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States and Markets: The Advantage of an Early Start*

VALERIE BOCKSTETTE

unaffiliated

AREENDAM CHANDA

Department of Economics, North Carolina State University, Raleigh, NC 27695

LOUIS PUTTERMAN

Department of Economics, Brown University, Providence, RI 02912

In this paper, an index of the depth of experience with state-level institutions, or state antiquity, is derived for a large set of countries. We show that state antiquity is significantly correlated with measures of political stability and institutional quality, with income per capita, and with the rate of economic growth between 1960 and 1995. State antiquity contributes significantly to the explanation of differences in growth rates, explaining half of the differences in growth rates between countries like China and Mauritania, which are located at the two ends of the spectrum. It is also a good instrument for ''social infrastructure,'' which explains cross-country differences in worker productivity.

Keywords: economic growth, economic development, comparative economic systems

JEL classification: O40, O10, P50

1. Introduction

States and markets have sometimes been viewed as competitors, but in the last decade, there has been increasing agreement that a capable state can play an important facilitating role in the process of economic development.[1] A number of studies have explored the empirical connection between measures of political stability and bureaucratic competence, on the one hand, and rates of economic growth, on the other.[2] There is some evidence from these, and also arguments at the case study level, that a stable and competent state is indeed a contributing factor in economic growth. But what gives rise to effective states?

In this paper, we investigate the possibility that differences not only in state capacity but more broadly, in the capacity to mount an effective drive toward economic development,

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derive in part from very long run historical processes giving rise both to early state-level institutions and to different potentials for growth in recent decades. We develop an index of the antiquity of the state, and show that it is a robust predictor of recent economic growth in the presence of a variety of economic, institutional, and regional controls. We show that the index is correlated with indicators of current institutional capacity and stability, but has predictive power in growth equations even when the latter are controlled for. Finally, we show that while the antiquity of the state is not a robust proximate determinant of the level of development, it is an effective instrument for the social infrastructure variable used in Hall and Jones (1999).

2. Early States and Modern Growth

Imagine a series of political maps of the world, in which the areas occupied by kingdoms, empires, or states are shaded, the rest unshaded. By 10,000 BCE, there is human habitation in all of the continents except Antarctica, but the map of the world remains entirely unshaded, since people live in small bands or clan groups and there are no signs of political structures uniting even a few thousand individuals. By 1500 BCE, the map would be shaded in portions of Mesopotamia and of the Nile, Indus, and Yellow River valleys and would remain unshaded almost everywhere else. On the eve of Columbus's 1492 voyage, the map would be more widely shaded, but would remain unshaded for large parts of the Americas and Africa, all of Australia, and smaller portions of Europe and Asia. By 2000 CE, the inhabited world would be fully shaded and comprised of nation states. A review of the earlier maps would make it clear that some of today's nations (for example, China) have histories stretching back thousands of years, while others (for example, New Guinea) have much shorter state histories.

A longer history of statehood might prove favorable to economic development under the circumstances of recent decades for several reasons. There may be learning by doing in the ways of public administration, in which case long-standing states, with larger pools of experienced personnel, may do what they do better than do newly formed states. The operation of a state may support the development of attitudes consistent with bureaucratic discipline and hierarchical control, making for greater state (and perhaps more broadly, organizational) effectiveness. An experienced state like China seems to have been capable of fostering basic industrialization and the upgrading of its human capital stock even under institutions of government planning and state property in the 1960s and 1970s, whereas an inexperienced state like Mozambique sowed economic disaster when attempting to pursue similar policies a few years later. Such differences may carry over to a market setting—contrast, for instance, the late 20th century economic development of Japan and South Korea, modern countries with ancient national histories, with that of the Philippines, a nation that lacked a state before its 16th century colonization by Spain.

Historically, the technological, social and economic development of the world's societies between Neolithic times and the present was not a one step process of leaping from a ''backward'' or ''traditional'' economy to a ''modern'' and industrial one. Instead, there were multiple steps involving a transition from hunting and gathering in small bands to the development of settled village agricultures to the rise of more densely settled

agrarian states with currencies and taxation and finally the development of modern enterprise systems, markets, and public sectors (Boserup, 1965; Diamond, 1998). While the shifts to village agriculture and then to agrarian states predated the rise of modern industry by a thousand years or longer in places like southern Europe and China, some societies have tried to collapse the transition to an industrial society from one of village agriculture, pastoralism, or hunting and gathering, into a generation or two. There are indications that this is difficult, perhaps in part due to limits on the rate of change of social attitudes and capabilities. Statistical evidence suggests that a more ''advanced'' position on the densely populated agrarian state end of the continuum of pre-modern societies has been conducive to economic growth in the latter part of the 20th century (Burkett et al., 1999; Chanda and Putterman, 2000). While those studies use Boserupian indicators like population density to measure the stage of development, the presence of an early state may be an equally good indicator of early development, or may reflect dimensions of early development that the other indicators miss.

Finally, as Diamond argues with reference to China, nationhood fosters linguistic unity. With nationhood and a common language may come a sense of common identity. These factors may be helpful for the avoidance of the civil wars and other forms of political instability that have had devastating impacts on many economies (Easterly and Levine, 1997). A unified state and a common language and identity may also facilitate the trust and ease of social interaction discussed in the literature on social capital (Putnam, 1993; Knack and Keefer, 1997; Temple, 1998).

3. Related Literature

The idea that differences in state effectiveness or in other forms of ''social capability'' underlie differences in levels and rates of economic growth has been suggested by a number of contributors to the recent literature on economic growth. Abramowitz (1986) argues that a ''country's potential for rapid growth is strong not when it is backward without qualification, but rather when it is technologically backward but socially advanced.'' Temple and Johnson (1998) find that after controlling for initial income per capita, the average economic growth rates for the period 1960–1985 for 60 countries for which the required data are available are higher for countries with higher values of a modernization or ''social development'' index based on measures in Adelman and Morris (1967). The index continues to be a significant predictor of economic growth after controlling also for human capital and investment rates, suggesting that social capability works through channels not captured by the investment rates, formal schooling measures or the initial level of development.

Hall and Jones (1999) postulate that differences in capital differences in capital stock, total factor productivity and output per worker are driven by differences in ''social infrastructure,'' which they define as ''institutions and government policies that determine the economic environment within which economic individuals accumulate skills, [and] firms accumulate capital and produce output.'' The authors proxy ''social infrastructure'' by the mean of (a) an index of country risk to international investors, and (b) an index of openness to international trade. To account for the likely two-way relationship between

income levels and social infrastructure, they attempt to identify exogenous instruments for that variable. They find that distance from the equator, the extent to which French, German, Spanish, and especially English are spoken as first languages and the predicted trade share of an economy, are effective predictors of social infrastructure. Using these variables as instruments, they find that variations in social infrastructure can account for a 25.2-fold difference (out of an overall 35.2-fold difference) in output per worker across economies.

Another ''social'' variable that has received much recent attention in economics as well as in sociology and political science is ''social capital''. Used extensively by sociologists such as James Coleman (1988), the term was introduced into economics by Loury (1977), who used it to describe the ''authority regulations, relations of trust and consensual allocation of rights which establish norms.''[3] This usage overlaps with but differs slightly from that of sociologists, for instance Narayan (1997), who uses social capital to refer to ''the quantity and quality of associational life and related norms'' (p. 1) and to ''the rules, norms, obligations, reciprocity, and trust embedded in social relations, social structures, and society's institutional arrangements which enable its members to achieve their individual and community objectives'' (p. 50). In recent discussions of social capital in economics, the concept is related to the extent of trust, associational memberships, and general social and political participation (Temple, 1998). Robert Putnam's (1993) argument that a more vibrant associational life leads to better government and economic performance was based on observations in northern Italy and has been accorded great attention by economists.

Knack and Keefer (1997) try to measure the importance of social capital to economic growth by constructing indicators of the level of ''trust'' and ''civic norms'' for 29 market economies, based on the World Values Survey. They find that both indicators are significant predictors of per capita income growth in the period 1980–1992. Furthermore, both measures are higher in countries that effectively protect property rights and contracts and in countries that are less polarized along lines of ethnicity and class. Countries with higher amounts of both also have lower economic inequality (as measured by the Gini coefficient). Unfortunately, the sample of countries for which the required measures are available consists mainly of developed and middle-income economies.

La Porta et al. (1998) examine the laws governing investor protection, the enforcement of these laws, and the extent of concentration of ownership of shares in firms across countries. On a similar historical note they find that countries with different legal histories offer different types of legal protection to their investors. Most countries' legal rules, either through colonialism, conquest or outright borrowing, can be traced to one of four distinct European legal systems: English common law, French civil law, German civil law and Scandinavian civil law. They show that countries whose legal rules originate in the common law tradition offer the greatest protection to investors. As far as law enforcement is concerned, German civil law and Scandinavian civil law countries emerge superior. The French civil law countries offer both the weakest legal protection and the worst enforcement. These legal origin variables have been increasingly adopted as exogenous determinants of institutional quality in the economic growth literature. In particular, given their usefulness in predicting various indicators of investor rights and protection, they have been used widely as instrumental variables for financial market development.[4]

The theme of a multi-stage economic transition from the Neolithic to the Industrial economy is developed in several studies. Goodfriend and McDermott (1995) develop a model in which an economy passes through three epochs—the pre-market civilization, the pre-industrial development phase (beginning with the appearance of markets and cities sustained by large enough populations a few thousand years back) and the modern regime (beginning with the industrial revolution) in which productivity grows endogenously regardless of population growth. Galor and Weil (2000) provide a unified model that initially gives rise to a transition between a Malthusian epoch, in which population growth is associated with low and stagnant income per capita (but not stagnant technology), and an era of post-Malthusian growth, where both incomes per capita and the population growth rate rise. Ultimately, the model captures the transition from the post-Malthusian regime to the modern growth regime, the latter period characterized by increasing incomes per capita and slowing population growth. The model captures the pre-Malthusian observation that regions with greater population densities were the ones that also exhibited technological superiority without necessarily having higher average incomes. This latter model might be linked up with models of differential biogeographically driven change of the type proposed by Diamond (1997) and recently studied by Olsson and Hibbs (2002), thus predicting more rapid economic growth where earlier and more successful agricultural growth led to earlier high population densities and, concommitantly, to larger scale social and political structures including states. Such a hybrid model would direct attention to the importance of investigating whether an early state is a determinant of more rapid development in its own right, or merely proxies for other determinants like early population density, or even the biological and geographic determinants of the latter.

A last set of studies that are worthy of remark in view of their relationship to the present one are those of Acemoglu et al. (2001, 2002), who study the histories of countries colonized by Europeans after 1500. They argue that where European settlement was discouraged by settler susceptibility to disease (Acemoglu et al., 2001) or where the extraction of surpluses was favored by the presence of dense, urbanized, and relatively prosperous populations (Acemoglu et al., 2002), institutions suited to extraction rather than investment were put in place, leading to an eventual ''reversal of fortunes'' wherein the low-density countries (often settled by large numbers of Europeans) overtook the high-density (usually indigenous majority) countries in level of development. While Acemoglu et al.'s ''reversal'' may help to explain why we do not find early states to be proximate determinants of contemporary development levels, those authors do not consider the advantage that early states may have conferred in the ''catching up'' phase of 1960–1995.

4. State History: Construction and Correlations

Do countries having a longer history of state-level institutions perform better on indicators of political stability and bureaucratic quality? In levels of income and rates of economic growth? To explore these questions, one first needs a measure of the antiquity of the state. Finding no existing series of data ready to hand, we compiled a rough index of state antiquity as follows.[5] We began by dividing the period from 1 to 1950 CE into 39 half

centuries.[6] For each period of 50 years, we asked three questions (and allocated points) as follows: (1) Is there a government above the tribal level? (1 point if yes, 0 points if no)[7]; (2) Is this government foreign or locally based? (1 point if locally based, 0.5 points if foreign [i.e., the country is a colony], 0.75 if in between [a local government with substantial foreign oversight][8]; (3) How much of the territory of the modern country was ruled by this government? (1 point if over 50 percent, 0.75 points if between 25 percent and 50 percent, 0.5 points if between 10 percent and 25 percent, 0.3 points if less than 10 percent).[9] Answers were extracted from the historical accounts on each of 119 countries in the *Encyclopedia Britannica*. The scores on the three questions were multiplied by one another and by 50, so that for a given 50–year period, what is today a country has a score of 50 if it was an autonomous nation, 0 if it had no government above the tribal level, 25 if the entire territory was ruled by another country, and so on. We then combined the data for the 39 periods, experimenting with different ways of ''discounting'' to reduce the weight of periods in the more remote past.[10] Finally in order to make the series easier to interpret, the resulting sum was divided by the maximum possible value the series could take given the same rate of discounting the past. Thus the value that the index can take for any given country lies between 0 and 1. It should be emphasized that the index is a crude one, if only because it is based on a secondary source. The strong results that follow suggest that a more intensive research effort to measure the depth of state history in different countries would be desirable.

Most of our correlation and regression results are robust over a range of assumptions about how rapidly the effect of the past is dissipated; to simplify exposition, we focus on a series we will call *statehist5*, which reduces the weight on each additional half century by a moderate 5 percent.[11] Table 1 shows the average values of *statehist5* for seven macro regions, with region averages calculated using country populations in 1960 as weights. Appendix A shows individual country values of *statehist5* and versions of the index for alternative rates of discounting the past. The highest value of *statehist5* is 1, for China, while the lowest value is 0.066, for Zambia. Appendix B lists the correlations of *statehist5* with variants of the measure which place different weights on the past. Appendix C shows how the index is formed by reviewing two country examples: Italy ($statehist5 = 0.81$), and Colombia ($statehist5 = 0.26$).

In Table 2, we present simple correlations between *statehist5* and sets of political and institutional quality indicators, social and demographic indicators, and measures of per

Table 1. Regional averages of *statehist5* (weighted by 1960 population).

	Statehist5
Europe	0.79
Asia	0.79
Middle East & North Africa	0.64
Sub-Saharan Africa	0.32
Latin America/Caribbean	0.30
North America	0.20
Oceania	0.16
Total	0.41

Table 2. Correlations with *statehist5*.

Political and Institutional Quality Indicators	Assassinations	Riots	Government Crises
Correlation	−0.1733‡	0.1869‡	0.2627*
Sample size	96	92	99
	Political stability	Lack of corruption	Lack of Government repudiation of contracts
Correlation	0.2437‡	0.3800*	0.5005*
Sample size	62	90	90
	Lack of expropriative risk	Rule of law	Bureaucratic quality
Correlation	0.4559*	0.3995*	0.3911*
Sample size	90	90	90
Social and Demographic Indicators	Ethno-linguistic fragmentation	Social development§	Population density 1960
Correlation	−0.2985*	0.4468*	0.1974*
Sample size	98	39	103
	Trust	Civic norms	
Correlation	0.1227	0.3077*	
Sample size	29	29	
GDP and Growth Indicators	GDP pc 1960	GDP pc 1970	GDP pc 1980
Correlation	0.2463†	0.3380*	0.3746*
Sample size	101	101	101
	GDP pc 1990	GDP pc 1995	GDP growth 1960–1995
Correlation	0.4589*	0.4747*	0.5317*
Sample size	101	101	94

Notes: *Statistically significant at the 0.01 level; †Statistically significant at the 0.05 level; ‡Statistically significant at the 0.10 level; §Excludes Latin America/Caribbean.

capita income and growth, calculated (with one exception) for the maximal sample of countries for which relevant data are available. These correlations provide strong support for the conjecture that a long state history is conducive both to better contemporary state performance and to a higher income and growth.

The *International Country Risk Guide* (ICRG) published by Political Risk Services—a firm that specializes in assessment of risk in various countries—provides data on various indicators of the quality of governance. These include measures of (a) corruption (b) government repudiation of contracts, (c) expropriative risk (d) rule of law, and (e) bureaucratic quality, among others.[12] As is apparent, *statehist5* is significantly positively

correlated with all of these variables. It is also positively correlated with Mauro's (1995) index of political stability. Countries with high values of *statehist5* also experienced fewer political assassinations during 1965–1969.[13] However, political instability was lower in these countries if measured by the number of riots and of government crises.[14]

Table 2 also shows *statehist5* to be significantly positively correlated with the level of real GDP per capita for various years (1960, 1970, 1980, 1990 and 1995) and with the average rate of growth of real GDP per capita between 1960 and 1995.[15] An interesting feature of Table 2 is that *statehist5* is found to be more correlated with per capita income as time unfolds, and more strongly correlated still with the growth rate of income. One reason why this might be the case is that the positive effect of *statehist5* becomes increasingly visible as the negative impact of colonialism fades away. Equivalently, less developed countries with longer histories of national-level experience displayed a greater relative advantage in income generation after two or three decades of policy experimentation than at the outset of the post-colonial era.[16]

The types of correlations seen here do not, of course, imply causality. Although the long run nature of *statehist5* means we need not worry about reverse causality, it is possible that the state variables are proxying for more direct determinants of political system performance, income levels, and growth. *Statehist5* may proxy for geographic region, which could influence the growth rate for reasons of the sorts adduced by Diamond (1998) and Olsson and Hibbs (2002) or by Gallup et al. (1999). Early states are associated with higher population densities, and Table 2 shows this correlation to persist when looking at population density in 1960. Could the latter be the real cause of faster growth? Another example, mentioned above, is that an early national government is likely to be associated with greater linguistic homogeneity, which several studies suggest is associated with more rapid growth. Table 2 shows that *statehist5* is indeed negatively correlated with the main index of ethno-linguistic heterogeneity (ETHNIC) used by Easterly and Levine, significant at the 0.01 level. State experience may also be correlated with modernization or social development, as studied by Temple and Johnson (1998). Their social development index, covering mainly developing countries, is significantly positively correlated with *statehist5* when the sample excludes Latin America, but there is no correlation in this case for the full sample.[17] Also *statehist5* has a strong correlation with Knack and Keefer's (1997) measure of civic norms, although it is less strongly correlated with their measure of trust. Finally, we have seen that *statehist5* is correlated with various measures of contemporary state quality. Might these be treated as the proximate causes of faster growth, with the age of the state per se being of no further interest in its own right?[18]

5. Relationship with Recent Economic Growth: Multivariate Analysis

The relationship between the rate of recent economic growth and the length of state experience is the main focus of our paper. The correlation between the two variables that is reported in Table 2 is shown graphically in Figure 1, which plots the values of *statehist5* against the growth rate of GDP per capita in 1960–1995 for the 94 countries for which the two variables are available. To check whether an early state is associated with the rate of growth after other influences are controlled for, Table 3 reports a set of exercises in which

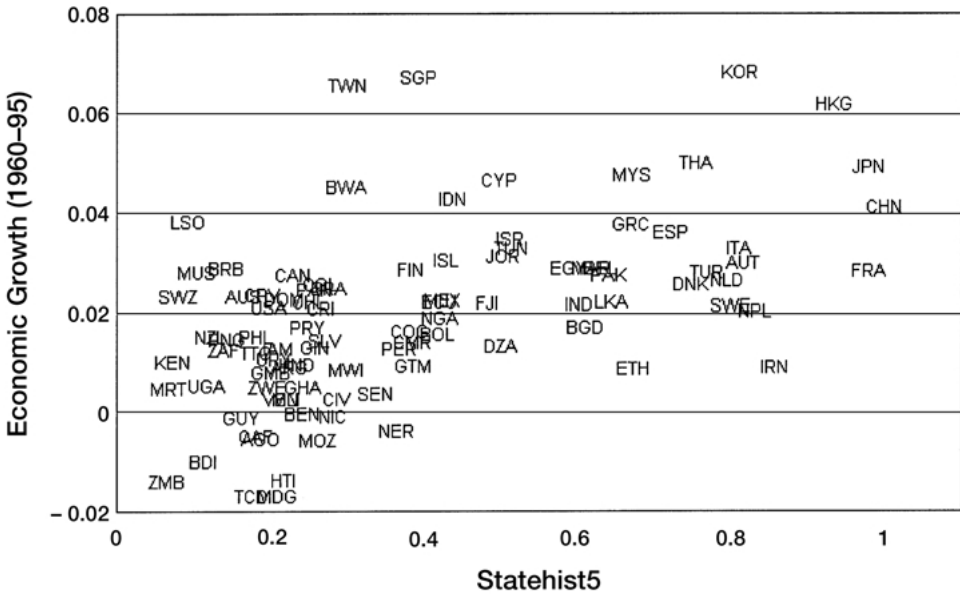

Figure 1. State history and economic growth.

statehist5 and related variables are added to a set of cross-country growth regressions modeled on those of Barro (1991) and Mankiw et al. (MRW, 1992). Column 1 shows a baseline regression including only the core explanatory variables studied by MRW.[19] The dependent variable is the growth rate of real GDP per capita from 1960 to 1995, and the independent variables are logarithm of per capita GDP in 1960, the secondary school enrollment rate of 1960 (Schooling), the population growth rate for 1960 to 1995[20], and the logarithm of the average gross domestic investment share of GDP from 1960 to 1995.[21] In column 2, we add *statehist5* and find that it has a positive coefficient significant at the 1 percent level. The addition of *statehist5* increases the proportion of the variance explained by the regression from about 47 percent to almost 58 percent.

Figure 2 presents a scatter plot of the orthogonalized residuals for growth rate and *statehist5* after controlling for all the above variables. A visual inspection of the scatter plot confirms the positive association between the two variables. However, it also clearly shows Hong Kong (HKG) to be an important outlier.[22] To ensure that our results are not driven by Hong Kong, the regression in column (2) was repeated in column (3) after dropping Hong Kong.[23] The significance of *statehist5* is retained. How important is *statehist5* quantitatively? To get a sense of how much having a longer experience with governments could raise growth rates, consider the following exercise: suppose that Mauritania, the country which recorded the second lowest value for *statehist5* (0.068), instead had the *statehist5* value of China, the highest in the sample (1.0). Based on the estimated coefficient in column (3), this would mean Mauritania would have recorded an annual increase of 1.9 percent in its growth rate. Given that Mauritania's average growth

Table 3. Regressions with *statehist5* using growth (1960–1995) as the dependent variable.

	1	2	3†	4†	5†	6†	7†
Constant	0.049	0.029	0.036	0.021	0.029	0.035	0.029
	(2.692)*	(1.424)	(1.848)***	(1.06)	(1.51)	(1.6)	(1.04)
Log of GDP pc (1960)	− 0.011	− 0.009	− 0.009	− 0.009	− 0.008	− 0.009	− 0.009
	(− 4.237)*	(− 3.119)*	(− 3.515)*	(− 3.01)*	(− 3.21)*	(− 3.21)*	(− 2.62)**
Schooling	0.033	0.032	0.034	0.026	0.029	0.032	0.004
	(2.559)**	(2.654)*	(2.879)*	(2.33)**	(2.62)*	(2.71)*	(0.36)
Log of population growth (1960–1995)	− 0.001	0.002	0.001	0.007	0.002	0.002	0.002
	(0.477)	(0.797)	(0.602)	(2.47)**	(0.86)	(0.85)	(0.72)
Log of investment rate (1960–1995)	0.017	0.014	0.014	0.012	0.013	0.014	0.009
	(5.854)*	(5.468)*	(5.396)*	(5.04)*	(5.51)*	(5.16)*	(2.64)*
Statehist5		0.025	0.021	0.029	0.021	0.025	0.028
		(3.586)*	(3.372)*	(4.45)*	(3.49)*	(3.63)*	(3.41)*
ICRG (Institutional Quality)				0.002			0.001
				(2.29)**			(1.39)
Population density (1960)					0.001		0.001
					(5.5)*		(6.01)*
ETHNIC						− 0.004	− 0.002
						(− 0.84)	(− 0.50)
East-Asia Pacific							0.014
							(2.82)*
Latin America							0.006
							(1.50)
Middle East and North Africa							0.01
							(2.72)*
North America							0.018
							(2.63)**
South Asia							0.0008
							(0.16)
Sub Saharan Africa							− 0.0002
							(− 0.03)
Western Europe							0.006
							(1.01)
Observations	88	88	87	77	86	82	73
R-square	0.47	0.58	0.58	0.65	0.65	0.6	0.77

Notes: †Hong Kong has been dropped from regressions (3)–(7). Numbers in parentheses are *t* statistics (calculated from heteroscedastic consistent standard errors). Schooling refers to secondary school enrollment ratio in 1960. Institutional quality is as measured by the ICRG index. ETHNIC is the variable used in Easterly and Levine (1997). * = significant at 0.01 level; ** = significant at 0.05 level; *** = significant at 0.10 level.

rate during the 35-year period was nearly zero and China's was 3.8 percent, differences in *statehist5* can, by these calculations, explain half the difference in growth rates between the two countries.

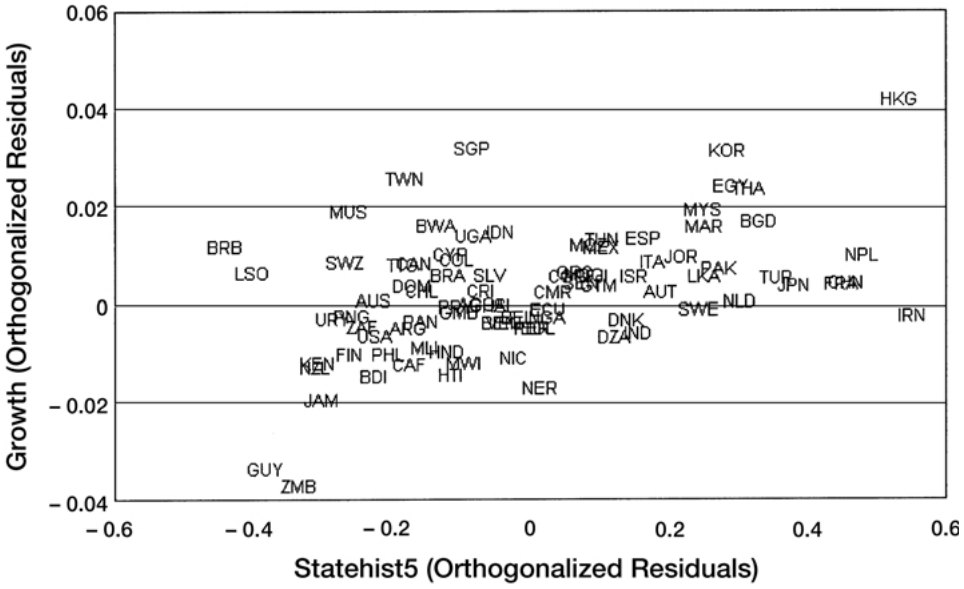

Figure 2. State history and economic growth.

As we have seen, the recent literature on economic growth has recognized the importance of quality of institutions. There is no doubt that the arguments being made for the importance of a well-developed state have a bearing on issues of institutional quality. Therefore, it is important to check that *statehist5* does not simply proxy the former. To control for this, column 4 adds an institutional quality variable (ICRG) which is the average of the five ICRG variables discussed earlier. The coefficient on the ICRG measure is significant and has the expected positive sign. Adding the ICRG variable actually tends to increase the significance of *statehist5* although it comes at the cost of reduced sample size.

Burkett et al. (1999) conjecture that pre-modern development, conceptualized as lying on a continuum from the hunting-and-gathering band to the large-scale agrarian state, may have facilitated economic growth in recent decades, helping to explain why, for instance, growth was higher in China and South Korea than in Zaire and New Guinea. They estimate growth regressions like those of Table 3 in which they add, to a specification resembling column 1, three alternative proxies for level of pre-modern development, including population density (see Boserup, 1965). The results strongly support their conjecture. Is the significance of *statehist5* in Table 3's regressions attributable to a distinctive effect of an early state, or is it simply substituting for other measures of early development, e.g., population density, in these equations? In column 5 of Table 3 we add 1960 population density, which is available for all but one country in our sample, to the regression of column 3. The result shows that both an early state and a dense population are associated with more rapid modern economic growth; the two variables each have significant positive coefficients in this regression.[24]

We have discussed above the relationship between an early state and ethnic homogeneity. A regression adding the ethnic heterogeneity measure *ETHNIC* is shown

Table 4. Regressions with *statehist5* using growth (1960–1995) as the dependent variable (non OECD countries only).

	1	2	3†	4†	5†	6†	7†
Constant	0.043	0.025	0.032	0.0002	0.027	0.03	0.022
	(2.16)**	(1.05)	(1.46)	(0.01)	(1.23)	(1.18)	(0.91)
Log of GDP	− 0.01	− 0.008	− 0.009	− 0.006	− 0.008	− 0.008	− 0.007
pc 1960	(− 3.66)*	(− 2.37)**	(− 2.81)*	(− 2.32)**	(− 2.57)**	(− 2.43)**	(− 1.78)***
Schooling	0.066	0.052	0.056	0.045	0.044	0.049	0.021
	(3.14)*	(2.29)**	(2.52)**	(2.63)**	(2.00)**	(2.02)**	(1.11)
Log of population	0.002	0.0002	0.0006	0.004	0.001	− 0.0008	0.003
growth (1960–1995)	(0.66)	(0.005)	(0.136)	(1.14)	(0.27)	(− 0.18)	(0.67)
Log of investment rate	0.013	0.012	0.012	0.008	0.012	0.012	0.007
(1960–1995)	(4.48)*	(4.37)*	(4.34)*	(3.13)*	(4.37)*	(4.15)*	(1.83)***
Statehist5		0.03	0.025	0.037	0.024	0.035	0.048
		(3.29)*	(2.96)*	(4.42)*	(2.96)*	(3.72)*	(4.70)*
ICRG				0.004			0.003
(Institutional quality)				(3.71)*			(2.16)**
Population density					0.001		0.007
(1960)					(5.88)*		(4.20)*
ETHNIC						− 0.003	− 0.003
						(− 0.68)	(− 0.38)
East-Asia Pacific							− 0.005
							(− 0.73)
Latin America							− 0.01
							(− 1.42)
Middle East and							− 0.012
North Africa							(− 1.96)***
South Asia							− 0.022
							(− 3.36)*
Sub Saharan							− 0.014
Africa							(− 1.50)
Observations	70	70	69	59	68	64	55
R-square	0.46	0.59	0.57	0.72	0.63	0.60	0.80

Notes: †Hong Kong has been dropped from regressions (3)–(7). Numbers in parentheses are *t* statistics (calculated from heteroscedastic consistent standard errors). Schooling refers to secondary school enrollment ratio in 1960. Institutional quality is as measured by the ICRG index. ETHNIC is the variable used in Easterly and Levine (1997). Note that there are no West European countries that are not in the OECD and hence there is no dummy variable for this group. * = significant at 0.01 level; ** = significant at 0.05 level; *** = significant at 0.10 level.

in column 6. We find that *statehist5* retains its explanatory power, while the coefficient on *ETHNIC* is negative but not significant. Finally, column 7 embeds all the earlier specifications and also adds region dummies which cover the entire world.[25] *Statehist5* continues to be robust, a rather impressive result in view of the failure of quite a few other candidate determinants of growth to survive such a test.

Conceivably, the relationships suggested by Table 3 hold only when the more

industrialized economies are included in the sample. An early state might account for faster growth, in a global sample, but not greater relative success among *developing* countries. To check, we re-estimated the regressions excluding the OECD countries.[26] The results, shown in Table 4, are consistent with the pattern displayed in Table 3. Indeed, the explanatory contribution of *statehist5* is arguably even stronger here, for adding it to the base regression for the developing country sample raises R-squared from 0.46 to almost 0.59, raising the variation in growth rates that is explained by almost 13 percentage points.

6. What About Income *Levels?*

In addition to looking at growth regressions, one can also check whether *statehist5* helps to explain differences in income *levels*.[27] This is interesting for two reasons. First, ultimately what we care about is differences in average income levels since they are a more relevant indicator of welfare than growth rates.[28] Secondly, as noted earlier in connection with Table 2, the correlation of *statehist5* is clearly seen to be increasing with income levels over time. This would suggest that more recent cross sectional variances in income levels might be explained by *statehist5*, even after controlling for other factors. Most of the work on income levels tries to decompose differences in output per capita into differences in stocks of accumulable factors such as physical and human capital and the residual total factor productivity. For example, Hall and Jones (1999) (henceforth HJ) find that differences in total factor productivity are significantly more important in explaining differences in output per worker than are conventional factors such as human capital and physical capital. Further, they find that their measure of ''social infrastructure'' (henceforth SI) helps explain these output per worker differences.

Table 5 examines whether *statehist5* is a proximate determinant of economic development.[29] Included as control variables are the independent variables from Table 4 that can be viewed as sufficiently exogenous, plus one additional geographic variable, latitude.[30] While the results in column (1) suggest that *statehist5* might have some predictive power, the results in column (2), which repeats the same regression but introduces SI as an additional control, do not support a significant role for *statehist5*.

While *statehist5* is unlikely to be a proximate determinant of differences in income, it may be a legitimate candidate to serve as a more fundamental determinant. Given that most economic variables, which seek to explain differences in income levels, will probably be endogenous to income levels themselves, *statehist5* might also serve as an instrument for such variables. Here, we explore how *statehist5* performs as an instrument for the SI variable used by HJ, given the commonalities in what both variables claim to capture. As we have just observed, the introduction of SI robs *statehist5* of its predictive power in the levels equation of Table 5. At the same time, HJ have rightly noted that the use of SI is vulnerable to simultaneity bias. The correlation between *statehist5* and SI turns out to be 0.48. How does *statehist5* compare with other instruments for SI? Table 6a reports OLS regressions of SI on the four instruments used by HJ—fraction of country's population speaking one of Western Europe's five main languages (including English) (EURFRAC), the fraction speaking English (ENGFRAC), the latitude and the logarithm of predicted trade share of an economy based on a gravity model that only uses a country's

Table 5. Regressions with *statehist5* using log of output per worker (1988) as dependent variable.

	(1)	(2)
Constant	8.897	8.558
	(14.78)*	(15.53)*
Statehist5	0.742	0.194
	(1.85)***	(0.50)
ETHNIC	− 0.182	− 0.131
	(− 0.73)	(− 0.58)
Population Density (1960)	0.041	0.015
	(2.21)**	(0.84)
East-Asia Pacific	− 0.06	− 0.493
	(− 0.11)	(− 0.93)
Latin America	− 0.099	− 0.297
	(− 0.17)	(− 0.57)
Middle East & North Africa	0.473	0.192
	(0.86)	(0.38)
North America	1.957	0.646
	(2.87)*	(0.94)
South Asia	− 0.695	− 0.619
	(− 1.13)	(− 1.11)
Sub-Saharan Africa	− 1.387	− 1.453
	(− 2.38)**	(− 2.75)*
Latitude	− 0.011	− 0.008
	(− 3.02)*	(− 2.21)**
SI		1.642
		(4.31)*
Observations	93	93
R-squared	0.79	0.81

Notes: Data for log output per worker and latitude are from Hall and Jones (1999). Numbers in parentheses are *t* statistics. ETHNIC is the variable used in Easterly and Levine (1997). SI refers to ''social infrastructure'' in Hall and Jones (1999). * = significant at 0.01 level; ** = significant at 0.05 level; *** = significant at 0.10 level.

population and geographical features (LOGFRANKROM)—and *statehist5*.[31] The table reports results when the sample includes all countries and when it excludes OECD countries. As is apparent, *statehist5* is one of the most significant predictors of social infrastructure, making a strong case for its use as an instrument.

Table 6b reports both OLS and generalized method of moments-instrumental variable (GMM-IV) regression results for output per worker and SI. The fact that SI may be measured incorrectly implies that OLS estimation would produce a coefficient that is biased downwards. On the other hand the fact that output per worker itself may positively affect SI implies that the OLS coefficient will be biased upwards. Column (1) reports the OLS estimation and column (2) reports the GMM-IV estimation when *statehist5* is not included in the list of instruments. In keeping with HJ's findings, the GMM-IV coefficient is higher than the OLS coefficient suggesting that measurement error is the more important

Table 6a. Hall-Jones social infrastructure equation with *statehist5* as an additional instrument.

Dependent variable: social infrastructure.

	(1) All Countries	(2) Non OECD Countries
Constant	0.04	−0.16
	(0.33)	(−1.4)
ENGFRAC	0.21	0.07
	(2.13)†	(0.58)
EURFRAC	0.14	0.11
	(3.29)*	(2.51)†
LOGFRANKROM	0.06	0.12
	(1.64)	(3.80)*
LATITUDE	0.001	−0.004
	(0.58)	(−3.04)*
Statehist5	0.49	0.59
	(3.39)*	(3.92)*
Observations	101	77
R-square	0.41	0.28

Notes: All data except *statehist5* come from Hall and Jones (1999). Both regressions exclude Hong Kong. * = significant at 0.01 level; † = significant at 0.05 level.

Table 6b. Hall-Jones productivity equation after *statehist5* is added as an instrument.

Dependent variable: log of output per worker (1988).

	(1) OLS	(2) GMM-IV (excl. *statehist5*)	(3) GMM-IV (incl. *statehist5*)
SI	3.27	4.90	4.77
	(15.14)	(10.15)	(13.14)
p-value of overidentification test	—	0.22	0.31
Observations	101	101	101

Notes: SI refers to ''social infrastructure'' in Hall and Jones (1999). Column (2) includes engfrac, eurfrac, logfrankrom and latitude as instruments. Column (3) also includes *statehist5*. The number in parentheses for column (1) is the *t*-ratio and for columns (2) and (3) is the *z*-statistic. The *p*-values are for Hansen's *J*-statistic. The *R*-square for the OLS regression is 0.61. All regressions include a constant.

of the two. While HJ use a simple IV estimator, we have used the GMM-IV estimator to allow for heteroscedasticity.[32] Column (3) reports the GMM-IV results when *statehist5* is added to the list of instruments. As is apparent, the significance of social infrastructure is increased, though the estimated coefficient declines. This suggests that while measurement error continues to be more important, adding *statehist5* to the list of instruments probably helps correct for the endogeneity problem. Also the *p*-values of the overidentification test indicate that the null hypothesis that the instruments are orthogonal to the error term cannot be rejected.[33]

7. Conclusion

It is increasingly appreciated that an effective government can be an asset in the struggle to achieve modern economic growth. There is also a growing body of research suggesting that certain social preconditions may be as important as determinants of growth performance as are economic policies and resource endowments. The findings of this paper suggest that an early territory-wide polity and experience with large-scale administration may make both for more effective government and for more rapid economic growth. An early state may be associated with more rapid growth in part because it is associated with greater ethnic homogeneity, a dense population, and higher measured quality of government, but there is a significant further effect not accounted for by these variables. These results may be viewed as lending support to the emphasis on capacity-building and institutional quality in current programs to foster economic development.

Over and above their policy implications, our findings may also contribute to a better understanding of the effects of economic history on recent economic performance. Although the industrial revolution that began in northwest Europe in the 18th century did not spread rapidly to early states remote from its point of origin, under late 20th century conditions less developed countries that had reached the state level of societal evolution earlier than others were more successful in catching up with early developers. Because European countries and Japan also resumed robust growth after the Second World War,

Appendix A

Antiquity of state (*statehist*) scores by country and region.

	Statehist0	*Statehist01*	*Statehist1*	*Statehist5*	*Statehist10*	*Statehist50*
Europe						
Austria	0.70	0.70	0.72	**0.82**	0.90	1.00
Belgium	0.57	0.57	0.58	**0.63**	0.69	0.88
Cyprus	0.50	0.50	0.50	**0.50**	0.50	0.50
Denmark	0.56	0.57	0.61	**0.75**	0.86	0.99
Finland	0.24	0.24	0.27	**0.38**	0.50	0.78
France	0.95	0.95	0.96	**0.98**	0.99	1.00
Germany	0.67	0.67	0.68	**0.72**	0.75	0.83
Greece	0.66	0.66	0.66	**0.67**	0.67	0.78
Iceland	0.29	0.30	0.32	**0.43**	0.53	0.76
Ireland	0.57	0.57	0.57	**0.57**	0.57	0.58
Italy	0.82	0.82	0.82	**0.81**	0.82	0.93
The Netherlands	0.69	0.69	0.71	**0.80**	0.87	0.96
Norway	0.84	0.84	0.85	**0.90**	0.94	0.96
Portugal	0.70	0.70	0.72	**0.80**	0.88	0.99
Spain	0.64	0.64	0.66	**0.72**	0.80	0.99
Sweden	0.62	0.62	0.66	**0.80**	0.91	1.00
Switzerland	0.71	0.71	0.73	**0.81**	0.89	1.00
Turkey	0.66	0.66	0.68	**0.77**	0.86	1.00
United Kingdom	0.73	0.73	0.75	**0.84**	0.92	1.00
Region average	0.73	0.73	0.74	**0.79**	0.85	0.94

Antiquity of state (*statehist*) scores by country and region. Continued.

	Statehist0	*Statehist01*	*Statehist1*	*Statehist5*	*Statehist10*	*Statehist50*
North America						
Canada	0.12	0.12	0.14	**0.23**	0.35	0.76
United States	0.10	0.10	0.12	**0.20**	0.31	0.74
Region average	0.10	0.10	0.12	**0.20**	0.31	0.74
Latin America and Caribbean						
Argentina	0.12	0.12	0.14	**0.22**	0.34	0.76
Barbados	0.07	0.07	0.09	**0.14**	0.22	0.45
Bolivia	0.26	0.27	0.29	**0.42**	0.54	0.84
Brazil	0.14	0.15	0.17	**0.28**	0.41	0.85
Chile	0.13	0.13	0.15	**0.25**	0.38	0.79
Colombia	0.14	0.14	0.16	**0.26**	0.39	0.83
Costa Rica	0.14	0.14	0.16	**0.27**	0.39	0.80
Dominican Republic	0.12	0.12	0.14	**0.22**	0.31	0.57
Ecuador	0.27	0.28	0.30	**0.42**	0.54	0.81
El Salvador	0.14	0.15	0.17	**0.27**	0.40	0.80
Guatemala	0.24	0.24	0.27	**0.39**	0.51	0.81
Guyana	0.09	0.09	0.10	**0.16**	0.24	0.45
Haiti	0.12	0.12	0.14	**0.22**	0.31	0.57
Honduras	0.12	0.12	0.14	**0.24**	0.35	0.78
Jamaica	0.11	0.11	0.13	**0.21**	0.30	0.56
Mexico	0.27	0.27	0.30	**0.42**	0.55	0.82
Nicaragua	0.15	0.15	0.18	**0.28**	0.42	0.82
Panama	0.14	0.14	0.16	**0.26**	0.38	0.74
Paraguay	0.13	0.13	0.15	**0.25**	0.37	0.78
Peru	0.22	0.23	0.25	**0.37**	0.49	0.81
Trinidad and Tobago	0.10	0.10	0.11	**0.18**	0.27	0.54
Uruguay	0.10	0.10	0.12	**0.21**	0.32	0.76
Venezuela	0.11	0.11	0.13	**0.21**	0.33	0.75
Region average	0.17	0.17	0.19	**0.30**	0.43	0.81
Sub-Saharan Africa						
Angola	0.10	0.10	0.12	**0.19**	0.28	0.60
Benin	0.13	0.14	0.16	**0.24**	0.34	0.53
Botswana	0.18	0.18	0.20	**0.30**	0.40	0.56
Burundi	0.06	0.06	0.07	**0.11**	0.17	0.44
Cameroon	0.29	0.30	0.32	**0.39**	0.44	0.48
Cape Verde	0.10	0.10	0.12	**0.19**	0.27	0.48
Central Africa	0.10	0.10	0.11	**0.18**	0.26	0.47
Chad	0.10	0.10	0.11	**0.18**	0.25	0.45
Congo	0.28	0.28	0.30	**0.38**	0.44	0.45
Ethiopia	0.64	0.64	0.65	**0.67**	0.70	0.83
Gabon	0.27	0.27	0.29	**0.37**	0.42	0.43
Gambia	0.11	0.11	0.13	**0.20**	0.29	0.54
Ghana	0.14	0.15	0.16	**0.24**	0.32	0.48
Guinea	0.16	0.16	0.18	**0.26**	0.34	0.49
Ivory Coast	0.20	0.20	0.22	**0.29**	0.35	0.44
Kenya	0.04	0.04	0.04	**0.07**	0.12	0.31
Lesotho	0.04	0.05	0.05	**0.09**	0.15	0.39

Antiquity of state (*statehist*) scores by country and region. Continued.

	Statehist0	*Statehist01*	*Statehist1*	*Statehist5*	*Statehist10*	*Statehist50*
Madagascar	0.11	0.11	0.13	**0.21**	0.31	0.60
Malawi	0.17	0.17	0.19	**0.30**	0.43	0.72
Mali	0.12	0.12	0.14	**0.22**	0.32	0.58
Mauritania	0.03	0.03	0.04	**0.07**	0.11	0.36
Mauritius	0.05	0.05	0.06	**0.10**	0.16	0.40
Mozambique	0.16	0.16	0.18	**0.26**	0.35	0.49
Niger	0.21	0.21	0.24	**0.37**	0.50	0.71
Nigeria	0.30	0.30	0.33	**0.42**	0.50	0.58
Rwanda	0.12	0.12	0.14	**0.22**	0.32	0.57
Senegal	0.28	0.28	0.29	**0.34**	0.38	0.45
South Africa	0.07	0.07	0.08	**0.14**	0.22	0.51
Swaziland	0.04	0.04	0.05	**0.08**	0.13	0.35
Togo	0.07	0.07	0.08	**0.13**	0.20	0.48
Uganda	0.06	0.06	0.07	**0.12**	0.18	0.41
Zambia	0.03	0.03	0.04	**0.07**	0.11	0.28
Zimbabwe	0.10	0.10	0.12	**0.20**	0.29	0.62
Region average	0.23	0.24	0.25	**0.32**	0.39	0.56
Middle East/North Africa						
Algeria	0.48	0.48	0.49	**0.50**	0.52	0.54
Egypt	0.56	0.56	0.56	**0.59**	0.61	0.57
Iran	0.83	0.83	0.84	**0.86**	0.89	0.99
Israel	0.51	0.51	0.51	**0.51**	0.52	0.58
Jordan	0.49	0.49	0.49	**0.51**	0.52	0.58
Morocco	0.55	0.55	0.57	**0.62**	0.66	0.64
Syria	0.49	0.49	0.49	**0.51**	0.52	0.58
Tunisia	0.49	0.49	0.49	**0.52**	0.54	0.62
Region average	0.61	0.61	0.61	**0.64**	0.66	0.68
Oceania						
Australia	0.08	0.08	0.10	**0.17**	0.26	0.70
Fiji	0.44	0.44	0.45	**0.48**	0.49	0.45
New Zealand	0.06	0.06	0.07	**0.12**	0.20	0.57
Papua New Guinea	0.07	0.07	0.09	**0.14**	0.21	0.44
Region average	0.09	0.09	0.10	**0.16**	0.25	0.64
Asia						
Bangladesh	0.66	0.66	0.65	**0.61**	0.58	0.59
China	1.00	1.00	1.00	**1.00**	1.00	1.00
Hong Kong	0.97	0.97	0.96	**0.93**	0.90	0.73
India	0.66	0.66	0.65	**0.60**	0.56	0.50
Indonesia	0.35	0.35	0.37	**0.44**	0.49	0.58
Japan	0.95	0.95	0.96	**0.98**	0.99	1.00
Korea	0.77	0.77	0.77	**0.81**	0.86	0.91
Malaysia	0.66	0.66	0.67	**0.67**	0.65	0.60
Nepal	0.70	0.70	0.73	**0.83**	0.89	0.86
Pakistan	0.71	0.71	0.70	**0.64**	0.59	0.59
Philippines	0.10	0.10	0.11	**0.18**	0.27	0.54

Antiquity of state (*statehist*) scores by country and region. Continued.

	Statehist0	*Statehist01*	*Statehist1*	*Statehist5*	*Statehist10*	*Statehist50*
Singapore	0.31	0.32	0.33	**0.39**	0.44	0.50
Sri Lanka	0.69	0.69	0.68	**0.65**	0.60	0.51
Taiwan	0.16	0.16	0.19	**0.30**	0.44	0.77
Thailand	0.73	0.73	0.73	**0.75**	0.79	0.95
Region Average	0.80	0.80	0.79	**0.79**	0.78	0.78

Notes: *Statehist0, Statehist01, Statehist1, Statehist5, Statehist10* and *Statehist50* are calculated by discounting half centuries at rates of 0, 0.1, 1, 5, 10 and 50 percent, respectively. Region averages reflect 1960 population weighted averages.

Appendix B

Correlations between different weighting schemes.

	Statehist0	*Statehist01*	*Statehist1*	*Statehist5*	*Statehist10*	*Statehist50*
Statehist0	1					
Statehist01	1	1				
Statehist1	0.9993	0.9995	1			
Statehist5	0.9836	0.9842	0.9894	1		
Statehist10	0.9413	0.9424	0.9524	0.9859	1	
Statehist50	0.5971	0.599	0.6166	0.6981	0.7923	1

Note: The correlation of 1 between *statehist0* and *statehist01* reflects a computer-generated rounding.

growth rates in the world as a whole during 1960–1995 were strongly correlated with state antiquity. Levels of development at the end of that period were correlated with state antiquity, too, and the index of state antiquity helps to predict the social infrastructure variable that Hall and Jones use to explain the cross-country output per worker differences in 1988. When it comes to explaining differences in both recent economic growth rates and attained levels of economic development, it is clear that history *does* matter.

Appendix C

Examples of statehist

- *Colombia*: There was no government above the tribal level apart from a brief and late expansion of the Inca empire covering a minor part of present-day Colombia, so we treat q1 (where q1, q2 and q3 refer to the three questions that were asked for constructing the index) as zero until 1550. Positive values begin in 1551 and are $(1,\ 0.5,\ 0.75)$ until 1600 because of Spanish colonization $(\text{q2} = 0.5)$ of most (but not all, hence $\text{q3} = 0.75$) of present-day Colombia. The period 1601–1800 is given values of $(1,\ 0.5,\ 1)$ due to full Spanish colonization. 1801–1850 receives values of $(1,\ 1,\ 1)$

because more than half of the period follows independence from Spain. The remaining period (from 1851–1950) is also valued $(1,\ 1,\ 1)$. In summary:

Years	*Values*
1–1550	$(0,\ 0,\ 0)$
1550–1600	$(1,\ 0.5,\ 0.75)$
1601–1800	$(1,\ 0.5,\ 1)$
1801–1950	$(1,\ 1,\ 1)$

- Italy: As the center of the Roman empire, Italy can be considered to have had an indigenous, comprehensive government from 1 to 400 C.E., so that $q1 = q2 = q3 = 1$. From 401 until unification in 1861, all of Italy's regions were part of governmental structures, most being locally based, so that $q1 = q2 = 1$. However, $q3 = 0.75$ for this period because Italy contained no single state controlling most of the present country's territory. Due to Italy's unification in 1861, both of the final two periods are treated as having $q1 = q2 = q3 = 1$. In summary:

Years	*Values*
1– 400	$(1,\ 1,\ 1)$
401–1850	$(1,\ 1,\ 0.75)$
1851–1950	$(1,\ 1,\ 1)$

Notes

1. See World Bank (1997) and sources cited therein.
2. See Aron (1999) and Kaufmann et al. (1999).
3. A discussion of economic accounts is provided by Dasgupta (1998).
4. For example, see La Porta et al. (1997), Beck et al. (2000), Levine et al. (2000), and Alfaro et al. (2001).
5. We consulted with several experts on early states and were told that no such data series had been compiled. We are grateful to Gerhard Lenski for his suggestion that we construct our own index by consulting the *Encyclopedia Britannica*. We also thank Jared Diamond for putting us in touch with other scholars to discuss this problem, and for his expression of enthusiasm about this project.
6. Although a few states date back well before the year 1, experience in the sufficiently remote past can be expected to have little or no current impact, and with a modest rate of discounting or presumed depreciation of the effects of the past, this would have little effect on the measure we are constructing.
7. It might be preferable to score this first dimension along a continuum from countries with strong central governments or rulers to ones in which the central ruler has little power compared to formally subordinate local lords or chiefs, but to do so would require more information than is available to us. The exception is when our source identifies the top ruler as a ''paramount chief'' (e.g., Fiji). In this case, we assign a value of 0.75 for question 1.
8. Note that government by members of a group that migrated from another part of the world does not make the country a colony if the rulers are not directed by authorities in their place of origin. Thus, we count the British colonies of North America as colonies before 1776 but as independent afterwards, even though the region's earlier inhabitants did not regain control when the colonists' ties with the home country were severed.
9. We also gave a score of 0.75 for question 3 if there were several co-existing states in today's region that covered the majority of the country (for example, India before the Muslim invasions around 1200 or Italy between the fall of Rome and the formation of a nation state in the mid 19th century).
10. Specifically, to each of the 39 observations for a country we attached an exponent $(1+\delta)^{-t}$, where

$0 < \delta < 1$ functions like a discount rate—in this case, showing the depreciation or obscolescence of the impact of the past upon the present—and t is the number of half centuries by which the period precedes 1901–1950 (for example, $t = 1$ for 1851–1900). At $\delta = 0.5$, for example, the contribution to our index of having had an autonomous state over the whole territory from 1851 to 1900 is $50 \times (1.5)^{-1} = 33.33$.

11. In *statehist5*, that is, δ of the previous note is equal to 0.05. At the 5 percent rate, the period 1001–1950 C.E. receives 71 percent of the overall weight in the index, versus 29 percent for the millennium 1–1000 C.E., assuming equal scores in each half century. At a 1% rate of depreciation of the past's influence, the weights are 54 percent and 46 percent, respectively, while at a 10 percent rate, they are 86 percent and 14 percent.
12. These five indicators are used in Knack and Keefer (1995) followed widely by other studies including Sachs and Warner (1997) and Hall and Jones (1999).
13. Based on the assassination data used in Barro (1991).
14. Both variables are from Banks' (1994) data set as used by Easterly and Levine (1997).
15. Real GDP Per Capita in constant dollars (international prices, base year 1985) taken from the Global Development Network Growth Database.
16. Also, the relative *dis*advantage of some sub-Saharan African countries (with short state histories) may have become more apparent with the passage of time after independence because their per capita incomes circa 1960 may have been heavily influenced by colonial era investments that post-independence regimes were unable to maintain.
17. There is a significant negative correlation within the set of Latin American countries, which tends to cancel out the positive correlation for the rest of the developing world. It appears that Latin America behaves somewhat unlike other regions because Latin American countries with states and dense populations predating European conquest experienced lower levels of social development and economic growth than Latin American countries formed from areas with sparse indigenous populations in which Europeans came to substantially outnumber indigenous people. This difference may actually be viewed as supporting the general trend since the longer state history of Europeans than of indigenous Americans was in a sense brought to the Americas with them, along with relative modernization and capacity for economic development.
18. We also examined the correlations between *statehist5* and the origins of countries' legal systems documented in La Porta et al. (1998). We found that *statehist5* was likely to be greater in countries that adopted the German and Scandinavian civil laws. The correlations were 0.36 and 0.21 respectively. On the other hand the correlations with English common law and French civil law were -0.14 and -0.15 respectively. It is not clear, however, why a country with a longer experience with state level institutions should adopt a particular legal system. The high correlation with the German and Scandinavian legal system probably reflects the fact that countries which adopted those systems tend to have done better at enforcement of legal rules. And countries with higher values for *statehist5* also do better in terms of institutional quality. Some of the measures of enforcement of legal rules used by La Porta et al. (1998) are the same as the ICRG measures discussed earlier.
19. Unlike MRW, we use GDP per capita rather than GDP per working age person for both the base and growth rate variables, and our human capital variable is simply the secondary school enrollment ratio.
20. As in the case of MRW, this is actually the log of (gpop6095 + 0.05), 0.05 being an estimate of the sum of the rate of depreciation of physical capital and TFP growth.
21. All data are from the World Development Indicators CD-ROM (2000).
22. Although Hong Kong was never a country in its own right, its economic autonomy has been such that it has been included as one in most cross-country growth studies. The value of the *statehist* measures is calculated for Hong Kong by coding years as part of China using q1 = q2 = q3 = 1 and years under British rule as q1 = q3 = 1, q2 = 0.5. The alternative of treating Hong Kong as a colony when ruled by China as well as when ruled by Britain is rejected because of Hong Kong's longstanding Chinese culture and ultimate re-incorporation into that country.
23. All the remaining regressions in the table continue to omit Hong Kong.
24. Rather than only controlling for population density, a measure of early development, it might be interesting to control for the causes of early development, which have been hypothesized to lie in geography and indigenous flora and fauna. Variables included in the study by Olsson and Hibbs (2002), which appeared after this study was completed, suggest themselves. But we must leave this for future research.
25. These are World Bank dummies for East Asia-Pacific, Latin America, Middle East and North Africa, North

America, South Asia, Sub-Saharan Africa and Western Europe. To avoid perfect collinearity the only region not included is Eastern and Central Europe.

26. OECD membership here excludes more recent members such as Mexico and Korea. Countries which are treated as OECD members and thus dropped in the next exercise are: Australia, Austria, Belgium, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, United Kingdom, Greece, Ireland, Iceland, Italy, Japan, The Netherlands, Norway, New Zealand, Portugal, Sweden, Turkey, United States. Luxembourg is also a part of this sample but does not have a value for *Statehist5*.
27. We are grateful to an anonymous referee for suggesting this exercise.
28. The literature has begun to reflect this change in focus. See for example Klenow and Rodriguez-Clare (1998) in addition to Hall and Jones (1999).
29. The entire exercise that follows excludes Hong Kong from the sample.
30. In a regression with the level of income as the dependent variable, entering almost any economic variable e.g., the investment rate, schooling enrollment ratios, population growth rates, etc, as a control, would be highly susceptible to the simultaneity bias problem. The latitude variable is used as a predictor of social infrastructure by Hall and Jones.
31. The predicted trade share variable comes from Frankel and Romer (1999). All data for this exercise except statehist5 were downloaded from Charles Jones' website: http://elsa.berkeley.edu/users/chad/HallJones400.asc.
32. The GMM-IV estimation was done in STATA® using the command ''ivgmm0''. The command uses an optimal weighting matrix to define the appropriate combination of moment conditions. Here, these moment conditions are the orthogonality conditions of the instruments with the error process.
33. The results are robust when the sample is limited to non-OECD countries.

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