Geography vs. Institutions Revisisted: Were Fortunes Reversed?

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Abstract

I review the controversy over the roles of geography and institutions in economic development. Using the new data set of Maddison (2003) shows that the only major reversal of fortunes consisted of four British offshoots passing the income levels of the rest of the world: a finding which, in my view, casts doubts on the importance of institutions. I argue that statistical analyses of the impact of institutions must exploit the full temporal information, with the obvious difficulty of finding instruments.

Note: Some of the graphs included in the paper call for a color printer.

1 Geography vs. Institutions

Institutionalists take as their rival the view that patterns of development are shaped by exogenously given natural environment, "geography." Hence, to understand where institutions come in, this is a good place to begin.

While the view that geography plays an important role in shaping the patterns and the rhythm of development dates back to Montesquieu (1748), this perspective has been recently revitalized under the influence of Diamond (1997) and applied to explain long-term patterns of economic growth by Sachs and his collaborators. According to Sachs (2001): (1) Technologies, particularly in food production, health, and energy are ecologically specific. They do not diffuse easily across ecological zones. (2) By the start of modern economic growth, if not much earlier, temperate zone technologies were more productive than tropical-zone technologies. (3) Technological innovation is an increasing-returns-to-scale activity. It amplified the original differences. (4) Societal dynamics – especially the processes of urbanization and demographic transition – are two further amplifiers of the development process. (5) Geopolitical factors – temperate-zone imperial domination of tropical regions and rich-country control of the institutions of globalization – amplify the initial differences even further.

The fact which Sachs adduces to support these hypotheses is that while in 1820 average per capita income in the tropical zone amounted to 70 percent of that in the non-tropical zone, by 1992 this proportion fell to 25 percent. According to Gallup, Sachs, and Mellinger (1998), the African income in 1992 was same as Western European income in 1820. Even though colonialism had negative effects on the colonies, colonialization does not explain these patterns: (1) Countries in the tropical areas that were never colonized do not differ from those that were. (2) Performance did not improve after decolonialization.

While Sachs (2001) says next to nothing about institutions, Gallup, Sachs, and Mellinger (1998: 29) claim that some effects geography are mediated by policies and institutions: "Good policy and good geography may have a tendency to go together.... The result is that natural differences in growth potential tend to be amplified by the choice of economic policies." Yet their central claim remains that geography matters, even when controlled for policies and institutions.

The main fact cited against the geography perspective is what Acemoglou, Johnson, and Robinson (2002; henceforth AJR) term "the reversal of fortunes." According to AJR, countries that were wealthier in 1500 (as measured by population density or urbanization rates) are the

ones which are less developed now. This view is supported by Engerman and Sokoloff (1997, 2001; also Sokoloff 2000) with regard to the Americas, where the initial date is mid-eighteenth century. Finally, Banerjee and Iyer (2002), having gone back to mid-nineteenth century, found a reversal among districts within India. Note that the geography perspective is committed to the fact that income differences are at least preserved, if not amplified, across time. Hence, the reversal, if it is a fact, is mortal to this perspective.

The reversal motivates the institutional perspective. Thus, AJR (2002: 1233) observe: "The simplest version of the geography hypothesis emphasized the time-invariant effects of geographic variables, such as climate and disease, on work and productivity, and therefore predicts that nations and areas that were relatively rich in 1500 should also be relatively prosperous today. The reversal in relative incomes weighs against this simple version of the geography hypothesis." Banerjee and Iyer (2002: 1) also juxtapose these two views: "In the new institutionalist view, history matters because history shapes institutions and institutions shape the economy. By contrast, in what one might call the 'increasing returns' view, historical accidents put one country ahead in terms of aggregate wealth or human capital ... and this turns into bigger and bigger differences over time because of the increasing returns."

AJR and Engerman and Sokoloff offer a similar historical account:

(1) The choice of production and the initial institutions were determined by the conditions Europeans encountered during colonialization. These conditions determined the initial patterns of development and the initial institutions. The choice of production and of institutions were optimal, at least in the sense that "equilibrium institutions are likely to have been designed to maximize the rents to European colonists, not to maximize long-run growth" (AJR: 1263). One of the surprising discoveries of Engerman and Sokoloff is that Caribbean sugar plantation islands were the wealthiest countries in the world around 1700.

(2) The initial institutions shaped the evolution of the conditions under which subsequent development would occur, so that conditions became endogenous with regard to institutions. Institutions were reproducing the conditions which originally gave rise to them and, in turn, were reproducing themselves under these conditions: "Not only were certain fundamental characteristics of the New World economies and their factor endowments difficult to change, but government policies and other institutions tended to reproduce the conditions that gave rise to them" (Sokoloff 2000). "The organization of society and institutions also persist...." (AJR: 1263)

(3) The role of institutions became crucial when new forms of production, namely industry, emerged on the historical horizon: "The institutions hypothesis also suggests that institutional differences should matter more when new technologies that require investments from a broad cross section of the society become available" (AJR 1236). When new opportunities emerged, the effect of institutions was to *block* industrialization: "The elites may want to *block* investments in new industrial activities, because it may be that these outside groups, not the elites themselves, will benefit from these activities.... they may want to block these new activities, fearing political turbulence and the threat to their political power that new technologies will bring" (AJR: 1273).

In the end, the reversal occurred because "relatively poor regions were sparsely populated, and this enabled or induced Europeans to settle in large numbers and develop institutions encouraging investment. In contrast, a large population and relative prosperity made extractive institutions more profitable for the colonizers." Areas that were originally wealthier adopted worse institutions. These institutions persisted ("reproduced themselves"), blocking the opportunity that was offered by industrialization. As a result, the initially wealthier areas "fell behind," to use the phrase of Haber (1997).

2 Was There a Reversal?

According to the geography thesis, the countries located in zones that are disadvantaged by the climate, quality of soil, or the prevalence of diseases were originally and remained poorer than those favored by geography. The advent of industrial technology gave rise to increasing returns, so the gap opened up around 1820. Hence, the path of per capita income should look as follows:[1]

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[1]These pictures are stylized to correspond to numbers reasonable in the light of Maddison (2003), about which much will be said below. The tropics are red because the sun is hot.
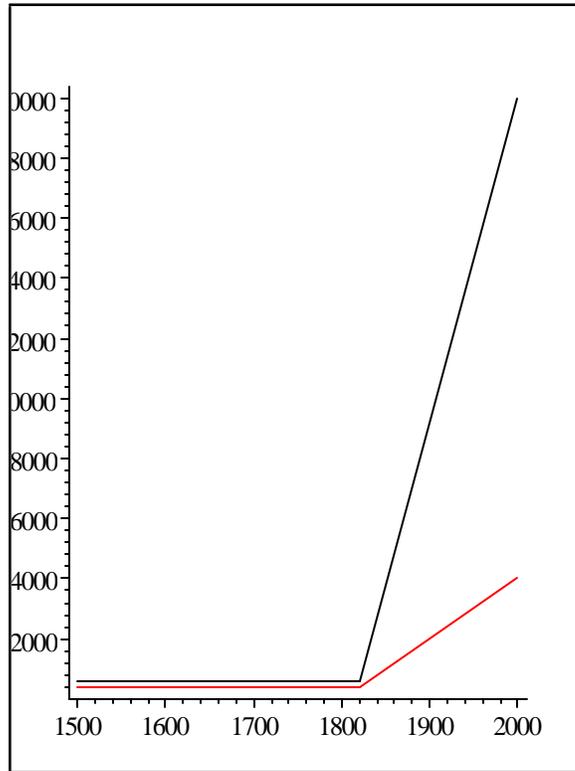
The world according to the geography thesis.

In contrast, according to the institutions thesis, the initial advantage in generating wealth led to bad institutions and when the industrial technology appeared, it was exploited by the countries which had good institutions but not by those with bad ones. Hence, the path of income should look as follows:
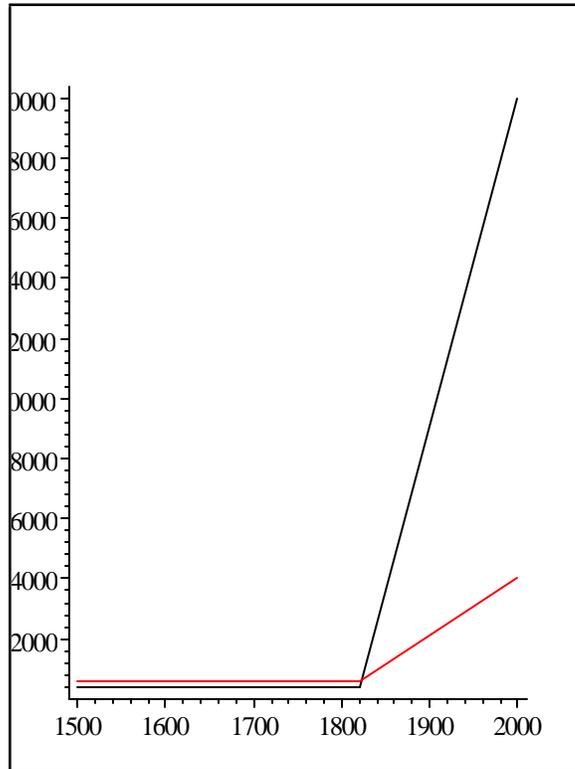
The world according to the institutions thesis.

What does the world look like in fact?

AJR did not have income data for the early periods. They argued, however, that the degree of urbanization and population density are correlated with wealth. With this assumption, they regressed per capita income in 1995 on urbanization and on population density around 1500, and in both cases found negative slopes. This is their evidence for the reversal. In the meantime, however, Maddison (2003) completed his monumental project on *The World Economy,* generating income data for several countries and most regions going back at least to 1500. To avoid having to repeat the caveats, let me emphasize that some of these data consists of guesses, or more politely "conjectures," and there are no grounds to be sure that Maddison's conjectures are more reliable than those on urbanization or population density, used by AJR. But these are the best conjectures about income we have to date. And it turns out that when per capita income in 2001 is regressed on that in 1500, the slope is slightly positive (while the coefficient is not significant):

The slope is also positive when we go back only to 1700 and even more positive and statistically significant when we go back to 1820:
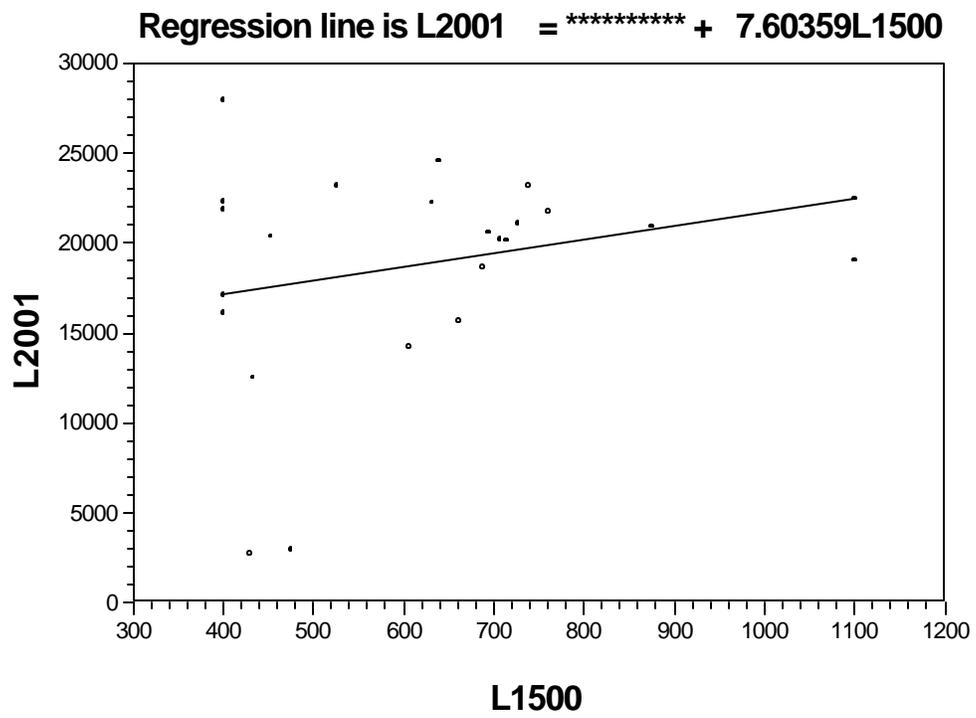
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Figure 1: gdp/cap in 2001 as a function of 1500

Table 1: Per capita income in 2001 as a function of incomes at different dates.

	1500	1700	1820
Constant	14090	14538	592
	(4727)	(3093)	(2481)
gdp/cap	7.60	5.01	15.96
	(7.42)	(3.36)	(2.73)
R^2	0.0024	0.0553	0.4803
N	22	22	59

Source: Maddison (2003).

While these results cast doubt on the conclusions of AJR, the Maddison data for the two earlier dates include mostly countries that were highly developed by 2001. Hence, these results may suffer from selection bias in addition to the reliability issues. What does seem apparent is that no reversal occurred after 1820, but this fact is not under dispute.

Now that we have income data, however, we do something AJR could not do, namely plot the time paths of incomes. Unfortunately, tropical countries are not only income- but also data-poor, so the numbers of observations are small. I take the data on the proportion of land area located in the tropical zone, from Gallup, Mellinguer, and Sachs (2003), and divide the countries into those that have no area in the tropics, some area in the tropics, and almost all (at least 93 percent) in the tropics.[2] The plot of incomes looks as follows (black is for non-tropical, green for part tropical, red for tropical):

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[2]This is because of the thirty-seven countries for which 1820 income data are available, twenty-three have no area in the tropics, eight have areas between1.5 and 51.2 percent, Brazil has 93.1 percent, and five countries have their entire area in the tropics.
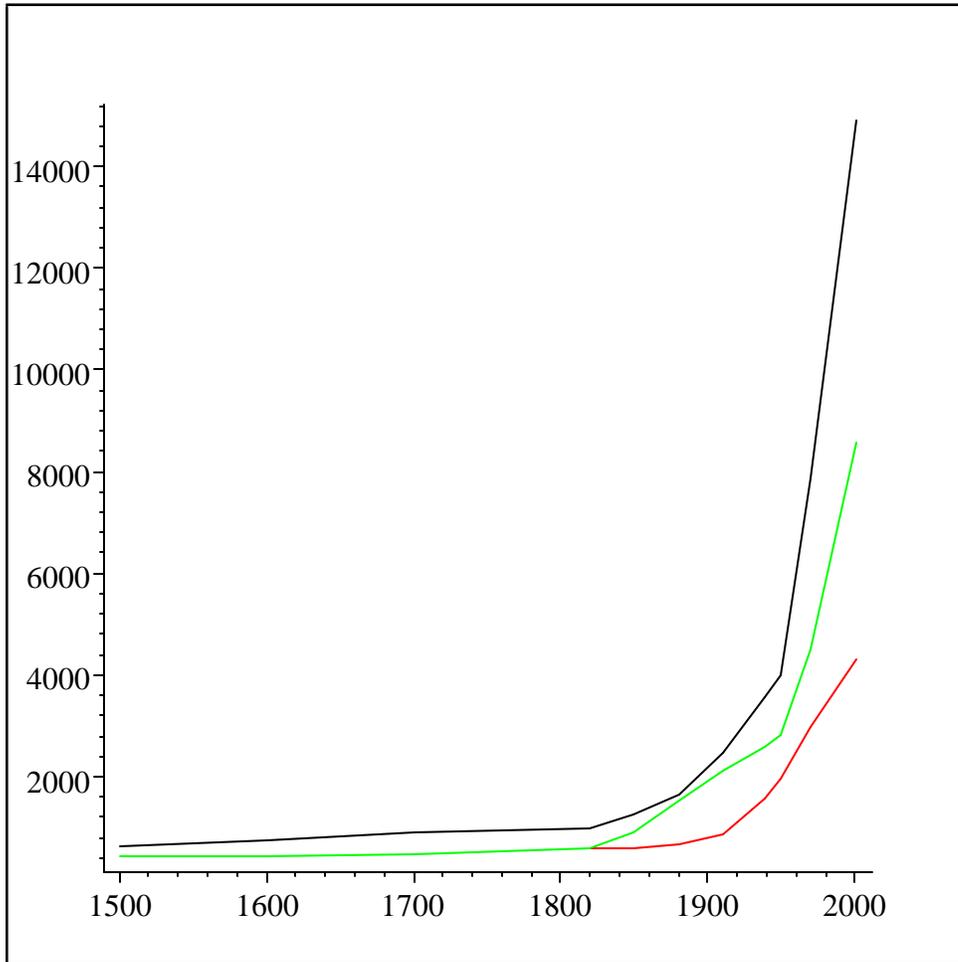
The numbers are given in Table 2:

Table 2: Per capita income by period and land area in the tropics.

Year	Not tropical	Part tropical	Tropical
1500	641(19)	425(3)	*n.a.* (0)
1600	767(19)	425(3)	*n.a.* (0)
1700	898(19)	467(3)	*n.a.* (0)
1820	982(23)	590(8)	602(7)
1850	1269(22)	905(8)	612(7)
1880	1668(26)	1545(8)	680(7)
1910	2481(28)	2136(11)	877(11)
1939	3577(28)	2587(11)	1570(17)
1950	3976(30)	2840(13)	1952(16)
1970	7870(30)	4512(13)	2974(16)
2001	14915(30)	8553(13)	4324(16)

Source: % Land area in geographical tropics, in equal area projection, from Gallup, Mellinguer, and Sachs (2003). Per capita income from Maddison (2003). Numbers of observations in parentheses.

Note that no observations for the tropical areas are available before 1820. But the non-tropical areas, which include Europe, were wealthier to begin with than the partly tropical countries (which include the United States) and remained wealthier. At least with these data, no reversal can be seen. Moreover, in accordance with Sachs, the gap opened up, already in 1820 for the tropical areas and after 1880 for the partly tropical ones. Hence, increasing returns are manifest.

Since AJR claim that the reversal occurred with the advent of industrial technology and since the data on other than non-tropical areas are almost non-existent for the earlier period, for all we know a reversal may have occurred. Indeed, studying the time paths of incomes by groups of countries, rather than by their tropical status, shows that it did. But, at least at this level of aggregation, the reversal is limited to the four British off-shoots (Australia, Canada, New Zealand, and the United States). According to Maddison, the areas that were to become these European colonies (blue) were poorer than twelve Western European (black), seven Eastern European (yellow), eight Latin American (green), and twenty-four Caribbean (red) countries before 1820.[3] Yet between 1700 and 1820 they passed everyone except and, by 1850, even including Western Europe.

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[3]Note that the Carribean countries were wealthier than those in Eastern Europe and the rest of the western hemisphere but, contrary to Sokoloff and Engerman, they were not wealthier than Western Europe.
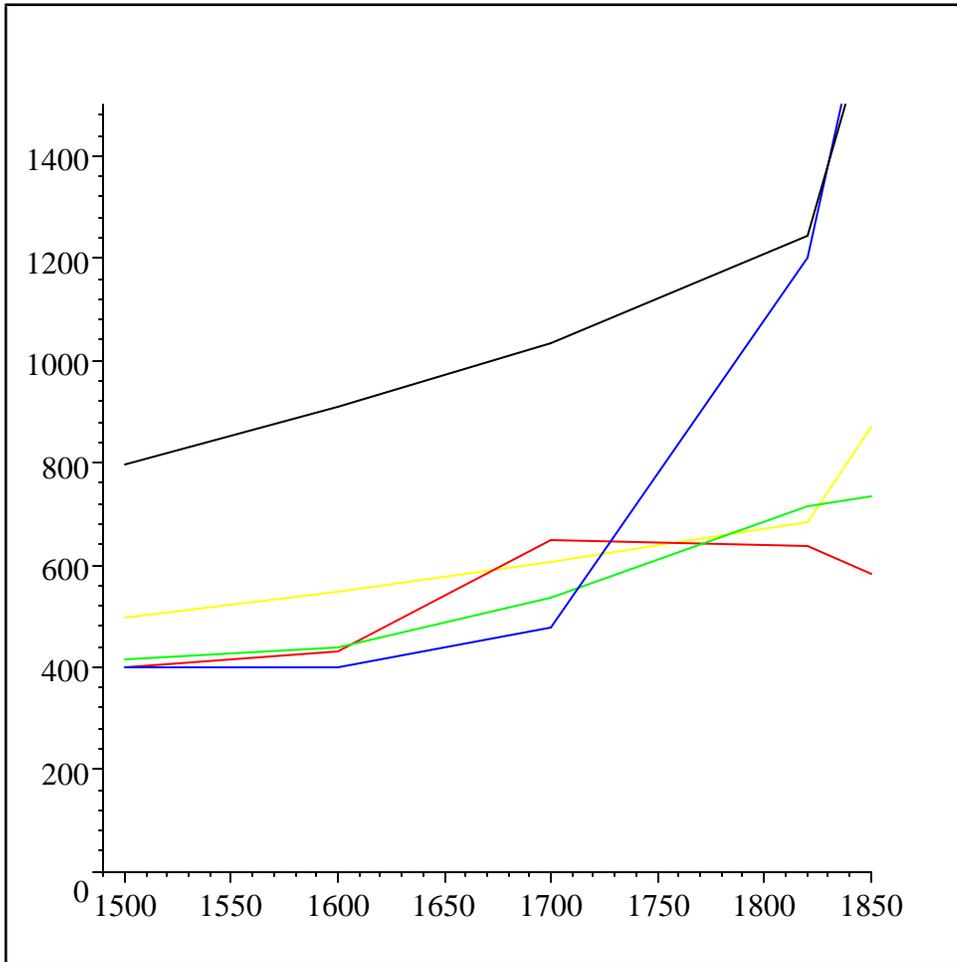
Per capita income by groups of countries, 1500-1850.

Since 1850, no reversals occurred. All we see are increasing returns. (The additional line, in magenta, is for sixteen East Asian countries).
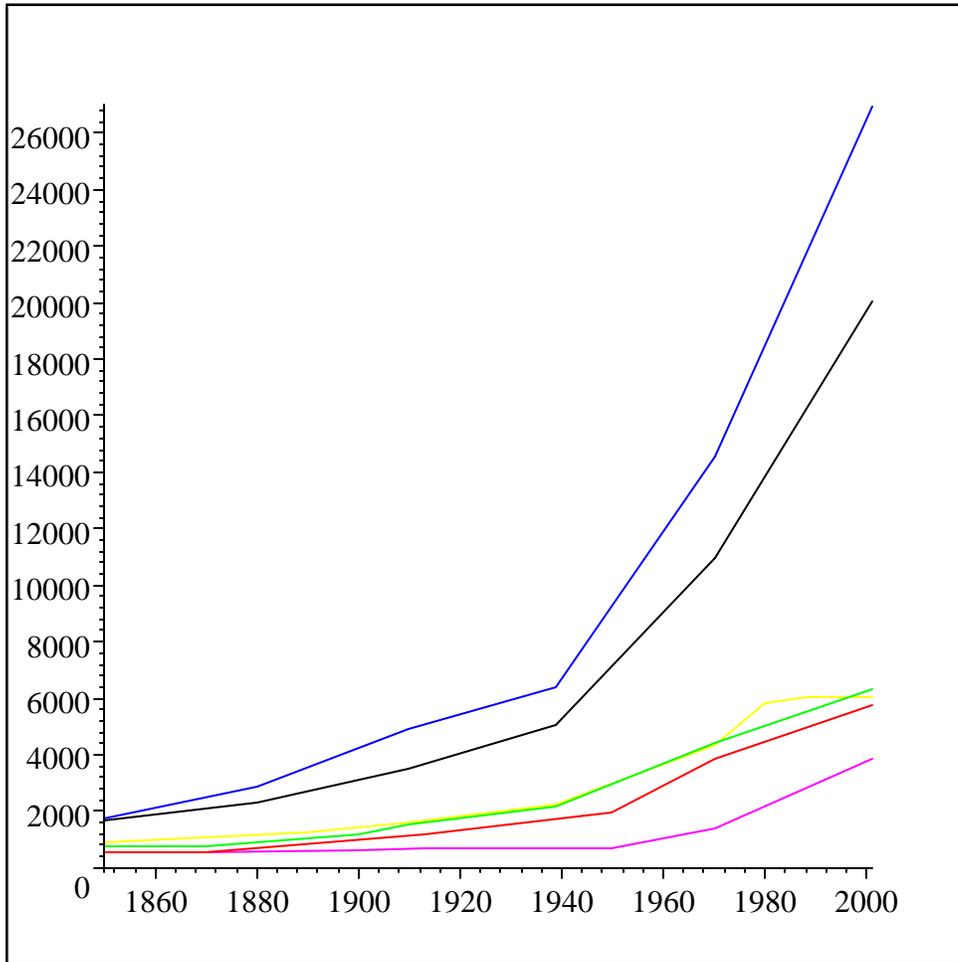
Per capita income by groups of countries, 1850-2001.

The four off-shoots (blue) outgrew their colonial power (black), but several other British colonies (red) were left far behind. (They include Egypt, Ghana, India, Indonesia, Ireland, Jamaica, Malaysia, Myanmar, and South Africa).[4]

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[4]Argentina, Uruguay, and Venezuela briefly passed their *madre patria,* Spain, only to fall behind again. Other Latin American countries never reached the per capita income of Spain. No French colony for which data are available ever had income higher than France.
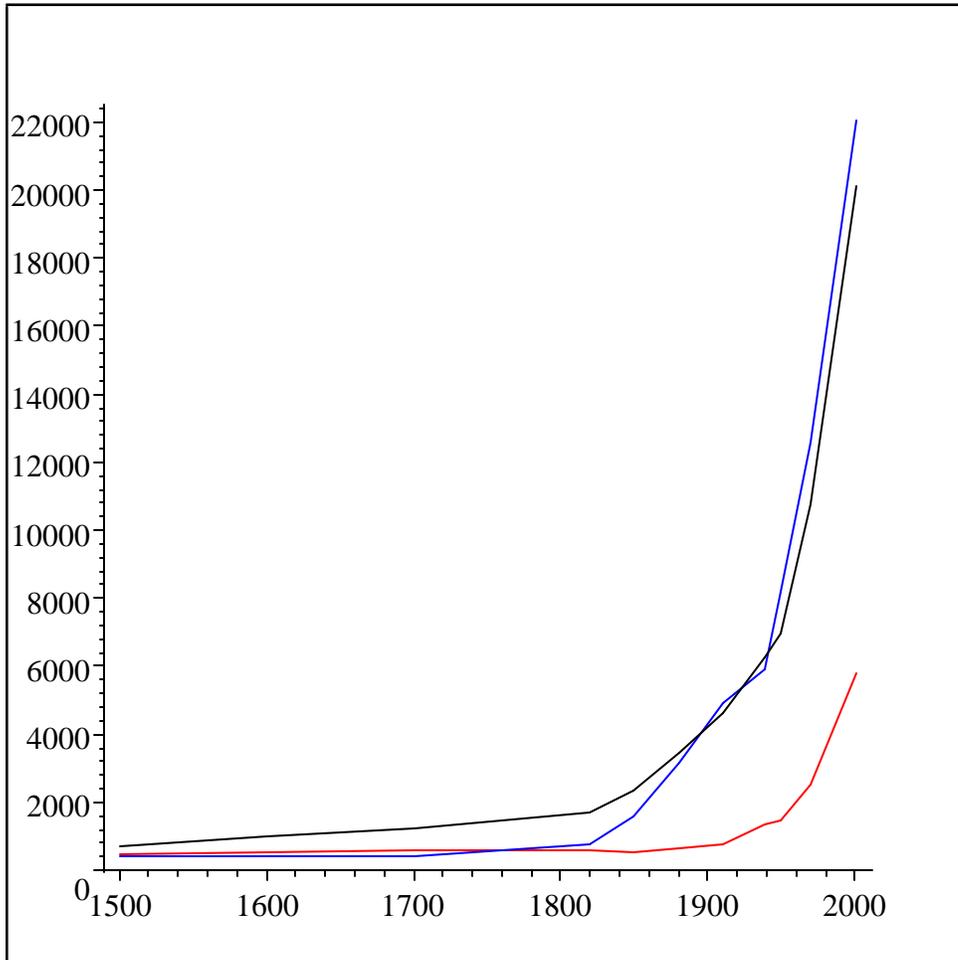
What conclusions, then, can we draw from these patterns?

(1) Tropics appear to have been poorer as far back as the data go. At least by the measure of tropics used above and the Maddison data, there was no reversal. But natural endowments are not the same as "tropics." Easterly (2002), who estimated a model in which factor endowments affect inequality, inequality affects the quality of institutions, and the quality of institutions influences income, found that the suitability of land for some crops has a strong effect on income via this chain of causality. One should expect that changes in demand for particular commodities, say sugar (which had the strongest negative effect on income in Easterly's analysis), would lead to reversals and, indeed, this is what the decline of the Caribbean countries after 1700 (red line in Figure 2) would suggest. But such evidence, while no longer in favor of the "simplest" geography hypothesis (as AJR refer to it), still speaks in favor of geography.

(2) Apart from the Caribbean, the only reversal, was that the four offshoots quite quickly acquired incomes higher than Europe. AJR may be still right that their low population density led to their spectacular development. They may also be correct that European immigrants established better institutions in the areas where they wanted to settle rather than those which they just wanted to exploit. Hall and Jones (1999) reason that Western Europeans had "high quality" institutions and that when they settled in countries with similar climates, they reproduced these institutions. But if institutions are the key to the secret of development, why the British offshoots rapidly surpass their mother country? European countries appear in the institutional literature only as colonizers. Should not the institutional explanation apply to them as well?

(3) The big question is why the producers of crops that became less profitable did not or would not move to other activities, rather than just passively witness the reversal of their fortunes, *if they could*, that is if natural endowments allowed it. It is here that institutions are supposed to have played the crucial role: according to AJR as well as Engerman and Sokoloff, they somehow "blocked" such moves. To develop the new activities, the argument goes, political, educational, and legal institutions would have to had changed so as to allow access of poor people to productive assets. Yet the established elite needed inegalitarian institutions to defend its privileges. Hence, this elite was unwilling to change the institutions and without the institutional change the new development path could not be pursued.[5]

This thesis raises several questions. Why would the same elite not use its political power to move to a more profitable activity. If slaves imported from Africa could cut sugar or enslaved Indians could mine silver, why could not these same slaves be used to produce textiles?[6] If for some reason the landed elite could not shift to a new activity, why would it not finance the emergent bourgeoisie? After all, this was an influential explanation of the English success.[7] And if the established elite obstinately clung to obsolete activities, why would it not be politically displaced by an aspiring new elite? Somehow, the only political actor

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[5]Note that the question of when the institutional change should occur is tricky. Acemoglou, Aghion, and Zilibotti (2002) show, for example, that while waiting too long to switch institutions is costly, switching prematurely can make things worse.

[6]As Safford (1972) points out with regard to Colombia during the first half of the nineteenth century, the same individual was often landowner, mechant, and lawyer at the same time, and if he was not, he had family members engaged in all these activities.

[7]This issue is important and controversial in the Chilean historiography. The classical study is Edwards (1928), a recent one is Contreras (2002).

in these institutional stories is "the elite," in singular, so that conflicts among competing elites are ruled out almost by definition[8].

(4) Who was there to "block"? When the first countries were undergoing the industrial revolution, the Caribbean islands, except for Haiti, remained under colonial control: there were local elites but the institutional framework was controlled by the metropolia. In turn, Latin America was fighting for independence from 1810 to 1824 and in no country were stable political institutions established until the 1830s. Hence, as the four British offshoots were on their way to pass their metropolis, institutions in other countries were either controlled by colonial powers or simply did not exist.

(5) Conceptually, both the work of Engerman and Sokoloff and of AJR is based on two observations: for the former they are called "Latin" and "North" America, for the latter the "settler" and the "exploited" areas. Not only there are no internal variations within each type but once there they are there for ever. Yet even a cursory glance at the history of Latin America shows enormous variations in political institutions and in development paths. Between 1831 and 1924 all presidents of Chile were elected for fixed terms (two five year terms until 1871, one five year term afterwards) and all but one completed their terms or died in office and was succeeded by their constitutionally designated successors. In contrast, no Bolivian president completed his term during the first 125 years after independence and their average tenure was less than one year. In turn, several countries experienced spurts of development and periods of stagnation.

True, AJR and their followers engage in statistical analyses, using cross-sectional data. But thus far these analyses generate only confirmations of the dichotomous distinction between the "good" and the "bad" institutions. In my view, the statistical approach of AJR and their followers is basically flawed, and this is the topic of the last section.

3   Identifying Effects of Institutions

Following AJR, the statistical studies of the impact of institutions adopt the following procedure: (1) Regress current incomes for a recent date (or an average of recent dates) on recent institutions and some control variables, (2) Instrument recent institutions by instrumenting institutions at some time immemorial. Here is what I see as flaws of this approach.

The first issue is theoretical: which institutions? AJR and most of their followers focus on institutions that serve to protect property. Their definition goes as follows: "We take a good organization of society to

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[8]Such conflicts play the central role in Cardoso and Faletto (1979).

correspond to a cluster of (political, economic, and social) institutions ensuring that a broad section of society has effective property rights" (AJR 2000: 1262). This idea goes back to North and Thomas (1973; see also North and Weingast 1989) and has become the New Testament ever since.[9] But we also have the Old Testament, drafted by Rosenstein-Rodan (1943; for a formal model see Murphy, Shleifer, and Vishny 1989) which says that institutions that matter are those that coordinate development. The main point of Bardhan (2004) is that the new institutionalism got its institutions wrong. And while the jury is still out – the question whether markets can spontaneously generate development or an active role of the state is necessary to promote it continues to mark the main ideological divide of our time, strangely resistant to empirical investigation – while the jury is out, the studies focusing on secure property rights suffer from two problems. One is logical; the second conceptual.

The logical issue is this. A combination of economic with political equality may be the first-best for development: many people can invest and they are willing to invest since they have political rights with which to defend their return to investment, while (if the production function is concave) output is maximized when productive inputs are equally distributed. But solving the problem by a definition – "We take a good organization of society to correspond to a cluster of (political, economic, and social) institutions ensuring that a *broad section of society* has effective property rights" (AJR 2000: 1262, italics supplied) – obfuscates the dynamic issues. For even if economic plus political equality is the first best, economic inequality accompanied by political equality is not the second-best: economic inequality protected by unequal political power is. The road from second to first best passes through a valley.[10] Economies should have been developing luxuriantly when political inequality protected economic inequality and should have stagnated when and where institutional reforms equalized political rights in the presence of economic inequality. The path in which development originates from equalizing political institutions is locally costly. Equalizing political rights undermines the security of unequal property and enhances conflicts over distribution, thus lowering investment of the property owners

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[9]In fact, this reasoning can be found already in Machiavelli: "For everybody is eager to acquire such things and to obtain property, provided that he be convinced that he will enjoy it when it has been acquired." (Discourses on Livy. II.2, cited after Holmes 2003)

[10]Note that Banerjee and Duflo (2003) find that changes in inequality (in either direction) negatively affect growth.

or diverting resources from production to distributional struggles[11].

To study the impact of economic and political inequality on development one must consider their entire time paths of both: shortcuts do not suffice. Consider the assumption that institutions established during European colonization had lasted until today. This is an important assumption since it serves to instrument the current institutions by instrumenting the initial ones.[12] Here is a crosstab of the quality, as measured by the constraints on chief executive ($XCONST$, the variable used by AJR), of exit-year institutions (when countries ceased to exist or information is last available) by entry-year institutions (the year of independence or soon after) for all countries that appear in the Polity IV data set (including those that were never colonies).

Table 3: Quality of Institutions By Entry and Exit Years

Entry/Exit	1	2	3	4	5	6	7	All
1	10	5	14	3	5	6	15	58
2	1	3	2	1	0	1	0	8
3	6	5	11	3	8	11	7	51
4	1	0	0	1	1	0	0	3
5	0	2	6	0	6	1	3	18
6	0	0	0	0	0	0	2	2
7	3	3	5	1	4	1	29	46
All	21	18	38	9	24	20	56	186

Note: Quality is measured by XCONST from Polity IV.

The crosstab shows a lot of volatility. Of the fifty-eight countries that entered the world with worst possible institutions, twenty-six ended up with good institutions (5 or more), while eleven out of forty-six countries went from best possible to bad institutions (3 or less). The correlation between entry and exist institutions is only 0.26. This correlation is higher, 0.55, when we consider only those countries that were not independent as of 1945, but this is still only 28 percent of variance.

I do not want these observations to be interpreted as implying that institutions do not persist. Przeworski et al. (2000) found that among

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[11]On these issues, see Przeworski and Limongi (1993). John Ferejohn pointed out to me that in the North-Weingast (1989) story political rights were extended to those who already owned property. Such an extension would stimulate investment and development. The threat arises when political rights are extended to people without property.

[12]In the rendering of Easterly and Levine (2002: 3), "many countries' institutions were shaped during colonialization, so that examining colonies is a natural experiment."

135 countries they studied between 1950 and 1990, 100 had the same regime, either dictatorship or democracy throughout the period. Moreover, the systems of democratic separation of powers – presidentialism, semi-presidentialism, and parliamentarism – are almost perfectly stable. Hence, big institutional changes are rare. But this does not seem to be true of the particular measure of institutions which AJR employ. And if institutions did change, then instruments for the initial institutions need not be a valid instrument for the current ones. If good institutions are more likely to survive in more a- uent countries (about which see Przeworski 2004, Benhabib and Przeworski 2004), then institutional quality today is still endogenous with regard to income.

Here is the conceptual issue. Neo-institutionalist studies rely on specific operationalizations of the institutions they see as relevant conceptually. Thus, AJR use two measures of institutional quality: protection against the risk of expropriation, as measured by a Washington consulting firm, Political Risk Services (also used by Hall and Jones 1999) and constraints on the chief executive, from Polity III. Easterly (2002) as well as Rodrik, Subramanian, and Trebbi (2002) use indices generated by Kaufmann, Kraay, and Zoido-Lóbaton (KKZ, 1999). Bardhan (2004) uses the "rule of law" from KKZ and "strength of political rights" from UNDP (2002). Even if we assume that these are valid indicators of what they intend to measure,[13] the obvious question is whether they indicate that quality of institutions which is theoretically relevant. AJR (2002: 1270) are aware of this difference: they observe that their measure of institutions may "correspond poorly to the real concept that is relevant to development (which is likely to be a broad range of institutions, whereas we only have an index for a particular type of institutions)." So are Easterly and Levine (2002: 33): "Nor does the kind of general indicator of institutional quality we use, ..., provide much guidance to officials making real laws and regulations." But everyone uses such indices.

Now, note from a purely statistical view, that the instrument for the narrow concept of institutions may be valid, that the narrow concept is correlated with the broad one, and yet that the instrument for the narrow concept is not a good instrument for the broad one. This is not a trivial possibility: we know that weak instruments can be worse than no instruments (Bound, Jeager, and Baker 1995).

The last, and final, problem is even more bothersome. AJR estimate

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[13]For doubts on this topic, see Aron (2000) who observes that indicators based on irreproducible judgements always predict performance, while those based on observable features of institutions rarely do. Note that the Polity data set combines observable indicators with a misterious opinion about the "constraints on the chief executive," and the last item drives the entire scale.

a model in which *per capita* income at the most recent date depends on institutions, finding that good institutions are associated with higher incomes independently of conditions. This model implies that good institutions should generate higher growth rates during any period subperiod. Consider during the period 1950-1999 countries that were colonies as of 1945. It turns out, as Przeworski et al. (2000) would expect, that institutions affect demographic rather than economic performance: the rate of population growth ($POPG$) falls as the quality of institutions increases, the rate of growth of total output (YG) does not depend on institutions, so if the rate of growth of per capita income (G) does increase slightly with the quality of institutions it is only because of lower population growth. The table below shows means of these variables conditional on $XCONST$ as well as the OLS and 2SLS coefficients of $XCONST$.[14]

Table 4: Rate of growth of total income, of population, and of per capita income, by quality of institutions.

$XCONST$	YG	$POPG$	G	N
1	4.12	2.88	1.25	763
2	5.24	2.66	2.58	316
3	4.13	2.95	1.27	557
4	6.45	2.55	3.89	33
5	4.03	2.33	1.70	192
6	5.37	1.45	3.62	55
7	3.95	2.07	1.87	415
OLS	−0.0431	−0.1446	0.1020	2331
	(0.0809)	(0.0191)	(0.0816)	
$2SLS$	0.1083	−0.1814	0.1728	2331
	(0.1824)	(0.0539)	(0.1838)	

Note: XCONST from Polity IV. Income and population from PWT5.6, extended by Easterly: www.nyu.edu/fas/institute/dri/Easterly/Research.html.

Hence, it looks like countries with better institutions had higher per capita incomes in the recent period because they had experienced lower population growth, not because their total output grew faster.

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[14]The first-stage equation for 2SLS includes per capita income, number of past transitions to democracy, the proportion of other countries in the world that are democracies during a given year, and a dummy for British colonies. Controlling the estimates for per capita income makes no difference except for POPG in 2SLS, which is reported with this control and AR1. Standard errors in parentheses.

The issue of the dependent variable is not specific to AJR. Economists are notoriously cavalier about taking the growth of per capita income as the dependent variable. The dynamic of population is ignored altogether in the "kitchen-sink" regressions, such as Barro's (1989), while population is assumed to grow at a constant exogenous rate in the theoretically motivated studies following Mankiw, Roemer, and Weil (1992). Yet the rate of growth of per capita income is a result of two, partly independent, processes: the growth of total output and the growth of population. And, very much to their surprise, Przeworski et al. (2000) found that political regimes systematically affect the rate of growth of population and the same finding holds for the Polity measure of institutions. It appears that if, political institutions affect anything, it is demographic, rather than economic, performance.[15]

Here, then, are some conclusions. Instrumenting the current institutions is difficult because it is hard to find right-hand side variables that are exogenous with regard to institutions. Hence, AJR adopted a reasonable strategy of going far back to find instruments that are exogenous and they have conducted an unprecedented amount of research to measure the initial conditions. But the validity of this strategy hinges on the assumption that institutions remained the same throughout the entire period. And while this assumption may hold for some broad notion of the quality of institutions, it does not hold for the one measure of institutions for which we have a long historical series, the Polity data. As a result, we are back to the endogeneity problem. Moreover, the dynamic of output and of population are to some extent independent, so that taking as the explanandum per capita income obscures the potential role of institutions in shaping development.

None of the above is intended to claim that institutions do not matter. I simply think that we still do not know which are the institutions that might be important and whether or not they are. The research program appears to be clear, even if not simple. Instead of taking short-cuts, we need to study the variations among countries along their entire modern history. This means that we need better data on the history of institutions. It also means that we will need to confront problems of endogeneity. And here we confront a paradox. The recent theoret-

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[15] Why it would be so remains a puzzle. Przeworski et al. show that public spending on social insurance programs, principally old-age pensions, reduces fertility in democracies but not in dictatorships. They speculate that this is so because dictatorships are much more volatile in terms of policies and of economic performance, so that if people are risk-averse they hoard the most secure asset, namely children. In turn, reducing social insurance programs under democracy is next-to-impossible for electoral reasons: even Margaret Thatcher did not succeed. But this argument is based on shaky evidence.

ical developments consist of endogenizing factors previously considered as exogenous (Acemoglou and Robinson 2001, Banerjee and Duflo 2003, Benabou 1997, 2000, Benhabib and Przeworski 2004, Bourgignon and Verdier 2000, Hoff and Stiglitz 2003, Perotti 1993, Saint Paul and Verdier 1996): inequality shapes institutions, institutions affect redistribution, both institutions and income distribution influence the growth of income, while the level of income affects both institutions and inequality. Yet if everything is endogenous, identification is impossible: everything is simply determined by the initial conditions, which may, in turn, be shaped only by geography. Hence, the quest for instruments originated by Acemoglou, Johnson, and Robinson remains foundational. Only that they are much harder to find when we take history seriously.

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