

Why Aren't Countries Rich?: Weak States and Bad Neighbourhoods

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This article challenges a common viewpoint that the policy choices made by state leaders are central to explanations of economic growth. It argues that there are two possible flaws in this viewpoint. First, that state leaders have a free choice in policy decisions; second, that it is policies that in large part determine growth rates. Using a set of variables designed to capture the weakness of the policy autonomy of the state and possible non-policy influences on growth rates, the article concludes that initial conditions are a better determinant of wealth and growth than free policy choice.

Sail on, O Ship of State!
Sail on, O Union, strong and great!
Humanity with all its fears,
With all the hopes of future years,
Is hanging breathless on thy fate!

From *The Building of the Ship* by H.W. Longfellow

INTRODUCTION

It is a common feature of theories of development economics that the state is, for good or bad, central to the development process. The state is either the solution, the only way to combat structural weaknesses that hold back growth; or it is the problem, tying down the invisible hand; or it is the facilitator, vital for the efficient functioning of the free market. What is common to these ideas is that the ship of state is seen as a dreadnought, not a skiff. This paper will view the state as fragile – weakened by internal

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division of its people, unable to compensate for the vagaries of climate, and greatly affected by the condition of its neighbours. Policies might be less effective than commonly thought. They might also be determined, to a large extent, by the environment in which the state is placed. Non-policy variables will appear as both an important determinant of policies and important determinants of growth in their own right.

This article will begin by studying some 'stylized facts' regarding cross-country evidence on the growth process. Arguing that recent econometric results suggest that policy variables appear less than satisfactory as explanatory variables, it will turn to a range of non-policy variables. It discusses the idea that a nation-state – here proxied by common language and length of association – could be a prerequisite for growth in independent states. It will also look at two other 'non-policy' factors (climate and neighbourhood wealth) which, together with the absence of nation-states, might be a major cause of the historical divergence in living standards. It then moves on to presenting statistical evidence supporting these propositions. The strongest statistical result from this analysis will be that no state is an island (although, it should be noted that in the regression sample this is literally true as well). Regional characteristics and the wealth of a country's neighbours will turn out to be strong correlates with country growth. The article concludes with a brief discussion of what these results might mean for the practice of development.

THE PROBLEM WITH POLICY

It is perhaps worth reformulating the usual question, 'what makes countries grow?' into the question, 'why don't they?' The reason for adding a negative is that many present studies suggest that achieving a decent level of growth is reasonably straightforward [*Dollar, 1993; Sachs and Warner, 1995*]. Even more recent papers, such as Sachs and Warner [*1997*], while arguing that structural factors play a part, still conclude that there is a large role for the free choice of amelioratory policy reform. Some of the literature suggests that if a country introduces the right policies and formal political institutions, then convergence will follow. But if growth is merely a question of following a free choice to take the right policies, it seems surprising that everyone is not doing that.

Some recent studies have already suggested the difficulties in policy-centred explanations of growth performances based, for instance, on 'large' or 'small' states (as measured by government expenditure as a percentage of GNP or taxation) [*Tanzi and Zee, 1997: 10; Easterly and Rebelo, 1993*]. Levine and Renelt's study of common variables used in growth regressions also suggests that few of these variables are robust to being entered with

different sets of other variables in regressions. This might be a sign of the high correlation between policy variables themselves and/or with causal country features that are the underlying reasons for differing growth rates [Levine and Renelt, 1992].

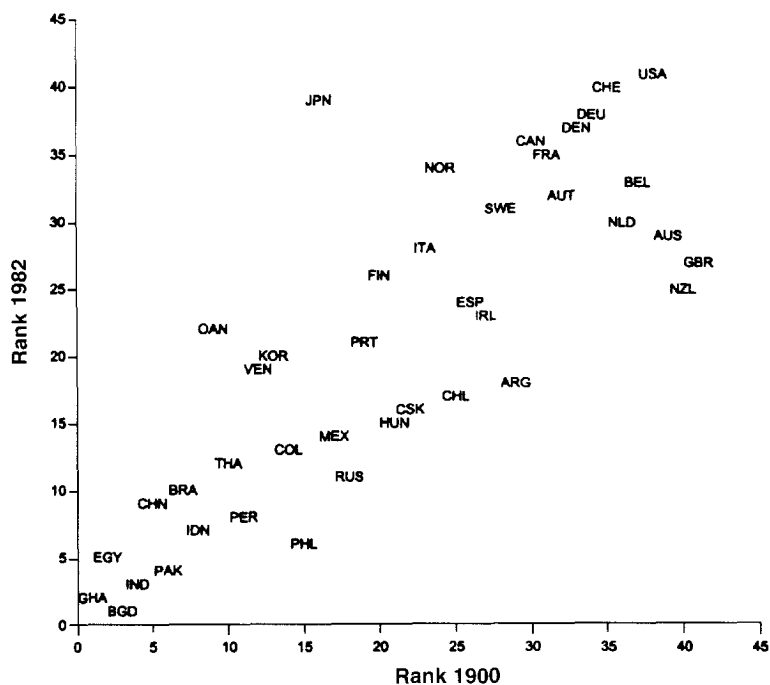
At the same time, studies of OECD countries suggest that developed country growth is well described as a process with constant mean and little persistence [Jones, 1995]. We can predict to within five percent US GDP in 1987 looking at growth data from 1880 to 1929 alone. This suggests that there is a high level of persistence of growth at least within the OECD sub-sample of countries. Indeed, Pritchett [1997] notes that, between 1870 to 1989, two-thirds of the present high income industrialised countries had per annum GDP/capita growth rates within 0.2 per cent of the US rate. This relatively stable long-term growth rate further suggests that either policies have a limited role in explaining OECD growth rates, or that OECD countries have been following optimal policies, but such policies change over time and across countries – making cross-country, cross-period policy studies prone to error. Many US policies have changed dramatically over the period 1880–1987 (for instance, a massive increase on education, health and research expenditure), and policy differences between the US and countries such as Germany or Italy have been very large. It should be noted, however, that none of the OECD countries have consistently followed policies that were completely beyond the pale of economic rationality – unlike some African countries. With that caveat, this work again suggests that there might be a role for more stable country characteristics to explain longer-term growth.

Another 'stylized fact' about growth experiences also suggests that there is limited freedom for individual countries to grow at state-determined rates. Even a cursory glance at a map suggests that rich countries tend to be next to rich countries and poor next to poor. This relationship appears to work within countries, as well. In Mexico the industrialised North, next to the US border, is more wealthy than the central area dominated by Mexico City. In turn, the central region is far wealthier than the poverty-stricken South, including the Chiapas region, that has more in common with its Central American neighbours than with the rest of Mexico [Oppenheimer, 1996: 278]. This suggests one of two things. Either regional (as opposed to state) characteristics account for a large percentage of the differences between the wealth of countries or the wealth of a country's neighbours has a large impact on that country's wealth. In regression analyses, the importance of location has manifested itself in the persistence of region dummies. Easterly and Levine have also suggested neighbouring country's growth rates are a significant determinant of growth [1997b].

A third factor that has become increasingly clear in recent literature is

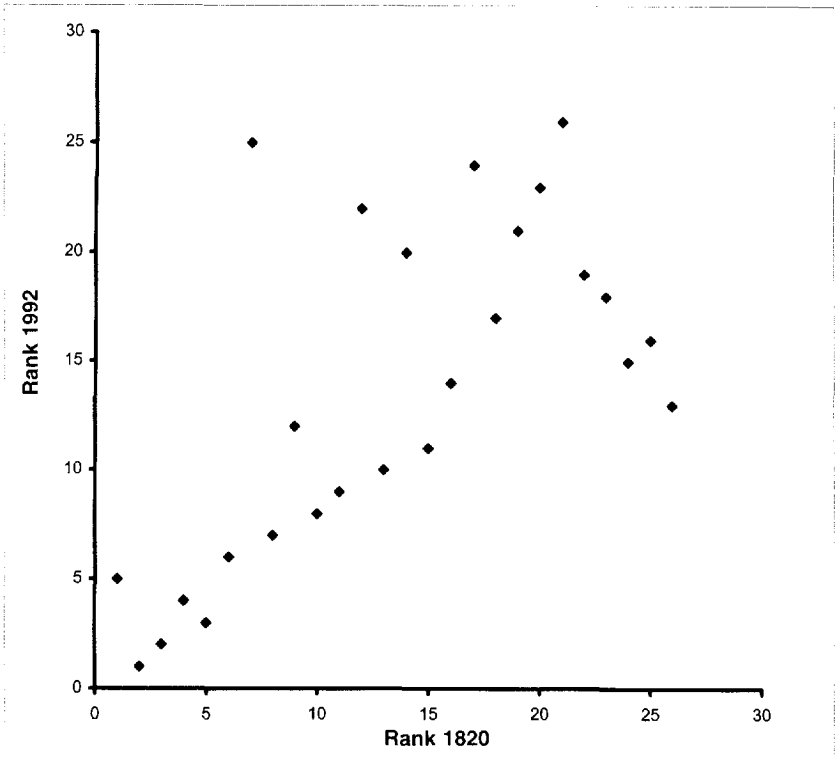
the phenomenon of divergence. Pritchett [1997] argues that modern economic history suggests massive divergence across countries. Between 1820 and 1960, maximum average per annum growth rates of developing countries with GDP per capita of below \$1,000 in 1960 is one per cent. Amongst present high income industrialised countries since 1870, growth has been close to 1.8 per cent/annum. [Pritchett, 1997: 30–33]. Looking at long-term growth data from Maddison for 42 countries, the average per capita income of the poorest ten of those countries in 1900 was \$637. The richest ten countries in 1900 had an average income of \$3,696, approximately six times as much as the poorest. In 1992, the poorest ten countries had an average income of \$1,831 compared to the richest ten's average of \$18,765 – approximately ten times as much as the poorest (calculated from Maddison [1995: 23–4]).

FIGURE 1
RANK OF INCOME 1900 AGAINST RANK OF INCOME IN 1992



Indeed, rich countries in the past, by and large, remain rich countries today, and poor countries remain poor. Figure 1 takes the GDP per capita

FIGURE 2
RANK OF INCOME IN 1820 AGAINST RANK OF INCOME IN 1992



figures for the 41 countries which Maddison provides data for 1900 and 1992, ranks them according to per capita income in these two years, and plots the results. There is a clear relationship between 1900 income ranking and 1992 income ranking (the outlier to the top left of center is Japan). Even if we take the relationship further back, it appears to hold true. Ranking the 26 countries with 1820 and 1992 data (Figure 2) shows that the poorest five countries for which we have data in 1820 are still the poorest five in this group today. Only seven of the 26 countries managed to move more than five places in the rankings over 172 years. Clearly, this is in part the result of higher initial income, but for the countries of the Indian subcontinent (the poorest in the sample) to have reached the 1992 GDP per capita level of the first-ranked US from their 1820 starting income would have taken an average growth rate just 0.5 per cent faster than the US growth rate 1820–1992.

While Easterly, Kremer, Pritchett and Summers [1993] suggest that there is a limit to what country characteristics can explain in the short term, the fact of massive divergence suggests that over the long term there must be some correlation between growth in period one and growth in period two. The data suggest that, over the long term and on average, poor countries have grown significantly slower than rich ones. In the words of Lant Pritchett, there has been 'divergence, big time'. Poor continental regions have also grown slower than rich regions – where you are might be as important as what you do in explaining growth. At the same time, the low variation between growth in industrial countries and the low variation of growth over long periods of time within industrial countries is evidence that non-extreme policies cannot be that important (given policies have changed dramatically since 1870, and have varied across countries). There is a role for factors that are largely constant over very long periods, then; factors that can explain the long term divergence in growth rates. These factors could affect growth rates directly (by increasing transactions costs, for instance) or indirectly, by inducing 'extreme' policies of the kind not seen in the Twentieth Century history of OECD countries. This is to see growth as a process of a violent random walk around a mean set by underlying institutional and structural factors.

What are some of the non-policy factors that might explain long-term growth? The recent explosion in work on institutions and economic growth might suggest some of the proximate causes. Work on the link between corruption, bureaucratic quality and civil liberties has produced some evidence of a link between such factors and economic performance [*Alesina and Perotti, 1994*]. King and Levine [1993] suggest that the development of the financial sector can have an important impact on economic growth, and show a robust connection between their measures of financial depth and GDP per capita growth. Levine's more recent work [1998] suggests a link with efficient legal and regulatory systems.

Clearly, the type of legal and regulatory system in a country is very much dependent on its history and location [*Laporta, Lopez-de-Silanes, Schliefer and Vishny, 1996*]. This suggests that history and geography might have a role to play in explaining growth rates. In turn, this leads the discussion onto more permanent non-policy factors based on variables such as region, climate and culture, which might have an indirect impact through their effect on the nature of present institutions and policies as well as having a more proximate impact on growth.

For example, recent studies have already suggested that ethnic heterogeneity might play a role in development. Easterly and Levine's paper on 'Africa's Growth Tragedy' [1997a] made use of the variable they labeled ETHNIC (and I report as ELF). This ethno-linguistic fractionalisation index

is the chance that two randomly selected people from the same country will be of the same ethnic group. They show that ETHNIC is strongly correlated with measures of 'minorities at risk', separatist movements and 'ethnic tension'. ETHNIC also makes the Africa dummy insignificant in their base regression. ETHNIC does not lead to political instability according to Easterly and Levine, but it is negatively correlated with school attainment, financial depth, infrastructure and the black market premium. Overall, they argue that ethno-linguistic effects probably account for one percent of the growth difference between East Asia and Africa [Easterly and Levine, 1997a]. Hall and Jones [1996: 30] argue that countries where a large percentage of citizens speak one of eight international languages are significantly richer – twice as rich as similar countries where no international language is spoken.

Mauro used Business International's indices on corruption, bureaucratic red tape, political stability, terrorism and the legal system in 70 countries and found a link both between these measures themselves and with ETHNIC. ETHNIC has a -0.38 correlation with the red tape index and a -0.41 correlation with the political stability index. He also argues that GDP/capita, growth rate, and investment are correlated with bureaucratic competence [Mauro, 1995: 687].

These studies suggest that the absence of a nation state as defined by language has a negative influence on the formal institutions of states and might encourage the types of extreme policies that damage long-term growth. Further studies by Sachs and Warner [1995, 1997] suggest that there is a (surprisingly negative) relationship between natural resources abundance and growth. Hall and Jones [1996: 30] show that countries in temperate regions are far richer than countries nearer to the equator. Wheeler [1984] and Hadjimichael *et al.* [1994] have both found drought a significant determinant of growth in Africa-only samples, and Sachs and Warner [1997] show that tropical countries tend to grow more slowly. Finally, Easterly and Levine also suggest that the growth rate of a country's neighbours can be a significant determinant of that country's growth [Easterly and Levine, 1997b].

I will examine three possible causes of growth connected with the ethnic, natural resource and neighbourhood wealth variables looked at in the above studies. First is a necessary but not sufficient cause of growth – the internal strength of the state. Strength, here, is defined as the ability to enforce reciprocity in state relations with its citizenry. I will argue that this strength is the result of a sense of nation that fosters legitimacy. Ethnic groups in Africa command far more loyalty than does the nationless state. The state therefore lacks legitimacy and is weakened. To capture the weak-state-low-legitimacy problem, I will use measures of ethnic division and state longevity taken from

Easterly and Levine's work, along with a measure of the length of time since state leaders began the 'political modernisation' process.

The second factor I will look at is an arbiter of agricultural productivity. Historically, agricultural revolutions have preceded or coincided with periods of very high growth. If some countries are prevented from achieving this high growth rate because of their climate – in this case low rainfall – this problem could trap them in a low growth trajectory. Third, I will look at the wealth of neighbouring countries. This factor appears to go a long way towards being a sufficient condition for growth. Beyond the role of neighbouring wealth in promoting catch-up, neighbourhood performance will capture regional characteristics that determine economic growth including ethnicity and climate, but also cultural and ideological groupings and resource availability.

NATION-STATES AND GROWTH

One example of a relatively unchanging condition that appears to affect wealth is that countries with states capable of imposing controls on their interaction with citizens appear to be amongst the richer countries in the world. Even if one takes a minimalist position on the role of the state in development, it still has vital tasks to perform. Lal argues in *The Poverty of Development Economics* that the state has done too much, but admits that it sometimes has a role to correct the failings of 'an inherently and inescapably imperfect economy' [Lal, 1983: 15]. To play this role requires an effective government, which in turn is predicated on a strong state.

The problem with weak states is clearest in Africa. States have become what Callaghy labels 'lame Leviathans' or Sandbrook's 'fictitious states' – acting as states only to the extent that other states recognise them as sovereign [Jefferies, 1993: 32]. This is a problem of 'partial engagement'. The state is too weak to prevent citizens taking the benefits while avoiding the costs of engagement with itself. This is clearest in the wild spending decisions of cathedral-building presidents in Côte d'Ivoire or the corrupt practices of Zairian strongmen with fortunes in Swiss bank accounts, but it is a problem that affects all levels of government interaction with citizenry.

This problem is connected with questions of legitimacy. Newly independent states in Africa suffered from a lack of common identity amongst their citizenry – and this was a barrier to the creation of legitimacy and so strength. The state was not seen as the legitimate absolute arbiter by citizens because it was not recognisably of them, but of a polyglot community in which they were only a part. Thus family alliance, friendship and ethnicity are by far stronger ties in African politics, outweighing economic groupings or any tie of loyalty to the state. Sometimes, this leads

to policies that favour families, friends and ethnic groups to the detriment of the state, or even particular economic groupings. One example highlighted by Easterly and Levine is the long-running anti-cocoa policy of Ghanaian governments made up of opponents of the Ashanti group that dominated cocoa production [Easterly and Levine, 1997a]. Ironically, even when president Rawlings (a member of the Ewe tribe) reversed these policies in the 1980s, the Ashanti still voted along ethnic lines for the opposition. The cocoa farmers of the Ashanti region benefited from the 1980s agricultural reforms introduced by Rawlings more than any other region [Herbst, 1993: 86], yet they were the only rural group to vote for the opposition, which they did overwhelmingly [Jeffries and Thomas, 1993: 355]. Ashanti opposition leader A Adu Boadhen argued that the dominance of government by Rawlings' Ewe tribe 'is giving the unfortunate impression that the country is being dominated and ruled by that single ethnic group, and this impression is causing ... anger and irritation' (quoted in Herbst [1993: 87]). Thus, even when a leader is not biased toward his own ethnic group, the suspicion against him remains. Trust in government is absent even when government is acting in good faith.

In other regions, where state boundaries have more closely coincided with national boundaries, the state is seen as more credible and is better able to control those who operate for it. Pierre Salmon argues that 'Patriotism or attachment to one's country often leads to actions and attitudes which are (in a sense) disinterested or self-sacrificing, help solve free-riding problems, or, more generally, reduce the costs of policy-making' [Salmon 1995: 296]. Indeed, nationalism appears to have become almost universally accepted amongst politicians as a vital element of state strength – hence the widespread emphasis on ideas of 'nation building' [Alagappa, 1995: 26–7]. The presence of a nation-state does not guarantee the most effective policies or formal institutions (the experiences of East as compared to West Germany or North as opposed to South Korea illustrate this clearly). However, the nation state removes barriers to the implementation of sensible policy or the creation of effective institutions. It provides what Grindle and Thomas label 'space', to make policy choices independent of pressures from within or without the country [Grindle and Thomas, 1991: 8]. It is thus a necessary if not sufficient element in the building of a developmental state.

The problem of the ethnically-induced internal weakness of the state as a whole perhaps helps to explain why it is so hard to find differences in the growth rates of democracies and non-democracies [Przeworski and Limongi, 1993: 6], or 'large' and 'small' states. These differences are secondary to those between strong and weak states. The formal constitutional nature of the government in Africa is relatively unimportant

and irrelevant to the workings of the economy. The underlying, largely unchanging, cultural-institutional structure can weaken or redirect central efforts at control – be those efforts directed by the military or civilians.

There is a further, linked, way in which ethnic division is likely to affect growth. It is in the way that a common culture is likely to increase trust – or at least understanding – between economic actors. Fukuyama, writing about trust notes:

As economists argue, the ability to form organizations depends on institutions ... But it also depends on a prior sense of moral community, that is, an unwritten set of ethical rules or norms that serve as the basis of social trust. Trust can dramatically reduce ... transaction costs ... and make possible certain forms of economic organization that otherwise be encumbered by extensive rules, contracts, litigation and bureaucracy [*Fukuyama, 1995: 90*].

Beyond the obvious transaction cost of overcoming language barriers, if cultural division reduces trust between economic actors this itself could be an explanation of lower growth rates.

The variables that I will use to define 'nations' are largely based on language. There is a long history of tying nations to their linguistic and/or religious cultural heritage. Dante tried to locate an Italian language to identify Italy in 'On Vernacular Language' [*Breuilly, 1985: 5–6*]. Fichte, a founder of the modern philosophy of nationalism, argued that 'Nothing seems more obviously opposed to the purposes of government than the unnatural enlargement of states ... Those who speak the same language are joined to each other by a multitude of invisible bonds by nature herself ... they belong together and are by nature one and inseparable whole ...' [*Fichte, 1962*]. The variables STATEL and HOMELANG are both measures of the percentage of people who speak a country's official state language. HOMEL is the percentage of people in the country that speak the most popular language at home; it is also designed to capture the national homogeneity of states. A variation of this same concept is ELF, Easterly and Levine's ethno-linguistic fractionalisation index.

However, Fichte's concept of language as an unchanging and authoritative arbiter of nationhood is over-simple for a measure of ethnolinguistic fractionalisation to catch all of the variation in national sentiment between countries. First, the nature and popularity of languages change over long periods. At the time of the French Revolution there were over 300 dialects spoken in France. For hundreds of years after the Norman conquest of England, nobles spoke French and commoners spoke Saxon English. Only well after Chaucer did English become a universal vernacular. Second, the boundaries of language and perceived nations do

not always coincide. Weber warned that 'a "nation" is not identical with a community speaking the same language; that this by no means always suffices is indicated by the Serbs and the Croats' (quoted in Hutchinson and Smith [1994: 24]). He goes on to note that religious ties, blood ties, common heritage all might form the basis of a nation – but often do not.¹

The examples of France and England suggest that, merely by being a state for long enough, a country can foster linguistic homogeneity and/or a sense of national identity. Belgium might be a reasonable example of a state that has limited linguistic homogeneity, but a reasonable sense of nationhood, born of 167 years as an independent country. This suggests that a measure of the amount of time a state has been an independent administrative unit with its present borders might be a further useful measure for capturing the presence of a nation-state.

The variable YRIND60 comes from Easterly and Levine; it is the percentage of the number of years since 1776 that a country has been an independent state. This means that most African countries get a value of zero because, despite the fact they were only formal colonies from the end of the nineteenth centuries, they were not formal states within their present borders before the European invasion. CONSOLIDATION is a variation on this theme (used here as a robustness check). It is the number of years up to 1990 since a country has begun the 'consolidation of modernizing leadership' as defined by Black [1966], where this consists of 'the determination of leaders to modernize', a break from agricultural institutional structures and the creation of a politically organised society. As examples, this period began in 1776 for the US, 1861 for Russia, 1868 for Japan and 1964 for Malawi. CONSOL is the same variable with years between independence and 1990 substituted for countries where Black provides no data. All three variables YRIND60, CONSOLIDATION and CONSOL are likely to act as proxies for an OECD dummy to some extent. Obviously, OECD countries have been comparatively rich and independent for a long time – and they colonised poorer countries. To that extent, these variables could merely show once again that poor countries have remained poorer and rich countries richer despite huge global increases in wealth. Perhaps they suggest one reason why this might be so, however. State-building is a long process, which began earlier in the West than in most of the rest of the world.

OTHER INITIAL CONDITIONS: RAINFALL AND REGIONAL GROWTH

One further factor that could be a large constraint to overall growth is a limit to agricultural growth. It is clear that Britain's early industrial growth was

made possible by an increase in agricultural output that allowed the country to escape the Malthusian trap. Morris and Adelman's [1989] study of nineteenth-century development in 23 countries concluded that successful agricultural performance was necessary (if not sufficient) for industrialisation to occur. More recently, the green revolution in India has obviously been vital to that country's development. India's successes were made possible by high yielding varieties of crops that required a certain quality of soil and consistency in water availability not found in Africa, however [Lamb, 1982: 298]. It might be that the climatic conditions in some countries prevent an agricultural revolution that has been a necessary (if not sufficient) condition for long-term growth in other countries. For example, Africa's agricultural system is largely pastoral, with some rain-fed arable production. It is based on a system of production designed to minimise the catastrophe of drought rather than to maximise output [Lamb, 1982: 298]. This might be less receptive to productivity improvements than the irrigated, water-intensive rice production common in East Asia. Interseasonal differences in rainfall in Africa can alter smallholder cotton production yields by up to 400 kg/ha, for example, while low rainfall can reduce the yield effect of fertiliser on cotton from 300 kg/ha to no effect at all [Carr, 1993: 2, 14]. Looking at rainfall levels might be suggestive in this regard, then.

The variable RAIN is a dummy which takes the value one if the lowest average monthly rainfall in a country's capital is below 10 mm for any month. Of course, this is not necessarily a good measure of the climatic conditions in the country's major agricultural areas. The weather in Beijing, Delhi, Moscow or Washington is not likely to be a good measure of weather across the entire agricultural areas of these countries. Too much rain can be as bad as too little, as recent floods in China attest, and further, variability can matter as much as quantity. RAIN, then, has to be seen as an exploratory variable. In future work, it might be worth looking at average rainfall during the growing season and/or the standard deviation of rainfall.

Regional factors that might influence growth could be geographic (climates and mineral strains cross frontiers), cultural (Islam, for instance, is associated with particular regions of the world) or political-ideological (the EU and the COMECON blocks or the spread of ideas from the Economic Commissions for Africa and Latin America). Of course, this leads to the problem that regional growth or wealth is likely to capture effects also caught by the RAIN and ELF variables, but this is unavoidable.

Neighbourhood wealth itself could be important in easing the benefits of catch-up. Attracting investment, exploiting trading opportunities, earning from migratory labour and learning about technological advances will be far easier for a poor country sharing a border with a rich neighbour than one surrounded by other poor countries. This might be seen as a 'gravity theory'

of catch-up, linked with Krugman's [1991] argument that there are strategic complementarities in geographically concentrated capital accumulation and consistent with evidence of sigma convergence of per capita income across European Union countries, Japanese prefectures and US states [*Barro and Sala-i-Martin, 1995*]. The variables 'NINT60' and 'NINT90' are the unweighted average of available figures from within the 160 country dataset of land-bordering neighbours' GDP per capita, from the Summers and Heston data-set. This excludes islands and countries including South Korea that only border on countries for which there are no data. It also skews numbers for countries next to some other countries for which there is no data (China's NINT values exclude Russia, Pakistan's exclude Iran, for instance). GNINT is a measure of the unweighted average growth of neighbours over the period 1960–90.

RESULTS

Using Easterly and Levine's 160-country sample as a basis, we can look at the significance of each of these factors. In turn: the average 1990 GNP per capita (Y90) from Summers and Heston for the 33 countries where under 60 per cent of the population spoke the most popular home language (and numbers are available) was \$1,990; for the 79 countries where over 60 per cent spoke the most popular home language the average was \$6,193. The average GNP per capita for those 41 countries whose land neighbours had an average GNP per capita of under \$2,500 was \$1,617. The average for those countries whose neighbours had an average GNP per capita of over \$2,500 was \$7,276. The average GNP per capita of those 52 countries which saw an average of under one centimetre of rain in their capital in any month was \$2,475. For those 56 countries which always saw monthly average rainfall in the capital above one centimeter, the average GNP per capita was \$7,320. For those 62 countries that had spent under 20 per cent of the time between 1776 and 1960 as independent states, the average income was \$2,419. For those 52 countries that had spent more than 20 per cent of the time between the American War of Independence and 1960 as independent states, average GDP per capita in 1990 was \$7,597. For the 14 countries that had linguistic diversity, poor neighbours, low rainfall and a short independent history, average per capita GDP was \$969 in 1990. For the 26 countries blessed with linguistic homogeneity, wealthy neighbours, good rainfall and a short colonial history, average income was \$9,849 in 1990.

If we look at regression studies of how well these factors predict wealth, when 1960 GNP/capita (Y60) is regressed against RAIN, HOMELANG and YRIND60, all are significant at below one per cent, enter with the expected sign and explain 43 per cent of the variation in wealth between

countries (Table 1) (although average rainfall, unreported, but used as a robustness test for RAIN, was not significant).² When the three variables RAIN, ELF and YRIND60 are regressed with 1990 GNP/capita, they have an R-squared of 51 per cent – suggesting that they continue to have power in explaining divergence (Table 2). These results are both robust to removing sub-Saharan African countries. When an Africa dummy is added, it is insignificant – these factors might help to explain Africa's poverty, then. A Latin America dummy does remain significant and negative, however, suggesting that something else has held back the continent's growth beyond these factors. Using the logs of CONSOLIDATION and CONSOL in place of YRIND60, both enter significantly. The log of CONSOLIDATION knocks out HOMELANG and raises the 1990 R-squared to .58. The log of CONSOLIDATION also knocks out the Africa dummy but, again, fails to knock out LATINCA.

TABLE 1
DETERMINANTS OF INCOME, 1960
(Dependent variable is Y60, t-stats in italics)

	1	2	3	4	5	6
C	3159 <i>8.01</i>	3260 <i>7.97</i>	3378 <i>8.56</i>	218 <i>1.09</i>	379 <i>0.88</i>	593 <i>1.23</i>
RAIN	-1562 <i>-4.59</i>	-1539 <i>-4.5</i>	-1522 <i>-4.56</i>		-434 <i>-1.52</i>	-475 <i>-1.66</i>
HOMELANG	-17.6 <i>-3.57</i>	-14.7 <i>-2.51</i>	-19.8 <i>-4.03</i>		-0.9 <i>-0.21</i>	-3 <i>-0.63</i>
YRIND60	1598 <i>3.45</i>	1434 <i>2.67</i>	1778 <i>3.87</i>		1128 <i>2.97</i>	1351 <i>3.28</i>
NINT60				0.87 <i>12.97</i>	0.74 <i>8.53</i>	0.7 <i>7.57</i>
AFRICA		-446 <i>-0.88</i>				67 <i>0.87</i>
LATINCA			-1003 <i>-2.39</i>			-558 <i>-1.56</i>
N	110	110	110	100	95	95
R-Squared	0.43	0.44	0.46	0.63	0.71	0.72

TABLE 2
DETERMINANTS OF INCOME, 1990
(Dependent variable is Y90, t-stat.s in italics)

	1	2	3	4	5	6	7	8	9
C	6903 <i>7.98</i>	7114 <i>7.92</i>	7468 <i>9.6</i>	-765 <i>-0.34</i>	-7218 <i>-2.14</i>	-6053 <i>-1.78</i>	229 <i>0.63</i>	152 <i>0.21</i>	767 <i>1.03</i>
RAIN	-3879 <i>-5.4</i>	-3833 <i>-5.32</i>	-3518 <i>-5.47</i>	-3848 <i>-5.35</i>	-3803 <i>-4.98</i>	-3355 <i>-4.92</i>		-442 <i>-0.94</i>	-565 <i>-1.21</i>
HOMELANG	-40.7 <i>-3.76</i>	-34.5 <i>-2.66</i>	-46.5 <i>-4.78</i>	-34.9 <i>-3.38</i>	-15.8 <i>-1.26</i>	-22.1 <i>-1.74</i>		-2.9 <i>-0.37</i>	-4.3 <i>-0.61</i>
YRIND60	3764 <i>3.72</i>	3397 <i>3.1</i>	4716 <i>5.12</i>					915 <i>1.35</i>	1346 <i>1.94</i>
NINT90							0.97 <i>17.58</i>	0.95 <i>14.48</i>	0.88 <i>11.99</i>
LOG(CONSOL)				2124 <i>4.59</i>					
LOG(CONSOLIDATION)					3495 <i>5.15</i>	3480 <i>5.02</i>			
AFRICA		-990 <i>-0.88</i>				-667 <i>-0.52</i>		346 <i>0.51</i>	
LATINCA			-4200 <i>-5.2</i>			-4181 <i>-5.13</i>			-1083 <i>-1.85</i>
N	104	104	104	106	94	94	93	89	89
R-Squared	0.51	0.51	0.62	0.52	0.58	0.68	0.77	0.87	0.87

NINT – the wealth of a country's neighbours – is *strongly* associated with that country's wealth. The R-squared of initial income against NINT is 0.63 in 1960 and 0.77 in 1990 (0.70 excluding Africa). When it is added to a regression with RAIN, HOMELANG and YRIND, only YRIND remains significant at the ten per cent level in 1960, and no other variable does in 1990. The Africa dummy remains insignificant when added to this regression, but the Latin America dummy is significant at ten per cent in 1990 (this regression also sees YRIND re-enter as significant at the ten per cent level).³ That RAIN and HOMELANG drop out and is perhaps not too surprising – low rainfall, ethno-linguistic fractionalisation and colonial status are all likely to be associated with regions. Colonies, arid areas and nationless states cluster – the R-squares of YRIND60, HOMELANG and

TABLE 3
DETERMINANTS OF GROWTH, 1960-90
(Dependent variable is NLSGY6090, t-stats in italics)

	1	2	3	4	5	6	7	8	9	10	11	12
C	2.36	3.74	0.79	0.11	-2.18	2.04	0.9	0.9	-1.72	1.05	-1.47	-1.68
	<i>-4.98</i>	<i>1.85</i>	<i>0.59</i>	<i>0.76</i>	<i>0.99</i>	<i>1.16</i>	<i>-1.7</i>	<i>1.24</i>	<i>-3.04</i>	<i>-1.88</i>	<i>-2.72</i>	<i>-2.74</i>
RAIN	-0.53	-0.63	-0.67	0.6								
	<i>-1.58</i>	<i>-1.72</i>	<i>1.88</i>	<i>1.59</i>								
ELF	1.4	1.5	-1.47	-1.44	-1.23	-1.22	-1.43	-0.8	-0.81	-1.01	-0.91	-0.55
	<i>2.11</i>	<i>-2.2</i>	<i>-2.13</i>	<i>-2.08</i>	<i>-1.74</i>	<i>-2.16</i>	<i>-3.02</i>	<i>-1.45</i>	<i>-1.66</i>	<i>-1.92</i>	<i>1.99</i>	<i>1.15</i>
YRIND60	0.81	0.99										
	<i>1.72</i>	<i>1.84</i>			0.53	0.14						
LOG(Y60)		-0.18			2.09	0.68						
		<i>-0.7</i>										
LOG(CONSOLIDATION)			0.49	0.38								
			<i>1.86</i>	<i>1.18</i>								
NINT60/Y60					0.51	0.59	0.53	0.5	0.59	0.56	0.7	0.65
					2.32	3.38	3.46	3.45	4.03	3.64	3.35	2.92
GNINT						1.41	1.44	0.78	1.11	1.29	1.34	1.06
						7.12	7.59	2.97	5.28	6.36	6.37	4.84
Y60												-0.00002
												<i>-1.39</i>
I6090									0.07			0.06
									<i>3.18</i>			2.2
SEC										0.01		0.01
										<i>1.41</i>		0.91
I1Y											1.04	0.53
											<i>1.47</i>	<i>0.61</i>
OECD				0.32								
				<i>0.56</i>								
AFRICA								-1.45				
								<i>-3.02</i>				
LATINCA								-1.34				
								<i>-3.19</i>				
N	90	90	92	92	80	79	79	79	78	75	70	65
	0.18	0.19	0.2	0.21	0.2	0.53	0.52	0.59	0.58	0.52	0.59	0.63
R-Squared												

RAIN against developing region dummies and a constant are, in turn, 0.44, 0.46 and 0.25.

Looking at the 30 years of growth 1960–90, ELF is significant at five per cent, YRIND60 at the ten per cent level and RAIN at just outside the ten percent level; the R-squared is 0.18 (although this result is *not* robust to the removal of sub-Saharan African countries – only RAIN entered alone in a regression is significant at ten per cent). If the log of initial income per capita is added to the equation, it is insignificant (RAIN now enters significantly at ten per cent). This suggests that RAIN, ELF and YRIND60 might be causes of divergence between countries over the long term (although excluding Africa, initial income is significant at ten percent while ELF and YRIND are not). Looking at the log of CONSOL in place of YRIND60, both it and RAIN enter at ten per cent while ELF again enters at five per cent (although, adding an OECD dummy, only ELF remains statistically significant).

Adding the log of per capita income in neighbouring countries to the equation knocks out all other variables. Neighbour's income as a proportion of home income, the log of initial income and ethno-linguistic fractionalisation between them explain 20 per cent in the variation of growth between countries 1960–90. Adding the growth rate of neighbouring countries knocks out initial income (this result is robust to the exclusion of sub-Saharan Africa).¹ However, the significant variables are now associated with over half of the variation in growth between countries. The Africa and Latin America dummies still enter significantly, and knock out ELF. This suggests that ethno-linguistic fractionalisation might help to explain the region dummies, but that there is more to Africa and Latin America's slow growth than this factor alone. Indeed, a regression of growth against just NINT60/Y60, and region dummies for Africa, Latin America and East Asia accounts for 57 per cent of the variation in growth rates. This must suggest a limit to the freedom of individual countries to dictate their speed of development.

As a robustness check, adding the variables that Levine and Renelt view as most robust to this equation in turn, only investment enters significantly at five per cent. Investment adds just 0.05 to the R-squared of the basic equation. Adding all of Levine and Renelt's robust variables together, only investment is significant (although ELF is knocked out). Excluding Africa only knocks out investment from five per cent significance. This must suggest that most of the growth that can be explained by cross-country regressions can be explained by non-policy variables.

CONCLUSION

The idea of all states as independent actors – ‘lithe leviathans’ – is fundamental to much of the literature in development studies. Easterly, Kremer, Pritchett and Summers [1993] have shown that over the short term, it is external factors or ‘good luck’ that cause changes in growth rates. Over the long term, this article argues that external factors remain vital, as do cultural and climatological factors which both determine policy and have their own independent effect on growth. The constraints on state action are themselves a better prediction of growth than the actions that states take. These constraints take two forms. First, states can be weakened by internal division. This stops them acting (effectively not) to alter economic relations. A state capable of controlling economic relations is, I would argue, a precondition for growth. The second constraint is the external environment. With limited rainfall and poverty-stricken neighbours even an effective state will find growth at home very hard to nurture.

This is not to suggest that Africa will necessarily remain poor forever, but its growth is likely to be evolutionary, not revolutionary. Building a nation-state is obviously a long process, but it could be argued that Africa is moving towards that goal. Cheaper communications, the spread of education, the very presence of states (even if they are weak) will undoubtedly increase the sense of nation and national interest. Further, the nation-state’s role as a necessary condition for growth might be reduced in the new global economy. If local factors are very important, reform also tends to be regional (everyone in Eastern Europe gave up on Communism, nearly everyone in Africa is moving towards the market). If there is a region-wide change, this could lead to region-wide mutually supporting growth. It might well be that technological change will render (or perhaps already has rendered) copious rainfall irrelevant to successful agriculture, or that other paths to growth avoiding agricultural revolution will be found. Overall, however, the article suggests that it is short-sighted to look at state policies alone to explain growth. Policies are only causal to a degree. Further, they are themselves the result of other factors – many of them regional. Policy prescriptions that do not recognise this fact might be difficult to implement successfully.

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VARIABLE LIST

AFRICA	Dummy variable for sub-Saharan African countries. (According to World Bank definition) (EL).
AREA	Country area in 1960, km squared (BESD).

CONSOL	Where available: Years between the start of the consolidation of modern leadership and 1990 (Black); otherwise, years between independence and 1990 (CIA).
CONSOLIDATION	Years between the start of the consolidation of modern leadership and 1990 (Black).
EAS	Dummy for East Asia and Pacific countries.
ELF	ETHNIC: Index of ethno-linguistic fractionalisation, 1960. Measures probability that two randomly selected people from a given country will not belong to the same ethno-linguistic group (EL).
EUR	Dummy for non-OECD Europe countries.
GNINT	Non-Least squares growth of unweighted average of available initial incomes of land-border neighbours in the 160-country data-set (SH).
HOMEL	Percentage of people speaking the country's most popular home language (EG).
HOMELANG	Percent of population not speaking country's official language at home. Entered midpoint of the six discrete ranges: 0 to 10%; 10 to 25%; 25 to 50%; 50 to 75%; 75 to 90%; 90=90% or more (EL).
I6090	Average investment rate, 1960-90 (SH).
LATINCA	Dummy variable for Latin America and the Caribbean (EL).
LLY60	Financial Depth: Ratio of liquid liabilities of the financial system to GDP, decade average. Liquid liabilities consist of currency held outside the banking system and demand and interest bearing liabilities of banks and nonbank financial intermediaries (EL).
LNPOP60	Log of Population, 1960 (SH).
NINT60/90	Unweighted average of available initial incomes of land-border neighbours in the 160-country data-set.
NLSGY6090	Non-least squares growth of GDP/Capita 1960-90 (SH).
OECD	Dummy for OECD countries (EL).
RAIN	Dummy = 1 if the lowest average monthly rainfall in country capital (or largest city if capital is not available) is below 10 mm for any month (WR).
SAS	Dummy for South Asia countries.
SEC60	Secondary gross enrollment rate decade start (BESD).
STATEL	Percentage of people speaking a state official language at home (EG).
WREL	Percentage of people believing in the country's most popular world religion (out of Christianity, Islam, Judaism, Shinto, Buddhism, Hinduism, Atheism) (CIA).
Y60	Real GDP per capita in constant dollars (Chain Index) (expressed in international prices, base 1985) (SH).
YRIND60	Percentage of years since 1776 as an independent country (EL).

SH = The Penn World Table (Mark 5.6).

CIA = *CIA World Factbook*, 1995.

Black = Black, *The Dynamics of Modernization*, 1966.

EG = Data from Eric Gunnemark, *Countries, Peoples and Their Languages*, 1991.

EL = Easterly and Levine, *Africa's Growth Tragedy: Policies and Ethnic Divisions*, 1997.

BESD = Bank Economic and Social Database.

WR = Willy Rudloff, *World Climate*, 1981.

NOTES

1. In an attempt to capture the independent effects of religion as a cultural division, I constructed a variable WREL, which is the percentage of the population that belongs to the most popular world religion in a country. It was significant in some regressions, but knocked out by HOMELANG and ELF, with which it is highly correlated (regressing WREL against HOMELANG produces a coefficient of 0.86 and a t-stat of 8.1). The Serbs and the Croats appear to be an exception, then. The point remains that other things than language can breed a common culture, however.
2. That average rainfall in a capital is not significant is hardly surprising. The relationship is unlikely to be linear. For example, very low rainfall reduces the efficiency of fertiliser, but it does not become any more effective between middle and higher levels of rainfall. Further, too much rain is a bad thing, as already mentioned.
3. A recent paper by Engerman and Sokoloff [1996] gives one possible explanation for Latin America's poor performance based, ultimately, on climate and technology. They argue that the climates and soils of South America and the Caribbean made them highly suitable for the production of sugar, tobacco and coffee which were most economically produced on large slave plantations. This in turn led to the creation of institutions that protected elites (originally slave owners) at the expense of opening market access to all, and this damaged long term growth potential. This suggests that climate variables other than RAIN might have an important role in explaining long-term growth.
4. It should be noted again that any regression that involves neighbour income or growth knocks out islands. Australia, New Zealand, Iceland, Taiwan and Japan all suggest that large islands can be very successful without bordering rich countries. South Korea, which would probably be an outlier as well, is excluded because there is no growth data for North Korea. The three-letter acronyms of the 79 countries in the regression of growth against NINT60/Y60, GNINT and ELF are: ARG AUT BDI BEL BEN BOL BRA CAF CAN CHE CHL CIV CMR COG COL CRI DEU DNK DZA ECU EGY ESP FIN FRA GAB GBR GHA GIN GMB GRC GTM GUY HKG HND HVO IDN IND IRL ISR ITA JOR KEN LSO LUX MAR MEX MLI MOZ MRT MWI MYS NGA NIC NLD NOR PAK PAN PER PNG PRT PRY RWA SEN SGP SLV SWE SYR TCD TGO THA TUN TUR UGA URY USA VEN ZAF ZMB ZWE.

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