

REVIEW SUMMARY

ECONOMIC HISTORY

The historical roots of economic development

Nathan Nunn

BACKGROUND: Traditionally, research into contemporary economic development has taken a primarily ahistorical approach. The study of the past was relegated to the separate field of economic history, and connections between historical factors and present-day economic outcomes were seldom made. In recent decades, there has been a rapidly growing body of research within economics that takes a historical perspective when attempting to understand contemporary issues related to global poverty and comparative development.

ADVANCES: Typically, studies of this kind begin by collecting new data, often from archival sources, that measure aspects of the historical episode of interest. These data are then connected to contemporary outcomes of interest, matched through populations, societies, or locations, to test whether the historical factor has a causal effect on the contemporary factors being examined. Statistical analysis is undertaken, studying variation across individuals, ethnicities, or countries and using empirical techniques (such as instrumental variables, regression discontinuity, difference-in-difference, or natural experiments) that are aimed at dis-

tinguishing causal relationships from mere correlation. Having established the importance of a historical factor or episode for outcomes today, an attempt is then made to understand the exact causal mechanisms that account for the observed relationship. This generally requires the collection of additional data and additional statistical analysis, as well as an integration of the historical literature and descriptive evidence.

A body of empirical research that has emerged over the past two decades has established that a substantial proportion of the variation in economic prosperity that we observe in the world today has its roots in the past. Historical events, such as European expansion across the globe during the 16th century and after, have been shown to have shaped subsequent paths of development. It is now clear that one cannot fully understand contemporary economic development without understanding its historical roots.

OUTLOOK: A common reaction to the finding that history is important for contemporary outcomes is that this leaves little room for policy. If much of the nature of the world today is determined through historical processes, what

role is there for policy? I explain how such a view, while natural, is incorrect.

In addition to providing a more complete understanding of the process of economic development, the findings from the literature are also important for thinking about policies that help to address issues related to global development moving forward. This is an important next step for the literature. Recent studies have begun to take on this next challenge.

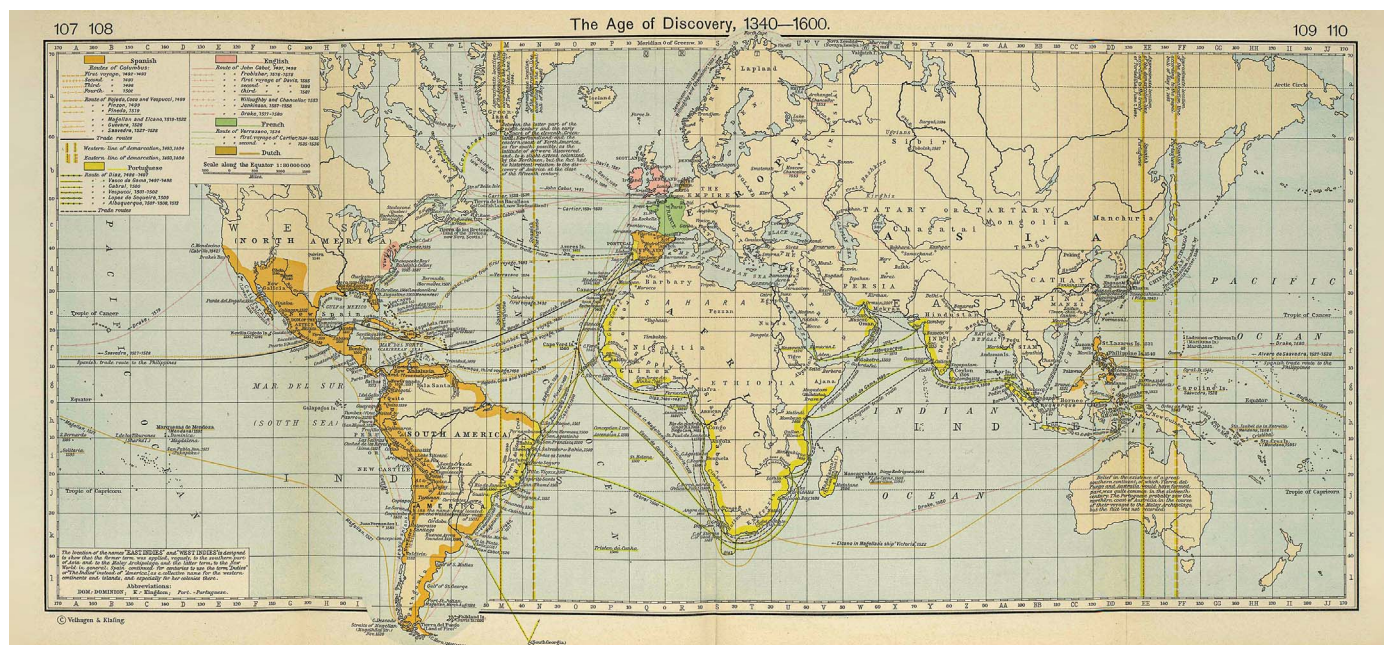
I illustrate this by providing examples of studies that seek to better understand the origins of mistrust in Western medicine. This

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mistrust, which is present all over the world, has resulted in underutilization of medical services, resulting in poorer health and higher mortality. Studies have examined the historical roots of such mistrust, showing how it is determined by poor medical practices in the past. I then discuss examples where the insights that are obtained from the historical analyses are used to improve the design, implementation, and effectiveness of policies. These examples illustrate a more general point: There are sizable gains to be realized from research that seeks to better understand how local history and context can be leveraged to inform the design of better policy. ■

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Map showing the Age of Discovery, the historical period that fostered the origins of the vast differences in economic prosperity that we observe today.

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This article reviews an emerging area of research within economics that seeks to better understand contemporary economic outcomes by taking a historical perspective. The field has established that many of the contemporary differences in comparative economic development have their roots in the distant past. The insights gained from this literature are not only of academic importance but also useful for thinking about policies that help to address global development moving forward. I provide examples of recent studies that have begun to take on this important next step in the literature by using insights gleaned from historical analyses to better understand policy and its optimal design.

Built from a union of two previously disparate fields—economic history and development economics—a body of research has now established that many of the contemporary differences in economic outcomes are explained by historical factors that have been shown to have effects that are felt for decades, centuries, and in some cases even millennia.

As an illustration of the importance of history for understanding present-day economic development, consider contemporary differences in levels of economic well-being. Figure 1 shows the evolution of economic prosperity, measured using the natural logarithm of real per capita gross domestic product, for different regions of the world from 1000 to 2000 CE (1). Several facts emerge from the figure:

1) The best predictor of a region's relative income in a period is its income in the years prior. A perfect predictor of the relative ranking of regional prosperity in 2000 is the ranking in 1800. If one considers income further back in time (e.g., 1500), one finds that it is still a very good indicator, although not a perfect one.

2) The sizable differences in relative incomes that we observe today have not always been present. (Today, the richest countries in the world are about 42 times as rich as the poorest.) These differences appear to have first emerged in 1500 and to have increased starting in the 18th century, a process that has been called the "Great Divergence" (2).

3) Although there is a remarkable amount of historical persistence in comparative development, there are some important exceptions. In particular, the region "Western European offshoots," which comprises land that today is Canada, United States, Australia, and New Zealand, moves from being the poorest region of the world in 1600 (and before) to the richest in 1800 (and after).

The origins of modern economic differences

Development economics, which studies the economic conditions of people in less-developed countries, has traditionally taken a perspective that is fairly ahistorical. The sources of poverty have been hypothesized to lie in low levels of investments in land, machines, education, or health. In the early models of economic development, history plays no real role (3–6).

Economic history has tended to focus on specific regions, time periods, or questions, such as the profitability of slavery in the U.S. South (7, 8) or the extent to which the railway network reduced transportation costs in the United States during the 19th century (9). A focus on important but historically specific questions made the field of economic history static in its own way. Connections between disparate time periods were infrequently made, and the dynamics or cultural evolution of societies (particularly over longer time horizons) was not commonly studied. [An exception to this was a line of research that focused on bigger-picture issues related to the economic, social, and institutional evolution of societies over long time periods (2, 10, 11). These provided an important foundation for the literature discussed here.]

A number of studies in the late 1990s and early 2000s found that a substantial part of the world's current income differences could be explained by the divergent effects of European contact globally, which began in the late 15th century, starting with Christopher Columbus' arrival to the Americas in 1492, which resulted in a massive transfer of disease, food, ideas, and people between the Old World and the New World (12). Although the literature has examined a wide range of historical factors from all regions of the world, for illustrative purposes, I focus on a body of research that explains comparative historical development in the Atlantic basin—Europe, the Americas, and Africa—starting in the late 15th century. During this period, com-

monly referred to as the "Columbian Exchange," the indigenous populations of the Americas were decimated, European migrants voluntarily settled in the newly vacant land, and African populations were brought there against their will during the trans-Atlantic slave trade (12). An important part of the Exchange was a trading system known as the three-corner (or triangular) trade. Consumer and industrial products were produced in Western Europe, many using raw materials that were imported from the Americas and colonies elsewhere in the world. Manufactured products were shipped to Africa, where they were traded for slaves. The most important of these were firearms and gunpowder, which facilitated the efficient capture of slaves through increased conflict and the destabilization of political and social structure. Slaves were then brought to the Americas, where they were used to produce raw materials (e.g., cotton, sugar, and tobacco) that were used as inputs for manufacturing industries in Europe.

Returning to Fig. 1, it is clear that regional incomes diverged during the height of the trade (18th and 19th centuries). Africa stagnated, the Americas grew slowly, and Europe experienced rapid economic growth. Until recently, there was little quantitative evidence proving that any of these patterns were caused by this integrated system of trade. With limited evidence, historians were arguing for both sides. Some believed that the trade led to major alterations in economic prosperity (13, 14), while others believed that the trade was too small to have had such effects (15).

The transition to quantitative analysis to resolve these debates is marked by a descriptive study by Engerman and Sokoloff (16). Their analysis focused on one corner of the triangular trade and sought to understand the different paths of development that were experienced in the Americas during and after European colonial rule. They argued that during colonialism, differences in specialization in mineral extraction and plantation slavery between "Western offshoots" (e.g., Canada, United States) and "Latin America" (e.g., Brazil, Argentina) could explain their different trajectories of economic development.

Although their analysis was primarily descriptive, it laid out clear mechanisms that provided the groundwork for subsequent empirical research. The most well known is a study by Dell (17), which took a microlevel approach to studying the long-term consequences of mineral extraction and forced labor in the Spanish Colonial Empire. She studied a forced-labor system, called the *mita*, that was carried out by the Spanish Crown in Peru and Bolivia from 1573 to 1812. Under the system, indigenous communities within a specified catchment area were required to provide labor from one-seventh of the adult male population to work in the

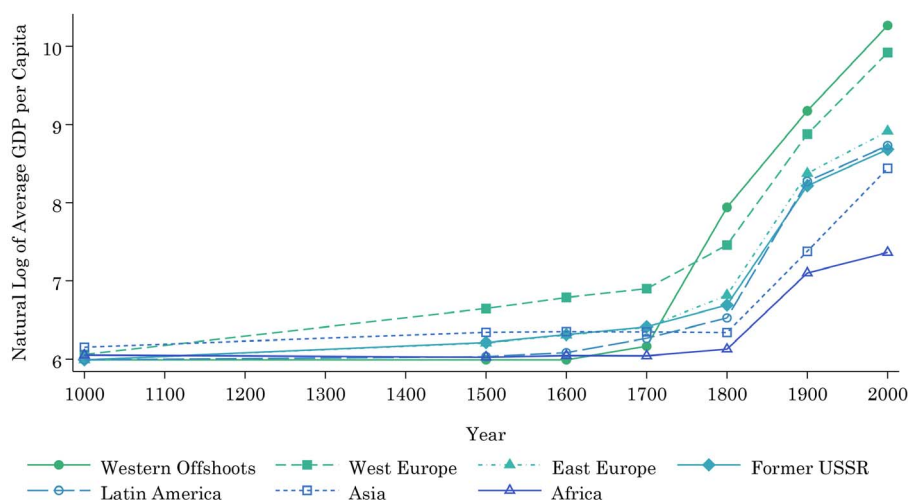


Fig. 1. Relative economic prosperity of different regions of the world from 1000 to 2000 CE.

mines of Potosi or Huancavelica. To identify the causal effects of the mita system, her analysis used a regression-discontinuity estimator, comparing the outcomes of interest just within the mita area to those just outside of it. She found that, consistent with the narrative of Engerman and Sokoloff, the forced-labor system led to lower incomes, more poverty, less education, and worse health today. Probing channels, she found that the persistent effects are due to a lack of historical hacienda formation within the mita area, which has resulted in less-developed infrastructure and less production for the market economy today, resulting in lower incomes.

The African corner of the trade has also been studied (18, 19). I compiled data from primary and secondary sources on the ethnic identity of approximately 110,000 slaves from more than 300 different ethnic groups shipped during the trans-Atlantic, Indian Ocean, Red Sea, and trans-Saharan slave trades (Fig. 2A). This information was then combined with shipping records to construct estimates of the number of individuals taken from 1400 to 1900 from the locations of Africa that today comprise different countries (Fig. 2, B and C). The study found a negative relationship between the number of slaves shipped from a given country and that country's income today (Fig. 2D). The relationship also remained robust when accounting for a host of other determinants of income that could potentially bias the relationship. In addition, instrumental variable estimates that use sailing distance to the locations of slave use as an instrument indicated that the relationship is causal. According to the magnitude of the estimates, Africa's slave trades account for all of Africa's poor performance relative to other developing countries (18).

The third corner of the trade, that of Europe, has also been studied. An analysis undertaken

by Acemoglu *et al.* (20) shows that the rise of Europe beginning in the 17th century was actually a rise of countries and cities that were a part of the Atlantic trade. Areas that were not connected to the trade did not experience the same economic growth. The study also documents how the trade also led to an increase in the power of business interests, which led to institutional change that further strengthened the new merchant class, which was beneficial for long-term economic growth.

Most recently, a study by Pascali (21) was able to bring together all three corners of the trade, as well as trade with the other regions of the world, to estimate the causal effects of globalization on the different parts of the world. The paper exploits the invention of the steamship and the shift from sail to steam during the 19th century to obtain exogenous variation in the relative decline in a region's trading costs and the increase in its trade. The innovation affects countries differently because of differences in seasonal wind patterns and the extent to which these matter for traveling to the locations of various trading partners. Because of these differences, the steamship benefited some regions of the world much more than others. Using this strategy, he estimated the causal effect of trade for different countries of the world. Although his period of analysis is slightly later (the 19th century), his findings are remarkably consistent with those found in the body of region-specific analysis discussed above. Some parts of the world, such as Western European countries and their offshoots, benefited from the trade; other parts, such as European colonies, were harmed.

Paths of development globally

For illustrative purposes, I have focused on research related to the Atlantic trade. However, the research in the literature is much broader

than this. The historical experiences of Asia have also been well studied, including studies examining paths of development in India (22, 23), Indonesia (24), Vietnam (25), China (26, 27), and Australia (28). Many studies in the literature undertake global cross-national analyses. The earliest line of research in this area attempted to estimate the long-term effects of colonial rule among former colonies. Scholarship has shown that the type of legal system that was implemented during colonial rule was important for subsequent economic and financial outcomes (29). Legal systems based on Roman civil law, which were transplanted to colonies by France, Spain, and Portugal, offered legal rules that provided less investor protection, and therefore worse financial development, relative to common-law legal systems, which were brought to colonies by the British (29, 30). Subsequent research on the topic documented similar associations of legal origins with a host of other contemporary outcomes, including labor market regulations, contract enforcement, comparative advantage, and economic growth (31).

Another line of inquiry by Acemoglu *et al.* (32) examined the cross-national consequences of colonialism that were due to the institutions that were initially established by the colonial powers. The authors documented a relationship between the mortality rates faced by European settlers in the colony and the quality of institutions that were established. In places such as New England where Europeans could settle, they invested in establishing well-functioning legal institutions. However, in places where mortality was high, such as tropical Africa, settlement was not feasible and little investment was made in establishing well-functioning institutions. Instead, a strategy of colonial extraction was followed. Acemoglu *et al.* showed that because of the persistence of historically established institutions and their importance today, locations with higher rates of European mortality during the colonial period are substantially poorer today.

Understanding history as cultural evolution

To better understand the specific causal mechanisms that underlie the relationships between historical and contemporary factors, scholars have begun to draw on social ecology and culture as part of a more evolutionary framework. For example, along ecological lines, a recent study by Alsan (33) sought to understand the relative underdevelopment of the African continent by studying the ecological conditions that supported the tsetse fly, which is a vector for trypanosomes, which are parasites that cause sleeping sickness in humans and nagana in domesticated animals. Using laboratory-based information about the relationship between temperature and humidity and the ecological conditions that were conducive to the fly's survival, the author created a

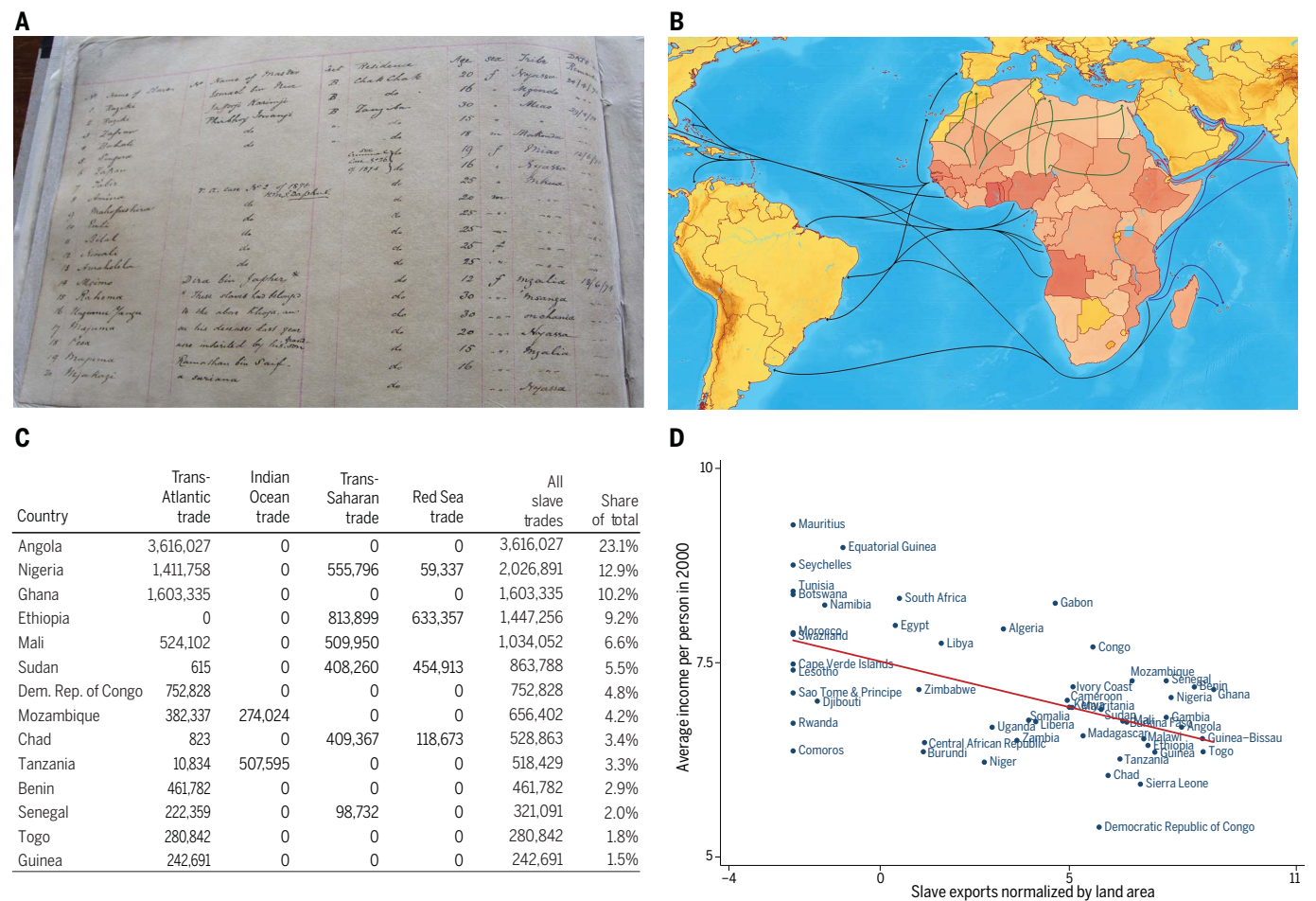


Fig. 2. Images from the analysis of the relationship between the slave trades and current economic development. (A) Example of archival records used to estimate the numbers and origins of slaves. **(B)** Origins and destinations of slaves shipped during Africa’s slave trades. **(C)** Calculated number of slaves taken, by country, during each of the slave trades. **(D)** Unconditional relationship between past slave exports and current income (18).

gridded measure of the suitability of the climate for the tsetse fly, which was combined with information on the preindustrial characteristics of ethnic groups within Africa. (The fly does not exist outside of Africa.) The study found that the suitability of the climate for the tsetse fly had large effects on preindustrial political and economic development. The evidence suggests that this was because the fly prevented the adoption of domesticated animals, which reduced trade, made agriculture less intensive, and resulted in lower population densities.

Along cultural lines, a literature has emerged documenting the effects that historical events can have on the evolution of cultural traits, which are important determinants of contemporary economic development. One determinant that has been studied extensively is historical state institutions. Several studies have found that government organization can have important effects on the subsequent evolution of various cultural traits. For example, persistent long-term effects of the independent medieval city-states of northern Italy have been found.

Today, hundreds of years later, these former city-states continue to have a greater prevalence of prosocial cultural traits (34). Similar long-term effects have been found when comparing villages that today are within the same Eastern European country but historically were part of the Habsburg or Ottoman empires. Research has found that villages that were part of the 19th-century Habsburg Empire have higher levels of trust in the judicial system (35).

Other studies have undertaken analyses that are both ecological and cultural. An example is a recent study by Alesina *et al.* (36), which shows that much of the variation in attitudes about the acceptability of female work outside the home, including employment in the labor force, management positions, and politics, can be explained by the preindustrial agricultural practices of societies. In places with plow agriculture (rather than swidden or hoe agriculture), because of the physical demands of this form of cultivation, men tended to work in the fields and women in the home. Despite the transition to modern economies, these initial norms have persisted, generating a gendered

division of labor. Digging deeper, the authors found an important ecological determinant of the form of agriculture that was adopted. The cultivation of some crops, such as those that are grown on flat deep soils and require large stretches of land, benefited substantially from the adoption of the plow. By contrast, other crops, such as those that are grown on sloped, rocky, or thin soils, benefited less from the adoption of the plow. The authors showed that the plow was more likely to be adopted in locations with a climate suitable for growing “plow-positive” crops such as barley, wheat, and rye, relative to locations with a climate suitable for growing “plow-negative” crops such as sorghum and millet.

In subsequent work, the authors showed that the effect of the plow extends further, also affecting the sex ratio of children today (37). A more recent study found that communism, because of policies that promoted female employment, resulted in a greater prevalence of norms supportive of gender equality (38). A similar positive effect on gender norms was also found for the trans-Atlantic slave trade,

which substantially reduced the number of prime-age men, forcing women into positions traditionally held by men, such as participation in the labor force, the military, and politics (39). This led to greater gender equality (within certain domains) that has persisted until today. Cotton production in medieval China has been shown to have empowered women and led to greater gender equality (40). Most recently, persistent effects of animal husbandry have been documented and shown to be associated with a greater prevalence of constraints on female sexuality, which take the form of female genital cutting, restrictions on female dress and mobility, and norms about female sexuality (41). These effects tended to arise where men were often away for extended periods, which resulted in greater control of female sexuality by men in an attempt to ensure their fidelity.

Methodological considerations

Although each of these studies is unique, they have common methodological features. They typically require the collection of new data, usually from archival sources, which are then linked, either through places or people, to data on the outcomes of interest. The earliest of these studies examined variation at a fairly macro level (usually by country), whereas many recent studies examine more fine-grained variation, such as at the regional, ethnicity, village, or even individual levels. The studies all attempt to move beyond only documenting correlations in the data and toward identifying causal effects using a range of statistical strategies, such as instrumental variables, difference-in-differences, regression discontinuity, propensity score matching, and natural experiments.

Although methodological issues have been raised over the years, such as interdependence of observations, robustness of findings, and correct inference of causal pathways (42–45), none of these are specific to this particular literature; all are important concerns for empirical work in the social sciences more generally. To my mind, the primary empirical issue that is particularly important for the literature is replicability. In many fields, replication is straightforward. For example, the estimated effects of a policy can easily be replicated by resampling and measuring the outcomes again, or even by implementing the policy among new populations. However, when attempting to understand the course of human history, replication is less straightforward.

For historical analyses, replicating the same finding using another sample is often not feasible. However, one can still study the same or a similar question in another region of the world and/or time period. An example of this is a line of inquiry that seeks to understand the long-term effects of European missionary activity in various parts of the world. The effects have been estimated in a variety of settings, including

Mexico (46); Paraguay, Argentina, and Brazil (47); India (48); Benin (49); Nigeria (50); Democratic Republic of the Congo (51); and Tanzania (52).

In addition, within the literature it is becoming increasingly common for scholars to directly collect contemporary data, typically through surveys or field experiments, to test their hypotheses of interest. For these lines of inquiry, a replication that samples new survey respondents or experimental participants is also possible. Another strategy is replication using different archival sources or different measurement strategies. In certain cases, findings have been revisited using updated, expanded, or new historical data. By comparing findings from different historical settings or by using alternative data sources, one can obtain evidence about the validity of initial findings.

Another challenge that is particularly important for the literature is that of multiple hypothesis testing. The range of relationships that one can test is large. This, combined with a system of publication that favors statistically significant findings, raises the concerns of a research process that generates false positives. Although this is an issue for all empirical research (53), the difficulties associated with replication discussed above make this particularly acute for this literature.

Several mechanisms have emerged that help to overcome this issue. The first is that any analysis that finds a relationship in the data must also provide evidence for plausible mechanisms. Given that the typical journal publication within economics is about 40 to 50 pages in length, much space is devoted to such secondary analyses. Thus, a typical paper does not consist of one finding only, for which a false positive is very possible; rather, it constitutes a bundle of findings that comprise both a large number of tests and robustness checks of the primary findings, as well as tests of mechanisms that support the validity of the findings. Scholars in the literature are also required to have a detailed knowledge of the history of the setting in which they are working. This knowledge provides a way of assessing the validity of empirical findings by judging them against evidence from the descriptive historical literature, which, while not representative, does provide concrete microlevel examples. Studies are expected to accompany their empirical findings with historical case-study evidence that supports the validity of their findings.

Future directions

Conversations across disciplines

Many of the insights that have emerged from the study of historical economic development have been the result of scholars within economics drawing from other disciplines, particularly history, anthropology, and psychology. Beyond this, the literature has now started to produce research that contributes back to the

fields from which it had previously drawn insights. Conversations across disciplines are now beginning to emerge where insights from one discipline are borrowed from the other, built upon, augmented, and then communicated back. Through such iterative processes, new insights are being gained and important contributions being made.

One field that has been particularly active in such conversations is the field of anthropology. This is primarily due to the empirical richness of the field, which contains a trove of information on the cultural, social, and economic characteristics of preindustrial societies. A vibrant field of research has emerged within economics that relies on ethnographic databases, such as the Ethnographic Atlas, Standard Cross Cultural Sample, or the Ethnographic Survey of Africa. One line of inquiry asks how cross-cultural differences matter for economic development today. There are many examples of such studies showing the importance of preindustrial traits, such as state centralization (54, 55), bride price (56), plow agriculture (36), pastoralism (41), matrilocality (57), matrilineal kinship (58, 59), kinship networks (60), or segmentary lineage systems (61).

Another line of research, rather than looking at the consequences of cross-cultural variation, seeks to understand its origins. As an example, consider research that seeks to explain variation in homicide rates across counties in the United States today. An important explanation from social psychology, which draws from anthropological research in the Mediterranean (62), is that these differences are due to the presence of a “culture of honor,” which has its origins among stateless herding societies. In such societies, one’s flock is a valuable asset that can easily be stolen if one doesn’t exhibit sufficient aggression when faced with a threat. In these societies, a state or a rule of law are not well developed, and consequently a culture of honor tends to emerge. An important contribution from the field of social psychology was to develop measures, including innovative experimental measures, to document a greater prevalence of a culture of honor in the U.S. South than in the U.S. North (63). The implicit explanation for the North-South difference was that the South tended to be settled by Scotch-Irish immigrants who brought a culture of honor with them.

Although the explanation was plausible, it was never actually tested—at least not until Grosjean (64) combined county-level data on country of birth from U.S. historical censuses with contemporary homicide data. The author did indeed find that the historical immigration of Scotch-Irish was important. However, the story was a bit more complicated. She found that there was substantial settlement of Scotch-Irish immigrants in both the North and the South of the United States. However,

the cultural trait and its effects tended to persist in the South but not the North. Through further tests, she found that this was due to the less-developed legal and institutional environment in the South. That is, the culture of honor was more beneficial and tended to persist in the part of the United States where a formal rule of law was more absent. Where a rule of law was present, the cultural trait died out. Thus, according to the findings, this explains why experimental measures found a greater prevalence of a culture of honor in the U.S. South relative to the U.S. North.

As another example, consider the “matrilineal puzzle.” In matrilineal societies, descent passes through the mother, and the father does not belong to the same lineage as his children. Instead, he belongs to the same lineage as his sister’s children. Anecdotal accounts suggest that this creates a division within the family, which leads to discord and a lack of cooperation. This had led anthropologists to wonder why such a system would emerge and come to exist throughout the world. This question has come to be known as the matrilineal puzzle (65, 66). A recent study by Lowes (58) tackled this question directly by examining the consequences of matrilineal kinship among inhabitants of a large city, called Kananga, in the Democratic Republic of the Congo, which lies near the boundary of a strip of matrilineal societies that extend across Africa, called the matrilineal belt. By using surveys and behavioral games, and by comparing individuals who belong to an ethnic group that is just on one side of the border of the matrilineal belt to those from ethnic groups just on the other side, Lowes was able to obtain credible estimates of the consequences of matrilineal kinship. The author found that, consistent with anthropological accounts, matrilineal marriages exhibit less cooperation between the husband and wife. However, women are also more empowered and are able to control more of the family resources. As a consequence, children are healthier, are more educated, and have lower mortality rates. Thus, according to the study, the answer to the matrilineal puzzle is that a benefit of the lack of cooperation in matrilineal systems is that children are better off and thus there is higher fitness. This finding explains how such a system was able to survive. Given the findings, perhaps the question is: Why aren’t all societies matrilineal?

Over time, research on such questions has increasingly become truly multidisciplinary. In a recent collaboration between an anthropologist and a diverse trio of economists who work in economic history, behavioral economics, and cultural economics, Schulz *et al.* (67) studied the historical origins of “WEIRD” (Western, educated, industrialized, rich, and democratic) psychology. Their study shows how the policies of the medieval Roman Catholic

Church, such as the prohibition on cousin marriage, weakened extended kinship ties and led to a more individualistic social structure and psychology. To do this, the authors drew on insights and data from various disciplines, combining historical data on the duration of exposure to the medieval Western church, ethnographic data on the traditional prevalence of kinship practices such as cousin marriage and polygamy, and contemporary data on various psychological and behavioral characteristics. The research is an excellent example of an inquiry that combines the best of multiple disciplines. It is in this space that I expect the most fruitful research to be located in the future.

Understanding change

To date, the literature has primarily focused on documenting persistence and the long-term effects of historical shocks, but this is beginning to change. For example, the previously discussed research on the culture of honor (64) shows how the persistence of a cultural trait can depend on the extent to which it continues to be beneficial. Grosjean’s analysis shows that in counties with characteristics that were close to those that generated a culture of honor in the first place, the cultural trait persisted. But in settings with strong property rights protection, the cultural trait, which was no longer beneficial, appears to have died out.

Even shorter-run historical factors can be important in shaping an individual’s culture and psychology. A recent meta-analysis assessed the existing evidence on the importance of conflict exposure for cooperation (68). The typical study correlates experimental data on various aspects of a person’s psychology from behavior in experimental games, most commonly the trust game, dictator game, ultimatum game, or public goods game, with the participant’s past exposure to or participation in conflict. What emerges from this body of work is that individuals who were exposed to conflict behave more prosocially in the behavioral experiments. That is, they tend to allocate more of their endowments to the other players (or toward the public good) in the behavioral games. A follow-up study by Henrich *et al.* (69) provided evidence for a proximate mechanism, religiosity. The authors found that among individuals from Uganda, Tajikistan, and Sierra Leone, those who had more intensively experienced war violence participated more in religious rituals afterward. Thus, increased religiosity may be the proximate explanation for why conflict results in greater prosociality.

Studying cultural change at the intergenerational scale, a recent study (70) tested a class of evolutionary models that predict that the stability of the external environment is an important determinant of the importance that a society places on tradition (71). In a setting

where the world is very similar over time, then the traditions that have evolved until today will tend to be well suited for the current generation. If the environment is highly unstable, then these traditions may have been suitable for the setting of one’s ancestors but not for the current setting. The authors took this prediction to the data, measuring environmental instability using gridded climate data that dates back to 500 CE. They showed that individuals who have ancestors who lived in locations with more environmental stability across generations place more importance on tradition today and have cultural practices that are more stable (70).

Although this body of research presents initial steps toward a deeper understanding of historical change, much remains to be done. For example, we have little understanding of which cultural traits are more susceptible to change. Some customs are inherently more social than others (e.g., rituals or socialization activities); does this affect their stability and persistence? If certain beliefs, values, or actions are enforced through laws or formal institutions, does this make them less likely to change? Can the political or economic elite shape change? If so, how? Does change require coordination within the population, and does it feature tipping points?

Using history to inform policy

An important line of future research is better understanding how the findings of the literature can inform economic policy. The insight that events in the past can have effects that continue to matter today is potentially extremely important for policy. When thinking about these issues, some scholars have had a knee-jerk reaction against the importance of history, arguing that this line of research is overly deterministic and leaves no room for policy or human intervention more generally (72). However, such a view is flawed for several reasons. The first is that just because we find that historical processes or factors have persistent effects does not mean that this is the only thing that matters. There is ample evidence that shorter-term factors are also important and that change is as common as persistence (70, 73, 74).

The second flaw, and in fact a more conceptually important one, is the assertion that if much of the current state of the world is due to historical processes, then this leaves no role for policy (72). Even if all outcomes today are fully determined by certain invariable historical laws, this does not imply that we can take no action. As an analogy, consider the fact that one’s health is completely determined by certain biological laws. If one is exposed to frigid temperatures for an extended period of time, we know with certainty what will happen. The human body will lose heat faster than it can produce it, causing the body temperature to

drop below its normal 98.5°F. As body temperature continues to drop below 95°F, hypothermia occurs and the functioning of one's heart, nervous system, and organs is impaired. If this continues, one's heart and respiratory system will fail and death will occur. The process is deterministic. However, this does not mean that there is no scope for medical intervention. Clearly, there is. Thus, it is certainly untrue that the importance of history means that policy today is unimportant. There is no logical reason to think that the more historical or evolutionary we find the process of development to be, the less capable we are of designing effective interventions to change course.

Not only does a historical process of development not preclude the need for policy, it also can be leveraged to gain insights into policies and their effects. This, I feel, is where this line of research can have its greatest impact. One example of how history can inform policy is the important question of how to provide medical treatment to the poorest populations of the world. This might seem like a purely logistical issue, but it is not. It is well known in the development community that despite widespread benefits to health care, much of the world can be suspicious of Western medicine. In numerous instances, populations in developing countries refuse highly beneficial medical treatments such as polio vaccines and, most extremely, treatment for the deadly Ebola virus. There have also been numerous instances of the suspicion being so high that aid workers have been attacked and even killed (75).

Recent evidence shows that within Africa, much of this mistrust can be explained by a population's experience with colonial medical campaigns (76). The study shows that locations within French Equatorial Africa that experienced medical campaigns during the colonial period are today more likely to be suspicious of, and to reject, freely provided vaccinations and blood tests. The campaigns, which were intended to eradicate sleeping sickness, were often forced upon people at gunpoint. They also had unintended negative consequences. For example, it was eventually realized that the drug that they were using to cure sleeping sickness, atoxyl, caused blindness in about 20% of those treated. These findings are clearly relevant for policy today. The areas with these historical experiences do not trust Western doctors, and merely providing access to Western medicine using a one-size-fits-all strategy will not be enough. In addition, their findings caution about the adverse long-term consequences of administering medical services in an insensitive manner.

Such effects are not confined to non-Western populations. Alsan and Wanamaker (77) examined the long-term consequences of the government-run experiment in Tuskegee,

Alabama, where, for more than 40 years, African American men were intentionally withheld treatment for syphilis so researchers could observe the full life course of the disease. Participants were not told that they had syphilis and they were not given treatment. Participation in the study included regular physical check-ups, blood draws, spinal taps, and eventually an autopsy. The authors found that the study and its subsequent public exposure resulted in greater mistrust of the medical system by African American men, particularly those living closer to the location of the study. This has resulted in substantially higher mortality and lower life expectancy among this population, even today.

One of the authors, an economist and medical doctor, wanted to understand what could be done to undo this historical legacy. To make progress on this issue, she and her co-authors created mobile medical clinics that provided free medical services in Oakland, California. To obtain credible estimates of the importance of race, they then randomized the race of the doctor to whom each patient was assigned (78). They found that having an African American doctor had a large positive effect on the uptake of medical services by African American men. These effects were largest for invasive services and among individuals who had little experience with the medical system and who reported mistrusting the medical system. Thus, by taking into account the historical experiences of African American men with the medical system, they were able to design a very simple intervention that targeted an important root cause of low medical use and high mortality among African American men—namely, mistrust in the medical system and white doctors in particular.

Conclusions

At the time of writing, there is an active discussion about reparations for African Americans within the United States. The House Judiciary Subcommittee on the Constitution, Civil Rights, and Civil Liberties recently held hearings to study and develop reparations proposals for African Americans for the perpetuation of “gross human rights violations and crimes against humanity on African slaves and their descendants.”

Many policy-makers and economists argue that reducing racial inequality in the United States requires major structural change. A recent article argues that “For the gap to be closed, America must undergo a vast social transformation produced by the adoption of bold national policies, policies that will forge a way forward by addressing, finally, the long-standing consequences of slavery, the Jim Crow years that followed, and ongoing racism and discrimination that exist in our society today” [(79), p. 4]. These arguments rest on the presumption that slavery and Jim Crow have per-

sistent effects that continue to be felt today, which is something that the literature has recently established empirically (80–83). This is one example of the importance of our understanding of how economic prosperity exhibits a remarkable degree of persistence, and thus we cannot understand contemporary poverty and inequality without understanding its historical roots.

Although the emerging literature reviewed here has contributed to a more complete understanding of economic development, it has also created a renewed interest in economic history. In the past, the field was primarily viewed as only being relevant for better understanding the details of a particular historical setting, but not of broader interest or relevant for understanding the contemporary world. We have now come to realize that most historical episodes not only are important for the past but also have effects that ripple across time and are felt for many years down the line. We have now come to realize that it is impossible to fully understand the current state of the world, and how to move forward, without understanding the past and the dynamic processes that got us to where we are today.

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The historical roots of economic development

Nathan Nunn

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Deep origins of modern inequality

Methodological innovations are enabling scientists to study how events in the distant past affect contemporary life. Nunn reviews recent research at the intersection of history, development, and culture that aims to understand the cultural evolution of economic development. The persistence of global inequality is used as a case study to demonstrate the interplay of these dynamics. Future areas of research and implications for policy are discussed.

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