

REVIEW ESSAY:

Reappraising the Legacy of Colonialism: A Response to Feyrer and Sacerdote

Geoff Bertram
Faculty of Economics and Business
Victoria University of Wellington
New Zealand
Geoff.Bertram@vuw.ac.nz

Abstract

A recent paper by Feyrer & Sacerdote (2006) argues that the legacy of colonialism in a sample of 80 small islands is positive rather than negative, in the sense that a long period as a colony in the 18th and 19th centuries correlates positively with present-day incomes and low infant mortality rates. Remaining a colony to the end of the 20th century is also positive for income. Colonial rule in the 17th and 20th centuries has no impact. This review essay relates Feyrer & Sacerdote's work to other recent, cross-country research on the linkages between colonialism and development, and offers some criticisms of their data and conclusions. An interesting ongoing debate, as well as plenty of opportunities for further research along these lines, are anticipated.

Keywords: islands, colonialism, economic development, institutions, legacy, wind

Copyright © 2007 Institute of Island Studies, University of Prince Edward Island, Canada.

Preamble

In September 2006, James Feyrer and Bruce Sacerdote published an important working paper entitled "Colonialism and Modern Income: Islands as Natural Experiments". Working with a dataset of 80 small islands from all around the world, they reached the broad conclusion that every additional century of history spent as a colony is associated with a 45% higher GDP per capita in 2000, and an infant mortality rate lower by 2.6 deaths per 1000¹. Colonialism, in other words, left a positive material-welfare legacy, at least in small islands, in the statisticians' sense of a significant "fact".

To many students of small islands, these statistical findings probably come as no surprise, notwithstanding the predictably hostile reaction in some quarters. Armstrong & Read (2000, 2002), Bertram (1987, 2004), McElroy & Sanborn (2005) and Baldacchino (2006) have all found a negative association between sovereign independence and present-day

¹ Feyrer & Sacerdote (2006: 34, Table 2, Columns 2 and 7) show the results from regressions which control for latitude, area, and regional dummies (Pacific and Atlantic). Using Instrumental Variables in columns 3 and 8 of the same table, the results give virtually the same result for GDP per capita (44% compared with 45%, both significant at 1%) and a much greater impact on infant mortality (10.2 fewer deaths per 1000 compared with 2.6 in the simple OLS regression, both results significant at 5%).

per-capita income, indicating that while decolonization may have brought political and psychological gains, it retarded rather than advanced the material prosperity of the decolonized populations. The reasons are straightforward: small island jurisdictions which are sub-national (that is, retain constitutional links to metropolitan powers) get more financial assistance per head, better access for migrant labour, and a wide range of jurisdiction-related opportunities to capitalise on non-sovereign status. Feyrer & Sacerdote replicate this finding: “[D]ecolonization during the 20th century was problematic. Colonies that made it to the end of the 20th century are much better off than countries that did not” (2006: 26), while extending it to the thesis that historic colonialism itself had positive long-run effects.

Some other details of the quantitative estimates obtained in Feyrer & Sacerdote’s study are illuminating if accepted. In their regression results, being colonized before 1700 - that is, before Enlightenment values began to influence policy towards the indigenous inhabitants of colonies - has left no residual effect on modern income per capita. Likewise, being a colony during the 20th century leaves no significant trace, either for good or for bad. With these two periods taken out of contention², what remain are two striking magnitudes: each century of colonial rule between 1700 and 1900 adds 85.4% to present-day income per head, and remaining a ‘colony’ (code here for a non-sovereign jurisdiction) in 2000 adds 83.9%, relative to countries which have neither of these experiences in their history.

The results of this new work are interesting for the light cast on colonial history, and challenging for accounts of colonialism which settle for a monochrome negative view of the entire process. From an island studies point of view, what is potentially most important is that the long-run historical experience and current economic performance of small islands are at last being drawn into the mainstream of professional quantitative debate about economic development.

Game Plan

In this essay, I undertake a three-stage review of the Feyrer & Sacerdote paper. First, I locate it in the context of the new economic literature on colonialism, institutions and economic growth. Second, I discuss the opportunity for island-studies specialists to bring new data and novel insights to the policy debates based upon that literature. Third, having shown the paper in its positive aspects, I offer some criticisms of the detail of Feyrer & Sacerdote’s work, and outline some future research opportunities following from those criticisms.

Feyrer & Sacerdote are not island studies specialists. They are mainstream economists using the tools of econometrics (economic statistics) to answer interesting questions about real-world processes. (Since producing their 80-island study last year, they have gone on to produce an interesting statistical analysis of what happened to employment following the loss of a million jobs in the US Rust Belt in the 1980s.)³ The question that motivated their

² Feyrer & Sacerdote (2006: 38, Table 6, Column 3).

³ That study also, as it happens, has resonance for students of small island economies. It concluded that: “The steel and auto shocks were among the largest and most concentrated episodes of job loss in recent U.S.

study was not to understand islands, but to use data from islands to broaden and deepen the existing economic analysis of linkages from colonialism to institutions, and from there to modern-day levels of prosperity. The background to this motivation lies in the mainstream economics journals of the past decade.

Models of Economic Growth

Until the 1990s, the economics profession worked with two main models of economic growth in the attempt to account for real-world economic performance across countries. The first of these was the neoclassical growth model developed by Solow (1956) and Swan (1956). This conceived of individual countries as being in the process of converging to steady-state levels of per-capita income which (i) should differ only insofar as different countries have different savings rates (high-saving countries would have sustainably higher incomes than low-saving ones) and (ii) would grow in the long run at a rate determined by the (global) rate of technical progress. (For textbook expositions in descending order of technical difficulty see Barro & Sala-i-Martin, 2004, Chapters 1-2; Weil, 2005, Chapter 3; Snowden, 2002, Chapters 1-2).

The second was the so-called “AK model” descended from Harrod (1948) and Domar (1946) which proposed that capital accumulation could drive growth forever at a rate determined by the output/capital ratio A . (For textbook presentations, see Barro & Sala-i-Martin, 2004, Chapter 4, Section 4.1; Jones, 1998, Chapter 8).

Both of these models were technocratic constructs, based on the assumption that it was possible to abstract from social structure, political regime, local culture, and other “non-economic” factors, in the quest for an underlying causal explanation of modern economic growth. Once the mechanism of growth had been theoretically specified, the expectation was that the resulting model could be statistically fitted to real-world data, with individual countries ranked according to their progress along the universally-valid growth path envisaged by modernization theorists.

Economists aspire to the mantle of scientific rigour. In the standard naturalistic account of science, theories are repeatedly confronted with empirical evidence. When refuted by the evidence, a theory must be either abandoned or, if possible, reformulated in a way that makes it consistent with the available evidence. Although social-science practice differs

history ... [I]n terms of unemployment rates, the counties and MSAs that experienced this shock recovered quite quickly, that is, within five years. However, this recovery took place almost entirely through net population outflow. These facts suggest that even twenty-five years ago the U.S. labour market was characterized by rapid adjustment and that mobility of individuals was the key adjustment mechanism” (Feyrer & Sacerdote, 2007:86). Parallels with the Comoros following political shocks in the 1970s and 1980s, and the Cook Islands following the fiscal shock of 1996, spring to mind.

⁴ Comparisons of per-capita incomes across countries which converted national data using current nominal exchange rates had always been open to doubt as to whether they were like-with-like comparisons. The development of purchasing-power-parity conversion techniques in the 1980s removed this problem and confirmed that there was indeed a widening gap between rich and poor countries. Prior to the Penn World Tables (and the preceding United Nations International Comparison Program) the data were not regarded as good enough to refute the simple growth-theory predictions.

from the pure falsificationist model in several important respects (Hands, 1991), the requirement for economic theories to be at least consistent with the main stylized facts of the real world remains. Consequently when, in the 1990s, both of the prevailing growth models turned out to be at odds with the stylized facts, a new era of empirically-grounded research activity opened up in the mainstream economics journals.

The big empirical challenges crystallised in the papers of Barro (1991), Pritchett (1995) and Hall & Jones (1999). The first two of these demolished the comfortable idea of a world of national economies converging towards a harmonised steady state, which would be independent of past history. The third overturned the idea that savings rates are the main source of productivity differences across countries, and brought institutions into focus as a key causal factor in development.

Barro (1991) used the new Penn World Tables time series for per capita GDP on a mutually-consistent basis for 98 countries over the period 1960-1985⁴, to show that countries which started out with lower per capita income had grown more slowly - not more rapidly as predicted by the neoclassical theory of convergence - over the 25 years, after controlling statistically for other factors that might have influenced growth (primary and secondary schooling, revolutions and assassinations, location in Africa). Pritchett (1995) drove home the message by taking the analysis back to 1870 and demonstrating a massively widening gap between rich and poor countries over more than a century. The lesson was straightforward: economists could, if they wished, continue to use the neoclassical model to think about growth in the long run⁵, but they could not use it, certainly not in its original form, to explain the observed world distribution of income and growth. Something else had to be added.

This left the AK model untouched, since this model did not predict convergence of poor to rich over time. On the contrary, countries with faster capital accumulation were expected to continually outpace those with slower accumulation. A reformulated version of this model entitled “endogenous growth” allowed the output/capital ratio to be driven over time by technological advances generated within the growth dynamics of individual countries, resulting in increasing returns which continuously offset any tendency towards diminishing marginal product of capital.

⁵ An early response to Barro (1991) was Mankiw *et al.* (1992) which used regression analysis of much the same data to demonstrate that “conditional convergence” was occurring, but with its influence outweighed by other factors causing divergence across countries. This allowed the neoclassical model to be retained, but stripped of ability to yield clear, simple predictions.

⁶ The idea that institutions matter for growth is of course not new: Douglass C. North had received the Nobel Prize in Economics in 1993 for his work on institutions and growth over time, based on mainly-qualitative historical techniques. The novelty in Hall and Jones (1999) was the systematic and authoritative application of quantitative statistical techniques to a large generally-accepted database.

The work of Hall & Jones (1999) addressed directly the question of what causes overall productivity to vary across countries, and concluded that differences in capital accumulation and productivity growth are, at best, merely surface manifestations of a deeper underlying set of causes, which have lain outside the standard economist's framework⁶:

“A country's long-run economic performance is determined primarily by the institutions and government policies that make up the economic environment within which individuals and firms make investments, create and transfer ideas, and produce goods and services.... Differences in social infrastructure across countries cause large differences in capital accumulation, educational attainment, and productivity, and therefore large differences in income across countries ... The extent to which different countries have adopted different social infrastructures is partially related to the extent to which they have been influenced by Western Europe” (Hall & Jones, 1999:114).

Institutions, Colonialism, and Modern Incomes

Hall & Jones proceeded to explore further the ways in which Western European languages and distance from the equator could determine modern-day income. The answer, they thought, must lie in the differential impact of colonialism in different regions of the world:

“... the countries that were strongly influenced by Western Europe were, other things equal, more likely to adopt favourable infrastructure... Western Europeans were more likely to migrate to and settle regions of the world that were sparsely populated at the start of the fifteenth century. Regions such as the United States, Canada, Australia, New Zealand, and Argentina appear to satisfy this criterion” (Hall & Jones, 1999:100-101).

The proposition that not all Europe's colonies were alike was, again, not new. Comparative historical studies of the white-settler colonies of the temperate latitudes – Canada, USA, Australia, New Zealand and, to a lesser extent, South Africa, Chile, Argentina and Uruguay – have been numerous (Ehrensaft & Armstrong, 1978; Denoon, 1983; Senghaas, 1985). These former colonies were, however, rich sovereign nation states by the early twentieth century, and the twentieth-century history of colonialism and decolonization revolved around tropical colonies where indigenous peoples, or populations descended from slaves or indentured labour, predominated.

An influential 1997 paper by Engerman & Sokoloff asked why the white-settler colonies of North America had ended up richer, and with better institutions, than the former colonies of Central and South America and the Caribbean. They noted that European colonialism had originally focused more on the tropics than on the temperate latitudes, reflecting better

⁷ “With their prices set in competitive international markets, slaves ultimately flowed to those locations where their productivity met the international standard” (Engerman & Sokoloff, 1997:263).

natural resource endowments. Slaves were transported not to the temperate colonies but to tropical areas where high labour productivity yielded the greatest possible profit.⁷

“... [A]spects of [different colonies’] factor endowments varied, which contributed to substantial differences among them in the distribution of landholdings, wealth, and political power. Some, like the colonies in the Caribbean, Brazil, or the southern colonies on the North American mainland, had climates and soil conditions well suited for growing crops, like sugar, coffee, rice, tobacco and cotton, that were of high value on the market and much more efficiently produced on large plantations with slave labour. ... The Spanish colonies in Mexico and Peru were likewise characterized early in their histories by extreme inequality, at least partly because of their factor endowments.... In contrast, small family farms were the rule in the northern colonies of the North American mainland, where climatic conditions favoured a regime of mixed farming ... which exhibited no economies of scale in production. The circumstances in these latter regions encouraged the evolution of more equal distributions of wealth, more democratic political institutions, more extensive domestic markets, and the pursuit of more growth-oriented policies than did those in the former” (Engerman & Sokoloff, 1997:262).

Colonial history, thus, came in (at least) two variants: one associated with white settlers and long-run prosperity; the other with slavery, extractive institutions, inequality and long-run relative poverty. Modern patterns of economic growth are therefore “path influenced”, Engerman & Sokoloff argued, although they rejected the stronger term “path-determined” (1997:262).

Rigorous statistical analysis of differences amongst former colonies took a leap forward in two papers by Acemoglu *et al.* (2001; 2002). To separate “good” from “bad” colonialism and institutions they used the mortality rates of European soldiers, sailors and priests in the eighteenth and early nineteenth centuries to estimate potential settler mortality and thus to instrument for institutional quality. “In our theory – and in the data – it is not the identity of the colonizer or legal origin that matters, but whether European colonialists could safely settle in a particular location: where they could not settle, they created worse institutions” (Acemoglu *et al.*, 2001:1373).

The persistence of the resulting good or bad institutions over centuries of subsequent history was a key finding of these studies: a colonial legacy of extractive institutions and unequal distribution of wealth set in place a self-reproducing political and social order associated with persistently lower per capita income and worse human development indicators.

Two decades earlier, Caldwell *et al.* (1980) had suggested that small islands had different demographic patterns from the rest of the developing world - lower birth and death rates, and higher propensity to migrate - and attributed the differences to greater Westernization.

Small islands “were part of the European maritime system at a time when the West did not have the economic strength to penetrate continental areas to the same extent [and] on the whole they retained colonial links longer” (*ibid.*:960). The greater accessibility of islands and generally more benign disease environment may have meant that Western influences and institutions penetrated island settings more readily even close to the Equator, where mainland colonies at the same latitudes received an extractive, inequalitarian institutional heritage. In their regressions for their 80-island sample however, Feyrer & Sacerdote (2006) find the same statistically-significant positive relationship between latitude and per capita income as Hall & Jones (1999) reported for their larger-country sample.

Feyer & Sacerdote did not formally test whether incomes at a given latitude are higher on islands than on mainlands. It is a pity that, having created an 80-island dataset, and then conducted regression analysis also of a 64-country non-island dataset based on Acemoglu *et al.* (2001), Feyrer & Sacerdote did not conduct any experiments across the two datasets to see whether islandness or population size significantly influenced comparative modern income levels, and if so, whether this effect is mediated through institutional or other channels.

Since 2000, a series of quantitative papers have appeared investigating in more detail the issues surrounding colonial legacies. Bertocchi & Canova (2002), in a study of 46 African countries, found that the identity of the colonial power mattered: former British colonies had grown their per-capita incomes at 1.1% in the period 1960-1988 compared with 0.9% for former French colonies and 0.6% for others (*ibid.*:1860). They also found that the rate of extraction of economic surplus from the economy by outside investors, measured by the ratio of GNP to GDP, was negatively correlated with growth, a result which appears to confirm the long-standing argument of Baran (1957).

Negative statistical relationships between colonial history and present-day economic performance have been found by Lange (2004), and by Price, who reports that “parameter estimates suggest that the partial effects of extractive institutions engendered by a twentieth-century colonial heritage account for approximately 30% of the growth gap between the former colonies in sub-Saharan Africa and other non-industrial countries” (Price, 2003:478).

Kapur & Kim (2006) note that, in British India, the central issue for the colonial power was the extraction of land rents from the peasantry, but two contrasting strategies were pursued in different regions. In *zamindar* regions the British assigned property rights and tax liability to a few large landlords, while in non-landlord areas the land was assigned directly to the cultivators who were liable for land tax. Landlord areas were generally the more productive parts of India when British rule was established; but over the period 1901-1988, non-landlord areas showed more rapid growth in agricultural productivity, more agricultural diversification, more urbanization, and a more marked economic shift into manufacturing and services, after controlling statistically for a wide variety of geographic

factors (Kapur & Kim, 2006:40, Table 12)⁸. The difference in performance was attributed to the greater political dominance of landlord elites in *zamindar* areas.

Another statistical test by Kapur & Kim asked whether length of British rule in each district had any significant effect on growth performance over the twentieth century, and found in a number of regressions that “the longevity of British rule in a district had a negative impact on its economic performance” (*ibid.*:129).

The question of how institutions from previous centuries can have such persistent long-run effects on modern economic performance has recently been addressed by Nunn (2007) who proposes a multiple-equilibrium model in which colonial experience locks a country into a low-equilibrium trap with insecure property rights and low productivity. Colonialism, in Nunn’s account, shifted much of Africa from a pre-European high equilibrium to a post-colonial low one. This matches closely the story of a “great reversal” (Acemoglu *et al.*, 2002) between 1500 and 2000, in the course of which the world’s rich and poor societies swapped places, the tropics becoming poor as the temperate latitudes (including the settler colonies) became rich. Acemoglu *et al.* (2006) have also presented a model of institutional persistence and institutional change, emphasising that “a theory of why different countries have different economic institutions must be based on politics, on the structure of political power, and the nature of political institutions”. They argued that “both institutional persistence and institutional change are equilibrium outcomes” (*ibid.*:463).

As this story of the statistically-significant relationship between colonialism and modern economic rankings has taken shape, concepts of path dependence have come increasingly to the fore as economists try to explain how particular economies may have become locked into vicious circles causing persistence of bad institutions and low productivity. The sociological-historical work of scholars such as Moore (1966) has accordingly returned to centre-stage as the importance of each individual country’s particular history in determining modern outcomes has been demonstrated statistically (*see* Acemoglu *et al.*, 2007).

In this context, there is a premium placed on the addition of new observations to the cross-country datasets used for statistical and historical analysis, and here is where small island economies, at last, enter the picture. The Penn World Tables, the UN Human Development Index, the World Bank’s World Development Indicators, the IMF’s *International Financial Statistics* and *Government Finance Statistics*, and other similar databases commonly used by economists testing growth theories, are limited in their coverage of economies with small populations. In particular, the Penn World Tables as recently as 2004 still covered only 136 countries, of which only two (Seychelles and St Kitts & Nevis) had populations under 100,000. To a certain extent, this is due to lack of data in small jurisdictions, reflecting diseconomies of scale in providing government services including statistical services. To a much greater extent, however, the patchy coverage has reflected

⁸ Data covered nine provinces of British India and were extracted from the decadal censuses from 1901 to 1991, along with agricultural statistics from various sources.

⁹ Acknowledged, for example, by both *The Economist* (2006) and Waldfoegel (2006).

the priorities of the agencies gathering and publishing the figures. Very small states and sub-national jurisdictions rank low in the priorities of multinational agencies, and this is reflected in the unwillingness of those agencies to devote resources to collating and cross-checking data from countries of one million or less population. Even the Commonwealth Secretariat's *Small States Economic Review and Basic Statistics*, covering 60 countries with population less than 5 million in 2004, has gaps in its tables where country-level data should be available.

Writers on small-island jurisdictions are familiar with this problem and are often reduced to assembling their own data sets from whatever sources can be located, in order to supplement the large-country-biased multinational databases. In this process, almanacs such as the *CIA World Factbook* sometimes become treated almost as primary sources, notwithstanding that the figures there are usually unsourced and often undated. The fact that data do exist for many very small jurisdictions, and that potentially this represents a major opportunity to increase the sample size of the big databases for purposes of statistical analysis, explains Feyrer & Sacerdote's excursion into small islands.

As they proudly point out (2006:3), of the 80 small islands in their dataset, only 13 are in the Penn World Tables. Hence, at first sight, the paper is a major expansion of the research frontier. They also achieve a major statistical coup⁹ by finding what appears to be an "instrumental variable" for the date of colonization of each island: the speed and direction of prevailing wind.

The Wind Story

The story runs as follows. Until the arrival of steam in the 19th century, European exploration and colonization relied upon sailing technology, which in turn relied upon wind patterns. Hence, the dates at which an oceanic island was "discovered", and subsequently colonized, were earlier for islands located where sailing ships could easily go. Statistically, the point is that colonization date was determined by an exogenous geographical factor – wind – rather than by the intrinsic attractiveness of an island's natural resource endowment. Hence any statistically-significant relationship that turns up between date of colonization and modern economic performance cannot be dismissed simply on the grounds that the best-endowed islands were colonized first, since the timing of colonization was dictated by an exogenous factor that is random with respect to resource endowment¹⁰.

This enables Feyrer & Sacerdote to claim that they have isolated a genuine effect of length of colonial rule on present-day income levels. Because the relationship is a positive one (longer colonial rule means higher income) it may, at first sight, seem incompatible with earlier studies which found a negative association of colonialism and modern income.

¹⁰ A web posting at www.econbrowser.com/archives/2007/01/the_distributio.html makes the valid comment that wind should really be included among the natural endowments enjoyed by a territory prior to colonization, since appropriate wind conditions meant early establishment of dense trading networks and port facilities, neither of which are usually included among the "institutions" associated with economic development in the recent economic theories of Acemoglu and similar authors.

However, what Feyrer & Sacerdote have in fact uncovered is one facet of a multi-faceted story. When they re-run their analysis for the Acemoglu *et al.* (2001) dataset of non-island countries, they successfully replicate the negative coefficient on settler mortality (Feyrer & Sacerdote, 2006:39, Table VII, column 4), confirming the idea that holding other things equal, former white-settler colonies are wealthier today than former non-settler extractive colonies. But they still find, in addition, a highly significant (at 1%) positive coefficient on the number of centuries a country was a colony.

Various reasons are suggested in the paper. First is trade promotion: because colonial powers wanted colonies to be profitable, they pushed them into production for export as early and as much as possible. This means that older-established colonies have had longer exposure to the competitive forces of world markets, and are hence more in tune with external market signals and opportunities (Feyrer & Sacerdote, 2006:13-14, 24). A second is the construction by colonial powers of schools, roads, and public health infrastructure, all of which underpin higher living standards today (Feyrer & Sacerdote, 2006:25-26). The latter explanation possibly explains why former US island colonies outperform others once length of colonial history is controlled for in the regressions, with Dutch, British and French colonies forming a second-ranked group and Spanish and then Portuguese former colonies bringing up the rear; but there is no evidence of education and health services correlating positively with length of colonial experience, as distinct from identity of the colonizing power.

A third line of thought engages more directly with the hypothesis that colonial institutions determine modern incomes, by entering as explanatory variables (i) whether an island had slavery during its colonial era, and (ii) the present-day ethnic composition of population as a proxy for whether the colony was a settler colony or an extractive one. Slavery turns out to make no significant difference, but a high proportion of black, white, or mixed ethnic groups goes with higher incomes today, which is in some sense consistent with the idea that settler colonies established better institutions. However, the fact that black ethnic groups contribute the same as white ones raises, one would have thought, fairly major questions about the institutional heritage, which Feyrer & Sacerdote do not explore.

The settler-capitalism paradigm in the literature refers explicitly to white settlers, and does not entertain the possibility that slave settlement (which displaced indigenous peoples just as white settlers did) could have left an institutional matrix as positive for subsequent economic development as white farmer settlers did. Slaves, and freed slaves, are not generally associated with the pressure for common-law rights, property protection and sanctity of contract that are the hallmark of temperate white-settler colonies. Yet, in Feyrer & Sacerdote's regression (2006:36, Table IV, column 4), there is only the faintest possible hint that white settlers have a more positive impact than black: "the coefficient on percentage white is not significantly different than the coefficient on percentage black" (2006:25)¹¹. And there they leave the institutional discussion.

¹¹ To be precise, the coefficient on whites is positive (0.016) and significant at 5%; the coefficient on blacks is similarly positive (0.008) but not significant; and the coefficient on mixed (0.018) is very close to that for whites and significant at 1%. The omitted (control) group is indigenous peoples.

Black-settler colonies as an analytical category in cross-country regressions appear to be an interesting research topic. In Engerman & Sokoloff's (1997) account, slave colonies including Caribbean islands were grouped with Spanish extractive colonies on the South and Central American mainland in having both inherited highly unequal societies and poor institutions. Such a broad-brush equation of two colony sets clearly calls for reappraisal.

The Link between Colonial Exposure and Current Incomes

Having achieved an important contribution to the general development literature, but not really having engaged with the specifically small-island aspects of their story, Feyrer & Sacerdote call a halt. Their explanations of why longer colonial exposure should translate to higher modern incomes, other things equal, remain only crudely articulated and little-developed, without clear transmission mechanisms to the present. And their treatment of institutions in an island setting is minimal, notwithstanding the fact that the paper is directed to a literature that focuses upon the institutional heritage of colonialism.

Take first education, which underlies the creation and reproduction of human capital. The nature of colonial education varied across colonizers, but a common feature was inculcating locals with the language, literature, history and cultural values of the colonial power. The relevance of this to raising local productivity in the production of commodities is unclear, but colonial-educated islanders were far better equipped than their non-colonized brethren to take advantage of migration opportunities, especially to the former colonial power. Payoffs to human capital are very often secured by migration when the educated individual starts off in a relatively low-income setting. This linkage from education to fitness for migration would obviously have been stronger in small islands than in larger former colonies because of the higher propensity to migrate from small jurisdictions. Testable hypotheses should flow from this, in particular an investigation of whether small island status significantly affects the positive impacts of colonial education systems, and their post-colonial successors.

Take second the issue of aid motivation. Arguably, former colonial powers are more likely to be generous with aid to territories which have an especially long history of attachment as colonies, because of the deeper imprint on the colonial power's political consciousness and conscience that results from very long experience of contact and control. Again, small islands would be especially prone to such an effect because of the greater per-capita aid flows directed to small populations.

Island countries with large successful migrant diasporas in wealthy countries are likely to have relatively high home income levels because of remittances sent by migrants, capital brought back by returnees, and the impact on aid flows of a significant lobbying group in the metropolitan country. These factors may well correlate positively with length of colonial rule and, again, could be compared between small islands and other countries.

An issue not mentioned by Feyrer & Sacerdote but emphasized by, for example, Poirine (1999) is the geo-strategic value of loyalty to a metropolitan power, and the related ability of that power to maintain military bases and a geo-strategic footprint into the post-colonial

era. In comparison with continental former colonies, it is much easier to ‘co-opt’ a small-island citizenry into the metropolitan power’s ongoing sphere of influence, especially if they are of metropolitan ethnic stock.

Data Issues

To this point, I have analysed the paper on the basis that the underlying data are accepted as sound. Before closing, it is important to note some shortcomings in the dataset upon which Feyrer & Sacerdote’s impressive superstructure of regressions actually rests.

The dataset is based upon the UNEP Island Directory (on the web at <http://islands.unep.ch/>) which lists 1,991 islands worldwide in roughly 150 countries, territories or administrative units. Land area information is available in this dataset for 1,545 islands; Feyrer & Sacerdote limited their sample to land areas below 150,000 km² (2006:16), which applies to all except ten of these 1,545 islands. A second criterion used to narrow down numbers was that “we only included islands that require open ocean sailing to reach them from Europe” (2006:16). A glance at the UNEP dataset indicates that at least six inhabited islands of the New Zealand archipelago meet these stated criteria for inclusion, but they are mysteriously absent from the Feyrer & Sacerdote dataset.

In fact, a very serious winnowing exercise has clearly been conducted to bring the sample size down to 80 from the 1,535 UNEP islands under 150,000 km². Obviously, uninhabited islands dropped off the list; this brings us down to 327 inhabited UNEP islands, of which only six are over 150,000 km². The requirement for islands to be separated by ocean from Europe removes several dozen candidates from the UNEP list, but leaves many more than the 80 finally selected. Feyrer & Sacerdote state that “within the group of islands fitting these criteria [land area and open-ocean sailing from Europe], we researched islands in order of population using any islands for which data were available” (2006:16). They have not explicitly confined themselves to populations of less than, say, 5 million: included in their data is Cuba with 11 million population, though Java and Sulawesi have fallen by the wayside.

The key words in the sample-selection description are presumably “any islands for which data were available”; but, comparison of the UNEP list with the final list of 80 chosen suggests a rather capricious process of deciding where data were “available”. The unexplained exclusion of the New Zealand islands, either separately or combined, is an obvious case in point, particularly worrying given that New Zealand combines a relatively short period of colonial rule with OECD-level modern income, making this a likely outlier relative to the authors’ thesis. Nor is the focus limited to low-income islands: Bermuda, with one of the world’s highest per capita income levels, is in the paper’s Appendix III.

Arbitrary selection or exclusion apart, where does the GDP per capita data come from? Feyrer & Sacerdote state (2006:17) that “where available, we obtained GDP per capita for the year 2000 from the United Nations” and this accounted for 61 islands grouped in 39 nations. The remainder were sourced from country-specific statistical agencies. Data from the *CIA Factbook* were used for a separate dataset on economic structure (Appendix IV of

the paper). So far, so good; but then, the UN data for 39 “island nations” have been disaggregated out to 61 individual islands using data from other sources (for the Pacific, the Asian Development Bank).

Inspection of Feyrer & Sacerdote’s resulting dataset quickly identifies some problems. A uniform GDP per capita of US\$21,776 is shown for the French islands of Futuna and Mayotte, and for the French half of St Martin. Attribution of this GDP figure across the Indian and Pacific Oceans and into the Caribbean seems hard to justify; Mayotte and Futuna are usually reported with per capita incomes more in the range US\$2,000-4,000, several orders of magnitude below the Feyrer & Sacerdote data. Tutuila in American Samoa is credited with income per head of US\$34,364, compared to the more usual figure of around US\$5,000. Tristan da Cunha shows up with US\$24,514 per capita GDP alongside 400 years of colonial status; the former figure looks distinctly on the high side. The identical income level of US\$24,514 is attributed to St Helena, Ascension Island, Falkland, East Falkland, and North Caicos.

Similar concerns arise when the data for “number of years colonized” are inspected. The Cook Islands, for example (which account for no fewer than ten of the 80 observations) are stated to have had only 13 years of colonial rule, which will come as a surprise to inhabitants of that group (New Zealand colonial rule lasted from 1901 to 1965). Even more dramatically, Niue is attributed only a single year as a colony, and Tahuata in French Polynesia gets 5 years. While appreciating the enormous amount of time and research effort involved in accumulating histories of far-flung islands, it is hard not to reflect that checking with the *CIA Factbook* would have quickly corrected these particular mistakes.

Portuguese colonies are thin on the ground in the data set. The two cases that condemn Portugal to bottom place in the colonizers’ merit-order ranking are St Helena and Huvaduvandula in the Maldives. Cape Verde and São Tomé y Príncipe are conspicuously absent.

Feyrer & Sacerdote’s data are thus, alas, suspect. This casts doubt on the robustness of the results from their regressions. Some observations with apparently short colonial histories and low modern incomes have been created by error of historical fact (Cook Islands, Niue), while some observations with fairly long colonial histories and apparently high modern incomes have been created by overstating income (American Samoa, Mayotte, Futuna). Potential observations with shorter colonial histories but high modern incomes have been dropped (New Zealand), as have some with long colonial histories but low income (Cape Verde, São Tomé y Príncipe). Clearly, there is an opportunity to replicate the Feyrer & Sacerdote regressions with a revised dataset to check whether their results stack up.

Ironically, the most satisfactory evidence that their main thesis may have substance comes not from the islands dataset, but from their regressions using non-islands data from Acemoglu *et al.* (2001). There, length of colonial history does seem to explain some part of modern income levels.

Before rushing to embrace or reject the Feyrer & Sacerdote story, therefore, island researchers have some data gathering and statistical replication work to do.

Conclusion

Feyrer & Sacerdote (2006) is an important contribution to a fast-evolving economic literature, in an area of obvious interest to small-island researchers. Its flaws of data-gathering and sins of omission in fleshing out institutional and historical detail leave room for plenty of follow-up research, and possibly even the possibility that the key result may not be robust. That result is, however, at least consistent with other recent work, showing a negative relationship between sovereignty (full decolonization) and income.

The paper's process of hypothesis formulation and empirical testing is a fine example of how scientific progress is made. Lively debates, and plenty of opportunities for fruitful further empirical research using small-islands data, are in prospect.

References

Acemoglu, D. Johnson, S. & Robinson, J.A. (2001) 'The Colonial Origins of Comparative Development: An Empirical Investigation', *American Economic Review*, Vol. 91, No. 5, pp. 1369-1401.

Acemoglu, D. Johnson, S. & Robinson, J.A. (2002) 'Reversals of Fortune: Geography and Institutions in the making of the Modern World Income Distribution', *Quarterly Journal of Economics*, Vol. 117, No. 4, pp. 1231-1294.

Acemoglu, D., Johnson, S. & Robinson, J.A. (2005) 'Institutions as a Fundamental Cause of Long-Run Growth' in P. Aghion & S.N. Durlauf (eds.) *Handbook of Economic Growth*: Vol. 1A, Amsterdam, North-Holland, pp. 385-472.

Acemoglu, D. Johnson, S., Robinson, J.A. & Yared, P. (2007) 'Re-evaluating the Modernization Hypothesis', *NBER Working Paper*, No. 13334, Cambridge MA, National Bureau of Economic Research.

Armstrong, H. & Read, R. (2002) 'The Phantom of Liberty? Economic Growth and the Vulnerability of Small States', *Journal of International Development*, Vol. 14, No. 4, pp. 435-458.

Armstrong, H. & Read, R. (2000) 'Comparing the Economic Performance of Dependent Territories and Sovereign Microstates', *Economic Development and Cultural Change*, Vol. 48, No. 2, pp. 285-306.

Baldacchino, G. (2006) 'Innovative Development Strategies from Non-Sovereign Island Jurisdictions? A Global Review of Economic Policy and Governance Practices', *World Development*, Vol. 34, No. 5, pp. 852-867.

Baran, P.A. (1957) *The Political Economy of Growth*, New York, Prometheus.

- Barro, R. & Sala-i-Martin, X. (2004) *Economic Growth*, 2nd edition, Boston, MIT Press.
- Bertocchi, G. & Canova, F. (2002) 'Did Colonization matter for Growth?: An Empirical Exploration into the Historical Causes of Africa's Underdevelopment', *European Economic Review*, Vol. 46, No. 10, pp. 1851-1871.
- Bertram, G. (1987) 'The Political Economy of Decolonization and Nationhood in Small Pacific Societies' in A. Hooper, S. Britton, R. Crocombe, J. Huntsman & C. Macpherson (eds.) *Class and Culture in the South Pacific*, Suva, University of Auckland Centre for Pacific Studies and University of the South Pacific Institute of Pacific Studies, pp. 16-31.
- Bertram, G. (2004) 'On the Convergence of Small Island Economies with their Metropolitan Patrons', *World Development*, Vol. 32, No 2, pp. 343-364.
- Caldwell, J.C., Harrison, G.E. & Quiggin, P. (1980) 'The Demography of Micro-States', *World Development*, Vol. 8, No. 12, pp. 953-967.
- Denoon, D. (1983) *Settler Capitalism: The Dynamics of Dependent Development in the Southern Hemisphere*, Oxford, Clarendon.
- Domar, E. D. (1946) 'Capital Expansion, Rate of Growth, and Employment', *Econometrica* Vol. 14, No. 2, pp. 137-147.
- Ehrensaft, P. & Armstrong, W. (1978) 'Dominion Capitalism: A First Statement', *Australia and New Zealand Journal of Sociology*, Vol. 14, No. 3 (Part 2), pp. 352-363.
- Feyrer, J. & Sacerdote, B. (2006) 'Colonialism and Modern Income: Islands as Natural Experiments', *NBER Working Paper*, No. 12546, Cambridge MA, National Bureau of Economic Research.
- Feyrer, J., Sacerdote, B. & Stern, A.D. (2007) 'Did the Rust Belt become shiny? A Study of Cities and Counties that lost Steel and Auto Jobs in the 1980s', *Brookings-Wharton Papers on Urban Affairs*, pp. 41-89.
- Hands, D.W. (1991) 'Popper, the Rationality Principle, and Economic Explanation' in G.K. Shaw (ed.) *Economics, Culture and Education: Essays in Honour of Mark Blaug*, Aldershot, Edward Elgar, pp. 108-119.
- Harrod, R.F. (1948) *Towards a Dynamic Economics: Some Recent Developments of Economic Theory and their Application to Policy*, London, Macmillan.
- Jones, C.I. (1998) *Introduction to Economic Growth*, New York, Norton.
- Kapur, S. & Kim, S. (2006) 'British Colonial Institutions and Economic Development in India', *NBER Working Paper*, No. 12613, Cambridge MA, National Bureau of Economic Research.

Lange, M.K. (2004) 'British Colonial Legacies and Political Development', *World Development*, Vol. 32, No. 6, pp. 905-922.

Mankiw, N.G., Romer, D. & Weil, D.N. (1992) 'A Contribution to the Empirics of Economic Growth', *Quarterly Journal of Economics*, Vol. 107, No. 2, pp. 407-437.

McElroy, J. & Sanborn, K. (2005) 'The Propensity for Dependence in Small Caribbean and Pacific Islands', *Bank of Valletta Review* (Malta), No. 31, Spring, pp. 1-16.

Moore, B. Jr. (1966) *Social Origins of Dictatorship and Democracy: Lord and Peasant in the Making of the Modern World*, Boston MA, Beacon Press.

Nunn, N. (2007) 'Historical Legacies: A Model linking Africa's Past to its current Underdevelopment', *Journal of Development Economics*, Vol. 83, No. 1, pp. 157-175.

Poirine, B. (1997) 'A Theory of Aid as Trade with special reference to Small Islands', *Economic Development and Cultural Change*, Vol. 47, No. 4, pp. 589-611.

Price, G.N. (2003) 'Economic Growth in a Cross-Section of Non-Industrial Countries: Does Colonial Heritage matter for Africa?', *Review of Development Economics*, Vol. 7, No. 3, pp. 478-495.

Pritchett, L. (1995) 'Divergence, Big Time', *World Bank Policy Research Working Paper*, No. 1522, Washington DC, World Bank, October.

Senghaas, D. (1985) *The European Experience: A Historical Critique of Development Theory*, translated by K.H. Kimmig, Leamington Spa and Dover NH, Berg Publishers.

Snowdon, B. (2002) *Conversations on Growth, Stability and Trade*, Cheltenham, Edward Elgar.

Solow, R.M. (1956) 'A Contribution to the Theory of Economic Growth', *Quarterly Journal of Economics*, Vol. 70, No. 1, pp. 65-94.

Swan, T.W. (1956) 'Economic Growth and Capital Accumulation', *Economic Record* Vol. 32, No. 2, pp. 334-361.

The Economist (2006) 'Winds of Change: Why Economists Love Empires', London, The Economist Intelligence Unit, 2 November.

Waldfoegel, J. (2006) 'Master of the Island: Which Country is the best Colonizer?', *SLATE*, 19 October, <http://www.slate.com/id/2151852/>.

Weil, D.N. (2005) *Economic Growth*, Boston MA, Addison-Wesley.