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## Working Paper

**Political Economy of African Mineral Revenue  
Deployment: Angola, Botswana, Nigeria and Zambia  
Compared**

*Richard Auty*

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# Political Economy of African Mineral Revenue Deployment: Angola, Botswana, Nigeria and Zambia Compared

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## Summary

Recent research identifies weak institutions as a leading cause of the under-performance of developing economies. But in *low-income* economies institutions reflect political incentives rather than mould them, so this paper analyses how political incentives are shaped by commodity revenue. It focuses on commodity rent flows as the critical link between the economy and politics and uses case studies to track them (whereas statistical studies treat rent as a black box). The case studies are informed by rent cycling theory, which posits that: (1) high rent diverts government incentives from wealth creation into patronage cycling that distorts the economy, depresses investment efficiency and causes a growth collapse; (2) recovery from a collapse is protracted due to the inertia of rent cycling; and (3) the negative effects of high rent are amplified when rent is (a) concentrated on governments (as with mining), (b) deployed for a statist ideology or (c) associated with ethnic diversity. The paper uses Botswana's successful rent cycling to identify why Zambia, Nigeria and Angola failed. It attributes Botswana's success in managing a large concentrated rent stream not only to ethnic homogeneity and rejection of statist policies but also to the incentives for caution arising from its singularly precarious mineral dependence and also the unexpected stability of diamond prices. In contrast, a complacent Zambian government deployed copper rent through a statist development strategy that within a decade fatally weakened the economy's resilience to economic shocks. Nigeria deployed its burgeoning oil revenue to appease ethnic strife and thereby over-expanded state intervention and weakened the economy. Finally, Angola distorted its economy by central planning. Ethnic conflict then attenuated the elite's time horizon and boosted rent-seeking at the expense of wealth creation. The hesitant recoveries of Zambia and Nigeria indicate that even democracies require a complementary political strategy if economic reform is to overcome the inertia of rent cycling.

## Introduction

In the early-1970s, the median income of the resource-abundant developing countries was some 50% above that of the resource-poor countries (Auty, 2001, p. 5).<sup>1</sup> This reflects the advantageous additional investment and import capacity that the resource-rich countries generated from their commodity rent.<sup>2</sup> The commodity price shocks of 1974-85 inverted the income differential, however, by triggering growth collapses in many resource-rich countries, starting with African oil importers after the 1974 oil price hike, and engulfing in the early-1980s Latin American and African commodity exporters (previously deemed sufficiently credit-worthy to borrow recycled petro-dollars) and finally hitting oil exporters when oil prices collapsed in 1985. Whereas the incomes of resource-rich economies stagnated or fell back through the 1980s and 1990s, those of the resource-poor countries continued to grow.

Both large and small resource-rich economies grew slower than the resource-poor economies in the period 1985-97. The mineral economies had the slowest growth and the highest rent (Table 1). The mineral economies' underperformance is partly due to heightened price volatility and the concentration of commodity revenue on governments. Revenue volatility complicates macro management and is acute for mineral economies. This is because of the difficulty of matching

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<sup>1</sup> Resource abundant economies had more than 0.3ha per capita cropland in 1970 and/or more than 40% of exports from minerals (Auty, 2001, p. 4).

<sup>2</sup> Rent is defined as the residual revenue after deducting all costs of production of an efficient world producer, including a risk-related return on capital and normal taxation. It can be regarded as windfall revenue that producers do not require to maintain efficient production.

supply and demand due to mining's unusual capital intensity, which extends investment lead-times so capacity either lags behind demand or runs ahead of it, causing booms and busts (Cashin *et al.*, 2000; Cashin & McDermott, 2002). In addition, mining's principal domestic linkage is through taxation, which accrues to governments, which research shows deploy rent less effectively than when rent is dispersed via productive linkages across many economic agents, as with peasant cash cropping (Baldwin, 1956; Bevan *et al.*, 1999).

Yet after more than a decade of statistical research, explanations for the natural resource curse and even its existence remain contested (Lederman & Maloney, 2007). Sachs and Warner (1995 and 1999, p. 23) identify Dutch disease effects as the driver of the curse. They find that natural resource-rich governments close trade policy as their dependence on primary product exports increases in order to counter the employment-diminishing effects of Dutch disease. Lal & Myint (1996) show that such protection represses markets, distorts the economy and triggers a growth collapse. However, Acemoglu *et al.* (2001, 2002) find the quality of institutions is more important than natural resources *per se*, and identify extractive colonial institutions as detrimental to economic growth. Subsequently, Glaeser *et al.* (2004) relegate institutions to secondary status: they find that institutions improve as a consequence of rising incomes but do not cause that rise, which is explained by human capital and policy choice. Most recently, Acemoglu & Robinson (2008) back-track on their earlier findings: they recognise the capacity of the elite to manipulate institutions, even in democracies.

In fact, in *low-income* economies, institutions reflect political incentives rather than mould them. Khan (2000), for example, notes the necessity for governments in many emerging political economies to deploy rents in order to secure the political cohesion without which economic activity cannot function effectively. Consequently, this paper focuses on how political incentives are shaped. It uses comparative case studies rather than statistical analysis because case studies can trace the impact of rent streams whereas most statistical analysis treats commodity rent as a black box. The case studies are usefully informed by rent cycling theory, which synthesises the rent curse literature (Auty, 2007) and focuses on how the scale of the rent affects government incentives and the economic trajectory. Basically, the theory argues that: (1) high rent deflects government incentives towards rent distribution at the expense of wealth creation, which distorts the economy, retards institution building and risks a growth collapse; (2) rent cycling exhibits strong inertia so recovery from growth collapses is protracted; and (3) the negative rent effect is amplified by concentrated commodity linkages, statist ideology and ethnic factionalism, which all repress markets, which is the root cause of the resource curse. Two qualifications are in order, however. First, rent cycling theory recognises that the curse can be avoided. Secondly, the curse can be caused by foreign aid (geopolitical rent) and by regulatory rent (Tollison, 1983) as well as by natural resource rent.<sup>3</sup>

Growth collapses and recoveries are cumulative events that occur over decades (Auty, 2001). This paper traces the impact of commodity price swings since the early-1970s using Botswana as a best practice counter-factual to explain the disappointing outcomes from rent cycling in Zambia, Nigeria and Angola. The next section sets the context: it outlines rent cycling theory, compares initial conditions in the four countries and estimates fluctuations in their rent streams. The case studies follow. Botswana establishes the counter-factual. Zambia shows how statist ideology cycles rent in ways that repress markets. Nigeria reveals how ethnic tension can yield similar outcomes while Angola offers an extreme case of persistent exploitation by elite rent recipients. The final section draws implications for theory and policy.

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<sup>3</sup> Crowson (personal communication) correctly notes the three 'rent' streams are more accurately defined as supernumerary government revenue, ie, revenue in excess of normal levels. But even the acronym SGR is cumbersome so 'rent' is used in this sense hereafter.

## Rent Cycling Theory and Initial Conditions in the Early 1970s

This section first outlines rent cycling theory. It then compares the constrained initial conditions of Botswana with the more promising endowments of the other three economies. Finally, Botswana's favourably stable rent stream is contrasted with the more volatile revenues of the other three.

### *Overview of Rent Cycling Theory*

Rent-cycling theory (see Auty, 2007, for a fuller description) is premised on the observation that low rent confers incentives to create wealth because governments in low-rent economies expand their revenue by taxing an increasing output. This has two basic consequences. First, it encourages governments to invest in public goods and maintain efficiency incentives. Secondly, these incentives foster reliance on markets and adherence to comparative advantage, which for low-rent economies lies in labour-intensive manufactured exports. Early competitive industrialisation quickly eliminates surplus rural labour causing real wages to rise, which encourages investment to diversify into skill-intensive and capital-intensive manufacturing. Early industrialisation also brings early urbanisation that accelerates passage through the demographic cycle that lowers the dependent/worker ratio, which raises the share of saving and investment in GDP. The higher investment drives rapid PCGDP growth because it is efficient, due to global competition. Finally, high growth strengthens three key sanctions against anti-social governance to promote incremental democratisation as: (1) entrepreneurs protect their investment by lobbying for property rights and the rule of law; (2) unsubsidised urbanisation strengthens civic voice; and (3) early government reliance on taxing income, profits and expenditure rather than trade spurs the demand for accountable public finances.

In contrast to the virtuous low-rent trajectory, high rent deflects political incentives from wealth creation into rent distribution, which confers more immediate, and often personal, political returns. Consequently, more rent cycles through patronage channels and less through markets in high-rent economies. This deflects the economy from its comparative advantage, reduces investment efficiency and slows economic growth, presaging a growth collapse in the absence of reform. The high-rent economy also omits competitive industrialisation so surplus labour persists and amplifies income inequality, reinforcing government motives to use rent to expand jobs that markets would not support in protected manufacturing and government bureaucracy. The demands of the resulting rent-dependent sector eventually outstrip the rent supply either because commodity prices fall or else long-term structural change shrinks the relative size of the primary sector. Yet rent-recipients resist economic reform because it extends markets that shrink the scope to capture rent, so governments find it politically easier to extract the returns to capital and labour from the primary sector in addition to rent. This creates a staple trap of growing dependence upon a weakening primary sector. It also retards political maturation by undermining all three sanctions against anti-social governance as: (1) firms secure higher returns from lobbying for rent than from boosting efficiency and pressing for the rule of law<sup>4</sup>; (2) rent cycling feeds a dependent social capital that relies on state favours; and (3) commodity rent displaces personal taxation, blunting demands for public accountability.

The inertia of rent cycling impedes reform: it causes a growth collapse and it then retards recovery. Basically, growth collapses result from the repression of markets as political aims take precedence over economic ones. The market repression is amplified by concentrated commodity linkages, statist ideology and ethnic friction. First, the resource 'curse' is strongly associated with the concentrated linkages of mineral-driven development, and especially oil, for the reasons discussed earlier. Secondly, statist ideology amplifies the high rent effect by boosting scope for governments to override markets to extract and distribute rent (Van der Walle, 1999). Bates (2008) traces how in

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<sup>4</sup> Congden Force & Olsson (2007) model how high rent motivates elites to extract rent by weakening property rights while low rent strengthens property rights to foster wealth creation.

the initial decades after independence African governments used statist policies to benefit coalitions of bureaucrats (including the army), unions and industrialists at the expense of the rural community, and ultimately, as the staple trap model explains, of long-term growth. Lastly, ethnic tension reinforces incentives to use rent to secure political support. Bridgman (2008) identifies a strong statistical link between low growth in ethnically diverse economies and redistributive pressure that deflects resources from welfare enhancing activity. Sala-i-Martin & Subramanian (2003) show that ethnically-driven rent-seeking adversely impacts development by corroding institutions, while Montalvo & Reynal-Querol (2005, p. 294) find ethnicity is negatively associated with the rate of investment, the rate of economic growth and the quality of government

#### *Initial Conditions: Natural Resource Endowment, Ideology and Ethnicity*

In the early 1970s all four economies were land-abundant (see Table 2). The economy of Angola was diversified, as was that of Nigeria. But Zambia was already mineral dependent, generating from copper 90% of exports, 60% of tax revenue, half GDP and 20% of formal employment via the multiplier (Aron, 1997, p. 259). Botswana's endowment was least favourable due to minimal infrastructure and human capital, which unreliable rainfall and a land-locked location compounded. Foreign aid furnished almost one-sixth of Botswana's low GNI whereas Angola and Zambia were relatively prosperous, albeit mainly due to sizeable expatriate communities. However, the economies of Botswana and Nigeria grew most strongly due to mine expansion (see Table 3). The diversified Angolan economy was also resilient but Zambia was already struggling as copper slipped towards oversupply.

Differences in policy proved crucial, however: Botswana inherited from Britain at independence in 1966 a market economy and parliamentary democracy that its elite maintained because their reliance on cattle exports disposed them favourably towards open trade policies, while a tradition of consensual politics favoured pluralism. Angola remained a colony and the white settlers favoured open trade and limited industrial protection. In contrast, Zambia espoused statist policies from 1967, partly to boost national ownership of assets in the absence of a well-developed domestic private sector and disappointing inflows of foreign investment. It deployed copper rent to relieve urban unemployment by expanding jobs in activity that markets would not sustain, which fed rural-urban migration in a self-defeating spiral (Gelb *et al.*, 1989). Nigeria's military government was also extending state intervention, ostensibly to compensate for a lack of domestic private investment in manufacturing, but increasingly to create patronage so that regional leaders could reward their ethnic supporters.

Ethnic tension was acute in Nigeria and Angola, but advantageously minimal in Botswana and less prominent in Zambia (see Table 4). Nigeria experienced ethnic strife that prompted a military coup in 1966, leaving the army to dominate domestic politics for all but three of the next 33 years. In Angola, the coastal Mbundu (one-quarter of the population) had participated in slave trading of the interior Ovimbundu (37% of the population), which fed hostility that after independence in 1975 erupted into a violent contest for power.

#### *Fluctuating Revenue Streams 1970-2004*

All four case study countries experienced large shifts in the scale of their natural resource rent. However, the shift for Botswana was positive and also relatively smooth because it offset a decline in foreign aid from initially high levels (see Table 2). Zambia was less fortunate: copper rent fell abruptly in the mid-1970s and offsetting aid flows were tardy. In Nigeria, oil rent expanded rapidly through the 1970s and then collapsed in absolute terms, whereas Angolan oil expansion began in the 1980s and was augmented by aid after the collapse of the Soviet Union in 1989. There are no time series data on regulatory rent, but since governments create it by changing relative prices, it tends to be proportionate to trade policy closure and public sector share of GDP. Consequently, regulatory rent is highest under statist regimes. It has augmented mineral rent during booms but hampered adjustment during downswings.

More specifically, Botswana experienced a steady four-fold expansion in diamond rent from the early-1970s to the early-1990s that offset falling aid flows. The net effect was to boost total rent from one-fifth to one-quarter of GDP before it tapered off to one-fifth in the early-2000s (see Table 2). Consequently Botswana was a beneficiary of De Beers monopolistic management of price stability in the diamond market, a unique advantage among mineral exporting countries. Terms-of-trade data confirm the stability of Botswana's export revenue, with just a slight dip in the early 1980s followed by a rebound. Zambia is almost a mirror image: copper rent fell from one-quarter of GDP 1970-74 to average one-tenth during 1980-94 before attenuating to just 2% of GDP by 2000-04 (see Table 2), while aid rose to more than one-quarter of GDP through the 1990s. During 1980-94, Zambia's combined mineral rent and aid flow fell to one-sixth of GDP and increased government recourse to regulatory rent.

Table 2 suggests the two oil exporters experienced relatively stable mineral rent, but this is a statistical mirage. Nigerian oil rent quadrupled to almost two-fifths of GDP through the 1970s and the subsequent apparent constant share reflects the collapse in GDP, which masked a severe *absolute* fall in oil prices to hold oil's GDP share steady. Angolan oil expansion was retarded by a generation of civil strife that ended in 2002. Oil then expanded rapidly and is projected to peak above 2 mbpd by 2011. Angolan oil rent averaged more than one-quarter of GDP through the 1990s (when aid was 8.5% of GNI) and rose to two-fifths of GDP during 2000-04 as aid fell to one-twentieth (see Table 2).

Summarising, initial prospects for Botswana in the early-1970s appeared most challenging but they subsequently became more favourable because the incentive for cautious policies was augmented by advantageously stable high diamond prices and low ethnic tension. The Zambian economy was also undiversified but drifting towards statist policies and ethnic competition for rent, which proved a weak base for managing a large negative price shock. Nigeria's varied natural resource endowment was undercut by acute ethnic tension, which prompted a military coup and expanded state intervention. Lastly, Angola's potentially resilient economy suffered a series of shocks as 300,000 colonial settlers emigrated in 1976 and left antagonistic ethnic groups to contest power.

### **Botswana as a Best Practice Counterfactual**

Overall, real per capita income rose six-fold in Botswana from 1970-74 to 2000-04, but by barely one-quarter in Nigeria and it fell in both Zambia and Angola. This section argues that Botswana's successful rent cycling reflects an elite that identified scope within a consensual society to safeguard their status by deploying rent to sustain long-term wealth creation. Successful mineral economies like Indonesia, Malaysia and Chile identify four policies to achieve this, namely: (1) timely macro adjustment; (2) control of rent seeking; (3) raising the incomes of the majority poor by encouraging *competitive* employment; and (4) strengthening a pro-market political constituency.

#### *Botswana's Precarious Diamond Dependence Elicits Cautious Policy*

Botswana's potentially precarious dependence on diamonds and little else helped reinforce the policy bias of its cattle-exporting elite towards caution. The government reacted as if it managed a low-rent economy and targeted long-term wealth creation, counting on a consensual political tradition and prudent mineral rent management to sustain its authority. Barely 5% of Botswana's land area is cultivable and even then rainfall is unreliable while industrialisation is constrained by a small domestic market, land-locked location and mainly moribund adjacent economies. The government espoused cautious macro management from the outset. It prudently established revenue funds in 1972 as mining expanded in order to stabilise the rent stream, match revenue to domestic absorptive capacity and facilitate local development (Maipose & Matsheka, 2008, p. 523). It typically allocated two-fifths of the revenue to offshore investments and accumulated financial reserves of 125% of GDP by 1998 (IMF, 1999). It also responded promptly when diamond prices

briefly faltered in the early-1980s and depreciated the real exchange rate by 20%, lifted interest rates, made modest cuts in public investment and postponed public sector pay rises. In contrast, the political opposition was more typical of sub-Saharan African politics, favouring urban constituents through additional expenditure on job creation and social services.

Although mineral dependence conferred on the government a central role in the economy as mining taxation lifted public spending to two-thirds of GDP (Harvey & Jefferis, 1996), the government met the second policy for effective rent deployment by constraining rent seeking and by not creating unsustainable entitlements such as protecting 'infant' activity, subsidising prices or lowering taxes. An experiment with state enterprises in the late-1980s when mine revenue surged was quickly reined in and firms making inadequate returns were divested (IMF, 1999). Instead, the government nurtured private firms by encouraging foreign direct investment, through public expenditure on goods and services and by consciously converting diamond rent into human capital (education and health) and economic infrastructure (eliminating the backlog from colonial neglect). The mainly positive genuine saving coefficient indicates the conversion of finite resource rent into sustainable forms of capital (see Table 2).

With respect to the third policy requirement, the government used rent to stimulate the rural economy, which until the late-1990s employed the majority of Botswanans. It supported export-oriented cattle-rearing, which the elite dominated, but it also boosted small-holders through a policy of food self-sufficiency, which was phased out in the 1990s. The cautious rent cycling avoided economic instability as expanding diamond mining drove the economy at a rapid rate of growth 1970-90, not dissimilar to the East Asian dragon economies (see Table 3). The ICOR<sup>5</sup> averaged 2.3 through the 1970s and 1980s, indicating efficient use of capital, but it deteriorated to 6 through 1990-94, partly because of the statist experiment, but subsequently stabilised at a still respectable 3.4 (see Table 3). Sustained PCGDP growth raised all boats and although income distribution was skewed the gini coefficient<sup>6</sup> remained stable at around 0.51 (Sarraf & Jiwanji, 2003, p. 15).

Finally, rapid PCGDP growth helped the ruling party to retain a majority of seats in parliament whereas its largest opponent, a left-leaning urban party, only once captured one-third of the seats and typically held one-sixth. The ruling party built on an inherited tradition of consensus (Maipose & Matsheka, 2008) and it countered the slow contraction of its bedrock rural constituency by accommodating social pressure rather than repressing it or buying it off with opaque rent cycling. For example, a loss of seats in the 1969 election prompted accelerated rural development while electoral set-backs in 1996 saw an extension of the franchise to 18-year olds and nationals who were resident outside the country. Table 5 shows that Botswana's rent deployment is associated with strong indices of government effectiveness that continued to improve over recent years, compared with countries at a similar level of per capita income (Collier & Hoeffler, 2006).

#### *Qualification of Botswana's Rent Cycling Success*

However, the stability of diamond prices facilitated both macro management and control of rent-seeking, while the large scale of Botswana's diamond mining limited scope for resource looting compared with the dispersed small scale extraction of alluvial diamonds more typical of Angola and Sierra Leone. Consequently, Botswana's institutional resilience remains to be tested. Hill & Knight (1999, p. 313) identify just two mild price downswings during 1980-83 and the early-1990s (when markets were briefly over-supplied) and one upswing during a major mine expansion in the late-1980s. The absence of unexpected surges in Botswana's rent stream avoided the sudden ignition of

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<sup>5</sup> The incremental capital output ratio (ICOR) measures the investment required to achieve an increase in output: a low ratio of say 2.0 to 3.0 indicates that two or three units of investment are required to create a unit rise in output, indicating an efficient use of capital whereas ratios above 5.0 or 6.0 suggest inefficiency.

<sup>6</sup> The gini coefficient measures the skew in income distribution where 0 connotes equal incomes and 1 connotes concentration on one person. 'Egalitarian' EU welfare states have gini levels of 2.5-3.0 whereas many resource-rich developing countries run around 0.4 to 0.5, with a few still higher.

political pressure for government spending, while rent stability avoided the need for abrupt and draconian rent rationing.

Botswana's economy remains mineral-driven, although diversification may yet occur through coal-fired electricity generation, diamond polishing, financial services and tourism. The diamond expansion of 1970-96 pushed Botswana's Dutch disease index (measured as the share of non-mining tradeables in non-mining GDP)<sup>7</sup> up five-fold to 25.1% by 1996 (World Bank, 2007a), due in equal measure to agricultural demise and slow manufacturing growth. When diamond revenue began to decline relative to GDP the government struggled to maintain economic growth and employment (Bank of Botswana, 2006). There have been shortages of skilled workers but overall, unemployment (18%) and income inequality (one-third in poverty) are disappointing. The economic deceleration has been associated with a fall in the government's share of the vote from two-thirds to one-half, which the government met by expanding public sector employment. When combined with rising expenditure on HIV/AIDS, this boosted the public sector deficit (IMF, 2005a, p. 16) and cut financial reserves from 125% of GDP in 1998 to 75% in 2005 (Bank of Botswana, 2006). Consequently, rent rationing poses a sterner test of Botswana's institutions than hitherto and Botswana's cautious rent cycling may have postponed a growth collapse rather than prevented it.

In summary, Botswana's elite used a consensual polity and experience of export dependence to espouse a cautious strategy for wealth creation that worked with markets to sustain a virtuous political economy cycle of rapid mineral-driven growth. The strategy benefited from the incentive to create wealth exerted by the precariousness of diamond dependence and an unusually stable rent stream. But Botswana's impoverished start means the economy remains over-dependent on diamond rent expansion.

### **Zambian Statism, Policy Capture and Revenue Mismanagement**

This section draws on the Botswana counterfactual to analyse Zambia's growth collapse and tardy economic recovery. It argues that the espousal of statist policies to raise welfare and manage political pressure backfired on both counts by repressing market incentives for efficient resource allocation and entrenching rent-seeking that has strong inertia.

#### *Statism and the Growth Collapse*

Zambia embarked on independence as a democracy under the United National Independence Party (UNIP) which enjoyed high autonomy and sought broad-based welfare improvements. Initial policies were prudent: the government set up a copper revenue stabilisation fund to adjust to price shocks and promote economic diversification. It successfully managed a negative economic shock in 1965 when Rhodesia declared unilateral independence from the UK and severed Zambia's principal transport artery. A copper boom encouraged economic optimism. Aron (1999, p. 272-3) calculates that the 1964-74 copper boom conferred an extra 20% of GDP annually compared with the early 1960s. Some 44% of the copper windfall (9% of GDP annually) accrued to the government, which saved one-third of it (Aron, 1999, p. 295). In the late 1960s, however, Zambia espoused fashionable state-led development, ostensibly to achieve food self-sufficiency and industrialise. It centralised control of farm inputs and crop marketing, managed the exchange rate, protected domestic producers, and in 1971 acquired 51% of the copper mines.

The optimism proved misplaced: Zambia's terms of trade fell by two-thirds in the late-1970s (Aron, 1999, p. 260), inflicting a negative shock equivalent to an annual loss of 30% of GDP during 1975-79 compared with 1971-74. The impact of lower prices was then amplified by under-investment in the mines that caused copper production to collapse from 698,000 tonnes in 1972 to 260,000 in

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<sup>7</sup> Dutch disease occurs where large inflows of investment or commodity rent cause the real exchange rate to strengthen so that non-commodity tradeables lose competitiveness and contract, while service activity faces limited external competition and can raise prices and expand. The resulting economic distortion may be slow to correct when external revenue flows decline, leaving per capita income lower than before the boom in some cases.

2000 (Hill, 2004, p. 302-303). The government regarded mining as a source of revenue and patronage, which it used to extract rent and boost employment at the expense of competitiveness (Radetzki, 1983). As mineral revenue shrank the government extracted more from agriculture, which was already subsidising urban workers, often in the public sector, through food prices some 30% below border prices by the early 1970s. Jansen & Rukovo (1992, p. 30-32) estimate that after netting out the effects of internal price controls, subsidies and other intervention during 1966-90 the net rate of protection for tobacco and maize averaged between -25% to -40% on a rising trend. Adding the effect of real exchange rate shifts lifts negative protection to average 45% over the period, but it exceeded 60% for maize in the 1980s and 68% for cotton by 1985-90. Given the share of agriculture in GDP (see Table 6), this implies a transfer of 5%-9% of GDP annually from the rural sector to the government, which counter-productively fed rural-urban migration. Such transfers may be justified economically where they tap the rent, as opposed to the normal risk-related return to farmers' capital and labour, provided the government deploys the revenue efficiently.

The government failed to deploy its revenue to promote competitive activity. It initially invested in non-mining state-owned enterprises (SOEs), which by the late 1970s generated 60% of investment, 30% of output and 37% of formal sector employment (Jansen & Rukovo, 1992, p. 23). However, rates of effective protection averaged 150% by 1976 and by the 1980s the domestic resource costs of local consumer goods and intermediate goods were three times competitive levels (Karmiloff, 1990). In effect, Zambian manufacturing was part of the non-traded sector, which consistent with rent-cycling theory, also included an over-expanded bureaucracy. The government also deployed rent during the 1960s and 1970s to double public consumption to 26% of GDP, twice the level expected for an economy at Zambia's per capita income.

Ethnic competition fuelled the overexpansion of the state as regional leaders used public resources to reward their supporters. The enlarged public sector cycled rent to the elite through bribes for permits, over-padded contracts for public works and biased planning decisions to favour cronies. The President reshuffled ministries in an unsuccessful effort to control rent-seeking but this began making enemies of prominent regional leaders so he inaugurated a one-party state in 1972 to reduce the threat from powerful defectors. This merely intensified in-fighting over patronage within the UNIP, to which the government responded by increasing state intervention to boost regulatory rent (Szeftel, 2000).

### *The Inertia of Rent-Seeking*

The UNIP maintained political support by extracting rent at the expense of competitiveness and blaming the consequent growth collapse on unfavourable external events that included deteriorating access to markets (as adjacent economies succumbed to mismanagement and civil strife), the halving of the copper price 1974-75 and a sharp rise in real global interest rates during 1979-82. Consistent with rent cycling theory, Zambian rent recipients resisted cuts in public expenditure when mineral revenue fell to 2% of total revenue in 1976-80 compared with 60% in 1966-70 (Aron, 1999, p. 260). The government bridged the fiscal deficit by depleting overseas assets, which had peaked at 30% of GDP in the early 1970s. It then turned to domestic short-term borrowing. Meanwhile, public expenditure shifted from investment to recurrent spending at the expense of future capacity to generate wealth. Civil servants resorted to corruption to augment their shrinking salaries.

Fiscal deficits averaged 12% of GDP during 1970-80 and the combined cost of consumer subsidies and parastatal loans rose to 80% of government revenue (Andersson & Mugerwa, 1993). The government grudgingly accepted a series of reform packages 1978-87 to maintain a minimum flow of foreign aid (geopolitical rent) to sustain public expenditure. It resisted comprehensive economic reform, however, for fear of losing political power (Jansen & Rukovo, 1992, p. 41). Seven IMF-backed stabilisation agreements broke down due to non-compliance. The government concentrated

expenditure on wages at the expense of recurrent department budgets and investment. Per capita expenditure on infrastructure in education, health care and the economy declined in real terms.

Economic hardship and food riots finally forced a return to multi-party democracy. An election in 1992 ejected the long-serving UNIP and installed the Movement for Multi-Party Democracy (MMD). Conditional aid expanded (see Table 2). It had little effect on the real exchange rate, which remained relatively stable during 1990-2004 because the principal allocations of aid (reserves accumulation/debt reduction and higher imports) effectively sterilised it (IMF, 2004, p. 22; IMF, 2006). The new government commenced reform and successfully shrank petty corruption, but rent extraction persisted in the upper echelons of government (Szeftel, 2000, p. 217).

The MMD government prioritised agriculture, which offered considerable growth potential because it supported two-thirds of the workforce but used only one-quarter of the cultivable land (IMF, 1997, p. 25). State intervention in agriculture was reduced by 1994 and the maize marketing board was abolished in 1996. Agriculture became commercialised as small farmers diversified their crops and expanded exports and subsequently commercial farmers migrated from Zimbabwe in response to land invasions by ZANU-PF government supporters. The exchange rate was unified in 1992 and the trade regime was liberalised during 1990-96 to cut the mean trade-weighted tariff to 16%. Manufacturing output contracted as restructuring shut uneconomic plants but expanded tobacco, sugar and grain milling together with horticultural products to lay the foundation for competitively diversifying exports away from mineral dependence. The tax base was broadened to offset the fall in trade taxes.

It took a decade after reforms commenced and also a change in MMD leadership before the economic decline reversed. Around one-fifth of MMD candidates were ex-UNIP supporters with lost rent-seeking opportunities to make up. Privatisation created new scope to extract rent by rigging the sale to favour insiders who captured deliberately under-valued state property. Allegations surfaced that prominent government officials were abusing their office to smuggle drugs and arms. The mid-2000s commodity boom raised fear that rent-seeking would expand and reverse reform. The real exchange rate increased by 25% during 2004-05 due to recovery in copper exports combined with improved macro-prospects after debt was cut (from US\$3.7 billion to US\$0.5 billion). This threatened export diversification and weakened the influence of aid conditionality. It also sapped reform incentives –until the next growth collapse–.

### **Nigerian Ethnic Rivalry, Elite Capture and Rent Dissipation**

Although Nigerian policy was less statist than Zambia's, its ethnic rivalry was more intense and it fed rent seeking through the oil boom that repressed markets and triggered a growth collapse that was prolonged by the resistance of rent-recipients to economic reform.

#### *Ethnic Rivalry Overturns Democracy and Triggers Over-rapid Rent Deployment*

Autocratic and democratic governments alike failed to prevent regional *political* elites from dominating over national *economic* aspirations that might have established ethnically mixed class-rooted national political parties (Bienen, 1988). The initial federal structure of three states, based upon the three largest ethnic groups, proved unstable by raising fears in the neglected north of southern educational pre-eminence; in the south of northern numerical superiority; and among smaller ethnic groups of marginalisation. Iyoha & Oriakhi (2008) trace the start of revenue transfers from south to north to colonial rule. The transfers intensified after independence, however, because northerners held the presidency most of the time and eroded the principle of decentralised revenue ownership in order to transfer more oil rent from south to north.

Northern interference in western elections triggered protests that led to massacres of southern immigrants in northern cities, prompting a coup in 1966. Ethnic strife also led to secession by the

eastern region in 1967, which fed a rapid expansion of the army from 10,000 to 250,000. Thereafter, the military sustained autocratic regimes through 1999, barring a brief return to democracy during 1979-83. Successive federal governments appeased ethnic interests and lost control of rent seeking. The 1974-78 oil windfall deployment aimed to visibly disperse the rent across ethnic groups by investing in infrastructure and education, which absorbed almost half of public investment (Bienen, 1988). A similar dispersed distribution was intended for the 1979-81 oil boom, which coincided with civilian rule. The dispersed rent deployment benefited regional elites but it was popular with the principal losers, the rural majority, which aspired to educate its children so they could leave farming and find urban employment.

#### *Rent Cycling Promotes Market-Repressing Statist Intervention*

Nigeria's regional elites backed indigenisation policies to expand state intervention and boost their access to rent. The expansion of state patronage identified political parties with ethnic regions, blurred distinctions between public, party and personal finances (Bevan *et al.*, 1999, p. 26) and eroded state government accountability. The briefly re-empowered federal politicians (Auty, 1990) maximised their rent cycling by cutting local oil revenue retention below 30% and ending the civil service's lead role in policy formation. They launched large state-owned industrial projects in the early 1980s that functioned primarily as sources of patronage. The projects were located in each major region, which boosted their number at the expense of the economies of scale and high infrastructure costs at greenfield sites. Construction costs were padded by over-elaborate plant specifications and bureaucratic delays so capital costs were up to four times globally competitive levels. The projects could not recoup the investment, required subsidies and reduced economy-wide investment efficiency. They also added politically-connected industrialists and state enterprise workers to the initial rent-seeking trio of regional politicians, the army and civil servants.

Nigeria's ethnically-dispersed rent deployment undermined macro policy. Initially, the federal government sensibly sterilised a fraction of the 1974-78 oil rent abroad but it lost control of rent cycling and exhausted the offshore savings by 1978. Public consumption rose modestly above the pre-shock trend (by 4% of non-oil output) during the 1974-78 boom but public investment rose by an extra one-fifth of pre-shock non-mining GDP and more than offset a decline in private investment to raise total capital formation to 27% of GDP in 1974-79. Public investment funded two-thirds of total domestic investment in 1973-90 (Moser *et al.*, 1997, p. 37) whereas the rate of private investment was insufficient to replace its capital stock let alone expand it (IMF, 2005b, p. 25). The 1979-81 windfall scarcely maintained the pre-shock rate of capital formation, however, while consumption fell below the trend.

The inefficiency of the state investment pushed the economy-wide ICOR from 1.7 during 1970-74 to an abysmal 12.2 through 1975-79 and the ICOR was negative in the early-1980s (see Table 3). The rent absorption was inflationary as well as inefficient, and intensified Dutch disease effects. Moreover, since the state's rural investment was uncoordinated with complementary farm inputs, agricultural output stagnated (see Table 3) and per capita crop production fell. The share of agriculture in GDP declined three times faster than expected,<sup>8</sup> while manufacturing grew too slowly to offset the decline, despite gaining investment priority. The Dutch disease index (which measures the departure from the expected share of non-mining tradeables) doubled to 17.2% of non-mining GDP. This still underestimates economic distortion because Nigerian manufacturing was not globally competitive.

#### *Rent Seeking Inertia Retards Reform*

Consistent with rent cycling theory, cycling oil rent to placate ethnic elites repressed markets and triggered a growth collapse. Market repression lies at the root of growth collapses. GDP growth turned negative, after decelerating during 1974-78. This arrested passage through the demographic cycle so high population growth persisted and squeezed per capita rent. The theory predicts this eventually

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<sup>8</sup> Cocoa output fell by two-fifths in 1970-82 and palm oil and groundnuts fell by two-thirds.

strengthens incentives to create wealth, but in Nigeria a political consensus for reform emerged only slowly. The inertia of rent seeking meant that a generation after oil prices softened Nigerian state governments still cycled 48% of national revenue in an opaque manner to benefit regional elites, while the federal government drew heavily on off-budget funds (Heller, 2007). The effects on welfare (see Table 3) and governance (see Table 5) have been detrimental.

Rent seeking hampered efforts to ration rent when oil prices faltered. Nigerian regional elites rightly perceived stabilisation and economic restructuring as threats because competitive markets cut opportunities to extract rent. The elite lobbied to expand public expenditure in downswings as well as booms. The federal government accommodated these demands by assuming the oil price fall of the early-1980s was temporary and deferring macro-economic adjustment. During 1981-84 public sector deficits averaged 12.1% of GDP and were financed by borrowing and money emission, which stoked inflation. A massive devaluation of the exchange rate in the mid-1980s trebled the net debt/GDP ratio to 120% by 1987, compared with 4.5% in 1981, and debt service absorbed one-fifth of recurrent expenditure (Oyejide, 1999).<sup>9</sup> As in Zambia, the government cut investment to sustain public consumption, gaining immediate political respite at the expense of long-term economic growth.

Far from boosting the welfare of the majority poor, Nigerian rent cycling impoverished them, but they continued to back ethnic regional redistribution, which favoured local elites, over national class redistribution, which might benefit the less well-off (Bienen, 1988). Farmers were the principal losers because their capacity to dominate the national vote (agriculture employed 70% of the workforce) was voided by their deference to regional elites, perhaps in the mistaken expectation that such regional revenue capture best ensured that rent trickled down to them via traditional clientelistic social systems. Although farming rebounded in the late 1980s (see Tables 3 and 6) when tardy structural adjustment shrank indirect crop taxes, regional elites undermined the policy and during the 1990s pushed the costs of the growth collapse back onto the poor. Nigeria's per capita income in 2005 was little improved on its pre-shock level (see Table 3) but rising income inequality had doubled the poverty rate to 70% (Sala-i-Martin & Subramanian, 2003). This reflects not only the fact that public expenditure was overwhelmingly concentrated in Luanda but also that decades of civil strife had shut many Angolans out of the cash economy.

### **Angola's Elite Pursues Rent Cycling over Broad-Based Wealth Creation**

Data limitations prior to the mid-1980s confine this section to the persistence of rent-seeking. It shows how expanding rent can sustain elite interests at the expense of the majority.

#### *Elite Rent Cycling Undermines the Welfare of the Majority*

Verbal sources indicate that the scale of rent seeking intensified after 1993 when unexpected rebel successes shortened time horizons on both sides of the conflict and leaders resorted to looting. But after hostilities ceased in 2002, Angola continued to deploy oil revenue to expand private consumption, mainly by the rich. The gini coefficient is unusually high, even for an oil-exporting country, at 0.62 compared with 0.51 for Nigeria and Zambia, 0.45 for Cameroon, 0.33 for Indonesia and 0.32 for resource-poor South Korea (World Bank, 2007a).

The Angolan government developed a hybrid form of rent cycling that maximises the scope for rent-seeking by combining efficient rent extraction by multinational oil companies with lax controls on rent deployment (Auty, 2008). The IMF dryly notes that one-third of the oil rent during 1997-2001 remains unaccounted for, although this does not imply it was all siphoned away by rent seeking. Oil sustains a level of public expenditure in GDP that is twice that of comparator low-income countries and remains higher even after allowing for higher security outlays (the military

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<sup>9</sup> A series of debt renegotiations then reduced the debt/GDP ratio to 75% in 1996, 40% in 2000 and eliminated it entirely by 2005, courtesy of rising oil rent (Budina *et al.*, 2007).

still absorbed 5% of Angolan GDP after civil strife ceased) and 3%-4% of GDP on debt service. Along with gaps in Sonangol's accounts, this implies a sizeable 'hidden' transfer of GDP to the rich because pro-poor health and education expenditure are well below expected levels (World Bank, 2007c). Public expenditure is padded through over-invoicing of purchased goods and ministerial contracts and payments to ghost civil servants. It is also pro-wealthy because rent reduces taxation (of the rich) and subsidizes consumption of public services, ostensibly to help the poor, but richer Angolans consume most of the subsidised water and energy, which absorbed 3.3% of GDP in 2003 (Gasha & Pastor, 2004, p. 12). In addition, rent cycling has strengthened the real exchange rate, which lowers the cost of imports that are mostly consumed by the wealthy.

Rent is also extracted indirectly by skimming second round rent expenditure through monopolies on domestic production and imports (Aguilar, 2003a). When the government privatised state activity in the 1990s as a condition of IFI assistance with debt restructuring, the elite captured firms at undervalued prices to control lucrative product and import monopolies, as elites did in Zambia, Mozambique and elsewhere. The dual exchange rate regime allowed monopolists to import goods cheaply at the official rate and sell them expensively at the parallel domestic exchange rate, typically with a spread of 3:1 that shrank distributors' margins in the informal sector (Aguilar, 2003b; Hodges, 2004). Large firms were also squeezed: Cimangola's production costs were four times global levels, because of predatory imposts by utility companies and other suppliers.

By controlling markets the business elite are guaranteed profits irrespective of exchange rate and price swings so they are indifferent to the need to stabilise the economy. As noted, the wealthy stand to lose from economic reform because competitive markets and transparent public finances shrink scope for rent extraction, so it is not surprising that Angolan reform stalled through the 1990s. Government expenditure persistently exceeded revenues and the deficits were either monetized or covered by commercial foreign borrowing, using future oil revenue as collateral. The resulting inflation distorted prices and discouraged investment in competitive activity as Dutch disease effects intensified. The real exchange rate increased three-fold to 2005 from 1992, when agriculture was last internationally competitive, yet two-thirds of the population relies on agriculture for a living. The persistence of civil strife until 2002 compounded this outcome. The share of agriculture in GDP is barely half that expected for an economy of Angola's size and level of development, while manufacturing's share is two-thirds the norm (Syrquin & Chenery, 1989, p. 20 and 32). Consequently, Angola has become excessively dependent on oil, which in 2006 generated 96% of exports, 81% of government revenue and 58% of GDP (IMF, 2007, p. 44-46) but fewer than 0.2% of jobs (Hodges, 2004, p. 150).

The low level of human capital constrains economic diversification and the productivity increases required to neutralise the over-valued real exchange rate. All forms of capital were degraded by the civil war as rural areas were abandoned while cross-continental transportation links, which served landlocked neighbours as well as the domestic economy, decayed. As for human capital: school attendance remains low at 75% in cities and 50% in rural areas, while the fraction of students reaching Grade 5 is half the 67% average for sub-Saharan Africa. Literacy ratios are also low, especially for females. Wage surveys indicate there is little incentive for families to invest in education beyond very basic levels (Adauta de Sousa *et al.*, 2003, p. 35).

Growth in Angola needs to be labour-intensive and based initially on agriculture. Some 6.7 million hectares can be irrigated, three times the total cultivated land, which is mostly still rain-fed (FAO, 2004b, p. 19). An analysis of domestic resource costs in 1992 (FAO, 2004b, p. 149) suggests most traditional crops can be strongly competitive with improved seed varieties. However, the exchange rate overvaluation compounds high marketing costs that undermine competitiveness. For example, transport costs per metric tonne of maize from Huambo or Uige to Luanda are US\$110-116 (Kyle, 2004a) and since farm gate costs are US\$190 per tonne (Kyle, 2004b) the delivered cost is well above US maize imports priced at US\$185 in Luanda, which includes shipping and port handling

charges of US\$65/tonne. Angolan farmers will not compete as transport links are restored in the absence of a lower real exchange rate or sharply higher productivity.

The prospects for labour-intensive manufacturing are no more propitious than those for farming. Angola ranks last out of 155 countries for the cost of doing business, according to the World Bank (2007c) and also last out of 128 countries in the World Economic Forum competitiveness indices. Nigeria had superior macro management, institutions, competitive markets and capacity to innovate. The quality of governance in Angola is weaker than in several African countries with half Angola's per capita GDP despite the tendency for the index to improve with rising per capita income. Table 5 shows some recent gains in effective governance, regulation and the rule of law, but not in control of corruption.

### *Diminished External Influence*

Angola's government shows the same disinterest in long-term asset management as it does for economic and political reforms. Although the government used some oil revenue to reduce external debt from 40% of GDP to 15% during 2005-07, it also raised several billions in external loans from countries seeking access to natural resources, notably China. It initially resisted IFI pressure for a stabilisation fund in favour of a state-owned development bank that would facilitate funding of off-budget elite business activity at the discretion of the president. This merely adds to the national commissions controlled by the presidency with access to billions of dollars under negligible public scrutiny. However, higher oil prices prompted the Council of Ministers in 2007 to create a reserve fund to siphon government revenue above a global target oil price of US\$45 per barrel. But with just US\$200 million deposited, the Angolan fund ranks last out of 44 funds monitored by the Sovereign Wealth Fund Foundation.

The genuine saving rate for 2001-05 averaged minus 43.6% of GDP (World Bank, 2007a), which implies that virtually all the natural capital from oil was consumed to sustain the country's highly skewed income distribution. Far from accumulating wealth-producing assets to sustain in perpetuity the oil income stream, the immediate priority is to maximise the government vote in parliamentary and presidential elections scheduled for 2008-09. Angola has concluded from Mozambique that 'democracy' and patronage cycling are compatible. Angolan domestic revenue absorption is therefore too rapid. Government revenue rose to 46% of GDP in 2006, whereas the share of non-oil revenue fell from 9.0% to 6.3% of GDP. Angolan oil production is projected to plateau in 2011, but the risk of a negative price shock if high prices slow the global economy reinforces the need to absorb oil rent as efficiently as it is extracted. But this requires an incentive to align the interests of Angola's elite with those of the majority poor.

### **Conclusions: Implications for Theory and Policy**

Table 7 summarises the paper's findings regarding the basic incentives arising from different configurations of rent, linkages, ideology and ethnicity. The case studies indicate that repression of markets lies at the root of the resource curse.<sup>10</sup> They suggest Botswana's success in managing a large and concentrated rent stream resulted from working with markets through cautious macro policy, control of rent-seeking and concern for the welfare of the poorest. As rent cycling theory suggests, however, low ethnic tension and rejection of statist policies facilitated this stance. But the precarious nature of Botswana's mineral dependence reinforced the bias towards caution and the unusual stability of diamond prices facilitated macro management. Moreover, Botswana's success is qualified by its slow progress with economic diversification.

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<sup>10</sup> This argument rests not just on the experience of Botswana: Africa's other success story, Mauritius, is also quite distinct in cycling the bulk of its geopolitical rent from favourable trade preferences in sugar and clothing through the private sector rather than the government (Subramanian & Roy, 2003). Working with markets is also a feature that both the successful African economies share with the four resource-poor East Asian dragon economies.

In contrast, a complacent Zambian government drew on mineral rent to accelerate statist development in the late 1960s that quickly distorted the economy and intensified mineral dependence. The government struggled to manage rent entitlements when copper prices plummeted after 1974. Ethnic rivalry exacerbated this problem by sustaining contests for rent that conflicted with economic reforms to stabilise and restructure the economy. Ethnic tension was more potent in Nigeria, where military regimes expanded state intervention to deploy rent to appease regional ethnic groups at the expense of efficient domestic rent absorption. Angola's dynamic economy was quickly distorted by central planning and then ethnic conflict, which truncated elite time horizons to spur rent-seeking that repressed markets and proved persistent.

Consistent with rent-cycling theory, rent-seeking inertia delayed reform in all three rent-distorted economies, even where the restoration of democracy revived institutional checks and balances. This implies that successful economic reform must be complemented by a political strategy to align the interests of the elite with those of the broader population. China's dual track reform is one such strategy: it postpones confrontation with rent recipients in the distorted economy (Track 1) while growing a dynamic market sector (Track 2) and its associated pro-reform political constituency to eventually challenge and/or buy off rent-recipients in the distorted sector.

Richard Auty<sup>11</sup>

*Professor Emeritus of Economic Geography at Lancaster University*

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<sup>11</sup> Richard Auty has advised many multi- and bilateral agencies on economic development issues. He previously taught at Dartmouth College and the University of Guyana and was a visiting fellow at Princeton, Harvard and Resources for the Future, and also Research Professor at the UN's World Institute for Development Economics Research (WIDER). His research interests include industrial policy, resource-driven development and rent cycling theory. Recent books include: *Energy Wealth and Governance in the Caucasus and Central Asia*, (Routledge, 2006); *Resource Abundance and Economic Development*, (OUP, 2004); and *Sustainable Development in Mineral Economies* (OUP, 1998).

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## Annex

**Table 1. Share of rent in GDP 1994 and per capita GDP growth, six natural resource endowments**

Resource endowment	Pasture and cropland rent (% GDP)	Mineral rent (% GDP)	Total rent (% GDP)	Per capita GDP growth 1985-97 (%/yr)
Resource poor <sup>1,2</sup>				
Large	7.3	3.2	10.6	4.7
Small	5.4	4.5	9.9	2.4
Resource rich				
Large	5.8	6.9	12.7	1.9
Small, non-mineral	12.9	2.5	15.4	0.9
Small, hard mineral	9.6	7.9	17.5	-0.4
Small, oil exporter	2.2	19.0	21.2	-0.7

(1) Resource-poor = 1970 cropland/head < 0.3 hectares.

(2) Large = 1970 GDP > US\$7 billion.

Source: Auty (2001, p. 17).

**Table 2. Supernumerary revenue indices 1970-2004, Angola, Botswana, Nigeria and Zambia**

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
Angola							
Aid (%GNI)	NA	NA	NA	2.0	9.5	7.8	4.5
Oil output (mbpd) <sup>1</sup>	NA	0.146	0.161	0.356	0.517	0.713	0.847 <sup>1</sup>
Oil depletion (% GDP)	NA	NA	NA	14.8	29.6	26.8	42.7
Genuine saving (% GDP)	NA	NA	NA	-4.5	-63.7	-19.9	-39.0
Per capita arable (ha)	0.46	0.39	0.35	0.30	0.27	0.23	0.22
Net barter terms of trade <sup>2</sup>	NA	NA	NA	103.4	71.0	67.9	102.7
Botswana							
Aid (%GNI)	14.7	11.9	9.3	7.8	3.0	1.8	0.5
Ore depletion (% GNI)	0.1	4.3	2.8	3.9	1.0	0.7	0.5
Diamond depletion (% GNI)	7.0	8.7	17.4	18.5	25.9	21.4	18.9
Genuine saving (% GDP)	18.8	2.5	-3.1	11.7	7.4	12.7	25.2
Per capita arable (ha)	0.50	0.42	0.36	0.31	0.27	0.22	0.21
Net barter terms of trade <sup>2</sup>	NA	79.4 <sup>2</sup>	71.4	91.6	91.8	96.3	96.9
Nigeria							
Aid (%GNI)	0.7	0.2	0.1	0.6	1.1	0.6	0.7
Oil output (mbpd) <sup>1</sup>	1.75	2.03	1.48	1.52	1.97	2.14	2.26
Oil depletion (% GDP)	10.3	27.7	37.3	37.3	42.7	33.7	46.1
Genuine saving (% GDP)	NA	NA	NA	NA	-29.4	-21.0	-26.7
Per capita arable (ha)	0.49	0.43	0.36	0.33	0.30	0.25	0.23
Net barter terms of trade <sup>2</sup>	NA	NA	169.3	84.6	68.7	62.2	100.6
Zambia							
Aid (%GNI)	1.5	5.4	8.1	19.3	25.7	26.4	17.9
Energy depletion (% GNI)	0.2	0.8	0.4	0.4	0.2	0.0	0.0
Ore depletion (% GNI)	24.8	14.6	8.7	13.0	8.4	4.0	2.7
Genuine saving (% GDP)	NA	NA	-12.1	-26.4	-15.4	-10.3	2.2
Per capita arable (ha)	1.07	0.91	0.79	0.68	0.59	0.52	0.48
Net barter terms of trade <sup>2</sup>	NA	NA	164.6	224.9	152.1	136.7	100.6

(1) BP (2007).

(2) 2000 = 100, with 1970-79 rebased from World Bank (1989).

Source: World Bank (2007a).

**Table 3. Economic growth indices 1970-2004, Angola, Botswana, Nigeria and Zambia**

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
<b>Angola</b>							
PCGDP (US\$2,000)	NA	NA	784.8	810.0	656.8	613.5	719.8
Population (%/yr)	2.2	2.6	3.4	2.6	3.0	2.5	2.8
GDP (%/yr)	NA	NA	1.0	4.0	-5.9	6.3	7.0
PCGDP (%/yr)	NA	NA	-2.5	1.4	-8.7	5.3	4.1
Crop output index <sup>1</sup>	100.5	70.4	56.1	57.8	64.4	79.4	115.1
<b>Botswana</b>							
PCGDP (US\$2,000)	581.0	904.7	1328.4	1876.9	2468.7	2894.1	3912.1
Population (%/yr)	3.2	3.4	3.3	3.0	2.6	1.9	0.4
GDP (%/yr)	19.9	11.5	11.0	11.9	4.5	7.6	6.2
PCGDP (%/yr)	16.1	7.8	7.3	8.7	1.9	5.6	5.9
Crop output index <sup>1</sup>	88.7	96.2	81.3	91.2	98.7	103.5	108.0
<b>Nigeria</b>							
PCGDP (US\$2,000)	280.1	398.9	421.8	350.7	321.5	360.2	355.3
Population (%/yr)	2.4	2.5	3.0	2.8	2.9	2.8	2.5
GDP growth (%/yr)	11.8	2.2	-3.8	5.7	3.6	2.5	5.2
PCGDP (%/yr)	9.1	-0.8	-6.5	2.7	0.7	-0.3	2.7
Crop output index <sup>1</sup>	35.3	37.9	33.5	33.9	45.8	73.8	92.9
<b>Zambia</b>							
PCGDP (US\$2,000)	NA	1,300	1,127	1,077	914	782	825
Population (%/yr)	3.6	3.3	3.3	3.2	2.7	2.4	1.8
GDP growth (%/yr)	3.9	-0.6	0.8	2.1	-0.8	1.5	4.5
PCGDP (%/yr)	0.2	-3.8	-2.5	-1.2	-3.5	-0.8	2.6
Crop output index <sup>1</sup>	60.9	78.0	63.4	91.6	88.8	94.9	98.9

(1) 2000 = 100.

Source: World Bank (2007a).

**Table 4. Indices of ethnic heterogeneity, Angola, Botswana, Nigeria and Zambia**

	Ethnic polarisation	Ethnic fragmentation
Angola	0.572	0.805
Botswana	0.650	0.485
Nigeria	0.404	0.885
Zambia	0.606	0.787

Source: Montalvo and Reynal-Querol (2005), p. 319-22.

**Table 5. Changes in institutional quality 1996-2006: Angola, Botswana, Nigeria and Zambia**

Country	Voice + accountability	Political stability	Effective governance	Regulation burden	Rule of law	Graft	Overall index
Nigeria 1996	-1.78	-1.63	-1.36	-1.12	-1.35	-1.25	-8.49
Nigeria 2006	-0.78	-1.99	-0.96	-0.89	-1.27	-1.29	-7.18
Zambia 1996	-0.53	-0.51	-0.59	0.36	-0.60	-1.04	-2.91
Zambia 2006	-0.34	0.29	-0.74	-0.56	-0.61	-0.78	-2.13
Angola 1996	-1.54	-2.27	-1.44	-1.41	-1.53	-1.06	-9.25
Angola 2006	-1.25	-0.51	-1.20	-1.20	-1.29	-1.14	-6.59
Botswana 1996	+0.86	+0.68	+0.24	+0.77	+0.62	+0.38	+3.54
Botswana 2006	+0.57	+1.23	+0.74	+0.48	+0.63	+0.81	+4.46

The index scores each range from +2.5 to -2.5 and are based on several surveys in each country.

Source: World Bank (2007b).

**Table 6. Structural change 1970-2004, Angola, Botswana, Nigeria and Zambia (% GDP)**

	1970-74	1975-79	1980-84	1985-89	1990-94	1995-99	2000-04
Angola							
Agriculture	NA	15.2	14.0	8.5	7.7	NA	NA
Industry	NA	39.4	49.0	64.7	67.7	NA	NA
Manufacturing	NA	8.4	5.4	4.3	3.7	NA	NA
Services	NA	45.4	34.0	26.8	24.6	NA	NA
Botswana							
Agriculture	NA	23.7	11.5	6.0	4.9	3.6	2.4
Industry	NA	38.9	48.9	63.2	56.1	53.7	55.5
Manufacturing	NA	6.8	6.4	5.6	5.1	5.3	4.3
Services	NA	37.4	36.8	30.8	38.4	42.6	42.1
Nigeria							
Agriculture	37.3	29.9	29.9	36.9	27.8	34.3	26.7
Industry	22.3	32.7	34.8	32.5	50.8	41.9	48.3
Manufacturing	3.7	6.0	9.0	7.4	4.9	5.1	4.1
Services	40.4	37.4	35.3	30.6	21.2	23.8	25.0
Zambia							
Agriculture	13.5	16.5	16.1	15.8	22.3	20.0	22.0
Industry	61.6	44.3	42.7	48.2	46.6	31.8	26.2
Manufacturing	8.9	18.9	21.0	29.3	29.8	12.6	11.6
Services	25.0	39.2	41.2	36.0	31.1	48.3	51.8

Source: World Bank (2007a).

**Table 7. Typology of rent streams, cycling filters and incentives**

Rent/GDP	Resource rent	Ideology	Ethnic polarisation	Political incentives	Examples
A. High	Point	Statist	High/low	Maximise patronage + repress voice	Angola, Algeria, Libya, Pre-83 Ghana, Guinea, Sudan, Zambia
B. High	Point	Market	High	Maximise patronage + repress voice	Bolivia, Cameroon, Ecuador, Nigeria
C. High	Point	Market	Low	Create wealth + incrementally democratise	Post-72 Botswana, Chile, Indonesia, UAE, Oman
D. High	Dispersed	Market	Low/high (but less stable if high)	Create wealth + incrementally democratise	Pre-76 Ivory Coast, Pre-72 Kenya, C19 US Midwest
E. Low	No rent	Market	Low/high	Create wealth + incrementally democratise	China, Mauritius, Taiwan, S. Korea, C19 UK

Source: the author.