the gold boom (Figure 1b) and their distance from Portugal – which was an important determinant of the actual degree of intervention imposed by the metropolis.

7 Furtado, *Formação Econômica do Brasil*, p.74, translated by the authors.

8 For more details, see Naritomi, Soares, and Assunção (2012).

Using this historical variation across space we investigate whether the municipalities that are located in these areas today are systematically different in terms of institutional development and public goods provision. Overall, after controlling for a rich set of geographic characteristics, areas affected by the extractive episodes, and under stronger influence of Portugal during the colonial period, have worse outcomes today. The data also shows a pattern of lower public good provision – such as public health, education and infrastructure expenditures.

Although both episodes were marked by a colonial extractive logic, there are important differences in their long-term effects, consistent with the socioeconomic and political characteristics typically highlighted in the historical literature. Specifically, municipalities with origins linked to the socially polarised and oligarchic economy of the sugar-cane episode are characterised by a higher concentration of land today, which Stanley Engerman and Kenneth Sokoloff argue to be a key cause of Latin America's poor long-run performance.⁹ Municipalities whose origins are associated with the gold episode have worse governance practices and less access to justice. In both the sugar-cane and gold episodes, the negative consequences are significantly worse when the municipalities are closer to Portugal, highlighting the negative influence of the interference of the metropolis, particularly when associated with extractive activities.¹⁰

We also contrast the results from these two major colonial extractive activities with an important post-colonial resource boom: the coffee expansion. The coffee boom is often seen as the third main 'commodity cycle' in Brazilian history. However, the coffee experience was very different from the sugar-cane and gold booms.

9 Engerman and Sokoloff, "[The Factor Endowments](#)". It is worth noting that although the estimated effects of the sugar episode on public goods provision is negative for all measures of public goods, it is often not statistically different from zero. It could be the case that the potential negative effects from the colonial rule and land concentration is, to some extent, countervailed by an effect similar to Melissa Dell's "[The Persistent Effects of Peru's Mining Mita](#)" argument that the long-term presence of large landowners could actually provide a stable land tenure system that encouraged public goods provision.

10 Quantitatively, the estimated coefficients imply that if a city in the historical mining area had not been affected by the gold boom, its index of governance today would be better by 8% of a standard deviation, while its index of access to justice would improve by 23% of a standard deviation. Similarly, if a municipality in the sugar-cane boom area had not been affected by the sugar-cane boom, its index of concentration of land would be lower by 63% of a standard deviation.

First, the coffee expansion took place at a much later stage (19th century) and over an area previously occupied. Second, its expansion extended well after Brazilian independence.¹¹ And third, the organisation of production more closely followed a spontaneous and entrepreneurial logic, than an extractive one. Therefore, the coffee boom is not the same type of initial institutional shock as the sugar-cane and gold episodes. Nonetheless, we tentatively explore two different measures of the coffee boom, one focusing on areas where coffee production was more similar to the colonial setting, and another one including areas where coffee production was more entrepreneurial and took place long after the colonial era. We show that the effects of the early coffee boom were similar to those of the colonial sugar-cane boom, but that the later coffee boom episode had no noticeable effect on current institutions.

Taken together, our results contribute to establishing a relationship between an extractive colonial past and contemporary economic outcomes within a constant *de jure* macro-institutional setting. The study indicates that a significant portion of the correlation between geography and development within Brazil seems to be related to the colonial history experienced by different areas of the country, and that colonial rule played an important role in determining the degree to which these negative effects are still present today. In addition, the results provide different pathways through which the influence of extractive episodes can be materialised in the modern era, by documenting different long-run effects of the sugar, gold and coffee resource booms within Brazil.

References

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2001), “The Colonial Origins of Comparative Development: An Empirical Investigation”, *American Economic Review*, v91, n5, 1369-401.

Dell, Melissa (2010), “The Persistent Effects of Peru’s Mining *Mita*”, *Econometrica*, Vol. 78, No. 6, 1863–1903.

11 According to Stein, Vassouras: a Brazilian Coffee County, 1850 – 1900, “At the start of 19th century, coffee had been an exotic bush grown in gardens on mountains slopes around the capital and prepared mainly for local consumption.”

Engerman, Stanley L. and Kenneth L. Sokoloff (1997), “The Factor Endowments, Institutions, and Differential Paths of Growth among New World Economies”, in: Stephen Harber (ed), *How Latin America Fell Behind*. Stanford University Press, Palo Alto.

Furtado, Celso (1959), *Formação Econômica do Brasil*, Ed. Fundo de Cultura, Rio de Janeiro.

Gallup, John Luke, Jeffrey Sachs, and Andrew D. Mellinger (1999), “Geography and Economic Development”, in: Plsekovic, Boris and Joseph Stiglitz (eds.). *Annual World Bank Conference on Development Economics*, 1998/1999. Washington D.C., World Bank, 127-78.

Naritomi, Joana, Rodrigo R. Soares, and Juliano J. Assunção (2012), “Institutional development and colonial heritage within Brazil”, *The Journal of Economic History* 72.02: 393-422.

Nunn, Nathan (2009), “The Importance of History for Economic Development”, *Annual Review of Economics*, v1, n1, 1.1-1.28.

Wehling, Arno (1994), *Formação do Brasil Colonial*, Editora Nova Fronteira, Rio de Janeiro.

Stein, Stanley J. (1985), *Vassouras: A Brazilian coffee county, 1850-1900*, Harvard University Press.

About the author

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3 The persistent effects of Peru's mining *mita*

Melissa Dell

Harvard University

In 1573, forty years after Pizarro's conquest of the Incas, the Spanish Empire instituted a system of forced labour among indigenous communities living in the Andean highlands of Spain's Viceroyalty of Peru. Called the *mita*, this system required that indigenous villages within the subjected region annually send one-seventh of their adult men to work in either the silver mine of Potosi, in present-day Bolivia, or in the mercury mine of Huancavelica, in present-day Peru. Multiple studies, several of which are featured in this volume, have observed negative effects of coercive colonial institutions like this one across different contexts. For example, Acemoglu *et al.* (2001) show, using cross-country comparisons, that extractive colonial institutions lower GDP today. Nunn (2008) and Nunn and Wantchekon (2011) document that Africa's slave trades had negative long-run impacts on economic development and trust, and Banerjee and Iyer (2005) show that areas of India where proprietary rights in land were given to landlords during the British colonial period have lower agricultural productivity and investments in health and education more recently. Pre-colonial institutions may also fundamentally influence economic prosperity today, as Michalopoulos and Papaioannou (2013) document for Africa.

Similar to those studies, I find that even though the *mita* was abolished in 1812 – over two hundred years ago – it continues to have a negative effect on the living standards of Peruvians who reside in the *mita* region. To estimate effects of the *mita*, I use historical geographic data that shows which regions of Peru were subjected to the *mita* during its 250-year enforcement, and I link this data with a collection of historical and contemporary datasets on living standards, land ownership patterns, education, and roads.

I find that the *mita* lowers living standards, as measured by consumption per capita, by around 25%, and that the *mita* increases the prevalence of stunted growth in children by six percentage points. Furthermore, statistical and historical evidence suggest that living standards are worse because of a sparser network of roads in *mita* regions, and that differences in road construction were in turn driven by a divergence in historical land ownership patterns, which, at its root, was caused by the *mita*.

The *mita*'s extent

Figure 1 shows, outlined in black, the region of the Andean highlands that was subjected to the *mita*.¹ Spain manned its mines using free labour in the 1550s, but, after disastrous epidemics decimated the local population, mine managers turned to coercion.² Regions selected for the *mita* were those that were (1) close to the mines at Potosi and Huancavelica and (2) located in the Andean highlands, since colonial authorities believed that only highland men could handle the harsh working conditions of the mines.³ Regions just outside the *mita* region were not required to send anyone to the mines. The *mita* was strictly enforced: a 1689 census of parishes in the subjected region shows a male-to-female ratio that was 22% lower than in the non-*mita* region.⁴ Many of the men had been sent to work in the mines.

The arbitrariness of this design allows us to estimate the causal effects of the *mita* on economic outcomes in the long run: we can compare districts just on one side of the subjected boundary with districts just on the other side.⁵ If it is true that nothing else changed suddenly at the *mita* boundary and that, before the *mita* began, districts on one side were not particularly different, on average, from districts on the other side, then any remaining differences in economic outcomes today are likely to be because of the *mita* itself.

1 Data on the *mita*'s extent are from Saignes (1984) and Amat y Junient (1947).

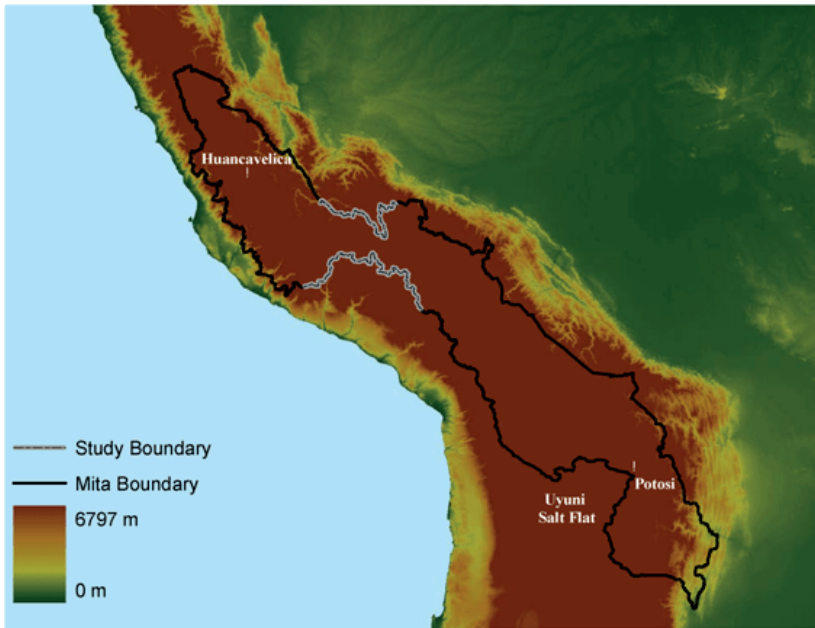
2 (Tandeter 1993, p. 61; Cole 1985, pp. 3, 31; Cañete 1794; Levillier 1921, Vol. 4, p. 108)

3 (Tandeter 1993, p. 60; Cole 1985, p. 31; Golte 1980)

4 (Villanueva Urteaga 1982), also the supplementary material to the paper.

5 This methodology is called regression discontinuity. Other studies in this eBook series that feature it include Lowes and Montero (Volume II, Chapter 5), Grosfeld and Zhuravskaya (Volume III, Chapter 13), and Fontana, Nannicini, and Tabellini (Volume III, Chapter 14).

Figure 1.



Because of the requirement that nothing besides the *mita* itself change suddenly at the boundary, I exclude from my study much of the region shown in Figure 1 since, as shown in the figure, much of the boundary lies along the precipice of the Andes. This means that even if there had never been a *mita*, places on the *mita* side of the boundary might have different living standards today simply by virtue of being in the highlands. I focus my study on only the region located near the boundary shown *in white* in Figure 1. Here the *mita* boundary was located in the *middle* of the highlands, rather than on the highlands' edge.

Once I limit the region of my study to areas near this boundary, elevation is similar on either side of the boundary. I also look for other differences across the boundary: was the land significantly more rugged on one side than on another? Was one side much more prosperous than another before the *mita* was instituted?

Using geographic data and historical data on village tribute sent to the Spanish, I find that the answer to both of these questions is no.⁶ These facts provide evidence that any differences between *mita* and non-*mita* regions are because of the *mita* itself.

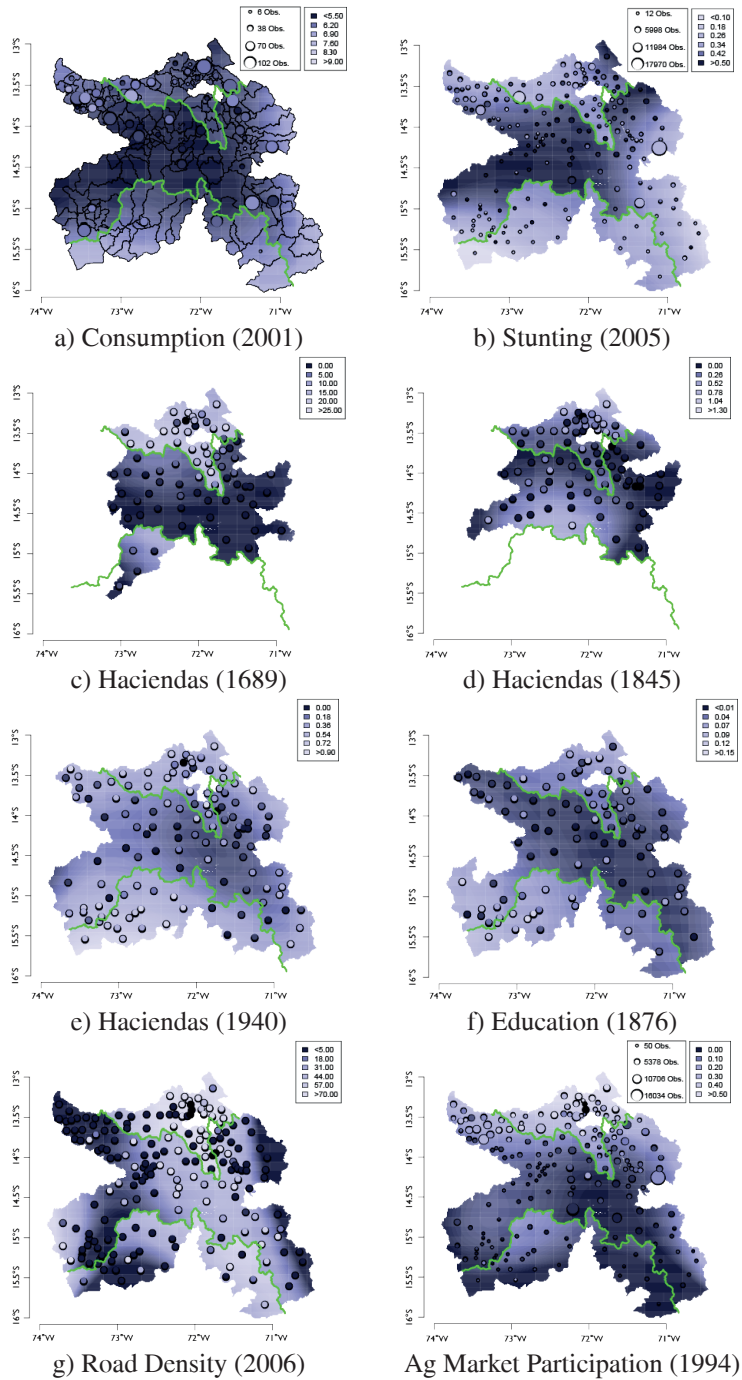
The *mita* decreases living standards, hacienda presence, and density of road networks

Figure 2 shows the raw data on economic outcomes along with the predicted values of these outcomes. The predictions come from a statistical model fit to the data. The x-axis is longitude, the y-axis is latitude, and the green boundary line is the *mita* region in my study, which was shown in white in Figure 1. Each circle represents a district in modern-day Peru, with the size of the circle increasing according to the population of the district. The circles are coloured according to the value of the economic outcome in the village represented by the circle. The colour of regions outside the circles represents the predicted values of the economic outcome.

The data on household consumption come from the 2001 Peruvian National Household Survey. Since this survey was relatively small, I supplement it with data on child height from a census of children conducted by Peru's Ministry of Education. The logic behind using height data is that children's height is strongly affected by how well they eat, and when children are malnourished, they can have significantly below-average height, a condition called stunting. Stunting thus serves as a proxy for living standards in general. As demonstrated by the dark colour of the interior of most of the *mita* region in panels (a) and (b), living standards are lower in the *mita* region, and the effects are similar whether I use consumption or stunting as a measure of living standards.

6 Data on elevation and ruggedness are computed from NASA's Shuttle Radar Topography Mission (SRTM). Tribute data come from Miranda (1583).

Figure 2.



The next three panels of Figure 2 consider the effect of the *mita* on *haciendas* – large privately-owned estates - in 1689, 1845, and 1940.⁷ These show strong negative *mita* effects in each period, with particularly strong effects in the earliest period. Historical accounts suggest that the colonial government discouraged elite would-be landowners from forming *haciendas* in the *mita* region. The government feared that the *hacienda* class would resist the *mita*: after all, the *mita* took away workers who could otherwise work on the *haciendas*, increasing competition for labour.⁸ For this reason, *haciendas* were located primarily in the non-*mita* areas, and the government encouraged community ownership and use of land in the *mita* region.

When the *mita* was finally abolished, community land ownership was also discontinued but was not replaced with a system of enforceable private property rights. In contrast, the property rights of *hacienda* owners remained secure.⁹ As a result, peasants' lands were expropriated, and violence and banditry dominated the *mita* region.¹⁰

The relative security of the *hacienda* class encouraged them to make long-term investments in education and infrastructure, which benefited the areas near the *haciendas* in the long run. Additionally, *hacienda* elites may have been better able to lobby political leaders for funding for roads than were peasants in *mita* areas. Figure 2, panels (f) and (g), supports this argument. Panel (f) shows negative effects of the *mita* on education, measured by literacy rates, in 1876, while panel (g) shows negative effects on current road density, which is metres of region-level roads in the district, divided by total area of the district. These findings suggest that the provision of public goods was greater in non-*mita* regions historically, and that the effects on roads have persisted.

The last piece of the puzzle is to explain how roads affect standards of living. The key channel is access to markets: if there are no good roads between a farmer and the market, or if the route to get to the market is too long, it is unlikely the farmer will be able to profitably sell a portion of his crops in the market.

7 Hacienda data come from the following sources. 1689: Villanueva Urteaga (1982). 1845: Peralta Ruiz (1991). 1940: Peruvian Population Census.

8 Garrett (2005), Larson (1988).

9 Jacobsen (1993), Dancuart and Rodriguez (1902, Vol. 2)

10 (Avila 1952, p. 22; Roca-Sanchez 1935, pp. 242–243; Jacobsen 1993, Ramos Zambrano 1984, Tamayo Herrera 1982, Hazen 1974, pp. 170–178). (Flores Galindo 1987, p. 240).

The effect of the *mita* on access to markets is shown in the final panel of Figure 2. The *mita* effect on market access is negative and significant.

Residents of the former *mita* region today continue to feel the *mita*'s effects. When I visited some of the districts that are part of this study, I heard first-hand from residents that inability to access roads was a critical issue that prevented farmers from bringing crops to market. One of the key goals of the primarily *mita* province of Espinar is “to advocate effectively for a system of modern roads to regional markets”,¹¹ and, in 2004, demonstrations in the *mita* district Ilave featured 10,000 protestors and concluded with a lynching of Ilave's mayor. Protestors said he hadn't come through on promises to pave the town's access road and build a local market.¹²

The positive association between historical *haciendas* and contemporary economic development contrasts with the well-known hypothesis that historically high land inequality is the fundamental cause of Latin America's poor long-run growth performance (Engerman and Sokoloff 2002). Engerman and Sokoloff argued that high historical inequality lowered subsequent investments in public goods, leading to worse outcomes in areas of the Americas that developed high land inequality during the colonial period. This theory's implicit counterfactual to large landowners is secure, enfranchised smallholders of the sort that predominated in some parts of North America. This is not an appropriate counterfactual for Peru – or many other places – because institutional structures, largely in place before the formation of the landed elite, did not provide secure property rights, protection from exploitation, or a host of other guarantees to potential smallholders. The evidence in this study indicates that large landowners – while they did not aim to promote economic prosperity for the masses – did shield individuals from exploitation by a highly extractive state and ensure public goods. Thus it is unclear whether the Peruvian masses would have been better off if initial land inequality had been lower, and it is doubtful that initial land inequality is the most useful foundation for a theory of long-run growth.

11 Espinar Municipal Government (2008).

12 (Shifter 2004).

Rather, the Peruvian example suggests that exploring constraints on how the state can be used to shape economic interactions – for example, the extent to which elites can employ state machinery to coerce labour, or citizens can use state guarantees to protect their property – could provide a particularly useful starting point for modelling Latin America’s long-run growth trajectory.

References

Acemoglu, Daron, Simon Johnson and James A. Robinson (2001), “The Colonial Origins of Comparative Development: An Empirical Investigation”, *American Economic Review*, 91(5): 1369-1401.

Amat y Junient, M. (1947), *Memoria de Gobierno. Sevilla*, Escuela de Estudios Hispano-Americanos.

Avila, J. (1952, p. 22), “Exposición e causas que justifican la necesidad de la reforma agraria en el distrito de Azángaro de la provincial del mismo nombre, Puno”, Ph.D. Thesis, Universidad Nacional del Cusco.

Banerjee, Abhijit and Lakshmi Iyer (2005), “[History, Institutions, and Economic Performance: The Legacy of Colonial Land Tenure Systems in India](#)”, *American Economic Review*, 95(4): 1190-1213.

Cañete, P.V. (1794), *El código carolino de ordenanzas reales de las minas de Potosí y demas provincias del Río de la Plata*. Buenos Aires: E Martiré. Reprinted in 1973.

Cole, J. (1985), *The Potosí Mita 1573-1700. Compulsory Indian Labor in the Andes*. Stanford, Stanford University Press.

Dancuart, E. and J. Rodríguez (1902), *Anales de la hacienda pública del Perú*, 24 Vols. Lima, Imprenta de La Revista y Imprenta de Guillermo Stolte.

Engerman, Stanley L. and Kenneth Lee Sokoloff (2002), “[Factor Endowments, Inequality, and Paths of Development among New World Economies](#)”, *Economía Journal of the Latin American And Caribbean Economic Association*

Flores Galindo, A. (1987, p. 240), *Buscando un inca: Identidad y utopía en los Andes*, Lima, Instituto de Apoyo Agrario.

Garrett, D. (2005), *Shadows of Empire: The Indian Nobility of Cusco, 1750-1825*, Cambridge, Cambridge University Press.

Golte, J. (1980), *La racionalidad de la organización andina*, Lima: Instituto de Estudios Peruanos.

Hazen, D. (1974), "The Awakening of Puno: Government Policy and the Indian Problem in Southern Peru, 1900-1955", Ph.D. Thesis, Yale University, New Haven.

Jacobsen, N. (1993), *Mirages of Transition: The Peruvian Altiplano, 1780-1930*, Berkeley, University of California Press.

Larson, B. (1988), *Colonialism and Agrarian Transformation in Bolivia: Cochabamba, 1550-1900*, Princeton, Princeton University Press.

Levillier, R. (1921), *Gobernantes del Perú, cartas y papeles, siglo XVI: Documentos del Archivo de Indias*, Madrid, Sucesores de Rivadencya.

Michalopoulos, S. and Papaioannou, E. (2013), "Pre-Colonial Ethnic Institutions and Contemporary African Development", *Econometrica*, 81: 113–152. doi:10.3982/ECTA9613

Miranda, C. (1583), *Tasa de la visita general de Francisco Toledo*, Lima, Peru, Universidad Nacional de San Marcos, Dirección Universitaria de Biblioteca y Publicaciones.

Nathan Nunn (2008), "The Long-term Effects of Africa's Slave Trades", *Quarterly Journal of Economics*, 123 (1): 139-176. doi: 10.1162/qjec.2008.123.1.139

Nunn, Nathan and Leonard Wantchekon (2011), "The Slave Trade and the Origins of Mistrust in Africa", *American Economic Review*, 101(7): 3221-52.

Peralta Ruíz, V. (1991), *En pos del tributo: Burocracia estatal, elite regional y comunidades indígenas en el Cusco rural (1826-1854)*, Cusco: Casa Bartolome de las Casas.

Ramos Zambrano, A. (1984), *La Rebelión de Huancane: 1923-1924*, Puno, Editorial Samuel Frisancho Pineda.

Roca Sanchez, P. E. (1935), *Por la clase indígena*, Lima, Pedro Barrantes Castro.

Saignes, T. (1984), “Las etnias de Charcas frente al sistema colonial (Siglo XVII): Ausentismo y fugas en el debate sobre la mano de obra indígena, 1595–1665”, *Jahrbuchfr Geschichte (JAS)*, 21, 27–75.

Shifter, M. (2004), “Breakdown in the Andes”, *Foreign Affairs*, September/October, 126-138.

Tamayo Herrera, J. (1982), *Historia social e indigenismo en el Altiplano*, Lima, Ediciones Treintaitres.

Tandeter, E (1993), *Coercion and Market: Silver Mining in Colonial Potosí, 1692-1826*, Albuquerque, University of New Mexico Press.

Villanueva Urteaga, H. (1982), *Cuzco 1689: Informes de los párrocos al obispo Mollinedo*, Cusco, Casa Bartolomé de las Casas.

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Melissa Dell is an assistant professor in the economics department at Harvard University and a faculty research fellow at the National Bureau of Economic Research. Her research examines economic development and state capacity in a variety of contexts in East and Southeast Asia and Latin America. Recent work estimates how crackdowns on the drug trade have affected drug violence and drug trafficking routes in Mexico and how different military strategies impacted the trajectory of the Vietnam War. Other recent studies estimate how climate change is affecting poor countries, how historical conflicts condition economics and politics in the long-run, and how state capacity impacts economic prosperity. Ongoing work use novel archival data to document the process of structural change and economic development in Mexico and Taiwan across the 20th century. In 2014, Melissa was named by the IMF as the youngest of 25 economists under the age of 45 shaping thought about the global economy. She has published articles in the *American Economic Review*, *Econometrica*, the *Journal of Economic Literature*, and elsewhere. She received an AB degree in economics from Harvard University, a master’s degree in economics from Oxford University – where she studied as a Rhodes Scholar – and a PhD in economics from the Massachusetts Institute of Technology.

4 Missionaries, human capital transmission and economic persistence in South America

Felipe Valencia Caicedo

Bonn University

Introduction

The aftermath of European colonialism has been an active area of research in the social sciences. While Europeans often imposed extractive institutions and created exploitative economic relationships (Acemoglu *et al.* 2001 and Vol.1 Chapter 7 of this series), they also transferred human capital, cultural values and technological know-how (Glaeser *et al.* 2004, Easterly and Levine 2016, also Vol. 1, Chapters 8 and 9 of this series), which may have led to beneficial effects in the long run (for the case of Latin America, see Chapter 1 of this Volume). In terms of mechanisms, Dell (2010) stresses the negative effect of the *mita* labour system in Latin America (see also Chapter 3 of this Volume), while Nunn and Wantchekon (2011) document the adverse impact of African slavery through decreased trust (see also Vol. 2, Chapter 2 of this series). Less is known, however, about the way in which other colonial arrangements might have led to *positive* outcomes in the long run.

Religion was – along with profit making and a desire for adventure – one of the main reasons for embarking for the New World. Religion, moreover, constitutes a fundamental aspect of culture. Cultural explanations of economic performance date back to Max Weber's Protestant work ethic hypothesis (Weber 1905 / 2011) and have been recently summarised by Alesina and Giuliano (2015).

Modern economic research on religion has studied the impact of Protestantism in Europe (Becker and Woessmann 2009, see also Chapter 8 of this Volume) as well as 19th Century Christian missions in Africa (Nunn 2010, Nunn and Wantchekon 2015, Cagé and Rueda 2016, see also Vol.2, Chapter 7 of this series). Religious proselytising aside, missionaries brought with them a new set of skills, technologies and values that could have been transferred to the local populations, a possibility I explore in this chapter.

I demonstrate here the important long-term economic benefits of Catholic missionary activity in South America (based on Valencia Caicedo, 2014). I focus on missions founded by the Society of Jesus (Jesuits), during the 17th Century, amongst the Guarani, in modern-day Argentina, Brazil and Paraguay. While religious conversion was the official aim of these Catholic missions, they also furthered human capital formation by schooling children and training adults in various crafts. The setup is unique, in that Jesuits were expelled from the Americas in 1767 and never returned to the Guarani area, thus precluding any direct continuation effect.

Setup

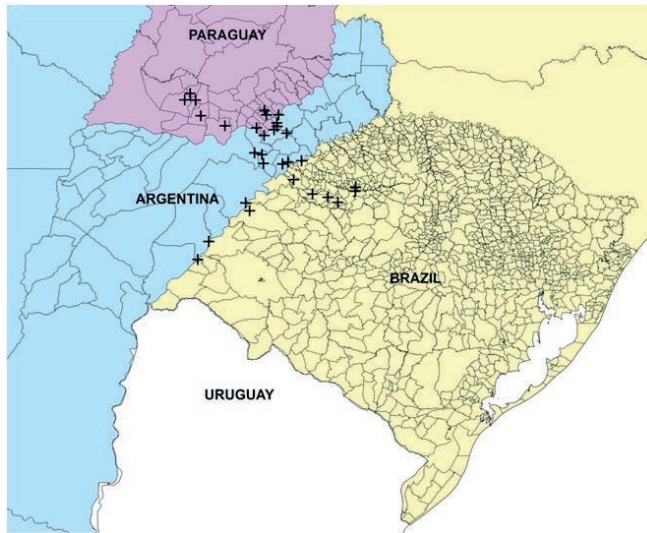
Map 1. General location of Guarni Jesuit Missions within South America



Note: the map shows the location of the Guarani Jesuit Missions, along with state level boundaries for Argentina, Brazil and Paraguay, and national level boundaries for the rest of Latin American countries.

To disentangle the national institutional effects from the human capital shock Jesuit missions supplied, I use *within* country variation in missionary activity in three different countries. Namely, I employ municipal level data for five states (Corrientes and Misiones in Argentina, Rio Grande do Sul in Brazil, and Itapua and Misiones in Paraguay). Map 1 shows the general location of the Guarani Jesuit Missions and Map 2 zooms into this particular region.

Map 2. Exact Locations of Guarani Jesuit Missions



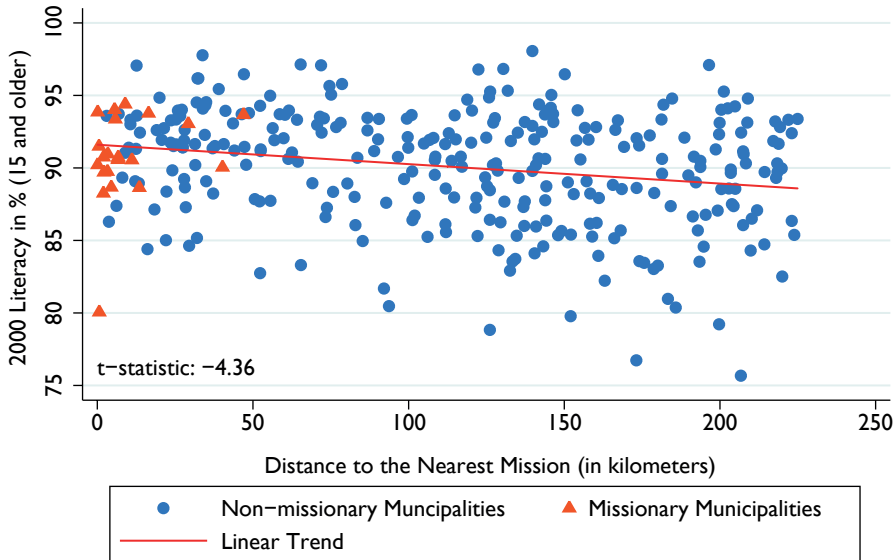
Note: the map shows the exact location of the Guarani Jesuit Missions, along with municipal level boundaries for the states of Corrientes and Misiones (Argentina), Itapua and Misiones (Paraguay) and Rio Grande do Sul (Brazil), and state boundaries for other states in Argentina, Brazil and Paraguay.

The area under consideration was populated by the same semi-nomadic indigenous tribe, so I can abstract from the direct effect of different pre-colonial ethnicities (Maloney and Valencia 2012, Michalopoulos and Papaioannou 2013). The early stage of development of the indigenous inhabitants at the time of contact also makes the setting unique. The Guarani area possesses similar geographic and weather characteristics, although I control for these variables in the empirical analysis.

Main findings

I find substantial positive effects of Jesuit missions on modern-day human capital and income measures, 250 years after the missionaries were expelled. In municipalities where Jesuits carried out their apostolic efforts, median years of schooling and literacy levels remain higher by 10-15%. An illustration of this main effect can be seen in Figure 1, which plots literacy rates in 2010 on distance to the nearest mission. These differences in educational attainment have also translated into higher modern *per capita* incomes of nearly 10%.

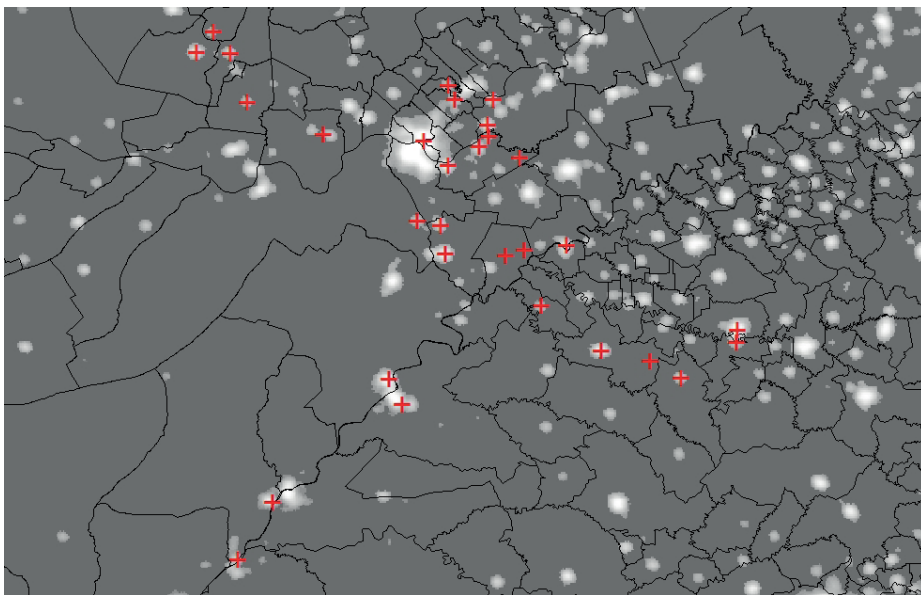
Figure 1. Modern literacy versus distance to the nearest mission



Notes: The figure is an unconditional plot of 2000 literacy in percentages for people aged 15 and older in Argentina, Brazil and Paraguay versus distance of the municipality centroid in kilometers to the nearest Jesuit mission. Orange triangles represent missionary municipalities and blue dots non-missionary ones. The red line is a linear trend. The sample is restricted to a 225 kilometers distance threshold. Note that distances for missionary districts are not necessarily zero, as they are measured from the municipality's centroid. <about here>

Figure 2 provides an illustration using night-time satellite data. There we can observe that municipalities with historical missionary presence appear lit (richer) at night. In order to rationalise these enduring educational and income differences, I examine occupational, cultural and behavioural channels of transmission.

Figure 2. Night-time satellite images of the Guarani Missionary areas



Notes: The map depicts the nighttime satellite images of the Guarani Jesuit missionary area along with municipal level boundaries for the states of Corrientes and Misiones (Argentina), Itapua and Misiones (Paraguay) and Rio Grande do Sul (Brazil). Red crosses denote the location of the Guarani Jesuit Missions. <about here>

Even though I net out country wide effects and control for a large set of geographic and weather characteristics, Jesuit missionaries might have chosen favourable locations beyond such observable factors. Hence the positive effects encountered might be due to this initial choice and not to the missionary treatment *per se*. To address the potential endogeneity of missionary placement, I conduct two empirical tests. The first one is a placebo that looks at missions that were initially founded by the Jesuits but were abandoned early on (before 1659). I can thereby compare places that were initially picked by missionaries with those that actually received the missionary treatment. I find no effect for such ‘placebo’ missions, which suggests that what mattered in the long run is what the missionaries did and not where they first settled.

Because abandonment itself might have been a voluntary choice, I also conduct a comparison with the equally successful missions established by the Franciscans further north. These neighbouring Guarani Franciscan Missions were founded even earlier – from 1580 to 1615. The comparison is relevant in that both orders were Catholic and employed European evangelists who wanted to convert souls to Christianity.

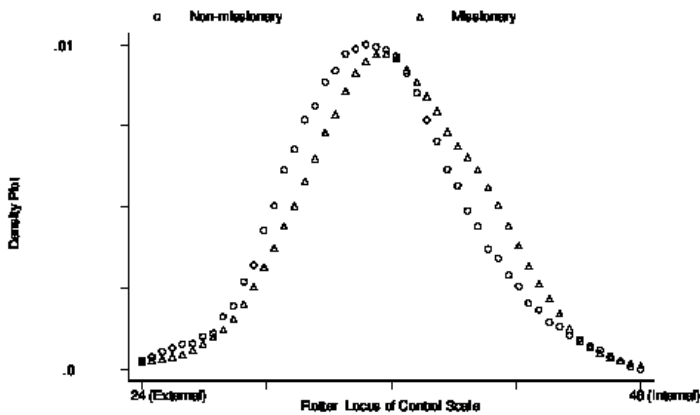
Yet Jesuits emphasised education and technical training in their conversion, relative to the Franciscan Mendicant Order, which mainly tended for the poor and the sick (Waldinger 2013). Contrary to the Jesuit case, I find no positive long-term impact on either education or income for Franciscan Guarani Missions. This suggests that the long-term income differences I estimate are likely to be driven by the Jesuit emphasis on human capital.

Extensions and mechanisms

Using historical censuses, I am able to trace the human capital effect through the intervening period between the missionary era and today. I use data from the 1895 Census of Argentina, the 1920 Census of Brazil, and the 1950 Census of Paraguay. I find that Jesuit missions had an even larger effect on human capital during intermediate historical periods and that these effects are larger for females and concentrated on local inhabitants rather than foreigners, as expected.

In terms of transmission mechanisms, I find that municipalities closer to historic missions have changed the sectoral composition of employment, moving away from agriculture and towards manufacturing and services (consistent with Botticini and Eckstein 2012). In particular, I document that these places still produce more handicrafts such as embroidery, a skill introduced by the Jesuits. I also find that such areas differentially adopted new agricultural technologies such as genetically modified soy varieties (as in Bustos *et al.* 2016). People closer to former Jesuit missions also seem to participate more in the labour force and work longer hours, consistent with Weber (1978). Using cultural surveys, I show that indigenous knowledge — of traditional medicine and myths — was transmitted differentially from generation to generation in the Jesuit areas. Unsurprisingly, given their acquired skills, I find that indigenous inhabitants from these areas were assimilated better into colonial and modern societies.

Figure 3. Density plot of the Rotter Locus of Control Scale - missionary vs. non-missionary areas



Note: the figure depicts a density plot of the Rotter Locus of Control Scale (going from low values of external control to high values of internal control), separating between non-missionary areas (in circles) and missionary areas (in triangles).

To better understand the mechanisms at play, I examine cultural and behavioural outcomes that can sustain the transmission of human capital from the missionary period to the present (see also, Valencia and Voth, in progress). To do so we conducted a household survey and lab-in-the-field experiments in Southern Paraguay and Northern Argentina. We find that respondents in former missionary areas have higher non-cognitive skills and behave more pro-socially. As can be observed in Figure 3, we find that respondents in missionary areas possess superior non-cognitive abilities, as proxied by higher ‘Locus of Control’ scores (Heckman *et al.* 2006). Using standard games from the experimental and behavioural literatures, we find that respondents in missionary areas exhibit greater altruism, more positive reciprocity, are less risk-seeking and behave more honestly. We use priming techniques from experimental psychology to further investigate whether these effects are the result of greater religiosity (Norenzayan 2013, McKay *et al.* 2014) – which appears not to be the case.

Conclusions

The case of the Guarani Jesuit Missions serves as a microcosm to study important economic questions. I find not only an important degree of economic persistence, in line with the recent literature, but also specific transmission mechanisms through which this persistence is enacted. Using this unique setup, I demonstrate how a historical human capital intervention can lead to substantial differences in educational and economic outcomes in the long term. I further document specific cultural and occupational mechanisms that can sustain these differences, such as intergenerational knowledge transmission and non-cognitive skills. The findings support the view that historical investments in human capital can have very long-lasting consequences, altering communal culture and individual behaviour. A thorough understanding of such deep determinants of development can help to make economic policies more targeted and effective.

References

- Acemoglu, D., S. Johnson and J.A. Robinson (2001), “[The Colonial Origins of Comparative Development: An Empirical Investigation](#)”, *American Economic Review*, 91.5, 1369-1401.
- Alesina, A., and P. Giuliano (2015), “[Culture and Institutions](#)”, *Journal of Economic Literature*, 53(4): 898-944.
- Becker, S.O. and L. Woessmann (2009), “[Was Weber Wrong? A Human Capital Theory of Protestant Economic History](#)”, *Quarterly Journal of Economics*, 124.22: 531-596.
- Botticini, M, and Z. Eckstein (2012), [The Chosen Few: How Education Shaped Jewish History](#), Princeton, NJ: Princeton University Press.
- Bustos, P., B. Caprettini and J. Ponticelli (2016), “[Agricultural Productivity and Structural Transformation: Evidence from Brazil](#)”, *American Economic Review*, 106(6): 1320-65.
- Cagé, J. and V. Rueda (2016), “[The Long-Term Effects of the Printing Press in Sub-Saharan Africa](#)”, *American Economic Journal: Applied Economics*, 8(3): 69-99.

- Dell, M. (2010), “The Persistent Effects of Peru’s Mining Mita”, *Econometrica*, 78, 6, 1863–1903.
- Easterly, W. and R. Levine (2016), “The European origins of economic development”, *Journal of Economic Growth*, 21.3, 1-33.
- Glaeser, E. L., R. La Porta, F. Lopez-de-Silanes, and A. Shleifer (2004), “Do institutions cause growth?”, *Journal of Economic Growth*, 9.3, 271-303.
- Heckman, J.J., J. Stixrud, and S. Urzua (2006), “The Effects of Cognitive and Noncognitive Abilities on Labour Market Outcomes and Social Behavior”, *Journal of Labor Economics*, 24.3, 411-482.
- Maloney, W. F. and F. Valencia Caicedo (2016), “The Persistence of (Subnational) Fortune”, *Economic Journal*. <http://dx.doi.org/10.1111/eoj.12276>
- McKay, R., C. Efferson, H. Whitehouse and E. Fehr (2010), “Wrath of God: religious primes and punishment”, *Proceedings of the Royal Society B: Biological Sciences*. 278.1713, 1858-63
- Michalopoulos, S., and E. Papaioannou (2013), “Pre-Colonial Ethnic Institutions and Contemporary African Development”, *Econometrica*, 81.1, 113-152.
- Norenzayan, A. (2014), *Big Gods*, Princeton, NJ: Princeton University Press.
- Nunn, N. (2010), “Religious Conversion in Colonial Africa”, *American Economic Review, Papers & Proceedings*. 100.2, 147-52.
- Nunn, N., and L. Wantchekon (2011), “The Slave Trade and the Origins of Mistrust in Africa”, *American Economic Review*, 101.7, 3221-52.
- Valencia Caicedo, F. (2014), “The Mission: Human Capital Transmission, Economic Persistence and Culture in South America”, Universitat Pompeu Fabra, mimeograph.
- Valencia Caicedo, F. and H-J Voth (Work in progress), “Christ’s Shadow: Non-cognitive Skills and Prosocial Behavior Amongst the Guarani”, Bonn University.

Wantchekon, L.,N. Natalija and M. Klačnja (2015), “Education and Human Capital Externalities: Evidence from Colonial Benin”, *Quarterly Journal of Economics*, 130.2, 703-757.

Waldinger, M. (2013), “Colonial Missionaries and Long Run Development in Mexico”, LSE, manuscript.

Weber, M. (1978), *Economy and Society*, Berkeley: University of California Press.

Weber, M. (2011), *The Protestant Ethic and the Spirit of Capitalism*, Oxford: Oxford University Press.

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5 Forced coexistence and economic development: Evidence from Native American reservations

Christian Dippel

UCLA¹

Many countries and other jurisdictions today are ‘artificial’, in the sense that their political boundaries are at odds with those wanted by the people who live within them – a situation which is often the result of historical circumstances such as colonisation (Alesina *et al.* 2011). The generally bad economic and political outcomes in such polities has most commonly been attributed to ethnic or linguistic cleavages (Easterly and Levine 1997, Alesina *et al.* 2003). However, recent research has highlighted that artificial jurisdictions often integrated people who not only differed in language and ethnicity, but who also – perhaps more importantly – had no history of centralised governance (Gennaioli and Rainer 2007, Michalopoulos and Papaioannou 2013).

These separate forces are, however, often difficult to untangle in cross-country data analyses. This paper focuses on Native American reservations as a unique opportunity for learning more about the legacies of history. From a researcher’s perspective, reservations have the great advantage that we can ‘map’ historical ethnic groups (tribes) onto present-day jurisdictions. At the same time, reservations are ethnically and linguistically homogenous, because the US government did not combine different tribes when forming reservations. However, while tribes had a shared cultural identity, this did not imply shared governance. Tribes were connected by language and intermarriage, but only for some tribes did this imply any coordinated political decision making (Driver 1975).

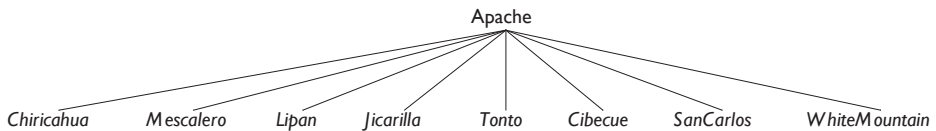
1 First published in *Econometrica*, Volume 82, Issue 6, November 2014

Many tribes were loose cooperatives of bands, and decisions were made at the band level. In most cases, a reservation's formation was the first time its constituent bands were thrust into a system of shared governance (Stern 1975, p. 75).

Combining these facts, this paper studies the effect of what I label *forced coexistence* – the forced ‘shoe-horning’ of independent jurisdictions into a shared polity – and isolates this from potential correlates like ethnic fractionalisation.

For illustration, consider Figure 1, showing the eight bands of the Apache tribe. The Chiricahua, Mescalero, and Lipan bands were combined onto the Mescalero Reservation. The Tonto, Cibecue, San Carlos, and White Mountain bands were combined onto the San Carlos Reservation. Only the Jicarilla Apache obtained their own reservation. In my coding, because the Apache were a decentralised tribe overall, the Mescalero and San Carlos Reservations suffer from forced coexistence, the Jicarilla Reservation does not.

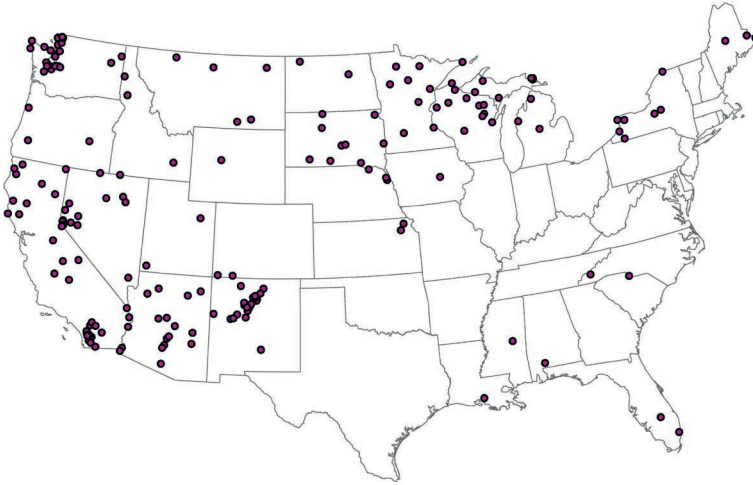
Figure 1. Bands of the Apache tribe



The unit of observation is the reservation, and I study the largest 182 US reservations. Figure 2 shows the location of these with underlying U.S. state boundaries.

In ordinary least squares (OLS) regressions, I find that forced coexistence decreases per capita incomes on reservations today (in the 2000 US Census) by about 30%. I am able to statistically control for many features of historical tribal organisation, which one can glean from Murdock's (1967) *Ethnographic Atlas* (EA), which has been used by many other papers, including e.g. Gennaioli and Rainer (2007), Michalopoulos and Papaioannou (2013). The 30% estimated effect is also very robust to controlling for present-day determinants of reservations' economic fortunes, such as income and employment levels in surrounding counties, distance to the nearest major city, reservation land features, reservation demographics, and – importantly – casino operations. Strikingly, the results are even robust to controlling for unobserved differences at the state level with state fixed effects.

Figure 2. Locations of Native American reservations

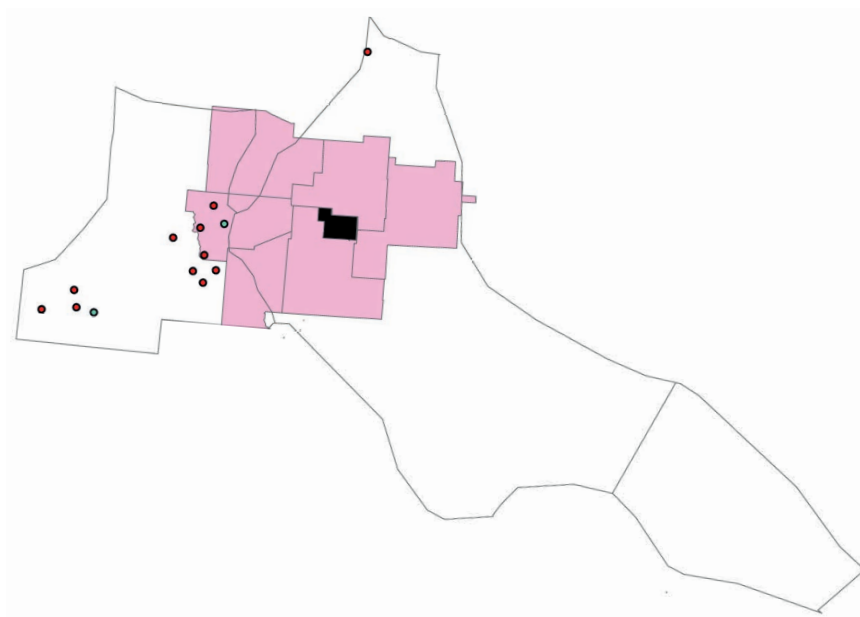


To the researcher, an important concern with this is the potential selection of unobservable historical characteristics. For instance, it could be that the reason the Cherokee were able to avoid forced coexistence was because they were sophisticated enough at the time to have had their own Harvard-trained lawyers amongst their tribal ranks. By contrast, some of the North-Pacific tribes had to rely on missionaries as translators during treaty negotiations. This concern is addressed by focusing only on the set of tribes with multiple reservations and by conducting within-tribe comparisons of reservations formed at the band level, versus at the (forced) tribe level. Strikingly, doing this delivers the same 30% estimate of the effect of *forced coexistence* as the main sample does, again statistically highly significant.

Even here, however, there can be concerns about selection. Notably, it is possible that within the same tribe historically more sophisticated bands were more skilled at treaty negotiations and more likely to end up with the desired band-level reservations. Some anecdotal historical evidence suggests this may have been the case. I, therefore, pursue an instrumental variable (IV) strategy in which historical mining rushes serve as a source of exogenous historical variation in the value of the land that each reservation's constituent bands occupied, thereby creating exogenous pressure on the US government at the time to form more centralised reservations on which the bands could be more easily contained.

Importantly, a reservation's *ancestral homelands* are spatially separate from both the reservation itself and from its present-day economic environment, so that I can continue to control for all characteristics of reservation lands and their immediate economic surroundings, including historical and present-day mining activities within those spatial boundaries. Figure 3 illustrates. In the centre (in black) is the present-day Mescalero reservation in New Mexico. Its economic environment (in pink) consists of six counties, Socorro, Lincoln, Chavez, Otero, Dona Ana and Sierra (clockwise from Northwest). Lastly, Mescalero's ancestral homeland is made up of the three band-territories of the Chiricahua, Mescalero and Lipan. Because historical mining inside the economic environment is a separate control, the IV uses only mining activity in the western territory of the Chiricahua and the one cluster in the north of the Mescalero band's territory.

Figure 3. Economic Environment of the Mescalero Reservation, New Mexico



In one exercise, I use anthropometric data on 12,000 Native Americans, collected in the 1890s by Franz Boas, to directly investigate whether the presence of a mining rush perhaps made the process of reservation formation itself more violent.

I find that Native Americans growing up during the years of the formation of their tribe's or band's reservation experienced stunting, i.e. were shorter than their group average in adulthood. However, this effect was not more severe when interacted with the mining instruments.

I also investigate the mechanisms that underpin my findings. I present three pieces of evidence that all support an explanation centred on the quality of local governance, consistent with a large literature of more qualitative case-based studies (Cornell and Kalt 1995, 2008). First, I turn to panel data, taking advantage of the fact that it was only in the late 1980s that federal regulation ceded responsibility for reservation governance from the Bureau of Indian Affairs (BIA) to the local reservation governments. It turns out that the effect of forced coexistence was relatively small from 1970 to 1990, implying that more than two-thirds of the cross-sectional 30% effect that I estimate in 2000 appeared after 1990, when local governance began to really matter on reservations. This sort of delayed response to an historical shock has antecedents in the economic literature on persistence. For example, Nunn (2008) studies the long-run effects of the slave trade on African countries, and finds that low-slave-export countries were about 200% richer in 2000 than high-slave-export ones, but only about 80% richer in 1975. Not only does most of the effect of the slave trade that he finds 'kick in' two centuries after the peak of the slave trade, but also his implied annualised growth rate differential between low-slave-export countries and high-slave-export countries from 1975 to 2000 is exactly the same as the 2% differential between reservations, with and without forced coexistence, from 1990–2000.

To glean further evidence on the local governance channel, I investigate the relationship between forced coexistence and political conflict directly, both in the cross-section and in panel data. In the absence of measures of actual conflict, I use newspaper databases to generate counts of reported episodes of internal political conflict, conditioning on a reservation's overall coverage in the news. I collect separate counts for conflict involving and explicitly not involving local governance institutions. I also collect counts of episodes of reported corruption in the same way. Consistent with the local governance mechanism, I find that forced coexistence significantly increases reported episodes of both internal conflict and corruption. The effect is stronger for conflict that involves local governance institutions. I also find that, mirroring the income results, the effects are significantly stronger after 1990.

Lastly, I study the economic mechanisms linking local governance to reservation incomes. I find that forced coexistence significantly reduces aggregate wage income, employment and salaries. On the other hand, forced coexistence has no impact on transfer income or on measures of reservation residents' integration into the off-reservation economy. The evidence, therefore, supports the view that the sources of the observed income differences across reservations are mainly internal to the reservations. While this is by no means a smoking gun, these patterns are consistent with narrative accounts that suggest factional reservation politics depress incomes, because they create uncertainty in the local contracting environment and also result in a lack of investment, because politicians control the tribal courts adjudicating on-reservation legal conflicts (Cornell 2006, Cornell and Kalt 2008 ch.7).

This paper speaks to a large literature documenting the negative consequences of ethno-linguistic fractionalisation and artificial jurisdictional boundaries (Easterly and Levine 1997, Alesina *et al.* 2011). In relation to this literature, I find that forcing people with no history of shared governance into shared jurisdictions can have large negative long-run consequences, even when the affected people are ethnically and linguistically the same. This is an important finding, because it suggests that social divisions can persist and have long-run economic legacies, even when they are not anchored in observable characteristics like ethnicity and language.

References

- Alesina, A., A. Devleeschauwer, W. Easterly, S. Kurlat, and R. Wacziarg (2003), “[Fractionalization](#)”, *Journal of Economic Growth* 8(2) 155-184.
- Alesina, A., W. Easterly, and J. Matuszeski (2011), “[Artificial States](#)”, *Journal of the European Economic Association* 9(2) 246-277.
- Cornell, S. (2006), “[What Makes First Nations Enterprises Successful? Lessons Learned from the Harvard Project](#)”, *University of Arizona Udall Center for Studies in Public Policy Joint Occasional Papers on Native Affairs* (01).

Cornell, S. and J. Kalt (1995), “Cultural Evolution and Constitutional Public Choice: Institutional Diversity and Economic Performance on American Indian Reservations”, *Malcom Wiener Center for Social Policy, John F. Kennedy School, Harvard University*.

Cornell, S. and J. Kalt (2008), “The State of the Native Nations- Conditions Under U.S. Policies of Self-Determination”, *Oxford University Press*.

Driver, H. (1975), *The Indians of North America*, *University of Chicago Press*.

Easterly, W. and R. Levine (1997), “Africa’s Growth Tragedy: Policies and Ethnic Divisions”, *Quarterly Journal of Economics* 112(4), 1203-1250.

Gennaioli, N. and I. Rainer (2007), “The Modern Impact of Precolonial Centralization in Africa”, *Journal of Economic Growth* 12(3), 185-234.

Michalopoulos, S. and E. Papaioannou (2013), Pre-Colonial Ethnic Institutions and Contemporary African Development, *Econometrica* 81(1), 113-152.

Nunn, Nathan (2008), “The Long-term Effects of Africa’s Slave Trades”, *The Quarterly Journal of Economics* (2008) 123 (1): 139-176.

Stern, T. (1965), *The Klamath Tribe: A People and their Reservation*, University of Washington Press.

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6 When the levee breaks: Black migration and economic development in the American South

Richard Hornbeck and Suresh Naidu

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The American South is a well-studied case of persistent underdevelopment. Well after the end of slavery, white landowners benefited from cheap black labour and crafted Southern institutions to restrict the mobility of black workers. But this, too, ended. While the United States continues to struggle with racial and geographic inequality, gone is the quasi-bondage endured by black agricultural families of only a few generations ago. While much research has documented the ‘long shadow of history’, it is also important to note that history is not destiny. Large shocks have often altered long-standing patterns of political inequality and economic underdevelopment.

In *When the Levee Breaks*, we examined one such large shock – the 1927 Mississippi Flood – which drastically altered black labour supply and forced white planters to transition to a mechanised agricultural economy. Rich historical data, available from the United States Census, allow us to look at the short-run, medium-run, and long-run effects of the flood, by comparing changes among flooded and non-flooded counties.

The underdevelopment of the American South and the accompanying economic and political coercion of black workers are well-documented. Anti-enticement laws made it illegal for one planter to recruit another planter’s workers, and anti-vagrancy laws made it illegal to be without a job. In 1921, William Pickens, Arkansan NAACP secretary, dubbed the Mississippi River Valley the ‘American Congo’. In 1919 alone, at least 18 black citizens were lynched in the Delta (Woodruff 2003).

Violence against blacks reinforced the power of white planters, who could then serve as a potential source of protection for black workers from poor whites. Perhaps as a consequence of low black labour mobility and suppressed wages, the Southern economy remained persistently underdeveloped between the Civil War and World War II. While the North developed large manufacturing sectors, the South remained primarily agricultural. Northern wheat-threshing became increasingly mechanised in the 19th century, while the mechanisation of Southern cotton-picking was delayed until the mid-20th century. “*Technology for mechanizing the pre-harvest operations existed well before the 1930s, yet it was hardly used at all in the South, and least of all in the plantation belt*” (Wright 1986, p. 133).

This Southern economic system was disrupted by the Great Mississippi Flood of 1927. Rainfall throughout the Mississippi River basin, given greater force by subsidiary dams that increased the volume of water flowing downriver, caused the Mississippi River to overwhelm the levee system that had been erected by the Army Corps of Engineers. Water breached the levees in 145 places, spreading over 26,000 square miles of Louisiana, Mississippi, and Arkansas. Walls of rushing water swept away houses and towns, drowning people and animals. The flooding left hundreds of thousands of people homeless, destroyed 36% of farmland, and caused \$400 million in property damage — more than \$4 billion in today’s dollars. Ironically, just the year before, the new chief of the Army Corps of Engineers had, for the first time, officially stated in his annual report that the levees were finally in condition “*to prevent the destructive effect of floods*” (Barry 1998, p. 175).

Predictably inequitable were the reactions by local elites and local governments. Black citizens were segregated into much worse relief and refugee facilities than whites, and subject to considerable abuse within camps set up by the Red Cross and policed by the National Guard. Armed patrols prevented blacks from leaving these refugee camps, and blacks were conscripted into working on levees in exchange for food and other basic provisions. In some cases, blacks were beaten and even shot.

A widely circulated black newspaper, *The Chicago Defender*, provided detailed accounts of racial abuses in Red Cross camps and listed job openings available to blacks in Northern cities. Migration costs also declined as a result of the flood, due to temporary displacement and lower labour demand for cotton harvesting in 1927.

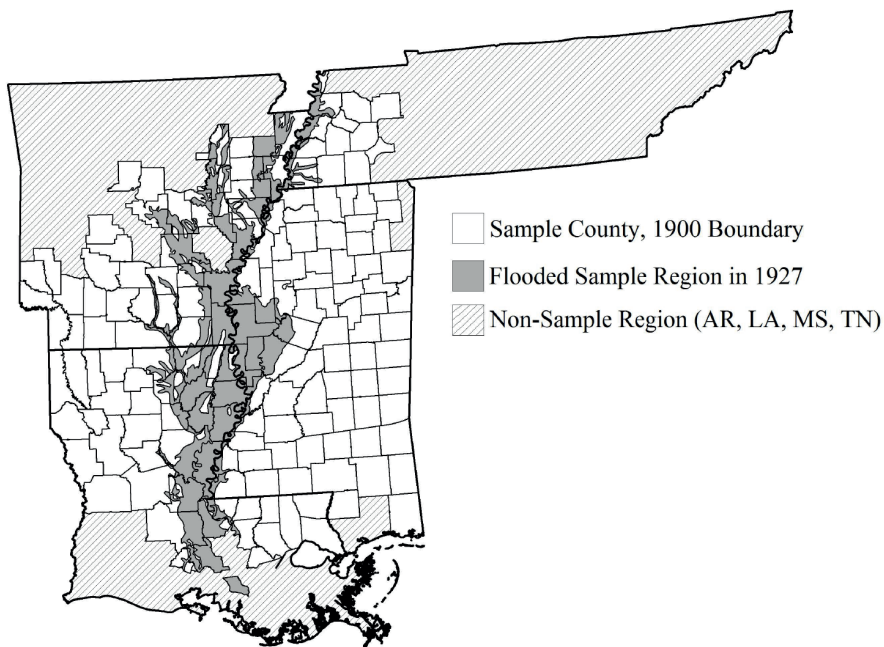
Faced with the potential exodus of black workers, white planters made every effort to retain their black labour force. Following directives from the Mississippi governor and the National Guard commander, the Red Cross issued a memo on the 'return of refugees', stating, "*Plantation owners desiring their labor to be returned from Refugee Camps will make application to the nearest Red Cross representative*", whereupon they "*will issue passes to refugees*" (Barry 1998, pp. 313-314). The Delta & Pine Land Company, one of the nation's largest cotton plantations, controlled its black workers by establishing its own refugee camp and had its workers transferred by special train.

Despite such efforts, or perhaps encouraged by them, many black families left flooded areas in search of better political and economic opportunities. Contemporary accounts describe black families, once displaced from their homes, continuing on to Chicago and other Northern cities. "*The Afro-American reported that the relief camp experience had 'inspired many backwoods farm[h]ands to make their first break for better things'*" (Spencer 1994, p. 177).

Our research has examined the impact that this out-migration of black workers had on agricultural mechanisation and modernisation. Supporting qualitative evidence suggests that a response to the flood-induced out-migration was substantial mechanisation and increased tractor usage in flooded areas. In November 1927, the Engineering News Record noted, "*In certain sections of the lower Delta above the Arkansas and Yazoo where a crop could not be made this year two-thirds to four-fifths of the families have moved away. In these districts farm-machinery salesmen have been busy, and farm experts are watching the result with some apprehension*". In 1931, a Mississippi Agricultural Extension Service bulletin discussed the "*serious problem*" of black out-migration and explored "*the possible solution in mechanical farming*", comparing five tenant-operated plantations and five tractor-operated plantations in the Delta (Vaiden *et al.* 1931). Contemporaneous accounts described a reorganisation of agricultural production and increased mechanisation in the Delta, even prior to the introduction of the mechanical cotton picker: "*Many planters have turned to the use of wage labor and large-scale machinery in an effort to improve production efficiency and decrease costs*" (Langston and Thibodeaux 1939, p. 3).

Figure 1 maps the extent of flooding in 1927, overlaid with county borders in 1900. The shaded area represents the flooded region, as compiled by the US Coast and Geodetic Survey. Our main measure of flood intensity is the fraction of each county flooded (from Figure 1), though the empirical results are similar when we instead use measures from Red Cross reports on the fraction of population affected by flooding in each county.

Figure 1. 1927 Flooded region and sample counties (1900 boundaries)

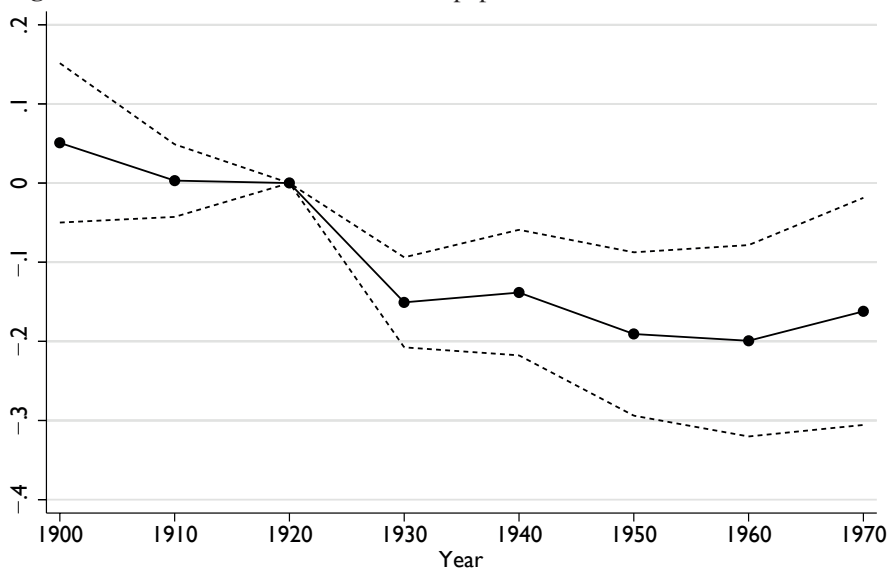


Notes: The 163 sample counties' boundaries are based on county definitions in 1900. County-level data are adjusted to hold these boundaries fixed through 1970. The sample region flooded in 1927 is shaded gray, based on a map compiled and printed by the US Coast and Geodetic Survey. The non-sample region is cross-hatched. Excluded counties are missing outcome data in one of the analysed years, have less than 15% of reported cropland in cotton in 1920, or have a black population less than 10% of the total population in 1920.

The key empirical assumption is that flooded and non-flooded counties would have changed similarly in the absence of the flood. Given that levees broke in a somewhat idiosyncratic manner, and given economic similarities between flooded and non-flooded counties prior to 1927, this assumption appears plausible. We also compare changes among flooded and non-flooded counties that are more similar across a variety of other geographic features.

Figure 2 shows our estimated changes in the black population in flooded counties, relative to changes in non-flooded counties in the same state. Consistent with the main empirical assumption, the black population share changed similarly prior to the 1920's in flooded and non-flooded counties. By contrast, flooded counties experienced a 14% (0.151 log point) decline from 1920 to 1930 in their black population share, relative to changes among non-flooded counties. Following the 1927 flood, this short-run decline in black population-share persisted through to 1970.

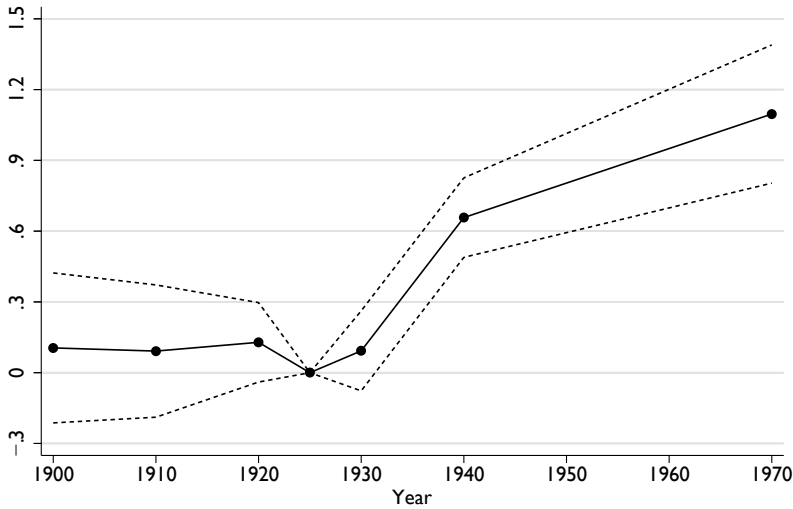
Figure 2. Estimated differences in black population in flooded counties, relative to 1920



Notes: This graph reports estimated differences in log black population share between flooded counties and non-flooded, relative to differences in 1920. The outcome is regressed on the fraction of the county flooded, state-by-year fixed effects, and county fixed effects. The dashed lines indicate 95% confidence intervals, based on robust standard errors clustered by county.

Figure 3 shows estimated changes in the value of agricultural capital equipment and machinery in flooded counties, relative to changes in non-flooded counties in the same state. The value of capital had also been changing similarly in flooded and non-flooded counties and recovered by 1930 from losses sustained during the 1927 flood. By 1940, the value of agricultural capital had increased substantially in flooded counties, relative to non-flooded counties. Relative increases in agricultural capital continued through 1970.

Figure 3. Estimated differences in farm capital in flooded counties, relative to 1920



Notes: This graph reports estimated differences in log value of farm equipment and machinery between flooded counties and non-flooded, relative to differences in 1925. The outcome is regressed on the fraction of the county flooded, state-by-year fixed effects, and county fixed effects. The dashed lines indicate 95% confidence intervals, based on robust standard errors clustered by county.

Our main interpretation of this empirical result, along with the additional results in our paper, is that flood-induced black out-migration encouraged planters' adoption of capital-intensive technologies and larger-scale farm operation, in a manner consistent with contemporary and historical qualitative accounts. Along with the changes in the black population and the value of farm equipment, we also observe more black out-migration (using individual-level Census data linked over time), fewer black farmers, increased use of tractors, less use of mules, higher labour productivity, increased farmland, a higher average farm size, and, perhaps most interestingly, declining values of agricultural land per farm acre.

This last fact – that agricultural land values declined – illustrates the economic exploitation inherent in the pre-flood economic system that was supported by white planters' coercion of black workers. Despite the considerable modernisation of agricultural production after the flood, including increased use of capital and increased labour productivity, the decline in agricultural land values suggests that the previous low-wage and unmechanised agricultural system had been more profitable for white planters.

Planters made every effort to resist black out-migration after the 1927 flood, but were forced to modernise agricultural production in flooded areas – and then eventually to modernise agricultural production throughout the American South, along with broader black out-migration over the following decades.

References

Barry, John M. (1998), *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America*, New York: Simon & Schuster.

Langston, Ethelbert Lee, and Ben Hur Thibodeaux (1939), “Plantation Organization and Operation in the Yazoo-Mississippi Delta Area”, *Mississippi Ag Bulletin* 682.

Spencer, Robyn (1994), “Contested Terrain: The Mississippi Flood of 1927 and the Struggle to Control Black Labor”, *Journal of Negro History* 79 (2): 170–81.

Vaiden, M. G., James Owen Smith, and W. E. Ayres (1931), “Making Cotton Cheaper, Can Present Production Cost Be Reduced?”, *Mississippi Agricultural Bulletin* 290 (S): 413–45.

Woodruff, Nan Elizabeth (2003), *American Congo: the African American freedom struggle in the Delta*, Cambridge, Mass: Harvard University Press.

Wright, Gavin (1986), *Old South, New South: Revolutions in the Southern Economy since the Civil War*, New York: Basic Books.

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7 Effects of high-skilled immigration on US invention: Evidence from German-Jewish émigrés

Petra Moser, Alessandra Voena, and Fabian Waldinger

NYU Stern and CEPR; University of Chicago and CEPR; London School of Economics and CEPR

Contemporary debates on immigration policies focus on the costs of accepting immigrants for native workers. A key argument is that domestic workers stand to lose from the arrival of immigrants, who compete with them for jobs. Yet immigrants, and especially high-skilled immigrants, may also create positive spillovers since they bring new ideas and knowledge to the receiving economy. These ideas may either be directly implemented, as innovations that are new to the receiving economy, or they may spur future innovation by native workers. Contemporary evidence on these effects is mixed, suggesting that the arrival of high-skilled immigrants may either encourage (Hunt and Gauthier-Loiselle 2010, Kerr and Lincoln 2010), or discourage domestic innovation (Borjas and Doran 2012).

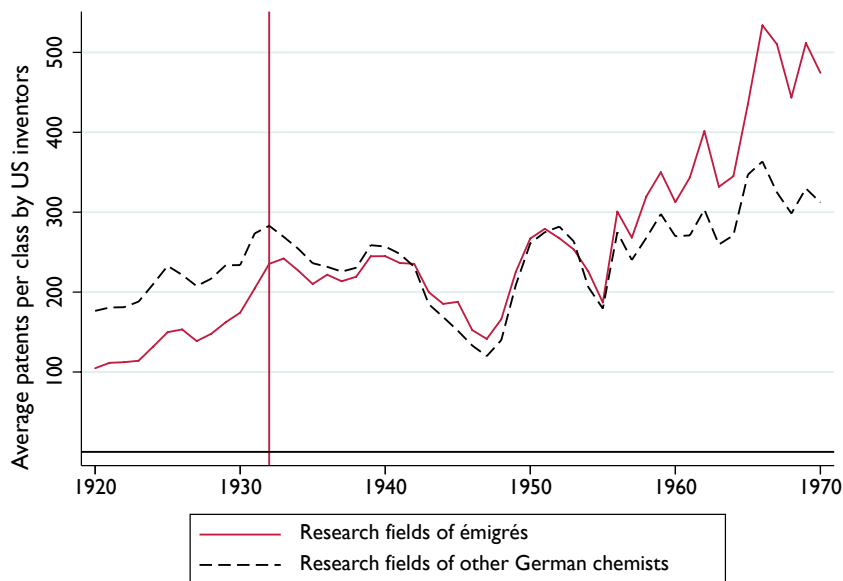
In Moser *et al.* (2014) we investigate an important episode of international migration: the arrival in the United States of German-Jewish refugees from Nazi Germany. Anecdotal historical evidence suggests that German-Jewish émigrés revolutionised US science and innovation. In physics, émigrés such as Leo Szilard, Eugene Wigner, Edward Teller, John von Neumann, and Hans Bethe were instrumental in the Manhattan project, which developed the atomic bomb. In chemistry, émigrés such as Otto Meyerhof (Nobel Prize 1922), Otto Stern (Nobel Prize 1943), Otto Loewi (Nobel Prize 1936), Max Bergmann, Carl Neuberg, and Kasimir Fajans, “*soon effected hardly less than a revolution . . . Their work . . . almost immediately propelled the United States to world leadership in the chemistry of life*” (Sachar 1992, p. 749).

But the émigrés transition to research posts in the United States was not as smooth as it is typically described and, similar to today, it was slowed by administrative hurdles and ethnic bias. Coming from a war enemy, German-Jewish scientists met with a “*Kafkaesque gridlock of seeking affidavits from relatives in America [and] visas from less-than-friendly United States consuls*” (Sachar 1992, p. 495). Once they were in the United States, the émigrés faced a rising wave of antisemitism: in “*the hungry 1930s, antisemitism was a fact of life among American universities as in other sectors of the U.S. economy*” (Sachar 1992, p. 498).

To investigate the émigrés influence on innovation, we examine data on changes in patenting in the research fields of émigrés. Our research design exploits the fact that patents are an exceptionally effective mechanism for the protection of innovations in chemistry, compared with other industries (e.g., Cohen *et al.* 2002, Moser 2012). By comparison, the contributions of émigré physicists (including those who worked on the Manhattan Project) would be much more difficult to evaluate empirically because the knowledge that physicists produced was often classified and rarely patented.

We begin by comparing changes in patenting after 1932 – the last year before the Nazis dismissed Jewish professors from German universities – for research fields that benefitted less or more from the arrival of German-Jewish émigrés. Specifically, we compare changes in patents per year after 1932 by domestic US inventors in the research fields of German Jewish émigrés, with changes in annual US patents by domestic US inventors in the research fields of other German chemists. Research fields are measured at the level of 166 United States Patent Office (USPTO) technology classes that include at least one patent by an academic chemist from Germany or Austria between 1920 and 1970. This approach allows us to control for a potential increase in US invention in fields where German chemists, who had dominated this discipline in the early 20th century, were active inventors. Patenting by US inventors increased substantially after the arrival of the émigrés in the United States (Figure 1). Baseline regression estimates of this effect indicate that the arrival of German Jewish émigrés led to a 31% increase in innovation after 1933 in the fields of émigrés. The data also indicate that the émigrés’ effects on patenting persisted through the 1960s, as students and junior colleagues of the émigrés began to patent in the same fields.

Figure 1. US Patents per class and year by domestic US inventors in research fields of émigrés and other German chemists



Note: Data cover 2,073,771 patent – main class combinations by U.S. inventors across 166 research fields defined at the level of USPTO classes. Research fields of émigrés cover 60 classes that include at least one patent between 1920 and 1970 by a German or Austrian émigré to the United States. Research fields of other German chemists cover 106 USPTO classes that include at least one patent between 1920 and 1970 by another German chemist but include no patents by émigrés. For more details see Moser *et al.* (2014).

The estimates may, however, be biased if the United States attracted more productive scientists or if the émigrés were more likely to work in fields in which US inventors produced more new inventions after 1932. Historical evidence suggests that émigrés to the United States were negatively selected, because the most prominent dismissed scientists went to Britain, which was geographically and culturally closer to the German university system than the United States (Ambrose 2001, p.215). Moreover, émigrés may have been forced to work in less productive fields because anti-Semitism restricted access to the most promising directions of new research. For example, the US chemical firm Du Pont rejected the ‘father’ of modern biochemistry, Carl Neuberg, because he “looked” too Jewish (Sachar 1992, p. 495). According to Hounshell and Smith (1988, pp. 295–96), hiring practices in Du Pont’s Chemical Department “were flawed in one important respect: A strong strain of anti-Semitism and sexism prevailed”.

To investigate the direction of bias, we exploit the dismissal of Jewish scientists by the Nazi government to create an instrument for emigration. On April 7, 1933, only 67 days after the Nazis assumed power in Germany, the *Law for the Restoration of the Professional Civil Service* required that “Civil servants who are not of Aryan descent are to be placed in retirement.” After Nazi Germany annexed Austria in 1938, it extended dismissals to Austrian universities. The term “German scientists” refers to chemists from both countries.

Instrumental variables regressions use the pre-1933 fields of *dismissed* chemists as an instrument for the fields of US émigrés. Because the research of the émigrés typically built on their existing, pre-1933 research, the pre-1933 fields of dismissed German chemists are a good predictor for the research fields of émigrés. Moreover, the fields that dismissed researchers pursued *before* 1933 are unlikely to have depended on their expectations about the types of research that would become productive in the United States after 1933. Our IV estimates confirm historical accounts of negative selection: IV estimates imply that the arrival of German Jewish émigrés led to an additional 71% increase in domestic patenting in the research fields of émigrés, suggesting that the most basic OLS regressions under-estimate the émigrés’ effect on US invention.

How did the arrival of a small number of prominent scholars trigger such a large increase in invention? To investigate this question, we have created a new individual-level data set on the patent histories of US inventors across 166 separate fields of chemical invention. These data suggest that the German-Jewish émigrés promoted native US invention by attracting a new group of domestic inventors to their research fields. Most of the researchers that began to patent in émigré fields after 1932 had not patented in any field of chemical invention until 1932, suggesting that the arrival of German Jewish émigrés increased overall levels of invention in chemistry, rather than encouraging incumbent inventors to move across fields. By comparison, the arrival of the émigrés appears to have created at best limited benefits for incumbent U.S. inventors.

We also collect data on the co-inventors of émigrés – and on the co-inventors of co-inventors – to examine whether new networks of inventors helped to amplify the effects of German-Jewish émigrés on US invention. Inventors within this network of co-inventors benefitted from knowledge transfers about technologies and methods that originated from the émigrés, and we find that co-inventors of émigrés became active patentees in the fields of émigrés, especially after 1940, and continued patenting through the 1950s. In addition to co-inventors of the émigré professors, co-inventors of co-inventors of the émigrés also substantially increased their inventive activity in émigré fields after 1933, and remained substantially more productive throughout the 1950s and 1960s.

A final test examines the research activities of a group of more junior German chemists, who had not yet become professors at German universities, but may have been influenced by the research of émigrés. Data on patents by these younger German émigrés show that they were active in the same research fields as the older and more prominent set of émigré professors. These similarities suggest that the effect that we capture in our regressions may be the result of a broader movement of German Jewish émigrés, including younger German scientists that worked in the same field.

To summarise, our research shows that German-Jewish immigrant scientists triggered a large and persistent increase in US invention for chemistry. The émigrés in our data were exceptionally qualified and are most comparable to super-star scientists today. Our findings show that policies which attract and retain highly-qualified foreign scientists can help to encourage domestic innovation. We also show that the boost that these arrivals create for innovation can persist for many decades.

References

- Ambrose, Tom (2001), *Hitler's Loss. What Britain and America Gained from Europe's Cultural Exiles*, London, UK, Peter Owen's Publishers.
- Borjas, George J., and Kirk D. Doran (2012), "The Collapse of the Soviet Union and the Productivity of American Mathematicians", *The Quarterly Journal of Economics*, 127, 3, 1143-1203.

Cohen, Wesley M., Richard R. Nelson, and John P. Walsh (2000), “[Protecting Their Intellectual Assets: Appropriability Conditions and Why U.S. Manufacturing Firms Patent \(or Not\)](#)”, *NBER Working Paper No. 7752*.

Hunt, Jennifer, and Marjolaine Gauthier-Loiselle (2010), “[How Much Does Immigration Boost Innovation?](#)”, *American Economic Journal: Macroeconomics*, 2, No. 2, 31-56.

Hounshell, David H. and John Kenly Smith, Jr. (1988), *Science and Corporate Strategy, Du Pont R&D, 1902-1980*, Cambridge University Press, Cambridge U.K.

Kerr, William R., and William F. Lincoln (2010), “[The Supply Side of Innovation: H-1B Visa Reforms and U.S. Ethnic Invention](#)”, *Journal of Labor Economics*, 28, No. 3, 473-508.

Moser, Petra (2012), “[Innovation without Patents – Evidence from World’s Fairs](#)”, *Journal of Law and Economics*.

Moser, Petra, Alessandra Voena, and Fabian Waldinger (2014), “[German-Jewish Émigrés and U.S. Invention](#)”, *American Economic Review*, vol. 104, no. 10 3222-3255.

Sachar, Howard (1992), *A History of the Jews in America*, New York: Knopf Publishing Group.

About the authors

Petra Moser is an economic historian, whose research investigates the origins of creativity and innovation. Her work exploits historical variation to examine the effects of patents, copyrights, and high-skilled immigration on technological inventions and artistic creativity. She came to the United States as a Fulbright student studying economics and music, completed a Master’s degree in International Relations at Yale, and a PhD in Economics at UC Berkeley. Professor Moser has taught microeconomics, economic history, and strategy at MIT, Stanford, and now as an Associate Professor of Economics at NYU Stern. She has been a Fellow at the Center for Advanced Studies in the Behavioral Sciences (CASBS) and a National Fellow at Hoover. Her research on creativity and innovation has been honored with a Gerschenkron Prize in Economic History and NSF CAREER award.

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8 The Protestant Reformation's impact in Europe

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Warwick University and CEPR; Chapman University

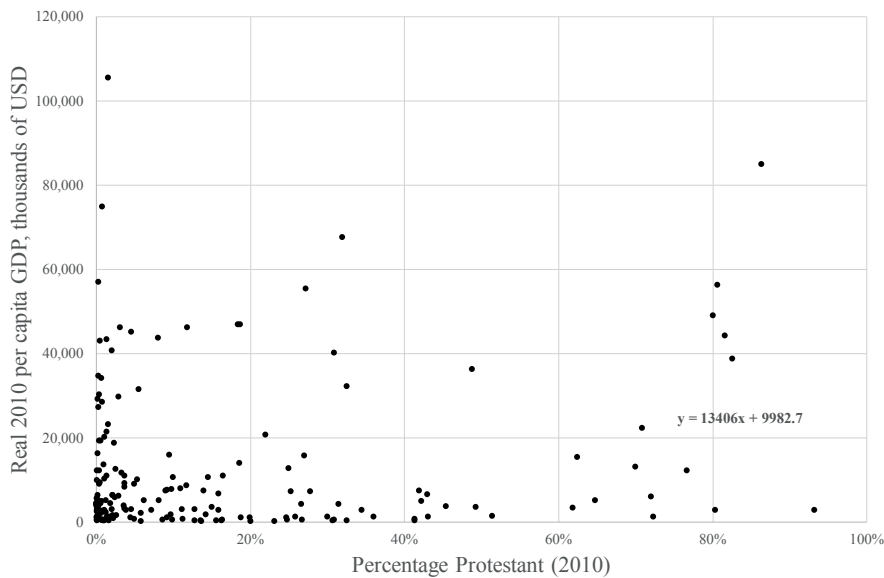
The Protestant Reformation, which spread throughout parts of Western Europe after Martin Luther nailed his 95 Theses to the Wittenberg castle church in 1517, was one of the defining events of European history over the last millennium. Ever since Max Weber proposed the provocative thesis connecting Protestant doctrine to long-run economic growth, the Reformation has fascinated social scientists. It is plain to see why. A clear positive correlation exists between Protestantism and economic success, in Weber's native country, 19th century Prussia, and the correlation persists to the present (see Figure 1). Indeed, the world's leading economy has been majority Protestant since the spread of the Reformation in the 16th century: the Dutch led the world economy in the 16th and 17th centuries, then the English in the 18th and 19th centuries, and the US followed in the 20th century. But is this correlation causal? That is, did the Reformation actually *result* in good economic outcomes where it spread, or is this correlation spurious?

The last decade has seen an increased interest in the origins and effects of the Reformation due to a renewed effort to digitise source materials in order to build up data sets at the individual level, city level and county level.¹ As we overview in our recent survey article with Steven Pfaff (Becker *et al.* 2016), these studies use regression analyses to complement, reassess, and enhance our knowledge of the Reformation,

1 Examples of other works using historical digitised maps to study long-lasting effects of important historical episodes include Dell (2010) for the long-lasting effects of the forced mining labour system (mita) in effect in Peru under Spanish rule; Acemoglu *et al.* (2011) for the long-run effects of Napoleonic rule in Germany; Michalopoulos and Papaioannou (2013, 2014) on persistent effects of colonial rule in Africa; and Becker, Boeckh, Hainz and Woessmann (2016) for long-lasting effects of different Empires in Eastern Europe.

where previous research often provided a rich narrative, informed by data, but without necessarily attempting to formally test specific factors driving the Reformation, or its consequences. These more advanced econometric techniques permit a deeper inspection of the *causal* relations connecting the Reformation to long run economic outcomes.

Figure 1 Protestantism versus per capita GDP



Source: Rubin (2017)

To be clear, social scientists do not view the Reformation as some random event that serves as a useful ‘natural experiment’ on which to conduct economic analyses. Indeed, numerous recent works have suggested that the *causes* of the Reformation were economic, political, or technological. Causes recently studied include the spread of printing (which, in turn, helped spread Luther’s message - Rubin 2014, Dittmar and Seabold 2015), Ottoman incursions into Europe (which diverted resources away from the suppression of Protestants - Iyigun 2008), and political autonomy and local political influence (which pressured neighbouring princes to adopt the Reformation - Cantoni 2012). These studies provide the appropriate background for conducting causal, long-run analyses of the Reformation’s impact on European economic fortunes.

Without understanding the phenomena that contributed to the success of the Reformation, it would be impossible to discern whether certain outcomes are consequences of the Reformation or merely consequences of some more historically remote event that also contributed to the success of the Reformation.

Although we highlight numerous consequences of the Reformation in our survey article, including its effect on 'work ethic' and its negative consequences, in this chapter we focus on two channels, through which the Reformation affected long-run economic development: human capital and governance. The human capital channel has been highlighted in a number of recent papers, starting with the work of Becker and Woessmann (2008, 2009). They show that Prussian counties with a larger share of Protestants had higher literacy rates in 1871. To address concerns about endogeneity of the Protestant share, they use distance to Wittenberg as a source of exogenous variation (instrumental variable). The idea is that the Reformation spread concentrically from Luther's city of Wittenberg. Counties closer to Wittenberg were more likely to adopt the Reformation for reasons unrelated to the previous level of education and economic development. This supports their argument that differences in education and economic development after the Reformation are the result of Protestantism and not merely the perpetuation of pre-existing differences. In Becker and Woessmann (2009), they show that the higher literacy in Protestant counties explains the advantage in economic development of Protestant counties. Becker and Woessmann (2008) highlight the gender dimension of the Protestant drive for literacy: not only are Protestant counties more literate on average, but Luther's quest for everyone to be able to read the Bible extended to girls, the consequence being a smaller gender gap in education in Protestant areas. The results of Becker and Woessmann are largely confirmed in Swiss data. Boppart *et al.* (2013) highlight an interesting interaction between Protestantism and the degree of conservatism in the district. They find that, in late 19th century Switzerland, Protestantism is only beneficial for educational spending, and for the test results of military conscripts when individuals are in a conservative environment, but report that it makes no difference in a progressive environment. Boppart, Falkinger, and Grossmann (2014), using the same data on test results of Swiss military conscripts, look at different measures of scholastic achievement and show that Protestants not only excelled in reading, as highlighted in Becker and Woessmann (2009), but also in other disciplines. Dittmar and Meisenzahl (2016) stress the role of formal institutions in supporting human capital and development.

They further sub-divide the set of Protestant cities into cities that formalised the Reformation in Church ordinances. They find that cities that adopted legal changes, including the introduction of mass education, grew faster than both Protestant cities that did not formalise social change in municipal law and Catholic cities.

Another channel, through which the Reformation affected long run outcomes, was its transformative effect on the manner in which Protestant polities were governed. Greif and Rubin (2016) and Rubin (2017) suggest that the Reformation undermined the capacity of the Catholic Church to legitimise rule and Protestant monarchs therefore turned to parliaments for legitimacy and resources. Since parliaments tended to have interests compatible with those of the economic elite, the laws and policies resulting from the bargains made between Crown and parliament were more consistent with those that portend economic success. Greif and Rubin (2016) contend that in England, the post-Reformation political equilibrium was one in which rulers were legitimised by following the common law, as established by Parliament. This insight therefore suggests that the Reformation was indirectly (and unintentionally) responsible for the rise of the modern rule of law in England – i.e., law that was secular, subject to checks and balances, and was applied to everyone, even the Crown.

In sum, the economic consequences of the Reformation in Europe were wide-ranging.² Inspired by Weber, recent analyses have found numerous *causal* relationships between the spread of Protestantism and economic and political outcomes. These outcomes include higher human capital for Protestants and, historically at least, greater constraint on Protestant sovereigns. Importantly, human capital and (good) institutions are among the most important drivers of long-run growth, as is suggested by North (1990), Greif (2006), Acemoglu *et al.* (2001, 2002), Easterly and Levine (2016), and Rodrik *et al.* (2004). In short, the literature on the Reformation suggests multiple mechanisms through which religious transformation can set in motion unintended consequences for economic development.

2 The impact of Protestantism outside Europe has been studied as well. For instance, Gallego and Woodberry (2010) provide evidence that regions in former Colonial Africa in which Protestant missionaries dominated have higher literacy rates than those where Catholic missionaries dominated. Cag  and Rueda (2016) highlight the role of the printing press in Protestant missionary activity. Valencia Caicedo (2016) showcases human capital effects in South America resulting from missionary activity of Jesuits, arguably the strongest opposition force to Protestant activity.

References

Acemoglu, Daron, Davide Cantoni, Simon Johnson, and James A. Robinson (2011), “The Consequences of Radical Reform: The French Revolution”, *American Economic Review* 101(7): 3286-3307.

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2001), “The colonial origins of comparative development: An empirical investigation”, *American Economic Review* 91(5): 1369–1401.

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2002), “Reversal of fortune: Geography and institutions in the making of the modern world income distribution”, *Quarterly Journal of Economics* 117(4): 1231–1294.

Becker, Sascha O., Katrin Boeckh, Christa Hainz and Ludger Woessmann (2016), “The Empire Is Dead, Long Live the Empire! Long-Run Persistence of Trust and Corruption in the Bureaucracy”, *Economic Journal* 126(590): 40–74.

Becker, Sascha O., Steven Pfaff, and Jared Rubin (2016), “Causes and Consequences of the Protestant Reformation”, *Explorations in Economic History*, 62: 1-25.

Becker, Sascha O. and Ludger Woessmann (2008), “Luther and the Girls: Religious Denomination and the Female Education Gap in 19th Century Prussia”, *Scandinavian Journal of Economics*, 110(4): 777-805.

Becker, Sascha O. and Ludger Woessmann (2009), “Was Weber Wrong? A Human Capital Theory of Protestant Economic History”, *Quarterly Journal of Economics* 124(2): 531-596.

Boppart, Timo, Josef Falkinger, and Volker Grossmann (2014), “Protestantism and Education: Reading (The Bible) and Other Skills”, *Economic Inquiry* 52(2): 874-895.

Boppart, Timo, Josef Falkinger, Volker Grossmann, Ulrich Woitek, and Gabriela Wüthrich (2013), “Under which conditions does religion affect educational outcomes?”, *Explorations in Economic History* 50(2): 242-266.

Cagé, Julia and Valeria Rueda (2016), “The Long-Term Effects of the Printing Press in sub-Saharan Africa”, *American Economic Journal: Applied Economics* 8(3): 69-99.

Cantoni, Davide (2012), “Adopting a New Religion: The Case of Protestantism in 16th Century Germany”, *Economic Journal*, 122 (560): 502-31.

Dell, Melissa (2010), “The Persistent Effects of Peru’s Mining Mita”, *Econometrica* 78(6):1863-1903.

Dittmar, Jeremiah and Ralf R. Meisenzahl (2016), “State Capacity and Public Goods: Institutional Change, Human Capital and Growth in Early Modern Germany”, CEP Discussion Paper No 1418.

Dittmar, Jeremiah and Skipper Seabold (2015), “Media, Markets, and Institutional Change: Evidence from the Protestant Reformation”, CEP Discussion Paper No 1367.

Easterly, William and Ross Levine (2016), “The European origins of economic development”, *Journal of Economic Growth* 21(3): 225–257.

Gallego, Francisco A. and Robert Woodberry (2010), “Christian Missionaries and Education in Former African Colonies: How Competition Mattered”, *Journal of African Economies* 19(3): 294-329.

Greif, Avner (2006), *Institutions and the Path to the Modern Economy*, Cambridge, Cambridge University Press.

Greif, Avner and Jared Rubin (2016), *Endogenous Political Legitimacy: The English Reformation and the Institutional Foundations of Limited Government*, Mimeo, Stanford University.

Iyigun, Murat (2008), “Luther and Suleyman”, *Quarterly Journal of Economics*, 123(4): 1465-1494.

Michalopoulos, Stylianos, and Elias Papaioannou (2013), “Pre-colonial Ethnic Institutions and Contemporary African Development”, *Econometrica* 81(1): 113-152.

Michalopoulos, Stylianos, and Elias Papaioannou (2014), “National Institutions and Subnational Development in Africa”, *Quarterly Journal of Economics*, 129 (1): 151-213.

North, Douglass C. (1990), *Institutions, Institutional Change and Economic Performance*, Cambridge, Cambridge University Press.

Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi (2004), “Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development”, *Journal of Economic Growth* 9: 131-165.

Rubin, Jared (2014), “Printing and Protestants: an empirical test of the role of printing in the Reformation”, *Review of Economics and Statistics* 96(2): 270-286.

Rubin, Jared (2017), *Rulers, Religion, and Riches: Why the West Got Rich and the Middle East Did Not*, Cambridge, Cambridge University Press.

Valencia Caicedo, Felipe (2016), *The Mission: Economic Persistence, Human Capital Transmission and Culture in South America*. Mimeo. University of Bonn.

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9 How the medieval city-states experience influences contemporary trust and civic culture in Italy

Luigi Guiso, Paola Sapienza, Luigi Zingales

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There are primitive societies in which the level of biological well-being is even lower, but in which people are not chronically unhappy. What makes the difference between a low level of living and “la miseria” comes from culture. Unlike the primitive, the peasant feels himself part of a larger society which he is “in” but not altogether “of”.

Edward C. Banfield, “*The Moral Basis of a Backward Society*” 1958

Although history offers examples of spectacular catch-ups, relative national levels of economic development tend to be quite persistent over time. The per capita income of European countries at the end of the twentieth century had a 0.56 correlation with their per capita income at the beginning of the century. Even over the 300-year span from the 18th to the 21st century the correlation is 0.23.²

¹ Based on Luigi Guiso, Paola Sapienza and Luigi Zingales, “Long Term Persistence”, *Journal of the European Economic Association*, 2016.

² These results are obtained using Maddison (2001).

This correlation persists despite the massive destruction of physical and human capital in Europe's recurrent warfare. Why are these differences in economic development so persistent?

In an influential paper, Acemoglu *et al.* (2001) attribute the phenomenon to the long-lasting effect of formal institutions, such as protection of property rights and limitations on the power of the executive. Ingrained into a country's legal rules, these institutions tend to endure over the centuries. Consistent with this view, they find that countries inhospitable to white men still suffer from low property rights protection and excessive executive power, because the European colonisers, who did not intend to stay, designed legal institutions aimed at extracting rather than creating value.

This influential explanation faces three objections. First, how can we differentiate the role of legal institutions from that of the culture and the human capital that the colonisers brought to the colonies (Glaeser *et al.* 2004)? Second, if persistence depends on legal institutions, why should these be so persistent themselves? After all, they are designed to be changeable. Even constitutions, the least flexible of legal institutions, are often changed: Argentina, which has had four different constitutions in the last 60 years, is a case in point. Finally, can we completely reject the hypothesis that persistence depends on geographical factors?³

An alternative interpretation, going back to Putnam *et al.* (1993), attributes the persistence of economic development to culture.⁴ Williamson (2000) claims that culture is the most persistent of all institutions and, unlike legal institutions, has no explicit mechanisms for amendment. Yet, even Williamson (2000) is not clear about *why* and *when* culture is so persistent. Putnam (2000) himself documents an example of the rapid deterioration of social capital in America. Does culture persist only when it is optimal, or does it tend to outlive its usefulness and the environment that generated it?

3 Acemoglu *et al.* (2001) discuss this challenge and argue that the diseases that were once a serious problem (yellow fever and malaria) no longer represent a major source of comparative disadvantage today. Still, other geographical factors impeding economic development could be at the origin of this persistence.

4 A recent literature studies how and which current cultural traits affect economic outcomes (see e.g. Tabellini (2010), Gorodnichenko and Roland (2014), Guiso, Sapienza and Zingales, 2006 for a review).

To address these questions, we revisit Putnam's hypothesis. He conjectures that differences in performance among the Italian regions are due to persistent differences in civic capital, originating from the free city-states (Communes) experience during the late Middle Ages. For studying the persistence of culture, Putnam's conjecture has several advantages. First, it traces the origin to an historical period whose formal institutions have long since disappeared, facilitating the identification of the cultural effect. Second, his distinction is not just North-South. While free cities were concentrated in the Centre-North (henceforth North), they did not include all cities in this area.⁵ This can be seen in Figure 1, where only the towns marked with a full dot were free cities. Thus, we can exploit variation across cities within the North of Italy to test Putnam's hypothesis. Finally, it considers a temporal span of several centuries, during which a different culture could have formed and taken hold.

We start by comparing current levels of civic capital in different cities within Northern Italy. Following Putnam *et al.* (1993), our first measure of civic capital is the number of non-profit organisations per capita. We complement this with two new measures. As we observe in Guiso, Sapienza, and Zingales (2011), for an outcome-based measure to qualify as a good gauge of civic capital, the relationship between the input (civic capital) and the output measure should be stable and unaffected by other factors, such as legal enforcement. One such output is donation of blood or organs. Thus, as a second measure of civic capital we use the existence of an organ-donation organisation. Finally, in the spirit of Fisman and Miguel (2007), we use the frequency of cheating in a national exam, which is sat by children in each town.

5 Our definition of North includes all the regions North of (and including) Latium. This definition is consistent with the regions of Italy belonging to the Holy Roman Empire at the beginning of the second millennium, when the free cities formed, as shown by the red borders in Figure 1.

Figure 1. Historical map of Italy around year 1167



Notes: The figure shows the map of Italy around the year 1167. The red line marks the borders of the country that were the Holy Roman Empire of the German Nation. All the towns marked with a full dot were communes. Towns in red were communes that belonged to the Lombard League, those in blue were allied to the Emperor. The green areas mark the territories of various Principati and Feudi. The Southern part of Italy not belonging to the Empire was under the Norman Kingdom of Sicily.

Findings

Consistent with Putnam's conjecture, we find that those Northern cities that experienced a period of independence in the Middle Ages have significantly higher levels of civic capital today, as measured by all three indicators. For example, the number of voluntary associations is 25% higher in cities that were once free city-states. These results are robust to area dummy variables and to other geographical controls, such as closeness to the sea or elevation. Furthermore, they are robust to excluding larger cities and province capitals, or controlling for income levels and for inequality in the distribution of land.

Not only does civic capital increase with the historical occurrence of a free city-state, but also with the length and the intensity of the experience. One standard deviation increase in the length of independence increases the number of non-profit associations by 2.5%, raises the probability of having an organ-donation organisation by 4.5%, and lowers cheating in math by 2.75%. The free city-state degree of autonomy also mattered. Some cities were independent, but under the protection of the emperor; others were independent enough to fight (and win) against the emperor. We find that the former free cities that, in 1158, participated in a league to fight the Emperor (the Lombard League), today exhibit more civic capital than the free cities that, at that time, chose to remain neutral, which, in turn, exhibit more civic capital than the cities that chose to be allied with the emperor.

Our results are consistent with the idea that a distant, important historical experience can affect individual behaviour many years later. Because the institutions set up by the free cities are long gone, this persistence cannot be due to any formal institution. Yet, there could be some geographical characteristics not controlled for that are correlated both to the emergence of free city states in the Middle Ages and to the higher level of civic capital today.

To assess this possibility, we investigate the factors that facilitated the creation of free city-states. Historians (among others, Reynolds 1997, Milani 2005, Tabacco 1987, Pirenne 1956) claim that the presence of a bishop in a town fostered the formation of a free city-state. This effect, however, can only be present in the North. At the beginning of the second millennium, the South of Italy was more developed and prosperous than the North (see De Long and Shleifer, 1993), yet free city-states could not develop there because of the strong central power exerted by the Normans (Putnam, 1993). Consistently, we find that the presence of a bishop is correlated with higher civic capital in the North but not in the South. We also find that this correlation does not exist among Northern cities that became bishop seats after 1400.

While these findings do not completely rule out the geography hypothesis, they provide further evidence that civic capital is correlated with a pre-existent condition that facilitated independence only when this condition actually led to the transformative experience of the free city-state.

The mechanism: the civic capital self-efficacy link

Having identified this robust correlation, we try to explain *how* such an historically remote experience can leave a legacy after over 500 years. As the epigraph suggests, Banfield (1958) attributes the typical attitude of Southern Italians to a feeling of lack of empowerment (*la miseria*) or — as modern psychology labels it — lack of self-efficacy, the belief a person holds regarding his or her power to positively affect situations (Bandura 1977, 1997). Can a positive or negative historical experience affect an entire population's sense of empowerment? Can such an attitude be handed down for generations? Is this diffuse sense of helplessness related to civic capital, as Banfield's evidence seems to suggest?

To build this connection we extend Bandura's theory of self-efficacy, from the realm of individual experiences to that of collective ones, i.e. historical shock. Psychologists (e.g. Maddux 2009) perceive the development of self-efficacy beliefs as the result of both direct and vicarious *individual* experience. We extend this idea to collective historical experience.

We measure self-efficacy attitude in the way people explain to themselves why they experience a particular event, either positive or negative (Abrahamson, Seligman and Teasdale 1978). As research in psychology shows (Seligman *et al.* 1984, Dweck *et al.* 1978), this attitude is transmitted through education and socialisation. Thus we can measure the cultural transmission of an historical event by looking at differences in self-efficacy of young children in areas with similar geographies but differing histories. Because children's self-efficacy is mostly the reflection of their parents' and teachers' influence, it is particularly useful for isolating the culturally transmitted component of self-efficacy.

Table 1 shows that, holding geography and other city attributes constant, eighth-graders in Northern cities that did have the free city-state historical experience display a higher degree of self-efficacy than their peers living in Northern cities that had not been communes.

Table 1. City level averages of self-efficacy

	North Sample
Commune	0.0303** (0.0149)
Elevation	-0.0758* (0.0441)
Max difference in elevation	0.0334*** (0.00839)
City is on the coast	-0.0241 (0.0149)
City more than 5km from the coast	-0.0110 (0.0191)
Current Population	-0.0998 (0.0683)
Current Population squared	0.0257 (0.0490)
<i>Gini</i> inequality index of land own.	-0.0244 (0.0372)
<i>Gini</i> income inequality index	0.00833 (0.143)
Constant	2.545*** (0.0614)
Observations	1,800
R-squared	0.021

Notes: The table shows OLS estimates of the effect of having been an independent city on self-efficacy in the sample of all Italian cities in the North. Self-efficacy score is on the left hand side. Regression is weighted using city population. ***significant at less than 1%; ** significant at 5%; * significant at 10%. Robust standard errors are reported in parentheses.

In the logical chain between past historical shocks and today’s civic capital, the remaining missing link is the relation between self-efficacy beliefs and civic capital. Team effort is intrinsically subject to a problem of attribution (Alchian and Demsetz 1972). Individuals with stronger self-efficacy beliefs expect their own efforts to have a higher chance of paying off (both directly and indirectly), increasing their willingness to contribute. Hence, cooperative behaviour is more likely to occur among people with a higher self-efficacy, whereas societies in which lack of self-efficacy is pervasive will tend to have lower levels of civic capital.

We use our data to test this hypothesis. As shown in Table 2, we find that towns exhibiting a higher self-efficacy measure have also higher civic capital, measured by number of associations (col. 1), existence of an organ-donation organisation (col. 2) and cheating in math tests (col. 3). Overall, these correlations are consistent with the free city-states experience fostering the formation of a different culture, which persists to these days and still affects the level of civic capital.

Table 2. Self-efficacy and civic capital

	(II) Number of associations p.c.	(IV) Organ Donation	(VI) Cheating in math
Self-efficacy	1.203*** (0.310)	0.226*** (0.067)	-0.0348*** (0.00837)
Elevation	-0.269 (0.700)	-0.441*** (0.139)	0.0271** (0.0122)
Max difference in elevation	1.182*** (0.260)	0.069 (0.045)	0.00180 (0.00351)
City is on the coast	-0.206 (0.351)	0.061 (0.066)	0.0103* (0.006)
City more than 5km from the coast	0.571 (0.832)	0.120 (0.103)	0.0101 (0.010)
Current Population	2.250 (2.249)	2.697*** (0.462)	-0.007 (0.033)
Current Population squared	-2.647 (1.670)	-1.927*** (0.339)	-0.0006 (0.026)
<i>Gini</i> inequality index of land own.	0.488 (0.849)	0.114 (0.155)	0.022** (0.011)
<i>Gini</i> income inequality index	10.57** (5.056)	2.786*** (1.071)	0.019 (0.035)
Constant	-3.581* (2.170)	-1.463*** (0.466)	0.098*** (0.027)
Observations	1,803	1803	1,715
R-squared	0.115	0.302	0.035

Notes: The table shows OLS regressions of measures of civic capital in the cities in the Center/North as LHS on self-efficacy in the city and controls as RHS. The left hand side variable in the first two columns is the number of voluntary association per capita, in column three and four a dummy for the presence of an organ donation organization, and in the last two columns the average cheating. Estimates are run on the whole sample of cities located in the Center-North of Italy. Robust standard errors are reported in parentheses. *** significant at less than 1%; ** significant at 5%; * significant at 10%

There is a growing literature on the persistence of cultural attitudes over long periods of time both theoretical (Bisin and Verdier 2000, 2001; Guiso *et al.* 2008) and empirical.⁶ Nunn and Wantchekon (2011), for instance, show the long-term persistence of the effects of the slave trade on Africa's level of trust today. Similarly, Voigtländer and Voth (2012) document a very strong correlation between the level of German anti-Semitism in 1350 and its level in the 1920s and 1930s. Other works demonstrate how cultures functional to a given technology may survive many centuries after that technology's disappearance. Grosjean (2011), for instance, studies a culture of violence functional to a pastoral society; Alesina *et al.* (2013) examine the diffusion of the plough in agriculture (which gave a comparative advantage to men over women in some geographical areas).

All these papers present evidence of a negative shock, which persisted through centuries. By contrast, we provide evidence of a *positive* lasting shock, which provides some hints on how civic capital can be enhanced. We also highlight and test a possible mechanism, which may generate this persistence.

Our paper is also related to the parallel literature that studies which current cultural traits affect economic outcomes (see Guiso *et al.* 2006 for a review). Tabellini (2010) and Gorodnichenko and Roland (2014) stress the importance of individualism for promoting private innovation and growth. Our paper shows that shared beliefs of individual self-determination can promote civic engagement and cooperation.

Conclusion

Acemoglu and Robinson (2012) claim that shocks to institutions can affect outcomes over prolonged periods of time. Yet they do not distinguish whether this impact is a direct effect of formal institutions' persistence, or an indirect effect produced by institutional shocks on people's psyche and culture. In other terms, is culture the source of long term persistence or are formal institutions?

6 There is also a growing literature on persistence of cultures over shorter periods of time (see Algan and Cahuc (2010), Giuliano (2007), Guiso, Sapienza and Zingales (2006), Fernandez *et al.* (2004), Fisman and Miguel (2007), and Tabellini (2010)).

We try to disentangle the two by looking at an institutional change whose formal institutions are long gone. We document that Italian towns that, during the Middle Ages, were free city-states exhibit higher levels of civic capital today.

Having identified a long term persistence that cannot be attributed to institutional survival, we try to uncover the mechanism that generates this persistence. Based on Banfield (1958), we conjecture that the sense of self-efficacy is the cultural trait fostered by the free city-state experience. Consistent with this conjecture, we find that pupils of free city-states exhibit a higher self-efficacy score than pupils of similar towns within the North of Italy who did not share the same historical experience.

While far from definitive, this evidence opens an interesting area of research: linking a nation's psyche to important historical events. An event affects the attitudes of its contemporaries and these attitudes shape a culture, which is transmitted through the centuries, via education and socialisation. Future research will have to determine the extent and the importance of this new channel in explaining the success of nations around the world. At the moment we can only say that it seemed to have played a role in Italy.

References

Abrahamson, Lyn Y., Martin E. Seligman, and John D. Teasdale (1978), "Learned Helplessness in Humans: Critique and Reformulation", *Abnormal Psychology*, 87.1 49–74.

Acemoglu, Daron, Simon Johnson, and James A. Robinson (2001), "The Colonial Origins of Comparative Development: An Empirical Investigation", *American Economic Review*, 91.51369-1401.

Alchian, Armen A., and Harold Demsetz (1972), "Production, information costs, and economic organization", *American Economic Review* 777-795.

Alesina, Alberto, Paola Giuliano, and Nathan Nunn (2013), "On the Origin of Gender Roles: Women and the Plough", *Quarterly Journal of Economics*, 128.2: 469-530.

Algan, Yann, and Pierre Cahuc (2010), “Inherited Trust and Growth”, *American Economic Review*, 100.5 : 2060-92.

Bandura, Albert (1977), “Self-efficacy: Toward a Unifying Theory of Behavioral Change”, *Psychological Review*, 4.2 : 191-215.

Bandura, Albert (1995), *Self Efficacy in Changing Societies*, New York: Cambridge University Press.

Banfield, Edward C. (1958), *The Moral Basis of a Backward Society*. New York: Free Press.

Bisin, Alberto, and Thierry Verdier (2000), “Beyond the Melting Pot: Cultural Transmission, Marriage, and the Evolution of Ethnic and Religious Traits”, *Quarterly Journal of Economics*, 115.3: 955-988.

Bisin, Alberto, and Thierry Verdier (2001), “The Economics of Cultural Transmission and the Evolution of Preferences”, *Journal of Economic Theory*, 97.1: 298-319.

De Long, J. Bradford, and Andrei Shleifer (1993), “Princes and Merchants: European City Growth before the Industrial Revolution”, *Journal of Law and Economics*, University of Chicago Press, 36.2 : 671-702.

Dweck, Carol S., William Davidson, Sharon Nelson, Bradley Enna (1978), “Sex differences in learned helplessness: II. The contingencies of evaluative feedback in the classroom and III. An experimental analysis”, *Developmental psychology*, 14.3: 268.

Fernandez, Raquel, Alessandra Fogli, and Claudia Olivetti (2004), “Mothers and Sons: Preference Formation and Female Labor Force Dynamics”, *Quarterly Journal of Economics*, 119.4: 1249-1299.

Fisman, Ray, and Edward Miguel (2007), “Corruption. Norms and Legal Enforcement: Evidence from Diplomatic Parking Tickets”, *Journal of Political Economy*, 115.6: 1020-1048.

Giuliano, Paola (2007), “Living Arrangements in Western Europe: Does Cultural Origin Matter?”, *Journal of the European Economic Association*, 5.5: 927-952.

Glaeser, Edward L., Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer (2004), “Do Institutions Cause Growth?”, *Journal of Economic Growth*, 9.3: 271-303.

Gorodnichenko, Yuri, and Gerard Roland (2014) “Culture, Institutions and the Wealth of Nations.” *Review of Economics and Statistics*.

Grosjean, Pauline (2011), “A History of Violence: The Culture of Honor as a Determinant of Homicide in the US South”, Discussion Papers 2011-13, School of Economics, The University of New South Wales.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2004), “The Role of Social Capital in Financial Development”, *American Economic Review*, 94.3: 526-556.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2006), “Does Culture Affect Economic Outcomes?”, *Journal of Economic Perspectives*, 20.2: 23-48.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2008), “Alfred Marshall Lecture Social Capital as Good Culture”, *Journal of the European Economic Association*, 6.2-3: 295-320.

Guiso, Luigi, Paola Sapienza, and Luigi Zingales (2011), “Civic Capital as the Missing Link”, in *Social Economics Handbook* edited by Jess Benhabib, Alberto Bisin, Matthew O. Jackson. Amsterdam: North-Holland.

Maddison, Angus (2001), “The World Economy: A Millennial Perspective”, OECD.

Maddux, James E. (2009), “Self-Efficacy: The Power of Believing You Can”, in *Oxford Handbook of Positive Psychology*, Shane J. Lopez and C.R. Snyder eds. Oxford University Press.

Milani, Giuliano (2005), *I Comuni Italiani*, Bari: Editori Laterza.

Nunn, Nathan, and Leonard Wantchekon (2011), “The Slave Trade and the Origins of Mistrust in Africa”, *American Economic Review*, 101.7: 3221–3252.

Pirenne, Henri (1956), *The Medieval City*. Princeton: Princeton University Press.

Putnam, Robert (2000), *Bowling Alone: The Collapse and Revival of American Community*, New York: Simon & Schuster.

Putnam, Robert, Robert Leonardi, and Raffaella Nanetti (1993), *Making Democracy Work: Civic Traditions in Modern Italy*, New York: Simon & Schuster.

Reynolds, Susan (1997), *Kingdoms and Communities in Western Europe 900-1300*, Second ed. Oxford: Clarendon Press.

Seligman, M.E.P., C. Peterson, N.J. Kaslow, R.L. Tanenbaum, L.B. Alloy, and L.Y. Abramson (1984), “Attributional style and depressive symptoms among children”, *Journal of Abnormal Psychology*, 93, 235-238.

Tabacco, Giovanni (1987), “La Città Vescovile nell’Alto Medioevo”, in *Modelli di città. Strutture e funzioni politiche*, (eds.) P. Rossi. Torino: Edizioni Comunità.

Tabellini, Guido (2008), “The Scope of Cooperation: Values and Incentives”, *Quarterly Journal of Economics*, 123.3: 905-950.

Tabellini, Guido (2010), “Culture and Institutions: Economic Development in the Regions of Europe”, *Journal of the European Economic Association*, 8.4: 1542-4774.

Voigtländer, Nico, and Hans-Joachim Voth (2012), “Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany”, *Quarterly Journal of Economics*, 127.3: 1339-1392.

Williamson, Olivier (2000), “The New Institutional Economics: Taking Stock, Looking Ahead”, *Journal of Economic Literature*, 38.3: 595-613.

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10 Trade, political institutions and legal innovation: The birth of the corporation in Amsterdam

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The corporate form is possibly the most important legal innovation of the past few centuries. It has radically transformed the way business is conducted. Yet, many economists and legal scholars tend to view the corporation as a (mere) multilateral contractual arrangement among a series of stakeholders – managers, capital providers, workers (Jensen and Meckling 1976, Easterbrook and Fischel 1991).

Recent research suggests that this view is too simple. In many circumstances a multilateral contracting approach would open the door to unsolvable free-rider problems. Hansmann and Kraakman (2000) and Hansmann *et al.* (2006) have shown that law has a crucial role in allocating rights over assets among owners, creditors and third parties. Looking at business organisations as a bundle of property rights resonates well with the theory of the firm developed by Grossman and Hart (1986) and Hart and Moore (1990). Property rights are not contractual arrangements, but rather they assign control in uncontracted contingencies. Since property rights are sanctioned by the state, this approach gives the law a crucial role in completing the description of how decisions are taken and conflicts resolved.

The corporate form provides businesses with a number of crucial characteristics of great importance in supporting coordination, long term investment and thus economic development. Corporations are ‘legal entities’, endowed with their own capital, which enter into contracts with other parties through the activities of human agents.

Essential to the corporate form is the possibility for an agent (a human actor) to commit his, or her, principal (the corporation) in a legally enforceable way, as well as a clear distinction between the assets of the agent, the assets of the corporation and the assets belonging to the corporations' providers of capital. Creditors of the corporation cannot seize the assets of the agent (because the agent does not contract obligations when he or she acts for the corporation), nor the assets of the shareholders (limited liability). Similarly, the creditors of the agent cannot seize corporate assets (because the agent does not acquire rights when he or she acts for the corporation) and, also similarly, the creditors of the shareholders cannot seize the assets of the corporation (entity shielding). Finally, shareholders cannot withdraw their capital at will. The only way to exit is the sale of shares, though this right is not inherent to shareholdings but needs to be granted in the corporate charter.

All of these elements are essential to ensure that the corporation can operate as an entity with indefinite and independent life-span, capable of committing to long-term investment and entering into contracts with third parties. Each and every one may be seen as a property right owned by the corporation, not by its shareholders (though collectively they own the corporation, and may alter its charter).

When did these elements emerge? History suggests that it took a long time for the law to produce the necessary legal innovations, and it also clarifies the essential role played by the law. Roman law, the blueprint for modern private and business law, did not provide for the corporate form of private businesses, which created many obstacles to the delegation and separation of obligations. To create an imperfect functional equivalent to a modern business entity, owners had to rely on special legal constructions based on 'status'. In research co-authored with Barbara Abatino (Abatino *et al.* 2011), we have shown that buying a slave (which was 'property') could solve most of the problems that we address above (with one important exception). Several investors could jointly own a slave. The slave could be endowed with assets that became separate from the personal assets of the owners.

Roman law did not admit the notion of agency, so that free business agents could not legally act for their principals and hence any right or obligation accrued to the agent, rather than to the principal; a very impractical way of conducting business.

Slaves, however, were different. Since the slave was not a person under the law, he could not acquire rights or enter into enforceable contracts in his own name and the law developed to recognise the masters' rights and obligations in this case. Moreover, the masters would only have limited liability for the assets initially assigned to the slave, a very modern feature.

Crucially, however, assets given to a slave could be withdrawn at will, making business associations extremely unstable and dependent upon the continuous will of all the equity holders. This structure was well suited for small businesses but could not sustain large, long-term investments. The importance of the commitment of capital for these types of investments has been emphasised by Blair (2003) and Lamoreaux and Rosenthal (2006).

In a joint effort with Oscar Gelderblom and Joost Jonker (Dari-Mattiacci *et al.* 2017), we traced the development of the fundamental elements of the corporate form forward in time, starting from the Roman period, explained their effects on long-term investment and identified their political-economy determinants. We summarise our findings in the remainder of this chapter.

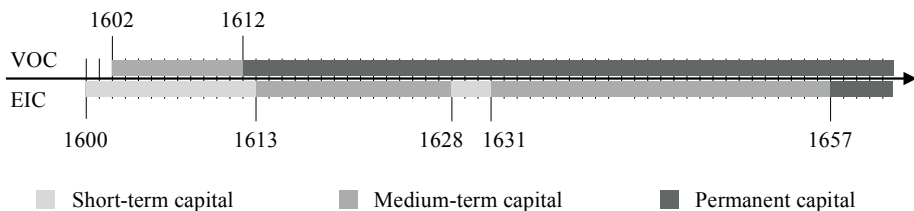
After the decline of chattel slavery in Europe, the limitations of the Roman law became apparent. A partnership was simply a private contract among individuals to share profits and losses, and did not provide for agency, the definition of claims on personal versus business assets, a locked-in capital, or the possibility of exiting by selling the shares to another investor. It took several centuries to overcome these limitations. Without these legal innovations, economic activity based on large-scale, long-term investment could not be supported. Since this evolution casts a long shadow on economic development, it is important to map its emergence.

In the Middle Ages, firms remained strictly personal, creating restrictions of transferability and unlimited personal liability. It has been recognised that businesses in medieval Italy developed entity shielding, so that personal creditors of the owners could not seize the company assets. Parallel, commercial courts recognised the responsibility of the company for acts of its agents, establishing agency. Yet, it was the onset of colonial trade that exposed the limitations of this system and spurred the crucial development of the corporate form.

Trade with Asia required massive capital investments that could be sustained only if capital was collected from a large base and had a long-term horizon. The lack of legally enforceable ways to commit one's capital – partnerships and co-ownerships were private, voluntary arrangements – meant that the standard way of financing trade, until the end of the 16th century, was per voyage. At the return of the fleet, assets would be liquidated and profits shared, and traders would individually decide whether to finance a new voyage or not. The chartering of the East India Company (EIC) by Queen Elizabeth in London in 1600 did not do anything to change things. The EIC was an umbrella outfit, covering individually financed voyages.

It was the Dutch East India Company (VOC), chartered in 1602 in Amsterdam, that produced the missing legal innovation. The EIC and VOC charters were very similar in scope – for instance, both gave the company a national monopoly on trade with Asia and the shares in both companies were formally tradable – but they differed along a crucial dimension. The 1602 VOC charter provided for a medium-term (10-year) lock-in of capital. This meant that assets did not have to be liquidated when the first ships returned, and profits could be reinvested in subsequent voyages and, most importantly, in long-term strategic assets in Asia, such as an Asian fleet, ports and forts. In 1612, the Estates General recognised the perils of abiding by the deadline and extended the maturity of capital indefinitely, making the VOC the first trading company to have permanent capital. The EIC kept running on short- and medium-term capital until 1657.

Figure 1. Capital structure of the VOC and the EIC

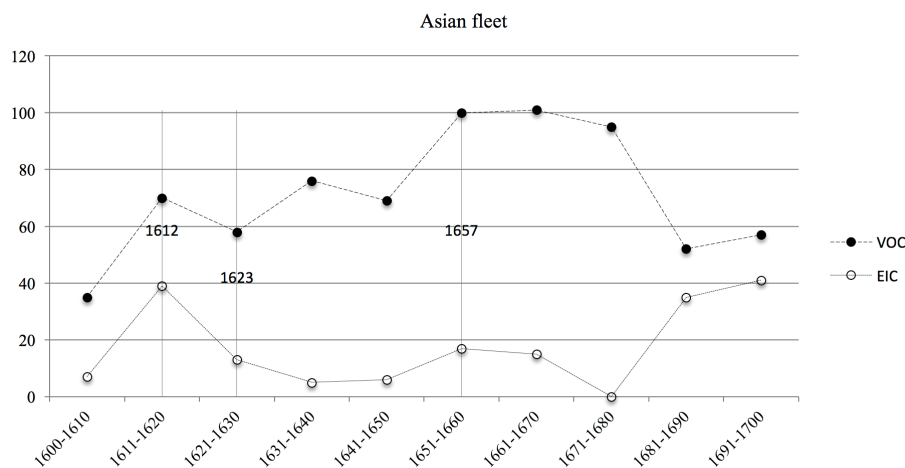


Source: Dari-Mattiacci *et al.* (2017)

The comparison between the VOC and the EIC capital structures (see Figure 1) raises two questions. How important was long-term capital for the two companies? Why did the EIC – or a company elsewhere in the world – not move to permanent capital earlier and why did the EIC do so in 1657?

To address the first question, we looked for proxies for long-term investment in the two companies. The composition of the fleets provides a comparable measure. Trading fleets travelled back and forth, from Europe to Asia, carrying merchandise, people and money. Voyages took several months. The Asian fleet was instead stationed in Asia and provided two services: it secured the area and operated an inter-Asian trade. Having a larger Asian fleet cemented a company's position in Asia, guaranteeing access to local markets and reducing piracy. At the same time, rid of the need to operate local services, the trading fleets could more readily return to Europe. The VOC had a larger Asian fleet (Figure 2) and operated faster trading fleets than the EIC (Figure 3). This indicates that permanent capital allowed the company to make long-term investments more effectively.

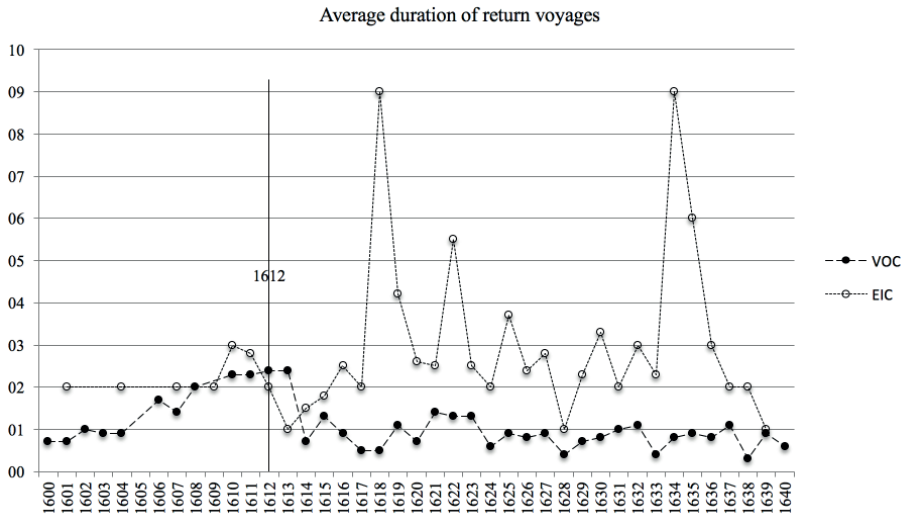
Figure 2. The number of ships in the Asian fleet 1600-1700



Source: Dari-Mattiacci et al. (2017)

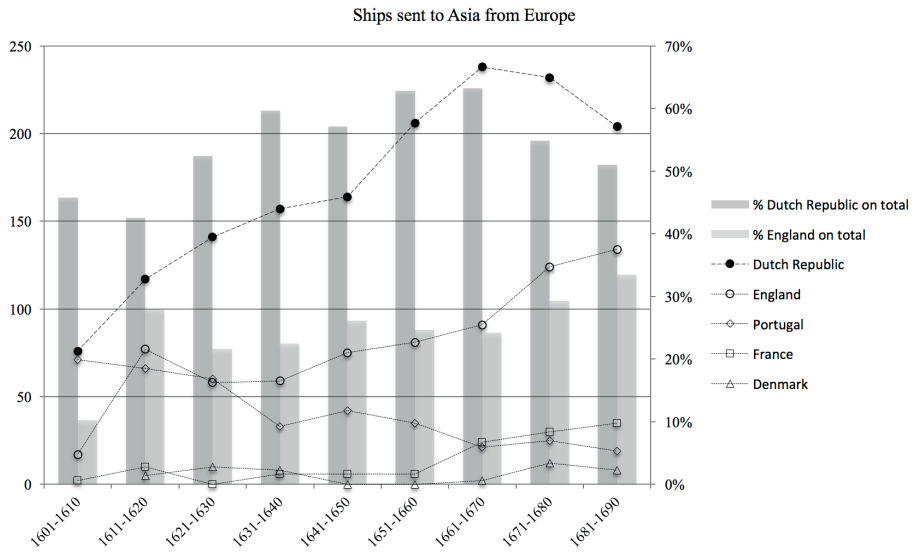
Was this strategy beneficial? The data unambiguously shows a Dutch dominance in Asian trade over the period considered. The Dutch outperformed the English – and all other European powers – in all measurable outcomes (see Figure 4 for one such measure). Moreover, having locked-in their capital, shareholders in the VOC could only exit through selling their shares, which spurred the development of a vibrant stock market.

Figure 3. Average duration of return voyages 1600-1640 (years)



source: Dari-Mattiacci *et al.* (2017)

Figure 4. The number of ships sent from Europe to Asia, 1600-1690



Source: Dari-Mattiacci *et al.* (2017)

So, why did the English not ‘copy’ the Dutch capital-commitment clause in their charter? Communication between the two companies was intense and the historical evidence shows that the English saw the Dutch as a role model. After all, it was only a matter of stating in the charter that capital could not be withdrawn. Why wouldn’t a trader demand – or accept – such a change?

The Dutch Republic was a relatively small country, run by a merchant elite, which had resisted an abusive foreign ruler, Philip II, and declared its independence. Political decisions were in the hands of traders. In contrast, England under Elizabeth and her direct successors was a relatively strong monarchy with little parliamentary oversight. By not committing their capital for the long term, traders were trying to limit their exposure to the monarch’s possible and, as we document, actual attempts to funnel money out of the company in a variety of ways, including by chartering competing companies and extracting payments at each charter renewal. Withdrawal at will gave individual traders a veto power on continuation and protected them from the most outrageous forms of expropriation. Similarly, the EIC charter gave shareholders more voice – through, for instance, regular meetings and the right to receive information – than the VOC charter did, underscoring the traders’ distrust of the ruling elite.

In line with North and Weingast (1999), we find that the situation in England changed with the Civil War in the middle of the 17th century. As the king’s power to raise taxes and wage war was limited by parliamentary oversight, the company moved to permanent capital in 1657. The change crystallised into a new constitutional order, after the Glorious Revolution of 1688. Jha (2015) shows that the political change and the EIC transformation went hand in hand, with shareholdership in the EIC affecting positively political support for parliamentary rule.

Yet, change came too late. While the EIC performance started to improve after permanent capital was introduced, the performance of the VOC remained superior for two centuries. While Kuran (2011) has documented the importance of (the absence of) the corporate form for development in the middle east, more research is needed to shed light on the effects that developing it had on the Dutch advantage in the 17th century, in terms of long-term effects on financial markets, democratic participation, culture and the economy.

References

- Abatino, Barbara, Giuseppe Dari-Mattiacci and Enrico Perotti (2011), “Depersonalization of Business in Ancient Rome”, *Oxford Journal of Legal Studies* 31: 365-89.
- Blair, Margaret (2003), “Locking in Capital: What Corporation Law Achieved for Business Organizers in Nineteen Century America”, *UCLA Law Review* 51: 387-455.
- Dari-Mattiacci, Giuseppe, Oscar Gelderblom, Joost Jonker, and Enrico Perotti (2017), “The Emergence of the Corporate Form”, *Journal of Law, Economics, and Organization* 33, forthcoming.
- Easterbrook, Frank H., and Daniel R. Fischel (1991), *The Economic Structure of Corporate Law*, Cambridge, MA: Harvard University Press.
- Grossman, Sanford J., and Oliver D. Hart. 1986. “The Costs and Benefits of Ownership: A Theory of Vertical and Lateral Integration”, *Journal of Political Economy* 94: 691-719.
- Hansmann, Henry, and Reinier H. Kraakman (2000), “The Essential Role of Organizational Law”, *Yale Law Journal* 110: 387-440.
- Hansmann, Henry, Reinier H. Kraakman and Richard Squire (2006), “Law and the Rise of the Firm”, *Harvard Law Review* 119: 1335-403.
- Hart, Oliver D., and John Moore. 1990. “Property Rights and the Nature of the Firm”, *Journal of Political Economy* 98: 1119-58.
- Jensen, Michael C., and William H. Meckling (1976), “Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure”, *Journal of Financial Economics* 3: 305-60.
- Jha, Saumitra (2015), “Financial Asset Holdings and Political Attitudes: Evidence from Revolutionary England”, *Quarterly Journal of Economics*, 130: 1485-1545.
- Kuran, Timur (2011), *The Long Divergence: How Islamic Law Held Back the Middle East*, Princeton: Princeton University Press.

Lamoreaux, Naomi R., and Jean-Laurent Rosenthal (2006), “Corporate Governance and the Plight of Minority Shareholders in the United States before the Great Depression”, in E. L. Glaeser and C. Goldin, eds., *Corruption and Reform: Lessons from America’s Economic History*. Chicago: University of Chicago Press 125-52.

North, Douglass C., and Barry R. Weingast (1989), “Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England”, *Journal of Economic History* 49: 803-32.

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11 Anti-Semitism in Germany and the geography of hate

Nico Voigtländer and Hans-Joachim Voth

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What causes some people to engage in hate crime, while others remain aloof? Scholars have examined the role of ignorance and political incentives in forming groups dominated by hatred (Glaser 2005). What has remained underexplored is the extent to which cultural transmission predisposes people to hate others, in a fashion similar to that of their ancestors.

In order to explore this question in the case of German anti-Semitism we exploit regional variation in anti-Semitism during two critical junctures, 600 years apart. In the Middle Ages, the Black Death was blamed on the Jews and this exogenously lowered the threshold for violence, resulting in a wave of systematic mass-murder. Similarly, after World War I, growing anti-Semitism made the persecution of German Jews more likely. Again, this created persecution on a wide scale – both before and after 1933.

Crucially, while frequent violence and examples of extreme Jew-hatred were common to both these occasions, they did not occur in all localities. We document that towns and cities that persecuted their Jews in the Middle Ages were also much more likely to show signs of anti-Semitism in the 1920s and 1930s.

We also examine the persistence of attitudes until the present day. Using data from the German general social survey, we show that regional patterns of hatred persisted even across the chasm of 1945 – albeit at a much lower level. Finally, we explore the extent to which attitudes could be modified and amplified by schooling and indoctrination.

The burning of Jews during the Middle Ages

When the Black Death struck in Europe, it caused a demographic catastrophe without precedent. Between 30 and 70 percent of the population died. No disease had spread this quickly, or caused such a massive number of deaths, within living memory. As populations searched for an explanation for this sudden epidemic, their attention turned to the Jews. After one tortured Jew ‘confessed’ to poisoning the wells in cities across Europe, including Venice and Toledo, pogroms occurred in many towns in Northern Europe. Switzerland, Northern France, Germany, and the Low Countries witnessed attacks, often before the Black Death reached them (Cohn 2007). The case of Basle is paradigmatic: On January 9, 1349, approximately 600 Jews were gathered in a wooden house, specially constructed for the purpose on an island in the river Rhine. There they were burned. Contemporary chronicles recorded the events, and in some of them, elaborate wood-prints depict them in graphic detail (Figure 1).

Figure 1: The burning of the Jews during the Black Death



Source: Liber Chronicarum, 1493

At the same time, not all towns with Jewish communities attacked them. Out of 293 towns with confirmed Jewish settlements in the 14th century, 214 recorded pogroms (73%), while 79 did not. The exact reasons for the absence of attacks on Jews are unknown. What is clear, however, is that in some towns, the city authorities or the local prince opposed the burning of the Jews. Nonetheless, where local feelings of anti-Semitism ran particularly high, efforts to save the Jews failed (Foa 2000).

Anti-Semitism in interwar Germany

Long before the rise of the Nazi Party, anti-Semitism had mass support in Germany. Anti-Semitic agitation became stronger in Germany after unification, in 1871. A petition in 1881, signed by over 200,000 people, urged the government to restrict the immigration of Jews, and to limit their occupational choices. Also, anti-Semitic parties gained seats in parliament. And yet, after 1900, anti-Semitism declined, and the parties favouring it all but vanished. What created the conditions for its revival was World War I. The revolution that followed it saw several Jews, such as Rosa Luxemburg, take leading roles; the armistice that ended it was signed by Matthias Erzberger, a pacifist Jew. Many Germans blamed the lost war on Jews.

During the tumultuous early years of the Weimar Republic, several anti-Semitic parties were founded; some achieved a certain degree of electoral success. There was also a wave of hate speeches, desecrations of graveyards, and violent attacks on Jews. In some resorts, as early as the 1920s, Jews were declared 'unwelcome'. We collect data on pogroms of the 1920s from an encyclopedia of Jewish life in Germany (Alicke 2008), and use these pogroms as our first indicator for the strength of anti-Semitic sentiment (Voigtländer and Voth 2012). Table 1 shows how their frequency stacks up, depending on whether a locality had witnessed attacks in the 14th century:

Table 1. Pogroms in 1349 and the 1920s

		Pogrom in 1349		Total
		No	Yes	
Pogroms in 1920s	No	78	196	274
		(98.7%)	(91.6%)	(93.5%)
	Yes	1	18	19
		(1.3%)	(8.4%)	(6.5%)
Total	79	214	293	

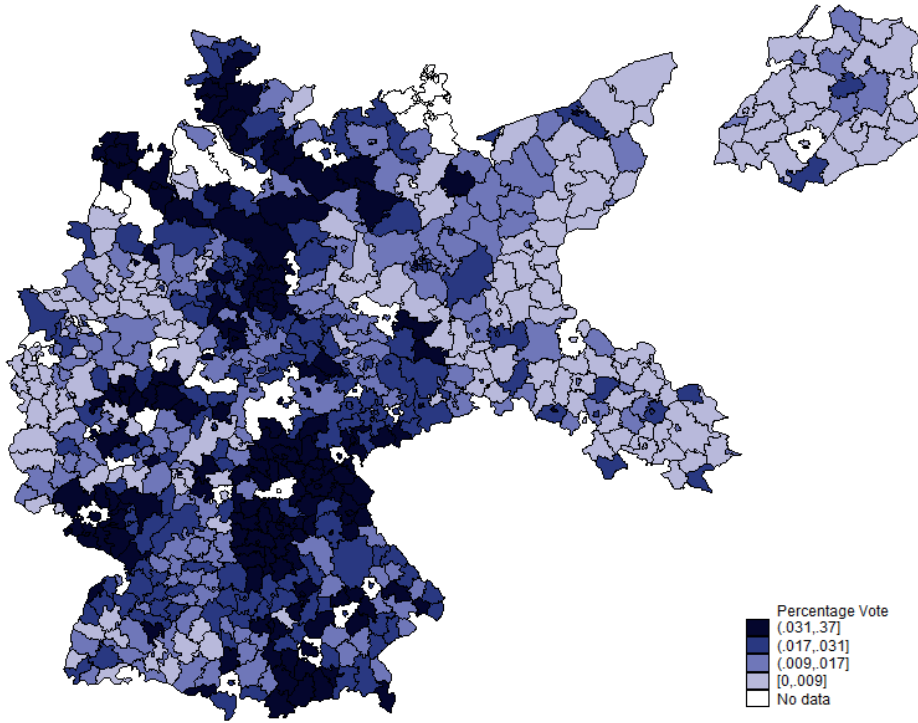
Source: Voigtländer and Voth (2012)

Of the 19 pogroms recorded, fully 18 took place in towns and cities with a record of medieval violence against Jews. The chances of attacks on Jews went up from 1/79 (1.3%) in locations without attacks in the 14th century to 18/214 (8.4%), an increase by a factor of 6.

Other indicators point in the same direction. We use the Nazi Party’s performance at the polls in 1928 as an alternative indicator. This is the last election before the party became a mass-movement, attracting many protest voters – anti-Semitism was a relatively more important factor behind the Nazi Party’s appeal in the 1920s than in later years (Heilbronner 2004). While the overall share of the Nazi Party vote in our sample was not high in 1928 (2.6% nationwide, and 3.3% in our sample), we find that in places with a history of Jew-burning, the Nazi Party received 1.5 times as many votes as in places without. Figure 2 shows that support for the Nazi Party was dispersed across Germany, meaning that our results are not driven by local pockets of radical beliefs.

Letters to *Der Stürmer*, a famously anti-Semitic Nazi paper, tell a similar story. Many of these urge more drastic action against Jews, denounce neighbours still in contact with Jews, etc. We hand-collected the location of each writer of a letter to the editors, published in 1935, 1936 and 1937. After adjusting for differences in population size, there is a clear, strong association with Black Death attacks on Jews.

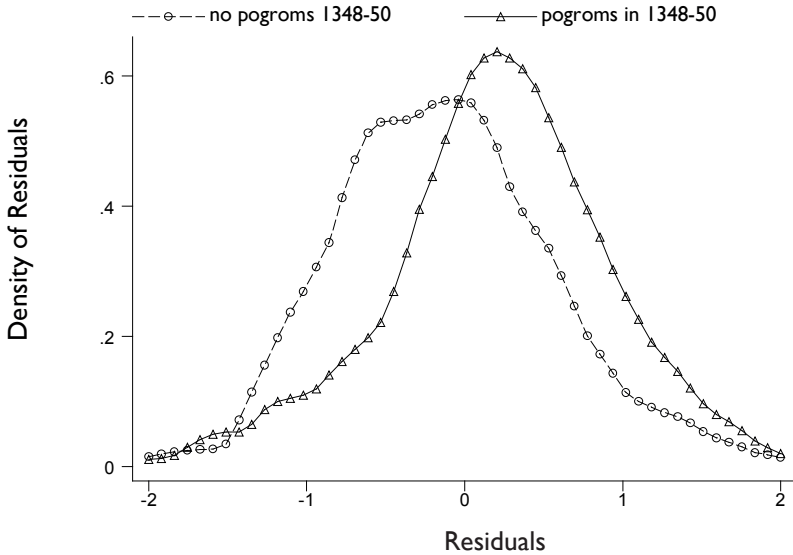
Figure 2. Votes for the Nazi Party, 1928



Source: Voigtländer and Voth (2012)

Similar effects exist for the number of Jews deported after 1939, which in our view reflects at least in part the energy of local party officials in finding those in hiding, and the strictness with which racial criteria were applied, appeals for exceptions turned down, etc. (Figure 3). Finally, we also find that towns and cities where Jews were murdered in 1348-50 saw more attacks on synagogues in 1938, during the so-called Night of Broken Glass. In combination, there is a consistent pattern of association across all five indicators of anti-Semitism between attitudes and actions in the 1920s and 1930s on the one hand, and Black Death pogroms on the other.

Figure 3: Frequency of deportations of Jews, in locations with and without pogroms during the Black Death in 1348-50



How hatred fades away

It is striking that medieval pogroms predict anti-Semitic acts and attitudes some 600 years later. How can racial hatred persist over centuries? The question is all the more puzzling since Jews largely vanished from Germany after the 15th century, and only returned in large numbers in the 19th.

We examine two particular channels that affected the persistence of anti-Semitism. First, we look at cities that grew quickly during the 19th century. Rapid population growth may undermine long-term transmission of attitudes, by diluting the pool of people who hold a particular view. The faster the population growth – heavily concentrated in the industrialising cities – the lower the transmission was. Quickly growing cities were not necessarily ‘nicer’ in the Middle Ages, or in the interwar years. What is different about them is that medieval pogroms predict anti-Semitism in the interwar years to a lower extent than elsewhere.

Second, we examine the interplay of a city's economic function and long-term transmission. Montesquieu famously argued that trade made for civility, and Steven Pinker has recently argued that the “better angels of our nature” – motivators for the long-term decline in interpersonal violence – are partly driven by commercial interest. We find that two types of cities, the Hanseatic trading cities of the North and the trade-oriented Southern German cities, showed much lower long-term transmission. This seems to suggest that, where financial self-interest is at variance with a hate-fuelled view of the world, persistence can be systematically lower. In other words, one of the reasons why persistence in the less trade-oriented towns and cities may have been high is that there was no trade-off between parents equipping their children for success in life, and the transmission of anti-Semitic views. In addition, people in trading cities may have had more frequent personal dealings with Jews and other foreigners, which may have enhanced tolerance overall.

Persistence after 1945

How much of the deep roots of anti-Semitism is still visible in modern-day data? To answer this question, we look at the German social survey (Voigtländer and Voth 2015). We first show that there is persistence, even across the chasm of 1945.

The German Social Survey (ALLBUS) asked individuals in 1996 and 2006 about their attitudes towards Jews. It included questions such as “Are Jews trying to exploit their victim status for financial gain?”. Table 2 provides an overview.

The entries in this table we aggregate into an overall score of anti-Semitic beliefs, by looking both at averages as well as the share of extremists (i.e., those answering 5 or higher on a scale from 1 to 7).

Interestingly, there is also substantial regional variation. As Figure 4 shows, some regions in Germany are much more anti-Jewish than others. On average, 17% of Germans answer with strongly anti-Semitic views to the question “Do you think that Jews partly brought persecution in the 20th century on themselves?” However, in some areas the share is more than twice as high, reaching 38% in the most extreme case.

Table 2: Attitudes towards Jews in Germany, 1996/2006

	least anti-Semitic				most anti-Semitic		
	1	2	3	4	5	6	7
Do Jews have too much influence in the world?	30.4	12.5	10.3	19.7	10.5	7.5	9.2
Jews are responsible for their own persecution	44.4	14.7	7.5	16.3	7.5	4	5.5
Jews should have equal rights	36.5	13.4	10.6	18	8	6.2	7.3
I feel ashamed about German crimes against Jews	52.5	15.4	9.7	9.3	4.1	3.2	5.8
Jews exploit their victim status for their own advantage	14.6	11	8.8	20.1	13.2	12.2	20.3
How do you feel about a Jew marrying into your family?	8.5	8.1	8.8	49	8.9	6.6	10.2
How would you feel about having a Jewish neighbour?	13.6	12.7	11.4	50.4	4.7	3.4	3.7

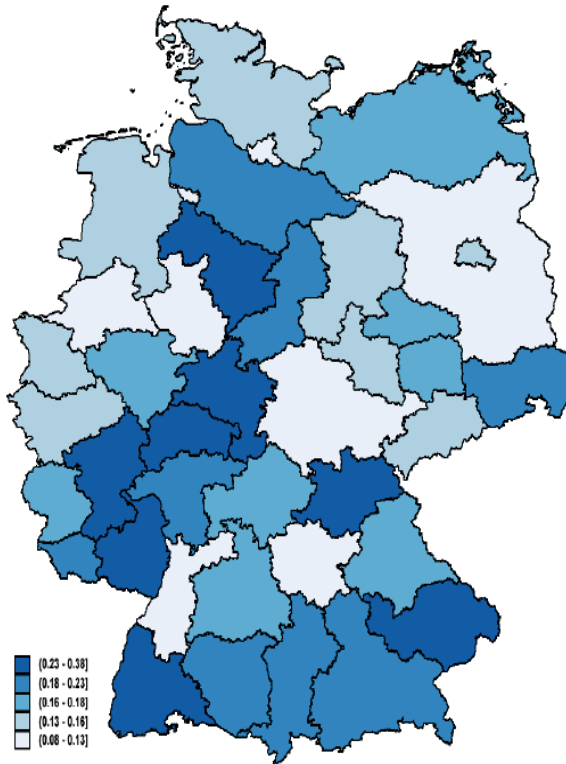
The table summarises attitudes towards Jews in Germany, as reflected in seven consistent questions in two waves of the ALLBUS survey in 1996 and 2006. The table gives the share of respondents in each category, where all answers were ordered so that 1=least anti-Semitic and 7=most anti-Semitic. Rows sum to 100%.

Source: Voigtländer and Voth (2015)

While some of the variation can be explained by medieval pogroms, overlap between the sample of medieval cities with Jews on the one hand, and survey locations for ALLBUS, on the other, is limited. While we find a positive relationship, it is hard to detect statistically significant patterns. To examine persistence, we look at voting patterns for anti-Semitic parties during the Imperial period in Germany.

We find a good deal of persistence to the present (Figure 5). Places in the lowest tercile of anti-Semitic votes in the period 1890-1912 show both lower *average* anti-Semitism today as well as markedly lower share of extremists than those in the highest tercile. Arguably, the results for *extremists* are the most striking. Going from the lowest to the highest tercile in terms of historical anti-Semitism is associated with more than a doubling of the share of extremists.

Figure 4. Distribution of Extreme Anti-Semitic Views



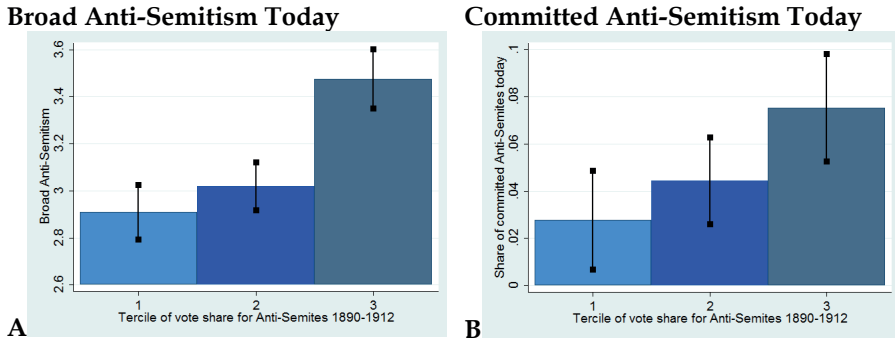
Notes: The figure shows responses to the question “Do you think that Jews partly brought persecution in the 20th century on themselves?” Answers range from 1 (strongly disagree) to 7 (strongly agree). We map the share of the population giving a score of 5, 6, or 7.

Source: Allbus 1996 and 2006.

The effects of Nazi schooling

Next, we examine how the extent of long-term transmission was modified by Nazi indoctrination – through schools, the Hitler Youth, and propaganda. We show that it permanently increased the level of anti-Semitism among Germans born in the 1920s and 1930s. These effects are still visible in attitudes recorded more than half a century later, but the magnitude of the effect depends on pre-existing attitudes amongst parents and grandparents.

Figure 5. Contemporaneous, individual-level, anti-Semitic attitudes and historic voting patterns.



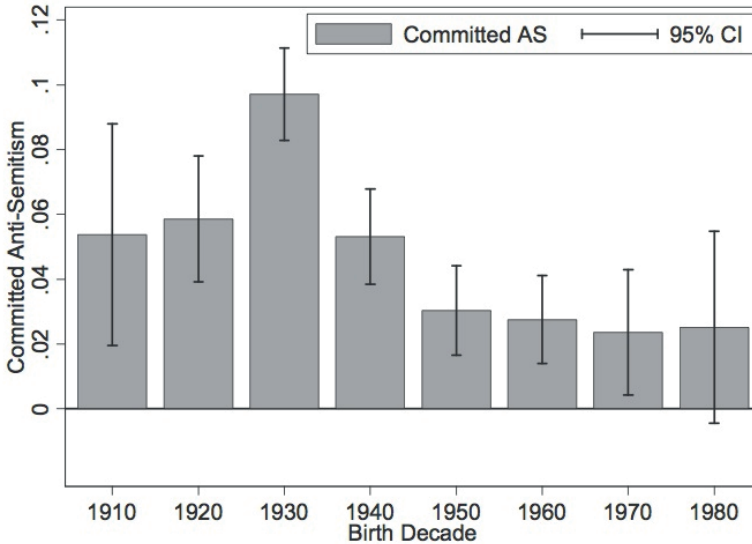
Notes: (A) shows the average of our broad anti-Semitism measure (on a scale from 1-7, with 7 the most anti-Semitic); (B) shows the share of committed anti-Semites (individuals answering 5 or higher on three specific Jew-related questions). Data is grouped into terciles based on electoral support for anti-Semitic parties in the period 1890-1912. Overall, the two figures show that modern-day anti-Semitism is consistently and significantly greater in areas with higher levels of historical electoral support for anti-Jewish parties.

Source: Voigtländer and Voth (2015)

Figure 6 shows the share of extremists – Germans who answered 6 or more on a scale from 1 to 7 for three Jew-specific questions. In the cohorts born after 1950, the share of extremists thus defined is around 3%. For those born in the 1930s, the proportion is fully three times higher – close to 10%. The effects of indoctrination are not confined to extremists. In general, we find that levels of anti-Semitism are much higher for those born in the 1920s and 1930s – average negativity towards Jews is markedly higher in these cohorts.

Where was exposure of young minds to Nazi schooling particularly corrosive? To examine factors that may have amplified or dampened the effects of indoctrination, we look at the voting results for anti-Semitic parties from the late Imperial period. Where they proved popular, people born in the 1920s and 1930s are markedly more anti-Semitic, right up to today – and, importantly, the higher the level of historical anti-Semitism, the greater the increase of Jew-hatred during the Nazi period. This suggests that indoctrination was at its most effective where it could build on a basis of pre-existing prejudice. Conversely, in areas where people were not visibly anti-Semitic in 1890-1912, Nazi schooling created much less of a surge in anti-Jewish beliefs.

Figure 6. Share of committed anti-Semites by birth decade.



Notes: The figure shows the proportion of respondents who answer with 6 or more (on a scale of 7) on each of three Jew-specific questions asked in ALLBUS: “Do Jews have too much influence in the world?,” “Are Jews partly responsible for their own persecution?,” and “Are Jews trying to exploit their victim status for financial gain?”

Source: Voigtländer and Voth (2015)

Nazi indoctrination proved extraordinarily powerful. In contrast to studies using small-scale interventions, subjecting an entire population to the full power of a totalitarian state was extremely effective. As one member of the Hitler Youth recalled (Heck 1988): “*We who were born into Nazism never had a chance unless our parents were brave enough to resist the tide and transmit their opposition to their children. There were few of those*”. At the same time, as our evidence shows – and the quote suggests – family and the social environment can isolate young minds from the effects of indoctrination at least to some extent.

Summary

Our findings reinforce recent research in economics that documents just how persistent culture is. Raquel Fernandez and Alessandra Fogli (2009) show that the fertility of the children of immigrants to America is still influenced by social norms in the home countries from which their parents came;

Nathan Nunn and Leonard Wantchekon (2009) argue that areas in Africa affected by the slave trade in the 19th century still show lower levels of trust; and Saumitra Jha (2013) found that Indian cities with a history of peaceful coexistence between Muslims and Hindus had lower levels of inter-ethnic violence in the recent past. In this context, our findings are striking because they concern anti-Semitism, a trait without any direct economic benefit (and probably some harmful economic consequences over the long run), and because we document persistence over a much longer time horizon than other studies.

References

Alicke, Klaus-Dieter, 2008. *Lexikon der jüdischen Gemeinden im deutschen Sprachraum: Bd.1: Aachen - Groß-Bieberau, Bd.2: Großbock - Ochtendung, Bd. 3 Ochtrup - Zwittau*. Gütersloher: Gütersloher Verlagshaus.

Cohn, Samuel Kline, 2007. "The Black Death and the Burning of Jews." *Past & Present* 196(1): 3-36.

Fernandez, Raquel, and Alessandra Fogli, 2009. "Culture: An Empirical Investigation of Beliefs, Work and Fertility." *American Economic Journal: Macroeconomics* 1(1), 146-177.

Foa, Anna, 2000. "The Jews of Europe after the Black Death." *European Review* 9(02): 237-238.

Glaeser, Edward, 2005. "The Political Economy of Hatred." *Quarterly Journal of Economics* 120(1): 45-86.

Heck, A. *The Burden of Hitler's Legacy*, Phoenix: American Traveler Press.

Heilbrunner, Oded, 2004. "German or Nazi Anti-Semitism?" In *The Historiography of the Holocaust*, edited by Dan Stone. New York: Palgrave Macmillan.

Jha, Saumitra, 2013. "Trade, Institutions and Religious Tolerance: Evidence from South Asia." *American Political Science Review*, Vol 107, No 4.

Nunn, Nathan, and Leonard Wantchekon, 2009. “The Slave Trade and the Origins of Mistrust in Africa.” NBER Working Paper No. 14783.

Voigtländer and Voth (2015), “Nazi Indoctrination and Anti-Semitic Beliefs in Germany”, PNAS 2015.

Voigtländer, Nico, and Hans-Joachim Voth, 2012. “Persecution Perpetuated: The Medieval Origins of Anti-Semitic Violence in Nazi Germany”, *Quarterly Journal of Economics*.

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His research has appeared in the *Quarterly Journal of Economics*, *American Economic Review*, *Review of Economic Studies*, *Economic Journal*, *Journal of Economic Growth*, *European Economic Review*, *Explorations in Economic History*, *Journal of Economic History*, as well as in three academic books (including, in 2014, *Lending to the Borrower from Hell: Debt, Taxes, and Default in the Age of Philip II*, Princeton University Press).

12 Social structure and development: A legacy of the Holocaust in Russia

Daron Acemoglu, Tarek A. Hassan, and James A. Robinson

MIT, and CEPR; University of Chicago, and CEPR; University of Chicago, and CEPR

he persecution and mass murder of Jews by the Nazis during World War II had a long-lasting effect on the economic and political development of the societies left behind: Russian cities that experienced the Holocaust most intensely have grown less, and both cities and administrative districts (oblasts) where the Holocaust had the largest impact have worse economic and political outcomes since the collapse of the Soviet Union.

The mass-murder of as many as six million Jews in the Holocaust during the Second World War was a major cataclysmic event for Europe, Russia, and the World. Nevertheless, it appears that the quantitative consequences of the Holocaust for long-run economic and political development in the societies left behind have not previously been examined.

Figure 1 shows a simple way of quantifying the effect of the Holocaust on the population growth of Russian cities.¹ The vertical axis plots population growth over the 50-year period between 1939 (the year World War II began) and 1989 (the year of the last Soviet census). The horizontal axis plots a simple measure for the severity of the Holocaust in each city: the pre-war fraction of the population of Jewish origin interacted with information on which areas were under German occupation during the Second World War. Cities furthest to the right are thus the ones most affected by the Holocaust according to this measure.

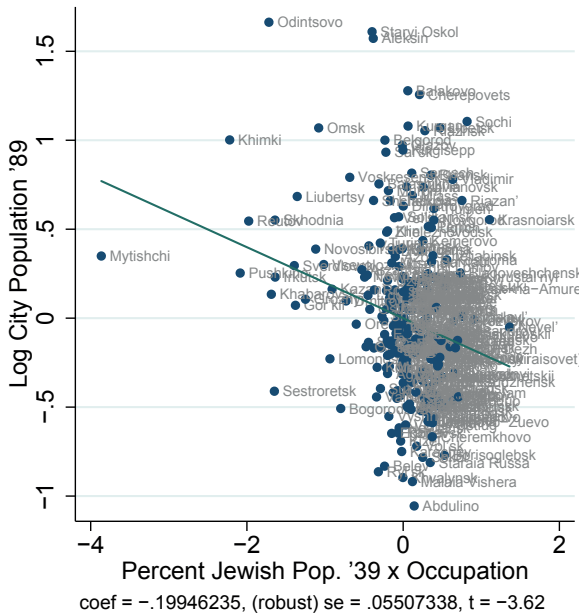
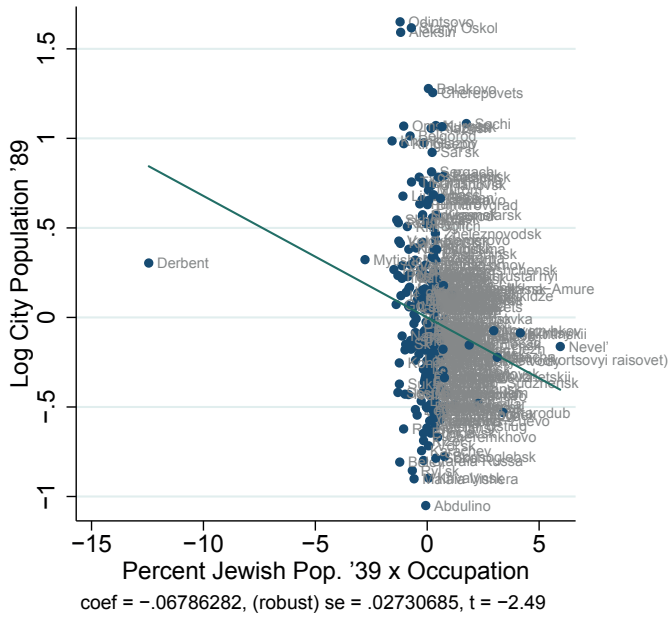
¹ By Russia we henceforth mean the Russian Soviet Federated Socialist Republic and not the other Republics such as the Kazakh S.S.R., the Uzbek S.S.R., etc.

The scatterplot shows a negative and statistically highly significant association: an occupied city with a 1% share of Jewish population in 1939 is 7.7% smaller in 1989 than it would otherwise be.

Because the share of the city population that is of Jewish origin is typically small (it is on average 2.01% for occupied cities and 0.45% for non-occupied cities), this sizeable effect cannot be accounted for by the direct effect of the Holocaust on the Jewish population, suggesting that it had a much more far-reaching impact on the economic development of the affected cities. In fact, when comparing our measure of the impact of the Holocaust with data for wages and elections, we find that cities where the Holocaust was more intense have voted in greater numbers for communist candidates since the collapse of the Soviet Union and have significantly lower average wages today. The severity of the Holocaust is thus also associated with lower economic performance and with different political outcomes, more than a half-century after the fact. We find similarly long-lasting effects when studying data for Russian oblasts (administrative regions similar to US counties), where the oblasts most affected by the holocaust have lower levels of per capita income, tended to exhibit greater vote shares for communist candidates during the 1990s, and higher support for preserving the Soviet Union in the referendum of 1991.

By its nature, our evidence is based on historical correlations and should thus be interpreted with caution. We cannot rule out the possibility that some omitted factor might be responsible for the statistical association between the severity of the Holocaust and the long-run economic, political and social development of Russian cities and oblasts. Nevertheless, the patterns are generally robust across different specifications. We also show that, prior to the Second World War, the economic performance of these areas did not exhibit differential trends.

Figure 1. Growth of Russian cities 1939-1989 and potential impact of the Holocaust



Left Panel: Conditional scatterplot corresponding to Table 2, Column 3.
 Right Panel: Conditional scatterplot when dropping Derbent.
 Robust regression: coef= $-.1847944$, se= $.0476301$.

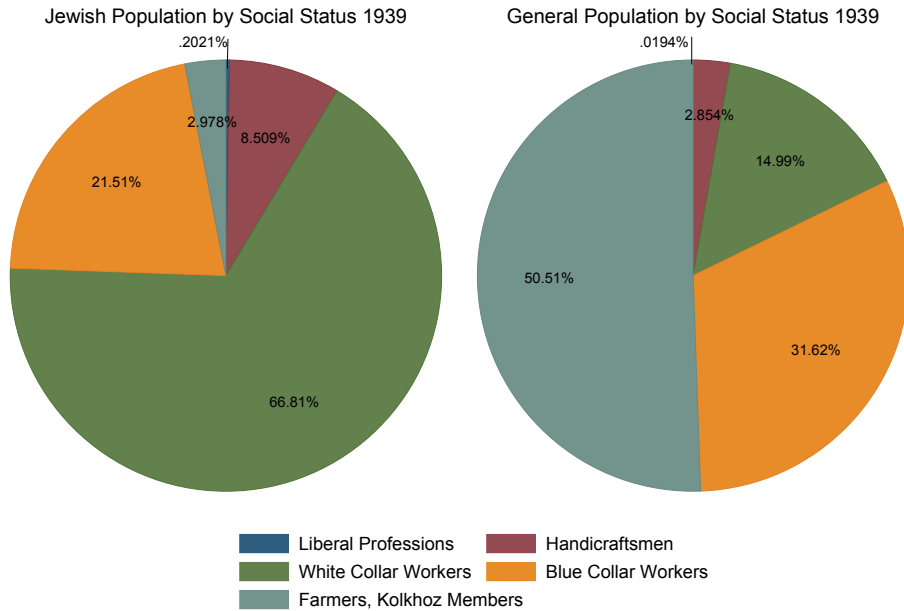
We investigate two possible channels through which the Holocaust may have caused a divergent trend across Russian cities and oblasts: (1) its impact on social structure (the size of the middle class); and (2) its impact on educational attainment. There is a long tradition in social science linking social structure, in particular the presence of a large middle class, to political and economic development.² Before the initiation of Operation Barbarossa on June 22, 1941, which led to the German occupation of extensive parts of Western Russia, Jews were heavily overrepresented in what we would typically consider to be middle class occupations. Over 67% of the Jews living in Russia held white collar jobs, while only about 15% of non-Jews had white-collar occupations (see Figure 2). Jews thus constituted a large share of the middle class. For example, in the occupied areas with the largest Jewish communities, 10% of white collar workers in the trade and health care sectors and 68% of all physicians were Jewish. After the invasion of the Soviet Union, the Nazis initiated the Holocaust and systematically persecuted and murdered the Jewish population of the territories they occupied. The Holocaust was therefore a major shock to the social structure of the invaded regions. We document a statistical association between the Holocaust and the size of the middle class after the war (in 1959) and more recently (in 1970, 1979 and 1989).

One complication with interpreting the channel between the Holocaust and contemporary outcomes is that, until the 1990s, the Soviet Union was a centrally planned economy. However, the presence of central planning does not rule out potential local economic and political effects. For example, the size of the middle class may have influenced economic and social development through political channels because the local bureaucracy and local party officials were typically recruited from the middle class. Removing a large part of the middle class may thus have tilted the local political equilibrium away from rewarding individuals for their hard work and may have had a detrimental effect on the local administration, deterring middle class people from other parts of the Soviet Union from settling in the area.

2 Moore, Barrington (1966) viewed the size of the middle class as a key factor in promoting political development. Recent works emphasising this viewpoint include Huntington (1991), Norman and Lipset (1959). Acemoglu and Robinson (2006) propose a mechanism for the potential effects of the size of the middle class on political development.

Such a process would explain why we find simultaneously a smaller middle class, higher support for the preservation of the Soviet Union, and lower GDP per capita in these areas after 1989. Alternatively, the initial shock to the size of the middle class may have propagated through central planning itself.³

Figure 2.



Although the effect on the size of the middle class is a plausible catalyst for large adverse effects of the Holocaust over the long term, the evidence we are able to provide is again based on historical correlations. We thus exercise due caution in the interpretation of our results. An obvious challenge is that Russian society was subject to other large and persistent shocks throughout both the 1920s, 1930s, and during the postwar era. These include the Stalinist purges in the 1930s and the great famine that struck the countryside in 1932 and 1933, following the collectivisation of agriculture and the draconian grain-requisitioning policies.

3 The existing consensus is that Soviet economic planning determined the allocation of resources in a highly history-dependent manner (Roland 2000). Thus the post-war changes in the occupational, industrial, and educational mix of a city or an oblast could have plausibly affected what types of resources were allocated to that area in future plans, leading to an overall pattern of divergence triggered by post-war differences.

Perhaps most importantly, the entire Soviet Union suffered a tremendous loss of life and hardship under German occupation.⁴ These shocks, terrible though they were, appear not to confound our results. The famine mostly devastated rural areas, but most Jews were in urban areas. The Stalinist purges also caused much damage for Russians and Jews, and may be confounding our results (though the purges before the Second World War were not specifically targeted at Jews, but at supposed opponents of the regime). As an attempt to separate the effects of the Holocaust from other potential long-run impacts of German occupation, we report both results that rely only on comparisons among cities occupied by the Nazis, and results from regressions that control for estimates of the total loss of life. These results are very similar to our baseline findings.

Finally, it is unclear how the economic interpretation of our findings would generalise beyond the Russian context. First, as noted above, central planning during the Communist era may have contributed to the persistent impact of the Holocaust on social structure. Second, the relationship between the size of the middle class and political and economic development may have been qualitatively different during the Communist era than in a market economy.

Conclusion

Russian cities worst affected by the Holocaust experienced a persistent fall in the size of the local middle class, and suffer worse economic and political outcomes to the present-day. Overall, the pattern of historical correlations is consistent with possible adverse long-run economic and political effects of major shocks to social structure, and in particular the size of the middle class.

Since the publication of our paper, a number of other studies have found evidence linking sociological factors to long-term economic growth, arguing that a society's social structure and its network of relationships are a fundamental determinant of economic growth.⁵

4 The total loss of Russian life during the war is estimated to be about 26-27 million (Ellman and Maksudov 1994).

5 For surveys see Fuchs-Schündeln and Hassan (2015) and Chaney (2016)

References

Acemoglu, Daron and James A. Robinson (2006), *Economic Origins of Dictatorship and Democracy*, New York: Cambridge University Press

Chaney, T. (2016), “Networks in International Trade», in *Oxford Handbook of the Economics of Networks*, ed. by Y. Bramoullé, A. Galeotti, and B. Rogers, Oxford University Press.

Ellman, Michael and Sergei Maksudov (1994), “Soviet Deaths in the Great Patriotic War: A Note”, *Europe-Asia Studies*, 46, 671-680

Fuchs-Schündeln, N. and T. A. Hassan (2015), *Natural Experiments in Macroeconomics*, Working Paper 21228, National Bureau of Economic Research

Huntington, Samuel P. (1991), *The Third Wave: Democratization in the Late Twentieth Century*, University of Oklahoma Press

Moore, Barrington (1966), *Social Origins of Dictatorship and Democracy*, Boston; Beacon Press

Norman OK and Lipset, Seymour M. (1959), “Some Social Requisites of Democracy: Economic Development and Political Legitimacy”, *American Political Science Review*, 53, 69-105

Roland, Gerard (2000), *Transition and economics: politics, markets, and firms*, Cambridge: MIT Press.

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The Kiel Institute's 2013 Excellence Award in Global Economic affairs, an NSF Research Grant, and a Scholarship from the German National Academic Foundation are amongst Hassan's other varied honors, scholarships, and fellowships. Professor Hassan's work has appeared in the *Quarterly Journal of Economics*, the *American Economic Review*, and the *Journal of Finance*. With research experience at Harvard University, UC Berkeley, and the University of Mannheim, the breadth of Hassan's experience also includes visiting positions at Stanford University, the London School of Economics, and London Business School.

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His main research interests are in comparative economic and political development and he is currently conducting research in the Democratic Republic of the Congo, Haiti, the Philippines, Sierra Leone, and in Colombia where he has taught for many years during the summer at the University of the Andes in Bogotá.

13 The Pale of Jewish settlement and persistent anti-market culture

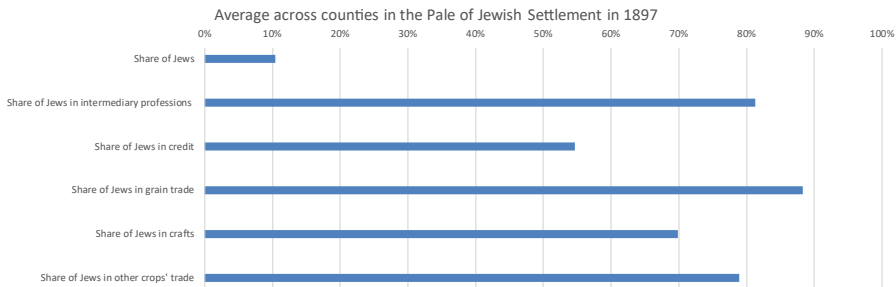
Irena Grosfeld and Ekaterina Zhuravskaya

Paris School of Economics; Paris School of Economics and CEPR

Culture affects economic outcomes in the long run (see, e.g., surveys by Fernandez 2011 and Alesina and Giuliano 2015) and so does ethnic cleansing (see, e.g., Blatmann and Miguel 2010 for a survey). But, does ethnic animosity shape culture? Our research (Grosfeld *et al.* 2013) sheds light on this question by, first, documenting persistent effects of historical Jewish presence in Eastern Europe on political preferences, occupational choices, social capital, and attitudes towards market; and, second, showing that these legacies, at least in part, can be explained by the anti-Semitic culture that non-Jewish majorities developed in the face of economic and social rivalry with Jewish minorities in Eastern Europe before the Holocaust. What did this anti-Semitic culture entail? The answer to this question lies in understanding what Jews represented as a group in the eyes of non-Jews.

Historians documented that Jews performed distinct social and economic functions in the places where they were allowed to live in Eastern Europe. In contrast to the non-Jewish population, the vast majority of which were engaged in farming and unskilled work, Jews had predominantly white-collar occupations. They were traditionally involved in market and financial intermediary activities, such as trading and credit provision. The proportion of entrepreneurs and the self-employed among Jews was also much higher than among representatives of the non-Jewish population. Figure 1 illustrates that Jews were substantially over-represented in market intermediary professions, compared to their share in the population.

Figure 1. The share of Jews in the population and the share of Jews in intermediary professions in the areas where Jews were allowed to reside in the Russian Empire, Census 1897

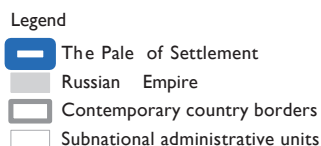


Overall, historians attribute to the Jews of 18th – 20th century Eastern Europe the role of being a driving force of market development and capitalism, in what was predominantly backward agrarian society. We argue that, at the time when Jews and non-Jews co-existed in Eastern Europe, because of the traditional occupations of Jews as market intermediaries, the non-Jewish population stigmatised such activities; and that this culture, which we call anti-market culture, persists to date and has first order implications for the political and economic choices of the population, in areas where Jews used to live.

Jewish presence in the Russian empire was confined to a special area called the Pale of Jewish Settlement; it covered a vast territory in the heart of Eastern Europe (see map in Figure 2).

Jews accounted for 37% of the urban population and 11% of the total population of the Pale of Jewish Settlement. The Pale was instituted at the end of the 18th century, after the Russian Empire acquired the vast territory of the Polish-Lithuanian Commonwealth, where Jews had been living since the 14th century. In order to keep Jews, alien to Orthodox Russia, away from the centre of the Empire, Catherine the Great made a list of western provinces (subsequently called the Pale), allowing Jewish residence only in urban settlements and only within these territories.

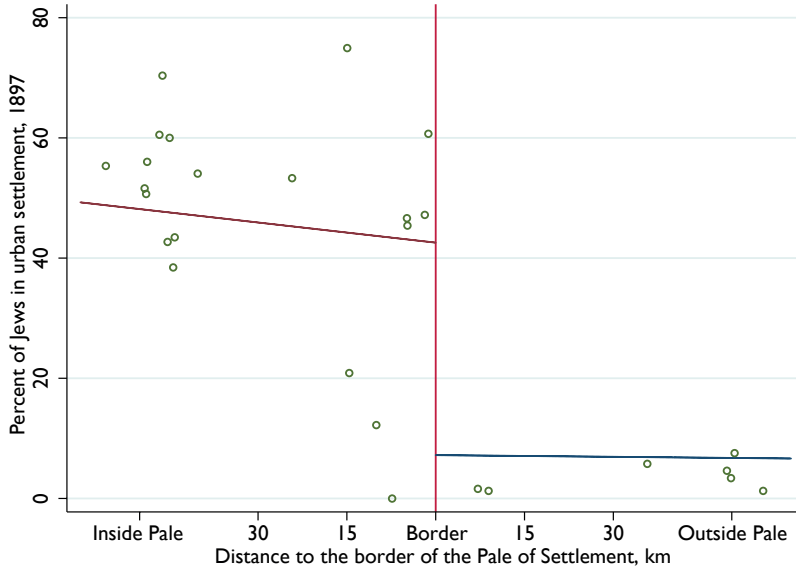
Figure 2. The map of the Pale of Jewish Settlement



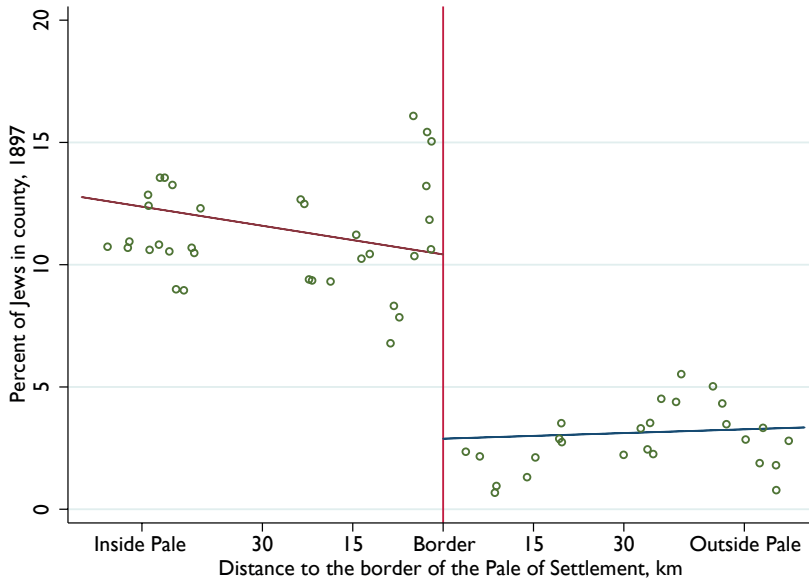
Historical sources point out that the Pale border within the Russian Empire was arbitrary. The border was also binding and enforced. Attempts by the Jews to migrate to the East, i.e., to areas outside the Pale in the Russian Empire, as a rule, resulted in expulsions. Figure 3 illustrates the sharp discontinuity in the share of Jews at the Pale border between large urban settlements (panel A) and counties (panel B) in close proximity to it. The horizontal axes show the distance to the Pale border (inside and outside the Pale) and the vertical axes show the average share of Jews.

Figure 3. Discontinuity of historical Jewish presence at two sides of the border of the Pale of Jewish Settlement, 1897

Panel A. Urban settlements



Panel B. Counties



The Pale of Settlement defined the pattern of Jewish residency up to the Second World War. Formally, all restrictions on Jewish residence inside Russia were eliminated by the February revolution of 1917. However, the migration patterns did not eliminate the substantial discontinuity of Jewish share at the Pale border until the war. (A significant minority of Jews did move abroad and to large cities inside Russia, but migration just across the Pale border was insignificant). As a result of the Holocaust, Jews were removed from the urban areas inside the Pale, while leaving the social and ethnic structure of the population outside the Pale, but inside Russia, practically intact. After the war, the ethnic and religious composition of the population on the two sides of the border became indistinguishable, and therefore, any discontinuity at the Pale border today cannot be driven by the differences in the ethnic structure of the population and represent the causal long run legacy of the former presence of Jews on one side of the border of the Pale of Settlement.

Thus, we examine a discontinuity in contemporary outcomes on the two sides of the Pale border (Grosfeld *et al.* 2013), in urban areas, where Jews used to live inside the Pale, and rural areas, where Jews were not allowed to live on either side of the Pale border. Even though our analysis relies on cross-sectional geographic variation, which inherently leaves room for an omitted variable bias, we focus primarily on the estimation of a discontinuous jump at the Pale border, whose binding nature helps causal identification.

We find that current urban residents of the Pale area (if compared to their counterparts outside the Pale, but inside the former Russian Empire) exhibit significantly higher aversion to markets and market reforms. In particular, they vote less for political parties with pro-market liberal ideology and more for anti-market parties with socialist or communist ideology, express lower support for the market, are less satisfied with the progress of market reforms during transition, and are less engaged in entrepreneurship. We illustrate contemporary discontinuities at the border of the Pale for the beliefs that market economy is a good economic system and for the level of entrepreneurial activity for urban residents in figures 4 and 5, respectively.

Figure 4. Discontinuity of today's preference toward markets at two sides of the border of the historical Pale of Jewish Settlement, Life in Transition Survey, 2006

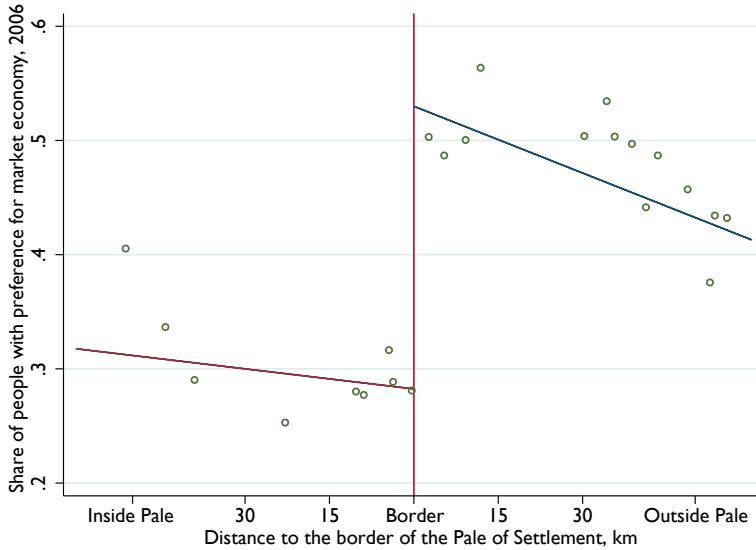
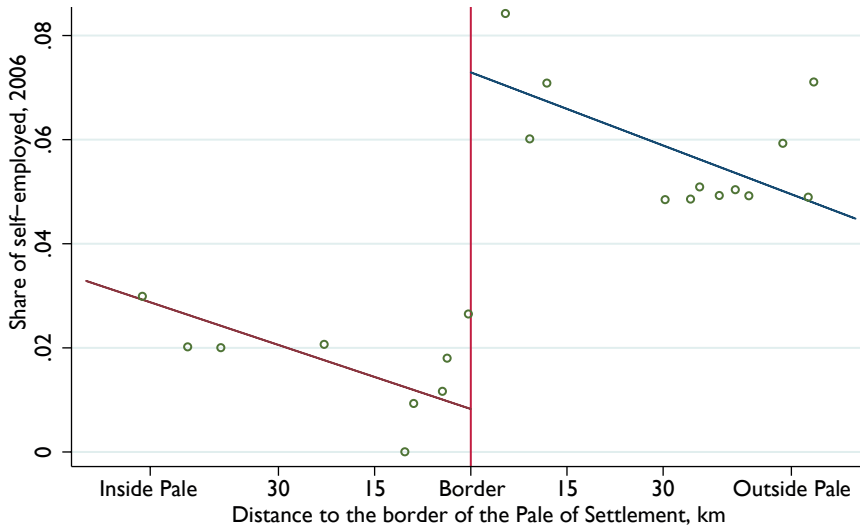
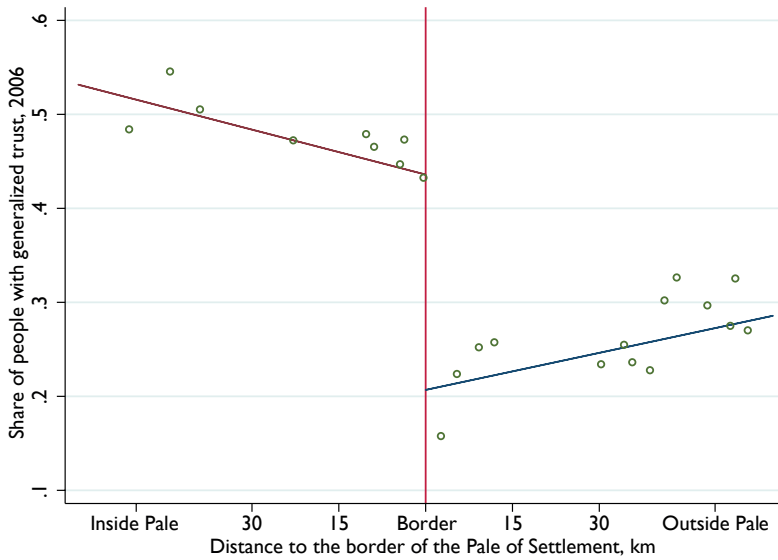


Figure 5. Discontinuity of contemporary level of entrepreneurial activity at two sides of the border of the historical Pale of Jewish Settlement, Life in Transition Survey, 2006



At the same time, current urban residents inside the Pale exhibit higher levels of generalised trust, compared to urban residents outside the Pale, as illustrated in Figure 6. This is particularly remarkable, as levels of generalised trust and entrepreneurship are usually positively correlated, but this relationship is reversed at the Pale border.

Figure 6. Discontinuity of contemporary generalised trust at two sides of the border of the historical Pale of Jewish Settlement, Life in Transition Survey, 2006



These basic results are robust across a wide range of specifications.¹

We repeat our regression-discontinuity analysis for rural areas and find no significant differences in any of the considered outcomes for rural residents, which is what one expects if the differences at the Pale border are driven by the former Jewish presence on one of its sides, as Jews were not allowed to live in rural areas on either side.

1 We find no effect of the Pale border on such contemporary economic outcomes in urban areas as consumption, income, education, or unemployment. Similarly, in another study, which considers long-term effects of former borders of the partitions of Poland, we find that the differences in cultural attributes persist, but the differences in such economic outcomes, as consumption, income, or the level of education, do not persist over time (Grosfeld and Zhuravskaya 2015).

The effects of the Pale border that we find could be due either to the presence of Jews inside the Pale before WWII, or to the inflow of new migrant population filling the space emptied by the disappearance of Jews after WWII. We test and reject the second hypothesis by showing that current residents of the areas that experienced a substantial renewal of the population, caused by a mass outmigration of non-Jews (i.e., Poles and Germans) after WWII, do not exhibit similar attitudes, political preferences, or occupational choices to those of the residents of the Pale. Therefore, we conclude that the anti-market sentiment, lower entrepreneurial activity and higher trust, in urban areas inside the Pale today, are related to the former presence of Jews in these areas.

We next examine the mechanism behind the Pale effect. Jews and Gentiles inside the Pale's urban areas were historically organised into two internally coherent communities, with different traditions, prohibitions, mythologies, languages, beliefs and values, and were engaged in little interaction beyond market transactions. The presence of Jews created a challenge for the non-Jewish population, as Jews were dominant in several important economic niches that the non-Jewish community aspired to control. This competition created demand for ethnic hatred (Glaeser 2005); indeed, the relationship between the two communities was dominated by animosity, often resulting in open outbursts culminating in pogroms.

We hypothesise that this close co-existence with the Jews created pressure within the non-Jewish population inside the Pale to develop strong ties of loyalty in their community in response and in opposition to strong the ties within the Jewish community, which are part of traditional Jewish culture. This type of internal trust, limited to a close and homogenous group of people, belonging to the same community, is known as 'bonding' (rather than 'bridging') trust. Further, in the face of the rival group, the non-Jewish population developed values that are contrary to those associated with the Jewish group. Since Jews represented a liberal pro-market force, ethnic animosity contributed to the development of an anti-market culture among the non-Jewish population. The development of within-group trust and an anti-market culture amongst the non-Jewish population was a response to the challenge of co-existence with Jews and, therefore, non-Jews outside the Pale, despite having the same ethnic and religious background, were not subjected to similar social pressures. The differences in culture on two sides of the Pale border that we observe today, therefore, may be a consequence of the persistence of these cultural traits, developed during two centuries in the Russian Empire.

The bonding trust manifests itself in a higher percentage of people who trust others as the enemy group disappeared, while the anti-market culture manifests itself in political support for communist parties, opposition to market, and lower entrepreneurship inside the Pale.

This mechanism implies that anti-market culture and bonding trust should be more pronounced in places where ethnic animosity was stronger. Using data on the exact locations of the occurrence of pogroms in Eastern Europe in the 19th and early 20th century as a measure of ethnic animosity, we test and find empirical support for this prediction. In particular, we find that proximity to sites of pogroms is significantly positively related to anti-market sentiment and trust among the contemporary local population. Importantly, these results hold even when we only compare places with similar historical ethnic and religious composition, but different proximity to pogroms, which strongly suggests that the result are not driven by mere historical presence of Jews, but by the strength of animosity between Jews and non-Jews, as our suggested mechanism implies. Figures 7 and 8 illustrate these findings.

Figure 7. Ethnic animosity, measured by proximity to historical pogroms, predicts contemporary attitudes toward market

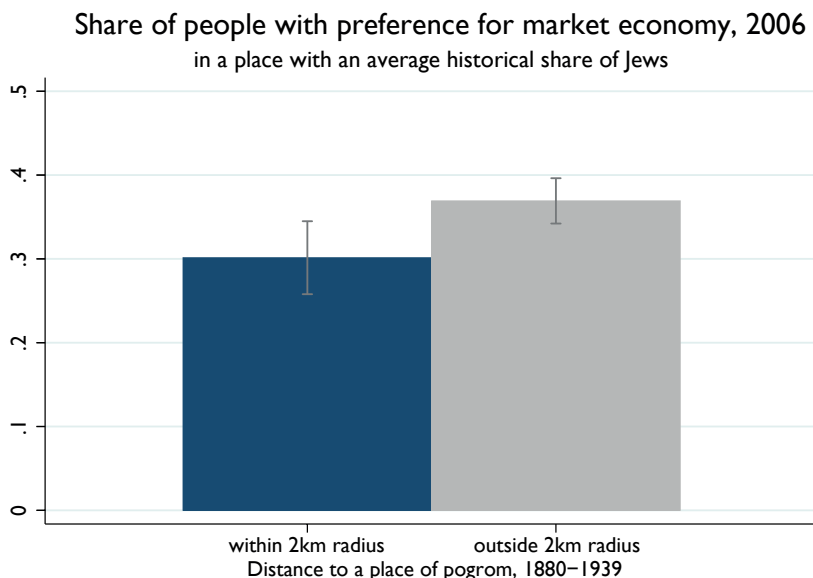
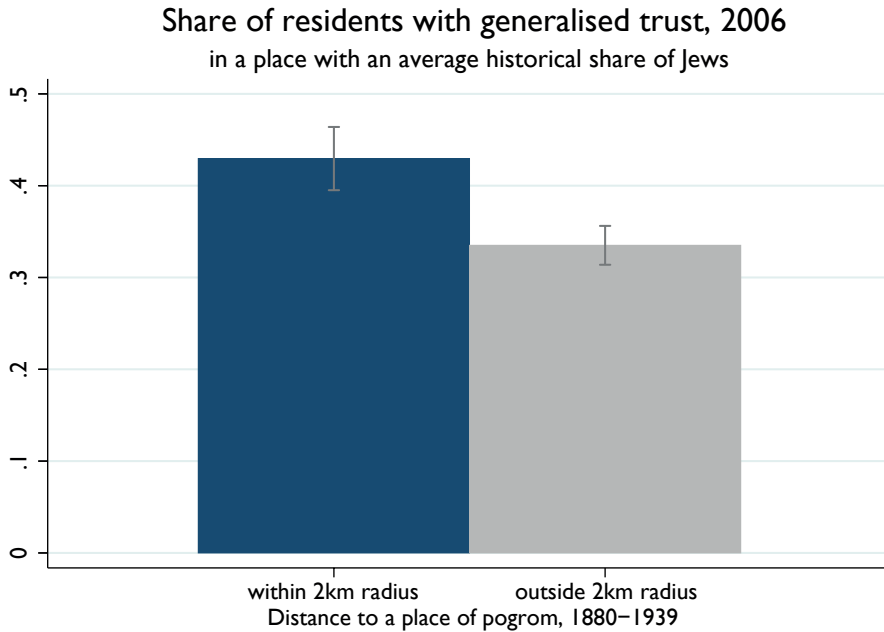


Figure 8. Ethnic animosity, measured by proximity to historical pogroms, predicts contemporary generalised trust



Overall, our results show that former Jewish presence in Eastern Europe leaves an important cultural legacy. These results are related to the findings that former Jewish presence in Europe shaped financial institutions (Pascali 2016), and attitudes toward finance (D’Acunto et al. 2015), and that the Holocaust and expulsions of Jews affected the social structure of the population (Acemoglu *et al.* 2011) and human capital (Akbulut-Yuksel and Yuksel 2015).

The formation of anti-Jewish culture, in places where the two groups closely coexisted, speaks to the general issue of formation of group identity and its effects on economic and social outcomes (Akerlof and Kranton 2011). Our results show that the self-identification of one ethnic group and cohesion among its members may depend on coexistence with another (rival) group. This has important parallels to the phenomenon of the emergence of social stigma attached to ‘acting white’ among the US black population and to the political polarisation which is a consequence of racial fragmentation in the US South.

References

- Acemoglu, Daron, Tarek Hassan and James Robinson (201), “[Social Structure and Development: A Legacy of the Holocaust in Russia](#)”, *Quarterly Journal of Economics*, 126(2): 895-946.
- Akbulut-Yuksel, Mevlude and Mutlu Yuksel (2015), “The Long-Term Direct and External Effects of Jewish Expulsions in Nazi Germany”, *American Economic Journal: Economic Policy*, 7, (3), 58-85.
- Akerlof, George A. and Rachel E. Kranton (2011), [Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being](#). Princeton University Press, Princeton, NJ.
- Alesina, Alberto and Paola Giuliano (2015), “[Culture and Institutions](#)”, *Journal of Economic Literature*, 53 (4) 898-944.
- Blattman, Christopher and Edward Miguel (2010), “Civil War”, *Journal of Economic Literature*, 48(1): 3-57.
- D’Acunto, Francesco and Prokopczuk, Marcel and Weber, Michael (2015), [The Long Shadow of Jewish Persecution on Financial Decisions](#), mimeo.
- Fernandez, Raquel (2011), “[Does Culture Matter?](#)” in: *Handbook of Social Economics*, J. Behnabib, A. Bisin and M.O. Jackson (eds.).
- Glaeser, Edward L. (2005), “[The Political Economy of Hatred](#)”, *Quarterly Journal of Economics*, 120(1), 45-86.
- Grosfeld, Irena, Alexander Rodnyansky and Ekaterina Zhuravskaya (2013), “[Persistent Antimarket Culture: A Legacy of the Pale of Settlement after the Holocaust](#)”, *American Economic Journal: Economic Policy*, vol. 5, issue 3, pages 189-226.
- Grosfeld, Irena and Ekaterina Zhuravskaya (2015), “[Cultural vs. economic legacies of empires: Evidence from the partition of Poland](#)”, *Journal of Comparative Economics*, Elsevier, vol. 43(1), pages 55-75.

Pascali, Luigi (2016), “Banks and Development: Jewish Communities in the Italian Renaissance and Current Economic Performance”, *Review of Economics and Statistics*, Vol. 98, No. 1, Pages: 140-158.

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14 The long lasting political legacy of the Nazi occupation of Italy

Nicola Fontana, Tommaso Nannicini, and Guido Tabellini

London School of Economics; Bocconi University IZA, and CEPR; Bocconi University, CIFAR, Ces-Ifo, and CEPR

Introduction

What determines political attitudes of citizens? Material interests, is the standard answer given by economists. Of course, the real world is more complex than that, and political attitudes also reflect ideology and culture. A large literature, including many contributions to this eBook series, presents convincing evidence that history leaves a lasting imprint on cultural traits, in many domains. It would not be surprising, therefore, if political attitudes were also shaped by specific past events in national histories.

The legacy of history on political attitudes is bound to be particularly important with regard to specific historical junctures, which happen when new parties are born and young generations form new political identities, breaking with the past. Wars, and in particular civil wars, are examples of such critical junctures (see Mayhew 2004 and Sundquist 2011). A democracy born out of a civil war inherits a legacy of polarisation and conflict that puts it in a very different starting position, when compared to one where political institutions evolved more gradually and peacefully.

In this chapter we summarise the main findings of Fontana *et al.* (2016). In that paper, we study the events towards the end of World War II, when Italy was devastated by the Nazi occupation and a ‘civil war’ that left about 200,000 Italian casualties, numbering partisans, fascists, civilians, and individuals who were deported to Germany and never came back (Pavone 1991 and Gentile 2015). These events had a profound and lasting impact on Italian politics. They shaped the Italian Constitution, the party system, the identity of political leaders, and political traditions and narratives for several decades.

We explore the specific legacy of these events on election outcomes in the post-War era, and discuss possible channels of historical influence that operate through political attitudes of citizens and through party organisations.

The Italian civil war and Nazi occupation during World War II

Between September 1943 and May 1945, Italy was a battleground between the Allies and the Germans. Italy itself was split, with resistance brigades fighting the Germans, and troops loyal to Mussolini helping them. The intensity of the war varied across Italy, since the Allies freed Southern and much of Central Italy almost immediately, while Northern-Central Italy remained under Nazi occupation for much longer. In particular, the battlefield between Germans and Allies remained stuck for about six months near the so called Gothic line, a line cutting Northern-Central Italy from West to East (the green line in Figure 1). In our paper we exploit this heterogeneity, to draw inferences about how the civil war and Nazi occupation influenced post-war political outcomes.

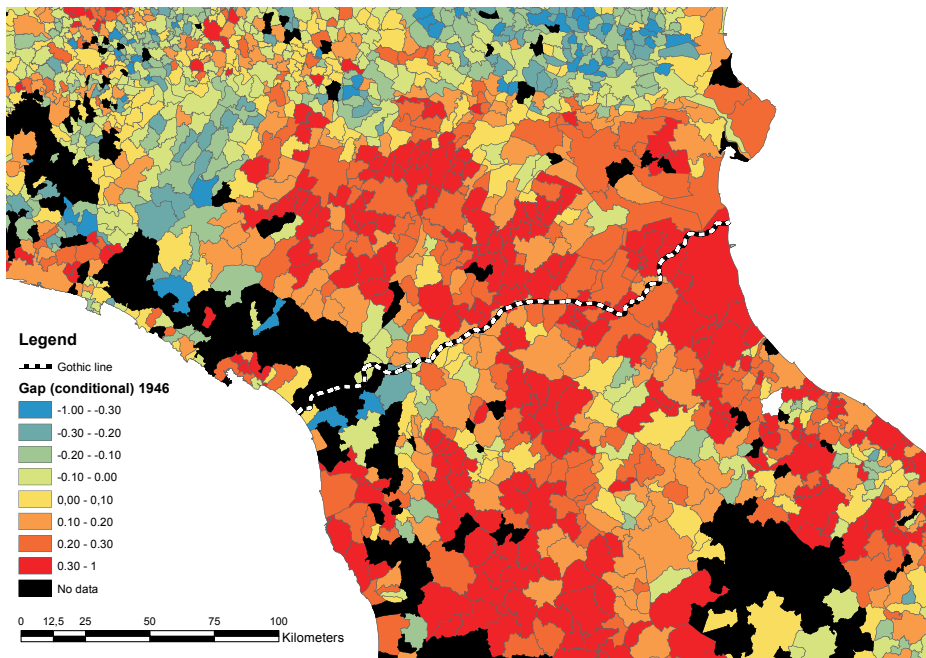
Our main empirical strategy compares municipalities just above and just below the Gothic line. The position of the line was determined by accidental military criteria, and municipalities close to but on opposite sides of the battlefield are very similar in most respects. The main difference between these municipalities is that those North of the line were exposed to a longer Nazi occupation and a longer civil war. Any difference in their post-war voting outcomes can thus be attributed to the longer duration of the foreign occupation and civil war.

A longer Nazi occupation strengthened the Communist Party

Post-war election outcomes are indeed starkly different North versus South of the Gothic line. In municipalities just North of the line, where the Nazi occupation lasted longer, the extreme left (communist) party is on average much stronger: its vote-share in the 1946 election for the Constitutional Assembly is about eight percentage points larger than that just South of the line (after conditioning on outcomes for the latest pre-war elections, held in the 1920s). Unconditional differences are even larger.

The communist gain, above the line, is mainly at the expense of the Catholic party (the Christian Democrats), although this finding is less robust, suggesting that the communists may also have gained votes from other moderate or centre-left parties. Figure 1 illustrates the difference between communist and Catholic vote shares in the area near the Gothic line in 1946, after conditioning on pre-war election outcomes in the 1920s. Darker red colours, indicating a stronger communist vote, are more frequent just North of the line, while the opposite is true for darker blue colours, indicating a stronger Catholic vote South of the line.

Figure 1. Communist – Catholic vote share in 1946, conditional on election outcomes in the 1920s

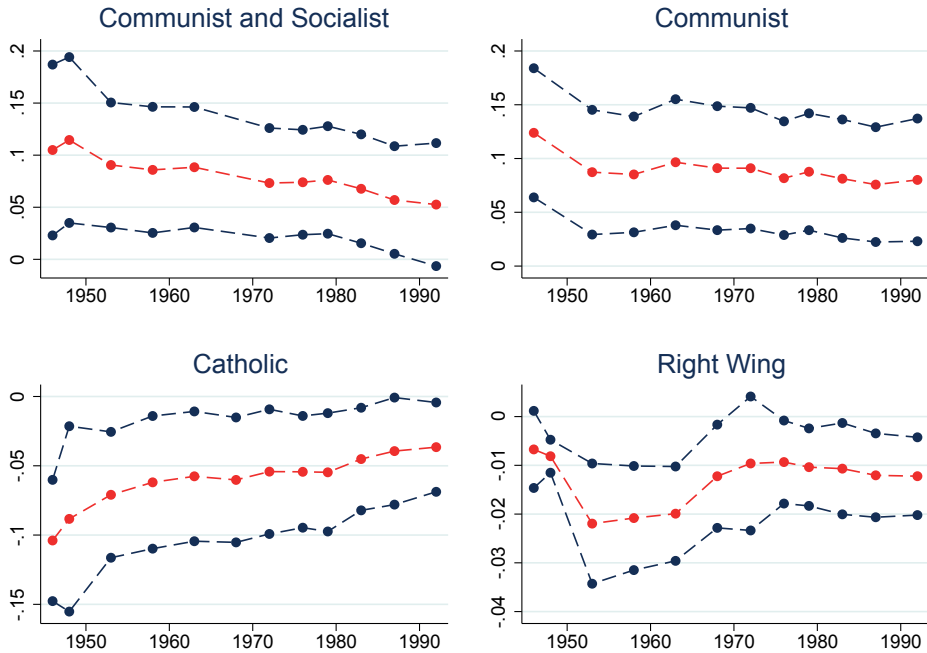


Note: dark red: strong support to Communists, dark blue: strong support to Catholics, black: missing

These differences are highly persistent and they last, in subsequent national elections, until the end of the First Republic, in the early 1990s. Figure 2 considers post-war elections from 1946 up to 1992, and plots the average differences (and 95% confidence intervals) in vote shares between municipalities North and South of the Gothic line, after conditioning on absolute distance from the line.

Municipalities North of the line are also less likely to vote for the extreme right wing parties linked with Mussolini supporters, although this effect is smaller and occurs later in time.

Figure 2. Differences in vote shares, North and South of the Gothic line, in post-war elections



Note: The red line depicts the point estimates (blue lines are 95% confidence intervals) of the coefficient on a dummy variable for being above the Gothic line, in a local linear regression that also controls for absolute distance from the line, as in standard spatial regression discontinuity design.

Possible mechanisms: partisan brigades and political organisations?

What mechanisms lie behind these large effects? One hypothesis, suggested in related work by Costalli and Ruggieri (2015), is that a longer Nazi occupation helped the communists (more than others) to build their party organisations. The Communist Party was much more active in the Resistance movement, compared to other political forces. Hence, where the Nazi occupation lasted longer, the Communist Party enjoyed a head start in building grass-root party organisations, since it could exploit its links to the partisan movement.

The evidence does not support this hypothesis, however. First, the presence of active partisan brigades was balanced on both sides of the Gothic line – although, of course, partisan brigades remained active for longer North of the line. Second, the effect of a longer duration for German occupation on the communist vote is not stronger in the areas of operations of the partisan brigades. In other words, the presence of partisan brigades does not seem to matter, for the votes gained by the Communist Party above, versus below, the line. Third, the extreme right-wing parties, that were obviously more free to organise themselves North of the line, did not benefit from this greater freedom, on the contrary they garnered more support South of the line (see Figure 2).

Possible mechanisms: Citizens' attitudes and violence?

A second hypothesis is that a longer exposure to civil war and foreign occupation could directly affect voters' political attitudes, making them more willing to side with political forces that opposed the enemy, namely the Communist Party. This mechanism is consistent with other studies which have shown that exposure to civil conflict reinforces group identification (Blattman 2009, Bellows and Miguel 2009, Canetti and Lindner 2015, Balcells 2011), or that emphasised the persistence of political and social attitudes over time and across generations (Acharya *et al.* 2013, Avdeenko and Siedler 2016, Voigtlander and Voth 2012, Fouka and Voth 2013).

To assess the validity of this hypothesis, we collected data on the intensity of Nazi and Fascist violence against civilians and partisans, as well as on the location of two particularly violent German divisions, that left a 'blood trail' behind them. Contrary to our expectations, observed violence is not stronger North of the line. The reason is that several atrocities were also committed by German troops, while retreating behind the Gothic line.

Nevertheless, exploiting variation in the intensity of violence throughout Italy and not just around the Gothic line, we find that exposure to violence during WWII is robustly associated with a persistent increase in the communist vote-shares. The order of magnitude of the increase in the communist vote-share varies between one and three percentage points, depending on the proxy for violence and on the election years (throughout we control for several features of municipalities, such as the vote shares of different parties in the 1920s, population size, the share of illiterates, the region to which the municipality belongs and other features).

These correlations cannot be taken as entirely causal. It is possible that elite troops were deliberately sent into areas with stancher Italian opposition and more local communist support, so potentially there could be some relevant omitted variables. According to the description by Gentile (2015), however, this does not seem likely. The location of these special divisions was generally driven by military or logistical concerns (the war against the Allies, or the need to rest and train new conscripts). Although not conclusive, therefore, these results support the idea that Nazi violence induced citizens to identify with radical political forces, willing to resist the enemy, namely the communists. Overall, the mechanism seems to operate through citizens' attitudes rather than organisational (supply-side) advantages.

The Allies or the Germans?

The Gothic line separated the German troops from the Allies. There is thus another possible interpretation of our findings: that they reflect the presence of the Allies South of the line, rather than the longer German occupation and civil war North of the line. The Allies (and the US commands in particular) favoured the Catholics over the Communists. This bias could be reflected in the Allies' propaganda or in their support for specific political organisations, thus affecting both the demand side and the supply side of Italian post-war politics.

To evaluate this interpretation, we exploit the heterogeneity in the composition and location of the Allied troops. US forces were located in the Western part of the Gothic line, while Commonwealth troops were located in the Eastern part. Arguably, the US commands were more concerned about post-war political outcomes than their Commonwealth counterparts (besides the British divisions, these included Canadian, South-African and Indian divisions). Thus, the difference in voting outcomes between municipalities North and South of the line should be stronger in the Western part of the battlefield, where the US troops were located, than in the Eastern part. But the data do not display this pattern, particularly with respect to the communist vote, suggesting that we are really capturing an effect of the German occupation and of the civil war.

Concluding remarks

The civil war and the Nazi occupation occurred at a critical historical juncture, just before the birth of a new democracy and the establishment of a new party system. For the first time in a generation, Italian citizens were choosing political affiliations and forming political identities. The traumatic events of the civil war and of the Nazi occupation shaped the newly born political system. Where the foreign occupation and the civil war lasted longer and were more intense, the radical left emerged as a much stronger political force. This effect was not just a temporary reaction to the war traumas, but persisted until the early nineties, leaving a legacy of left-wing political extremism in the Italian political system.

What accounts for these large and persistent effects? Although we don't have a definitive answer, the historical evidence suggests that the mechanism operates through citizens' attitudes. Exposure to a longer and more violent foreign occupation led voters to identify with the political force that stood up most forcefully against the enemy and that in the end won the civil war, namely the Communist Party.

To further corroborate this interpretation, in November-December 2015 we conducted a random survey of about 2,500 individuals, resident in 242 municipalities within 50 km of the Gothic line. Memories of the civil war are stronger North of the Gothic line and amongst individuals who have a left wing political orientation. There is also some weak evidence of slightly more anti-German attitudes North of the line. These findings too are suggestive that the mechanism underlying the reduced form effects operates through political attitudes and the memory of the Nazi occupation.

References

Acharya, A., M. Blackwell, and M. Sen (2015), *Explaining Attitudes from Behavior: A Cognitive Dissonance Approach*.

Avdeenko, A. and T. Siedler (2016), "Intergenerational correlations of extreme right-wing party preferences and attitudes toward immigration", *The Scandinavian Journal of Economics*.

- Balcells, L. (2011), “Continuation of politics by two means: Direct and indirect violence in civil war”, *Journal of Conflict Resolution*, 55(3):397-422.
- Bellows, J. and E. Miguel (2009), “War and local collective action in Sierra Leone”, *Journal of Public Economics*, 93(11):1144-1157.
- Blattman, C. (2009), “From violence to voting: War and political participation in Uganda”, *American Political Science Review*, 103(02):231-247.
- Canetti, D. and M. Lindner (2015), “Exposure to political violence and political behaviour”, in *Psychology of Change: Life Contexts, Experiences, and Identities*, ed. Katherine Reynolds and Nyla Branscombe. New York: Psychology Press, pages 77-95.
- Costalli, S. and A. Ruggeri (2015), “Forging political entrepreneurs: Civil war effects on post-conflict politics in Italy”, *Political Geography*, 44:40-49.
- Fontana, N., T. Nannicini, and G. Tabellini (2016), *Historical Roots of Political Extremism: The Effects of Nazi Occupation of Italy*, Bocconi University, IGIER working paper.
- Fouka, V. and H.-J. Voth (2013), *Reprisals remembered: German-Greek conflict and car sales during the Euro crisis*.
- Gentile, C. (2015), *I crimini di guerra tedeschi in Italia (1943-1945)*, Einaudi.
- Mayhew, D.R. (2004), *Electoral realignments: A critique of an American genre*, Yale University Press.
- Pavone, C. (1991), *Una guerra civile. Saggio storico sulla moralità nella Resistenza*, Bollati Boringhieri.
- Sundquist, J. L. (2011). *Dynamics of the party system: Alignment and realignment of political parties in the United States*. Brookings Institution Press.
- Voigtländer, N. and H. -J. Voth (2012), “Persecution perpetuated: the medieval origins of anti-Semitic violence in Nazi Germany”, *Quarterly Journal of Economics*, 127(3):1339-1392.

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15 The effect of Communism on attitudes and beliefs

Alberto Alesina and Nicola Fuchs-Schündeln

Harvard University, and CEPR; Goethe University, Frankfurt, and CEPR

In democracies, individual preferences determine policy choices. Or, alternatively, people may become used to certain policies – the status quo – and their preferences may adapt accordingly. So, do different preferences across countries lead to different policies, or are different preferences, in fact, caused by different policies? E.g., are European welfare systems more generous than the American one because Europeans have stronger preferences for redistribution, as documented by survey evidence, or did preferences simply adjust to the respective systems? Obviously the determination of what causes what, preferences determining policies or policies determining preferences, is not easy since the two move together. Alesina and Angeletos (2005) study how the interaction of the response of policies to preferences and the evolution of preferences generates two different equilibria for “Europe” and for the “USA”.

The separation and then reunification of Germany offers a very interesting case study with which to address this issue. The separation of Germany at the end of the Second World War was clearly against the wishes of Germans, and the border was drawn as a result of the position of the Russian and Western armies at the end of the war. In fact, the two parts of Germany (which ended up being East and West) were quite similar, in terms of economic development, industrial structure, and political preferences, before the Second World War. The reunification of Germany in 1990 also occurred as a result of international policy development (the collapse of the Soviet Union), which had little to do with German domestic politics. Moreover, the reunification occurred very quickly and was unexpected.

In other words, a randomly determined portion of Germans lived for sixty years in a communist regime, while the other portion lived in a liberal democracy.

The separation and then reunification of Germany were two events which can be taken as exogenous relative to the preferences and characteristics of Germans living in East and West after the war. In the communist regime of East Germany, the state played a leading role in determining the individual financial situation and taking care of financially vulnerable groups, while, in the liberal democracy of West Germany, the role of the state was much smaller.

Alesina and Fuchs-Schündeln (2007) examine whether the differing experiences of living in the East and the West have generated different views about the role of the state. They use data from the German Socioeconomic Panel, a longitudinal survey of private households, which consists of 11,400 observations for the West and 7,000 for the East (taken in the years 1997 and 2002). The main focus is on questions that ask about preferences for the role of the state in different areas of social security. Answers, on a scale from 1 to 5, refer to preferences regarding financial support by the government in different circumstances (namely, during unemployment, when sick, for families, when old, and when requiring care). The explanatory variable is a dummy that takes the value equal to one if the respondent lived in East Germany before reunification, no matter what the current place of residence. Other controls include personal characteristics like age, gender, marital status, labour-force status, income from various sources, education, occupation of the respondent, and household size. These controls account for personal motives for being in favour of or against state support, depending on how likely one is to receive it. In 1997 and 2002, the average per capita income in the East was roughly 80% of that in the West and the unemployment rate twice as high, thus controlling for these differences is very important.

The basic specifications measure the effect of being from the East. East Germans are significantly more likely to have preferences that are in favour of the state provision of financial security in all domains. The result is robust to the inclusion of wealth controls and shows a tendency towards convergence (the gap between West and East in 2002 is smaller with respect to 1997). Being from the East increases the probability of favouring state intervention by between 14.5 and 17 percentage points in 1997, compared to being from the West. Between 1997 and 2002, the probability of favouring state intervention declines, for an East German, by between 2.3 and 6.9 percentage points.

Moreover, assuming a strict linearity of convergence, it can be estimated that attaining full uniformity among the two groups would require a minimum of 11 years and a maximum of 35 years, depending on the specification. When the age of respondents is taken into consideration, results show that increasing age tends to make West Germans less pro-government, whilst older East Germans are more pro-government than younger ones. This is consistent with the fact that older East Germans have lived longer under communism, and their preferences have thus been affected more by this experience. It is also consistent with the view that older individuals are more attached to the *status quo* and are more loss-averse, since they have less time left to enjoy the benefit of a change, relative to the costs of losing what they were used to, as shown in Alesina and Passarelli (2015). Restricting the sample to individuals who responded both in 1997 and 2002 allows a disentangling of the ‘change of preferences’ effect from the ‘cohort’ effect. Results lead to the conclusion that around two-thirds of the observed East-West convergence in preferences arises from actual convergence of individual preferences, while around one-third arises from changes in the cohort composition over time.

After reunification, East German states received substantial transfers from the West. So, the greater support for state intervention from Easterners may simply be due to the fact that they were poorer and therefore benefitted more from the state. Controlling for, in addition to individual government transfers, transfers to the region of residence, has the effect of reducing by roughly one-fourth the impact of the East German dummy. This is consistent with the view that state intervention is preferred among those who are more likely to benefit from it (e.g. East Germans, poorer on average). Thus, about 75% of the difference in preferences over state intervention cannot be attributed simply to the fact that East Germans were poorer. They are rather attributed to the long-lasting effect of living under a socialist regime on individual preferences. Moreover, data provided by means of surveys is consistent with the evidence of voting behaviour in East and West over the observation period (1998 and 2002), with the furthest left of the major parties receiving 20% of the votes in the East and only 1-2% in the West.

In summary, the work provides evidence that individual preferences are deeply shaped by the political regime in which people live.

The separation and reunification of Germany has also been examined by others, using similar data to address the effect of living under different systems on individual preferences. For instance, Boenisch and Schneider (2013) measure the impact of Communism on attitudes toward spatial mobility. They conclude that totalitarian regimes in general, and communist ones in particular, induce a social capital mix that discourages geographic mobility and encourages strong ties and informal social network structures.

Another example of the use of German unification as a natural experiment is found in Kuhn (2013), where the author analyses differences in inequality perceptions, distributional norms, and redistributive preferences between East and West Germany. He concludes that living under a socialist regime did not substantially influence individuals' fundamental distributional norms, but it had a significant effect on people's belief that it is the state's responsibility to intervene if existing wage differentials are judged to be too large.

Using a similar strategy, Heineck and Süßmuth (2013) show that East Germans reveal a lower level of social trust and cooperation, slowing economic convergence with the West German states. They also claim that full convergence in trust between East and West Germany might be reached in a decade's time (around 2023), while convergence in risk attitude had already been reached, 20 years after reunification.

Finally, Brosig-Koch *et al.* (2011) use data from a laboratory experiment to demonstrate that East Germans show consistently less solidarity than West Germans and that this difference has not narrowed in the 20 years since reunification. They conclude that social behaviour changes more slowly than political values and hypothesise that this is due to the complementarities involved in individual social behaviour, namely the fact that changes in social norms need to be coordinated at the society level. Fuchs-Schündeln and Masella (2016) focus more narrowly on the effect of a socialist education, and show that it has negative long-term labour market consequences, likely to be, at least partly, due to changes in attitudes. Further papers using German reunification as a natural experiment to discuss other issues (e.g. saving behaviour, or industrial location choice) are summarised in Fuchs-Schündeln and Hassan (2017).

To summarise, the exogenous events of German separation and reunification provide convincing evidence that individual preferences and beliefs are shaped by the system under which they live.

References

Alesina A. and G.M. Angeletos (2005), “Fairness and Redistribution: US vs. Europe”, *American Economic Review*, 95(4), 913-35.

Alesina, A., and N. Fuchs-Schündeln (2007), “Good-bye Lenin (or not?): The effect of communism on people’s preferences”, *The American Economic Review*, 97(4), 1507-1528.

Alesina, A., and F. Passarelli (2015), *Loss Aversion in politics*, NBER Working Paper No. w21077. National Bureau of Economic Research.

Boenisch, P., and L. Schneider (2013), “The social capital legacy of communism—results from the berlin wall experiment”, *European Journal of Political Economy*, 32, 391-411.

Brosig-Koch, J., C. Helbach, A. Ockenfels, and J. Weimann (2011), “Still different after all these years: Solidarity behavior in east and west Germany”, *Journal of Public Economics*, 95(11), 1373-1376.

Fuchs-Schündeln, N. and T.A. Hassan (2017), “Natural Experiments in Macroeconomics”, in: Taylor, J. & H. Uhlig. *Handbook of Macroeconomics, Volume 2*, Elsevier.

Fuchs-Schündeln, N. and P. Masella (2016), “Long-Lasting Effects of Socialist Education”, *Review of Economics and Statistics*, 98(3), 428-441.

Heineck, G., B. Süßmuth (2013), “A different look at Lenin’s legacy: Social capital and risk taking in the two Germanies”, *Journal of Comparative Economics*, 41(3), 789-803.

Kuhn, A. (2013), “Inequality perceptions, distributional norms, and redistributive preferences in East and West Germany”, *German Economic Review*, 14(4), 483-499.

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Most historians would agree with William Faulkner's famous line "The past is never dead. It's not even past". This e-Book shows that perhaps unexpectedly a surprising number of economists concur. Motivated by tomes of scholarly work on European and American history Economists in this collection trace the legacies of some of these landmark events on contemporary economic outcomes as well as peoples' attitudes and beliefs. Starting from the Americas the e-Book summarises works assessing the modern-day consequences of colonial forced labour practices in Peru, missionary activity in South America, the sugar-cane and gold booms in Brazil, the native population forced coexistence in reserves across the US, the transition to a mechanised agricultural economy as a result of the 1927 Mississippi Flood, and how the influx of European scientists fleeing Europe in the early part of the 20th century shaped the US inventive capacity. The tour de force in Europe starts with the rise of city states in Italy, continues with the Protestant Reformation, the birth of the modern corporation, the origins and impact of anti-Semitism and the holocaust, and ends with the legacy of the communist era in Germany and of the Nazi occupation of Italy.

To get to these fascinating questions, a wealth of diverse sources including historical archives, linguistic sources and anthropological maps, are cleverly combined and subjected to state of the art econometric techniques and theoretical models. The findings of this ambitious research agenda are novel highlighting the shadow of history on various aspects of the economy and the polity. While there are many open issues and debates and although development is not deterministic, one message is clear: We are shaped by history (Martin Luther King Jr).

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