Institutions North and South: What AGuns, Germs, and Steel@ Can and Can=t Tell Us About New World Economies

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Jared Diamond=s *Guns, Germs, and Steel* has brought to a wide audience an examination of the role that climate and geography have played in shaping the path of human civilization. Historically, economic research has focused on the relationship between contemporaneous resource availability and economic growth. Much of the appeal of Diamond=s book comes from the fact that it highlights a much more fundamental relationship: the link between resource availability (or more generally, climate and geography) and the development of human society itself. Recently, economic research on the links between geography and such factors as income, economic growth, and development trends has grown substantially. While there is still a lively debate in the literature (Acemoglu, 2003, Rodrik and Subramanian, 2003, and Sachs, 2003 frame the discussion well) it is clear that this area of inquiry represents an important contribution to our understanding of economic affairs. Through effects both direct and indirect, geography matters.

The rapid growth of a related area of economic research has shown another consensus that is emerging: institutions matter. The importance of efficient institutions and the coordinating power of markets have become increasingly recognized as a central component of economic prosperity worldwide. A good deal of work has recently been dedicated to analyzing the relationships between institutions (both economic and political) and various measures of economic performance and well-being. This work has taken on additional significance as a result of the development of objective measures of economic freedom such as Gwartney and Lawson=s (2002) Economic Freedom of the World index, produced in conjunction with the Fraser Institute. A wealth of studies have been conducted with this data and the evidence continues to accumulate that institutions are an important determinant of economic performance. Niclas Berggren (2003), for example, summarizes some two dozen papers that examine the relationship between economic freedom and growth and finds that in no case do they show a negative relationship between economic freedom and growth or per-capita GDP.

Although it has been part of the literature, somewhat less attention has been focused on the reasons why particular institutional structures exist in particular countries. However, with such a strong emphasis now being placed on economic reform in places such as Latin America, Africa, and former Soviet republics it is particularly important to examine this question, as it can serve as a useful guide to formulating policy recommendations. This study looks particularly at economic performance in North and South America and draws insight from three areas of study: insight into the importance of geography, historical information about the colonization of the New World, and current research related to economic and political freedom.

There are really two questions that are interrelated and that must be addressed together: to what extent do current differences in economic performance throughout the Americas depend on the differences in institutions, and to what extent can historical factors help us understand or explain the current state. That is, to what extent has political and cultural history shaped the institutions that now exist and how has that process affected the original path of development of New World societies?

Which factors are important?

A few simple facts about the state of the Western hemisphere serve to frame the questions that this study will examine:

- $ Economic performance varies greatly between countries.
- $ Racial, ethnic, historic, and cultural factors vary greatly between countries.
- $ Economic and political institutions vary between countries.
- $ Geography varies between countries.

Understanding why we observe the different economic outcomes in different countries requires that we understand the relationships between these factors and the contribution that each one makes to economic performance. We can begin by considering three different time periods. The first period encompasses the initial development of societies in the New World. The factors that influenced this development are the ones discussed at length in *Guns, Germs, and Steel*, where Jared Diamond provides a plausible series of explanations for why development has proceeded differently in different areas.

The obvious advantage that guns, germs, and steel gave the Spanish over the Native Americans is clear from the pace at which the New World was conquered. The important factor, however, is why these weapons were in the hands of the Spanish in the first place, rather than in the possession of the Native Americans.

The spread of large and technologically complex societies in the New World was constrained by several important factors. The paucity of native crops and animals suitable for domestication severely restricted the possible gains from farming. Furthermore, the predominantly north-south axis of the Americas, with the concomitant variation in climate, limited the spread of those crops and animals that were initially domesticated (Diamond, p. 363). The absence of significant opportunities for intensive agricultural production limited the extent to which complex societies could develop.

While Native American societies were struggling with the limits that geography placed on the diffusion of plants, animals, and technology, Europeans were developing wealthier and more densely populated societies that facilitated the development of more sophisticated transportation networks and weapons. Ultimately, these differences came into direct and violent conflict as European countries conquered the empires of Central and South America.

The Inca and Spanish societies had followed two different paths that flowed from differences in plant and animal domestication, food production, population density and technological development. In the absence of any interaction between societies we might reasonably expect these different paths to persist for very long periods. In fact these persistent differences have been observed repeatedly. If a population group remains isolated, the society may remain at a less-complex level of development indefinitely: in New Guinea and Australia, for example, hunter-gather groups persisted well into the twentieth century. The societies of the New World did not remain isolated, however. Old World and New World societies collided in the sixteenth century and the consequences of that collision are still observable today.

How colonization affected institutions

This brings us to the second time period we will consider: the period after the initial colonization of the western hemisphere. Here we can observe the consequences that follow from this clash of societies. The European colonization of the New World represents not only the collision of the Old World with the New, but also the clash between different varieties of Old World society. Any confrontation of this sort will create dramatic change. Particularly, when a more powerful group dominates a less powerful group the culture, policies, and institutions of the dominated society will either be eliminated or radically changed. This dramatic change in populations and institutions will, in turn, have an effect on the development path of the conquered society. The direction and magnitude of the change in the development path will depend on the magnitude of the institutional change. A significant contribution made by Jared Diamond=s AGuns, Germs, and Steel@ is that it provides a description of the mechanism through which change takes place.

The initial building block of a complex society is the switch from a hunter-gatherer society to a sedentary agricultural society based on domesticated plants and animals. Archeology has shown that domestic food production arose independently in at least five separate areas around the world (Diamond, p. 98), but there are to other important ways that sedentary food production can take hold: the introduction of farming from somewhere else. A society can adopt a Apackage@ of domesticated plants (or animals) that has proven successful elsewhere, or the society can be displaced or out-competed by an invading group of farmers. Whether or not the introduction of farming succeeds depends on whether the geographic area is suitable and whether the available package is appropriate for the adopting society.

There are two reasons why food production failed to take hold in areas that were otherwise geographically suitable for farming. One reason hunter-gathers persisted is that, Apotent geographic or ecological barriers made immigration of food producers or diffusion of locally appropriate food-producing techniques very difficult.@ (Diamond, p. 112). That is, high transition costs discouraged change. The second reason is the inherent complexity of the domestication process. There are numerous examples of people who failed to domesticate a particular species of plant even though the historical record shows that the same plant was domesticated elsewhere. The explanation is simply that a society cannot domesticate just one plant. It would not be an improvement to give up a hunter-gatherer lifestyle in order to domesticate a single species of plant. Sedentary food production is most successful when people have a variety of plants available for domestication and, preferably, have domesticated animals available as well to provide power and manure for fertilizer. To a certain extent, people cannot pick and choose just a few plants or animals to domesticate. Success requires a specific combination of factors that are not always present.

This formulation of Diamond=s actually parallels in some respects the ABig Push@ theory of development economics (Murphy, et al 1989) where successful industrialization in an economy depends on complementarities between sectors. Even if limited market size constrains an economy from industrializing a single sector, simultaneous adoption of coordinated investment can provide the Abig push@ necessary to make industrialization self-sustaining. That is, economies cannot necessarily pick and choose which sector to invest in; they can achieve successful industrialization only by adopting the complete Apackage@ of investment in all sectors.

This analysis suggests a framework for looking at the effects of colonization on New World societies. Different areas in the New World were colonized by different European countries, each with it=s own mix of cultures and institutions. This may allow us to observe the effects of variations in the Apackage@ of institutions available for adoption by conquered countries. The effects of exposure to different institutional combinations should be particularly noticeable if, once chosen, a particular institutional arrangement has long-lasting effects.

With regard to the effects of European colonization on the New World there are two possibilities. One possibility is that it doesn=t matter who conquered where B New World societies had sufficient time and exposure to a sufficiently large variety of institutional possibilities that they were capable of adopting whichever strategies happened to be useful. This would be true if there were a competitive market for institutional arrangements, if institutional arrangements could be selected menu-style, and if there were low costs associated with switching between institutions. The second possibility is that it does matter who conquered where. The number of different possible institutional arrangements was limited, they could only be adopted in certain combinations, and there were significant obstacles to making changes once a particular path is adopted. Evidence indicates that the second scenario is more likely.

Why doesn=t every country adopt good institutions?

Three factors have limited the adoption of beneficial institutional arrangements in the Americas. First, the exposure of New World societies to different institutional arrangements was limited. Second, not all institutions that were brought to the New World were a good Afit@ socially and culturally in all areas. Third, once chosen a particular set of institutions are costly to change.

Limited opportunity

In the first case, it appears that exposure to different institutions was limited. Relatively few areas were contested between the British and the Spanish/Portuguese and in any case the contest for control over the Native Americans was one of military strength between the European powers with the outcome being imposed on the native citizens. That is to say, even when different systems were present, it was hardly a matter of choice for the Native Americans which institutional arrangements they were ultimately subject to.

Cultural fit

There is a further restriction on the possible arrangements that can be adopted in a society. Not all arrangements will be willingly embraced by a society, even if they have been successful elsewhere. Social change is generally incremental, and a particular rule may be viable only if it Afits@ with the prevailing culture. Peter Boettke (1996) reflects on this kind of institutional change. A limit to the number of viable institutional arrangements exists because the rules that are acceptable to a society are constrained by that society=s culture and history. He states it as a syllogism:

1. People respond rationally to incentives.
2. Incentives are a function of the rules of the game.
3. Rules are only RULES if customary practice dictates.

We know that efficient institutions facilitate material progress. Boettke believes that when culture and efficient institutions are compatible, "...experimentation flourishes and material progress lifts the masses of people from subsistence." But if a new institutional arrangement clashes with culture then not only are cultural norms undermined, but potentially productive economic activity is transformed into destructive rent-seeking behavior.

An example of what happens when institutions fit is described by Stephen Innes (1995) in a study of early New England colonies. According to Innes the particular mix of Puritan ethics and British culture fostered economic development by wedding a strong work ethic to a cultural respect for property and enterprise. This mix was possible because the British colonists were already part of a culture that had long since reached a level of complexity for which this type of arrangement was appropriate. This is in contrast to native societies that may have had similar rules imposed on them from outside. In *Guns, Germs, and Steel*, Diamond (p. 268-269) points out that societies experience different stages of development: Abands, tribes, chiefdoms, and states@. Each level of development has a corresponding Aappropriate@ level of economic sophistication, set of social rules, form of political organization, etc. Economic and political institutions that were appropriate for a complex European state would not necessarily be appropriate for (or acceptable to) a tribe or chiefdom. It would hardly be surprising if the imposition of these rules by the Spanish failed to meet with widespread acceptance or success. Boettke=s thesis implies a problem like this as well B the economic institutions that are known to sustain markets and facilitate economic growth are only appropriate for a particular type of society.

The mix of cultures and institutions surely matters as well. The idea of Aculture@ also encompasses forms of political organization and participation, particularly the possibility for rent seeking. Diamond explicitly recognizes this in *Guns, Germs, and Steel* in his discussion of different types of societies (Diamond, p. 268-269). Only groups as large as chiefdoms or states are compatible with Aredistributive@ exchanges, in the form of tribute or taxes. But a society with tribute or taxes is also a society that can sustain rent-seeking behavior, as different individuals or groups compete to become the recipients of those redistributions. As we will see below, the sustainability of rent-seeking in New World societies had important implications for colonies dominated by Spain.

In fact, one need not look solely at European colonization for evidence of the importance of culture in shaping the transformation of institutions. We see a variation of this struggle today in transitional economies. Former Soviet economies have chosen different paths toward market liberalization. Their success depends on adopting efficient institutions, to be sure. But we also see that countries can be successful without necessarily adopting identical strategies. From a variety of possible efficient strategies, policymakers can choose the one that most closely matches the culture.

This is true in contemporary Latin America as well. Joan Pratt I Catalá (2003) explores the role of institutions in the failure of the AWashington Consensus@ (a package of economic policy reforms) to bring significant reform to Latin America. As Pratt I Catalá and others have pointed out, the main obstacle has generally been the implementation of proposed changes, not the policies themselves. Since implementation is necessarily a political process, political institutions, cultural norms, and the politicians themselves shape the adoption of new policies. But to ensure a successful transition these institutions and norms must themselves be capable of facilitating change. The difficulties created by the implementation of the Washington Consensus provide further evidence of the need for economic change to have a good fit with the prevailing social structure. As Pratt I Catalá puts it, Apolitical institutions must evolve in order to achieve the facilitating framework for incremental change.@

Path dependence

Douglass North (1990) emphasizes the importance of path dependence for development. Once a society has established a set of rules, practices, and customs (or had a set forcibly imposed on them) deviations from that path will tend to occur at the margin and the set of possible alternatives will be limited by prior choices. The colonization of the New World represented a radical change in the type of society that had developed prior to the arrival of the Europeans. The change was imposed at great cost and once in place created a framework that would continue to influence the development of those societies for centuries.

The current state of institutions throughout the Americas is strongly influenced by the initial conditions set by the European conquerors. Those differences (discussed in more detail below) can be expressed by contrasting Spain=s emphasis on centralized bureaucratic control with England=s emphasis on decentralized market activity. Even the revolutions for independence throughout the Americas did not seek to radically change these initial paths.

Revolutions for independence in Latin America were fought over who would control the bureaucratic apparatus, not whether the centralized bureaucracy would be replaced by something else. Similarly, the American Revolution was fought for control over a system that the colonists largely desired to keep. This path dependence is influenced by the existence of substantial costs associated with institutional change.

If there are increasing returns to a particular set of institutions (as North suggests) then a society can become Astuck@ on a sub-optimal path. For example, given that a rent-seeking bureaucratic society existed in 19th century Guatemala, what could cause it to change? Certainly, those who benefited from the system would not willingly give up power. Even if a change in institutions would be efficiency-enhancing, the costs to those in power could be sufficiently large as to preclude any significant change from within. Sokoloff and Engerman (2000) also point out that inequality in New World economies was generally perpetuated. Institutions designed to protect the privileged classes reinforced the significant wealth inequalities that arose as a result of the Europeans= initial conquest.

What are the differences between North and South?

One obvious, if somewhat crude, observation about the differences between North and South can be heard in everyday language. In the United States and Canada, the majority of native-born residents speak English or French. South of the US/Mexico border the majority of native-born residents speak Spanish, Portuguese, or indigenous languages. (Of course, the widespread use of Spanish in the United States results from the immigration of people from Mexico and points south.) These differences can be traced back to the European colonization of the Americas, with northern areas being dominated by the British, French, and Dutch and the southern areas being dominated by the Spanish and Portuguese.

For all countries involved, the colonization of the New World was ultimately about treasure. In Spanish-dominated areas (particularly what is now Mexico and Peru) there were large native populations who could be enslaved and sophisticated societies that could provide tribute. This allowed Spain to develop a system that was primarily extractive. Initially, Spanish settlement was driven by the need for a limited number of politically well-connected people to administer the *encomienda*, where indigenous people were required to pay tribute from the lands that had been granted to the conquistadors. This eventually gave way to a system of *repartimiento*, where native people could be forced to provide services to the state upon payment of a wage. Finally, a rising demand for labor as a result of increased cultivation drove the system of debt peonage from the early 19th century well into the 20th century. Under this system, workers fell further into debt (through wage advances and compulsory buying from employer-controlled monopolies) until they lost their land and were essentially indentured for life. Throughout these periods the Spanish maintained a high degree of centralized control that was consistent with their political organization in Europe.

In contrast to the Spanish experience in the south, there was a relatively low population density, as well as smaller and generally less complex societies, among the native people in eastern North America. With fewer opportunities for forced labor and tribute, colonists had to rely more heavily on labor from Britain. Furthermore, English colonies in North America were more likely to be viewed as settlements for Europeans. These Asettler colonies@ required a different set of institutions: institutions more appropriate for production and mutually beneficial transaction than for extraction. (Acemoglu, *et al* 2001a). These choices of institutional arrangements shaped dramatically different societies, and those differences persist to this day.

Imported institutions

It is important to recognize, however, that these differences did not arise solely as a consequence of New World geography. It is not that colonies in eastern North America would inevitably have one set of institutions while South American colonies would inevitably have another. There had been long-standing divisions between the institutions of the British and the Spanish going back to the 15th century. North=s (1990 p. 113-117) description of the path dependence that developed for both countries highlights the distinction between Britain=s more decentralized move toward secure property rights and the rent-seeking character of Spain=s bureaucracy. North (1990, p. 116) points out:

> AU.S. economic history has been characterized by a federal political system, checks and balances, and a basic structure of property rights that have encouraged the long-term contracting essential to the creation of capital markets and economic growth. YLatin American economic history, in contrast, has perpetuated the centralized, bureaucratic traditions carried over from its Spanish/Portuguese heritage.@

The Great Debate: Geography vs. Institutions

Given the foregoing explanations, there should be a variety of ways to identify factors that have contributed to differences in economic performance throughout the Americas. While this study takes as it=s starting point the book *Guns, Germs, and Steel*, there have been many studies that have identified a relationship between geography and economic development. Significant in the recent literature is the work of Jeffery Sachs, such as Gallup and Sachs (1999), McArthur and Sachs (2001), and Sachs (2001). All of these works emphasize the importance of geographic factors such as climate, distance from the coast, and disease susceptibility. While some authors (Rodrik, *et al.* 2002) suggest that institutions are virtually the only things that are important, most researchers agree that while geography plays an important role it is but one of several factors that determine economic development.

The literature is particularly rich with discussion of the various ways in which geography, institutions, and history interact. Engerman and Sokoloff (2002) argue that differences in current levels of economic activity are attributable to the inequality in wealth, human capital, and political power that arose after the colonization of the New World. This suggests the importance of institutions. They claim, however, that this inequality resulted largely from preexisting differences in agricultural productivity and population density. So geography plays a role as well. And neither geography nor the development of post-colonial institutions in the New World can fully account for the clear parallels between differences in institutions that existed in Europe prior to colonization and the differences that persisted after colonization.

Rodrik, *et al.* notwithstanding, most researchers can find that objective geographic measures improve the explanatory power of models explaining differences in output or growth rates. A simple example is illustrative: In Economic Freedom of the World 2001, Gwartney, Skipton, and Lawson (2002) present a simple model that explains variations in GDP on the basis of trade openness, stability of property rights, and price stability. Their analysis, reproduced in Appendix 1A, indicates that trade openness, secure property rights, and price stability are all statistically significant and positively related to real GDP per capita. The adjusted R-squared is 0.63. To this model I have added a measure of geographic suitability for development. Specifically, I use Gallup and Sachs= (1999) malaria index for 1994. This measures the fraction of a country=s land area and population subject to malaria. The malaria measure is significant and negatively related to output (the other variables retain their significance). The adjusted R-squared rises to 0.71.

While this illustration is overly simplified it does suggest, along with other work, that geographic differences are still important in explaining at least some of the differences in current economic performance. Unfortunately, the number of British colonies in North and South America is too small to allow for a direct test of the historical effects of institutional differences. We can, however, rely on anecdotal evidence (a la North 1990) to infer a pattern of institutional and economic differences based on patterns already in place in Europe at the time of colonization.

Conclusion

Jared Diamond introduces *Guns, Germs, and Steel* as an attempt to answer AYali=s question@. Why are some countries rich and others poor? Why have some countries raced ahead while others have been left behind? He goes on to make a convincing case that geography matters. Especially at the outset (that is, for the initial development of a society) it may be the only thing that matters. Jeffery Sachs has made a case that the effects of geography are also persistent. This is particularly true of the effects of variables such as tropical climate, and distance from the coast.

Geography can also shape institutions, as Gallup and Sachs (1999) point out. However, it is just as clear that good institutions and an accommodating culture can overcome deficiencies in geography. The United States and Canada, as well as Australia and other countries are ample evidence of this. The culture of a society can have profound and persistent effects on development by influencing the adoption of different institutions. The culture that exists in North and South American countries was shaped profoundly by differences in the countries that colonized different areas.

Surprisingly however, the role of climate and geography is not the most important thing that *Guns, Germs, and Steel* has to tell us about different development paths in North and South America. The important insights for understanding current economic differences are the factors affecting how countries adopt institutional Apackages@ that have proven successful elsewhere. Diamond explores this mechanism as it applies to food domestication. But there is a clear analogy to the adoption of economic institutions. Economically successful institutions will not necessarily be easily transferable from one society to another. As a consequence, differences in economic success between countries can persist. The difficulty that many New World economies had in adopting an appropriate set of institutions, combined with the high cost of changing those institutions once adopted have contributed significantly to differences in economic outcomes.

The lesson for economists, and perhaps more importantly for policy makers, is twofold. Imperfect geography does not sentence a country to permanent poverty; the adoption of efficient institutions can allow even countries with poor climate characteristics to flourish. But equally important, the adoption of good institutions is not simply a matter of following a recipe set forth by successful countries. A particular pattern of rules and culture must develop from institutional structures already in place. The path-dependent nature of institutional evolution may mean that ideal institutions are unattainable in the short run. But the possibility for incremental change of existing institutions means that improvement is always possible.

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Appendix 1A