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**Challenges of a Resource Boom:
Review of the Literature**

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1. Introduction

According to a conventional economic view, countries which possess rich natural resource endowments are considered fortunate. This view is supported by neo-classic economic theory which states that countries are best off producing whatever is their comparative advantage, whether that is natural resources or manufacturing. The early development literature assumes that natural resource wealth would support countries to grow (Viner, 1952; Lewis, 1955; Rostow, 1960; Lewis, 1989). Natural resources are regarded as part of a country's natural capital¹, along with agricultural land, forests, and other natural resources, which could be converted (via extraction) into an output to be consumed or into another form of capital that directly contributes to economic development (Davis/ Tilton, 2005: 235; Bornhorst et al., 2009: 439). This conversion process, and the technologies that it entails, can also spur knowledge gains that benefit the efficiency of conventional capital as well (De Ferranti et al., 2002; Wright/ Czelusta, 2004).

Based on this conventional view, various strands of development economics saw natural resources (and the income they generate) as a means to cope with and overcome low levels of investment (Lewis, 1955; Rostow, 1960) as well as capital and foreign exchange constraints (Joshi, 1970; El Shibley/ Thirwall, 1981) that were considered to hinder development. Natural resource extraction was considered the 'big push' to break out of a self-feeding circle of poverty (cf. e.g., Murphy et al., 1989) and to make the transition from underdevelopment to industrial 'take-off', just as they had done for countries such as Australia, the United States, and Britain (Rostow, 1960; see also Drake, 1972; Krueger, 1980).

Critical voices, such as Singer (1950) and Prebisch (1950), remained a minority; they argued that the structure of the global economy and the nature of international commodity markets would put developing countries relying on natural resource exports at a serious disadvantage.

However, since the late 1980s empirical studies have shown the opposite (for reviews of the extensive literature see Ross, 1999; Stevens, 2003b; Rosser, 2006; Frankel, 2010). A large number of studies have suggested that natural resource abundance increases the likelihood that countries will experience negative economic, political and social outcomes including poor economic performance, increased income inequality, prevalence of poverty, low levels of democracy, high levels of corruption and higher probability of civil war (Nankani, 1979; Gelb et al., 1988; Fields, 1989; Auty, 1993; Collier/ Hoeffler, 1998; Leite/ Weidmann, 2002; Wantchekon, 2002; Ross, 1999, 2001a, 2001b, 2003a; Sarraf/ Jiwaji, 2001; Eifert et al., 2003; Bannon/ Collier, 2003; Sala-i-Martin/ Subramanian, 2003; Davis et al., 2003; Isham et al., 2005). This literature has been extremely influential: the idea that natural resources are bad for development is now widely accepted.

In this context, the term 'resource curse'² refers to the paradox that countries with a sizeable endowment of natural resources have in general been unsuccessful in translating that wealth into economic development, social prosperity and political stability or democratization. Numerous studies indicate that they tend to have slower economic growth and worse development outcomes than countries with fewer natural resources.

However, the empirical tests so far have been inconclusive, especially when one generalizes beyond oil. Scholars either find that on average natural resources have had no reliable impact on development or that its impacts even have been positive (cf. e.g., Delacroix, 1977; Davis, 1995; Sala-i-Martin, 1997; Acemoglu et al., 2001; De Ferranti et al., 2002; Lederman/ Maloney, 2002; Herb, 2005). Most recently, Alexeev/

1 Next to natural capital, there are other types of capital: Physical structures, including houses, roads, factories, hospitals and railways, constitute man-made or physical capital. Education, safe public water and sanitary systems, as well as other investments in people, create human capital. Investments in scientific research and new technologies create knowledge capital. Finally, investments in the legal system and other forms of governance create institutional capital (Davis/ Tilton, 2005: 234).

2 The term 'resource curse' was first used in the formal economics literature by Auty (1993). Karl (1997) coined the phrase 'paradox of plenty'.

Conrad (2009) find that oil and mineral wealth have positive effects on income per capita, when controlling for a number of variables. They consider the long-term economic growth of resource-rich countries on balance positive. In similar vein, Boyce/ Emery (2010) find that while resource abundance is negatively correlated with growth, it is positively correlated with income levels.

Today, it is generally agreed that mineral resources³ have promoted economic development in several countries, namely Botswana (Hill, 1991; Love, 1994; Hope, 1998; Sarraf/ Jiwani, 2001; Acemoglu et al., 2003; Iimi, 2006; Pegg, 2010), Chile (Schurman, 1996; Mikesell, 1997; Hojman, 2002; Fuentes, 2010), Indonesia (Booth, 1995; Usui, 1996, 1997), Malaysia (Shamsul, 1997; Royan, 1999; Rasiah/ Shari, 2001) and Norway (Wright/ Czelusta, 2007). Historically, Britain, the United States (Wright/ Czelusta, 2007), Germany, the Netherlands, Australia, Canada, Sweden and Finland (Blomström/ Kokko, 2007) are often cited as successful examples (Davis/ Tilton, 2005: 237).⁴

The consensus on this issue is important, for it means that one uniform policy toward all natural resource extraction in the developing world is not desirable (Davis/ Tilton, 2005: 234). Accordingly, Auty (1994a: 12) qualifies that the relationship between natural resource wealth, mediating political variables, and development outcomes is not an iron law, but a strong recurrent tendency (see also Davis, 1995: 1765; Ross, 2001c: 8; Frankel, 2010: 33). Their analyses therefore do not necessarily preclude the possibility of variation in the value of mediating variables or in development outcomes (Auty/ Gelb, 2001; Auty, 2001c).

Because some mineral rich countries have succeeded in using the opportunities the natural resource endowment provided them with, this working paper argues that negative consequences of a resource boom are not a 'curse' in the sense of an unavoidable fate or destiny, but rather are the result of specific policy choices. Therefore, it seems more appropriate to speak of resource challenges. It then depends on the circumstances and the political and economic elites of specific countries whether these challenges are mastered or not. Accordingly, these resource challenges are unbundled in the following section.

The literature on the impact of natural resources on a society/ economy can be divided into four separate sub-literatures analysing the relationship between natural resource abundance and (1) economic performance, (2) economic policy, (3) political conflict and (4) socio-economic development. In the following these possible challenges are presented.

The impact of a resource boom on macroeconomic performance has been studied most extensively and is probably the best understood resource challenge. It relates first of all to the monetary consequences of a huge (and often volatile) influx of foreign currency into an economy, which manifests itself first of all in the trade balance, in an appreciated exchange rate and in an increased inflation rate. Here the major resource challenge is to sterilize the impact of the influx of revenues.

However, in every resource boom the state has to manage the resource industry and the financial flows generated by the boom. The major resource challenges originating from this task are the definition of ownership rights (concerning resources and producing companies), the development of a sound budget policy and the development of an industrial policy (either to ensure sustainable resource production or to promote growth in other parts of the economy). As the fast rise in state budget earnings (or even the mere prospect of increased earnings) produces many claims, raises expectations and arouses covetousness among the populace and the elites alike, another challenge in this context is the containment of rent-seeking behaviour and corruption.

Covetousness for access to income generated by the resource boom are often not limited to specific projects, but can easily transform into a broader struggle over access to rents or to political power in general. As a result these rising expectations and demands fuelled by a resource boom can lead to social

3 Mineral resources normally incorporate both energy resources such as crude oil, natural gas, (hard and soft) coal as well as metals and minerals such as bauxite, copper, lead, nickel, phosphate, tin, zinc, gold, silver and iron ore.

4 However, Ross (2001a) and Power (2002), for example, question the relevance of the US, Canadian, and Australian experience in the 1900s for currently developing countries and assume that any past successes are unlikely to be repeated.

unrest, to power struggles within the elites and in the extreme to civil war over control of the resources. The major policy challenge in this context would be the guarantee of political stability. In this context it is often argued that a resource boom promotes authoritarianism. Guarantees of civil rights and democratisation could, therefore, also be interpreted as resource challenges.

In the case of socioeconomic challenges the resource curse literature tries to explain why a resource boom (more often than not) has no positive impact on socioeconomic development, i.e. why the income generated from resource production does not translate into improved social welfare, health care or education. Here the major resource challenge would be the creation and implementation of a sound socioeconomic development policy.

While the first three groups of resource challenges are short-term tasks (though they have long-term consequences), the promotion of socioeconomic development can only be realised in the long term.

2. Challenges for Trade and Monetary Policy

A large number of studies have presented evidence to suggest that natural resource abundance, or at least an abundance of particular natural resources, reduces economic growth in many countries over extended periods of time (cf. e.g., Wheeler, 1984; Gelb et al., 1988; Auty, 1990, 1993, 1994a, 1994b, 1998, 2001a, 2001b; Ranis, 1991; Bulmer-Thomas, 1994; Sachs/ Warner, 1995a, 1995b, 1997; Lal/ Myint, 1996; Mikesell, 1997). Growth was even negative for a number of countries, causing early regional dominance to be lost over time. This research appeared to demonstrate that the exploitation of mineral wealth was far from a sufficient condition for sustained economic development. Wheeler (1984), for instance, found that resource-rich countries in sub-Saharan Africa grew more slowly than their resource-poor neighbours during the 1970s. Similarly, Gelb et al. (1988) found that mineral economies experienced a more serious deterioration in the efficiency of domestic capital formation during the boom period of 1971–1983 than non-mineral economies, leading to negative growth in hard mineral economies and to dramatically reduced growth in oil exporting economies (see also Auty, 1993). Beyond low levels of economic growth, Nankani (1979) found that resource-abundant economies performed relatively poorly in terms of agricultural growth, export diversification⁵ and inflation compared to non-mineral economies and they were more likely to be characterized by on average lower savings rates (see also Atkinson/ Hamilton, 2003), greater technological and wage dualism, high unemployment, high foreign debts and high export earnings instability.

Of particular influence was a study by Sachs/ Warner (1995a) examining the experiences of a large and diverse set of natural resource economies between 1970 and 1989. Using cross-section samples, the authors found that a greater economic dependence on oil and minerals is correlated with slower economic growth (see also Sachs/ Warner, 1995b, 1997, 1999a, 1999b, 2000). Sachs/ Warner (2001) summarized and extended previous research showing evidence that countries with great natural resource wealth tend to grow more slowly than resource-poor countries. They claim their result is not easily explained by other variables, or by alternative ways to measure resource abundance. Their paper found little direct evidence that omitted geographical or climate variables might explain the slow growth, or that there is a bias in the estimates resulting from some other unobserved growth deterrent.⁶

Gylfason et al. (1999) produced similar results, also using large datasets, showing that per-capita-GDP shrunk by 1.3% per year for OPEC countries from 1965 to 1998. Mehlum et al. (2006) remark that the Asian tigers (Korea, Taiwan, Hong Kong and Singapore) are all resource-poor, while growth losers (Nigeria, Zambia, Sierra Leone, Angola, Saudi Arabia, and Venezuela) are all resource-rich. For the period of 1960 to 1990, Auty (2001a) found that per capita incomes in resource-poor countries grew at significantly higher rates than in resource-abundant countries. Neumayer (2004) also discovered a negative effect on economic growth if one measured growth in terms of ‘genuine income’—that is, GDP minus the depreciation of produced and natural capital—rather than GDP.

Much early work on the economic performance of resource-abundant countries suggested that the causal mechanisms for potential the negative consequences were essentially economic in nature (Rosser, 2006: 13). While this aspect has been mostly studied in the context of booms in mineral commodities, particularly oil and gas, the causal mechanisms, however, are similar for all commodities (Asfaha, 2007: 7).⁷

5 Wood/ Berge (1997) found that resource-abundant countries were less likely to export manufactured goods than resource-poor countries

6 Other studies that find a negative effect of natural resources (and of oil in particular) on economic performance include Ross (2001) and Sala-i-Martin/ Subramanian (2003).

7 ‘This is essentially due to two factors. First, oil and gas prices are more volatile than other commodities. Second, mineral commodities such as gas and oil in general generate higher income than primary agricultural commodities, and are thus more alluring to rent-seeking behaviour. However, the difference in correlations of natural resource wealth and growth between mineral and non-mineral commodities is essentially one of degree’ (Asfaha, 2007: 7).

- Singer (1950) and Prebisch (1950) argued that resource-abundant countries would suffer from declining terms of trade over time, resulting in constrained prospects for economic growth and development.
- Hirschman (1958) stressed the ‘enclave’ nature of natural resource exploitation and that the natural resource sector would be unlikely to stimulate growth in the rest of the economy.
- Nurske (1958) and Levin (1960) argued that international commodity markets were inherently unstable and that any instability (i.e., unusually sharp price fluctuations) within them could easily be transferred to resource-abundant domestic economies. This, in turn, would affect the reliability of government revenues and foreign exchange supplies.
- Corden/ Neary (1982) and Bruno/ Sachs (1982) argued that resource-abundant countries were susceptible to the so-called ‘Dutch disease’; a resource boom would lead to appreciation of the real exchange rate and in turn damages manufacturing and other non-resource sectors of an economy.

2.1. Terms of Trade/ Linkage Effect

2.1.1. *Terms of Trade*

Singer (1950) and Prebisch (1950) argue that exporters of primary commodities would find themselves disadvantaged in trading with industrialized countries due to deteriorating terms of trade. They assume that commodity prices follow a downward trajectory in the long-run, relative to the prices of manufactures and other products. While higher competition in the primary commodity markets result in lower prices (cost reductions are passed on immediately to the consumers), producers of many manufactured products typically enjoy same market power which allows them to divert the benefits of falling costs to workers and shareholders (in form of higher salaries and dividends) instead of consumers (Davis/ Tilton, 2005: 235; Bornhorst et al., 2009: 439).

For Prebisch, industrialization is the key to economic growth (Davis, 1995: 1766).⁸ This intuition is supported by Matsuyama (1992); in his model the manufacturing sector is characterized by learning-by-doing, while the natural resource sector (in his case agriculture) is not. Thus, deliberate policy-induced diversification out of primary commodities into manufacturing is justified because productivity growth in manufacturing is fastest (Echevarria, 1997; Wood/ Berge, 1997; Auty/ Kiiski, 2001) and a permanent commodity boom that crowds out manufacturing (see ‘Dutch disease’) would be harmful for an economy (Frankel, 2010: 5, 12–13).⁹

Therefore, diversification out of primary commodities into manufacturing was considered desirable. As a countermeasure to deteriorating terms of trade, and because it was assumed that countries can only acquire sustainable wealth through industrialization, the government was supposed to implement a special industrial policy (i.e., import substitution, see Section 3.2.1) to protect domestic manufacturers from foreign competition with the aim to develop a competitive domestic industrial base (Davis/ Tilton, 2005: 234).

8 This notion, however, was criticised by Bauer (1972) who saw the agricultural sector having a leading role in economic growth in developing countries.

9 The assumption that no learning takes place in extraction of natural resources can be challenged. The theoretical models of this effect do not account for labour or capital employed in the extraction process (Sachs/ Warner, 1995a, 1999); that would eliminate extraction as a manufacturing activity and by definition rule out learning from production. Contrary to these models, Davis/ Tilton (2005: 238) claim that the discovery, extraction, and processing of mineral commodities indeed entails sophisticated technologies resulting in learning effects. However, since the hydrocarbon and mineral sectors are typically capital- rather than labour-intensive they generally employ relatively few people. Additionally, learning effects might be further limited by the fact that multinational corporations usually bring in their own (highly specialized) workers (see Linkage Effects, Section 2.1.2).

The issue of declining terms of trade is controversial and has been much contested on both empirical and theoretical grounds.¹⁰ Numerous studies have both attacked and defended the Prebisch-Singer thesis that the prices of primary products have fallen over time relative to the prices of manufacturing products (see Sapsford 1990 for a survey of the older literature).

Some of the more recent empirical work appears to support the existence of a long-term secular decline in primary product prices (Powell, 1991; Ardeni/ Wright, 1992; Deaton/ Laroque, 1992; Bleaney/ Greenaway, 1993; Sapsford/ Balasubramanyam, 1994; Reinhart/ Wickham, 1994; Bloch/ Sapsford, 2000) although others remain uncertain (Pindyck, 1999, focusing on energy prices). Other works challenge the empirical basis of the argument (Cuddington/ Urzua, 1989; Mikesell, 1997; De Ferranti et al., 2002; Hadass/ Williamson, 2003; Kellard/ Wohar, 2006; Balagtas/ Holt, 2009).

Studies of trends in international commodity prices have suggested that while in overall terms these prices have declined during the twentieth century¹¹, this has been due largely to price declines for commodities more or less exclusively exported by developed countries or relatively successful developing countries. Cuddington (1992), studying the single commodities separately, found that prices of commodities exported primarily by other developing countries have not declined severely during this period (see also Cuddington et al., 2007).

The overall statistical trend in the long run seems to depend, more than anything else, on the date of the end of the sample. When real commodity prices undergo large ten-year cycles around a trend, estimates of the trend are very sensitive to the precise time period studied. Thus, one must take a longer-term perspective; it is important to examine as long a statistical time series as possible (Frankel, 2010: 8–9).

An additional problem arises because many manufactured products improve in quality over time. So even assuming the trend in the ratio of prices for primary to manufactured products is indeed downward, this may simply reflect improvements in the quality of the manufactured goods. Removing this bias, however, is extremely difficult, particularly over many decades (Svedberg/ Tilton, 2003).

‘Nevertheless it is difficult to see why a slow decline in prices would explain the sort of deterioration in economic performance associated with ‘resource curse’. Economies constantly face changing relative prices. If they take place gradually, economies might be expected to adjust unless other factors are at work’ (Davis/ Tilton, 2005: 237).

Perhaps of greater importance, even if the true terms of trade are declining, is that the relevance of this decline for developing countries is not clear. For instance, the real price of copper has declined over the past three decades, which presumably has diminished the terms of trade of Chile, the world’s largest copper producer. This decline has come about largely because the costs of producing copper around the world have fallen as a result of new technology and other developments. The wealth or economic rent created by a country’s natural resource sector, therefore, depends not only on the price the country receives for its commodities but also on the costs of production. If the country’s costs have fallen faster than the commodity price the benefits of natural resource extraction for the country may actually be rising despite the downward trend in the price of the specific commodity (Davis/ Tilton, 2005: 237).

In summary, the Prebisch-Singer hypothesis of a negative long-term trend in commodity prices is counteracted by empirical findings that there is no consistent trend either way (Frankel, 2010: 33; Davis, 1995: 1767; see also Cuddington et al., 2007). There has been more support in subsequent studies for the argument of economic linkages (cf. Auty, 1990; Fosu, 1996).

10 Frankel (2010: 8) states that it is possible to generalize somewhat across commodity prices (although prices do not always move together, for oil, other minerals and agricultural products there is a high correlation).

11 Taking a long-term view, Frankel (2010: 8) shows that terms of trade for commodity producers had a slight upward trend from 1870 to World War I, downward in the inter-war period, upward in the 1970s, downward in the 1980s and 1990s, and upward in the first decade of the new century.

2.1.2. *Linkage Effect*

Advocating the development of a competitive domestic industrial base, Hirschman (1958), Seers (1964) and Baldwin (1966) stress the limited economic linkages from primary commodity exports for an economy. They argue that the natural resource sectors are of an 'enclave' nature and that multinational enterprises in these sectors tend to repatriate profits rather than reinvest them in the local economy. Needed supplies are imported and little value is added domestically, as primary commodities are mostly exported for processing abroad. Additionally, natural resource extraction generates little employment and many of the workers employed (particularly the more skilled workers) come from abroad. As a result, the host country gains little from extractive industries besides the monetary benefits in form of corporate taxation and royalties (Davis/ Tilton, 2005: 236). This would make development difficult by restricting opportunities for the development of backward and forward linkages between these resource extraction activities and the rest of the economy. Therefore, the natural resource sector could promote growth only to a limited extent compared to manufacturing. Primary commodities create only limited learning effects and are unlikely to stimulate the rest of the economy.

The argument that mining is typically an enclave industry, though not new, is also far from settled. Davis (1995: 1767) claims that natural resource extraction indeed creates a linkage effect via infrastructure, urban development etc. Many studies of mining regions show that wages and other domestic expenditures do have a significant multiplier effect on the local economy (Ahammad/ Clements, 1999; Clements/ Johnson, 2000; Stilwell et al., 2000; Aroca, 2001). Others document that mining in many cases does in fact promote important downstream and upstream linkages (De Ferranti et al., 2002). However, for various reasons, these studies concentrate primarily on the developed countries and the more advanced developing countries (Davis/ Tilton, 2005: 239).

Analysing linkage effects in 23 oil-producing developing countries, Klein (2010) shows that the externalities of the oil sector highly depend on the countries' degree of oil-intensity. While in low oil-intensity economies, the incentives to strengthen both fiscal and private sector institutions lead to positive inter-sectoral externalities, weaker incentives in high oil-intensity economies adversely affect fiscal and private sector institutions and consequently lead to negative inter-sectoral externalities.

However, host government efforts to replace foreign employees with locals, to promote downstream processing, and to require extracting companies to acquire supplies from domestic firms can be counterproductive by increasing the costs of mining and so reduce the monetary rents of the host country. In such situations, the government is in effect subsidizing linkage activities. 'While a desire to create domestic employment may be commendable, there are far more labour-intensive industries than mining or mineral processing. Moreover, economic development requires the creation of wealth. Subsidizing industries that would otherwise lose money destroys wealth' (Davis/ Tilton, 2005: 239).

Davis/ Tilton (2005: 239) challenge the enclave argument by questioning its relevance: even if a country benefits mostly in the form of monetary inflows, such returns can support education, public health, infrastructure projects and other investments that stimulate development.

2.2. Price/ Revenue Volatility

While the argument of declining terms of trade assumes that primary commodity prices gradually decline in the long-run, the hypothesis of price volatility argues that dramatic price shocks occur over a relatively short period of time resulting in very volatile natural resource revenues. This instability could easily be transferred to resource-abundant domestic economies. This, in turn, would affect the reliability of government revenues and foreign exchange supplies (Nurske, 1958; Levin, 1960).

Certainly there is plenty of empirical support for the existence of such volatility; markets for primary commodities are known for their instability. The world market prices for mineral and agricultural commodities are far more volatile than prices of most manufactured products or services whereby the prices

for oil and natural gas are the most volatile among them (followed by copper and coffee). The price of oil experiences large short- and medium-term swings around a longer-term average (Frankel, 2010: 9; see also Dehn, 2001). In the case of primary commodities, this volatility arises because demand fluctuates greatly over the business cycle.¹² When the economy is booming, the end-use sectors that consume most mineral commodities—construction, capital equipment, transportation, and consumer durables—are expanding even faster than the economy as a whole. Conversely, when the economy is in a recession, these sectors are usually even more depressed (Davis/ Tilton, 2005: 236).

Some authors have suggested that it is precisely the volatility of natural resource prices, rather than the overall trend (Prebisch-Singer hypothesis), that hampers economic growth (cf. e.g., Hausmann/ Rigobon, 2003; Blattman et al., 2007; Collier/ Goderisy, 2009; Van der Ploeg/ Poelhekke, 2009; Arezki/ Brückner, 2010). Auty (1998) and Micksell (1997) argue that the greater volatility of commodity prices (relative to manufactures) undermines development because the resulting large swings in government revenues and export earnings complicate the pursuit of a prudent fiscal policy and aggravate investor uncertainty.

In many developing countries, exports of primary commodities contribute to a substantial share of government revenues directly (e.g., dividends and royalties) and/or indirectly (e.g., income tax and export tax). Excessive volatility of commodity prices has had severe developmental implications for commodity-dependent nations, with cycles of booms and busts in real national incomes creating problems for macroeconomic management and planning. As a result, many governments in commodity-dependent developing countries face extremely variable revenues due to recurring phases of commodity booms and busts (cf. Dehn, 2001; He/ Westerhoff, 2005; Mehrara/ Oskoui, 2007; Humphreys/ Sandbu, 2007).¹³

‘There is little dispute over the fact that mineral commodity markets are volatile, particularly over the business cycle and that countries whose economies and exports are dominated by a single mineral commodity are likely to face considerable swings in government revenues and export earnings. Yet advocates of the conventional view of mining tend to discount this concern’ (Davis/ Tilton, 2005: 237–238).

However, advocates of a conventional economic view tend to discount this concern. Sachs/ Warner (1995a, 1999a) find no correlation between commodity price volatility and the slower economic growth. Some authors argue that downturns in commodity prices often force needed changes that would not occur under less stressful conditions (cf. e.g., Chaudry, 1997). When government revenues and export earnings are down, blockades from entrenched interest groups are easier to overcome. Analysing the dynamic effects of commodity price fluctuations on fiscal revenues and expenditures for eight commodity-exporting Latin American countries, Medina’s (2010) results indicate that the countries’ fiscal positions react strongly to shocks to commodity prices, yet there are marked differences across countries. This distinct behaviour across countries may relate to institutional arrangements, which in some cases include the efficient application of fiscal rules amid political commitment and high standards of transparency. Similarly, price slumps provide extractive companies with strong incentives to improve their productivity and reduce their costs.

Additionally, it is argued that governments can mitigate these revenue fluctuations by establishing stabilization funds (see Section 3.1.3) (Davis/ Tilton, 2005: 238).

12 ‘There are two other conditions that contribute to the short-run fluctuations in mineral commodity prices. First, the elasticity or responsiveness of demand to changes in price is small in the short run. Second, the elasticity of supply to change in price is also small in the short run once output approaches existing capacity. This means that both the short-run supply and demand curves are quite steep, so a shift in either curve will cause the market clearing price to change greatly. The shift occurs in the demand curve as a result of fluctuations in the business cycle’ (Davis/ Tilton, 2005: 236).

13 In countries that depend on the exploitation of non-renewable commodities the macroeconomic and fiscal policy challenges are further pronounced by the uncertainties surrounding the long-term sustainability of their natural resources. These countries face a trade-off between current and future revenue income; they not only have to cope with questions of inter-temporal budget constraints but also of inter-generational equity affecting right of future generations to benefit from these resources (Asfaha, 2007: 5).

2.3. 'Dutch Disease'

The term 'Dutch disease'¹⁴ broadly refers to the harmful consequences of large, but perhaps temporary, increases in a country's income on exchange rates and eventually on trade balances, domestic production, and the availability and costs of credit. A large influx of foreign currency from natural resource exports can have serious repercussions on important segments of a country's economy, as the appreciation of the local currency diminishes the competitiveness of non-natural resource exports resulting in the contraction in non-natural resource sectors.

Although the phenomenon is generally associated with a natural resource boom, it can occur from any development that results in a large inflow of foreign currency, including a sharp surge in natural resource prices, foreign development assistance, remittances, foreign debt and foreign direct investment (Ebrahim-zadeh, 2003; Asfaha, 2007: 10; Frankel, 2010: 18).

The classic economic model of Dutch disease by Corden/ Neary (1982) divides an economy into three sectors: a booming (natural resource) export sector and a lagging, traditional export sector as well as a non-traded goods sector, which essentially supplies the domestic market and might include retail trade, services, housing and construction. The model shows that the now lagging traditional export sector suffers from been crowded out by the other two sectors (see also Gregory, 1976; Bruno/ Sachs, 1982; Roemer, 1983; Corden, 1984; Neary/ Van Wijnbergen, 1986). For industrialized countries this generally means a decline in manufacturing, while in developing countries this phenomenon has also been observed in the agricultural sector.

According to Corden/ Neary (1982) a surge in the country's natural resource exports initially raises incomes, as more foreign currency flows in. If the foreign currency is converted into local currency and spent on domestic non-traded goods, two effects can occur: (1) the 'spending effect' and (2) the 'resource movement effect'.

(1) The 'spending effect' describes the conversion of the foreign exchange into local currency that would increase the country's money supply; pressure from domestic demand in both traded and non-traded goods¹⁵ would push up domestic prices (in the case of fixed exchange rates) or it would raise the nominal exchange rate (in the case of flexible exchange rates). In both cases, this would result in an appreciation of the real exchange rate (Asfaha, 2007: 10). Tradable goods produced in the country become more expensive and less competitive both domestically and abroad. At the same time, imports become more affordable, thus squeezing domestically produced goods out of the market. This leads to a withering of non-resource sectors of the country's economy and to an even greater economic dependence on the natural resource sector. Additionally, the 'spending effect' increases the demand for labour in the non-traded goods sector, shifting labour away from the lagging export sector. This shift is called 'indirect deindustrialisation' (Corden, 1984: 362).

(2) In the 'resource movement effect', resources (such as capital and labour) would shift into the production of domestic non-traded goods to meet the increase in domestic demand and into the booming export sector. Both of these shifts would shrink production in the traditional export sector causing this sector to contract (Fardmanesh, 1991: 712). This shift in labour and capital from the lagging to the booming export sector is called 'direct deindustrialisation'.

Since the hydrocarbon and mineral sectors are typically capital- rather than labour-intensive they generally employ relatively few people; therefore, the shift in labour causing negative effects for the lagging export sector can be negligible (Corden, 1984: 362; Corden/ Neary, 1982: 827); than the main effect

14 The term was coined in 1977 by 'The Economist' to describe the decline of the manufacturing sector in the Netherlands after the discovery of a large natural gas field in 1959 ('The Economist', The Dutch disease, 26 November 1977, 82–83; see also Kremers, 1986).

15 Studies show that governments have strong incentives to spend much of the windfall revenues on domestic non-traded goods such as ambitious infrastructure projects that are often handpicked for political rather than economic reasons (cf. e.g., Eifert et al., 2003; Sala-i-Martin/ Subramanian, 2003).

is the spending effect (Davis, 1995: 1773). The Dutch disease might even have the opposite effect: the booming export sector can absorb only few of the laid-off workers when the country's broader economy contracts.

Additionally, natural resource investment projects, which are in general large relative to the rest of the economy, tend to absorb most of the investment money available in a country's economy, which raises the costs and lowers the volume of loans available for other sectors (Brecher/ Diaz, 1977; Brecher/ Finlay, 1983; Young/ Miyagiawa, 1986; Buffie, 1993).

In summary, Dutch disease is argued to generate distorting macroeconomic shocks which precipitate (Cooley, 2001: 165; Frankel, 2010: 18):

- a large real appreciation in the currency (taking the form of nominal currency appreciation if the country has a floating exchange rate or the form of money inflows and inflation if the country has a fixed exchange rate),
- an expansion of the state's role in the domestic economy through an increase in spending (especially by the government, which for political economy reasons increases spending in response to the increased availability of tax receipts or royalties) and the protection for the lagging sector (Corden, 1984: 374–375),
- an increase in the price of non-traded goods relative to traded goods,
- a resultant shift of labour and land out of non-export-commodity traded goods (pulled by the more attractive returns in the export commodity and in non-traded goods and services),
- a reduction in tax collection and rates of domestic taxation (Corden, 1984: 366), and
- a current account deficit through an ever-increasing state budget that tends to produce budget deficits when the external flow of rents eventually diminishes.

A resource boom requires adjustments within the economy. The 'curse' in this case is that real exchange rate appreciation impedes economic diversification and increases dependence on volatile commodity markets, and that there are likely to be significant adjustment costs in moving back to agriculture or into manufacturing following resource depletion or price slumps (Davis/ Tilton, 2005: 236; Bornhorst et al., 2009: 439; Frankel, 2010: 18).

Competitive manufacturing industries do not return as quickly or as easily as they left; it is difficult for a country to regain its competitiveness and lost market share mainly due to the existence of sunk-cost of market-entry (such as for example costs of advertising, market research and creation of marketing networks which cannot be recovered on exiting from market) (Asfaha, 2007: 11). Since technological growth (learning-by-doing) is assumed to be highest in the lagging (manufacturing) sector, there has been less technological growth in the economy relative to other countries resulting in lost comparative advantages and reduced investments (Van Wijnbergen, 1984; Krugman, 1987; Sachs/ Warner, 1995b; Gylfason et al., 1999).

Economists also worry that a shift away from manufacturing sectors might jeopardize a country's long-term growth potential by choking off an important source of human capital development. Matsuyama (1992) argues that a downturn in manufacturing could lead to a fall in demand for education and Birdsall et al. (1997) found evidence that different incentives might exist to invest in education as between resource-abundant and resource deficient countries.

Even though there is some support for the Dutch disease hypothesis, several studies (cf. e.g., Van Wijnbergen, 1984; Krugman, 1987; Usui, 1996) suggest that these negative effects may operate more through political than economic mechanisms and that governments can take action to address these problems (Ross, 1999: 307; Rosser, 2006: 14; see Section 3).

Gelb et al. (1988) found only mixed results regarding the resource movement effect for oil exporters. Other studies have found that the manufacturing sectors of most oil exporters remained unharmed by export booms, though their agricultural sectors often suffered (Benjamin et al., 1989; Fardmanesh, 1991). Also a specific case study of Algeria (Conway/ Gelb 1988) actually found substantial exchange

rate depreciation and an improvement in both manufacturing and agriculture, counter to the Dutch disease theory. However, it is acknowledged this is very different from the experience of most oil exporters (Gelb, 1986).

Auty (1994a) claims that there is a lack of evidence that the creation of a manufacturing industry can have a positive effect on an economy. Also Stijns (2005) argues there is little statistical evidence to suggest a decline in manufacturing has a negative effect on learning-by-doing and growth.

These different results might be explained by the fact that in much of the literature on Dutch disease attention is focussed on the effect on manufacturing (Sachs/ Warner, 1997) which reflects the simple fact that much of the earlier work concentrated in the developed countries (Benjamin et al., 1989). This model, however, fits developing countries only poorly: it assumes that an economy's capital and labour supplies are fixed and fully employed before the export boom starts. However, developing countries typically have labour surpluses and their natural resource booms attract foreign capital and labour offsetting any local scarcities (Ross, 1999: 306). This raises the question whether a contraction of the manufacturing sector should be an issue for concern in developing/ less industrialized countries. However, as the condition of Dutch disease began to be attributed to developing countries then attention did switch to agriculture as the main source of traded goods (Benjamin et al., 1989). While de-industrialization failed to materialize in most mineral economies, Davis (1995: 1769) noticed a de-agriculturalization for developing countries in combination with a booming government sector.

Davis (1995: 1768) even emphasizes the benefits of the Dutch 'disease' which he considers a simple change in competitive advantages and from equilibrium to another. 'There is nothing inherently growth-inhibiting in mineral booms and any resulting Dutch disease phenomenon.' (Davis, 1995: 1768) There is, however, a 'burden of adjustment' for the lagging sector (Davis, 1995: 1768; Davis/ Tilton, 2005: 238).

3. Challenges for Economic and Fiscal Policy

Most recent work on the relationship between natural resource abundance and economic performance has given much greater attention to the role of political variables in mediating this relationship (cf. e.g., Auty, 2001c, 2001d; Torvik, 2002; Eifert et al., 2003; Rodrik, 2003; Isham et al., 2005). Focusing on the behaviour of those who control the state, both economists and political scientists have agreed that the immediate cause of poor economic performance in resource-abundant countries has been poor economic management and waste in combination with rent-seeking and corruption (Lal/ Myint, 1996; Mikesell, 1997; Leite/ Weidmann, 2002).

Even when the rents are not squandered, but used by the government to promote economic development, the results are often disappointing due to incompetence and poor planning (Davis/ Tilton, 2005: 236). In particular, they have pointed to fiscal profligacy, overvalued exchange rates, excessive protection, and inefficient use of resource windfalls as being the main problems in this respect (Mitra, 1994; Usui, 1997; Karl, 1997; Anderson, 1998; Ascher, 1999).

In resource-abundant countries, political elites have tended to take the opportunity to either directly seize the rents created by resource booms or gain control over the right to allocate in order to use them to pursue various programmatic and political objectives. This includes financing controversial development programs, providing economic benefits to particular groups, capturing rents for the government treasury and evading accountability (Ascher, 1999; Ross, 2001c; Robinson et al., 2002).

3.1. Poor Resource Management

3.1.1. *State Ownership*¹⁶

Given that in most legal regimes, natural resources are the property of the state, the revenues in the first instance accrue to the government. This inevitably invites greater government involvement in the exploitation of natural resources, which many authors see a major part of the explanation of poor resource management (Stevens, 1986; Auty, 1998; Auty/ Mikesell, 1998; Ascher, 1999; Ross, 1999; Sarraf/ Jiwaji, 2001; Wolf, 2009; for the Caspian region see Kjærnet, forthcoming).¹⁷ For example, Mikesell (1997) argues that in the case of Venezuela it was bad government management that caused the problems rather than direct distortions from the export booms of the 1970s and 1980s.

Stressing the importance of private ownership as a source of capitalist incentives to innovate, most economists share the view that government ownership in itself generally breeds inefficiency, both productive and allocative (Boardman/ Vining, 1989; Ehrlich et al., 1994). Inefficiency can be defined as the unemployment and misallocation of resources. They argue that politicians, as guardians of state-owned property, are not unbiased and do not always act in the public interest, and that inefficiency is a result of the government's deliberate policy of transferring resources to supporters, soft budget constraints, fiscal laxity and a tendency to over-borrow (Kornai, 1986; Shleifer/ Vishny, 1994).

These assumptions were made for competitive markets with an unlimited number of competitors, perfect information and no entrance barriers. The oil and gas sector, however, is generally characterised by an oligopolistic structure and the dominance of a limited number of large companies. Extreme economies of scale within the production process hamper the entry of new companies into the sector. Compe-

16 This section is strongly based on Heinrich (2008: 1540–1541).

17 Shafer (1983) argues that multinational corporations could function as a buffer against export instabilities (price volatilities) of primary commodities; a nationalization wave in the 1970s, however, shut out multinational oil companies from oil exploitation in most of the developing countries.

tion is further limited by the sector's reliance on pipelines, especially for the transport of natural gas. Furthermore, pipelines only allow for regional, often monopolistic markets (Banks, 2000).

In most of the major oil and gas producing countries, these resources generate a huge part of the state budget. The profitability of the industry provides huge incentives for corruption (Humphreys et al., 2007a, 2007b). In such an environment private companies do not necessarily operate more efficiently than state-owned ones. In his analysis of the role of the state in the oil and gas industry, Stiglitz (2007: 27) concludes: 'What has happened in the last two decades has made it abundantly clear that privatization does not eliminate scope for corruption, or more generally, eliminate agency problems.' There are state-owned companies in the oil and gas sector that are 'both efficient and incorruptible' and have performed impressively for a long time, most notably Norway's state oil company Statoil (Stiglitz, 2007: 30). However, these companies are embedded in strong institutional settings with secure property rights, clear rules for the market players and functioning regulatory agencies; in addition, they are exposed to market pressures and competition. For state-owned enterprises to work efficiently, they require competent management that is shielded from political meddling. If markets are functioning properly, corporate management can work independently of politicians and the institutional settings are more likely to be robust. In this kind of environment, the actual ownership form has less effect on the efficiency of company operations. Thus, the institutional setting and the political attitude of the government in charge is an important criterion for the efficiency of the oil and gas sector. That is, in a weak institutional environment companies tend to be less efficient (Yakovlev, 2004: 148–155; Stiglitz, 2007: 34–38).

3.1.2. *Procyclicality*

The fact that developing countries tend to experience larger cyclical fluctuations than industrialized countries is only partly attributable to commodities. The literature on development has intensively documented that commodity booms and busts are often badly handled (cf. Gelb et al., 1988; Bevan et al., 1989, 1993). The general conclusion is that the adverse consequences of a resource boom are mainly a result of poor management of windfall revenues: the unwise use of large windfall revenues contributes to economic degeneration. But while booms may not translate into sustained higher incomes, busts almost certainly cause long-lasting detrimental effects (Collier, 2003). Reviewing the experiences of 18 developing countries that experienced favourable terms of trade shocks (relative increases in their export prices) during 1974 to 1989, Little et al. (1993) show that these countries did not grow more than countries that experienced negative terms of trade shocks during the same period. Besides the loss of competitiveness in non-booming industrial and agricultural sectors (Dutch disease), the poor management of windfall revenues from the commodity booms were cited as the major causes.

Volatility in developing countries arises from domestic macroeconomic and political instability that tend to exacerbate booms and busts cycle instead of moderating them. Most developing countries are still subject to monetary and fiscal policy that is procyclical rather than countercyclical: they tend to be expansionary in booms (spending goes up and taxes go down) and contractionary in recessions (spending goes down and taxes up), thus exacerbating the magnitudes of the commodity price swings rather than to moderate them. Besides the fact that short-term revenue instability presents serious challenges for macroeconomic planning, often income inequality and populist policies are the fundamental roots underlying the procyclicality (Asfaha, 2007: 5; Frankel, 2010: 19).

3.1.2.1. **The Procyclicality of Fiscal Policy (Government Spending)**

Many authors have documented that fiscal policy tends to be procyclical in developing countries, especially in comparison with industrialized countries (Gavin/ Perotti, 1997; Kaminsky et al., 2005; Talvi/ Végh, 2005; Mendoza/ Oviedo, 2006, Alesina et al., 2008; Ilzetski/ Vegh, 2008; Medas/ Zakharova, 2009; Arezki/ Ismail, 2010). Procyclicality is especially pronounced in countries that possess natural resources and where income from those resources tends to dominate the business cycle (cf. Cuddington, 1989). Most studies look at the procyclicality of government spending, because tax receipts are particularly endogenous with respect to the business cycle. An important reason for procyclical spending is

precisely that government receipts from taxes or royalties rise in booms, and the government cannot resist the temptation or political pressure to increase spending proportionately, or more than proportionately (Frankel, 2010: 20).

Studying the cyclical behaviour of public spending on health and education in 150 countries during 1987–2007, Arze del Granado et al. (2010a) find that spending on education and health is procyclical in developing countries and acyclical in developed countries. In addition, education and health expenditures are procyclical during boom periods and acyclical during bust periods. Furthermore, the degree of cyclicity is higher the lower the level of economic development.

Two budget items account for much of the increased spending from resource booms: (1) investment projects, and (2) the government wage bill.

(1) Well designed infrastructure investment can have large long-term pay-off effects (De Long/ Summers, 1991); in practice, however, governments tend to squander windfall revenues on hastily executed programs that involve projects that earn a low return and are irreversible (Deaton/ Miller, 1995). Thus, Talvi/ Végh (2005) argue that such public investments should be viewed as government consumption, since non-productive investment will not generate future returns. Three major factors may explain the low returns of public investment projects (Asfaha, 2007: 9): First, because of rent-seeking behaviour (see Section 3.3.1), a substantial share of public investment might flow into projects that generate short-term political gains to governments rather than to projects with high economic returns. Second, many projects have taken the form of ‘white elephants’, which take too long to complete or are abandoned without funds for completion or maintenance, when commodity prices fall again and revenues wane (Gelb, 1986; Deaton/ Miller, 1996). Third, government agencies in charge of fiscal policy (typically ministries of finance) may lack control over government spending agencies (such as health and social welfare agencies etc.) caused by a lack of transparency and timely information on expenditure by these agencies (cf. Premchand, 2000; Kopits, 2000).

(2) Oil windfalls have also often been spent on higher public sector wages, to increase the number of workers employed by the government or on current transfers and subsidies—on goods such as food, fertilizer or petroleum (Gupta/ Miranda, 1991; Robinson et al., 2006). These measures raise the total public sector wage bill and, for political reasons, are hard to reverse when commodity prices decrease again. In other words, the expansion in current account expenditures gets entrenched (Asfaha, 2007: 8; Frankel, 2010: 20). Plotting the public sector wage bill against primary commodity prices for Iran and Indonesia, Frankel (2005) finds a strong positive relationship with a three-year lag that illustrates the problem: oil prices may have fallen over three years, but public sector wages cannot easily be cut nor workers laid off.

3.1.2.2. The Procyclicality of Capital Flows (Borrowing, Foreign Debt)

According to economic theory, countries should borrow during temporary downturns in order to sustain consumption and investment, and should repay or accumulate net foreign assets during temporary upturns. In practice, however, capital flows are more often procyclical than countercyclical (Gavin et al., 1996; Kaminsky et al., 2004; Mendoza/ Terrones, 2008; Reinhart/ Reinhart, 2009). One interpretation of procyclical capital flows is that they result from procyclical fiscal policy: when governments increase spending in resource booms, some of the deficit is financed by external borrowing. Usui (1997: 154) calls this a ‘boom-based borrowing capacity’ because the borrowing capacity of booming economies might be improved drastically as they appear more attractive to lenders in donor countries. The country’s natural resources act as collateral leading to more credit. In addition, if the real exchange rate increases through the inflows of resource revenues (see Dutch disease), this makes the interest payments on the debt cheaper further contributing to the Dutch disease effect.¹⁸ Hence, commodity booms in some countries fuel the debt accumulation process.

18 However, Mansoorian (1991) argues that heavy external borrowing eventually leads to depreciation.

Debt-financed investment projects (like investment projects in resource-rich countries in general) often fail to develop the productive base of the economy. There was a tendency to invest in non-traded goods, especially in the military, and to indulge in prestige projects (see above) (Lal/ Myint, 1996; Sarraf/ Jiwaji, 2001). Nevertheless, loans must be serviced and repaid. When governments are forced to cut spending in downturns due to falling commodities prices, they still have to repay some of the excessive debt that they incurred during the upturn. In combination with a falling real exchange rate, a government would have less money with which to pay a more expensive debt (Asfaha, 2007: 9; Frankel, 2010: 19–20).

3.1.3. *National Wealth Funds*

Fluctuations in government revenues and export earnings that might hamper economic development can be mitigated by governments. National wealth funds (also called sovereign wealth funds, stabilization funds or saving funds) have become a major instrument to manage a large share of the revenues the state derives from resource exploitation (cf. e.g., Davis et al., 2001; Bahgat, 2008; Hammer, 2008; Ahmadov et al., 2009; Luecke, 2011; Kalyuzhnova/ Nygaard, 2011). In particular, during a resource boom, governments can transfer some of their commodity revenues into a national wealth fund which in turn invests the money on global stock markets and/or domestic welfare programmes. When the markets are depressed, governments can withdraw the accumulated revenues and/or the investment profits to support programmes that otherwise they would be forced to curtail (Brown et al., 2010).

However, the results of these wealth funds have been mixed, and the experience of some countries has been disappointing. Some research shows that a positive performance depends on better governance and stronger institutional arrangements in order to correct occurring problems (Davis/ Tilton, 2005: 238; for examples from the Caspian region see Aslanli, forthcoming and Kalyuzhnova, forthcoming). Shabsigh/ Ilahi (2007) argue that a broader focus is needed in judging the effectiveness of such funds; they test whether oil funds help reduce macroeconomic volatility. The results suggest that oil funds are associated with reduced volatility of broad money and prices and lower inflation. However, there is a statistically weak negative association between the presence of an oil fund and volatility of the real exchange rate.

Grennes (2009) evaluates sovereign wealth funds in light of the extreme volatility of energy prices and the severe global recession that began in 2008. Recent developments have reduced the relative importance of funds and have demonstrated the sensitivity of the funds to energy prices and world business cycles.

Beyond their economic importance, Shih (2009) states that wealth funds are likely tools of domestic political survival. In examining the underlying institutional and political environment in which national wealth funds in Singapore and in China operate, the author examines the role of political unity in directing fund behaviour in authoritarian regimes. The main finding is that a highly unified autocracy is more likely to direct funds to maximise long-term profit, while a fragmented one like China is more likely to treat a sovereign wealth fund as an arena for domestic political and bureaucratic infighting. Funds operating in a fragmented regime are unlikely to make long-term profit and foreign policy objectives top economic priorities.

3.2. Industrial Policy

3.2.1. *Import Substitution*

The industrial policy adopted in many resource-rich countries following the revenue windfall has often led to unsustainable investment decisions. Most resource-rich countries have failed to promote a competitive manufacturing sector which many development economists regarded as a principal source of technological and economic progress (Krause, 1995; Mikesell, 1997; Ranis, 1991; Sachs/ Warner, 1995a).

While the Prebisch-Singer hypothesis has never been universally accepted (see Frankel, 2010), their argument, however, has influenced many developing countries to resort to autarkic policies in the form

of import substitution. As a counter measure to deteriorating terms of trade, import substitution is supposed to protect domestic manufacturers from foreign competition in order to develop a competitive domestic industrial base regarded as a principal source of technological and economic progress (Davis/Tilton, 2005: 234). Many resource-rich countries, especially in the 1970s and 1980s adopted such an industrial policy as a means to break out of the circle of underdevelopment (Ranis, 1991; Krause, 1995; Mikesell, 1997; Auty/ Kiiski, 2001). This policy invariably had two components: (1) the introduction of subsidy, and (2) growing protectionism.

(1) Very often governments use revenues from the natural resource sector to introduce heavy subsidies in order to promote the creation of a domestic manufacturing industry, usually based on some sort of infant industry argument. However, infant industries have a strong tendency not to grow up (Bell et al., 1984) and are incapable of earning foreign exchange (Auty, 1994a). Subsidies too often set in motion a disastrous cycle: in many cases, they are awarded on the basis of political patronage and effectively prop up unprofitable domestic enterprises rewarding inefficiency, poor management, and over-employment in these enterprises. However, the creation of subsidies and the subsequent rent-seeking created powerful interest groups diverting revenue flows from the promotion of a manufacturing industry to other uses (Sarrafi/ Jiwanji, 2001; Auty, 1994a). Spending large sums of money on sustaining patronage networks and/or providing huge subsidies to the population to garner social and political support becomes an entrenched behaviour of governments in resource-rich countries which are reluctant to remove the subsidies against the will of these interest groups (cf. e.g., Anderson, 1987; Chaudhry, 1989; Karl, 1997). Subsidising energy to final consumers in oil exporting countries, for instance, is sometimes justified as an effective way of distributing some of the resource rents to the populace. Petri/ Taube (2003) find that many successor states of the former Soviet Union (FSU) continue to use low energy prices and the toleration of payment arrears to provide large implicit and untargeted subsidies to households and enterprises. These quasi-fiscal activities cause over-consumption and waste, and contribute to macroeconomic imbalances. These activities have declined in some of the energy-importing countries, but risen in energy-rich countries (e.g., Azerbaijan, Russia and Turkmenistan), largely on account of higher international oil prices. In similar vein, Jensen/ Tarr (2002) find that Iran subsidizes domestic energy product by about 90% of the cost of energy products justifying these interventions as helping the poor. However, when commodity prices fall, subsidies became unsustainable; governments, in turn, borrow to maintain their spending commitments. Moreover, Arze del Granado et al. (2010b) show that fuel subsidies are a costly approach to protecting the poor due to substantial benefit leakage to higher income groups. In absolute terms, the top income quintile captures six times more in subsidies than the bottom.

(2) Protectionism and closed trade regimes are introduced to allow the (subsidized) infant industry to grow; these measures tend to hinder economic growth to some extent compared to more open economies (Sachs/ Warner, 1997). While Sachs/ Warner (1995b) found that countries depending on primary resource exports tend to have a closed trade regime, they also discovered that above a certain threshold of resource export dependence trade policy began to open up (e.g., in Saudi Arabia).

Once subsidies and protectionist measures are in place, continuing resource revenues and powerful domestic interest groups tend to reduce the incentive to create competitive manufacturing industries. Auty/ Kiiske (2001: 28) identify as the key problem that

‘the relaxation of market discipline and associated accumulation of economic distortions [...] retards competitive diversification and lies at the heart of the underperformance of the resource abundant countries’.

In a similar vein, Krugman (1987) finds that a temporary resource boom leads to an ‘enduring’ loss of competitiveness, while a competitive industrial policy based upon a strong export orientation maintains the competitiveness (Auty, 1994a).

3.2.2. *Taxation*

Shafer (1994) and Karl (1997) suggest that the characteristics of the leading export sector not only influence both policy preferences of the sector's firms and their ability to influence the state in their 'direction' (see also Paige, 1975; Frieden, 1991)¹⁹, but the sector's characteristics also influence the institutional capacity and autonomy of the state itself (Ross, 1999: 314). As a consequence, taxation in a country experiencing a resource boom focuses on the leading oligopolistic resource sector (as does promotion) while non-leading sectors are neglected. The state fails to establish institutions to tax, monitor, regulate or promote other (non-leading) sectors (see also Gehlbach, 2008 for a similar argument).

In general, a government has two sources of revenue. First, it is the direct recipient of the income flow from the natural resource. This is literally true in the case of mineral resources, where governments either directly sell licenses to foreign extraction companies or operate the extractive activity directly through a government-owned company. The second source of government revenue is taxes on the income generated by the private sector. Industrial output is a more elastic tax base than natural resources, and the government cannot appropriate the totality of it without inducing greatly reduced effort, evasion, and diversion to the shadow economy. Natural resource revenues, on the other hand, are a less elastic tax base than industrial output, and hence they will be taxed at a higher rate (Caselli, 2006: 4–5; see also Cordon, 1984: 366).

The rentier state theory²⁰ assumes that the inflow of windfall revenues from natural resource exports will weaken a country's incentive to mobilize other (non-resource related) domestic revenues. This is particularly the case for commodities whose proceeds directly accrue into government coffers.²¹ Direct income from commodities can reduce the government's incentives to establish robust systems and institutions for tax collection and tax-base diversification because this is less costly for the government, both economically and politically, than collecting tax revenue from the public. The phenomenon of a 'distributive state' 'eventually results in a lack of crucial state capacity: natural resources are posited to obviate extractive bureaucracies and the relations with social groups necessary to collect taxes effectively' (Smith, 2004: 233). As a result, the rentier state theory argues, such governments depend less on taxes and their citizenry; not collecting taxes from its citizenry has freed governments from accountability to society and they are, therefore, less pressed to provide for their needs and feel no obligation to represent either (cf. Mahdavy, 1970; Luciani, 1987; Anderson, 1987; Crystal, 1990; Chaudhry, 1997; Vandewalle, 1998; Moore, 2000, 2004).²²

Focusing on the relationship between natural resource endowments and the domestic (non-resource-related) revenue effort in hydrocarbon-rich countries, Bornhorst et al. (2009) find empirical support for the thesis that governments relying on revenues from oil and natural gas related activities are likely to mobilize less revenue from other domestic sources. They show that countries that receive large revenues from the exploitation of hydrocarbon endowments will reduce their domestic tax effort considerably (by about 20%).

'While this in itself need not inhibit economic development, at the very least it suggests that there might be significant adjustment costs in moving to a higher level of domestic taxation once resources are depleted' (Bornhorst et al., 2009: 440–441).

19 Monopolistic/ oligopolistic sectors are stronger/ better able to influence the state and demand protection from international market forces.

20 For a discussion of the rentier state theory see Richter, forthcoming.

21 This applies especially to point-source resources which are 'resources that are more easily controlled by an elite and do not need widespread labor, the rule of law or infrastructure such as roads' (Hartford/ Klein, 2005: 1–2)

22 A similar argument has been made with respect to foreign aid as a disincentive to mobilize domestic fiscal resources, particularly when institutions are weak and corruption is rampant (Bauer, 1972; Gupta et al., 2004).

3.3. Rent-seeking/ Corruption

Huge inflows of revenues from natural resource exports tend to fuel rent-seeking behaviour and political corruption (cf. e.g., Robinson et al., 2006). Having large amounts of money at ones disposal is bound to increase the temptation on the part of the decision-makers to maintain authority through allocating resources to favoured constituents than through sustainable growth-oriented economic policies and/or to enrich themselves (Leite/ Weidmann, 2002).

3.3.1. Use of Rents/ Rent-seeking

Rent-seeking concerns how people compete for 'artificially contrived transfers' (Tollison, 1982: 576). Political control of natural resource rents makes it worthwhile for individuals and organizations to devote considerable effort and resources to appropriating a larger share of these rents. Interest groups seek to capture transfers created by government or to incite the government to create such transfers (Mbaku, 1992). Such rent-seeking activities are unproductive; they are devoted to increase the own share of existing revenue flows that a particular group enjoys, rather than to increase the size of the revenues itself. The result is that the expenditure creates no social value and, more importantly, distorts markets and hence the way the economy operates (cf. e.g., Krueger, 1974, 1990; Buchanan et al., 1980; Tollison, 1982; McChesney, 1987; Rowley et al., 1988; Mahon, 1992).

A common consequence of rent-seeking is the creation of monopoly power (via regulation) in an economy and Wenders (1987) shows that the social costs of monopolization are higher if the costs to maintain that monopoly are added. The increased welfare costs include monopoly costs (Harberger costs), rent-seeking costs (Tullock costs)²³ and rent-defending costs (in case of other interests trying to deregulate the monopoly)²⁴.

Rent seeking creates and strengthens extremely powerful, well-connected lobby groups who are able to block much needed economic reforms (Auty, 1995). These groups are able to increase pressure on governments to pursue economic policies that serve the interests of these groups rather than the common economic interest (Mahon, 1992; Auty, 1995; Broad, 1995; James, 2010). Rent seeking makes it more difficult for governments to adjust spending when faced with revenue fluctuations (Auty, 2001b).

There is general agreement that rent-seeking behaviour produces undesirable results for and imposes significant losses on many economies by distracting attention from goals of long-term development towards maximizing rent-creation and -capture (Gelb, 1988; Auty, 1990, 1998; Bhagwati, 1992; Lane/ Tornell, 1995, 1996; Sachs/ Warner, 1997; Tornell/ Lane, 1999; Svensson, 2000; Baland/ Francois, 2000; Torvick, 2002).

Several explanations can be offered why rent-seeking is greater in countries with large oil, gas or mineral revenues.

(1) Torvik (2002), for instance, has argued that natural resource abundance increases the rewards that social actors can gain from rent-seeking, and in turn provides them with greater incentive to engage in such behaviour. An increase in resource endowment shifts entrepreneurs from the productive sector to the rent-seeking sector. In similar vein, Mehlum et al. (2006) construct a model with two sectors: a 'grabbing' sector and a 'productive' sector. The economy admits two classes of equilibria depending on an exogenous institutional quality parameter: a production equilibrium, in which a resource boom is a blessing and a grabbing equilibrium in which a resource boom is a curse.

23 '[...] when monopoly power is achieved via regulation, at least part of the monopoly rents so gained will not be simple transfers from consumers to producers, but will be dissipated by producers' rent-seeking activity' (Wenders, 1987: 456).

24 Rent-defending costs (costs for the consumers in their defence efforts) occur when 'there are parallel activities and resource expenditures by those who stand to lose from restrictive regulations as they seek to defend against rent-seeking activity and deflect it among themselves' (Wenders, 1987: 457).

(2) One group argues that rent-seeking is greater because natural resource wealth (especially point-source resources) is concentrated in the public sector (as natural resource rents captured by the state end up in government coffers) and possibly in a small number of companies (Auty, 1998). Thus 'the bulk of the rents created in these economies are channelled by bureaucrats, the majority of whom are members of the politically dominant group [...]' (Mbaku, 1992: 250). In similar vein, Ascher (1999) argues that state officials can easily manipulate the use of resource revenues to meet unpopular, controversial, or illegal objectives.

(3) Robinson et al. (2006) have suggested that such rent-seeking behaviour is most likely to lead to negative economic outcomes when resource booms are perceived to be temporary because political elites will focus on maximising the rents that they can extract in the short-term. Where resource booms are perceived to be permanent, they argue, political elites will be less interested in short-term rent maximisation because permanent booms increase the likelihood that they will stay in power and hence the gains that they can make by promoting long-term economic development. However, even when booms are perceived to be permanent, economic outcomes are likely to be negative because political elites will still have an incentive to engage in inefficient redistribution of economic resources in order to influence elections.

3.3.2. Corruption

Corruption can be defined as the abuse of public office for private gain (Vicente, 2010: 29, note 2). However, corruption is a complex and controversial area. Mbaku (1992: 253) states that corruption evolves from 'the clash between traditional values and foreign norms'. It has been argued by Apter (1963) and Alam (1989) that in Africa, bureaucrats are under an obligation to share the benefits of their office with their kin, a characteristic common to many other societies. Additionally, the criteria to determine whether public authority has been misused are debatable (Bayley, 1966; Alam, 1989; Gillespie/ Okruhlik, 1991).

However, such issues are far from clear-cut. An important aspect to consider is the final use of the rewards of corruption and rent-seeking. The overall outcome will be very different if they are used for productive investment within the economy, than for private consumption (Sampson, 1975; Yergin, 1991).

Natural resources are often associated with high levels of corruption. Empirically several studies have shown that the proportion of exports of fuel, minerals, plantation crops, and metals increases corruption (Treisman, 2000; Isham *et al.*, 2005; Aslaksen, 2007). In the context of the Caspian region, however, Auty (2001d) claims that levels of corruption do not vary between the hydrocarbon-rich and hydrocarbon-poor countries. In similar vein, Pleines (forthcoming) indicates that the oil boom has not led to any significant rise in general corruption in Azerbaijan, Kazakhstan and Turkmenistan, and that corruption especially in the oil and gas industry in these countries takes first of all the forms of grand theft and commercial corruption due to strong authoritarian control of the oil and gas sector by the ruling elites. As a result, incidents of corruption in the sector are fewer and less visible than in the rest of the economy, though the sums involved are much higher.

Vicente (2010) analyses the effects of an oil discovery announcement on corruption at the example of Sao Tome and Principe. In line with Robinson et al. (2006), the author hypothesizes that the discovery announcement increases the value to politicians to holding public office while simultaneously provides them with more resources. These resources can be spent on improving the likelihood of (re-)election success and on resource misallocation (by buying political support for instance) in the rest of the economy (Vicente, 2010: 29).

Misallocation means a shift of resources towards the higher valued 'political' allocations resulting in an increased relative scarcity of resources in 'non-political' sectors (such as the ones relating to standard public services). Higher competition in 'non-political' allocations could then lead to increased corruption in these sectors (Vicente, 2010: 31).

Already after (the announcement of) the Sao Tomean oil discovery, Vicente (2010) finds clear increases on perceived corruption in a number of public services and allocations, most solidly in the areas of vote

buying, education (as the country's elite sees scholarships as more valuable, since they may enable future access to the state's natural riches), and customs (as the elite imports non-food consumption goods).

'We interpret these results as indicative of increased competitiveness for state resources, namely those that are accessible through the political channel. The effect on vote buying points squarely in this direction, but the effect on higher education can also be interpreted in this vein, given the prominent social status of scholarships for studying abroad. The effect on corruption in customs may be a symptom of increased private consumption by the Sao Tomean elite (potentially funded with oil-related moneys)' (Vicente, 2010: 29).

However, it still remains a puzzle why some resource-rich countries (for example Australia, Canada, Norway) have very low levels of corruption. One main argument put forward was that resource rents (but also rents induced by a lack of market competition) foster bureaucratic corruption (Ades/ Di Tella, 1999). Bhattacharyya/ Hodler (2010) argue that strong democratic institutions help to moderate the effect of natural resources on corruption.

Bhattacharyya/ Hodler present a political economy model to illustrate how democracy might affect the relationship between resource rents and corruption by constructing a game between politicians and the people. They assume that there are some 'good' politicians who act in the people's best interest and possibly many more 'bad' politicians who primarily care about the revenues they can generate by corrupt activities. The majority of people prefer to have a good politician as their leader. This provides an incentive for a bad incumbent to mimic a good leader and not to engage in corruption in order to maximise his chances of remaining in power. A bad incumbent would mimic a good leader if the democratic institutions are sufficiently sound, i.e., if popular support significantly improves his probability of staying in office. If this difference is small, a bad incumbent engages in corrupt activities. The level of corruption increases with the level of natural resource rents. Bhattacharyya/ Hodler conclude that resource abundance increases corruption in countries with poor democratic institutions but not in countries with comparatively better democratic institutions.²⁵

Such institutional changes would include both electoral and judicial reforms. Promoting citizens' right to information through legislation, increasing community participation, and social auditing of bureaucrats can also be important tools towards building a more accountable government. Even though far from conclusive, some country studies are already showing corruption-reducing effects of such policy changes (Olken, 2007; Bhattacharyya/ Jha, 2009; on international anti-corruption standards see Low et al., 2010).

25 In a similar vein as Smith (2004), these findings imply that countries discovering natural resources after they have established well-functioning democratic institutions that keep governments accountable tend to handle the scourge of corruption much better.

4. The Challenge of Political Stability

The resource boom literature also contains a number of studies that suggest that natural resource abundance is associated with growing authoritarianism (i.e., lack of democracy) and an increased (in)stability of these authoritarian regimes (cf. e.g., Ross, 2001b, 2006; Sala-i-Martin/ Subramanian, 2003; Smith, 2004; Isham et al., 2005).

Wantchekon (2002), for instance, found that resource-rich countries were more likely to experience failed or slow transitions to democracy. Jensen/ Wantchekon (2004) presented similar findings concluding that resource-abundant countries in Africa were more likely to be authoritarian and experience breakdowns in democracy after the democratic transition. Collier/ Hoeffler (2009a: 294) conclude that resource-rich countries are systematically less democratic than resource-poor countries. However, Karl (1997) points out that Venezuela had already been authoritarian when oil was developed, and in fact transitioned to democracy at the height of its oil wealth. Haber/ Menaldo (2011), looking for a link between democracy and the share of oil or minerals in the economy, fail to find statistically significant evidence (see also Feil, 2010). Similarly, Dunning (2008) finds that the correlation between oil profits and democracy turns positive after taking into account country-specific differences within Latin America.

Earlier research has predicted that resource-rich countries would suffer from political instability in times of decreasing resource revenues (cf. e.g., Beblawi/ Luciani, 1987; Karl, 1997).

‘The “oil-as-spoils” thesis maintains that the presence of oil revenues or other extracted natural resources in a country cause political instability by (1) presenting an attractive set of spoils to potential rebels or state-breakers and/or (2) by creating resentment over unequal distribution of oil rents that can spill over into conflict over the pattern of distribution’ (Smith, 2004: 234; see also Okruhlik, 1999; Watchekon, 1999).

However, more recent research has indicated the opposite: Smith (2004, 2007) and Ulfelder (2007), for instance, generally find that authoritarian regimes have lasted longer in countries with oil wealth.

In any case, in resource-rich countries specific challenges for the political elites arise regarding the stability or instability (i.e., state weakness) of their regimes. Challenges for the stability of a regime include the (1) demands of the populace (as unsatisfied demands might lead to social unrest), (2) elite power struggles that might endanger the position of the elite in power (i.e., the evolution of a counter-elite) and (3) civil war (as a possible escalation of elite power struggles or social unrest).

4.1. Demands of the Populace/ Social Unrest

Numerous scholars have linked problems of regime instability with so-called ‘rentier’ states. In political science, the term ‘rentier state’ is used to classify those states in which the government derives all or a substantial portion of its national revenues from the rent of indigenous resources to external clients. The term is most frequently applied to states rich in highly valued natural resources. This ‘unearned’ income has often the form of taxes on natural resource exports or royalties on natural resource production (Mahdavy, 1970; Skocpol, 1982; Beblawi, 1987; Luciani, 1987; Gunn, 1993; Chaudhry, 1994; Vandewalle, 1998).

Beblawi (1987: 51–52, 1990: 87–88) suggested four characteristics of a rentier state:

1. ‘First, there is no such thing as a pure rentier economy. Each and every economy has some elements of rent. A rentier economy should be defined as one where rent situations predominate. This of course is a matter of judgment’ (Beblawi, 1987: 51).
2. A rentier economy relies on a substantial external rent and therefore does not require a strong domestic productive sector.

3. 'Third, in a rentier *state* [italic in the original, AH]—as a special case of a rentier economy—only few are engaged in the generation of this rent (wealth), the majority being only involved in the distribution or utilisation of it' (Beblawi, 1987: 51).
4. '[...] in a rentier state the *government* [italics in the original, AH] is the principal recipient of the external rent in the economy. This is a fact of paramount importance, cutting across the whole of the social fabric of the economy affecting the role of the state in the society' (Beblawi, 1987: 52).

While rentier states receive substantial external rents, they are characterized by the relative absence of revenue from domestic sources, as their naturally occurring wealth precludes the need to extract income from their citizenry. Beblawi (1987: 52) has argued that this could create a 'rentier mentality'; the economic behaviour of a rentier state 'embodies a break in the work-reward causation [...]. Rewards of income and wealth for the rentier do not come as the result of work but rather are the result of chance or situation.'

Due to the large amounts of revenues at their disposal, it is argued that rentier states tend to develop greater capacity in distributive functions (such as social welfare, education, and health) than in functions related to the regulation and supervision of the economy and domestic taxation (Garaibeh, 1987; Luciani, 1987; Chaudhry, 1994; see also Karl, 1997; Moore, 2000, 2004; Auty/ Gelb, 2001).

Much discussion revolves around the nature of society in such states (Mahdavi, 1970; Beblawi/ Luciani, 1987; Boon, 1990; Shambayati, 1994; Okruhlik, 1999). Due to the large amounts of revenues at their disposal, it is argued, that rentier states tend to develop greater capacity in distributive functions (such as social welfare, education, and health) than in functions related to the regulation and supervision of the economy and domestic taxation (Garaibeh, 1987; Luciani, 1987; Chaudhry, 1994; in a similar vein but with slightly different terminology and concepts Karl, 1997; Moore, 2000, 2004; Auty, 2001c, 2001d; Auty/ Gelb, 2001). Smith (2004: 233) points out that as revenues from natural resources increase to the point at which they dominate a government's budget, the government evolves from an extractive state into a distributive one: 'the bulk of the internal activities of the state are concerned with distribution' (Delacroix, 1980: 18).

Karl (1997: 16) has argued that dependence on oil revenues leads to the emergence of 'petro-states' which are defined as states that are preoccupied with the 'political distribution of rents' rather than promotion of private investment, production and economic growth. The emergence of petro-states, she suggests, is particularly likely where the oil boom coincides with the process of state formation and institution building (see also Vandewalle, 1998: 33–38). In these cases, the domination of oil gives the state a distributive character from its inception by structuring domestic political institutions, which become locked in.

The rentier state theory suggests that natural resource wealth prevents instability (at least in times of resource booms) because governments in resource-rich countries are able to use (1) government spending programmes and (2) low private taxation to reduce pressures from their populace. As Shambayati (1994) has shown low taxes and generous welfare programmes discourage opposition groups from mobilizing (at least) around economic issues.

(1) Allocation policies tend to consolidate system stability and foster a perception that some policies benefit everyone countering a possible disenfranchise of some societal groups (Luciani, 1990: 76). In general, a steady inflow of rents allows governments to offer general benefits to society as well as selective benefits to certain strategic social segments—consistent with Olson's (1982) theory of interest groups—as a means of solidifying the state's role as the central political actor and allocator of resources. By dispensing patronage to key societal actors, the rentier state reinforces and legitimizes its central role (Cooley, 2001: 166). The government essentially 'bribes' the citizenry with extensive social welfare programs and buys off political opponents (Acemoglu et al., 2004).

Moreover, because control of the rent-producing resources is concentrated in the hands of the state, it may be used to alternately coerce or co-opt their populace, while the distinction between public service and private interest becomes increasingly blurred (cf. e.g., Beblawi, 1990). Lam/ Wantchekon (2003),

for instance, have argued that the economic benefits of resource booms are typically concentrated on political elites, in turn enabling them to maintain support and consolidate their power.

Representative bodies that do exist in rentier states tend to be symbolic, as real political decisions are made within the bureaucracy, and are seldom used as forums through which policy differences are mediated or addressed (Cooley, 2001: 166; see also Gause, 1994; Yates, 1996). In authoritarian political systems, this means more limited scope for democratic change. Similar arguments have been made by Beblawi (1987), Luciani (1987), Ross (2001b) and Jensen/ Wantchekon (2004).

It is argued that natural resource wealth enables governments in resource-rich countries to spend more on internal security which governments can use to limit the scope for political opponents to organise and challenge them (cf. e.g., Skocpol, 1982; Gause, 1995; Ross, 2001a; Jensen/ Wantchekon, 2004). More recently, using a direct measure of repression of dissent, De Soysa/ Malmin Binningsbø (2009) find ample evidence to suggest that energy and mineral wealth strongly predict higher levels of political terror.²⁶

‘This line of argument suggests that oil-dependent regimes should evince significantly greater levels of stability during pre-boom and boom periods’, while a bust period should be characterized by instability (Smith, 2004: 233). During boom periods, the state is able to placate important social groups by paying them off with resource revenues as well as to enact interventionist policies in the economy and to forge and consolidate patrimonial political institutions (Smith, 2004: 233; see also Crystal, 1990; Chaudhry, 1997). During bust periods, capital inflows substantially decrease making it impossible to continue patronage while the weakness of state institutions makes it impossible to extract revenues from domestic sources. The pressure to adjust, in turn, initiates struggles between the state and its societal constituents who are politically entrenched and reluctant to curtail their demands and expectations (Cooley, 2001: 167; Smith, 2004: 233).

(2) Additionally, it is argued by Zakaria (2004) and Collier (2006) that the absence of taxes reduces the citizens’ incentive to hold the government accountable and to place pressure on it to become responsive to their needs. Auty/ Gelb (2001: 128–129) have argued that the existence of natural resource rents creates a relatively high tolerance by the poor majority for inequitable asset distribution and predatory rent extraction, in turn decreasing the chances for an asset redistribution by the state.

However, the role of social forces in shaping development outcomes in resource abundant countries is not adequately addressed. This is due to the basic assumptions that political elites in resource-abundant countries have a high degree of autonomy from domestic social groups, the role of these social forces in shaping development outcomes is not adequately addressed. It is assumed that political elites (as representatives of the state) are financially independent of the citizenry; thus, resource-rich states are granted immunity from social pressure (cf. e.g., Auty, 2001c, 2001d).

However, Okruhlik (1999) argues that windfall profits of petroleum exports do not translate into a politically quiescent population. While political elites in resource-abundant countries may rarely face social pressure in relation to their taxation policies, they frequently face serious social pressures in relation to spending decisions. She emphasizes explicit linkages between state strategies of expenditure and the political consequences for particular social groups. Furthermore, the nature of state institutions in resource-rich countries is often shaped by long-standing social patterns and dynamics, particularly in cases where natural resource domination of the economy occurred after the state was already formed (for the example of Iran see Skocpol, 1982; Shambayati, 1994).

Natural resource abundance, particularly an abundance of point-source resources, might undermine social cohesion and in turn limit the capacity of governments to manage economic shocks. Ownership of point-source resources is typically concentrated in the hands of a few well-connected individuals or families, a situation that creates severe social tensions; this contradicts the argument of a relative high tolerance for inequality among the populace (Auty/ Gelb, 2001). While these tensions may be masked

26 However, Smith (2004) argues that repression does not account for regime stability in resource-rich countries (see also Section 4.2).

during periods of economic prosperity they come to the surface at times of economic crisis (Isham et al., 2005; see also Rodrik, 1999; Hausmann, 2003). This aspect will be examined in more detail in the following section on socio-economic development.

Rosser (2006: 21) stresses the need to give greater attention to the nature of the social contexts in resource-abundant countries in order to extract causal mechanisms to explain why these states perform poorly in economic terms, are undemocratic, and are prone to violence.

4.2. Elite Power Struggles

Robinson et al. (2006) and Vicente (2010) show that resource booms raise the value of being in power while simultaneously providing the ruling elite with more resources to entrench their position. Countries with large amounts of natural resources experience power struggles in the sense that potential challengers have a stronger incentive to seek to replace the existing government (i.e., struggle to access and control rents; rent competition) (Caselli, 2006; see also Tornell/ Lane, 1999; Hodler, 2006; for empirical evidence from Kazakhstan and Azerbaijan see Umbetaliyeva/ Satpayev, forthcoming; Kuznir, forthcoming; Guliyev, forthcoming; Meissner, forthcoming).

To increase the stability of the existing regime, the elite in power can react to this challenge by (1) creating a patronage network to stabilize and legitimize the regime and/or (2) using authoritarian repression to quell any opposition.

(1) Spending large sums of money on sustaining patronage networks to garner political support becomes an entrenched behaviour of governments in resource-rich countries which are reluctant to remove the subsidies/ benefits against the will of these interest groups (cf. e.g., Anderson, 1987; Chaudhry, 1989; Karl, 1997). By dispensing patronage to key societal actors, the rentier state reinforces and legitimizes its central role (Cooley, 2001: 166). Abundant natural resources provide the ruling elite with the resources to buy off political opponents (Acemoglu et al., 2004).

(2) During bust periods, however, capital inflows substantially decrease making it impossible to continue patronage. The pressure to adjust, in turn, initiates struggles between the state and its societal constituents who are politically entrenched and reluctant to curtail their demands and expectations (Cooley, 2001: 167; Smith, 2004: 233). If political opponents cannot be bought off anymore and patronage-based loyalty vanishes, natural resource wealth enables governments to use internal security mechanisms (installed during boom times) in order to limit the scope for these opponents to organise and challenge them (cf. e.g., Skocpol, 1982; Gause, 1995; Ross, 2001a; Jensen/ Wantchekon, 2004). De Soysa/ Malmin Binningsbø (2009) argue that energy and mineral wealth strongly predict higher levels of political terror.

However, Smith (2004) argues that repression does not account for regime stability in resource-rich countries (his study focuses on oil-rich countries). '[...] repression does not account for the result, suggests that there is more to the durability of regimes in oil-rich states than patronage and coercion' (Smith, 2004: 242). These results are somewhat qualified by Basedau/ Lay (2009): they argue that only the availability of very high per capita revenues from oil allows governments to achieve internal stability. They find that oil-wealthy countries apparently manage to maintain political stability by a combination of large-scale distribution, high spending on the security apparatus and protection by outsiders.

4.3. Civil War

The literature also contains numerous studies that suggest that resource-abundant countries are assumed to suffer a greater probability of violent civil conflicts and that the resource endowment influences four dimension of civil war: the onset, duration, intensity (that is, the number of battle-related deaths) and the type of these conflicts (cf. e.g., Sachs/ Warner, 1997; Collier/ Hoeffler, 1998, 2004, 2005; Doyle/

Sambanis, 2000; Ross, 2001; Reynal-Querol, 2002; Fearon/ Laitin, 2003; Humphreys, 2005; Collier, 2007; Fjelde/ De Soysa, 2009; Schollaert/ Van de Gaer, 2009; Lujala, 2009; Gurses/ Mason, 2010).

Violent civil conflicts might arise out of social unrest and elite power struggles (see Sections 4.1 and 4.2). In addition to the possible reasons for instability mentioned there, the wider debate over the causes of civil war has centred around two main arguments: (1) grievances and (2) greed (Rosser, 2006: 17–18).²⁷

(1) The first argument has suggested that civil wars are caused by grievances stemming from inequalities of wealth, limited political rights, or ethnic and religious divisions. Emphasising the motives of rebel movements, natural resource abundance serves to exacerbate the grievances that lead to rebellion. Grievances stemming from various typical consequences of natural resource exploitation might include insufficiently compensated land expropriation, environmental degradation, inadequate job opportunities, and labour migration.

(2) The second argument assumes that rebellions are caused by greed emphasising the economic incentives and opportunities for rebel organisations to enrich themselves (Ross, 2002). At the same time, however, it suggests that civil wars are most likely where natural resource abundance create opportunities for rebels to fund their activities (Collier/ Hoeffler, 2004). In this argument, natural resource abundance constitutes a potential source of funding for rebel activities (Collier/ Hoeffler, 2000; Humphreys, 2005 calls that the ‘feasibility mechanism’; also ‘booty futures’). It is argued that the existence of primary commodities would enable rebel groups to raise money by extracting and selling resources directly or extorting money from those who do. This is often referred to as the ‘looting’ mechanism (Ross, 2004b: 40).

A number of scholars have argued that neither the grievance nor greed arguments are particularly helpful in understanding the onset of civil war in specific cases, at least not if they are used on their own. Ballentine (2003) suggests that civil wars in resource-abundant countries are caused, to varying degrees, by some combination of greed and grievance, rather than just one or the other. In a similar study of 13 civil wars that occurred in resource-abundant countries, Ross (2004b) found even less support for the greed and grievance hypotheses. He did, however, find some support for the notion that natural resource-related grievances can cause separatist civil wars, an effect he labels the ‘separatist’ mechanism. Ross (2004b: 57–58) suggests that rather than being caused by the greed or grievance mechanisms, civil wars in resource-abundant countries are typically caused by various alternative mechanisms (such as the ‘foreign intervention’ mechanism by increased probability of foreign intervention to support a rebel movement and the ‘booty futures’ mechanism enables rebel groups to sell future exploitation rights to minerals they hope to capture). At the same time, Ross also suggests that civil wars generally reflect the operation of two or more causal mechanisms operating at once rather than a single causal mechanism.

Collier/ Hoeffler (1998, 2004) found that natural resource abundance is a strong and significant determinant of the onset of civil war, although they also found that after a certain level of abundance, it reduced this risk (i.e., curvilinear relationship). However, Collier/ Hoeffler (2005) qualify their earlier finding: the rent-based measure of natural resource abundance becomes insignificant when the original export-based measure of natural resource wealth is included in the regression analysis as well.

Examining the effect of natural resource abundance on different types of civil wars, Collier/ Hoeffler (2002) find that natural resources increase the risk of both secessionist and non-secessionist civil wars. In a similar study, Reynal-Querol (2002) examined the association between natural resources and the onset of ethnic and non-ethnic civil wars: while natural resource abundance is an important variable in explaining the incidence of non-ethnic civil wars and other forms of political violence, it is not in the case of ethnic civil wars. Some researchers have also suggested that natural resource abundance may lengthen the duration of civil wars (Collier/ Hoeffler, 1998). Lujala (2010) presents results that support the assertion that natural resources play a central role in armed civil conflicts because of the incentives and opportunities they present for rebel groups resulting in prolonged conflict duration.

27 Humphreys (2005: 510–513) even distinguishes a total of six rival families of causal mechanisms for civil war in resource-rich countries

Similarly, Doyle/ Sambanis (2000) found that natural resource wealth was significantly and negatively correlated with the success of peace-building initiatives; this finding suggests that natural resource wealth is associated with longer wars (see also Ross, 2004a; Ballentine, 2003). Fearon (2004) found that countries that are rich in contraband resources such as opium, diamonds, or coca tend to experience longer civil wars. Regarding the intensity of civil wars, Ross (2004b) found only very modest support for this idea that natural resources prolong civil wars (Rosser, 2006: 9–10).

However, not all the literature supports this view. Some scholars have produced evidence to suggest that natural resource abundance may not have a negative effect on the onset, duration or intensity of civil war (cf. e.g. Fjelde, 2009; Shabafrouz, 2010). In a study of the effects of oil dependence on regime failure and conflict, Smith (2004), for instance, found that oil wealth is associated with lower levels of civil war and anti-state protest. Similarly, Sørli et al. (2005) found that oil dependence has not exercised a significant influence on the onset of civil war in the Middle East in recent decades. In respect of the duration of civil war, Humphreys (2005) suggests that natural resource conflicts are more likely to end quickly, while Ross (2003b) has presented evidence to suggest that while lootable resources may serve to prolong non-separatist conflicts, non-lootable resources serve to reduce non-separatist conflicts (see also Collier et al. 2004). In respect of the intensity of civil war, Ballentine (2003) has suggested that natural resource abundance has, in some cases, reduced the number of battle-related deaths during civil war (Rosser, 2006: 12).

5. Socio-economic Challenges

More recently, research has focused on the negative socio-economic development effects likely to be associated with natural resource exploitation such as inequality, poverty and others. For instance, Bulte et al. (2005) examine the relationship between resource abundance and several indicators of human welfare concluding that resource-rich countries tend to suffer lower levels of human development. While they find only weak support for a direct link between resources and welfare, there is an indirect link that operates through institutional quality. Measuring social development by a combination of health and education outcomes, Carmignani/ Avom (2010) find that a higher dependence on primary commodity exports is negative for social development. The transmission mechanism seems to operate via income inequality and macroeconomic volatility.

Tornell/ Lane (1999) provide a general explanation for this phenomenon: They assume that the high value of resource rents would induce competing political groups to engage in a redistributive struggle. When these groups are powerful and do not coordinate they cause a 'voracity effect'. 'The "voracity effect" is a more-than-proportional increase in discretionary redistribution in response to an increase in the raw rate of return in the efficient sector' (Tornell/ Lane, 1999: 34). In other words, they consume 'too much' because each group attempts to grab a greater share of national wealth by demanding more transfers. The government in turn must finance such transfers by levying higher taxes on the formal sector, the only sector taxes can be levied on. This is reflected in a higher tax rate in the formal sector. As a result, a greater share of resources is transferred into the informal sector, where it is safe from taxation. The lack of institutional barriers to discretionary redistribution results in reduced growth in case of increased windfalls (Tornell/ Lane, 1999: 23–24, 30). With this voracity effect, rents are not merely wasted as in conventional rent-seeking but national income is actually reduced (Collier/ Hoeffler, 2009: 294).

In contrast, according to Franke (2009), welfare policy in authoritarian regimes (such as Kazakhstan) is used as a means by the government in order to ensure the populace's loyalty instead of a tool to prevent or solve social problems. The main objective of authoritarian welfare policy is the maintenance of power and control (see also Fajth, 1999; Müller, 2004; Cerami, 2006). The government exchanges social welfare services for loyalty; thus, especially members of the bureaucracy and military as well as societal stabilizing forces such as families, pensioners and veterans have privileged access to the welfare system.

The commonly used indicators of human welfare include (1) inequality/poverty, (2) health care and (3) human resources/education.

(1) Gylfason/ Zoega (2002) find indications of increasing inequality in resource-rich countries (see also Robinson, 2009). At the example of Russia, Buccellato/ Mickiewicz (2009) demonstrate that the regional oil and gas abundance is associated with high within-region inequality. They provide empirical evidence that hydrocarbons represent one of the leading determinants of an increased gap between rich and poor in the producer regions. Pegg (2006) concludes that mining in general has a dismal empirical track record in poverty reduction. However, analysing the Bolivian gas boom of the 1990s, Lay et al. (2006) suggest that the gas boom induces a combination of un-equalising and equalising forces, which tend to offset each other. As net distributional change is limited, growth generated by the boom reduces poverty despite increasing informality. Similarly, Caselli/ Michaels (2009) find that oil windfalls contribute little to local living standards in Brazil due to increased instances of illegal activities of local officials.

Studies on inequality also indicate an accentuated rural-urban disparities as natural resource rents typically end up in government coffers and, therefore, are captured by the urban ruling elite; the poor are largely excluded from any benefits (Davis/ Tilton, 2005: 236; for the example of Azerbaijan see Baschieri et al., 2005; Habibov, 2010). In similar vein, Isham et al. (2005) point out that resource-rich countries experience greater social cleavages in than other countries because some groups have greater access to natural resource rents than others. Additionally, Fum/ Hodler (2010) claim that natural resources

raise income inequality in ethnically polarized societies, but reduce income inequality in ethnically homogenous societies.

(2) Many resource-rich developing countries fail to provide primary health care or struggle to maintain their health care systems. Freund (1986) describes the effects of a severe economic crisis in Zambia after the decline of copper prices. This crisis has set into motion various austerity measures which made it increasingly difficult for the government to maintain the network of health and other social services resulting in falling doctor/population ratio and other health service indicators. Analysing the effects of a resource boom on the structure of health systems at sub-national levels, Calain (2008) finds that community health is at the same time marginalised and instrumentalised toward economic and corporate interests.

(3) Studies linking natural resources to growth through human capital lead to contradictory results. Bravo-Ortega/ De Gregorio (2005) show that higher levels of human capital can offset any negative effects of resource wealth. Their argument is related to the linkage effect and learning-by-doing (see Section 2.1.2). Matsuyama (1992) argues that a downturn in manufacturing could lead to a fall in demand for education. In similar vein, Birdsall et al. (1997) found evidence that different incentives might exist to invest in education as between resource-abundant and resource deficient countries. Gylfason (2001a) shows that in resource-rich countries, negative growth stems from lower spending on education and lower levels of schooling. Measured as public expenditure on education relative to national income, expected years of schooling for girls, and gross secondary-school enrolment, natural resources appear to crowd out human capital, thereby slowing down the pace of economic development. However, Stijns (2006) finds a positive correlation between natural resource rents per capita and improved indicators of human capital accumulation.

6. Conclusion

As this review of the literature has shown, resource booms are seen to have a broad impact on economy, society and politics of the respective countries. After initial optimism that resource wealth would offer an easy way to development, empirical observations of resource countries have led to the 'resource curse' paradigm, which claims that a resource boom is more a problem than a solution.

However, after two decades of research on the issue, there is still no conclusive evidence on the effects (and even less on the causal mechanisms) of the resource curse. In summary, several weaknesses of the resource curse literature are identified.

Generally, most of the literature (especially on the economic and socio-economic challenges of a resource boom) is based on large-*N* studies, where conclusions are drawn from correlations of country-level variables for a large set of countries. Thus, most studies on resource booms are highly deterministic; they do not comport with the fact that there is considerable variation in the economic and development outcomes experienced by individual resource-abundant countries. They also do not comport with apparent variation in the extent to which resource-rich countries suffer from the various political challenges that are mediating the relationship between natural resource abundance and development performance (Rosser, 2006: 22–23; exceptions are e.g., Auty/ Gelb, 2001; Acemoglu et al., 2003). Not all resource-rich countries have developed predatory or rentier states, nor have all suffered from problems of corruption and rent-seeking to the same extent.

Even though country or regional case studies do exist (cf. e.g., Auty, 1994b, 2001d, 2003, 2004a, 2004b, 2009; Ahrend, 2005; Tompson, 2005; Kalyuzhnova/ Kaser, 2006; Kalyuzhnova, 2006; Brauer, 2007; Rosser, 2007; Banks, 2008; Najman/ Pomfret, 2008; Merlevede et al., 2009; Franke et al., 2009; Rwabizambuga, 2009; Franke et al., 2011), they do not look at the causal mechanisms at the micro-level.

A major shortcoming is that existing explanations do not adequately account for the role of political and social forces in shaping development outcomes. Most of the literature has been too reductionist and has not examined which political and social factors enable some resource-rich countries to utilise their natural resources to promote development and prevent others from doing the same (Rosser, 2006: 3, 7–8; see also Schrank, 2004; Snyder/ Bhavnani, 2005).

Very few analyses of resource booms have taken into account the decision-making processes and the connected conflict of interests or political calculations of the actors involved (cf., Bayulgen, 2005; Maconachie/ Binns, 2007; Makhmutova, 2007). Among these few, Jones Luong/Weinthal (2010) focus solely on the decision-making processes regarding the ownership structures in the energy sector in order to explain the resource challenges. However, this working paper argues that for each policy area in the energy sector the political elite of a resource-rich country has to make specific decisions; not every policy outcome can be explained by the ownership structure of the energy sector alone.

In addition, the way in which countries' external environments shape development outcomes in resource-abundant countries is not adequately addressed. With a few exceptions (e.g., Ross 2004b), the role of external factors in mediating the relationship between natural resource wealth and development outcomes has been neglected; development outcomes are generally seen as being solely a product of domestic political factors. Rosser (2006: 22) indicates that the economic opportunities created by globalization helped resource-rich countries to cope with the aftermaths of the 1970s resource boom. Inflows of external capital in the form of foreign aid and foreign direct investments (FDI) during the 1980s and 1990s, for example, helped Indonesia, Malaysia and Thailand to avoid economic problems during the bust period. A country's geo-political and geo-economic environment is thus an important mediating factor in the relationship between natural resource wealth and developmental performance.

This working paper argues that the negative consequences of a resource boom are not a 'curse' in the sense of an unavoidable fate or destiny, but rather the result of specific policy choices. Therefore, inconclusive

evidence on the impact of resource booms is the obvious result, as some countries manage the related resource challenges (thus mitigating or avoiding the negative impact) while others do not.

This understanding has two implications. First, a change in research strategies is needed. It is not sufficient to run correlations between resource wealth and socio-economic indicators. Instead policy measures (in that case, the states' responses to the resource challenges) have to be included as intervening variables. In order to do so more detailed country studies are needed.

Second, if specific policy choices can help to avert the 'resource curse', then the focus of academic research should be less on the impact of a resource boom as such, but more on specific policy measures to manage it.

In the literature on the resource curse there is growing consensus that institutional weakness is central to the explanation of the negative effects of resource booms (Collier/ Hoeffler, 2009: 294). The quality of institutions is considered a fundamental factor that determines a country's economic performance. Sound macroeconomic or microeconomic policies need an institutional structure to support them (e.g., Barro, 1991; North, 1994). Robinson et al. (2006) and Mehlum et al. (2006) both stress the role of institutions and good governance to offset the negative effects caused by resource rent extraction (Collier/ Hoeffler, 2009: 294; see also Salti, 2008)

Atkinson/ Hamilton (2003: 1804), for instance, have argued that resource-rich countries with 'good quality institutions'—defined in terms of the extent of the rule of law, bureaucratic quality, the level of government corruption, and the risk of investment expropriation and contract repudiation—have achieved greater rates of investment and, to a lesser extent, saving than resource-rich countries with poor quality institutions.

Similarly, Eifert et al. (2003) have emphasised regime type. More specifically, they suggest that mature democracies have performed better in terms of managing oil rents than autocracies or factional democracies because their higher levels of transparency and accountability, lower levels of corruption, and stronger protection of civil and political rights have translated into a higher capacity for long-term decision-making and more stable economic policies.

When good governance is the solution, a resource boom might, indeed, act in the form of a curse as natural resource exports

'can damage institutions (including governance and the legal system) indirectly—by removing incentives to reform, improve infrastructure, or even establish a well-functioning tax bureaucracy—as well as directly—by provoking a fight to control resource rents. [...] There is growing evidence that [this, AH] effect is the most problematic' (Hartford/ Klein, 2005).

In a similar vein, Davis/ Tilton (2005: 240) suggest that large resource rents 'may themselves undermine good governance by breeding corruption and a decline of institutional quality.'

'The debate therefore centres [...] not on the type of governance needed, but on whether most resource-dependent developing countries can achieve the desired governance' (Davis/ Tilton, 2005: 240).

However, before discussing the ability of political elites to achieve the desired governance quality, it is important to note that political elites in many resource countries do not seem to have the wish to achieve the kind of governance and development outcomes desired by Western academics. Mostly because it can be easier to acquire personal material gains without transparency, checks and balances or term limits for public office. But in many cases political elites also seem to consider authoritarian control and repression to be more efficient regarding their entrenchment in power than election contests (cf. Dunning, 2005).

Smith (2004: 238) states that 'regimes in oil-rich states face a lower risk of breakdown and confront fewer civil wars and anti-state protests than regimes in oil-poor states'. While oil dependence is a positive predictor of durability, at the same time it is negatively related to democracy (Smith, 2004: 238; see also Morrison, 2007, 2009).

'[...] the persistence of authoritarian regimes in oil-rich states long after the bust of the 1980s—after access to patronage rents had dropped off dramatically—suggests that leaders in many of these states invested their windfall revenues in building state institutions and political organizations that could carry them through hard times' (Smith, 2004: 232).

'That regimes in oil-rich states (1) tend to fare better than others despite the volatility of their revenue base and (2) that they even fared well during the oil bust of 1986 and beyond suggests two plausible mechanisms of regime maintenance that belie the weak-state assumptions associated with oil wealth. First, many of these regimes may have had robust social coalitions that went much deeper than the simple purchase of legitimacy. [...] Second, regimes such as these may have built institutions that could provide non-repressive, as well as repressive, responses to organized opposition' (Smith, 2004: 242–243).

In the literature on resource booms, there is no single explanation of what creates a 'blessing' rather than a 'curse'; nor is there agreement on any collection of explanations. This argues for a case-by-case approach rather than trying to force some sort of generalization. It also adds support to the suggestion to speak of 'resource challenges' instead of a 'resource curse' and then evaluate the nature of the different causal mechanisms behind the challenges and country-specific measures to address them.

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