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Development and Growth in Mineral-Rich Countries

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Summary

Social development is an integral part of economic growth. Social capital, therefore, needs to be included among the several different kinds of capital the accumulation and efficiency of which drive long-run economic growth. This paper begins by noting the rather limited space that political and social forces have been granted thus far in empirical research of economic growth and development. Take fertility. One of the keys to increased prosperity around the world is the persistent trend from short lives in large families to long lives in small families as birth rates have declined sharply. Lower birth rates and reduced population growth enable parents to provide better more and better education to each of their children and thereby to increase their average "quality." Reduced fertility can thus, from this perspective, be viewed as a form of investment in human capital, intended to increase the quality and efficiency of the labour force as well as individual happiness. Such investments in human capital require prior, or contemporaneous, investments in social capital through social insurance and the like to reduce the need for large families. Social capital and human capital go hand in hand. A quick look at twenty-two nonindustrial mineral-rich countries shows that, on average, they offer their citizens less education with larger families, less health care and less democracy than other countries with similar incomes and fewer natural resources. The rest of the paper describes some of the several ways in which mineral rents and their management influence economic growth and other determinants of growth as well as some of the reasons why many mineral-rich countries have not managed very well to divert their resource rents to furthering economic and social development – that is, why natural capital tends to crowd out human, social, financial and real capital. The empirical evidence of these linkages is presented in two rounds. First, we allow World Bank data covering 164 countries in 1960-2000 to speak for themselves through a sequence of bilateral correlations, beginning with (a) education and natural resource dependence and (b) growth and education. The correlations suggest an inverse relationship between natural resource dependence and growth via human capital. We then repeat the exercise for two aspects of social capital, corruption and democracy, suggesting an additional adverse effect of natural resource dependence via social capital on growth. In the second round, we test for the robustness of natural resource dependence as a determinant of long-run growth by estimating a series of growth regressions for the same 164 countries. This is done by regressing the rate of growth of per capita GDP from 1960 to 2000 on the share of natural capital in national wealth, and then by adding to the regression other potential determinants of growth representing aspects of other types of capital in order to assess the robustness of the initial result. We allow for the possibility that natural resource abundance may be good for growth even if natural resource dependence hurts growth. The empirical results show that the natural capital share survives the introduction of additional explanatory variables that are commonly used in empirical growth research. Specifically, the results suggest that if the following five determinants of growth – the natural capital share representing natural resource dependence, democracy, investment, school life expectancy and fertility – move in a growth-friendly direction by one standard deviation each, while initial income and natural capital per person representing natural resource abundance remain unchanged, then per capita growth will increase by one percentage point. For comparison, the median per capita growth rate in our sample is 1.5 percent per year. The human capital variables – education and fertility – account for more than a half of the increase in growth, while investment in real capital accounts for only ten percent. Natural resource dependence and democracy account for the remaining third, in roughly equal proportions. We can conclude that the natural capital share makes an economically as well as statistically significant contribution to economic growth. In sum, our results suggest that diversification of risk encourages growth through several different channels. Economic diversification is good for growth because it directs economic activity away from excessive reliance on primary production, thus facilitating the transfer of labour from low-paying jobs in low-skill-intensive farming or mining to more lucrative jobs in more high-skill-intensive occupations in manufacturing and services. Political diversification encourages growth in a similar manner by redistributing political power from narrowly based ruling elites to the people, thus in many cases replacing an extended monopoly of often ill-gotten power by democracy and pluralism. The essence of the argument is the same in both cases: diversity is good for growth.

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1. Introduction

Social development and economic growth are closely intertwined. Social indicators – of life expectancy, fertility and literacy, for example – convey a clear and consistent picture of rapid progress around the world in recent decades, sometimes a more transparent picture than do more commonly used economic indicators. Since 1960, the people of China have seen their life expectancy increase by nine months per year; in India, by four to five months; in Ghana, by more than three months. The sources of greater prosperity and longer lives are gradually becoming better understood, especially the economic forces such as investment, education, trade and economic stability, to name but a few of the determinants of growth identified before the advent of modern growth theory by philosophers and economists from Adam Smith to W. Arthur Lewis and Robert M. Solow. Diversification away from excessive dependence on natural resources, including minerals, has been identified as a possible additional source of growth through assorted channels that will be discussed in what follows. The role of political and social forces in economic development is less well understood, however, so this is where we begin.

A. Inequality and growth

Apart from education and health care, social policy issues have been strangely absent from much of the recent academic debate of economic growth. A relatively small part of the literature that deals with the relationship between income distribution and economic growth is an exception. In theory, the relationship between distribution and growth is ambiguous and complex. Some authors, including both Karl Marx and early Keynes (1920), have argued that income inequality, through large numbers of rich people inclined to save, is an important catalyst of real capital accumulation and growth. This linkage is based on the presumption that the marginal saving rates of households increase with disposable incomes, a proposition that receives some support from empirical studies. If this is so, redistribution of income from rich people to poor people would reduce saving, investment and growth. This linkage, however, is likely to weaken in the presence of free movement of capital across national boundaries because capital mobility weakens the link between domestic saving and domestic investment (but the link does not break owing to imperfect goods market integration).

On the other hand, income inequality seems likely to slow down the accumulation of human capital and thereby reduce economic growth over long periods – by which is meant either long-run growth in the sense of endogenous growth models (Romer 1994) or medium-

term growth in the sense of the Solow model (see Solow 1970). One of the reasons for this relationship between distribution and growth is that redistribution of income from rich people to poor people is likely to result in more human capital, less real capital, more output, and probably also more rapid growth of output because the rate of return on human capital investments by the poor typically exceeds the return on real capital investments by the rich (Galor and Moav 2004). Likewise, in developing countries, a transfer of resources from the university education of the rich to the more elementary education of the poor would *per se* lift output and growth because primary education as a rule offers higher rates of return than tertiary education (Hall and Jones 1999; see also Pritchett 2001). Later, Keynes extended his earlier view of the problem by suggesting in the *General Theory* (1936) that high saving rates among the rich tend to discourage growth by reducing effective demand, but this was before growth theory had established a clear distinction between the short run where high saving rates tend to depress the level of income and the longer run where high saving rates have the opposite effect on income.

A combination of the two strands of the relationship between inequality and economic growth produces the Kuznets curve which describes how income inequality tends to increase with income at low levels of income and to decrease with income at higher levels of income (Kuznets 1955). One possible interpretation is as follows. In early stages of development, when investment in physical capital is the main engine of economic growth, inequality spurs growth by directing resources toward those who save and invest the most, whereas in more mature economies human capital accumulation replaces physical capital accumulation as the main source of growth, and inequality impedes growth by hurting education because poor people cannot fully finance their education in imperfect credit markets where human capital cannot be used as collateral. In developing countries, however, increased supply of qualified labour does not necessarily create its own demand. A positive macroeconomic effect of more and better education on growth requires appropriate employment opportunities for qualified labour. Even so, a positive microeconomic effect of education on the living standards of poor people seems hard to dispute. An African proverb states the matter succinctly: Educate a boy, and you educate one individual; educate a girl, and you educate a whole family, a nation.

Some observers fear that income inequality endangers social cohesion, political stability, and peace and may thus spoil the investment climate as well as triggering counterproductive demands for redistribution, thus reducing efficiency and growth (Alesina and Perotti 1996). Moreover, poor people lack the collateral necessary for them to be able to borrow to finance productive investments in real capital as well as human capital, so by reducing the number of

poor people redistribution from rich to poor is likely to enhance efficiency and economic growth (Galor and Zeira 1993). Further, Garcia-Peñalosa (1995) argues that rich countries differ from poor ones in that increased inequality discourages education and growth in rich countries by increasing the number of poor people who cannot afford to educate themselves or their children whereas increased inequality encourages education and growth in poor countries by increasing the number of rich people who can afford education.

Because the theory of the relationship between inequality and growth is grounded in different paradigms and covers a variety of causal mechanisms and feedbacks, it is not surprising that is has given rise to conflicting conclusions. Inequality is the combined result of macroeconomic mechanisms and public policies that influence market outcomes, including the distribution of income. Given that inequality and economic growth can both be viewed as endogenous macroeconomic variables, it is hardly surprising that they can move either in the same direction in some circumstances or in opposite directions in others depending on the constellation of forces that influence both. Unsurprisingly, therefore, the empirical literature, like the multi-faceted theoretical literature behind it, is also somewhat ambiguous and inconclusive. Several studies report that inequality is detrimental to growth across countries (e.g., Alesina and Rodrik 1994; Persson and Tabellini 1994; Perotti 1996; and Gylfason and Zoega 2003). Others disagree. Barro (2000) finds that increased inequality is good for growth in poor countries and bad for growth in richer countries, but he finds no support for a relationship between inequality and growth one way or the other in his sample of rich and poor countries as a whole. Forbes (2000) reports a positive relationship between inequality and growth in a pooled cross-country regression with country effects included.

Another sign of the limited attention paid in recent literature to the possible interaction between social policies and economic growth is the standard treatment accorded government expenditure as a potential determinant of growth. In empirical work, it has been common practice to exclude defence expenditure, and sometimes also noncapital expenditure on education, from total government expenditure, apparently on the double but dubious presumption that (i) defence, like education, is good for growth – in growth regressions, education is commonly included *per se* among the main determinants of growth – and (ii) the rest of government expenditure does not directly affect productivity, but rather entails distortions of private decisions, thus reducing growth (as clearly stated in Barro and Sala-i-Martin 2004, pp. 518-519). Yet, Knight, Loayza and Villaneuva (1996) report that military expenditures tend to inhibit growth through their adverse effects on capital formation and resource allocation. Furthermore, there are strong *a priori* as well as empirical grounds for

believing that social expenditure and, more generally, social policies do matter for economic growth, which brings me to my main point in this paper.

B. Organization

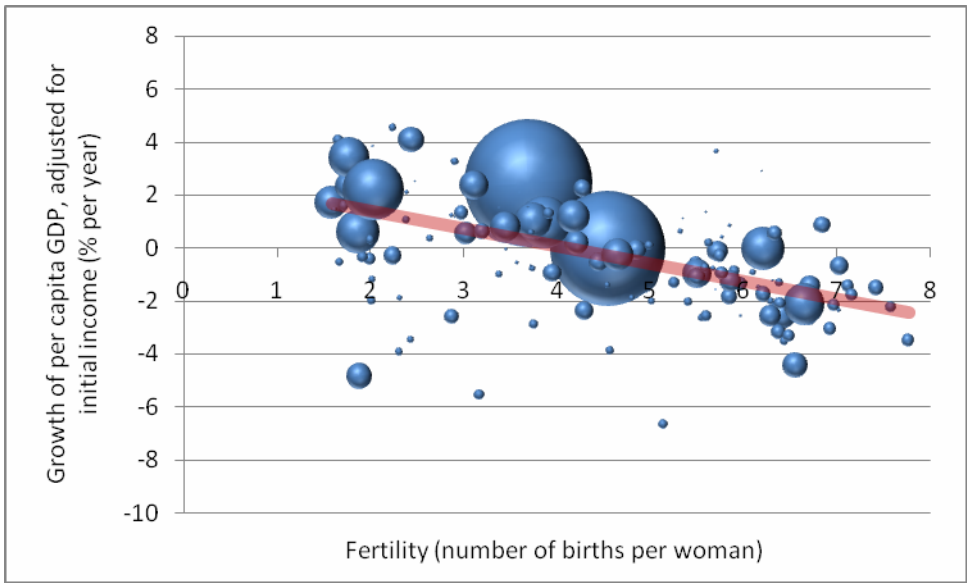
So my point of departure in Section 2 will be that social development in a broad sense is an integral part of economic growth and that, therefore, social policies must matter for growth. Put differently, the level and composition of government expenditure must make a difference for growth just as the composition of private expenditure between consumption and investment matters for growth, but this aspect of the topic at hand – that is, the relationship between government expenditure and growth – lies outside the scope of this paper. In Section 3, we take a quick look at the mineral-rich countries, who they are, how some of them have fared over the years, including how much they have spent on education and health care compared with other countries with similar incomes and fewer natural resources. Section 4 deals with some of the several ways in which mineral rents and their management influence economic growth and other determinants of growth as well as some of the reasons why many mineral-rich countries have not managed very well to divert their resource rents to furthering economic and social development – that is, why natural capital tends to crowd out human, social, financial and real capital. Section 5 offers some cross-country empirical evidence of the linkages among mineral wealth dependence, economic growth and social outcomes. Section 6 summarizes the story, and concludes by emphasizing the need for political as well as economic diversification away from excessive dependence on natural resources and narrowly based political elites.

2. Social policy matters for growth

One of the starkest cross-country correlations in development economics is the inverse relationship between fertility and economic growth. Figure 1 illustrates this correlation by showing the cross-sectional pattern of fertility as measured by the average number of births per woman 1960-2000 on the horizontal axis and the average per capita rate of growth of gross domestic product (GDP) over the same period, adjusted for initial income, on the vertical axis. The adjustment was made by first regressing per capita growth on initial income to isolate the catch-up or convergence effect of initial income on growth and then subtracting the contribution of initial income to growth from the recorded growth figures to produce an alternative series of growth numbers net of the initial income effect – that is, net of the

convergence effect through which poor countries tend to grow more rapidly than richer ones (Barro and Sala-i-Martin 1992). The idea behind the catch-up or convergence effect is that developing countries have yet to exploit several of the growth opportunities open to them, opportunities that richer countries have already been able to exploit, and that, therefore, poor countries can expect to grow more rapidly than richer ones. In Figure 1, the Spearman rank correlation between fertility and growth in this sample of 164 countries is -0.62.[1]

Figure 1. Economic growth and fertility 1960-2000



Source: Author's computations based on data from World Bank (2007).

Each country in Figure 1 is represented by a bubble the size of which is proportional to the country's population in 2000. Hence, for starters, China and India are easy to spot in the figure. The slope of the regression line through the scatter of bubbles in Figure 1 suggests that a reduction in the number of births per woman by three from one country to another goes