

Helmut Asche

**Industrial Policy Challenges
in Resource-Rich Countries**

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Abstract

Within the still not well established taxonomy of mineral resource-related challenges, one broad distinction between political governance problems and economic management problems in oil-, gas- and mineralrich countries can be made. The latter subdivide further into issues inviting thriftiness – permanent income, physical limitedness, limits of absorption – and growth-enhancing structural policy. This paper examines such issues in the light of the recent resource curse and Dutch disease literature. Systematically put, problems stem from the fact that the extractive industry is too isolated from the rest of the economy, and too capital-intensive, to qualify easily as lead sector and to produce much linkage effect and positive spillovers (while negative, environmental spillovers abound). The paper argues that this invites one first set of industrial policy within the extractive industry and in the periphery of its pits and platforms. On the other hand, the mineral sector is ‘too close’ and actively depresses the rest of the economy, by the transmission channels of the Dutch disease. The paper reviews the three classic channels, adds a fourth and fifth one which also hamper inclusive growth. Then it treats afresh the typical depression of most sectors producing “tradable” goods at the expense of some “non-tradables” produced – a depression from which only the mineral products themselves are exempted. While some remedies suggested in the literature are pertinent, most current proposals to solve in particular the transfer problem from the resource to the non-resource economy fall systematically short of addressing it effectively. The paper will argue that new ‘industrial policy at a distance from pits and platforms’ is needed and we delineate contents of such policy. Finally, the paper discusses the relative importance of politico-moral and economic problems related to resource abundance. Even governments who steer clear of clientelism and corruption have to master enormously complex economic challenges and therefore need good technical assistance. The resource curse is thus not primordially an institutional problem. The international environment where industrialized countries deploy ‘resource security’ strategies does not help, either, to solve the economic core problems.

Zusammenfassung

In der immer noch nicht fest etablierten Taxonomie von politisch-ökonomischen Herausforderungen, denen sich Länder stellen müssen, die reich an mineralischen Bodenschätzen sind, kann zwischen Fragen guter politischer Governance und wirtschaftlichem Management unterschieden werden. Wirtschaftliche Herausforderungen können weiter unterteilt werden in solche, die zu volkswirtschaftlicher Sparsamkeit einladen, und wachstumsfördernde Strukturpolitik. Das Papier untersucht diese Fragen im Lichte der neueren Literatur zum sogenannten Ressourcenfluch und der Holländischen Krankheit. Systematisch betrachtet resultiert ein Teil der damit zusammenhängenden Probleme aus der Eigenart der extraktiven Industrie, zu isoliert vom Rest der Realwirtschaft zu sein, um ohne weiteres als volkswirtschaftlicher Leitsektor zu funktionieren und positive linkage- und spillover-Effekte zu erzeugen, während negative spillovers in Form von Umweltschäden vorwiegen. Dies verlangt nach einem ersten Bündel industriepolitischer Maßnahmen innerhalb und in der Peripherie von Minen und Ölplattformen. Auf der anderen Seite ist die extraktive Industrie „zu nahe“ an dem Rest der Realwirtschaft

und belastet sie über die Transmissionskanäle der Holländischen Krankheit. Das Papier untersucht die drei klassischen Kanäle, fügt einen vierten und fünften hinzu, die ebenfalls inklusives Wachstum behindern. Es unternimmt dann eine Neubehandlung der Lösungsvorschläge für die typische Depression in den meisten Branchen mit handelbaren Gütern auf Kosten einiger Branchen, die nicht-handelbare Güter produzieren, – eine Depression, von der nur die mineralischen Produkte selbst ausgenommen sind. Während einige in der Literatur vorgeschlagene Eingriffe einsichtig sind, erscheinen die meisten aktuellen Vorschläge zur Lösung besonders des Transferproblems aus der extraktiven in die restliche Realwirtschaft unplausibel. Neue Ansätze von Industriepolitik weit abseits von Bergbau und Ölförderung werden diskutiert, die erforderlich sind, um der benachteiligten Realwirtschaft aufzuhelfen. Das Papier schließt mit einer Abwägung der Komplexität solcher Strukturpolitik gegen die politischen Herausforderungen von Klientelismus und Korruption. Selbst Regierungen, die diese politischen und moralischen Risiken beherrschen, haben enorme wirtschaftliche Probleme zu lösen und benötigen daher gute technische Hilfe. Der Ressourcenflucht ist also nicht ureigenst ein institutionelles Problem. Internationale Strategien zur ‚Ressourcensicherung‘, die Industrieländer ins Werk setzen, helfen auch nicht bei der Lösung der Kernprobleme in den Produzentenländern.

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1 Introduction: Resource-rich or Resource-cursed countries?¹

It is now generally recognised that mineral riches endow any developing country with the financial resources to fund broad-based agricultural and industrial growth. Serious doubts about the effectiveness of the growth link between extractive industries and the rest of national economies, borne out by decades of resource squandering, seemed to have faded of late. Things apparently returned to their natural order, and oil-, gas- or metal-rich countries were seen to represent primarily business opportunities, not disaster. As late as January 2015, the Economist conjectured after a review of African resource-rich economies that

“there is reason to think the ‘resource curse’ is losing its power.” (The Economist, “The twilight of the resource curse?” January 10th, 2015, p.32)

Shortly before this postulation, multilateral agencies had published two flagship reports which compiled knowledge from a range of experts and invited African countries to do even more to harness natural resource wealth for inclusive economic development and structural change. With the global commodities super-cycle a window of opportunity appeared wide open (AfDB, OECD and UNDP 2013; UNECA 2013). Soon after publication of the two reports, however, the window closed as global commodity prices crashed. The imagery of such windows of opportunity could not have been more harshly demonstrated. Few doubt today that the excellent opportunity for inclusive growth has remained largely untapped. Which countries are concerned? What are the reasons for the critical turn of events, and what measures should have been taken? After decades of research, the answers to these questions are still not straightforward and depend on, inter alia, when you talk – during boom or bust.

There are a considerable and growing number of African countries endowed with large mineral resources. While resources are in the African soil by nature, the fact that they appear as riches is not a natural but an economic fact. Historically, extreme resource wealth is a recent phenomenon in Africa, as a wider-spread occurrence when in 1973/74 oil reserves multiplied in value.² The speed by which additional African countries until 2013, in the wake of the global commodities boom, had been identified as actual resource-rich – from Burkina Faso to Mozambique, and potentially all three East African countries Kenya, Tanzania, Uganda – gave a continental dimension to a phenomenon once limited to a handful of traditional oil producers, metal-mining states and Botswana. The importance of mineral resources is such that a matrix-wise taxonomy of African countries is now widely accepted as classification (Collier 2006;

¹ A first version of the paper was presented at the workshop “Resource Sector Reforms and Policy Change: Creating Inclusive Growth?”, University of Landau 19th – 20th May, 2016.

² The beginning of large scale exploitation of Botswana’s diamonds dates from about the same historical moment.

Collier and O'Connell 2008). The matrix crosses landlocked or coastal situation with resource endowment, and singles out a group of about 14 resource-poor landlocked countries as particularly disadvantaged – the reason being that inland countries on the African continent are especially hampered by the lack of navigable waterways (comparable only to some Central Asian states) and the not very dynamic neighbourhood. Resource-rich inland states are supposed to overcome their insulation by investing in modern traffic corridors.

On a sober count, after the commodity super cycle has come to a halt, the number of established mineral resource rich countries is much more limited than previously thought. While the phenomenon appears intuitively clear, it is surprisingly difficult to give an exact number of resource-rich countries in Africa (and beyond). There is no clear-cut definition of what makes a country “resource-rich” – there are just elements of a consensual definition:

- Natural resources in a broad sense comprise agricultural, forest, maritime and mineral resources, yet there is much agreement to define as “resource-rich” just mineral-rich countries, for the political economy reason that appropriation of resource rents is easier where gains accrue in few concentrated places, hence also called “point”-(source) resources.
- Mineral resource-riches comprise high-valued solid minerals, metal and non-metal, as well as oil and gas, although “mineral” in the strict geological sense is a misnomer for oil and gas.
- Endowment in the sense of identified *stocks* in the soil represents the first measure of resources riches. African countries hold globally important reserves of precious metals, of metals and non-metals for steel alloys, and of diamonds and uranium. As by these assets, Africa has got centrality in the respective trades, while the continent remains otherwise marginal in world trade (Runge and Shikwati 2011: 17 ff..).
- Not all countries that are geologically rich in minerals are included in the economic definition. South Africa, Chile, Norway or the UK are certainly well endowed with riches in their soil or sea, but they are not always economically specifically mapped as resource-rich. Economic definitions abound; all have in common that the oil and mining sector has to have a particular importance *relative* to other sectors or the whole of GDP, in the country's exports, and/or with regard to actual or potential fiscal revenues. What is defined as “resource-rich” is thus in truth considered as “resource-dependent”, only that rich sounds better than dependent.
- In order to grasp the importance of the sector, a number of definitions are on offer:
 - by share of GDP
 - by share of exports
 - by any combination of both

- by a distinction of very high resource content in exports (80%) and per capita income³
- by a measure of resource rents
- by gross oil income per capita.

On an older count, when the mineral sector makes up at least 8 % of GDP and 40% of exports, a quarter of all developing countries would belong to the group of “mineral economies”. Nowadays, some reports use a mineral export quota of just 25%, producing an increase of mineral-dependent countries from 46 to 61 worldwide, over the 15 years from 1996 to 2010, five of which are in Africa (Haglund 2011). It is however questionable if such a relatively low quota is notionally close enough to the phenomenon to capture. By a quota of 25%, Côte d’Ivoire or Ghana for example – two of the oil newcomers – would also qualify as “cocoa-dependent” and invariably as “agriculture-dependent”. The share of oil and minerals in exports, while arbitrary, must be much higher and more specific.

The measure of resource rents accruing to companies or governments is arguably closest to what political economy is interested in. Building on the methodology in “The Changing Wealth of Nations” (World Bank 2011) the Bank’s World Development Indicators database offers measures of mineral rents and oil rents. Rents are defined as the difference between world prices and estimated costs of production, and expressed as a fraction of GDP.⁴ Data on oil rents is not available for South Sudan, and uranium, diamonds and some precious metals are not covered in the two indicators on mineral and oil rents. For these reasons, a clear picture emerges only when combining rents as 1st criterion with the share of oil, gas, ores and metals in total merchandise exports as 2nd criterion, plus setting arbitrarily data-blank South Sudan as resource rich and eliminating other cases for country-specific reasons (see Annex table for details). In other words,

³ This definition is an IMF specialty, generating only eight resource rich SSA countries, six of them oil-rich, plus Guinea and Zambia, while number of others are slotted not as resource-rich but according to per capita income as UMIC (among them, Botswana and Equatorial Guinea), LMIC or (other) LIC. Over the years, the IMF has actually offered a perfect definitional confusion in its regional economic outlooks and other documents, with alternatively featuring another eight traditional oil exporters (and not the above resource-rich) alongside the income groups, with or without including Sudan and/or South Sudan, or by a commodity rent criterion of 10% in GDP (used in the Sub-Saharan Africa Regional Economic Outlook until some years ago), which left DR Congo or Niger as non-resource-rich.

⁴ Ross importantly argues against all measures using GDP as denominator of oil dependence that there is endogeneity inasmuch as that the gross domestic product of oil exporters and its growth may be lower than otherwise, which especially in poorer countries magnifies the oil effect. The objection is in order; it basically reflects the nature of the resource curse as a vicious circle. As our focus here is not to resolve his “puzzle of normal growth” we keep on using GDP-related measures, although the alternative measure he proposes generates valuable new insight, in particular that there is a cleavage among the classic eight SSA oil exporters: four have the expected high per capita oil income, but Nigeria, Sudan, Chad and Cameroon have low three-digit 2009 US-\$ per capita oil income (Ross 2012).

limited data availability makes a definition of resource dependence based on one single statistical criterion impossible.

In this way, half of the 49 Sub-Saharan African countries qualify as candidates for a critical mass of resource wealth. Among them, four country groups stand out, led by a group of thirteen highly resource dependent countries, based on the measure of oil and mineral rents exceeding 20% of GDP or two thirds (67%) of merchandise exports consisting of oil and minerals (including the imputed case of South Sudan), recorded over a longer term, at the least from 2007 onwards (see table below). Four countries endowed with huge mineral resource stocks (yet one, Cameroon, with rapidly descending oil reserves) are considered moderately resource dependent, given their degree of export diversification. Six countries emerged as rapidly ascending resource exporters, given the numbers for 2012 and 2013 only. Whether the trend continues for them, remains a factual question, still not answered today.

In the first column we find the classic eight oil producers of the last decade: Angola, Chad, Republic of Congo, Equatorial Guinea, Gabon, Nigeria – safe Cameroon and Sudan, whose oil production has now shrunk, for the one by dwindling reserves and for the other by ceding about 80 pc of known reserves to now independent South Sudan. To be clear on the last column, also Liberia, Sierra Leone and Sudan are by other means of analysis true resource-dependents, whilst for Rwanda the percentage of re-exports is likely to be high. The data used does not properly reveal it.

Table 1 : Mineral and oil resource dependent countries in SSA

	Highly resource dependent	Moderately resource dependent	Ascending resource exporters	Unclear & conflict cases
1.	Angola	Cameroon	Burkina Faso	Liberia
2.	Botswana	Namibia	Eritrea	Rwanda
3.	Chad	South Africa	Ghana	Sierra Leone
4.	Congo, Dem. Rep.	Zimbabwe	Mali	Sudan
5.	Congo, Rep.		Mozambique	
6.	Equatorial Guinea		Tanzania	
7.	Gabon			
8.	Guinea			
9.	Mauritania			
10.	Niger			
11.	Nigeria			
12.	South Sudan			
13.	Zambia			

(Compilation: Author. Sources see Annex table)

Now, the blessing of rich mineral endowments comes with the possibility of a “resource curse” (Auty 1993) or the “paradox of plenty” (Karl 1997) (Tamba, Tchatchouang and Dou'a 2007), which has political, economic, social, ecological and moral dimensions, among them a subset of economic problems known as the “Dutch disease” (DD) – a term coined in 1977 by *The Economist* to describe the decline of manufacturing and of certain agricultural exports in the Netherlands after the discovery of large natural gas reserves during the 1960s and 1970s. On a positive note, natural resource abundant countries like some so-called Neo-Europes were capable of escaping the minerals trap and use resource riches along with augmented human capital for advances in processed goods.⁵ There are also some recent developing country cases worldwide which successfully manage huge mineral resources. Yet it remains one of the most egregious facts in Africa’s post-independence history that not a single oil-producing country has ever put the returns to consequential developmental use, in the sense of sustained socio-economic diversification over and beyond the sectors that usually grow along with mining or drilling.⁶

With the increase of actual and potential oil and gas producing countries all along the West African coast and the Great Lakes of the East, investing the returns prudently is a key challenge for Africa’s future. Political elites in newcomer countries like Ghana and Uganda seem to be aware of the danger to be drawn into a quagmire of corruption and waste; they take deliberate measures to deal with the problem and accept advice from countries like Norway, which have successfully avoided the resource trap, nota bene after earlier industrialisation. Well-advised countries save some of the windfall receipts, and formulas are on offer how much saving is in order to preserve the country’s total assets (see below).

As a positive consequence, fiscal policy seemed to have turned from the usual pro-cyclical to a moderately counter-cyclical mode, mitigating the effects of the 2014 commodity prices slump. Nigeria, Angola, Botswana were said to be among those countries. Analysis of the 2014/2015 policy responses now leads to think the opposite: Ghana and Zambia approached the IMF for stand-by credits, Angola had to secure two times US\$ 250 million from private banks and a \$2 billion loan from China Development Bank for Sonangol, to urgently plug financial holes.

⁵ Clear cases are Australia, Canada and South Africa, despite the heavily biased social outcome, nowadays also Chile. The United States are a contested case in this respect. Some sources make the case of resource-rich United States, in particular after the 19th century oil discoveries, while initial North American resource scarcity is the theoretical workhorse of the neo-institutionalist school in comparison to South American Spanish colonies (Acemoglu and Robinson 2012). In fact, no country made it with an oil glut at industrial inception – manifestly the best lubricant for rolling down the path of resource dependence.

⁶ At least not in a macro-economically measurable sense. This includes the North African cases Algeria and Libya.

Payments in forex were restricted in early 2015 and physical import quota for various food items imposed (*Africa Confidential, February 6th 2015*). Nigeria followed suit.

Among the mineral-rich countries the one exception that has fared well on most economic and political counts is diamond-rich Botswana, but even this acclaimed success story does not go uncontested with its high poverty and unemployment rates. One may want to add South Africa here, though an outlier in most terms, with a mining sector that has driven the economy for a century. Despite being the undisputable historical lead sector, the South African minerals-energy complex (MEC) is at the centre of a heated national debate as to its potential for driving economic modernisation or holding it back. In sum, all of Africa's resource-rich countries have either not (yet) responded properly to the resource challenge or are questioned regarding the sustainability of a *grosso modo* successful resource management. The aim of this text is thus to explore various possibilities for managing resource rent fully and appropriately.

2 Challenges of resource governance⁷

Resource-rich countries face a daunting range of governance problems, which stretch from political to economic and further to sociological and anthropological dimensions. When sketching a taxonomy of the problems related to natural resources, we face the problem that most development economics textbooks strangely miss out on the full range of the mineral resource challenge.⁸ Two authors still present the most complete inventories (Ross 1999; Rosser 2006).⁹ In this text we mainly, though not exclusively, concentrate on economics proper.

2.1 Long term price decline and volatility

The issue of mineral resources in developing countries has for most of the time been treated in the opposite sense of resource richness – as a history of long-term decline of prices and extreme market volatility. In the classical Prebisch-Singer thesis (Prebisch 1950; Singer 1950) agricultural and mineral resources had been lumped together as a group of products for which a secular downward price trend is observed, as a mean through a centuries-long sequence of boom and bust periods, which make for the characteristic volatility of raw materials trade. Even oil, after the obvious 1973/1974 nominal price surge, was no exception to the rule. Accordingly, cross-country research like Sachs and Warner (1995) found a negative correlation between natural resource abundance and economic growth.¹⁰

⁷ An earlier exposition of the challenges treated here is in Asche and Fritzen (2013) The paper contains more references to development cooperation projects in the area, in particular of German aid agencies.

⁸ Over the years, the following textbooks have been checked: Thirlwall who just reproduced the debate on the secular trend (Thirlwall 2006); then Ghatak (2003); Hemmer (2002); Ray (1998); Todaro and Smith (2009). Meier and Rauch (2005) and Nafziger (2006) each have short reassuring pieces, in line with natural resource endowment theorists. Ros (2000) has a very idiosyncratic treatment (see below). The Handbook of Development Economics, since early editions, has just a small chapter on primary exporters (Chenery and Srinivasan 1988). Closest to full treatment come Perkins, Radelet, Snodgrass et al. (2001) and later editions. We examine their proposition below.

⁹ Ross and Rosser present detailed typologies encompassing economic as well as political mechanisms behind the harmful effects of the resource curse. Ross lists the decline in terms of trade for primary commodities, instability of international commodity markets, poor economic linkages between resource and non-resource sectors, the Dutch disease as well as political aspects such as cognitive, societal and state-centred explanations. Rosser provides as many as seven explanations. In a more recent survey, Van der Ploeg describes altogether ten cases leading to Dutch disease, in casuistic not in systematic order, summing up over the available econometric evidence. Yet, the econometric analyses at best prove that variables work with the expected sign but do not establish robust evidence on broad magnitudes of DD effects. While econometrics is hence involuntarily shown to be of little help for the purpose, the inventory misses out on the typical inter-sectoral distortions and the author can thus afford to be dismissive on structural policy (Van der Ploeg 2011).

¹⁰ In his more recent monograph, Ross critically re-examines the literature that claims negative growth effects, and differentiates earlier findings in that growth in oil-rich countries has not been lower

The Prebisch-Singer thesis has always been a powerful argument against all claims that developing countries concentrating on raw materials as their alleged comparative advantage are well advised. Empirics and rationale of the Prebisch-Singer theorem remained controversial though, such as the use of supply and demand rigidities as a questionable explanation for the long term. In more recent times the long downward trend was empirically confirmed with better data (Cashin and McDermott 2002; Cashin, McDermott and Scott 2002) and ten years later again for the majority of 25 commodities analysed, throughout major boom breaks in 1950, 1974 and 2003 (Arezki, Hadri, Loungani et al. 2013).

Yet, emphasis in the debate shifted to short-term volatility as arguably more dangerous for development than a long-term slide. At the turn of the century, the long trend even seemed to be reversed, with the enduring commodities super-cycle, and short-term volatility considerably reduced. Indeed, other IMF authors found with data on commodity terms of trade until 2007, that compared to the 1970s and 1980s, the 1990s and by extension the 2000s were a relatively quiet period as to the amplitude of booms and busts, and interestingly found that countries joining in the boom with low pre-boom public deficits had high growth spells (Spatafora and Tytell 2009). This is what seemed to continue into a slowdown of mineral exports, with number of African countries which had their fiscal position improved in pre-bust times experienced lesser growth slumps, until the drama unfolded with the collapse of the oil price.

Seminal contributions to the resource problem concentrate on the overarching volatility of the sector and focus on phases of either prosperity or decline. In fact, both periods of commodity exports contain specific risks analysed in particular by Gelb and associates (1988) (boom) and by Auty (1993) (bust). Some typical problems occur in both periods, and permanent income problems are most common among them (see below). In boom periods governments and other agents consider revenues from rising prices as long-term income, expand social services and infrastructure and incur debt by mortgaging future mineral sales. In bust periods the same actors try to maintain earlier income and public service levels by incurring debt, in the hope of rapid market resumption. Worldwide, volatility is very difficult to manage. In some African countries this took at times a specific turn: as former Zambian president Kenneth Kaunda graphically explained to this author in 1994, mineral companies in Zambia, Congo and elsewhere entertained a dense social tissue of schools and hospitals, and with the demise of the companies the charge shifted to governments that could hardly refuse to take over (at least

throughout, nor has been their performance by governance and social standards. The real mystery is, according to him, why the oil states have had not faster than “normal” economic growth (Ross 2012: 189). Conditional on knowing “normal growth”, this boils down to the same: resource richness on average reduces growth.

partially), for fear that they would create social upheaval or simply be overthrown. Such was the situation in the Zambian copper belt after the collapse of ZCCM. In some settings African governments during depression thus have to shoulder even higher social expenses than during normal times – part of what we will treat below as infrastructure paradox.

2.2 Overarching dimensions of mineral resource governance

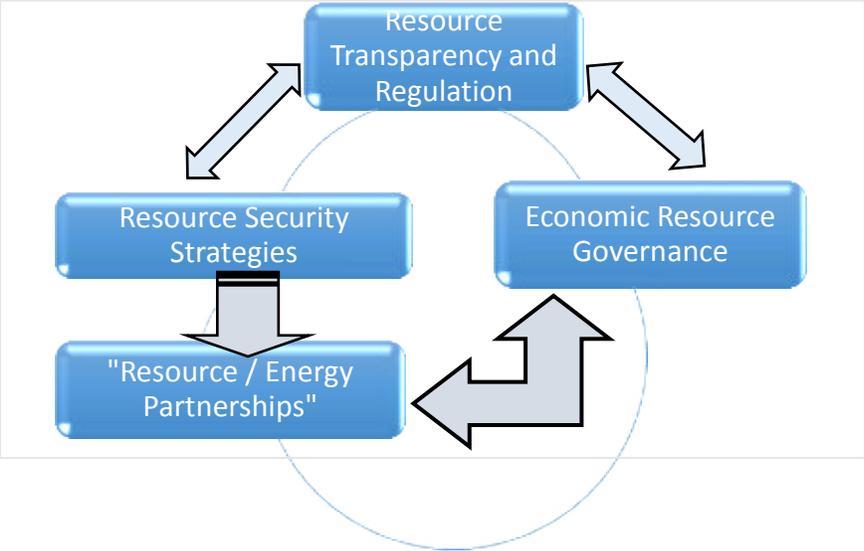
With this in mind, one can try to sketch out a taxonomy of the policy proposals related to affluence of high-value mineral point resources and then zoom in on industrial policy measures. For all the following analyses an important distinction between small- and large-scale mining has to be observed. This text mostly concentrates on issues of big oil and big mining, although across Sub-Saharan Africa issues of regulation, protection and upgrading of small, artisanal mines are admittedly crucial and challenges in this segment differ significantly from big scale mining addressed here. Artisanal mining is important business on the continent, from many of the gold mines in Burkina Faso, diamond digging in Sierra Leone to coltan mining in eastern DRC; but we neglect it here.

The taxonomy of resource wealth problems does not map symmetrically into national and international policy agendas. In the contemporary global setting three dimensions of resource governance dominate: (1.) resource transparency and regulation, including revenue collection, and (2.) economic resource governance, in the sense of macro-economic, expenditure and structural management. Since the 2000s, (3.) resource security strategies have gained in importance, a priori responding to hardly any of the canonical resource problems but to a perceived insecurity of mineral resource supply on the side of advanced and newly industrialising economies, including China (holding in turn strategic stocks of some minerals such as rare earths).

There is common interest between producer and consumer countries where resource security programmes contain support for geological exploration, known to be of lesser intensity in LDCs. Otherwise, the three approaches are not in pre-established harmony, as they are not necessarily working in the same direction. Whereas all attempts at resource transparency greatly help a resource-rich country's broader economic management, policy advice on good economic governance diverges widely, and global "partnerships" for resource security may even run counter to transparency and good economic management in producer countries. Prima facie, opaqueness of deals, secrecy of contracts with skewed conditions even help securing raw materials for buyer countries. So, resource securitisation, resource transparency and economic

governance have to be made coherent by design, in order to turn them into meaningful partnerships. The political agenda of resource governance looks like in the graph below.

Figure 2 : Dimensions of Resource Governance



3 Resource transparency and regulation

Over the last decade or so, resource transparency and regulation issues have dominated the scene, as opacity, corruption, theft and rent-seeking are well-known nefarious dimensions of the resource problem.

a) Initially, international efforts had a focus on rendering transparent what mining companies pay and governments receive. Paradigmatic is the Extractive Industries Transparency Initiative (EITI) launched in 2002, which set out to improve governance by calling for the full publication and verification of company payments and government revenues from oil, gas, and mining. In addition, there are initiatives like Fatal Transactions and Revenue Watch which mainly provide in-depth analysis and information. The – disputed – conflict minerals provision in the US Dodd-Frank Reform Bill is worth mentioning here, along with the corresponding EU legal instruments which intend to make transparency of payments mandatory.

b) Later, initiatives broadened their scope to denounce badly negotiated contracts and to assist countries to draft better ones, along with the organisation of open tender and mining licence systems. Proper administration of mining royalties and other receipts became a major technical assistance topic (Otto, Andrews, Cawood et al. 2006). In the course of this shift, EITI's focus also widened, and the upgraded initiative EITI++ deals with the entire resource chain, from exploration and extraction to processing, managing revenues, and promoting sustainable and efficient utilization of resource wealth. Employing a similar approach, EITI's early civil society twin Publish What You Pay (PWYP) now

“[...] aims [to achieve] full transparency in the payment, receipt and management of natural resource revenues; public disclosure of extractive contracts; and civil society participation in the monitoring of revenue expenditures” (Oranje and Parham 2009: 28).

c) Aid agencies' broader Public Financial Management (PFM) programmes joined in. Most of what PFM undertakes in resource-rich countries, works in the same sense as the aforementioned initiatives, including the strengthening of Auditor General's Offices, etc.

d) Building on the pioneering experience of the Kimberley process, identification and certification of minerals' origin became a key component in more recent initiatives to make smuggling and forgery more difficult. Proper certification is supposed to provide a higher level of security to the processing industry and allows consumers in industrialised countries to act responsibly. One promising initiative¹¹ led by the German Federal Institute for Geosciences and

¹¹ There are a number of other initiatives in the wake of the now shattered Kimberley Process, the ITRI Tin Supply Chain Initiative (iTSCi) (initiated by the International Tin Research Institute (ITRI), the international trade body of the tin industry), the Electronics Industry Citizenship Coalition (EICC) and

Natural Resources (BGR) identified a new method for geological tracking (“fingerprinting”) – and therefore traceability – of specific minerals based on their mineralogical characteristics. The promising long-term initiative of Certified Trading Chains (CTCs) seeks to link legitimate mining sites to international purchasers.¹²

e) While aforementioned reforms and related technical assistance mostly address either general or chain governance issues, and by doing so reduce causes of potential social conflict, there is still a necessity to focus directly on regulating or mitigating local conflicts – those relating to access to mines, and those relating to rights of indigenous people and to environmental damage from mining.¹³

The range of activities to be listed here covers close to everything from proper registration of minerals, licencing and fiscal management (Arezki, Gylfason and Sy 2011) to transparent public accounting of mining revenues. Now suppose that all royalties and taxes have been properly paid and orderly registered in the public books, and nothing remains off-budget. The fiscal record in your African model country is impeccable. Are there economic indications or imperatives that follow from the mineral origin of the revenue onto size and structure of public expenditure – from income to spending? If not, the main recommendation would simply read: spend everything that accrues to public coffers on good schools and clinics, proper roads and lights. This would assure that in general terms “the rest of the economy” benefits from the mineral bonanza.

Global e-Sustainability Initiative (GeSI), International Conference on the Great Lakes Region Regional Certification Mechanism, the Initiative for Responsible Mining Assurance (IRMA) and more.

¹² For a systematic overview of international approaches at the beginning of the decade and an outlook into still more consequential resource governance support along the entire extractive industries value chain see Schnell and Großmann (2011).

¹³ For a comprehensive and systematically structured review of studies on resources and conflict see Mildner and Lauster (2011) for GIZ, framing the debate in the “greed versus grievance” model, where the latter aspect was historically emphasized first, including in the Homer-Dixon project, while Collier-Hoeffler and others focused more on the former (Collier and Hoeffler 2000; 2005; 2012).

4 Beyond transparency: Economic resource governance proper

At this juncture, the full range of challenges related to growth-enhancing public spending and economic policy sets in, beyond transparency issues. Among them, the first set of problems do not lead to generous social and infrastructure spending of mineral revenue but to a call for fiscal restraint, caused by concerns for permanent income, limitedness of resources, and absorption capacity.

Firstly, attempts to uphold an assumed **permanent income** level from mineral resources react to volatile world markets, hence rather to the short-run problem. By extrapolating trends, spending levels can be legally capped with imputed average world prices. Budgetary reference prices of oil have become a standard tool to smooth government spending, by putting surplus revenue into a stabilization fund and withdrawing money in the opposite case. For instance, then Nigerian minister of finance Ngozi Okonjo-Iweala introduced the benchmark oil price into Nigeria's national budget process. However, praise for the new measure of fiscal prudence has to be taken with a pinch of salt. While it can reduce volatility by delinking public spending from current oil revenues, the budgetary reference price systematically fails at breaks in the long term trend, as in 2014/2015, when it was rapidly overtaken by reality. Already in early 2015 Angola had to bring the revised reference price of 81 \$ further down to 40 \$ per barrel.

Secondly, mineral riches are not permanent, which raises fundamental questions of sustainability. At the latest since Hotelling formalised the issue in the 1930s, the **physical limitedness** of mineral resources calls for special rules of prudent extraction and public spending in order to maintain a country's capital stock in the long run and to create a perennial income stream. Suggestions to restrict the mineral extraction rate in support of cautious saving and investment seem to reflect the concern for sustainable resource management well. The Hotelling, Hartwick, and Collier rules all rely on the assumption of rising long-term prices which a priori seems sensible for non-renewables.¹⁴ In that case minerals left in the soil generate an income, and the scarcity rent from the lesser quantity extracted shall be reinvested in renewable forms of capital. Only the net income shall be consumed, to safeguard a country's wealth for future generations – a concept taken up in the broader World Bank proposal for genuine savings (Hamilton and Clemens 1999).

¹⁴ Collier was the latest in the row to assume that it "is a reasonable expectation that the world oil price will tend to rise in real terms albeit along a very volatile path"; in that case "even the oil in the ground is an asset that is yielding an income and this can finance consumption on a sustainable basis". He argues that the proportion of revenue that can be consumed then depends on the extraction rate. "Specifically, it is the expected rate of increase in the world oil price, divided by the extraction rate" (Collier (2007: 8); see also Collier (2010)). Obviously, this was before the era of shale oil and the beginning of a global turn to renewable energy sources.

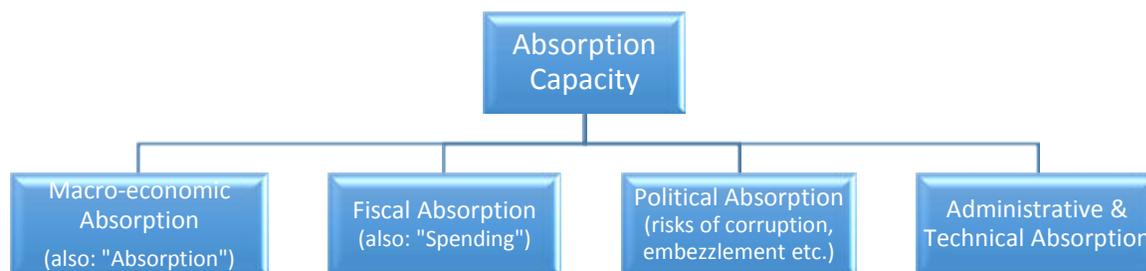
In contrast to the first-mentioned permanent income approach for the short period, this represents a kind of **permanent capital** approach, for the long term, where forms of capital are substituting factors in national production. Yet, the exact proportion of total revenue/assets that should be extracted and invested or left in the ground is not easily determined. This is because the recommendation is based on the assumptions (a) of rising mineral and energy prices which are not borne out by empirics on the secular downward trend, (b) that the physical stock of resources is well known and thus manageable according to the rules, (c) that there is agreement on the notions of capital and investment, in particular on the delimitation of investing in human capital. Therefore, while saving revenues and controlled extraction makes intuitive sense, this advice alone is too ambiguous to provide much guidance for policy makers.

While both permanent income and permanent capital approaches do not generate rock-solid savings rules, putting a portion of mineral revenue into offshore accounts or **future generation funds** remains a well-established way to temper spending enthusiasm. Instead of indexing spending on debatable price trends, countries may arbitrarily decide to put, say, 10% of minerals-related revenue aside, or to let initially 100% of oil revenue accrue to a special fund, from which a steady stream of resources is released into the public budget, rather foolproof vis-à-vis volatile markets. There is ample literature on the issue, pointing to advantages of offshore accounts especially for economies with limited population, limited present-day investment opportunities and without pervasive social needs, thus more realistic for small upper-middle or high income countries, but also highlighting potential pitfalls, of which holding such funds as extra-budgetary, secretive treasures is arguably the most important one.¹⁵ In contrast, populous resource-rich countries with high levels of poverty and pressing social and economic needs may want to spend as much as they possibly can, respecting a broad-brush permanent capital rule.

Across country groups revenues from mineral riches are huge on most counts, and often appear out of proportion with regard to the **absorption capacity** of public authorities and the economy as a whole. Capacity constraints may indeed lead to scaling down the size and number of public investment projects. At least four dimensions of absorption capacity constraints can be identified (see figure 3).

¹⁵ For more background on sovereign wealth funds see <http://www.swfinstitute.org/> and York and Zhan (2009).

Figure 3 : Dimensions of Absorption capacity



Limits of absorption capacity in the macro-economic sense will resurface in sections below as a problem of steering the national economy as a whole, similar to absorption of huge aid inflows. The aim of public expenditure programmes financed from mineral receipts is local spending, not primarily an increase of imports. Yet, when the elasticity of local supply is limited, inflation sets in and aggravates a problem that we will revisit below under Dutch disease. These are aspects of fiscal absorption. Political absorption problems are obvious. Difficulties to identify and implement numbers of “good” agricultural or manufacturing investment projects, which substitute the depleting mineral capital, straddle several dimensions of absorption and stress in particular the technical absorption problem. As long as prospects of manufacturing or modern agriculture seem uncertain, it would be economically superior to either leave capital in the soil or to invest it abroad, unless these modern tradable producers possess other economic characteristics that warrant a risk premium (see sections below).

The best summary for less developed countries probably reads: their overall capital scarcity, infrastructure deficits and pressing social needs invite rapid in-country investment and social spending instead of stowing revenue away in off-shore funds, unless (a) absorption problems or (b) needs to smoothen the exchange rate, or (c) insurance against price volatility suggest otherwise. All three problems *prima facie* converge into an exercise of fiscal restraint. While wisdom cannot be denied to them, clear rules or formulas have proven hard to establish, and the policies deduced do not provide answers to the overarching concern with mineral riches in Africa (and beyond): how to turn them into sources of (a) additional and (b) economy-wide growth and employment.

5 Extractive industry and structural policy

Perceptions of the African growth spell until 2014/15 by both scholars and the media have largely evolved in sync, meaning that we development economists have hardly been faster or more insightful than quality media sources. Today nearly everyone agrees that the past boom period has indeed led to some structural change in Africa, but not enough for inclusive growth and diversification of the economies. The truly interesting question for resource rich countries comes after this: Does the oil or mining sector still qualify as a potential lead sector (in the sense of classical development economics) which – as the term indicates – can lead the whole economy to higher growth levels and modernized structures? ¹⁶ Asked inversely: Is the lack of deep structural change during the commodities boom merely a reflection of the fact that (a) the boom has remained too concentrated on the minerals sector and too isolated from most of the economy to generate important spill-overs, for which the typical offshore oil platform is the best example? Or are there also forces at work which (b) actively depress or even marginalize other sectors? As development economists know, there are. While we do not claim to make significant new contributions to conventional wisdom about these forces, we are not aware of any empirical, econometric analyses to date that attach weights to explanatory variables behind (a) and (b) and thus their relative importance in Africa. Such a study would, however, have obvious and important consequences for policy design and economic advisory services.

5.1 *Isolation of the mineral and energy resource sector*

In the most elementary sense, the enclave character of mineral extraction in mostly foreign directed companies working with foreign technology creates a situation in which knowledge transfer, respect for domestic labour and environmental standards do not take place automatically. Foreign direct investment (FDI) in the extractive industry is known for limited spillovers and technology transfers, as well as for limited willingness to re-invest profits in the host country.¹⁷ A first consideration is thus the need for **industrial policy in the extractive industry** itself through support of skills development and technology transfer. New resource partnerships that talk nobly about supporting such technology and knowledge transfer

¹⁶ Despite being the undisputable historical lead sector, the South African minerals-energy complex (MEC) is at the center of a heated national debate as to its future potential for driving economic modernization or holding it back.

¹⁷ Though many of the once purely foreign-owned companies in the oil sector have been nationalized, this does not change the basic pattern, as the actual extraction remains mostly in foreign (company) hands. The acute problem of oil and mining companies channeling profits out of developing countries has not diminished either.

demonstrate an awareness for the importance of the goals – without actually converting them into operational terms.

Next, the relationship between the extractive industry and adjacent branches matters. Most analyses are framed within Albert Hirschman’s linkage theory (Hirschman 1958). Hirschman distinguished four types of linkages whose strength determines, together with other factors, the lead sector quality of an industry: production linkages, both forward (downstream) and backward (upstream), consumer linkages and fiscal linkages. In addition, early development economists assessed the mining sector as capital- and foreign technology-intensive, which restrains both domestic backward and consumer linkages. Even forward linkages seldom emerge on their own. Hence three of the four links appear to be generally weak. Generosity vis-à-vis foreign investors, corruption, transfer pricing and the like also weaken the theoretically important fiscal link to taxes and royalties.¹⁸ As mineral value chains hardly expand by themselves in host countries, their governments have long employed measures of **industrial policy in the periphery of the (mining) pits and (oil) platforms**, in order to strengthen downstream, sidestream or upstream industries. The package contains global value chain (GVC) support measures, spatial policies, as well as corporate social responsibility (CSR) measures, efforts to encourage social participation by local communities, and local content regulation to foster productive links.

Both policy domains for the extractive sector – within and surrounding the industry – share the general attributes of modern industrial policy, in particular the need for organised public-private search for essential inputs that are not available in the (domestic) market and for potential outputs that are not generated by market forces either. As with all good industrial policy, preference lies squarely on non-compulsory, enabling measures. Yet there are two obvious differences between extractive and other industries:

- a) The extractive industry, as such, self-settles without much supportive policy as long as world market prices are at the higher end. Big mining and gas/oil production are no infant industries. Still in infancy, however, are the desired economic spillovers into the local labour and capital market and into adjacent sectors.
- b) By the very nature of the extractive industry, spillovers and links are particularly difficult to develop by just “nudging” investors into knowledge/tech transfer and broad local sourcing for supplies.

These differences are industry-specific reasons why a second, regulatory set of policies is more common and arguably more justified than in other industries. A platform hosting industrial

¹⁸ This finding is the theoretical entry point for today’s transparency and PFM agenda as outlined above.

policies within and in the environment of the extracting industry involves performance requirements for foreign investors. Applicable to all sectors of foreign investment, e.g. in energy or water production, such performance regulation is notoriously contested with regard to the extractive industry. Often contained in oil and mining laws, it comprises a broad range of measures and typically covers the pre-establishment and establishment phases of an investment project.

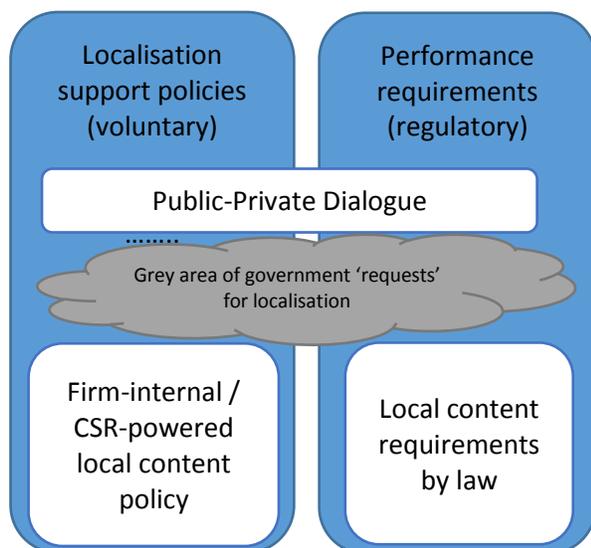
The best known subset of performance requirements are local content rules, regulations or requirements (LCR) – to the extent that local content policy (LCP) sometimes features as family name for all such performance regulations, which is misleading.

LCR are designed as a stimulus for domestic trade and not as trade barriers. Yet economists routinely introduce them as non-tariff barriers (NTB), which is an ideological premise, and treat them mainly as an invitation to opaque favouritism. Depending on product composition and market configuration, which are analysed mostly in partial equilibrium settings since Grossman's seminal treatment (Grossman 1981), local content requirements do not necessarily produce a trade loss, but rather trade diversion between foreign and domestic suppliers with identical trade volumes. In turn, they offer possibilities for knowledge transfer and local/regional supply chains – dynamic effects not normally covered in static partial equilibrium treatment. Despite the potentially positive economic outcome, compulsory local content rules continue to have an extremely bad reputation in market-liberal quarters, as in the broad survey of country cases by the Peterson Institute (Hufbauer, Schott, Cimino-Isaacs et al. 2013).¹⁹ Domestic content quota in the countries covered in the survey were typically set at unrealistically high levels, thus inviting corruption to circumvent them. While such cases still exist,²⁰ it is important to underline the dual policy nature of good local content regulation, comprising voluntary and regulatory action, both of which need to be addressed in frank public-private dialogue (PPD) (see diagram).

¹⁹ The survey contains a very critical country case study of Nigeria's oil and gas industry, based on the 2010 Nigerian Oil and Gas Content Development Act, one of the new pieces of local content legislation now *en vogue* in Africa again.

²⁰ Unfortunately, old style local content rules can still be found. They work perfectly to discredit new industrial policy. The 2014/15 Petrobras scandal in Brazil was co-generated by an extremely high local content prescription of equipment and supplies for the offshore oil industry – of 85%, to create a dozen shipyards onshore, which then became a huge source of corruption and embezzlement. As expected, *The Economist* did not miss the opportunity to pinpoint this as a typical case of “*misguided industrial policy*” and noted with unwarranted satisfaction that the ruling party's “*industrial policy is in full retreat*” (14th February 2015).

Figure 4: Industrial policy and local content measures



New-generation local content policy often relies on mutually agreed-upon and realistic assessment of local input production and service potential, with subsequent training for potential local suppliers, as e.g. Ghana is trying to implement with technical assistance from Norway. Today, a number of multinational companies in the sector make the development of some local supplies a distinct company policy alongside their core business. Driven not only by CSR considerations, companies are voluntarily agreeing to local sourcing quotas. Hence local content rules need not always be legally prescribed. Nudging companies into more localisation may suffice for this part of outsourcing.

Some leading scholars on global value chains have researched a number of established or attempted linkages between commodities and other sectors in eight African countries, such as Angola's aggressive effort to have a considerable share of metalwork for oil production done in-country. Their results show that linkages vary widely in breadth, depth and type, but contain – even beyond the established South African case – some promising examples of knowledge-intensive input links. Most importantly, they build a model which, over time, distinguishes the outsourcing of supplies that is non-critical for the mineral firms' core competencies from the localisation of critical supplies for which more consequential government action is needed to bring foreign companies to the table (Kaplinsky 2011; Morris, Kaplinsky and Kaplan 2012; UNIDO 2012).²¹ Depending on the non-critical/critical nature of supplies and on home/host

²¹ Because the studies concentrate on links in the industrial neighbourhood of extractive industries, they remain silent on most of the risks typically associated with the Dutch disease and make no proposals to

country characteristics, vertical integration is preferred over out-sourcing of activities (Chen, Sun, Ukaejiofo et al. 2016). Both voluntary action and vigorous policies – like the one that pushed Botswana’s diamond industry to accept in-country sorting and polishing – do not promote mining and oil drilling to an ideal lead sector for the economy as a whole. Nonetheless, strategic efforts to attach related or satellite activities provide at least some added value.

As with other industrial policy areas, an important question arises regarding the **legal policy space**. The first moot point here involves the local content requirements. They treat a portion of domestic products or services differently from imported ones and insofar run counter to the fundamental GATT/WTO requirement of national treatment contained in GATT article III.²² De facto, they erect an additional quantitative import barrier far behind the border. As long as we only consider GATT, developing countries can claim the differential treatment enshrined in article XVIII and extended in the Uruguay round to a number of additional treaties (Prieß and Berrisch 2003: 162-166). Even more latitude is offered to developing countries for other investment issues not covered by the GATT. However over the years, a number of instruments of international commercial law have restricted this latitude among the contracting parties, notably Bilateral Investment Treaties (BIT) and International Investment Agreements (IIA). Increasingly, extractive industry-related legal claims based on these treaties have been brought before the Investor State Dispute Settlement (ISDS). The South Centre provides a useful survey of this critical trend, which has led a number of oil and mineral rich developing countries to relinquish the BITs concluded so far (Mohamadih and Uribe 2016). Following this analysis, a range of either multi- or plurilateral agreements on trade-related investment measures (TRIM) and bi-regional, regional or bilateral treaties expand the prohibition of performance requirements for foreign investments to almost everything. Globally, the Canada-EU Trade Agreement (CETA) is gaining strategic importance as it clearly contains the longest list of prohibited requirements compiled so far. However, some legal scope is preserved for developing countries as long as they are not bound by BIT-like agreements.

Critically, the Economic Partnership Agreements (EPA) between the EU and African regions now carry over GATT regulations into bi-regional treaties, albeit without the exemption clauses still contained in the GATT. Most importantly, the **national treatment regulation** – requiring that foreign firms be treated as domestic ones and face no additional burden – is literally copy and paste from the GATT into the EPAs, effectively barring local content regulation. Will the EPAs, if really signed into international law, completely rule out local content requirements for

counteract the danger of resource sector lop-sidedness, or to support the economic sectors that suffer most because they have *no linkages at all* with the extractive industry, neither production nor consumption nor fiscal linkages.

²² GATT = General Agreement on Tariffs and Trade. WTO = World Trade Organization.

EU firms in Africa? This will be more a real-life than a purely legal issue. Intelligent local content policy combines administrative requirements with some of the usual FDI incentives, e.g. tax holidays. As long as the incentives are sizeable, the multinational company is likely to accept them and try to comply with the local content rules instead of launching a WTO, ISDS or EPA legal case.

For the African regional economic communities, the challenge with regard to economic localisation policies is still different and relates to what is understood as “domestic” or “local” content. In African RECs, one can easily find cases of misguided industrial policy with tariff and non-tariff barriers erected against other REC member states. Instances of purely national procurement should be treated analogously and confined, as in the European Union, to fewer and fewer numbers as integration advances.

In the end, even when the available policy space has been fully used, the extractive sector’s characteristics of capital and technology intensity remain unchanged, as both are to a large extent imported. In addition, downstream beneficiation in the mining and oil sectors is still contested for at least two reasons. Firstly, basic extraction no more qualifies an industry for further transformation of the mineral than producing cotton qualifies a country a priori as a textile manufacturer.²³ Secondly, industry-specific economies of scale in the extractive sector itself and in down-stream treatment can vary substantially, making the latter potentially unproductive, as is presently being discussed with regard to a refinery project for Ugandan oil.

One part of the systematic answer as to why it is important to look beyond the boundaries and the immediate neighbourhood of the minerals-energy sector thus stems from the intrinsic characteristics of this sector. Its structural isolation remains difficult to overcome.

5.2 Too close to you: the problem of negative spillovers

The relative isolation of the mineral sector in a country’s input-output structure does not completely explain the key problem raised above. The missing part of the answer comes with the inverse sign: the mineral sector appears typically not isolated enough but, by a number of

²³ See the debate in South Africa on the beneficiation of mining products, in which the Harvard team (Hausmann, Rodrik and Sabel 2007) took the sceptics’ bench, opposing numerous South African structuralists.

transmission channels, rather too close to the economy at large to shield it from negative spillovers of mining and oil.²⁴

5.2.1 Remember the basics of Dutch disease

The phenomenon known as Dutch disease (DD) represents a specific subset of resource-related problems and entails a specific risk of de-industrialisation. Understanding it remains crucial for any industrial strategy. The label refers to a negative surprise which the Netherlands experienced after the onset of commercial gas exploitation in the 1960s, when a considerable appreciation of the Dutch guilder triggered a decline of the country's manufacturing industry and affected agriculture and horticulture. Exporters other than gas producers were hit by rising nominal prices, and manufacturers came under pressure by cheaper imports. The problem is thus commonly associated with a currency appreciation, but there is more. Full analysis is usually undertaken in the framework of a small open economy model, also known as the Australian Model after the economists who developed it to describe their country's economy (Corden and Neary 1982), in turn referring to Salter and Swan. As the name indicates, economies in the model have two distinct features:

- 1) Openness, in that trade and capital flow across their borders and influence the domestic economy, particularly prices and money supply.
- 2) Smallness, in that neither their supply of exports nor their demand for imports has a noticeable impact on world prices, which is assumed to be true even for Australia.

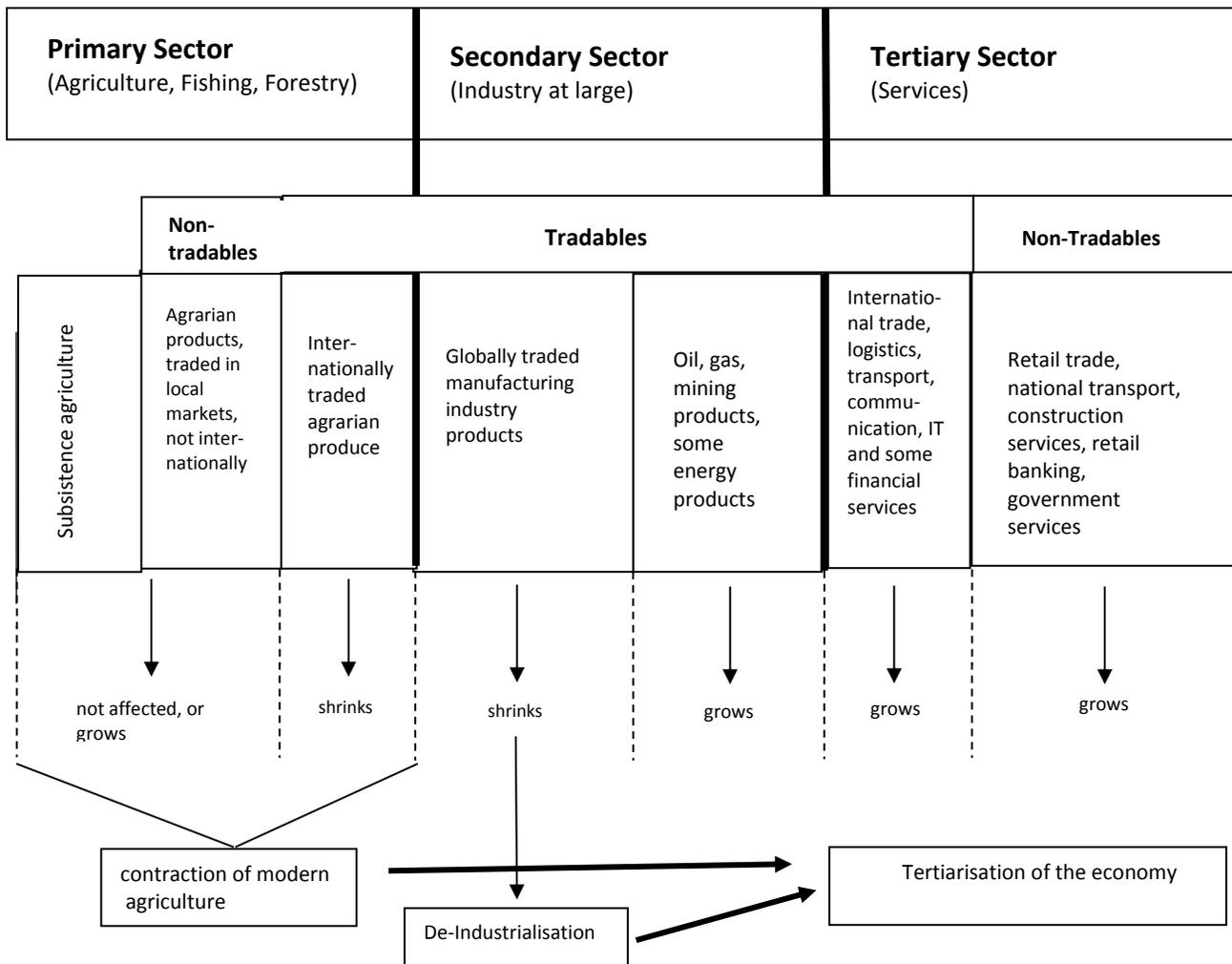
Subsequently, the small open economy model also introduced a different, somewhat counter-intuitive definition of terms of trade and also of the real exchange rate. It compares two sets of national prices for tradable and non-tradable goods or services, and states that the local prices of tradables are different from world prices only by virtue of the exchange rate (with perfect competition). Terms of trade are thus defined as national (= world) tradables prices / national non-tradables prices.

The standard model then regroups economic sectors into three categories (see figure below): Traditional or Resource Tradables are goods and services whose prices are determined by supply and demand on world markets, including the extractive industry. Non-Traditional Tradables are modern elements of agriculture and the manufacturing industry, the expansion of which is desirable from an economic point of view. Non-Tradables are goods and services such

²⁴ To an extent, this corrects the sweeping statement on the minor weight of three out of the four linkages. Forward and backward link effects are still likely to remain weak in terms of goods supplied to the mineral sector, but factor links and moves become important, as well as the consumer link. See below.

as national transport, construction, retail and household services which are either physically impossible to buy or sell abroad or not conventionally bought or sold outside the country, mainly because of transport costs. Prices of non-tradables are determined by market forces within the economy; any shift in supply or demand will change the price of non-tradables. An obvious criterion for the classification as tradables is the exposure to competition in international trade – export-competing, import-competing, or both. Marketed outputs are considered to be non-tradable as long as they are only domestically sold. In this sense, the non-tradable part of agriculture, for instance, is broader than non-market subsistence farming. Marketed outputs such as sorghum or millet are also regarded as non-tradables as long as they are only sold domestically or in the bordering region, which makes little difference since cross-border trade does not generate a world price.

Figure 5: Tradables and Non-Tradables in resource-rich economies



The breakdown of sectors in the figure above is not new. It always allowed to model intra- and inter-sectoral outcomes of mineral resource windfalls.²⁵ Compared to earlier versions, it now differentiates among services which once were all treated as non-tradables while more recent research tends to eliminate the distinction altogether. Yet this is somewhat throwing the baby with the bathwater as technical difficulties to trade *some* services and higher trade barriers for services compared to goods – despite all GATS and TiSA efforts²⁶ – testimony of their still lesser tradability. What was once a stylized theorem has become an empirical question.

5.2.2 Five Dutch disease effects

Of particular interest are the co-variants behind the tectonic shift that generates the tertiarisation of the economy. In fact, each of these sector groupings is influenced by a vector of several effects:

1. The nominal exchange rate effect
2. The spending effect, also called the price effect
3. The resource movement effect, also called the factor effect
4. The environment effect
5. The infrastructure effect

The first three effects are drawn from classical Dutch disease literature. The fourth and fifth effects are our add-ons to the model. They are not systematically dealt with in seminal explanations of the economic DD vector even though their impact is physically more obvious than is the case for the three “classics”. Moreover, the fourth and fifth effects economically generate covariance with the same sign.

Nominal Currency Appreciation is a result of increased demand for the respective currency on world markets when there is an influx of revenue from mineral or energy resources. Tradables denominated in local currency suffer from reduced competitiveness on the export side and increased foreign competition on the import side. Volatility in the world price of commodities contributes to this effect by creating abrupt nominal exchange variation. Hence the channel has both a medium- and a short-term dimension.

²⁵ In agriculture, intra-sectoral re-composition occurs when, under pressure from shrinking import purchasing power (in bust periods), sales of “non-traded” produce massively increase when people are forced to replace e.g. in West Africa rice by cassava.

²⁶ GATS = General Agreement on Trade in Services; TiSA = Trade in Services Agreement.

The second factor, the **Spending or Price Effect**, operates through the rise in demand for non-tradable goods when the prices of these goods increase, as prices in the traded good sector are set internationally and thus cannot change. The extent to which a price rise for non-tradables will translate into higher general inflation depends primarily on two factors: the relative size of the two sectors and the nominal exchange rate (= for tradable goods). If the currency is allowed to appreciate, general inflation effects may be minimal, which is desirable for inflation targeting, but less so for structural policy. Beyond this, overall price effects depend in particular on the government spending curve and a possibly ensuing output gap, which would drive inflation.

Lastly, the **Resource Movement or Factor Effect** refers to the re-allocation of labour, capital and even land as driven by factor price moves. During a boom time in a resource rich country, scarce human resources and capital are drawn to the newly emerging mineral riches and downstream services or construction. This constitutes a crowding-out between two parts of the private sector.²⁷ Higher income spurs faster domestic inflation by creating greater demand for all goods and services, and producers of tradables face rising costs in their purchases of non-tradable goods and services. The rising costs also include the wages of their workers, but producers cannot charge higher prices because they are in competition with foreign producers. As a result, they face a profit squeeze that will cause some of them to reduce production and employment.

Taken together, all three price effects (on the national currency, goods and factors) lead to a **Real Exchange Rate (RER) appreciation** and engender mostly unwelcome or reverse structural change. Capital account movements often accompany and aggravate the process. The brain drain exerted by booming mineral and service sectors on the brightest minds among a country's few technically trained professionals may put a particularly severe burden on both the manufacturing sector *and* a government's capacity to politically and administratively steer further technological upgrading. The result is a lowering of political and technical absorption capacity in the private and public spheres.

A final consequence relates to productivity. If the tradables sector – above all: manufacturing – plays, as widely assumed, a key role for a nation's productivity (both level and growth), then a shrinkage of modern tradables results in an economy-wide, permanent reduction of productivity.

In our systematic taxonomy of cases justifying industrial policy in general, resource extraction cum tertiarisation represents the second highest level of analysis in which **entire national economies** are affected by adverse specialisation. Based on both research and everyday

²⁷ Some analysts also identify risks of crowding out the (non-resource) private sector through the public sector.

observation, one can argue that there are two additional transmission channels that work economically in the same direction as the three previous ones.

The fourth spillover from the Dutch disease is the detrimental **Environment Effect**. Risks to the environment are systematically entrenched in the physical nature of mining and drilling, even when it takes place off-shore, as incidents from Brent Spar in the North Sea to the BP oil spill in the Gulf of Mexico have shown. This is textbook market failure since high social costs are not borne by private investors unless these costs are forced upon them. The environmental dimension of the resource curse can be seen as negative externality intrinsically associated with the Dutch disease, hence the economic dimension of the resource problem. However up to now, it did not feature alongside the first three effects in the small open economies model and has thus remained peripheral to the economic core model of the Dutch disease as discussed in the literature.²⁸ Yet, ecological damage is a long-term problem that was already relevant to the original Dutch gas production. Concerns for geological stability have been raised ever since gas extraction from Europe's biggest field (and the world's tenth largest) began beneath Groningen in 1963. The first minor earthquakes occurred in 1993 and have since increased in magnitude, causing an estimated damage of 6 bn € compared with 265 bn € cumulated revenue. The ensuing round of fresh protests in recent years demanded to scale down gas production.²⁹

Macro-economically, the environment effect works very much in the same direction as the rest of the vector. As long as the social cost of environmental damage remains external instead of being internalised in the cost structure of mineral firms, it lowers costs and hence prices in the extractive industry, but drives up costs and prices in other sectors, including branches producing tradables and non-tradables. Consequently, sustainable national asset management should include compensatory payments for such externalities. When the extractive industry drives people out of agriculture or fishing because of the proximity of pits and platforms as in the Niger delta, it engenders adverse factor allocations as well. A full register of mineral resource impacts would thus have to list the systematic, (mostly) adverse effects which land or water source expropriation have on local communities (= a sub-category of the factor effect) or

²⁸ To make it clear: the broader literature and the taxonomies on resource curse cited of contain ample references to environmental risks, but not in alignment with the three price effects.

²⁹ Gas production in the Netherlands is still more representative of global Dutch disease problems than one might expect. Unlike in Norway, no public revenue from gas is currently stored away in a reserve fund for future generations but flows entirely into the state budget, contributing 10% of the total. In 2013, the budget deficit without gas revenue would have amounted to 5% instead of 2.5%, thus exceeding the EU Maastricht cap of 3%. Meeting the demands of the region's inhabitants to reduce gas extraction is as much fiscally as geopolitically difficult: Dutch gas supplies 15% of European gas consumption, thus reducing dependence on Russian gas.

environmental damage, with a link to the topic of resource-triggered *conflicts* (omitted from this text).

A fifth detrimental effect is generated by the intrinsic disposition of the extractive industry to absorb the infrastructure needed for its proper functioning: ports, railways, access roads, power, water, and even social facilities – from schools and health care to security services. We call it the **Infrastructure Effect**. While certainly essential for the extraction process and sometimes beneficial for mine workers and others living in the vicinity, infrastructure provided by the industry itself directly and indirectly contributes to the neglect of public facilities. This occurs when the most powerful economic sector can afford to live as an enclave and/or diverts scarce infrastructure provision to itself as currently in Zambia, where electricity already in short supply is absorbed mainly by the copper industry. In other cases, the industry generates its own power. Even private businesses such as housing construction that thrive in the wake of the boom are detrimentally impacted by neglected civil engineering and a lack of public transport. The other aspect is that big mining and oil companies can afford to provide private schooling, health, and leisure to their relatively few and privileged employees (expression of capital intensity of the business).³⁰ Mining thus creates what are known as exclusive infrastructure catchment areas. The social cost of essential public infrastructure beyond the confines of such areas is thus raised, comparable to the environment effect. As a result, resource-rich countries in Africa face an outright infrastructure paradox.

Hence the fifth economic recourse curse effect³¹ is the adverse impact on public infrastructure, which the booming sector needs less than most or all other sectors (except subsistence agriculture, but here we face endogeneity). The mineral sector has less interest in public infrastructure than any other important taxpayer. Africa abounds in glaring examples of the fifth effect. This author recalls a night journey in the late 1980s through the mining town of Obuasi, which required a four-wheel drive because the public tarmac road – in fact the main road between Kumasi and Accra – had deteriorated into a several-meters-deep roller coaster with no street lights. The local Ashanti gold mine, by contrast, was lit as bright as day, and the ore was transported in tipping wagons conveniently hung on a ropeway high above what once was the street. Fortunately, the state of the roads in Ghana has improved dramatically since then, but the incident illustrates how far the discrepancy between conditions within and outside of the booming sector can go. Hence according to the “model”, a composite index of per capita

³⁰ The consequence of which we saw in the Zambian example. Nearby Katanga mines provide more examples where engagement in “leisure” extends today to fielding a football team, high-performing both nationally and internationally.

³¹ At this point it should be clear that “Dutch disease effect” is a misnomer since to our knowledge, neither neglect of public infrastructure nor a drain on skilled labour were associated with the original Dutch disease in the Netherlands, while the environmental effect was.

physical and social infrastructure is expected to be lower as a function of tax revenue levels, a vector of political economy factors and a probably binary variable if resource extraction set in before or after broad-based industrialisation (excluding countries like the Netherlands, Norway, and the United Kingdom). As we will see below, reversing the infrastructure effect plays an important role in the proposed remedies for the Dutch disease.

Taking the two latter DD effects together, it can be said that the environment effect externalises costs that should be firm-internal, while the infrastructure effect internalises facilities partly at the cost of the extractive industry that should be external or, in other words, available to the society as a whole as a public good.

5.2.3 More on economic effects

In a way, all five DD effects are *price* effects – of the national currency, goods, factors, the environment and infrastructure – and engender *factor* reallocations which represent unwarranted structural change. The full DD vector as presented here tends to reverse the general predictions of the Balassa-Samuelson theorem for the special group of resource-rich developing countries. In their seminal research, Balassa, Samuelson (focusing on productivity and wage differentials), Bhagwati-Kravis-Lipsey (focusing on factor endowments) and many other contributors examined why the law of one price and global purchasing power parity obviously does not apply to developing countries. They all pointed – with different explanations – to the lower prices of non-tradables in poorer countries as the main reason for lower general price levels. They gave exemplary status to the ubiquitous cheap hairdresser working out of a roadside shack. In other words, a country's price levels are positively correlated with per capita income due to the modest prices of many services and construction in low and middle income countries. The DD diagnostic, however, calls into question or even disproves the validity of these long-debated findings as applied to a subset of economies, and there appear to be few linkages between the two bodies of research.³² In fact, we find two tradables sectors in resource rich countries: one (manufacturing etc.) with the features of the BS-models, i.e. lower productivity and lower wages than in advanced countries, and the other (the extractive industry) with metropolis features, i.e. high productivity, high wages and high capital intensity. The non-tradables sector in these countries does not perform like the first one (manufacturing, etc.) and thus does not entirely behave as predicted by the theorem. Note that that the empirical

³² If the relevant literature refers to refers to DD effects at all, then at best with reference to the Netherlands itself. For a textbook summary see Krugman, Obstfeld and Melitz (2012). Referring to national accounts data represented in the Penn tables, Krugman et al. briefly observe that outliers are countries like Saudi Arabia, rather with higher per capita incomes but lower price levels than the USA, in other words extremely resource-rich countries (ibidem, p. 433, FN). Both subgroups share the phenomenon of disproportionately high prices for non-tradables.

degree of deviation from the theorem depends on whether you travel to Lusaka or to Luanda, both in resource-rich countries.

Among the classical economic factors, the factor effect comes into play for land (removed e.g. from agricultural uses), capital (drawn into oil, gas, and mining), and labour. As land is generally abundant in Africa and capital for big mining mostly comes from abroad, the labour effect will arguably be the most important one, although a capital drift e.g. into artisanal mining and domestic capital attracted by an oil bonanza should also be considered.³³ In countries with abundant unskilled labour, mass unemployment and capital-intensive extraction, the drain is mainly on qualified workers, technicians, and engineers.³⁴ Because working in the oil industry is an envisaged career path for the few students who choose engineering disciplines, it aggravates the scarcity of skilled labour, thus driving up the price of labour in these ranks.³⁵

Unskilled labour in turn is drawn into certain non-tradable branches. Particularly striking manifestations of Dutch disease are the construction booms witnessed in African capital cities and often taken as a sign of economic modernisation. However, construction booms in Lagos, Luanda or Malabo are manifestations of skewed economic growth in non-tradables rather than signs of lasting prosperity; the few accompanying industrial investments such as cement factories produce standard goods without much competitive appeal.³⁶ And this is precisely what one encounters when looking for a decent apartment or going to a modern hairdresser in Luanda (not your road side haircutter): prices are appallingly high, despite the construction and service boom. This is not to tone down the intermediate role played by the construction sector

³³ A particular expression of the capital factor effect accompanied the 2015/16 Nigerian crisis: dazzled by the golden opportunity, domestic capital bought massively into oil fields and drilling rights, financed partly by foreign credit. When the oil price and the exchange rate went down, dollar-denominated debt became doubly hard to repay – another facet of the peculiarity by which an otherwise healthy devaluation aggravates the problems of a structurally skewed economy.

³⁴ Which is why the earlier argument of unused labour supply is hardly a valid counter against the factor effect.

³⁵ Kingsley, the hero of Adaobi Tricia Nwaubani's acclaimed novel personifies another variant of the same problem in Nigeria. University-trained as a chemical engineer, Kingsley is geared to getting a job in the oil sector. After failing to find work in a sector already saturated with engineers, he cannot find employment in Nigeria's dwarfed manufacturing sector either. He finally turns to a booming special branch of financial services, known as advance fee fraud (AFF), in which he excels to the dismay of his solidly Christian family (Nwaubani 2009).

³⁶ This does not imply that establishing a cement factory in a small country like Namibia is economically senseless, as the good produced comes with high international transport costs and might therefore be competitive in the domestic and surrounding markets. In fact, almost all African countries now have at least one cement factory, as part of the standard package of stand-alone industrial units, along with their brewery and grain mill. The Dangote group alone operates 18 cement plants across Africa.

for some absorption of the unlimited supply of labour and some acquisition of basic technical skills. The construction boom works similarly in resource-poor Ethiopia and Rwanda.

The direct and indirect de-industrialisation resulting from the situation described above is especially harmful for modern manufacturing, which is, next to agriculture, one of the sectors likely to yield the most rapid capacity and employment growth. According to Corden and Neary (1982) and subsequent literature, the effects of de-industrialisation can be measured against norms for sector weights at given GDP per capita levels (Chenery, Robinson and Syrquin 1986). This means that in international comparison with other countries at the same GDP level, the proportion of a country's total GDP constituted by its manufacturing industry or non-traditional agriculture prematurely shrinks below expected levels. In this situation it becomes particularly difficult to make the inevitable adjustment back to non-boom tradable production once the mineral resources have been depleted. The decline in non-boom tradable production creates a lock-in effect that turns a foreign exchange surge into a lasting "disease".

We encounter the notion of premature deindustrialisation in the new debate on growth and structural change. Fresh evidence seems to call the prospects for sustained growth through industrialisation into question, even for those otherwise in favour of this development path.³⁷ It has contributed much to a second, soberer reading of the *Africa Rising* narrative, but historically and doctrinally, the mineral resource-related phenomenon came first. It started in the 1950s in Latin American and African countries, which at the time lacked either the wisdom or the necessary interplay of economic and political interests to facilitate vigorous action in favour of an ailing manufacturing industry. Policy failure thus added significantly to the phenomenon of early industrial decline and can be depicted on an inverted U-shaped curve of industry peaking earlier (in terms of GDP per capita) and at lower employment levels. The early deindustrialisation depressed income and demand. When present-day mineral affluent countries avoid this kind of policy failure they can manage to shift the inverted U to the right and upwards again.

Unfortunately however, by adding the factors "demography" and "household consumption" to the model, dependency on imports of food and manufactured daily necessities lead to a tipping point beyond which the exchange rate stops working as a policy tool or, similarly, can no longer be allowed to work as an automatic adjuster during mineral price contraction. The economy needs the overvalued exchange rate to feed its people, obviously more so in poor populous countries. The ratchet effect of modern tradables contraction is reinforced when fuel is imported and/or fuel subsidies are perceived as the only welfare effect that the poor receive as inhabitants of an oil producing country. Beyond the tipping point, a macro-economic poverty trap yawns. Venezuela is probably caught in the trap; Nigeria is currently in the midst of an erratic search

³⁷ See McMillan and Rodrik (2014); McMillan and Harttgen (2014); Rodrik (2015).

process to determine whether it is trapped (see box on Nigeria below). The body of literature on low-level equilibrium traps makes for insightful reading.³⁸

Mineral resource abundance creates not only structural imbalances at sector and sub-sector levels, but also regional imbalances, obvious both in individual countries and in regional economic communities (REC). Present even in very small open economies, regional imbalances arise most notably in big oil and mining economies. Such imbalances can function positively in the agglomeration of regional growth poles and negatively when collusion between companies and local elites (including localised rents), environmental impact, and localised conflict is an issue, as currently occurs from big mining in Papua New Guinea to oil spills in Nigeria's Niger delta. At an interstate level, a need for regional mining policy or for specific REC integration policy (or structural policy, as the EU calls its regional development programmes) arises. Some regional economic communities in Africa have developed joint approaches to mining and oil exploitation, including bold steps towards a common mining code, but they fail to deal with regional imbalances (Runge and Shikwati 2011: 157 et sqq.), foregoing also the opportunity to relax local content or procurement rules in favour of regional suppliers.

³⁸ One textbook treatment of Dutch disease with low-level equilibria under sector-differentiated returns to scale is Ros (2000: chapter 8), albeit strangely without exchange rate and policy implications.

6 Policy responses

6.1 *Sector neutrality?*

We can now draw a first conclusion for the overall policy mix. While industrial policy in the core mining business as well as in the periphery of pits and platforms is amply justified, it does hardly solve the full problem of the fledgling sectors that are exposed to international competition. In the ideological twilight zone of conventional “private sector development” (PSD) and barely rediscovered industrial policy, governments in mineral-rich countries but also aid agencies think that they are doing good enough work when they strengthen the knowledge transfer within the extractive industry and some value chain links in proximity of the same. On top, they are dazzled like everyone else by the mirage of glass facades and cell phone towers, reflecting soaring non-tradable and service sectors. So, they remain neutral as to the required sector mix in minerals-endowed countries.

The DD literature however is crystal clear since decades, and only for this reason we have run the extensive recall here: a) the modern, non-artisanal extractive industry is rather ill-suited for mass employment and for many linkages up, down and to the sides, except a strong fiscal link; b) those suffering most are not in the extractive industry or in their neighbourhood – despite all the neglect and damage to the environment that has to be fought here – but in the remote sectors of marketed agriculture and manufacturing tradables. Remote as they are, they are rather neglected by the helpers. Procrastinated by ideologically inflicted sector-neutrality, one recommends “diversification” and understandably concentrates on the sectors that are around and booming, yet not realising that successful industrial and service promotion in the periphery of pits and platforms exacerbates at the least one Dutch disease factor effect (the drain on the brightest talents) by further reducing the attractiveness of jobs off-mining, or creates unwarranted regional disparities.

6.2 *Easy cures, except for the political economy?*

The exposition above essentially puts in a stylised framework what is debated since long about the natural resources problem in development. Yet far from representing an established consensus it should be remembered that not everyone was convinced. At this stage, it is important to note how much the debate has evolved since the late 1990s. Over the 1980s and 1990s there was a considerable body of research contesting the severity of the DD and its typical transmissions channels, claiming that the effects were rather mild and the problems technically

easy to handle. For instance, the appreciation of the nominal exchange rate was also seen as a factor making imports of intermediate goods and machinery cheaper, thus helping manufacturing. Or, when dropping the assumption of full use of economic factors, the drain of capital and labour appears manifestly less dramatic. At the time, Michael Ross summed up over the body of evidence according to which

“the Dutch Disease may be less common in developing states and more easily counteracted by governments than initially thought.” (Ross 1999: 306)

If later it became clear again that the disease effects were nevertheless severe and the easy remedies not widely applied, then the explanation must have lain elsewhere, other than in economics. When considering the studies regarding DD problems and the wider mineral resource curse,

“these studies also suggest that governments can take action to address these problems, in turn suggesting that these negative effects may operate more through political than economic mechanisms.” (Rosser 2006: 14)

Consequentially, authors in the footsteps of institutionalism took this as an introduction for their own discourse on the primacy of political explanations for the resource curse. Political economy reasons matter enormously, but few would assert at present that the resource curse at large and the Dutch disease in particular are economically easy to cure. We will argue in the following that the economic problem is even more daunting than currently thought. In essence, all this represents an extended version of Ross’ “fallacy of unobserved burdens” (2012: 215): Governments in resource-rich countries have far more complex economic responsibilities to shoulder than hits the eyes of those criticising them for outright political failure.

6.3 Macroeconomic Steering

First-hand policy measures against imbalances of resource-dependent economies can be conceived in an adapted standard macroeconomic framework. In standard analysis, the macroeconomic equilibrium is defined as a match between supply and demand in two markets: non-tradable goods (internal balance) and tradable goods (external balance). In order to achieve an equilibrium in both markets, two conditions must be satisfied: expenditure must equal income, and the relative price of tradables (the real exchange rate, in one definition) must be at a level that equates demand and supply in both markets. This finding in itself suggests macroeconomic or fiscal remedies for an economy that is out of balance: governments can

stabilise the economy by either adjusting total expenditure (also labelled macroeconomic absorption) or the nominal exchange rate – or both, for which they have three instruments – fiscal policy, exchange rate management and monetary policy. As a basic rule, all instruments must be used in coordination to achieve internal and external balance.³⁹ There are two problems with such classical macro adjustment – the one is rigidities, treated in the textbook, the other one, not mentioned, is on the choice of policy instruments.

First. Once in disequilibrium, economies have built-in tendencies to move back into balance. Yet, although these self-correcting tendencies exist, in practice they often fail to work smoothly or quickly enough because of structural rigidities in the economy. Those are, for instance, exchange-rate changes that may take time to affect actual imports and exports, inflation which may resist corrective policies or some prices that do not fall easily.⁴⁰ Representative for the kind of thinking, Perkins and co-authors (2001) assert that such rigidities, important as they are, should not be overestimated. This is unconvincing, all the more as they admit themselves that non-booming tradables bear the brunt of the adjustment in the tradables market, because the booming mineral export sector will not retrench as long as the boom lasts, while the non-tradables market represents the stronghold of rigidities and monopolies. Once the disequilibrium is underway, it is therefore extremely difficult to combat it with classical macro instruments alone.

Second. In textbook macroeconomic analysis, the best logical prevention of Dutch disease effects is to avoid or reverse the initial real appreciation of the currency (Perkins et al. 2001: 648). Technically, this can be done in two ways – either by managing the nominal exchange rate, fixing a somewhat undervalued target, or by monetary targeting to bring the price component of the RER down. To combat the high inflation rates of the 1980s and 1990s, developing countries have been nudged into inflation targeting, among them many resource-rich countries, which drops the exchange rate as policy lever, which is left floating except for short-term stabilisation. Monetary targeting can make sense for booming resource exporters, where the authorities, dizzied by the prospects, let money supply get out of control. However, where CPI and producer price increase is essentially due to the structural shift into non-tradables, inflation targeting via monetary policy is unlikely to produce the desired outcome. On the contrary, it will constrain the already hard-pressed tradables producer even further, especially when combined with other inappropriate policy measures. Therefore, direct management of the

³⁹ For the arguably best textbook treatment see Perkins, Radelet et al. (2001)

⁴⁰ Typically, as Perkins and his co-authors mention, unions resist wage adjustments, banks use their market power to keep interest rates high, producers are dependent on imports whose prices are responsive only to exchange rate adjustments, and large firms with monopoly or oligopoly power resist downward pressures.

nominal exchange rate needs to be re-established, either by fixing a rate or allowing any sort of managed floating.

Much the same applies to recommended strong restraints on government spending, also aimed at curbing inflation. The government would need to resist demands for expansion and save its new-found revenues until there is time to plan sensible projects with high returns and in the meantime keep inflation under control – so the story goes. One obvious point of criticism refers to the use of such short-term stabilisation policies, contractive in nature, to combat long-term structural rigidities, part of which are idiosyncratic for the resource problem and others typical for many developing economies. Combating in particular rising price levels, mainly driven by non-tradables, with restrictive monetary and fiscal policies is essentially off-target, unless prudent expenditure policy is dictated by politico-moral or technical absorption problems, in the sense of the two right-hand absorption gaps mentioned above.

Zambia, during the copper boom in the 2000s, represented a showcase for misused stabilisation instruments. A priori, everyone would have acknowledged the importance of coordinated macroeconomic management to control upward pressure on the country's nominal exchange rate and the amplifying inflationary tendencies that together led to real appreciation of the currency. Yet, orthodox macroeconomic policy materialised in IMF recommendations led, according to a C DPR/SOAS analysis, to an unfortunate bundle of wrongly coordinated policy prescriptions, producing the exact opposite, because

“combining deregulation of the capital account and a floating exchange rate with monetary policies that are fixated on maintaining low inflation is a recipe for a Dutch disease disaster”. (Weeks 2008)

It was aggravated, under pressure from IMF and World Bank, by badly negotiated contracts for the privatised mines, the renegotiation of which has become a recurrent concern for Zambian governments until today. This limited fiscal policy space further, at a time where it is “extremely important that fiscal policies be designed to reap the benefits of a boom in revenue in order to finance public investment and support private investment” (ibidem). Rather, monetary policies would have to be aligned to an appropriate exchange rate management and combined with capital-account regulation which counteracts short-term speculative capital inflows.

With hindsight, much of the adjustment policies of the time would be conceived differently today. The interesting question arises after the primary adjustment. Assume that the appropriate mix of macro-economic instruments has been set in motion, and in particular a managed exchange rate works against the pressure for a real appreciation of the currency. The crucial question remains: can the macro policy mix on its own be expected to solve the problem of our resource-rich country, including a macro-economic demand constraint, at the most supported by

some rules for the appropriate composition of public spending,? A qualified yes from a Keynesian point of view was the answer suggested e.g. by the CDPR/SOAS analysis quoted, from some of their country case studies on three continents at the time of global financial crisis (McKinley 2008). Yet, Weeks' analysis of the Zambian case therein pointed inter alia to the need to maintain substantial agricultural border tariffs and bold support for rural infrastructure, to counter the decline in food self-sufficiency – the opposite of what IMF/WB made happen and not exactly a macro tool.

Little in the end suggests that the parallel decline of agriculture and manufacturing can be stopped by good macro-management alone – to the contrary, new found equilibria adjust the tradables sector always in favour of resource tradables. While conceptually not fully sorted out, the available evidence therefore hints at the crucial need for a bunch of structural policy measures to fully solve the problem.

6.4 Structural policy responses I – Dealing with the Infrastructure Paradox

Assuming that the degree of stabilisation which can possibly be reached by macro-economic policy tools has been achieved in the markets of tradables and non-tradables, the other big challenge related to resource richness remains – this is the inter-sectoral one. In essence, this represents a transfer problem from the extractive industry to all other sectors, in particular to the neglected or actively depressed ones. Paul Collier and Jan Willem Gunning have reviewed long ago the surprisingly intricate question what resource-rich countries should do with money that accrues in the wrong place, from the vantage point of desirable private sector development. Suppose proper taxation of the extractive industry is in place, proposition(s) on how to get oil money from A (government) to B (private sector) range from investing in infrastructure, in social subsidies or in what he dubs (productive) “equipment” (Collier 2007; Collier and Gunning 2005).

The first part – investing in general infrastructure – responds to the fact that public infrastructure suffers the same fate as modern agriculture and industry: not only neglect but active depression. As part of the explanation we suggested that the extractive industry itself can forego public infrastructure easier than anyone else, because of production specifics and conveniently high profit margins. The one road, railroad, port or airport which it needs can be privately built and run. Also power supply can be organized within the enclave. Consequently, African governments routinely turn the thing around and press mining companies to spend directly on roads, railways, schools and hospitals, which are now a customary part of the

package the industry offers to acquire mineral rights (*The Economist*, 11th Feb 2012). This extends the infrastructure catchment areas but does not really produce general infrastructure. Technically though, solving the general problem should not be a big issue either, at least during boom times. Royalties and taxes from the extractive industry accrue to the government, which can invest it in physical and social public infrastructure. Public revenue goes to public investment – thus no transfer problem.

Remaining problems inter alia relate to the political economy of infrastructure projects, from frequent embezzlement of public money to sectoral economics. Construction largely remains non-tradable, even though material can be imported and large foreign construction companies – French, German, Chinese – participate in many infrastructure construction projects in Africa. Supply responses tend to be inelastic; oligopolies are easier to defend, and collusion with bureaucracies drives costs up and quality down. Therefore, proposals on how to reduce the marginal cost of construction and thus to temper the non-tradable price effect are good industrial policy. Building on earlier proposals, the *Learning to Compete* Report has put together a number of ways how to remove skills bottlenecks and incentives for collusion in the construction sector, building on positive experience e.g. in Botswana (Newman, Page, Rand et al. 2016: 191-194). This helps both private and public construction.

Putting emphasis – even more than in the usual mantra of “Closing Africa’s infrastructure gap” – on tax-funded improvements of nationwide infrastructure is hence in order for mineral rich countries and can in many country cases decisively help manufacturing industry which is more than proportionately hampered by defective infrastructure – the inverse of the situation for mines and oil platforms. Somewhat paradoxically, the World Bank replies with a new initiative precisely to the power infrastructure problem, by trying to engage big mining firms as “anchor consumers” for participation in electric power programmes. Such is “The power of the mine” (Banerjee, Romo, McMahon et al. 2015). Can this be good industrial policy? It actually can, in a downstream perspective. The relatively comfortable position of Big Mining and Big Oil, with regard to power supply, is suddenly reversed when further treatment of ores and crude oil is envisaged. Smelters and refineries of gold, platinum, iron ore or bauxite are not viable without abundant energy. Turned positively, this made Mozambique with its energy from Cabora Bassa a location for Mozal, the huge aluminium smelter although the country has no bauxite, while negative analyses point out that South Africa’s enduring power shortage may render the government’s mining beneficiation policy structurally unviable, that is: for years to come.

6.5 Structural policy responses II – Transfer to households

In recent years, we observe a turn to more realistic analysis of the “African Rising” experience. As argued elsewhere (Asche 2015), a parallel opinion shift in the area of social policy is in fact causally linked to the economic “down to earth” mood. The link is rarely made as clear as in a recent policy proposal for resource-rich countries in Africa. Most of them are obviously not translating their mineral wealth into mass employment and shared growth. Bold suggestions for direct (re-)distribution of mineral resource revenue have been in the air for quite some time⁴¹, including proposals as e.g. by Collier to operate a transfer to households by earmarking funds for school or varsity bursaries. Given the sober employment prospects for Africa, World Bank authors now convincingly reiterate the suggestion that direct payments – conditional or even unconditional cash transfers – from resource dividends can tangibly reduce poverty through increased private consumption (Devarajan and Giugale 2013). Regarding oil-producing countries, the plead for direct household subsidies is also motivated by the critique of pervasive fuel subsidies.

Such a cash payment programme would take care of one part of the transfer problem in resource-rich countries – transfer of mineral revenue to a broad layer of private households. The remaining part is transfer from the extractive industry to other industries – agriculture and manufacturing, typically marginalized in oil producing countries. Though badly needed, not only for resource-rich countries, productive subsidy schemes to these two core sectors remain suspicious for the same institutions who are now excited about social subsidies.

6.6 Structural policy responses III – The main transfer problem

Apart from social transfers, the thrust of corrective action should clearly be on productive investment (“equipment”). As the latter is mostly private, several policy options are available, among them tax incentives. However, the preferred channel in Collier’s proposals is a buy-back scheme. The authorities should buy back domestic debt titles, in order to increase private sector liquidity. The reader recognises immediately that the proposal flies in the face of IMF-style monetary restraint and (low) inflation targeting. However, it remains on the same turf of neo-classical policy, just with an inverted sign. Why?

The key proposal of a domestic debt buy-back reflects the basic fact that SSA still has the lowest credit to GDP ratio of all developing and emerging regions, of slightly over 20% in 2014, and it

⁴¹ See GIZ for an overview in Mildner and Lauster (2011: 96-97).

correctly refers to the phenomenon that private banks in Africa have a high preference for treasury bills, crowding out credit to entire sections of the private economy. Buying back such bonds increases the liquidity of the financial intermediaries, theoretically inciting them to dish out more credit for industrial and agricultural investment. Now, the banks' preference not only for T-Bills but for a 3T+2C credit portfolio (to Transport, Trade, T-Bills, Construction and Consumer durables, esp. cars) mirrors in itself the real or perceived lack of other lucrative investment opportunities. It is beyond imagination how the financial sector, out of sheer over-liquidity, would opt for a portfolio re-composition in favour of manufacturing industry or commercial agriculture, both severely suffering from the impact of the resource boom.

Ironically, buying treasury bills as core proposal is exactly what for instance the US Federal Reserve Bank does during a normal recession. It drives interest rates on government debt down and motivates investors to move into other assets with higher returns. But what happens when the underlying situation is no normal recession? Then, the policy of the Fed or other central banks just drives interests down to zero (or below) without doing the economy any good (Krugman 2009); and even when interest rates in Nigeria or Angola are way above zero driving them down does not help in itself because a Dutch disease is no normal recession either. The problem is well stated but no solution offered. The proposed move has an obvious similarity with European Central Bank policy of quantitative easing, again through buybacks of government obligations to increase financial sector liquidity, with the explicit aim of boosting bank credit to productive investment, in particular in southern Europe – where however problems are again structural in nature and not cyclical.⁴²

The question can still be deepened, by examining another exposition of similar academic origin and applied again to Zambia (Adam, Collier and Gondwe 2014). Here, the Africa-wide dualistic enterprise structure is put in conjunction with Dutch disease effects from copper mining. By pointing at the very small number of large enterprises in most of the non-booming tradables industry, analysts identify a situation where monopolies maintain high barriers of entry, and an economy-wide *vicious circle* ensues, stopping most attempts to diversify and sustaining an overvalued real exchange rate. From this exposition it becomes still clearer that the situation is not remedied by just injecting liquidity into the economy and inciting the banks to lend to ...whom? A firm-size- and sector-neutral doctrine has no answer. The vicious circle has to be broken by a different brand of policy. Yet tellingly, neither the editors nor the contributors of the

⁴² Interestingly, resource-poor Ethiopia does the exact opposite, in her deployment of industrial policy. The contested "27% rule" requires private banks to *purchase* a 27% quota of government bonds for every credit, with the government arguing that private banks do not target the right sectors of the real economy, thus urging the government to raise money for the purpose. While identified as an inhibit to private banking, it remains to be seen if the directive can turn into a boon for otherwise neglected industrial development.

volume on Zambia arrive at any conclusion reminiscent of industrial policy. Again, they state the problem.

Or take both IMF and World Bank modelling of the economic consequences after Ghana has become an oil producer (Dagher, Gottschalk and Portillo 2010; World Bank 2009). Both policy proposals analyse oil (or gold) windfalls along with remittances and aid, because the three flows generate similar effects, and estimate outcomes with DSGE and CGE models respectively.⁴³ They identify macro-economic stability as precarious, as much as the fate of non-oil tradables in manufacturing and agriculture. This is in line with the traditional analysis of resource riches. When it comes to remedies for the two sectors, consistency between fiscal and monetary policy is emphasized but specific suggestions are entirely confined to improvement of Doing Business conditions and better provision of public goods and public investment. Critical shortages and price hikes of marketed inputs for tradables do not come into play – in particular, no mention of key agricultural inputs like fertilizers or seeds, where targeted interventions may be needed.⁴⁴ Certainly we do not expect any mention of industrial policy in such IFI blueprints. Yet there is still more: Referring to likely risks for political capture of oil revenue in Ghana's "factional" democracy, the key recommendation of the World Bank reads:

"In the face of such challenges, the fundamental issue is the acceptance and ability of ruling political forces to renounce the discretionary power provided by windfall revenues." (World Bank 2009: 5 and passim; my emphasis)

Among the recommendations of what Ghana should do instead there is an undisputed part: the closing of general public infrastructure gaps which affect everyone and from which non-mining tradables suffer disproportionately. Otherwise, the statement represents not just an omission of industrial policy; it amounts to the exact opposite. For discretionary spending read targeted spending and we have the main political economy message of the World Bank for Ghana: forget any fantasy of targeted support for the likely economic victims of the looming resource curse; concentrate entirely on general public goods in education and physical infrastructure, where there is (allegedly) little room for discretion. Guess which policy outcome appears more plausible: that the Ghanaian government agrees with the IFI to relinquish discretionary spending altogether or that national stakeholders urge the government to use windfall profits

⁴³ DSGE = Dynamic stochastic general equilibrium; CGE = Computable general equilibrium.

⁴⁴ Fertilizer prices in Africa are known to be particularly sensitive to the oil price, by cost effects in production and transport.

for selected political aims?⁴⁵ Ideally a well-structured national dialogue would agree on bold targeted support for those economic sections that suffer most from the incipient resource curse.

Similarly, a comprehensive Oxford Policy Management report has six recommendations on how to deal with the resource blessing or curse. Nothing in the report refers to managing the grave inter-sectoral imbalances that stem inter alia from real exchange rate appreciation (Haglund 2011). It proves that in the Oxford-liberal strand timid advances towards industrial policy as written e.g. into the UNIDO 2009 Industrial Development Report have still no intrinsic link to the main body of neo-classical thinking. The theoretical paradigms “resource governance” and “industrial policy” remain essentially divided.⁴⁶

The fact that minerals-rich countries have unique financial resources for overcoming industrial backwardness should give a powerful incentive to bring both together in practical policy. What explains the reticence of eminent scholars to think beyond school fences and agree with direct transfers to selected industries? There is one good historical reason. The stratagem to put oil revenue directly to use for industrial ventures has already been tried. The textbook case is Nigeria. Some forty years ago, a Nigerian government that was thrilled by the prospects of the 1974 oil price rise sank enormous amounts of oil money into an integrated steel mill, a petrochemical complex, automotive industry and large-scale irrigation – mostly straight into new state-owned enterprises.⁴⁷ The disastrous result is known, although the car industry in the end survived with foreign partners. The empirical narrative on Nigeria’s white elephants comes with a theoretical discourse why governments of resource-rich should scale down their ambitions. We get back to it in the end.

In spite of negative historic experience, a combination of good mining policy with targeted action in favour of “remote” risk-exposed industries remains imperative to steer clear of the resource curse. Richard Auty’s classical assessment of Hirschmanian links in countries like Chile and of the extractive sector’s intrinsic volatility, led him early-on to plead for industrial policy off the mineral and energy resource sector.

“Instead of adhering to sectoral neutrality, orthodox policy in the mineral economies should guard against the mineral sector’s potential to inflict structural damage. The abrupt exchange rate shifts which the fluctuations in revenue flows from the mineral sector trigger must be muted. The diversification into competitive non-mining tradeables

⁴⁵ Here we mention in passing that the aid industry, to which the WB and IMF belong as well, is the heaven of discretionary spending.

⁴⁶ The OECD-based Policy Dialogue on Natural Resource-based Development tries to build bridges since a couple of years. See DEV.NaturalResources@oecd.org

⁴⁷ For a summary of the African experience and the literature see Meredith (2005: chapters 16 and 22).

which will be capable of responding promptly to market signals needs to be enhanced.” (Auty 1993: 23)⁴⁸

Auty did not clearly answer the question in the negative whether such diversification means abandoning mining as the lead sector for industrialisation, but made it conditional on non-sector-neutral industrial policy, foreshadowing this text’s central contention.

“It suggests that the volatility of the mineral sector and its distinctive economic linkages (with fiscal linkage likely to dominate) render it a risky lead sector. This implies that policy should therefore **not be sector neutral**, as doctrinaire orthodoxy insists. Rather I should recognize the need to ensure competitive diversification of the non-mining tradeables, and especially manufacturing. In other words, the mineral sector should be used as a bonus with which to accelerate structural change.” (Auty 1993: 8; author’s emphasis)

Altogether, Auty (1993) and his subsequent work was an early and well-considered plead for the strategic combination of mineral resource governance and industrial policy, however not yet fully worked out and not heeded at the time, in an international setting dominated by structural adjustment with extreme market-liberalism.

An essential part of the answer is that the whole range of targets, contents, processes, institutions and tools discussed under the concept of New Industrial Policy applies to the manufacturing industry of resource-rich countries as well, and *a fortiori*. Modern industrial policy proposals emphasise above all the need for close collaboration between the public and the private sector. **Collective search** replaces the earlier “government-knows-better” attitude with regard to identifying future industrial prospects. Contrary to the earlier paradigm of allocation-neutral facilitation of industrial investment,⁴⁹ NIP has to be bold enough to be **Triple-S-Specific**: policy should single out suitable SECTORS or industries, flag out firms of appropriate SIZE for targeted support, which means neither big monopolies nor necessarily small or medium enterprisess. The same applies to geographic SPACE. From Marshallian industrial clusters to new economic geography, it would mostly be foolish to fight agglomeration. However, the difference between manufacturing clusters and oil and mining clusters lies in the fact that spreads and spill-overs from the latter is often less straightforward. This is why selective efforts

⁴⁸ In fact, Auty’s showcase Chile excelled by nurturing new competitive industries, such as breed salmon exports, which have strictly nothing to do with industries built around the mineral and energy resource complex.

⁴⁹ In reality, the different fate of traditional commodity tradables and non-traditional tradables is the best illustration for Rodrik’s contention that all alleged sector-neutral policies were not actually neutral but favoured certain sectors while depressing others, without making it explicit.

to broaden and lengthen value chains are in order and the spatial dimension of this policy must *not* materialise near the mines.

Smart time-bound and benchmarked incentives need to be given to prioritised industries. When supporting non-extractive industries, the toolbox has to contain devices that work against harmful effects from all the five transmission channels identified: shielding against exchange rate fluctuation; wage subsidies for re-attracting qualified labour and engineering capacity; subsidized public credit when private credit – for the reasons reviewed above – is not coming forward; preferential power tariffs; WTO-conform measures of time-bound export subsidies for processed goods; effective compensation for negative environmental spillovers; etc.

The gist of the story is in three points:

1. Resource-rich countries need industrial policy even more than resource-poor countries, in order to diversify successfully, as the resource curse represents a classic whole-of-national-industry case of adverse specialisation.
2. Resource-rich countries, if prudently governed, have the discretionary means for the exercise, hence their financial chances to succeed are better than for resource-scarce countries,
3. With the typical political economy at work chances are worse because concentrated mineral wealth invites political capture, and many industrial policy measures directly run counter to the established access order.

Taking all strands of industrial policy across the various sectors together, good industrial development strategies in mineral resource-affluent countries operate with a fundamental threefold differentiation:

- a) Industrial policy in the core business of the mining or fossil fuel sector
- b) Industrial policy in the periphery of the pits and platforms.
- c) Industrial policy at a distance from the pits and platforms.

Do we know of any order of magnitude for the three sub-dimensions of industrial policy? Arguably not. To counterbalance DD effects, industrial policy has to focus on the distant producers in manufacturing and agriculture. However, some industrial ventures in the periphery of mines will be the lower hanging fruits with regard to employment prospects, while success in “remote” manufacturing is systematically hanging higher, and not every old manufacturing industry merits rehabilitation. The inverse is true as well: not all local content policy with regard to mines and pits is good industrial policy, as little as spatial concentration of all efforts, say, in Ghana’s oil-producing Tema-Takoradi area, merits support just because one can see the new derricks of Ghana’s oil production around there. In the end it remains an

empirical question which of the three layers of industrial policy appears most promising and where most resources should be deployed. What can be made mandatory from the theoretical deduction is to work out an approximate inter-sectoral and regional balance, and to communicate and execute it in a transparent manner, in order to avoid accusations of capture and corruption.

7 On the root cause – it's the economy or politics, stupid?

So far, we have dealt with the broad economic policy question on how to solve the problem of mineral resource riches in developing countries. Emphasis was squarely on the fact that good economic resource governance represents an extremely challenging set of macro-economic, fiscal and structural prescriptions which are all to be set simultaneously in motion and which are to be applied to three subsets of industries distinguished by their distance to the source of the problem.

Now, there is fresh argument from institutional economics that countries with rich oil or, say, diamond endowments are particularly ill-suited to carry out technically rational policy which benefits broader layers of society and entrepreneurship rather than small “elites”. That many such governments are neo-patrimonial regimes and rely on “limited access orders”, following Douglas North, is invoked as proof of the difficulty. In fact, German Development Institute and University of Cambridge authors (Altenburg 2013; Whitfield, Therkildsen, Buur et al. 2015) freshly apply the stream of literature on regime types, as surveyed by Rosser ten years ago (2006), to assess the prospects for meaningful industrial policy. Such reference to regimes that limit the access to resources in favour of their respective clientele, which is often ethnicity-based, is sensible. Of course, regimes in oil or diamond rich countries are more corruption-prone than others, and not only in Africa. This is an obvious risk for the observance of thrifty spending rules. Similarly, social transfers or structural support to other industries which are possibly at the hands of competing elites or ethnic groups may run counter to the narrow interests of the minerals power complex. Local content requirements still remain an invitation to patronage, etc. (Altenburg and Melia 2014). Targeted policy measures are by definition more prone to political capture or factional use than general public expenditure, especially when funded by “point” resources, not by general tax revenue. Thus, while we argue here that the list of economic difficulties in mineral-rich countries is still longer than previously thought, other authors convincingly claim that the list of political hindrances is as long as that. The above-mentioned World Bank invitation of the ruling elites (here: of Ghana) to “renounce the discretionary power provided by windfall revenue” seems to be a logical consequence.

One cannot possibly deny the often overwhelmingly negative impact of the political and societal drivers of the resource problem, in stark contrast to the rich business opportunities in the respective countries. However, one can refute the claim according to which there has been for decades a clear set of economic rules – if not an outright blueprint – on how to fight the resource curse, so that it must have been all politics, stupid, when governments in mineral-rich states stubbornly refused to play by these rules. The truth is that there has long been dos and don'ts on the shelf, mainly on fiscal and macro rules, but no complete textbook, and certainly not on

structural policy. The basics of industrial policy in resource-rich countries are not yet common sense. Although we are confronted here with a classic case of generalized market failure, by adverse specialisation of the national economy as a whole, a considerable part of the literature persistently professes that the problem can be resolved by markets, by conventional fiscal and monetary policies, plus more and better public goods. It is little wonder, therefore, that real-life attempts at true structural policy in resource-rich countries so often look clumsy.

For instance, an IMF publication, reviewing the full panoply of mineral resource related policies, acknowledged the need to somehow diversify but did not identify it as a strategic uphill battle against adverse impacts from all transmission channels. (Arezki, Gylfason et al. 2011) That resource-rich economies urgently “need diversification” is not an interesting policy recommendation; it is stating the obvious. At the height of the commodities boom Collier gave a short blueprint-style summary of mineral resource-related policy measures and concluded on the infrastructure proposal:

“Typically, the non-resource export sector of LDCs faces high costs due to inadequate infrastructure for transport and power. By investing in these sectors the government can fully avoid Dutch disease.” (Collier 2011: 5; my emphasis)

It sure cannot, even admitting that transport and power constitute in many instances the two most binding industrial constraints. Or recall the two authoritative flagship reports on the African natural resources boom cited in the beginning. Not only that they were tragically out of the date when published; none puts the links between resource abundance and selective industrial policy in clear terms, although we have shown that they are deducible as an inversion of well-known negative transmission effects. And take a latest publication in line, the final report of the Brookings/AfDB/UN *Learning to Compete* project (Newman, Page, et al. (2016). It contains rich empirical material on African industries and has very valid policy lessons, departing from old mainstream thinking around the Doing Business agenda. Of course, the report recognises the special problem of resource curse and Dutch disease and acknowledges that the required diversification is easier said than done. The chapter “Dealing with resource abundance” has well thought-out ideas⁵⁰ but systematically remains in the neighbourhood of the extractive industry, in terms of sectoral and spatial policy. In the geographical coordinates of Africa’s biggest resource-rich economy, it does not arrive in Kano, so to speak, with its hundreds of rusting textile mills and shoe factories, but stays at the coast.⁵¹

⁵⁰ For the one on the construction industry see above.

⁵¹ In a similar vein, “The African Economic Transformation Masterclass” series, written by ACET and published by *African Business*, in its part 3 (March 2016), deals with natural resource management. Having number of good points, inter alia on how to manage information asymmetries in geological exploration, it mostly dwells on local content and value addition and concludes: “if the linkages cannot be made, the

Now, from the black box of actual states at work (Bierschenk 2010) development-oriented authorities sometimes make a surprise appearance where one rather expects rent-seeking behaviour. Clientelistic elites at times discover their strategic interest to diversify away from oil and mining – as successfully done in Indonesia under the Suharto regime or in Malaysia during the first reign of Premier Mahathir. At first glance unlikely candidates put also in Africa such political intentions in the right terms on paper.⁵² However, they do this without a textbook. Up to now, they had to operate targeted diversification against the economic mainstream and got no advice on little known subjects like the threefold set of industrial policy needed and how to deal with the multiple transfer problem they are facing. (see box)

Box: Nigeria after the oil boom – easy adjustment?

Take the case of an austere personality newly arrived in State House of Nigeria, democratically elected and willing to rationally deal with the dire consequences of an oil price bust occurred at about the same moment when he took power. The president and his team immediately recognise number of dos and don'ts. They start by attacking frontally the stronghold of corruption (NNPC) and are determined to solve the most egregious economic sin in proximity of the oil platforms, that is exporting almost all the crude and importing the refined oil. However, when it comes to macro-economic adjustment, instead of letting one remedy (for transfer channel one) take its course – devaluation of the currency – the president fights it at all price and tries instead to operate the necessary downscaling of imports by a return to import bans and quotas, and by discretionary allotment of foreign exchange, encouraging the black market – a just arbitrary policy in the absence of any structural development plan.

This is bad economic policy, and in the meantime it has come to a certain end. Yet, which textbook on the economics of an oil-rich country could have taught the president better *structural* policy, modernizing old import substitution recipes? So, regime type is a priori not the problem here, but policy content.

What renders reforms still more difficult, even with the best will of the president and his economic team, is the fact that the Nigerian economy has arguably been driven beyond the *tipping point* at which the economic structure becomes so skewed that import dependence (for food and other daily necessities) renders currency devaluation near-inoperable lest social upheaval blows up the system. By way of consequence the abandon of the (bad) social subsidy of the gasoline price becomes politically still more difficult although it represents a fiscal nightmare. Otherwise, the president could have easily let Naira depreciate and would counter price hikes of intermediate and capital goods with targeted subsidies while leaving other imports to themselves. Instead, the government now violates by its border restrictions the rules and spirit of regional integration in the ECOWAS and of any possible trade agreement with the EU, which allow such trade defence measures only in a circumscribed manner.

infamous 'resource curse' phenomenon threatens to come into play" (p.47) – interesting but wrong, as the phenomenon also comes into play when local linkages work and may even become exacerbated by some of them.

⁵² See for instance the Industrialization Policy Letter for the Republic of Congo, conceiving off-mining initiatives and related public-private dialogue much in the right way (Sassou N'Guesso 2011).

In consequence, the evolving academic sub-discipline on natural resource richness in developing countries still has to rework and deepen its understanding of the interplay between the larger-than-previously-thought economic agenda and the regimes types in Africa. Consequences for another body of literature – the one on mineral resources and conflict – are beyond the scope of this text. For practical policy, the considerations contained in this paper may not only have some relevance for decision-makers but also enrich a transparent and comprehensive public-private dialogue (PPD), which in particular some new oil-producing countries in Africa entertain and which – if successful – is the rational way to circumscribe conflicts of interest.

8 Regional cooperation and resource security strategies

In 2009, the African Union gathered the whole range of political and technical challenges related to mining (only indirectly to oil and gas) in its Africa Mining Vision (AMV), starting from asymmetries in geological information and contract negotiation capacity all the chain down to beneficiation and social equity problems. The AMV condensed the policy proposals in the sketch of a Resource-based African Industrialisation & Development Strategy (RAIDS), for the otherwise undefined group of minerals-rich African countries (African Union 2009). The strategy represents a comprehensive attempt to think out of the narrow “mining box”, as the paper aptly calls it, in project and policy design. A “new social contract of mining” is dressed for the holistic solution of minerals-related problems. In order to answer “the seminal question ... why the bulk of African states have not been able to take advantage of ... resource endowment opportunities” (p. 14), the AMV takes stock of the resource-related problems to dress a list of challenges for some sort of developmental state, without using the term. If there is a major omission in the AMV and the later action plan (African Union 2011), it is the failure to establish a compact between member states to use part of national mineral revenues to fund some of the regional initiatives listed, in other words to make good on regional industrial policy. There is not one lighthouse project conceived for funding by domestic revenues of the oil rich member states and carried out as (sub-)regional institution, say an institute for geological research and training or a REC-owned oil refinery, to relaunch the acclaimed spirit of collective self-reliance (p. 46).

African attempts to strategically deal with mineral resource endowment are mirrored in strategies of industrialized countries – western powers, Japan, but China as well – to secure access to these resources. Resource security strategies of established or emerging industrial countries now abound. An important case is the EU Raw Materials Initiative (RMI) (European Commission 2008; 2011). The EU RMI puts the emphasis squarely on Europe’s own interests of

unfettered raw materials supply. Contrary to the AMV, the initiative does barely take act of the comprehensive mineral resource-related challenges and hence does not mention anything like a “curse² or “disease” to combat. In implementation, the EU RMI has under pressure from the European Parliament and civil society improved on some key issues, namely financial transparency, but has remained vague on others. Instead, it gives particular weight to issues like lifting of export conditionalities and of strict establishment rules for mining companies. In so doing it certainly runs counter to basic development interests of southern partner countries (Küblböck 2013). Using trade policy as vehicle for the initiative’s implementation, the EC fought long to suppress all export clauses in the African EPAs and essentially wanted no bounds to mineral mining and unprocessed mineral exports at all. Contrary to what happened to the EC’s successful assault on local content requirements, the Commission largely failed with regard to export taxation in the final EPAs. Such taxes remain possible (with restrictions for South Africa) and beyond their fiscal purpose can still serve to encourage local processing of minerals.

Out of their preoccupation with regular supply of mineral commodities, the new resource strategies inadvertently tend to fix African partners in their role of raw material suppliers. Some bilateral countries in the Global North now devise their own resource security strategies and launch so-called resource partnerships – something Germany for instance has undertaken with Mongolia.⁵³ The blossoming of such bilateral initiatives mainly shows a further departure from the earlier belief in well working free markets. This is particularly remarkable for Germany. When reflecting on the fact that Germany has almost no own mineral resources and few mining or oil/gas firms which are active in Africa or other resource-rich regions, German political and economic elites uttered routinely their trust in securing all necessary supplies in arm’s length trade, until a couple of years ago. It is still an interesting question what drove the turnaround – herd behaviour following China’s trade policy in Africa or effective supply bottlenecks, in rare earths, lithium, gas or other commodities.

Having come after the launch of the European RMI, one would expect in the first place that such bilateral moves define their value added compared to the EU’s regional approach and do better with the African partners. They hardly do, and they are not more thought-out with regard to the adverse specialisation that threaten resource-rich economies, either. Along with aspects like geological exploration and product certification, such partnerships entail provisions for technology transfer and training. Ideally, such cooperation schemes should reflect the threefold need for organised industrial development, rolled out above: in the extractive industry; in the periphery of the mines and pits; at a distance from the extractive industry, including both tradable and non-tradable sectors. Those advanced OECD countries like Germany, Japan or South Korea without much own mining and oil production, neither at home nor in Africa, are a

⁵³ For the respective strategy of Germany see Bundesministerium für Wirtschaft und Technologie (2010).

priori no plausible partners for tech transfer within the extractive industry itself, but strong in geology, in supplier industries, in beneficiation, in energy production and beyond. The collective search should thus look for *other* competitive advantage of the northern partners than just in the mining technology and regulation. To our knowledge, northern bilaterals realise this challenge with great difficulty, probably because it is too counterintuitive for a “resource partnership”. Here, at the level of international resource strategies, the policy blueprints are not yet convincingly worked out, either.

9 Annex table

Resource rich countries in Sub-Saharan Africa

Country	First criterion: Rents in % of GDP (2007-2012)	Nature of rent	2 nd criterion: oil, ores, metals as % goods exported*	
1. Angola	49.7	Oil		
2. Botswana	4.7 ✗	Mineral, w/out diamonds	80.0	Diamonds (63%), nickel, copper, gold
3. Burkina Faso	6.4 (13.4 for 2011 and 2012 only)	Mineral Ascending	62.0	Gold
4. Cameroon	8.4 (10.8 for 2007 and 2008 only)	Oil Descending	39.9	Oil
5. Chad	32.4	Oil	95.6	Oil
6. Congo, Dem. Republic	14.2 (18.9 for 2011 and 2012 only)	Mineral and oil Still ascending	92.2	Copper, cobalt etc., oil, diamonds
7. Congo, Republic	64.0	Oil	77.4	Oil
8. Equatorial Guinea	57.9	Oil	94.0	Oil
9. Eritrea	5.3 (15.7 for 2011 and 2012 only)	Mineral Ascending	74.6 (2011-2013)	Gold
10. Gabon	44.3	Oil and mineral	86.0	Oil, manganese
11. Ghana	7.9 (13.4 for 2011 and 2012 only)	Mineral and Oil Ascending	60.8	Gold, oil, manganese
12. Guinea	14.9	Mineral	72.5	Gold, diamonds, bauxite, iron ore
13. Liberia	1.1 ✗	Mineral	38.0	Minerals and oil 2012 + 2013 only
14. Mali	10.5 (13.0 for 2011 and 2012 only)	Mineral	78.3	Gold. 2007,2008, 2010-2012 only
15. Mauritania	46.6	Mineral	77.9	Iron, copper ores, gold, oil
16. Mozambique	0.1 ✗	Mineral Ascending	24.7 (36.0 in 2012-2013)	Coal, gas, titanium etc. Aluminium <i>not</i> counted
17. Namibia	2.8 ✗	Mineral, w/out uranium & diamonds	36.5 – 47.5**	w/ uran & diam
18. Niger	0.8 ✗	Mineral, w/out uranium and oil	67.2 (2013: 83.6 !)	w/ uranium, oil, gold
19. Nigeria	22.0	Oil	89.9	Oil
20. Rwanda	0.1 ✗	Mineral	36.0 (2010 no data)	Niob/tantal/vanadium ores (coltan included), tin, tungsten***
21. Sierra Leone	0.8 ✗	Mineral, w/out diamonds	53.9	w/diamonds 2012+2013 only

22. South Africa	3.8	Mineral, w/out Platinum etc.	30.3	Gold, diamonds, ores. Iron, steel alloys <i>not</i> counted
23. South Sudan	No data	Oil	82.5	Sudan and South Sudan
24. Sudan	18.7 (4.9 for 2012)	Oil, descending		
25. Tanzania	4.6 (6.8 for 2011 and 2012 only)	Mineral Ascending	47.2	Gold, precious metal and copper ores
26. Zambia	21.2	Mineral	71.4	Copper, gold
27. Zimbabwe	4.6	Mineral, w/out diamonds	40.0 (53.0 in 2012-2013)	Diamonds****, nickel Iron, steel alloys not counted

Source: 1st criterion: World Bank, World Development Indicators Online Database. WDI “mineral rents” contains only 10 metals and minerals, no diamonds. 2nd criterion: ITC Trade Map Online Database. Decisive criterion (1st or 2nd) emphasized.

* indicates 2007-2013, or latest years available.

“/” indicates inconsistent or difficult-to-interpret data.

** higher value for Namibia includes zinc and copper plates (HS groups 79 and 74)

*** High percentage of official and unofficial re-exports from DRC to assume.

**** Following numerous critical reports, it is highly questionable if diamonds extracted in the rich Marange field in the East of the country are properly recorded in company and trade statistics, or rather being embezzled by regime dignitaries. Zimbabwe’s resource revenues are thus in all likelihood considerably higher than reported in trade statistics.

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