

## **Tests in Time**

A Review of *Natural Experiments of History*, edited by Jared Diamond and James Robinson (Belknap Press, 2010).

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*Much progress in the observational sciences is due to the genius of those who have discovered, critically evaluated, and compared ... natural experiments in fields where a laboratory experiment is impractical, if not impossible.*

Ernst Mayr (1997, p.29)

Laboratory experiments, where researchers manipulate one variable at a time in order to elucidate causal mechanisms, are a cornerstone of many fields in the natural and social sciences. However, as Mayr pointed out, such an approach is a non-starter for many historical questions. In *Natural Experiments of History*, Jared Diamond and James Robinson have collected a series of papers in order to argue that the same kind of comparative techniques routinely used in the natural sciences and other branches of the social sciences can be employed to tackle questions relating to human history. Such an endeavor is important as the discipline of History tends to employ narrative descriptions of particular periods and places in the past. Historians, and many in the related disciplines of Anthropology and Archaeology, generally spend a long time gaining in-depth knowledge about their particular specialization, and can be skeptical, if not down-right hostile, to attempts to generalize or extend their findings beyond their own narrow scope of study. The papers in this volume argue that important insights into human history and the current differences between societies can be revealed through the comparison of more than one society or time period. In particular, they suggest that historians can make use of fortuitous (from the point of view of the historian) cases where a kind of natural experiment has occurred such that only one or a few variables have been changed but most have been “kept constant,” thereby limiting the number of alternative explanations.

The meat of the book consists of a number of case studies of this comparative approach that span a variety of time periods, regional foci, and topics of investigation. These are book-ended by introductory and summary chapters

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that do a nice job of putting these studies in context, and drawing out the common themes across the individual studies. The first half of the book involves narrative accounts of different case studies where the authors describe and compare a handful of cases addressing a particular research interest. Pat Kirch's study of social and cultural evolution in Polynesian societies provides an excellent example of just how far such an approach can take you. Although his chapter focuses on the controlled comparison of just three societies (Mangaia, Marquesas, and Hawai'i), the insights gained rest on the wider comparison of Polynesian societies and the subsequent knowledge about the phylogenetic (i.e. historical) relationships between them (see Kirch and Green 2001). This allows Kirch to infer what aspects of these societies have been inherited from a common, ancestral Polynesian society and which aspects have changed in response to the unique environmental and social conditions in which these societies subsequently developed. In the second chapter, James Belich compares a number of "frontier societies" in the New World and Siberia during the 19<sup>th</sup> and early 20<sup>th</sup> century. He shows that despite differing conditions in time and space these societies went through cycles of economic booms followed by significant downturns before recovering, albeit at lower levels of growth than previously.

Stephen Haber compares the history of development of banking systems in Mexico, Brazil and the United States to understand how political institutions affect the loaning practices of banks and its impact on economic development. He argues that competitive banking systems that allow rapid economic growth and benefit wider sections of society can only arise in situations such as in the USA where there is greater suffrage and officials regulating these institutions are constitutionally limited. However, it is unclear in what way this situation resembles a laboratory experiment, as only three societies are considered and these differ in many ways. I also found it curious that the explicit comparative discussion of these cases comes only at the end of the chapter and seems relatively brief.

Diamond's chapter on intra- and inter-island comparisons marks a turning a point in the book: his purely narrative account of the differing current status of two countries on the island of Hispaniola (discussed in more detail below), contrasting with a quantitative statistical analysis of the risks of deforestation in sixty-nine Pacific islands. This second study argues cogently that the infamous collapse of Easter Island society may have been the result of the unfortunate confluence of a number of factors, such as its climate and lack of mineral replacement via volcanic dust, that made deforestation more likely.

The final three chapters all involve the quantification or categorization of variables and the application of statistical analyses to test the hypotheses being proposed. Nathan Nunn investigates whether the current under-development of many African countries is a legacy, at least in part, of slavery. This question is tackled by building an impressive database that provides historical estimates

on the number and ethnicity of slaves taken from each country. Nunn controls for a number of potentially confounding effects such as initial prosperity, and argues that slavery has indeed had long-lasting effects on the subsequent economic development of African countries. The statistical magnitude of the effects he finds suggest that had slavery not occurred, African countries may have attained the same level as other present-day developing countries.

Banerjee and Iyer, examine how differences in land tenure systems introduced during colonial times have affected the development of different economic institutions in India. They argue that those regions in which a system of land tenure where land rights were awarded to small village bodies, rather than large areas placed in the hands of a landlord, has led to greater public provision of things such as roads and schools. Importantly, Banerjee and Iyer show that the colonially imposed land tenure systems were not systematically biased with respect to the preceding, native land tenure systems, nor were colonial systems imposed in one particular geographic region, which lends support to the idea that changes in these systems have caused the differences in economic outcomes.

Finally, Robinson and colleagues ponder whether the rise of capitalism, and the uneven pattern of economic development in the world today can be traced back to the 18<sup>th</sup> century break-down of the *ancien régime* (i.e. the social and economic institutions associated with feudalism and the urban-based oligarchies that controlled commerce and occupations). Although these phenomena have been linked before, it is unclear whether capitalism led to the breakdown of *ancien régime* institutions, or vice versa, or if some other common factor was important in both developments. In order to tease apart these alternatives, Robinson et al. examine developments such as having a written civil code, agrarian reforms, and the abolition of guilds in different regions of Germany (selected due to its relative homogeneity of culture). These regions differ depending on whether they had their institutions reformed following invasions by French revolutionary armies, and then Napoleonic forces. The results clearly show that while Germany as a whole was undergoing increases in urbanization, the invaded regions experienced higher rates of urbanization than those regions that were not invaded. The really nice twist here is that in those regions that were invaded some came under the control of Prussia and kept their reforms, while some regions quickly re-instituted the old ways after the demise of Napoleonic rule. The authors demonstrate that urbanization proceeded at a slower rate in those regions that reverted to the old institutions, and in fact they seem to have developed even more slowly than those regions that were not invaded at all.

Readers of this journal are likely to find the quantitative chapters in this volume more satisfying. Quantitative approaches force the researchers to be more precise in defining the concepts they are talking about and make the level of support for any particular hypothesis more explicit, which makes it easier

for other researchers to interpret and build upon these findings. While some might argue that many of the topics of investigation in the social sciences do not lend themselves to quantification or statistical analysis, in fact the editors argue that the language of historians and others often imply some kind of quantitative comparison, and that at the very least some kind of categorical classification is always possible. They also state several times that in many cases that the topics traditionally tackled using narrative accounts could be placed on a more quantitative footing. For example, the approach Kirch employs in his chapter on Polynesian cultural evolution has recently been built upon with the application of formal phylogenetic comparative methods that are routinely employed in evolutionary biology (e.g. Holden and Mace 2003; Currie et al. 2010). Narrative accounts are not completely without merit, however, and can play an important role during the initial phase of an investigation, or in providing clear, readily understandable examples of particular instances of how certain societies have changed in line with the proposed mechanism.

One minor quibble I had was that in this volume the editors equate the comparative approach with the idea of natural experiments. However, I would argue that the comparative approach is a more general idea that can be employed in a wider array of situations, including cases where many more variables vary across the units of investigation than is usual in experiments (provided that appropriate statistical controls are implemented). While the idea that certain historical situations approximating the tightly controlled conditions of a laboratory experiment is a seductive one, the reality is that such situations are probably quite rare. This difficulty is illustrated by Diamond's analysis of the differing fortunes of the two countries that occupy the Caribbean island of Hispaniola. Diamond wants to understand why Haiti is such a poor, underdeveloped country yet its neighbor, the Dominican Republic, is relatively prosperous. On the face of it, this situation looks like a promising prime example of experiment-like situation with the border down the middle of the country creating a situation where we can hold the effects of environment and initial population constant, allowing us to assess the roles that differing social or political factors played on the economic development of these countries. However, Diamond's analysis reveals that things are not so clear-cut. Firstly, there is a clear environmental distinction between the two countries. The Dominican Republic is located on the wetter, windward side of the island, much more conducive to vegetative plant growth than the drier, leeward side of the island which Haiti inhabits. Secondly, the two countries were under the colonial rule of two different countries. The richer France ruled Haiti and was able to buy and import slaves, while carrying off the timber from the forests. Diamond argues that the Haitian Creole that developed among the slaves has left Haiti linguistically isolated, while the slave population was much lower in the Spain-controlled, Dominican Republic where the inhabitants now

speak the global language of Spanish. Therefore, although deforestation appears to have played a key role in Hispaniola's history it is unclear which of these numerous factors (or the interaction between factors) has been most important in leading to the current disparity between the two countries. To be fair, Diamond himself recognizes these issues and suggests that future work should address this issue quantitatively, and undertake further comparisons with other Caribbean islands. So while "natural experiments" is a potentially powerful metaphor, it is one that should be applied with care. I hope that uninitiated readers will take home the idea that comparative approaches in general can be a useful way to address historical questions, and can be employed in situations that do not overtly resemble laboratory experiments.

The unifying theme of the papers collected in this volume is undoubtedly methodological. The increased use of comparative approaches in disciplines such as History, Anthropology, and Archaeology is something to be applauded and encouraged. However, the social sciences will benefit not only from a closer methodological unity but also from a greater theoretical integration. Theories and methods developed originally in the biological sciences have been productively adapted to study change in human societies, and Darwinian evolutionary theory has the potential to be the same kind of unifying principle for studies of human diversity across space and time that it is in understanding biological diversity (Mesoudi et al. 2006). Such integration could hopefully facilitate greater collaboration between individuals who have traditionally been working within quite distinct disciplines. This could potentially be of great benefit in the discipline of History where, as the editors emphasize, historians often work in isolation and feel that broader comparative studies are superficial, and overly simplified. Collaborative research often involving large numbers of individuals is now routine in the natural sciences, and comparative studies of history would undoubtedly benefit from the input of experts on particular societies at particular points in time. The Austronesian Basic Vocabulary Database (Greenhill et al. 2008) provides an example of the benefits of such an approach from another branch of the social sciences. The Database has been able to draw on the expertise of large numbers of experts in individual languages to collate a vast amount of lexical data, which has then been used to rigorously test between competing hypotheses about the dispersal of societies speaking these languages using computational phylogenetic methods.

Overall, *Natural Experiments of History* is thought-provoking collection of essays that covers an impressive array of topics, and would make an excellent text for a course on comparative studies of human history. For those working in areas of the humanities or social sciences who are unfamiliar with comparative approaches, these studies illustrate the potential that such an approach holds for understanding why things happened in the past the way they did, and how the past has shaped the present. For those of us who come

from a background in the natural sciences, where comparative thinking is perhaps more common, this book provides a number of nice examples of how experiment-like situations can be identified and empirical studies can be implemented. They also demonstrate how the sometimes fuzzy concepts of the social sciences can be meaningfully quantified or categorized for the purposes of comparative analyses, and the care that needs to be taken in choosing appropriate variables and controlling for potential confounding factors. Hopefully, this book will encourage more Historians and other researchers to apply their expertise in comparative studies in order to understand the broader patterns of human history.

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