

GROWTH, EMPLOYMENT AND DISTRIBUTION IMPACTS OF MINERALS DEPENDENCY: FOUR CASE STUDIES

ALBERT BERRY*

Abstract

Cross-country evidence on the direct and indirect impacts of minerals dependency on growth suggests that the typical effect may be negative, and the experience in some countries implies large negative effects. The impact on employment and income distribution is even more likely to be adverse, since many minerals generate few jobs directly and may destroy more indirectly. Thus, countries heavily endowed with exportable natural resources cannot take it for granted that this condition will put them on a sustained and equitable development path. This study focuses on four countries – Indonesia, Chile, Venezuela and Nigeria – and looks at how they have handled export bonanzas, with focus on the employment as well as the growth fall-out. The big policy questions are: what is the best way for a country to use its mineral resources to achieve equitable development, and is there a significant role for industrial strategy in identifying new comparative advantages or can markets do a better job relatively unimpeded? The four case studies reviewed here suggest that, depending on the specifics of the country, promising new comparative advantages can emerge in the primary, secondary and tertiary sectors, while the role of service tradables should not be discounted. It is intriguing that the great majority of minerals-dependent countries to achieve sustained growth have also made significant progress in manufacturing. In a world that now penalises trade protectionism, the exchange rate can be a powerful tool to provide more neutral incentives for new tradables; indeed, one of the most striking features of the two success stories related here has been these countries' timely use of currency devaluations to achieve highly competitive exchange rates. The experiences of the four countries further confirm the risks of focusing on capital-intensive industries in labour-surplus countries, as well as the risk of lodging such activities in the public sector. Only Indonesia of the four countries was able to achieve good enough employment growth under mineral dependency to avoid a high or rising level of inequality. Clearly the challenge on the employment/distribution front is severe.

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1. INTRODUCTION

The recent literature focuses on the possible negative growth effects of a country's dependency on mineral exports and probes reasons for the apparent failure of many such countries to take good advantage of their rich natural endowments. Its main focus is macroeconomic performance and it clarifies many of the mechanisms whereby the presumed blessing of a resource endowment – which would naturally be expected to improve performance – can become detrimental. While there remains some controversy as to whether natural resource endowments (or certain types of natural resources)

* Professor Emeritus of Economics and Research Director of the Programme on Latin America and the Caribbean, University of Toronto's Center for International Studies.

typically act to slow medium- or longer-term growth,¹ there is little doubt that they sometimes do so and that the variance of performance in such economies is greater than among other developing economies of comparable size (Sala-I-Martin and Subramanian, 2003:26). This suggests that policy matters a great deal in determining the outcome. Probably luck does as well. The possible impacts of such dependency on employment and distributional outcomes appear even more worrisome than those on growth, partly because minerals generate very few jobs directly and displace workers in other tradables sectors, and partly for other reasons discussed below.

Several mechanisms have been identified to explain the short- and/or long-run negative growth effects of natural resources. These include:

- (i) Theft of resources and economic loss due to the conflicts that arise as groups vie for control of the rent-producing resources.
- (ii) Wastage brought about by the plethora of resources, which may make decision-makers less careful in their use, as well as making it more likely that incompetent managers will be in charge of them.
- (iii) The “Dutch disease”, whereby a temporary comparative advantage in natural resource products lowers the country’s capabilities in other tradables that may be needed again in the future, and/or leads to a failure to identify and develop new competencies for the future (for example, by failing to provide workers with the needed skills).²

Which of these negative mechanisms a given country is most vulnerable to and hence must worry about the most depends on its institutions – relevant to all three threats but especially to the first two. The damage done by the third mechanism is, by its nature, something that emerges in the medium or longer run, while the ill effects of the first two mechanisms will be especially prevalent during the period of natural resource bonanza. The way the quality of institutions is likely to affect the outcomes also varies across these three mechanisms. A stable political process and a low level of corruption are the keys to dealing effectively with the first, and an honest and prudent administration with a reasonably long time horizon in its decision-making is key to the second, while for the third the keys are a long time horizon together with unusual capacity to plan for and implement steps to create future competencies in areas that are not currently made obvious by price signals.

Both the extremity of the threat posed by natural resource wealth and the potential benefits that wealth may confer if used wisely depend on the amount of resources relative to the size of the economy. When the level is overwhelmingly large, as in Saudi Arabia, it is almost implausible to assume that there will not be considerable waste and similarly implausible that “Dutch disease” effects will not be very powerful. This leaves such an economy with the task of how to distribute the wealth in a fair way and how to train its people for productive jobs in non-tradables activities. Decision-makers in an economy where the level of natural resources is not great enough to wipe out a large share of other tradables production (South Africa, for example) have a different task. Other non-tradables will not decline as far due to market forces, and it may be a good use of resources

¹ Examples from this literature include Sachs and Warner, 2001; Auty, 2001; Gelb *et al.*, 1988; and Stijns, 2005.

² Thus, Gylfason (2001) and others have argued that the mechanism whereby natural resource endowment hurts growth is through neglect of human capital formation.

to shore them up (in the case of existing tradables under pressure from imports) or identify and develop them (in the case of future competencies). Thus, one reason why Indonesia has done better than Venezuela in using its oil-based revenues is that these revenues have been smaller relative to gross domestic product (GDP), so that the magnitude of the Dutch disease impact on other tradables would be less.

The employment and distributional implications of natural resource wealth have received less analysis than the growth implications. Some fairly obvious hypotheses do, however, emerge, either from a general understanding of such economies or from comments in this literature. The fact that, unlike small agriculture or labour-intensive manufactures, minerals do not directly generate much employment creates a greater than normal likelihood that, even if gross national product (GNP) rises, labour in general and/or some categories of it will lose from the presence of the mineral. This occurs, for example, when production of the mineral monopolises the available capital and skilled labour and decreases the production (while increasing the imports) of other tradable goods whose production requires less capital and more labour, thereby reducing the demand for labour and with it either the level of employment and/or the equilibrium wage rate while raising the return to capital.

As with their impact on growth, high mineral (or other natural resource) rents tend to widen the range of possible employment, distribution and poverty outcomes for a country. This follows in part from the fact that such rents expand the range of possible growth outcomes, and the rate of growth is a key determinant of changes in the demand for labour. Mineral rents can also worsen employment, distribution and poverty outcomes by fostering dualism. At the other extreme, such rents can be used to improve the competitiveness of labour-intensive activities, as was done in Indonesia, where they complemented and accelerated the introduction of new Green Revolution technologies in agriculture. Rents can also be used to hire people to produce infrastructure – again a prominent use in Indonesia, or to fund research for the development of new comparative advantages in more skill-intensive activities as occurred in Chile. A larger public sector is likely to raise the earnings of the middle class (Venezuela, Nigeria, Zambia and Chile before Pinochet). At worst, the rents can be stolen, the norm up to a point (in Mexico, Indonesia and many others) and carried to an extreme in some cases.

From both a growth and an employment/distribution perspective it is helpful to distinguish three typical phases of minerals dependency: First comes a stage of rapid growth of the minerals exporting sector, next may come a phase of high but not rapidly changing dependency, and finally a stage of falling dependency. Each has different implications for employment and growth and raises different challenges. The first phase is usually accompanied by an acceleration of growth, the second usually sees somewhat slower growth, and the third sees the big challenge of the country's weaning itself from the particular dependence to which it has become accustomed and locating and exploiting other items of comparative advantage. The natural resource curse literature does not focus much on these different phases but rather on the question of whether those countries that have or have had high levels of dependency have done better in the medium or longer run.

The distinction among phases is especially important with respect to the employment and distributional outcomes. In each phase, those outcomes are likely to depend on how the demand for labour evolves in a few key sectors. These include, most prominently, the other major job-creating tradables sectors – agriculture and manufacturing. Negative

employment effects will be most marked when these other tradables sectors are labour-intensive and/or their labour-intensive components are the most affected by the rise of minerals exports. Among non-tradables, construction and the public sector play special roles. Construction often contributes to new job creation out of proportion to its long-run average size in the economy because it can be (and usually is) relatively labour-intensive and because its size varies markedly with the rate of economic growth, reflecting the fact that it generates investment goods. But this potential to generate new jobs especially fast corresponds to growth booms and cannot be expected to last permanently. Thus an ideal employment creating scenario that involves a major role for construction during fast growth episodes needs to have other job-creating sectors available to pick up the slack when growth either slows or levels off and with it the creation of employment in construction. Public employment can also be very positive for overall employment creation when handled well but damaging when handled badly. The keys are for any increase to mainly involve less skilled workers, to be productive (*e.g.* creating useful infrastructure or providing useful services) and to be partially reversible if and when mineral rents fall sharply. Finally, sectors characterised by low productivity and high absorptive capacity (sometimes referred to as “last resort” sectors) like some retail commerce, will play a varying role in employment creation depending on how buoyant is the demand for labour in the more productive sectors.

During rapid mineral expansion, growth tends to be at least reasonably fast and though the minerals sector itself does not create many jobs, construction and other related activities (transportation, finance, etc.) are likely to do so. Other tradables will start to shrink relative to the size they would otherwise have achieved, while the public sector will grow if the government opts to channel large rents in that direction. The net change in total labour demand will depend in the first instance on the relation between the increase in construction and other fast growing sectors and the decrease in other tradables. In the second phase of stable mineral dependence, construction employment will usually shrink somewhat – the amount depending on how much growth slows, and employment in other tradables will continue to fall (at least relative to what it would have been in the absence of minerals dependency) as the economy moves towards a new equilibrium with its associated sectoral composition of output and employment. The labour market outcomes may be less positive or more negative than in the first phase since the gains in construction are likely to be smaller and the negative impact of minerals dependency on non-mineral tradables may have grown over time as fixed capital in those activities wears out and is not replaced. Finally, if and when the mineral exports decline, this is likely to have short-run recessionary effects so that construction will be particularly weak; the overall state of labour demand will now depend considerably on whether other tradables are able to become competitive. In each phase distinguished, much will depend on which sectors (apart from construction) are relatively labour-intensive. Minerals dependency constitutes its maximum threat to decent employment creation when the mineral rents are not used to create productive employment in the public sector and when the shrinkage in the other tradables sectors is focused in the labour-intensive parts of them, *e.g.* in small-scale agriculture and labour-intensive manufacturing.

Some countries, like Venezuela, do relatively well through the first two phases but fare badly when hit by the challenge of falling export revenues – either because quantity declines or price does. Since, with a few striking exceptions, minerals exporters have to plan around a *depleting* resource base or a base too small to underpin high incomes for the

population as a whole, this third phase usually does come sooner or later. Such a situation imposes the challenge of preparing for the time when the currently booming mineral export will be less important than today, by preparing the groundwork for new or revived comparative advantage in one or more categories of tradables, but also, importantly, involving non-tradables so that the output of this sector can be both useful *per se* and complementary to the new directions in the production of tradables. The difficulty in achieving a smooth transfer of comparative advantage lies substantially in the fact that it may be hard to identify with accuracy and persuasiveness where the next comparative advantage may lie. In this situation, a potentially damaging “Dutch disease” process will take place if some of the sectors that are shrinking or not expanding normally are the ones whose loss is costly because they could contribute significantly to growth in the future. Sachs and Warner (2001) argue that a healthy manufacturing sector is linked to productivity growth and technical advance, and since many natural resource booms are temporary or volatile and many less developed country manufacturing sectors are especially vulnerable to shocks, the booms can pave the way for later stagnation.³ Krugman (1987) and Gelb (1988) argue that competitiveness so lost is not easily regained during subsequent downswings in the mineral cycle.

Several additional factors contribute to the challenge of effective decision-making in predominantly minerals exporters, especially with respect to employment and income distribution. First, a combination/overlap of vested interests and what may be called “sectoral inertia” slows and complicates the process of shifting to new comparative advantages. Capital tends to be tied rather tightly to existing dominant sectors, as do skills. This helps to explain the tendency of oil exporters, for example, to invest in downstream activities – production of oil-based products. There is some economic logic to such a pattern, but most such oil-related industries are, like oil itself, highly capital intensive, so shifting into them does little or nothing to create employment. Whether mainly through market forces or substantially through policy in the form of a larger than normal public sector and relatively high minimum wages, the norm is that wages in much of the formal sector are buoyed up by the presence of the high-rent export sector, even if they do not equal those of that sector. Thus, it is difficult for such a country simultaneously to establish labour-intensive exports.⁴ High levels of corruption and dualism generally work against the creation of adequate levels of “decent” (*i.e.* reasonably productive and remunerative) employment. In part the reason is that threats to growth are often threats to employment as well, as when too great a share of the mineral rents are used to maintain a large public sector of relatively well-paid white collar workers or are simply stolen. But the reason that good employment/distribution outcomes are even less likely than good growth outcomes lies in the fact that the minerals extraction generates few jobs, in contrast, say, to such labour-intensive industries as clothing which have

³ Their interpretation is consistent with the marked correlation, among developing countries, between growth and reliance on manufacturing exports since the 1970s (Woolcock *et al.*, 2001) and with the fact that, among countries relying on natural resource exports, a number of rather successful experiences (like Indonesia, Ecuador in the 1970s, Venezuela until the late 1970s and Malaysia) have involved protection of manufacturing during mineral export booms.

⁴ The most striking exception to this rule is Indonesia, elements of whose story are related below. Amongst other things, this outcome reflects the fact that oil was less important both in exports and in GDP than in cases like Venezuela, Algeria and Nigeria (Davis, 1995:1770-1771).

helped some of the East Asian tigers to grow both fast and equitably. Economies with strong mineral rents might tend to be more inequalitarian than others because of some combination of effects from the capital-intensity of the export sector, or the possible concentration of the rents in a few hands (the owners, the financial sector, or other successful rent-seekers). In short, therefore, the employment/distribution challenge in these countries is likely to be even more acute than the growth challenge.⁵

This danger appears to be reflected in the measured differences in income inequality in highly mineral-dependent countries as compared with others. A simple look at the available data points to a marked relationship, albeit not a simple or general one (see Table 1). For the 45 countries with *per capita* incomes below US\$ 2,500 (1991 international or purchasing power parity dollars) the average gap in the Gini coefficient is small – about 0.015 when the comparison is made weighting countries by population. For countries in the income range \$2,500-5,000 this gap is up to 3.5 Gini points, though it is much larger when the comparison uses unweighted averages, due to a tendency for some small countries to have very high levels of inequality. But it is in the next income range of \$5,000-7,500 that the gap becomes enormous, nearly 20 Gini points whether countries are weighted by population or not and essentially independently of whether the minerals-dependent countries are highly so or not. Further probing *via* regression analysis taking account of the other major determinants of inequality would be required to interpret this pattern with any confidence. One possibility is that when minerals dependency lasts long enough to contribute to significant increases in *per capita* income it also produces high levels of inequality, or at least does nothing to lower them. Among minerals-dependent countries, the higher the *per capita* income category, the higher the weighted average Gini coefficient. In contrast, among non-minerals dependent countries inequality is dramatically lower for those above the \$5,000 *per capita* GDP level. The huge gap in the \$5,000-7,500 group might be considered in part accidental since most of the countries are former members of the Soviet bloc, and many as of 1991 still had relatively low levels of inequality; still, the Gini coefficients of the two exceptions, Costa Rica and Uruguay, averaged over 10 Gini points below those of the minerals dependent countries. The pattern is consistent with a process in which motors of growth other than minerals dependence are either more likely to occur when inequality is low and/or are more likely to produce relative equality. This, in turn, is consistent with many of the arguments presented in the literature.

As with the association between minerals dependency and growth, there is a wide variance of experiences across countries in terms of distribution. Although no highly minerals-dependent country is among the most egalitarian, Egypt, Indonesia and Algeria are well towards the lower end of the spectrum.

The generally high inequality in minerals-dependent countries owes itself primarily to weak creation of decent jobs, through some combination of the mechanisms discussed above. Among the countries discussed below, Nigeria's experience is the extreme in terms

⁵ Roemer (1979:187) notes that "Exports of scale-intensive, capital-intensive commodities such as minerals and plantation crops have long been recognized as the genesis of the enclave-dominated, dualistic economy, with its characteristically skewed income distribution. . . ." Adelman and Morris (1973:160-165) identified natural resource abundance and dualism as two of the four most critical variables (of 31 tested) in determining income distribution.

Table 1. Average Gini coefficients of income inequality, by per capita GDP and whether countries are minerals-dependent or not (unweighted averages and averages weighted by population)

1991 GDP per capita in current PPP dollars	Unweighted averages			Weighted averages		
	Non-minerals-dependent	Minerals-dependent	Lower-level minerals-dependent	Higher-level minerals-dependent	Non-minerals-dependent	Minerals-dependent
Up to 2,500	0.449	0.469	0.466	0.472	0.404	0.419
2,500-5,000	0.443	0.513	0.463	0.575	0.433	0.468
5,000-7,500	0.356	0.545	0.550	0.537	0.300	0.586
7,500-10,000	0.338	—	—	—	0.361	0.584
Over 10,000	0.321	—	—	—	0.331	0.600

Source: Davis (1995: 1770) and World Bank, income distribution data online.

of the apparent increase in inequality presumably due, among other things, to the negative impact on employment creation in agriculture and manufacturing.

2. MINERALS AND GROWTH, EMPLOYMENT AND INEQUALITY: CROSS-COUNTRY EVIDENCE

As noted above, cross-country evidence on the direct and indirect impacts of minerals dependency on growth suggests that the typical effect may be negative⁶ and the experience in some countries implies large negative effects (Nigeria and post-1970s Venezuela are often mentioned in this context). Countries heavily endowed with exportable natural resources certainly cannot take it for granted that this in itself will secure sustained development. The remainder of this study focuses on four countries, looks in some detail at how they have handled export bonanzas and focuses on the employment/distribution outcomes as well as the growth fall-out.

(a) Indonesia: Growth Acceleration Facilitated by Oil

Among minerals exporters, the experience of Indonesia is of special interest because of its ability to make generally effective use of its oil revenues to foster growth, productive employment and reasonable income equality. The setting as the oil boom began in the 1970s was that of a poor, labour-surplus country which had just gone through a number of traumatic years of economic and political turmoil, including hyperinflation and ultimately a military takeover leading to the long presidency of Suharto. Like Venezuela when its boom began in the 1920s, Indonesia was heavily dependent on agriculture, its major exports having previously come from that sector.

A number of factors contributed to Indonesia's not going the "Dutch disease" route. A proximate cause of success lay in the fact that both agriculture and export-oriented manufacturing, instead of shrinking under the influence of booming oil revenues, grew. In the case of agriculture this was facilitated by the country being on the edge of a potential Green Revolution as the 1970s began. Success along that path was furthered by various forms of government support, including investment in infrastructure, subsidisation of fertiliser to encourage its use and stabilisation of the rice price. Agriculture thus became a recipient for oil revenues. On the manufacturing front, government continued to provide protection for various domestic-market-oriented industries. But what secured the development of an alternative reliable comparative advantage to turn to as oil's importance waned was the launching of a light manufacturing export sector. This was achieved through a well executed real exchange rate devaluation in the latter 1980s.

Growth acceleration, fostered by new political and macroeconomic stability and then fuelled by the oil boom of the 1970s, initially manifested itself in the labour market primarily through an increase in employment/decrease in underemployment, which contributed to preventing an increase in income inequality. Wages recovered ground lost in the previous years of turmoil, stagnation and inflation but did not rise enough to discourage economic expansion or employment creation. Agricultural growth was strong at this time and the sector contributed significantly (24.2%) to employment growth over 1971-1980, even though the composition of employment was shifting rapidly away from

⁶ For a recent survey of the literature, see Stevens (2003).

it. Industry and services contributed 23.8% and 52.0% of new jobs, reflecting rapid output growth at 6.0% and 5.7%, respectively, while that in agriculture was edging up at a modest 1.2% (Manning, 1998:86). Within industry, both manufacturing and construction employment grew fast.

Over the 30 years of rapid growth from the late 1960s, different sectors drove the demand for unskilled labour. Agriculture, especially rice, was dominant until 1972 and important until 1987. Manufacturing became significant by 1972 and played the dominant role from 1987 onwards, and construction had a smaller but significant role, as labour-intensive public works were important in several periods (Papanek, 2003:ii).

The overwhelmingly small-farm structure of Indonesian agriculture meant that the introduction of new technology was not a threat to employment in those farm families. But the impacts of the new technology on the demand for hired labour were not predictable, and since a high share of poor households were landless and hence sensitive to that source of income, the overall impact of the new high-yielding varieties on Indonesia's income distribution was not straight-forward; it was sure to help small farm families but the impact on the landless was not comparably clear in advance. Manning (1988:72) judges that new employment opportunities flowing from the growth of rice production probably largely offset the negative impacts on hired labour. And government spending, based largely on the oil boom, plus local multiplier effects of rising agricultural and other incomes of middle-income and poor families (especially in rural Java) seem to have brought considerable economic benefits to a broad spectrum of the rural population. Public sector construction expenditures on roads, irrigation and other infrastructure created much employment, as did a boom in housing. Overall, construction accounted for close to 15% of all non-agriculture jobs created for males over the period 1971-1995 (Manning, 1998:93).

Before light manufacturing took over as the motor of rising labour demand, the economy suffered a post oil-boom recession. The success achieved to this point would probably have faded, if not turned into outright failure, had not the government, led by its impressive team of upper-level technocrats, taken strong steps, in particular by dealing with an increasingly uncompetitive exchange rate through a massive devaluation accompanied by lower tariffs, a temporary stabilisation of the rice price and liberalisation of foreign private investment and of imports. With the devaluation partly compensated, inflation did not increase rapidly.⁷ Demand for labour in manufacturing now rose rapidly. Construction, trade and services also grew. With inflation controlled and demand for labour strong, the income of the poor rose quickly (Papanek, 2003:ii). Macro-economic stabilisation underpinned the reforms. The team of technocrats had the authority to prevent the development of a number of high-profile projects that were capital and import intensive and had political backing, but were widely seen as generating particularly large rents and corruption. Current expenditures were also curtailed. As a result, inflation did not quickly erode the gains from devaluation (Papanek, 2003:17). A

⁷ Partial compensation for the devaluation involved keeping the domestic prices of key tradables (most importantly rice and other staples) from fully reflecting the effects of devaluation such that, although the Rupiah price of imports and exports more than doubled, the annual rate of inflation from 1984 to 1990 was only 7%, even below its pre-1983 level. On the import side, a reduction in tariffs contained the domestic price increase as a result of devaluation. Government also fixed the price of petroleum products.

major lesson of the reforms was that entrepreneurs and investors would respond dramatically to a really large change in incentives, even if their response to smaller changes could be slow and grudging. Indonesia in the middle 1980s was quickly transformed from a risky and quite unattractive place to do business to one of the favourite low- and middle-income destinations for international investors and for Indonesia's own ethnic Chinese families. The devaluations and reforms of 1983-1987 launched Indonesia on the path to becoming a major exporter of manufactured goods, and agriculture was replaced by manufacturing as the leading employment generating sector. The growth rate of the economy responded to this impetus, expanding consistently at around 7.5% from 1989 through 1996.

Manufacturing now registered the most rapid employment growth of the major sectors (Manning, 1998:107) and agricultural employment started to fall in absolute terms. Over 1985-1995, urban manufacturing employment of males rose by 8.5% per year, while that in rural areas grew at 4%. The sector was now providing close to half of the new jobs for males outside agriculture (it had previously provided 15% to 20% of such jobs) and probably as great a share for females as well. This exuberant employment growth reflected the labour-intensive character of most of the growing sectors of manufacturing. With this surge in manufactured exports Indonesia's labour market finally tightened up to the point of producing generalised wage increases, though, as in the first growth take-off, wages again lagged output growth by a few years.

Indonesia established its rather enviable record of growth with relative equity through a combination of good luck and good management. The main piece of luck was the availability of new agricultural technologies from the 1960s, which could raise productivity and create jobs simultaneously. Good management was evident in the maintenance of macroeconomic stability, the investing of much of the oil profits in infrastructure and other forms of support for the Green Revolution rather than being squandered on consumption or ill-devised investment projects, and the adoption of the 1986 reform package – most notably the major devaluations – which allowed the country to launch its manufactured exports phase. Another step that contributed significantly to overall growth and to raising the incomes of the bottom half of the population was the extension of the financial system towards these people. The savings of lower income people were probably small until the country was well into the sustained boom. But eventually small rural savings grew dramatically. The Bank Rakyat Indonesia's microfinance operation, including both lending and deposit facilities, is one of the world's success stories in the area of finance for equitable development (Papanek, 2003). After this public bank was reformed to operate on commercial principles, small rural savings deposits grew from a negligible level after the reforms in 1984 to US\$0.5 billion in 1989 and nearly US\$2.5 billion in 2002. By 1999, savings accounts, most of which were rural, amounted to 3% of national income.

Through it all income inequality remained moderate. Official figures show the Gini coefficient of consumption expenditures typically in the range of 0.30 to 0.35 (Papanek, 2003:24) and the corresponding figures for the distribution of income around 0.4 or a little higher. According to the consumption data, urban inequality has changed very little since the mid-1960s (usually around 0.33 to 0.36) while that in rural areas has fallen markedly from 0.35 in 1964-05 to 0.25 by 2002. As the weight of rural areas gradually fell and the rural-urban income gap tended to widen (at least over part of the period), the overall level of inequality did not reflect the falling inequality in rural areas. It appears that

neither growth acceleration nor oil dependency had significant effects on the country's moderate level of inequality.

In this case the combination of market forces and economic policy produced good employment gains in each of agriculture, manufacturing and construction, with the relative contributions of the three varying over time, but their total contributions being adequate, most of the time, to keep labour demand on the rise.

(b) Chile's "High Road" out of Minerals Dependency

Chile shares with Indonesia the experience of conquering the natural resource curse and recovering growth while moving to a new and broader base of exports. Its dependency on minerals was of much long duration and those minerals had by mid-century propelled it, like Venezuela, into the upper ranks of developing countries. Because of its much higher *per capita* income than Indonesia's when that country made the shift to light manufacturing exports, the latter option was not open to Chile, especially by the 1980s, with China and other large, labour-abundant countries entering world markets on a huge scale. As a result, the "new exports" in Chile's case were a mixed bag, involving in the first instance primary products such as salmon, wood and products, grapes and wine, etc. And from the population's point of view, the transition was nothing like Indonesia's smooth progression. In both cases that transition occurred either mainly (Chile) or wholly (Indonesia) under authoritarian rule and in both cases an impressive group of technocrats (albeit of differing views on some things) had the ear of the president.⁸

Prior to 1970, Chile had undergone a lengthy period of only modest growth – at an average rate of 3.7% over 1940-1970, while the population was increasing at a little over 2%. During that time the country channelled copper rents towards human capital formation and manufacturing. Corruption and theft were not large by the standards of the oil countries, but copper alone was not destined to provide a high average level of income for Chileans. By 1970, agriculture's role as a source of employment in Chile had shrunk to 23.2% (of those identified by sector), manufacturing was at 17.4% and services at 28.0%. Minerals accounted for 88% of Chile's exports and 9.2% of GDP (Davis, 1995:1770).

The extreme dependence on copper was ended by the expansion of non-copper exports and an associated economic acceleration. The setting for the radical policy shift and the eventual attainment of sustained growth was the crisis provoked in part by the Allende administration and in part by the coup which toppled him. After the meltdown in the wake of his overthrow, economic performance was erratic. Sustained growth can be dated from about 1984, and averaged 7.4% from then until 1998. Open unemployment remained very high into the mid-1980s and most real wages were still sharply lower than in 1970.

Chile broke the dependency on mineral exports through a combination of planning, effective exchange rate management and market support policies. While copper exports grew, non-copper ones grew much faster. By 1991, copper's share was down to 52.2% and by 2000 to under a third. Many new export products have emerged over the years, bringing the number up from 200 in 1970 to 3,900 in 1996 when it more or less

⁸ Whatever supporters and critics feel about the direction of the policies instituted under Pinochet, no one doubts that the degrees of freedom the policy-makers had were great. Meller (2000) presents an interesting discussion of how the economic technocrats and the military (who also considered themselves technocrats) worked together, both seeing their task as saving Chile.

stabilised (Ffrench-Davis, 2002:176). The destination of exports has also been diversified considerably, with the European Union's share falling considerably since 1970, and Latin America and Asia (except for Japan) rising between them from 11.9% to 37.8%. As of 1988, Latin America accounted for 55% of Chile's manufactured exports. Manufactured exports grew at 15% per year from a small base of 2% of exports in 1970 to reach 14% in 1998.

There is little doubt that export expansion was key to overall growth acceleration. But there are at least three contending (though not mutually exclusive) views as to what was important in producing the boom. A traditional view (for example, Dornbusch and Edwards, 1994; Edwards, 1995; Hachette, 2000) attributes the success to the free market policies that allowed resources to find their most efficient uses and curtailed the biasing and disincentive effects of excessive regulation and public sector involvement in the economy. Arguing for the importance of the trade reforms are the facts that previous protection levels were very high for some products, that such a small economy as Chile's was likely to benefit from a high trade to GDP ratio, and that by the mid-1980s the new import competition had helped to produce a leaner and more competitive manufacturing sector (Tybout, 1996:217). Most adherents of this view believe that, when initially implemented, the trade policies were not adequately complemented by the actions taken on the exchange rate, capital market and macroeconomic sides.

A different perspective is that of Ffrench-Davis (2002, Chapter 8), who disputes the view that the fast growth of exports with attendant diversification during the latter part of the 1970s demonstrates the success of the trade reform carried out at the beginning of the Pinochet regime. He attributes part of the export boom to the weak domestic demand and resulting excess capacity, leading Chilean suppliers to shift to foreign markets, and notes that this first export boom was transmitted only weakly to the domestic economy, judging by the slow growth of the non-export sector. In contrast, he sees the export take-off after 1982 as much healthier, based on a sharply depreciated and relatively stable real exchange rate⁹ and a more pragmatic and flexible trade reform. The real exchange rate depreciated by almost half between 1980-1982 and 1986-1989 (Ffrench-Davis, 2002:168). Meanwhile, some protection was provided for importables and non-traditional exportables, more use was made of anti-dumping regulations and price bands were set for three main agricultural products – wheat, sugar and oil seeds. The successful exchange rate management that characterised the later Pinochet years and the following democratic regime deserves special comment because, soon after the need to focus on the real exchange rate as a policy variable was recognised, Chile became a favoured destination for capital inflows – both foreign direct investment and short-term speculative funds, creating a new threat of overvaluation and exchange rate instability. Chilean officials responded by introducing capital controls to discourage an excessive inflow of speculative capital. Although it remains controversial whether such controls can protect the exchange rate over longer periods, the evidence suggests that they were important in facilitating Chile's large, diversified export boom beginning in the 1980s.

Part of the success was also attributable to a range of policies in support of exports, especially non-traditional and new ones. Where the state was much less willing to

⁹ Stability of the real exchange rate has been shown to be associated with strong export performance in many studies in other countries.

intervene (fruit), the emergence of dynamic exporters was delayed. The way the support was provided also greatly affected who got the benefits when the breakthrough came. According to Kurtz (2001), the case of fruits exemplifies the worst combination – little state support and a highly discriminatory setting, so that when the opportunities did arise, only the large producers could reap the benefits.

While it is likely that trade reform, devaluation and active policy support all played significant roles in Chile's export expansion, the tremendous number of new export items that had emerged by the mid-1990s hints at the special benefits of a devalued currency that simply raised the profitability of a wide range of tradables,¹⁰ acting as a broad non-discriminatory price incentive to producers. Some were probably pulled into the export category by the low exchange rate but then remained competitive in the face of subsequent appreciation because they had by that time engaged in significant cost-reducing learning by doing. Ironically perhaps, several governments of widely divergent ideologies affected the ultimately favourable outcome in Chile. The groundwork for some of the important new exports was laid under a more planning-oriented administration. The neo-liberal policies instituted by the Pinochet government helped to push some resources in productive directions, and the devalued exchange rate provided a strong neutral incentive across the range of tradables. It probably encouraged production of import-competing goods as well as exportables, although less evidence bearing on this is available.

Two particularly disappointing aspects of the Chilean record are the high social and economic costs of the period between the fall of Allende's government and the launch of stable growth around 1984, and the apparent legacy of heightened inequality. The former costs owed much to the fact that the transition from mineral dependency to diversified exports overlapped, temporally and causally, with the shift from a generally interventionist policy framework to a much more market-based one, and in particular from a highly protectionist one to something closer to free trade. It took place in a context of macroeconomic crisis such that open unemployment in greater Santiago climbed into the 20%-25% range and real wages plummeted. It is widely accepted that inequality increased significantly during the first decade of the Pinochet regime, with widening wage disparity as part of the process.¹¹ The initial decline in absolute wages was probably helped along by the severe curtailment of union power, the lowering of labour-related taxes, etc., and the shrinkage of public sector employment (including public enterprises and all levels of government) from 29.2% of the labour force in 1972 to 21.7% in 1976.¹² It seems unlikely that such a sharp wage decrease or the widening inequality more generally were important to the achievement of export diversification. Chile's new comparative

¹⁰ Figures on new import competing items produced in Chile over the period under discussion are not available to my knowledge.

¹¹ There is some disagreement as to just how much inequality rose, and a more important disagreement on whether post-Pinochet inequality returned to close to the same level as pre-Pinochet inequality or remained at or near the new higher level it had reached by the early 1980s. The best guess appears to be that inequality rose in the 1960s, then fell between 1970 and 1974 by about 5 to 6 Gini points, rose sharply over 1974-1976, especially in 1976, by 7 to 9 Gini points, then fluctuated without large net shifts through at least the mid-1990s, so that it wound up a few (say 3 to 5) Gini points higher than in 1970.

¹² Public employment figures from Selowsky and Larrain (1991:299) and total employment figures from Coloma and Rojas (2000:519).

advantages have not lain in low-wage goods but mainly in other natural resource-based ones, and now increasingly in more capital- and skill-intensive industrial goods. So the much more important key to rapidly rising and diversifying exports was a competitive exchange rate.

Broadly speaking, Chile's path out of minerals dependency may be characterised as the "high road" in that it did not rely on low wages and labour-intensive manufacturing exports, as Indonesia did. (Unhappily, "high road" in this sense went with "low road" in the sense of personal suffering due to unemployment, wage declines and political repression.) Even though the crisis/transition period 1973-1984 saw large adjustments in the labour market, with high unemployment and a sharp fall in wages, those wages were still far above the levels of low-income Asian countries. Human capital was considerably more abundant and its combination with natural resources and technological improvements (as in forestry, fishing and fruits) yielded a number of important new export products.

A remaining question, which can only be answered by time, is whether Chile's route may prove less sustainable than Indonesia's¹³ because it is less based on the development of manufacturing, or more sustainable, perhaps because it focuses more on static efficiency in resource allocation. Although the level of Chile's manufactured exports has risen quickly, it remains to be analysed whether the capacity building associated by many observers with manufacturing has been proceeding well. Lall and Weiss (2005) express concern that the retreat towards natural resource-based exports may condemn some Latin American countries to a lower growth path in the medium run due to less capacity building.

What were the labour market fall-outs during the transition from mineral export *cum* protection of manufacturing to the subsequent export-based growth with freer trade and (later) a devalued exchange rate? During the tumultuous period 1973-1980 with rapidly rising unemployment, the great bulk of net employment growth was in the tertiary sector (78.3%), with very little in manufacturing (5.5%). By the mid-1980s, as the economy recuperated from the macroeconomic crash of the beginning of the decade, the new market-friendly model was essentially in place. Over 1987-2003, growth averaged 5.9% per year and employment expanded at 2.8%. Agriculture, mining and manufacturing saw their joint share of employment fall from 37.9% to 27.9%. For manufacturing alone the drop was from 18.0% to 13.3%; though output was rising at 6.0% per year, labour productivity was growing at 5%. Within manufacturing, 1987-2003 saw significant reallocations of labour, with large positive contributors to net job change coming from food, beverages and tobacco (3.94%); wood, wood products and paper (2.72%); and metal products (2.35%). Large losses occurred in labour-intensive industries, mainly textiles and clothing (-2.85%) but also leather products and shoes. Employment-wise, the gainers were commerce *et al.* (15.5% to 19.9%), with 28% of new jobs; finance, etc. (4.6% to 6.9%) and construction (6.6% to 8.6%). The breakdown of net employment gain shows nearly 60% in commerce and personal, business and public services, with another 11% in finance, 10.5% in transport *et al.*, 12% in construction, only 5% in manufacturing and 7.6% in agriculture *et al.* Over the shorter period 1992-2003 (for which we have three-digit data), it is noteworthy that three types of services provided

¹³ Leaving aside the effects of such mainly exogenous phenomena as the East Asian financial crisis of the later 1990s.

nearly 30% of all net new jobs: restaurants accounted for a very significant 5.2%, transportation workers provided 8.7% and services provided to business contributed an impressive 13.9%.

Chile's employment history is of special interest since the country's policies suggest that it is the most "market-determined" of those studied here. The increase in the tertiary share of employment has been rapid (from 41.6% in 1970 to 63.4% in 2003), though not obviously more so than in Venezuela. The extent to which Chile's medium to high level of inequality during the pre-Allende period was due to the dependence on copper is unclear for lack of detailed historical data on the evolution of inequality. One interpretation is that inequality was somewhat restrained by public policy prior to the Pinochet years. Possibly inequality during this period was less the result of reliance on mineral exports than the (related) scarcity of good land that could have provided a large high productivity agricultural sector. In any case the decrease in mineral dependency though export diversification came with an increase in inequality and wages took a long time to recover their 1970 levels. Was this at least partly due to the low unskilled labour intensity of most of the tradables whose output now expanded? Or was it due mainly or wholly to the other policies of the Pinochet government or to unrelated factors at work during these years? Though trade policy involved relatively little intervention, some other elements of policy appear to have favoured inequality. In any case, the observed increase in inequality during the mid-1970s did not occur during an early phase of mineral dependency but rather as the country was about to (or already beginning to) diversify.

(c) Venezuela: How the Long Period of Oil-Based Growth Came to an End¹⁴

Venezuela's experience from the 1920s reveals clearly both the positive and the negative effects of a large endowment of oil. The experience sheds light on at least three questions:

- (i)* How does a long history of high natural resource export dependence affect economic performance, employment and income inequality?
- (ii)* What factors are behind the dismal performance of this country from the end of the oil price boom of the 1970s until the beginning of the present boom?
- (iii)* Is the dramatic fall in real wages over this same period – a more abrupt fall than for *per capita* output and income – a particular characteristic of such economies, perhaps due to the narrow base of industries with the potential for reasonably high labour productivity?

Before oil exploitation began in the 1920s, Venezuela was, according to estimates of Maddison (2003:142-144), well below the average income of seven leading South American countries, and a few percentage points behind its neighbour, Colombia, a rather similar economy that, however, was better endowed in land than Venezuela. But by 1950 it had surpassed Argentina to become the richest country of the region. Over 1920-1950, Venezuela's *per capita* income grew to 6.4-fold the 1920 figure (at an annual rate of 6.4%). But *per capita* growth stopped in the 1970s, and then fell to a 2001 figure 24% below the 1977 peak.

During the fast growth period, wages appear to have risen more or less commensurate with the growth of output *per capita*. By the time systematic data became available on inequality, in particular that of labour earnings (from both paid and self-employment),

¹⁴ For detailed analyses of the Venezuelan experience with oil see, among others, Salazar-Carrillo (1994).

the reported Gini coefficients were typically in the mid-1940s, indicating a level that was high, but probably somewhat below the average for Latin American countries. During this half-century the structure of employment changed rapidly. In 1920 the share of agriculture *et al.* was a little under 70%; by 1977 it had fallen to 17%. This enormous decline can be seen as a combined result of the normal fall in agriculture's share as development proceeds, together with the crowding out effect of petroleum exports on other tradables, including agriculture. The corresponding increases in employment share occurred mainly in construction, from probably under 2% to 8.8% in 1977; manufacturing, from 9%-10% to a peak of 16%-17% by 1977; commerce *et al.* from probably about 5% in 1920 to over 17% in 1977 and up to 26.7% by 2002; the public sector from about 2%-3.5% in 1920 to around 18% in 1990. Services, other than public sector, recorded a major increase from about 8% in 1920 to 35% in 2002.

During this long period of sustained growth, both formal and informal non-agricultural employment rose rapidly. The formal sector's share (including domestic service) was about 67% in both 1920 and 1950. Such stability might be deemed an intermediate outcome, between the general expectation that traditional or "informal" activities would shrink as a share of the labour force as development proceeds and the fear that in any economy driven by an export which creates few jobs like oil, economic growth might not lead to rapid growth of formal employment. Indeed, by the early 1960s, the planners worried about the fact that oil employed less than 2% of the labour force while producing 21%-23% of GDP (Levy, 1968:15). The government therefore decided in its second plan (1963-1966) to focus on low-income housing construction with supplementary urban public works and on technical education (Levy, 1968:93-94), feeling that industrialisation was the answer to employment needs in the long run but could not be expected to generate the needed jobs quickly or in the absence of a better training programme. Consistent with the somewhat oversimplified view of the time, the tertiary sector was seen largely as a continuing sponge, a low-productivity, last-resort employment option.

Until the late 1970s, economic performance was good. Manufacturing's fast growth under import substituting industrialisation (ISI) was helped by foreign investment. Agriculture lagged, despite substantial investment and relatively high tariffs. The aggregate investment rate was fairly high, exceeding 23% over 1968-1972; inflation was kept low and foreign debt as well. Because industrialisation had relied heavily on foreign investment, profit repatriation in 1972 was US\$1 billion, or about 30% of export revenues.

Ironically, it was the oil price hikes of the 1970s that brought this generally satisfactory oil-based development to a halt and eventually put Venezuela on the list of "natural resource curse" countries. Even more ironically, among the factors contributing to the reversal of fortune was an increased recognition of and concern with poverty and inequality in the political process and a misguided belief that employment and growth would be found in capital-intensive exports produced by public enterprises.

Over 1972-1978, the non-oil economy boomed at 8.4% per year, private consumption at 12% and gross investment at 15%. But much of the windfall was used to raise employment, wages and output in the public sector. *Per capita* consumption went up by 50% over 1973-1982. After some saving abroad in the first years, the country had by 1976 become a net borrower. The die was cast for future problems when the government failed to maintain a cushion of savings abroad and simultaneously began channelling

present and future oil revenues to develop a large public enterprise sector, mainly in basic industries such as steel and aluminium (Marquez, 1995:404). Previously those revenues had gone to general infrastructure and the social sector, the first of which at least could be cut back without great difficulty when revenues shrunk.

Policy during these years was substantially the product of a democratic process in which, unfortunately, legitimate social concerns were combined with weak technical capacity in government – at least on some of the key issues. There was also some bad luck. The government had an understandable concern with employment generation. A slowdown of manufacturing growth to under 5% in the late 1960s, coupled with a high level of unused capacity, was interpreted as due in part to the limited size of the domestic market and as a signal that the country was approaching the end of the simple first phase of ISI. In the face of such concerns and a gradual erosion of voting support for the two traditional parties – attributed by some politicians and by authors like Karl (1982) to a crisis of legitimacy due to the level of inequality – President Caldera (1969-1974) saw a need to at least tweak the development strategy and moved to encourage non-traditional exports like steel and aluminium. The government also took steps towards the eventual nationalisation of the oil industry, raising export taxes and revising contracts with the foreign oil firms.

The 1973 Presidential campaign in which Carlos Andrés Pérez emerged victorious was uncharacteristically focused on social issues and the need to fight poverty. With the oil price rise he could envision great things; the oil windfall averaged 20% of GDP over 1974-1978 (Gelb and Bourguignon, 1988:295), with the government getting all or most of it. The fifth plan (1976-1980) incorporated a big increase in public investment, including basic infrastructure, and also emphasised the typically lagging agricultural sector. Though it talked of increasing credit to the private sector, the amount actually channelled that way was small, so the large increase in private investment that did occur after 1975 was financed mainly by foreign borrowing. After 1977 the administration, seeking to accelerate public programmes, facilitated borrowing abroad by public sector agencies as well. As was their wont during the reckless 1970s, the international banks lent eagerly without regard to the quality of the resulting investments. Net savings abroad were just balanced by this capital inflow over 1973-1978, so by the end of this period the entire windfall had been absorbed by the domestic economy, about half of it by the public sector and half by the private sector. Employment and minimum wage laws were passed in 1974. And there were price controls on consumer goods that raised real household incomes. There was some evidence of marginally improved distribution by the late 1970s and poverty no doubt fell somewhat over 1972-1978.

Venezuela's response to the 1970s oil price boom involved serious policy errors on each of the macroeconomic, financial and industrial strategy fronts. Too much was borrowed abroad, too little was saved domestically, and investments were channelled into risky and low payoff (at least in the short run) industries, operated by public enterprises which introduced both inefficiency and rigidity, and with no hope of significant direct employment creation. The combination of a government desirous of making a quick impact on employment and poverty problems but not knowing, positively, how to do it, or, negatively, what paths to steer clear of, turned out to be a lethal one. Contributing to this sorry record was a legacy of the long-standing reliance on the easy rents provided by oil. Neither the government nor many of the high-income individuals who rode the oil wealth were in the habit of worrying greatly about costs. A vicious circle of powerful

groups constraining decisions into unproductive channels, together with periodic disruptive shocks, helped to keep Venezuela off a healthy growth path for a quarter century. Rarely has the 10-year growth average approached 3% until the current oil boom.

Along with the cited internal problems of collective decision-making came a dose of bad luck. In fact, the government initially planned to absorb the oil windfall cautiously, to which end it created the Venezuelan Investment Fund in 1974. The open character of the Venezuelan capital market became a strongly negative factor, in conjunction with the grievous malfunctioning of the international capital market in the 1970s. After being lured into international borrowing at what were very low real interest rates, Venezuela, like so many other countries, was caught off guard by the sudden reversal of the international capital market in the early 1980s. Like Brazil it had made a number of slowly maturing investments which did not have time to yield fruit before the crisis struck, though in Venezuela's case the average quality of the investment was low as well. The upshot was an extremely low marginal gross output/capital ratio, averaging only about 0.09 over the 25-year period 1977-2001.¹⁵ Like Nigeria and other countries, the rush to invest during the peak oil-boom years led not only to serious waste of resources but also to an overheating of the economy, which laid the groundwork for a sharp macroeconomic downturn. Private investment reached unusual levels in 1976-1977, then crashed under the influence of falling profits (partly due to a 30% wage increase decreed by Congress in December 1979 and to declining domestic demand), capital flight and the generally worsening investment climate.

In response to the crisis, a devaluation was eventually carried out in 1983, together with price and other controls and tighter restraints on public expenditures. Though fiscal balance was regained, the real devaluation did not push many resources into the tradables sector, a result attributed by Marquez (1995:405) to the continuing price and import controls, but in any case not too surprising in a country whose main export had a huge comparative advantage over other goods and services and which was in crisis. Here we are left with the question of whether or under what conditions Venezuela might have been saved by a larger devaluation and been able to leave its narrow minerals dependency behind as Indonesia and Chile did. If so, would the distributional outcome have been negative, like Chile's? In the event, Venezuela's political process was not up to the task of working out and implementing a policy package that would propel the country ahead.

With Venezuela's weak growth performance came an even more serious wage crash. Over the years, wage rate fluctuations in Venezuela have been large in both directions. Between 1950 and the peak in 1978, the implicit wage series from the national accounts indicates an approximate doubling, for an annual increase of 2.4%. By 1989 this series was back below its 1950 level. Is it the case that an economy like Venezuela's, with one sector so much more competitive than nearly all other tradables, is prone to an especially

¹⁵ The very low marginal output/capital ratio of the non-financial public companies suggested both poor management and slow maturation. Steel and aluminium companies had technical problems and faced low domestic demand and weak world markets due to the downturn, resulting in huge excess capacity. A quick payoff could not be expected for the big infrastructure and public sector investments undertaken but the considerable private investment did not pay off rapidly either – perhaps this was due to bottlenecks and probably partly to falling demand as general stagnation started to set in.

rapid decline in the real wage when growth is slow or negative, because of an inherently low price elasticity of demand for labour? The sharp fall in real wages in Chile after 1973 may be another example of the fragility of high wages in such economies.

Together with the wage crash came a dramatic increase in the level of informal employment. For Latin America as a whole the period 1990-2002 saw a moderate increase in the share of non-agricultural workers found in the informal sector, from 42.8% to 46.9%. But in Venezuela the increase was spectacular, from 34.2%, considerably below the regional average, to 55.9%, well above it. This was by far the biggest increase observed over this period in the region, as an incredible 20% of the labour force fell out of the formal and into the informal sector. Such a dramatic shift is probably without precedent in Latin America and perhaps in the world, at least for countries whose formality ratio had reached as high as two thirds. As noted above, that ratio had been strikingly stable at over 60% of non-agricultural employment (two-thirds with domestic service included) between 1920 and 1950. There was then little net change up to 1990, after which the cited crash occurred. This period also saw a dramatic increase in urban female participation rates in Venezuela (from 38% to 53%, or about twice as large as the regional average increase) (CEPAL, 2004:284-285) and in open urban unemployment rates, with an increase from 11.0% to 18.9%, second only to Argentina's over that period. Confusingly though, the ratio of informal to formal sector earnings fell less in Venezuela (from 71% in 1990 to 58% in 2003) than it did in most other countries of the region (Berry, 2007:27).

While no one would deny the roles of policy errors and bad luck in the Venezuelan drama, it would be equally incautious to assume that any easy transition to fast, sustainable growth was available for such an oil-dependent country. What combination of activities could have been nudged into existence or expansion by a different routing of the funds which in fact went to the capital-intensive state enterprises is hard to say. Possibly the small and medium-sized enterprise sector could have shown more dynamism, with benefits to employment, had policy been strong there. The investment in human capital which did occur was no doubt useful but was probably both less, and less effectively used, than would have been needed to give Venezuela a good chance to develop strong comparative advantages based on such capital. And probably a bigger exchange rate depreciation would have been required to bring a significant number of new activities into competitiveness. This may be the greatest political challenge in countries whose powerful middle- and upper-income groups are accustomed to cheap foreign imports and to moving their assets abroad at an attractive exchange rate when it suits them.

From an employment/distribution point of view, the search for new export potential in highly capital-intensive industries was a lost cause from the beginning. Such a policy pattern occurs frequently in mineral-exporting countries, reflecting the fact that additional processing is one of the obvious options for any natural resource exporter, and that the engineering and other skills that are built up around the natural resource export can also be put to use in some related activities. It is a much bigger policy stretch to search for quite different export opportunities. Many cards were stacked against Venezuela. Relatively high modern sector wages blocked many options, lack of the appropriate skills probably blocked others and the "oil mentality" idea that this is an oil country and not much else no doubt played a role. All these conspired together to generate the dramatic increase in informalisation just noted, the sort of increase one might expect in the course of a dramatic economic downturn rather than in a slow growth period. The Venezuelan

story is, to put it mildly, a cautionary for all middle-income exporters heavily dependent on a mineral export. With Venezuela, like other oil countries, now in another boom period, it remains to be seen how a very different type of government will deal with the ever-present challenges of high dependency on a mineral product.

(d) Nigeria: Impoverishment Through Oil?

Nigeria is a relative latecomer among major oil countries, and was previously not at all minerals oriented.¹⁶ The economy had developed relatively quickly from the turn of the 20th century, apart from an interlude of stagnation (1929-1944) corresponding to the Great Depression and World War II. Production of agricultural exports was based on the indigenous response of small farmers to economic incentives. The second motor of development was the government, which, though small in terms of employment, performed vital functions of law and order, and built railways which knit the country together and opened coastal markets for the peasant producers. Helleiner (1966:320) judged that, in spite of some mistakes, the government's activities in agriculture, industry, infrastructure and education, taken together, had played a major role in post-war economic development.

As this early development proceeded, the country remained overwhelmingly rural. In 1931, just 7% of the population lived in centres of over 20,000 people (Helleiner, 1966:18). As of 1952-1953, 78.6% of the male working population were in the primary sector (including mining), 6.1% were listed as craftsmen and 5.8% were in trade and clerical activities. Of the employed group of 8.1 million about 10 years later, just half a million worked in establishments of 10 or more persons, so that the share so employed in 1952-1953 was probably at most 5%. In short, the economy was very little modernised or formalised.

The first big effect of oil was to precipitate an inter-group struggle for rents as, soon after independence in 1960, Biafra's attempt to secede resulted in civil war (1967-1970) and the accompanying turmoil.¹⁷ Nigeria's economic performance has been erratic and on average weak since its short quick recovery from the civil war. Good years fostered by the oil price hikes have been interspersed with bad ones.

Sala-I-Martin and Subramanian (2003:1) see Nigeria as a prime example of the proposition that "some natural resources – oil and minerals in particular, exert a negative . . . impact on growth *via* their deleterious impact on institutional quality . . . Waste and poor institutional quality stemming from oil appear to have been primarily responsible for Nigeria's poor long-run performance". They also maintain that, because inequality has increased greatly since the oil bonanza began while *per capita* income has not changed, poverty has risen greatly. Since Nigeria had no credible data on income distribution at the beginning of the oil period, this judgment is based partly on guesswork, but is consistent with the high (but presumably substantially understated) Gini coefficients of 0.5 or more from recent surveys, the reasonable presumption that the pre-oil economic structure could not generate nearly as much inequality, and the evidence of a sharp rise in inequality since 1985.¹⁸

¹⁶ Though there was exploitation of tin, it accounted for a small share of exports.

¹⁷ The stage for this struggle had been set by ethnic tensions, particularly in the Niger delta, and by the colonial past (Ross, 2003:3).

¹⁸ Canagarajan *et al.* (1997:15), taking advantage of two national consumer surveys, undertaken in 1985 and 1992, respectively, report that the Gini coefficient for *per capita* real expenditures rose

A continuing feature of Nigeria's spotty growth has been the generally very low payoff to investment. The lack of capacity to sustain growth was in evidence again when a patch of good growth over 1985-1990 ended abruptly in the early 1990s, since which time the 5-year average seldom exceeded 3% until the current boom began in 2003. Over 1978-2002, average growth was just under 2%, implying a fall in GDP *per capita* of about 16%.¹⁹ The first serious slowdown, over 1978-1984, was not associated with a low investment rate in either current or 1987 prices – in the latter terms it was in fact extremely high. Over the period 1973-1997, during which the average investment rate was nearly 30% in constant 1987 prices though only about 20% in current prices,²⁰ the average marginal output/capital ratio was just 0.10 (using constant 1987 prices) or 0.15 (using current prices), in either case a very weak performance.²¹ Such a low output/capital ratio is likely to imply low or falling efficiency of resource utilisation. Sala-I-Martin and Subramanian (2003:14) conclude that total factor productivity fell at an average rate of 1.4% over 1965-2000.²² Capacity utilisation in manufacturing, a substantial part of which is government owned, is estimated to have fallen from about 77% in 1975 to 50% in 1983 and around 35% in the late 1990s (Bevan *et al.*, 1999:67).

Nigeria's oil industry appears to have discouraged production both in agriculture, whose share of output and employment has fallen precipitously, and in manufacturing, which had achieved only a very modest development before the oil industry came along. Although traditional handicraft industry was always present, power-driven machinery only began to enjoy widespread use after World War II (Helleiner, 1966:321). Some import substituting industries got going by the early 1960s, mainly light manufacturing for consumer goods. The sector had developed further by the time of the civil war and the oil boom but the base had not been established to successfully confront cheap imports on a fairly broad scale, nor has a strong base emerged since then.

The oil period ushered in a very rapid process of urbanisation and labour reallocation, parallel to Venezuela's between 1924 and 1940. By the 1986 household survey, only 48% of the classified labour force was still in agriculture, with manufacturing's share sitting at a paltry 4.4%, commerce *et al.* up to 25.0% and services to 15.3%. At this time only about 19.4% of the employed were in paid positions, with the majority of these in services (60% of them), presumably concentrated in the public sector. In manufacturing, only

from 0.387 in the former year to 0.450 in the latter, an unusually rapid change for such a short period.

¹⁹ Even including the oil-based boom of the early 1970s average growth over the rest of the century was just under 2.9%, with a slight fall in GDP *per capita*.

²⁰ Nigeria's reputation for corruption and theft might prompt the question of whether that alone could explain much of the weak performance. Flight of ill-gotten wealth from the country, which has been substantial, would be expected to show up in a lowered investment rate, so the fact that this ratio was not particularly low suggests that other factors, perhaps including other forms of corruption, were the principal forces behind the slow growth. The relative importance of the damage done by corruption and that resulting from inefficient resource allocation due to other causes remains an interesting question in cases like this one.

²¹ Since capital goods prices were atypically high in 1987, their use exaggerates somewhat how low the marginal output/capital ratio was.

²² Though the accuracy of the capital stock figures on which this estimate is based could certainly be questioned, the conclusion that the trend of total factor productivity was negative or that the average rate of return to investment was low seem beyond doubt.

18.2% of the employed were paid, and in commerce *et al.* (dominated by women) the share was a minuscule 2.9%. In terms of employment structure, Nigeria had thus urbanised in a much more “informal” way than had Venezuela – few paid jobs appear to have been available outside of government. And employment was strongly skewed towards commerce, as reflected in the eye-catching ratio of about six jobs in the commerce *et al.* sector for every one in manufacturing. While this ratio varies widely across developing countries, even in minerals-dependent countries like the others considered here it has not remotely approached this level.²³

Between the experiences of Nigeria and Indonesia – the two countries studied here whose high oil-dependence existed when they were still heavily agricultural – there is a striking contrast both in terms of what happened to agriculture and in overall economic performance. Nigeria’s development strategy was strongly urban biased, with emphasis on construction of main roads and on the spread first of primary education and then of secondary and tertiary. There was no generalised rural labour surplus, so as workers were pulled away the supply available to agriculture shrank, exerting downward pressure on output. Meanwhile, agricultural technology appears to have been virtually static. Some observers think much might have been done in this area, but in the event it was not. The decision-makers believed that productivity gains in smallholder agriculture would be hard to achieve (Gelb, 1988:256). Politics also favoured spending on education rather than, say, on agricultural research, whose payoff is usually delayed and not well understood by the population. A widespread feeling that education could be a mechanism of social mobility helped to make spending on it popular. Within agriculture the spending pattern favoured large, better-placed farmers. It should be noted that recognition of the potential for raising small-farm productivity was only beginning to be spread within the developing countries in the 1970s, whereas raising educational levels was widely accepted by specialists. Nigeria’s decisions were thus rather natural ones for the time.

Gelb judges that Nigeria’s post civil war (*i.e.* post-1970) economic performance might have been reasonably good without the oil. In the event, non-mining growth averaged just 2.5% over 1972-1984 (fast in the first years, then negative), despite the biggest investment splurge in the country’s history. A large share of that investment went to physical and social infrastructure but it did not do much to stimulate other economic activities. Investment quality was negatively affected by a relaxation of approval procedures that accompanied the acceleration of public programmes (Gelb, 1988:251). Then came the disruptive effects of cutbacks after the second oil boom. Inefficiency in the granting of import licenses caused shortfalls in imported raw materials that severely affected industry; as noted above, the manufacturing sector was operating at low capacity by the mid-1980s, despite rising prices of manufactures. Indigenisation, involving profit sharing in oil and rapidly advancing Nigerian personnel, had its costs. The overall push by the planners for national control over the economy, including oil and other mineral sectors, occurred in spite (and in full knowledge) of the corruption of Nigerian statutory corporations and state-owned companies (Gelb, 1988:237).

²³ In Chile the ratio reached 1.5 in 2003, after a considerable rise during the previous couple of decades; in Venezuela it was just over one around 1980 and in Indonesia about 1.5 at that same time.

Of the oil countries studied by Gelb *et al.*, Nigeria (together with Iran) suffered the highest exchange rate appreciation by the early 1980s. The overvaluation was to a great extent related to the political need/desire to create rents for government officials and their cronies. Sala-I-Martin and Subramanian (2003) note that it is not clear that the oil windfalls led to the expected fall in the relative price of tradables, given bottlenecks and other market imperfections. But it is clear that the exchange rate was not given a chance to be a tool for identifying and inducing into production a wide range of tradables as it seems to have done in Chile – quite the opposite. More generally, Nigeria has not been able to use its oil revenues to energize the non-oil sector and revive overall growth. Like Venezuela, the industries selected for favourable attention were too often bad choices *per se* and/or their management was defective. Since, unlike Venezuela, it did not have five decades of rapid oil-based growth before the effects of the curse were felt, it is arguable that this is a case where long-run growth was actually retarded by oil. It is even more likely that long-run poverty has been increased by it.

What should have been done? Almost certainly following the Indonesian route in the sense of trying to raise productivity in agriculture would have been one of the key components of the optimal package, and very likely the key one, even though it would have been harder and the payoff would have been both less than and more delayed than it was in Indonesia. But instead of fostering small-scale agriculture, Nigeria appears to have become one of the countries with the most extreme urban bias over the last half century.²⁴ Certainly exchange rate management would also have been important. Slowing down the use of the oil rents, however they were employed, would have been highly beneficial, since one reason for the low payoff was the rush to do too many things at once, in a system where neither markets nor the administrative apparatus/infrastructure was up to the challenge. Whether and when manufacturing would have come to play a significant role under an ideal scenario is harder to say.

Of the four countries studied here, Nigeria appears to have suffered the most unfortunate distributional effects of minerals dependence. While a reasonable number of construction jobs were no doubt generated, small agriculture was a loser, both directly as increased food imports were financed by the petroleum exports, but perhaps more importantly as the ability to rely on oil for foreign exchange diverted government policy from the sort of support for small agriculture that could have contributed importantly to raising labour productivity. That reliance also helped to keep manufacturing output and employment low; as well, the availability of foreign exchange probably contributed to the country's unfortunate selection of some unpromising capital intensive sectors in which resources were wasted. Unlike both Indonesia and Venezuela during their periods of successful growth on the basis of oil resources, Nigeria did not protect or support manufacturing in a way that wound up creating a significant number of jobs. Meanwhile, resources were spent on education that did not pay off nearly as much as might have been hoped; the combination of policies turned out to be an unfortunate one. An overvalued exchange rate, along with a high level of corruption and other governance problems, contributed further to the stagnation, lack of employment creation and rising inequality. While neither Chile nor Venezuela during recent decades have been so agriculture-based

²⁴ The concept of urban bias was elaborated on by Michael Lipton (1977). Okowo (1991) discusses the phenomenon as it unfolded in Nigeria.

that this sector's successful development could be considered a sine qua non of good employment creation, Indonesia and Nigeria did fall into this category, with the former succeeding in that area and Nigeria failing.

3. LESSONS ON OVERCOMING THE GROWTH AND EMPLOYMENT CHALLENGES OF MINERALS DEPENDENCY

The pursuit of adequate growth, remunerative employment and equity involves identifying, fostering and supporting those sectors with the best promise for contributing to output and employment growth, whether they be tradables or non-tradables, and whether they be goods or services. A high level of minerals dependency involves a sort of economic imbalance from which most countries must sooner or later seek an exit. This means generating new or resuscitating former comparative advantages in the production of other tradables. Two broad and related questions arise: what is the appropriate balance between increased production of exportables and of importables, and what is the sectoral composition of those new comparative advantages, as among agriculture and other primary activities, manufacturing and services? Then there is the big policy question: what is the best way for the country to get where it wants to go, is there a significant role for industrial strategy or can markets do a better job relatively unimpeded? The four case studies reviewed here suggest a number of hypotheses.

(a) Depending on the specifics of the country, promising new comparative advantages may be expected to emerge in each of the primary, secondary and tertiary sectors.

Central to success in Indonesia was investment in raising agricultural productivity, especially in rice, the staple crop. The alternative would have been substantial imports of rice and less productive jobs in agriculture. A lack of productivity increase in agriculture contributed to failure in Nigeria. Agriculture was already much less important in Chile and Venezuela and hence less central to avoiding Dutch disease in the mineral booms to follow. In Chile, a number of non-copper primary activities did contribute importantly to the new wave of exports gathering strength by the 1980s, though the primary sector employment share diverged only modestly from its continuing downward trend.

(b) The role of service tradables, though not figuring extensively in the above histories should not be discounted.

Some services are clearly important to the development of non-service tradables, but information is not readily available to measure this role. The rapid increase in employment in the category 'services provided to business' in Chile during its recent burst of growth suggests that they are making an important contribution. In addition, international trade in services is large and growing fast. Such services, which are diverse in character and involve a range of skills that developing countries can generate, would be expected to play a greater role in successful exit from minerals dependency now and in future than they did a few decades ago.²⁵

(c) The possibly important contribution of manufacturing to growth of output and employment under minerals dependency and the role played by trade protection in that growth is one of the most intriguing elements of the experiences of these four countries and of minerals-dependent countries more generally.

²⁵ For a recent discussion of "Offshoring", the process in which tasks are shifted from industrial countries like the United States to developing ones, see Blinder (2006).

Indonesia and Chile were able to escape the natural resource curse by evolving into more diverse exports. Indonesia moved mainly into light manufactures, consistent with its labour surplus and low wage rates, while Chile exported a wide range of products, including intermediate-technology manufactures, many going to other countries of Latin America, after a phase during which the main non-copper exports were primary goods with little or no processing. Whether there are countries for which a major aspect of successful exit from minerals dependency lies in import competing manufacturing is harder to judge. Raising competitiveness in import substitutes proved to be a path to export success in a number of the East Asian cases. In part these issues take us back to the alleged special benefits flowing from manufacturing activities in general.

In terms of trade policy, Indonesia and Chile present an interesting contrast during their break-out phases. The former maintained a considerable level of protection for manufacturing and, at times, for rice (where a major objective was stabilising the domestic price), while the latter was the first developing country (leaving aside city states like Hong Kong) to adopt and largely stick to an almost free trade policy. Venezuela protected its manufacturing sector during much of the long period of high growth based on oil, as did Chile during its pre-1970 copper-based growth. In both cases, a considerable part of the sector appears to have been uncompetitive internationally. Indonesia, too, engaged in considerable protection, while Nigeria's efforts along those lines did not get manufacturing's output share of GDP much above 10% or its employment share even close to that.

(d) One of the most striking features of the two success stories has been their timely use of currency devaluations to achieve highly competitive exchange rates. It would take a careful analysis to ascertain the extent to which the other two countries could have benefited from better management in this area.

Where a strong industrial policy is an important contributor to economic success, such success may now be harder for countries like Venezuela and Nigeria to achieve, given a world where trade protectionism is castigated internationally. On the other hand, the exchange rate can be a powerful tool to provide more neutral incentives for new tradables. Both Indonesia and Chile used major devaluations to spur the needed diversification of exports. Venezuela did devalue but less, and less successfully, than the other two. Nigeria's exchange rate was not used as a systematic tool for diversification. Possibly countries like Chile, Venezuela and Nigeria need a period of gestation to prepare the conditions for a major surge in competitive or reasonably competitive manufacturing, a period like the one that lasted in Chile from the late 1970s to the 1990s.

(e) The experiences of these countries confirm the risks of focusing on capital-intensive industries in labour-surplus countries and even in ones like Venezuela which are not as labour abundant as many others, and the risk of lodging such activities in the public sector.

Often the choice may be between private sector control (for example, multi-national corporations) which can involve loss of rents from the country (low "returned value") and waste of rents by inefficient public enterprises. All four countries have dealt with these problems/challenges in some degree, with Chile and Indonesia paying the lowest price and Venezuela and (especially) Nigeria the highest. Chile has invested fewer rents in related industries of questionable appropriateness and in any case was the best placed of the four to achieve some success in fairly capital- and technology-intensive activities. Indonesia lost some rents to corruption in the oil industry and more generally, was at some risk of allocating too many rents to high-technology activities (the aircraft sector

was Habbibie's dream) that did not hold much promise of success. But when things started to look uncertain in that country, the president turned to his team of qualified technocrats, who orchestrated a reversal of such policies. Avoiding highly capital-intensive sectors is part of the broader challenge of avoiding bad investments in general. It was easy for Chile to escape this temptation with respect to public investment, since its government believed strongly in letting market forces determine resource allocation; the other three all faced the threat of interventionist failure. Indonesia was lucky enough to escape large-scale damage because of the president's consigning enough authority to quality technocrats who could block such ventures, along with other low pay-off planned investments. In the other two countries this was not the case.

(f) Strong economic teams appear to have contributed greatly, perhaps even been necessary conditions for the successes in Indonesia and Chile.

Though investment in the Green Revolution in Indonesia was probably a rather obvious thing to do, and maintenance of fiscal/macroeconomic stability was fostered by the collective memory of the still-recent hyperinflation of the 1960s, the need for currency devaluation and other reforms that were required to encourage manufacturing exports was less obvious. In Chile, after some serious early mistakes which aggravated the crisis of the early 1980s, policy became more coherent and stable. Effective control of short-term capital movements in and out of the country was an important policy innovation.

(g) How much learning from past mistakes?

Most minerals exporters are now into a growth boom as commodities prices rise. Thus both Venezuela and Nigeria, along with many others, are getting another chance to avoid the natural resource curse. Their success this round will teach us a good deal about long-term learning in the policy process.

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