Chapter 2
Challenges in Petroleum Rich Countries

Abstract This chapter identifies the main channels through, which oil and gas resources may promote or impede economic growth from a broader social perspective. In addition to the economic and political channels of the resource curse, socio-economic challenges, such as a low level of human capacity building, may exacerbate the adverse effect of petroleum resources on long-term economic growth. Petroleum states under-invest in education and workforce skills because their economies are based on their endowments of petroleum resources. A key shortcoming of the resource curse literature is the lack of clear understanding of the effect of the managerial model of the oil sector, in particular its effects on the sector's economic performance. Few case studies have focused on effective administrative design as a causal factor affecting the performance of the oil sector.

Keywords Resource curse · Economic challenges · Political economy challenges · Social challenges · Managerial model of petroleum sector

2.1 Introduction

The concept of the resource curse suggests that countries endowed with natural resources, such as minerals, oil and gas, have been less able to develop their economies than others with fewer natural resources (Auty 1993). However, the success stories of some natural resource-abundant countries, such as Norway and Botswana, suggest that abundance of natural resources is not a curse per se, but rather that government mismanagement of natural wealth is to be blamed for the emergence of the resource curse in many resource-rich countries such as Nigeria.

This investigation considers the findings of research in the field, which have identified a diverse set of challenges associated with the natural resource curse faced by hydrocarbon-producing states. Economists have sought to investigate the relationship between vast natural resource revenues and economic performance. Dutch disease, volatility of oil prices, resource revenue-based economies and a lack of diversification in the wider economy are significant economic challenges relating

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to the resource curse (Cordon and Neary 1982; Sachs and Warner 2001; Dées et al. 2008; Gelb 2011).

Another focus of the literature is on political explanations for the resource curse. It is considered that weak governance and poor administrative quality may promote rent-seeking activities rather than productivity in resource-rich countries: many 'rentier states' are overwhelmed by corruption and poor human capacity building, resulting in economic under-development. From a political point of view, it is concluded that the dilemma associated with abundant natural resources stems from the fact that decision makers in oil-rich countries have failed to take effective economic measures to combat macro-economic instability caused by the frequent 'boom and bust' of oil cycles. In other words, government policies are key in generating benefits from petroleum resources (Mahdavy 1970; Karl 1999; Watts 2004; Di John 2011; Ross 2012).

Against this background, this chapter is organised into three main sections addressing economic aspects of the 'resource curse', political aspects of the 'resource curse', and the inadequacies of the literature.

2.2 Economic Aspects of the 'Resource Curse'

2.2.1 Dutch Disease

The extraction of natural gas in the Netherlands in the 1960s resulted in a boom in the natural resources sector, and with it emerged a new phenomenon known as 'Dutch disease'. Economists see this as an economic dimension of the wider 'resource curse' and link it to the influx of resource income into newly resource-rich countries. A surge of petro-dollars into a newly resource-rich country leads to appreciation of the national currency. This increases costs for the domestic manufacturing sector and finances the expansion of imports. Consequently, de-industrialisation is a side-effect of Dutch disease (Cordon and Neary 1982).

Since the introduction of the concept, a substantial literature has developed. For example, Cordon and Neary (1982) developed an economic model to explain Dutch disease in terms of three economic sectors: the natural resources sector; the non-resource traded goods sector, consisting of export industries with prices set by competition on world markets; and the non-traded goods sector, consisting of activities for which the domestic market determines prices. They argue that Dutch disease appears in a resource-rich country when the non-traded goods sector is squeezed or 'crowded out' by growth in the other two sectors. They also argue (1982, p. 983) that this may occur through two effects: the 'spending effect' and the 'resource movement effect.' They highlight that, on the one hand, a boom in income from the natural resources sector increases demand for non-traded goods, resulting in higher prices for these goods. This may provoke an increase in the real exchange rate, which may result in a deterioration in the competitiveness of the non-resource

traded sector. This is the 'spending effect'. The 'resource movement effect', on the other hand, comes into play when the workforce shifts away from the traded goods sector into the non-traded goods sector owing to increases in wages. Both effects may lead to de-industrialisation in the non-resource traded goods sector. The relocation of labour away from the traded goods sector may also impact on the non-traded goods sector (Cordon and Neary 1982). In this respect, Kuralbayeva and Stefanski (2013) state that the non-traded sector may often be less productive than the manufacturing sector. This may result from the movement of less skilled labour into the non-traded sector and the fact that specialist labour tends to remain in the manufacturing sector.

In addition to the spending and resource movement effects, Dutch disease is also linked to an inappropriate allocation of resources between the traded and non-traded goods sectors that may also result in lower economic growth. According to Sachs and Stiglitz (2007), in cases where the proceeds of an oil boom are invested in the non-traded goods sector, there may be evidence of Dutch disease. In other words, natural resource revenues tend to be consumed by public, non-tradable projects, such as roads, construction, power, telecommunications and other services. The manufacturing sector is squeezed, the exchange rate appreciates as a result of increased prices owing to increased aggregate demand, the price of imports falls, and hence the manufacturing sector becomes uncompetitive in the face of cheaper imports. In a more recent study, Saad-Filho and Weeks (2013) state that the effects of Dutch disease may relate to the failure of economic policy in resource-rich countries, which results in a decline in productivity in the traded goods sector.

In summary, a review of the literature shows that economic dependence on natural resource revenues may pose a major threat to the development of the manufacturing and agricultural sectors in a resource-rich economy. This threat is the result of a lack of adequate investment and financial support, weakening the competitiveness of these industries. Furthermore, Davis and Tilton (2005) state that resource-rich countries should take into account the negative growth effect of natural resource depletion when determining resource income investment policies, particularly in relation to the agricultural and manufacturing sectors. In other words, sustaining the development of the non-resource sector should be an important part of maintaining a diverse economic structure.

Despite evidence that Dutch disease can be attributed to natural resources wealth, there is also evidence of significant heterogeneity in outcomes. For instance, Auty (2001) stresses that resource-rich countries have experienced different economic outcomes following the discovery of resources. While a number of countries, such as Nigeria, Ghana and Mexico, have suffered from challenges associated with their resource wealth, other countries, such as Malaysia, Botswana and Chile, have utilised their resource income to develop more diverse economic productivity. Dutch disease may therefore cause severe symptoms in some countries and less prominent ones or none in others. The key challenge for newly resource-rich countries and regions is to devise an economic strategy that mitigates the risk of Dutch disease.

The issue of heterogeneity of effects has been investigated in several other studies. Ismail (2010) conducted a survey revealing Dutch disease in a number of oil-extracting countries between 1997 and 2004. The findings of this study, consistent with the theory's predictions, confirm that an influx of oil rents results in a decline in the productivity of the manufacturing sector due to the inflow of revenue and the movement of labour and capital in the non-traded sector. The above finding was also found in a seminal study of an earlier period by Sachs and Warner (2001), demonstrating that resource-rich countries failed to grow their manufacturing sectors between 1970 and 1990.

Contrary to the above studies, in a number of other countries, such as Russia, the abundance of resources has resulted in the development of their manufacturing sectors, contrary to the expectations of the Dutch disease hypothesis. Works by Tabata (2012) and Dobrynskaya and Turkisch (2010) are among two recent investigations that show that Russia managed to increase the productivity of its manufacturing sector from 1999 to 2007, despite observed symptoms of Dutch disease. Furthermore, they note that these symptoms may be linked to effects more diverse than those covered by the Dutch disease prediction; hence, Russia may be considered to be a specific case. These authors associate economic growth in Russia with the adoption of a flexible monetary policy and a rent-sharing policy. One example of the monetary policy is the stabilisation of the exchange rate of the Russian currency that resulted in maintaining the competitiveness of a number of domestic products in both domestic and world markets. In this regard, Ickes and Gaddy (2005) argue that 'excess cost' may be regarded as another supportive measure in the form of rent sharing, which may lead to higher productivity in the manufacturing sector. For instance, railway carriage production has increased since oil has been shipped by rail rather than pipeline; however, the transportation of oil by rail is more expensive than by pipeline. This may be considered as an excess cost policy that encourages production in the manufacturing sector (Ickes and Gaddy 2005). As Lipscomb et al. (2010) demonstrate, Indonesia is another resource-abundant country that considerably increased its manufacturing goods production between 2003 and 2008.

In summary, the Dutch disease hypothesis suggests that resource-abundant countries tend to exhibit low economic growth rates because the influx of revenues leads to exchange rate appreciation. This may affect the manufacturing sector through spending effects and resource movement effects, resulting in a decline in the share of manufacturing due to a decrease in competitiveness in both domestic and world markets. However, empirical results suggest heterogeneity in terms of impact on the economic performance of resource-rich countries. In this regard, several other studies have shown that a number of resource-abundant countries have managed to develop their manufacturing sectors, leading to export competitiveness on the world market. In short, factors other than exchange rates may also play a major role in the efficient use of resource revenues (Tabata 2012; Dobrynskaya and Turkisch 2010). For instance, weak institutional capacity may be a negative determinant in managing Dutch disease (Bunte 2011). Therefore, it is necessary to

learn from the experiences of countries that have been successful in managing the challenges of resource renting.

2.2.2 *Oil Price Volatility*

Since the 1970s, crude oil prices have been subject to high volatility. Political tension associated with oil-producing countries appears to be a major reason for changes in oil prices. Uncertainty in oil-exporting countries may translate into a decline in oil supply on the international market, which may result in a rise in oil prices. The history of the oil market shows that several events have had a considerable influence on oil prices, including the Iranian revolution in 1980, the invasion of Iraq in 2003, and other political conflicts in African countries such as Nigeria and Venezuela (BP Statistical Review of World energy 2015). Moreover, oil prices may be influenced by OPEC's decisions with respect to oil supply (King et al. 2012). Researchers have also suggested fluctuating demand for crude oil as another factor affecting the oil market that may have an impact on oil prices. Increasing demand from emerging markets, such as China and India, have been a determinant factor in oil price rises since 2003 (King et al. 2012). Sornette (2009) believes that speculation plays a major role in oil price rises and explains that uncertain political situations in oil-producing countries may enhance the oil market, whereas King et al. (2012) state that there is insufficient evidence that speculative behaviour may influence oil prices. Considering the impact of the dollar exchange rate on oil price volatility, Zhang et al. (2008) argue that the changing value of the dollar also plays a significant role in the volatility of oil prices because oil markets trade in US dollars. For example, depreciation in oil prices may lead to oil price increases owing to increasing demand for crude oil. The literature also shows that the refinery sector, as a major oil consumer, may have an effect on oil prices (Dees et al. 2008). These exogenous factors shed light on the fact that oil price volatility may translate into volatile oil revenues, which makes oil revenue management a challenging task for oil-based economies.

Mismanagement of fluctuating oil revenue

Crude oil prices have recently been highly volatile, as shown in Fig. 2.1. Oil prices remained high and relatively stable between 2012 and 2013, while increasing financial activities in oil markets may have been the cause of recent oil price fluctuations (Lombardi and Van Robays 2011; Labban 2010). Although oil prices fell unexpectedly by about 50% in the second half of 2014, from US$108 (bpd) in July 2014 to US$48 (bpd) in October 2015, the key points pressuring the oil market include sluggish demand, ample supply and a strong US dollar. The total oil supply has continued to grow as a result of a spike in US oil supply on the back of shale exploration and the expansion of OPEC exports (Baffes et al. 2015).

Oil companies tend to be most interested in oil trade investment, which may produce greater profits than oil production investment when oil prices rise. In this

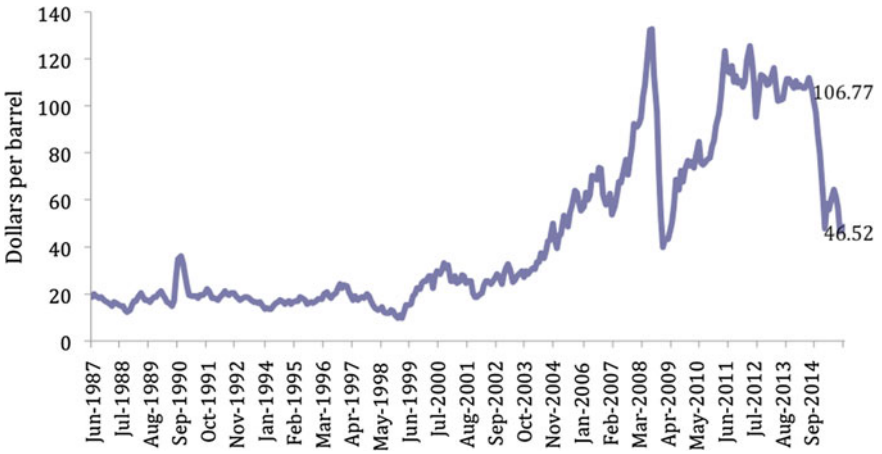

Fig. 2.1 Europe Brent Spot Price FOB May 1987–October 2015. *Source* US Energy Information Administration (2015)

context, oil price volatility may be transmitted to the level of public spending because of the instability of oil revenues available to oil-exporting countries. This volatile fiscal expenditure may have a negative impact on public projects, and may lead to poor economic performance by oil-exporting countries (Lorde et al. 2009; Ramey and Ramey 1995). Hence, the lack of an appropriate fiscal policy associated with the optimal use of oil revenues may have undesirable effects on economic growth, such as macro-economic volatility, low quality of public expenditures and budget deficits (Medas and Zakharova 2009; Sturm et al. 2009; Bacon and Kojima 2008).

Macro-economic volatility may pose a major threat to economic growth. Macro-economic stability may be affected by changes in public spending as a result of 'boom and bust' oil prices. According to Al-Ezzee (2011) and Barrell and Kirby (2008), the expansion of public spending, particularly in infrastructure rather than investment, may make the tradable sector vulnerable to the floating real exchange rate. Moreover, both the lowered competiveness of the tradable sector (Van der Ploeg and Poelhekke 2009) and a lack of adequate investment play major roles in the poor economic performance of oil-exporting states (Al-Marhubi 1998). In addition, a decline in private investment due to oil price fluctuations may have negative effects on economic growth (Cologni and Manera 2013).

Low-quality public expenditure is one explanation for the negative impact of volatile oil revenues on the productivity of the tradable sector. Sturm et al. (2009) argue that rising oil revenues induce excessive social spending and infrastructural investment. In this regard, lack of appropriate investment guidelines often results in inaccurate evaluation and selection of public projects—so-called 'white elephants' or 'cathedrals in the desert'. This may cause low efficiency and productivity of fiscal policy in oil-producing countries. Medas and Zakharova (2009) also highlight that

some oil-producing countries, such as Nigeria and Algeria, have allocated oil revenues to ambitious public projects without economic return, in pursuit of political objectives. More generally, raising public expenditure may lead to imbalances in the state budget.

Oil revenue volatility also makes balancing the budget a challenge for oil-producing countries. El Anshay and Bradley (2012) explain that budgets may be in deficit after a drop in oil revenues. Such budget deficits occur because of excessive public spending in periods of rising oil revenue, which may result in the state having to borrow in order to offset the deficit. This may hamper economic progress by leading to the discontinuation of projects associated with infrastructure development or economic diversification that aim to expand sources of revenue to counter dependence on oil revenues. Similarly, Van Wijnbergen and Budina (2011) stress that oil revenue volatility is likely to cause oil-exporting states to fall into debt. This may occur because of a lack of a sustainable fiscal policy to avoid budgetary deficit once oil prices fall. This would come into play as a result of the mismanagement of oil revenues in oil-producing countries.

Managing oil revenue volatility

In dealing with all the above-mentioned challenges, oil-exporting countries may implement a number of fiscal measures in order to utilise their oil income effectively. Managing oil revenues by setting an annual budgetary resource on the basis of a conservative estimate of oil prices is a common fiscal policy among oil-producing countries (Ossowski et al. 2008; Sturm et al. 2009). In addition, oil-exporting states may attempt to smooth public expenditure and mitigate the risk of budget deficit by adopting conservative oil price assumptions in budgets. Sturm et al. (2009) argue that the use of conservative budget-based oil prices may pose a major threat to fiscal transparency because authorities may have more room to manoeuvre in spending surplus revenues. For example, in Saudi Arabia, public expenditure has increased by 15–20% in recent years, despite its budget being based on conservative estimations of oil prices. This is likely to be a result of increased distribution-related policies, such as subsidies and public sector jobs, to counteract increasing social pressures. Similarly, Ossowski et al. (2008) note that such fiscal policy may have drawbacks associated with the effective and transparent use of oil revenues. Dudley (2011) explains that high budget price estimates may make fiscal policy more vulnerable when real oil prices are lower than oil price estimates. For instance, the oil exporting countries since mid-2014 have experienced a sharp decline in oil revenues. In the current low level oil price environment it is clear that only countries with well-designed institutional fiscal polices, such as Norway, are able to cope with the significant fall in oil rents (Arezki and Blanchard 2015).

Another institutional mechanism is a 'stabilisation fund', which saves a proportion of oil revenues when oil prices increase in order to combat the consequences of oil revenue volatility (and Dutch disease). Reserving a proportion of oil revenues may serve to restrain excessive public spending, and thus real exchange rate rises and inflation, during periods of rising oil prices (Ossowski et al. 2008;

Davis et al. 2003; Sturm et al. 2009). Furthermore, a stabilisation fund may serve to adjust budget deficits on 'rainy days' when oil prices fall. Researchers also note that some oil-exporting countries may build up oil funds, such as savings funds, in order to set aside a part of their oil income for future generations because of the exhaustible nature of oil revenues. They argue that a number of factors may make the successful management of oil funds challenging for many oil-producing countries. These factors include low institutional capacity, and a lack of transparency, accountability and political commitment.

Explicit fiscal rules may enhance the quality of economic institutions. Transparent and accountable institutions lead to the restriction of political interventions in terms of managing natural resource revenues. Norway and Botswana have been able to manage their natural resource rents by introducing effective institutional policies (Sturm et al. 2009; Ossowski et al. 2008).

Heterogeneous experiences of institutional fiscal policy

Research shows heterogeneous experiences in resource-rich countries where attempts have been made to establish resource funds to mitigate the negative effects of oil revenue volatility on economic performance. Therefore, reasons for the success or failure of a particular resource-rich country are debatable. Norway's success in resource management, for instance, derives from a variety of factors. The imposition of explicit fiscal rules for oil funds may be the major reason for Norway's success in its management of natural resources (Sturm et al. 2009). Moreover, monetary policy, with inflationary and exchange rate targets, transparency, high levels of human capacity and infrastructure, and good governance are also important in explaining the high performance of Norwegian resource funds.

According to Benedictow et al. (2013), Russia offers another example of the successful implementation of institutional fiscal policies, addressing the negative effects of oil price volatility on macro-economic instability. In addition to saving a part of its oil revenues in a sovereign wealth fund, and preventing high inflation and real currency appreciation through the central bank, the Russian government has played a major role in smoothing public expenditure and productivity in the non-oil sector. However, Sturm et al. (2009) highlight that public expenditure increased in Russia in 2007–2008, and the expansion of public spending was a contributory factor in the results of the parliamentary and presidential elections in 2007. This resulted in the use the savings fund to adjust the budgetary deficit. The fund was further depleted in the aftermath of the 2008 global financial crisis, but has since been replenished. However, the constant decline in oil prices since the second half of 2014 has resulted in drawdown in the reserve fund to adjust the budget deficit (Fouche and Milhench 2015).

On a much smaller scale, Ossowski et al. (2008) note that Timor-Leste has been running its oil fund positively, as it has been well integrated into the budget system and managed within an overall fiscal framework. This study also finds that transparency and accountability are further reasons for the success of Timor-Leste's oil fund management. Similarly, Davis et al. (2003) emphasise that oil funds may operate effectively if they are fully integrated into the central government's

budgetary process. This leads to enhancement of transparency and accountability relating to oil revenue management because all transfers into or out of the fund go through the central government budget and are reported by the government. For example, a study by Usui (2007) shows that Azerbaijan has failed to manage its oil fund effectively. This may be attributed to the design of and fiscal rules associated with its oil fund. Azerbaijan's fund is separate from the public budget, so savings can be invested in public projects outside the budget plan. This may result in public expenditure increases and greater opportunities for political intervention.

Conversely, Indonesia and Malaysia have been able to manage their oil revenues effectively through appropriate investment policies associated with diversification and industrialisation of the economic structure (Coutinho 2011). In addition, efficient fiscal rules, which promote budget balance, investment in the non-tradable sector and human resource development, and high institutional capacity play major roles in managing resource revenues efficiently in both countries (Coutinho 2011).

In summary, the empirical studies reviewed here show that oil revenue-based fiscal policies play a significant role in addressing the imbalances in public revenues faced by oil-exporting countries due to the highly volatile nature of oil prices. The major purpose of sound and effective fiscal policies is to enhance the economic performance of oil-producing countries in the face of oil price volatility, which poses a major threat to oil-exporting countries that are heavily dependent on oil revenues.

2.2.3 Oil Dependence Versus Diversification

Natural resource revenues decrease the need for savings and investments in other non-resource-based sectors (Gylfason and Zoega 2002). Countries with resource-based economic development plans may, in the long term, be vulnerable to economic recession and low growth (Payton 2010; Murshed and Serino2011). These economic dilemmas are due mainly to global economic conditions, price fluctuations, ambiguities in reserve estimations and geopolitical uncertainties. Stevens et al. (2015) highlight that high dependence on petroleum revenues jeopardises economic stability and real activity in oil- and gas-abundant countries. They argue that appropriate economic diversification policies have great potential to enable the building of strong, sustainable economies in petroleum-abundant countries. One measure that countries might take in order to combat these economic challenges is to endorse economic and export diversification strategies. In this section, the various factors that might hinder the economic performance of resource-based countries are discussed, with an examination of the different forms of diversification strategy adopted to promote more sustainable economic growth in developing countries with abundant natural resources.

Risks of economic dependence on oil exports

One of the risks of economic dependence on oil exports is the enclave nature of the resources sector, which may hamper the development of the manufacturing sector.

The extractive sector is an enclave because it is capital intensive and has limited links with other sectors of the domestic economy (Gelb 2011; Esanov 2012). In other words, the resources sector generates income independently, without engaging with other domestic economic sectors. It is only domestic labour intensive during the construction phase of the associated infrastructure, so may contribute to high unemployment rates in resource-rich countries (Gelb 2011; Esanov 2012).

As noted above, besides the lack of links with other parts of the economy, resource-dependent countries tend to suffer from poor economic performance because of the crowding out of the traded sector by the extractive sector. In fact, one of the main explanations for Dutch disease is that the traded sector may become less competitive in the international market when squeezed by the natural resources sector (Sachs and Warner 1999). Uncompetitive production by domestic firms may lead to a decline in non-oil export revenues, which in turn increases dependence on the extractive sector in terms of the generation of budget revenue and influence on the exchange rate.

A further factor that may undermine sustainable, long-term economic growth in resource-based economies is the unstable macro-economic situation in many petro-states. Moreover, many oil-producing countries may suffer from macro-economic instability as a result of their economic dependence on oil revenues as the major income-generating channel (Alichi and Arezki 2009).

Implications of diversification

Previous studies have developed a range of arguments associated with the benefits of diversification through the development of the manufacturing sector. In contrast to the extractive sector, manufacturing offers plenty of scope for new job creation, human capital development and innovation. The non-resources sector is also regarded as a catalyst for economic and technological progress, as well as for modernisation. Consequently, diversification is integral to macro-economic stability. Payton (2010) argues that investment in the diversification of economic structure in order to mitigate the negative impact of resource revenue dependence may result in sustainable economic progress. For example, Norway has succeeded in developing a wide range of manufacturing activities, and is therefore less economically dependent on resource revenues. Research suggests that oil-producing countries that suffer from low diversification should learn from the success of other countries in relation to diversification policies and processes. Likewise, Gelb (2011) explains that effective diversification can provide a buffer against oil price shocks, and thus promote macro-economic stability. Sachs and Warner (2001) also insist that development of the manufacturing sector may result in productivity growth and technical advancement.

Another argument for diversification is that it may lead to expansion of employment opportunities in resource-dependent countries. Case studies (Berry 2008) have shown that Indonesia's effective economic policy has resulted in increased job opportunities in various sectors, such as agriculture, manufacturing and construction. Similarly, Chile and Venezuela have focused development on

their agricultural sector, which has to some extent helped to create jobs, whereas Nigeria has created more jobs in the construction industry.

Diversification strategies

In order to deal with the negative impacts of over-dependence on the resources sector, it appears imperative to adopt diversification strategies in order to pave the way for sustainable, long-term economic growth. These can be categorised as 'real' and 'quasi-diversification' (Gelb 2011). Real diversification relates to non-resource-based sectors and a move away from the resources sector to manufacturing, agricultural and service sectors, whereas engaging in a resource-based value chain and developing other resource sectors marks quasi-diversification, for example the development of a petrochemical industry based on domestic oil and gas production.

A. Manufacturing sector

The diversification of non-resource-based manufacturing activities may lead to the provision of goods for the local market as import-substituting economic activities, and also for world markets through the promotion of internationally-competitive domestic production. An increase in non-natural resource-based exporting commodities provides resource-rich countries with another source of income that reduces their economic dependence on natural resource revenues (Gelb 2011; Esanov 2012). Many resource-rich countries have shown limited progress in terms of economic diversification; however, Indonesia and Malaysia have effectively diversified their manufacturing sectors. Studies conducted by Gelb (2011) and Esanov (2012) indicate that the measures applied by these two countries have focused on reducing the costs of production, implementing effective macro-economic policy, and upgrading their technological and human capacity.

B. Agricultural sector

Development of the agricultural sector is another form of economic diversification adopted to overcome the resource curse in resource-abundant countries. Hailu et al. (2011) suggest that allocating resource rents to the development of rural areas may result in import substitution in relation to domestic food production and the improvement of food security. An effective agricultural diversification strategy requires public investment in the development of rural infrastructure, irrigation systems, improved seeds and appropriate fertilizers. Coxhead and Li (2008) also argue that effective management of oil rents has enabled Indonesia to diversify its economy into its agricultural sector, which may lead to import-substituting economic activities.

C. Service sector

The development of the service sector, such as tourism and construction industries, may also contribute to the sustainable economic growth of resource-rich countries. For instance, development of the tourism sector is an income source that requires

complementary services, such as logistical, technical and health services and well-developed infrastructures, to enable the promotion of diversification, which may also play a major role in reducing the oil revenue dependence of crude oil-exporting countries (Shafaedin 2001).

Value-added economic activities within resources sector

Diversification may also occur within the extractive sector. Industrial sectors provide specialised equipment and services that can be regarded as a backward linkage, while forward linkages may create opportunities to develop resource-based domestic manufacturing activities to generate value-added products such as petrochemicals and refined fuels (Hailu et al. 2011). In this regard, Botswana has succeeded in increasing its manufacturing activities to generate value-added resource-based products by cutting and refining diamonds domestically rather than exporting them uncut for other countries to manufacture the finished product. Therefore, moving the resources sector up the value chain may lead to increased domestic productivity by protecting against technology leakage, thus creating market power (Hailu et al. 2011).

D. Development of other resource sectors

It is widely accepted that the extractive sector may make a significant contribution to the creation of new resource sector activities to promote economic diversification. For example, effective fiscal links between the oil sector and other parts of the economy in Indonesia have enabled development of the gas sector (Gelb 2011).

Impediments to diversification

Diversification of an economy is an immense and challenging task for many resource-dependent countries. The availability of institutional and human capacity may have an impact on the outcome of any diversification strategy. Therefore, well-functioning government institutions and highly skilled human capital may be decisive factors in successful diversification.

Recent studies have shown that an absence of political will and low institutional quality may be major impediments to diversification strategies (Gelb 2011; Esanov 2012; Arezki et al. 2011; Arezki and Nabil 2012). The establishment of strong institutions may also reinforce the transparency and accountability associated with spending of resource revenue by resource-rich countries, as well as providing a more business-friendly climate to attract private domestic and foreign investment. Consequently, leaders have limited room for manoeuvre, because rent seekers often form a major opposition to a diversification policy owing to their desire to maintain their monopoly over the extractive resources of many resource-rich countries (Auty 2001). In other words, economic and political efforts may be severely hampered by leaders whose rent seeking poses a threat to the diversification of manufacturing production and the development of other industrial activities. Other factors that may hinder the implementation of diversification are a lack of skilled human resources and a lack of a well-developed infrastructure.

Lack of access to and the often poor quality of educational systems and the absence of high-impact research and development capacity in extractive countries are further factors that may contribute to low diversification in terms of economic structure and performance (Gylfason 2001). The growth of enterprises and manufacturing requires educated human capital, and policy makers in resource-rich countries may fail to take this aspect into account in their economic policies, so the development of human capacity is likely to be neglected. A study conducted by Ding (2005) and Field shows that resource dependence and human capital development are negatively related. For example, human capacity building has played a major role in Malaysia's successful economic diversification strategy (Gelb 2011).

In summary, natural resources may be a positive driver of economic growth if resource-dependent countries endorse economic diversification and use their revenues to promote sustainable and long-term economic growth. Diversification strategies may take the following forms:

- The improvement of value added within the oil and gas industry by moving down the value chain through the petrochemical industry and the refining sector.
- The development of a domestic oil and gas service industry to capture some of the rent impacts.
- Diversification into other resource sectors such as natural gas and non-fuel minerals.
- Real diversification away from the resources sector into agriculture, manufacturing activities and services such as tourism and construction.
- Export diversification for the purpose of expanding new products with high value added into new export markets.

Skilled human resource capacity and a well-developed infrastructure are integral to success in diversifying economic structure. Review of the literature associated with diversification strategies in resource-dependent countries reveals that institutional quality and political commitment may also be essential factors determining the success of diversification programmes. In other words, diversification may be difficult to achieve when it threatens the monopoly power base of a ruling élite. Thus, successful implementation of the policy measures needed to mitigate economic risks associated with resource dependence rests on the political will to devise the right policies and the institutional capacity to implement them.

2.3 Political Economic Aspects of 'Resource Curse'

According to Ross (1999, p. 307), '[t]he failure of states to take measures that could change resource abundance from a liability to an asset has become the most puzzling part of the resource curse'. Ross highlights that the root cause of poor economic performance in resource-abundant countries is that governments have failed to adopt desired economic policies associated with resource revenue management.

The core of such work is political explanations for ineffective states in terms of combating the 'resource curse'. Theoretical explanations of policy failure have focused on how political incentives generated by large-scale natural resource development may promote rent seeking, corruption and patronage activities by politicians and powerful groups. From this perspective, it is suggested that ineffective governance in relation to the petroleum sector in oil- and natural gas-exporting countries may be related to corruption, rent seeking, patronage, poor institutional quality, lack of skilled human capacity and social and political conflict.

2.3.1 Governance and Institutions

The role of government institutions is particularly decisive in the optimal allocation of resource rents in petroleum-exporting countries to productive projects, rather than to 'white elephant' activities that may not be economically efficient but may be of great value to politicians and interest groups (Karl 1999; Torvik 2009; Bridge and Le Billon 2013; Sachs and Stiglitz 2007). In petro-states, government institutions may be either the main contributing factor to a 'resource curse', or a 'blessing'. Therefore, it is essential to reform and develop political and administrative institutions in order to ensure the optimal use of oil and natural gas revenues by securing investment in the productivity of the resources sector and economic diversification.

Similarly, Mehlum et al. (2006) emphasise that the quality of government institutions may determine the impact of resource revenues on the economic performance of resource-abundant countries. They suggest that a 'grabber-friendly institution' may lead to economic stagnation and, in turn, low growth. Similarly, Heredia (1998) highlights the significant role of well-functioning institutions in terms of a sound path towards economic growth in resource-rich countries. However, Sachs and Warner (1995, 1997) do not identify a strong correlation between the economic growth and poor levels of government institutional capacity, measured by rule of law; the reasons for this are discussed in detail in Chap. 3.

2.3.2 Institutions and Natural Resources

Arezki and Van der Ploeg (2007) offers a three-fold explanation of the causes of the poor economic performance of some resource-rich countries based on (1) institutions, (2) natural resources and (3) trade policies/openness. Figure 2.2 provides a visual representation of how these three determinants of growth interact with income and with each other.

As can be seen from the directions of relationships in the graph, Arrow 1 indicates that large resource revenues may induce rent-seeking activities, which may result in lower income per capita. Arrows 3 and 4 represent channels through

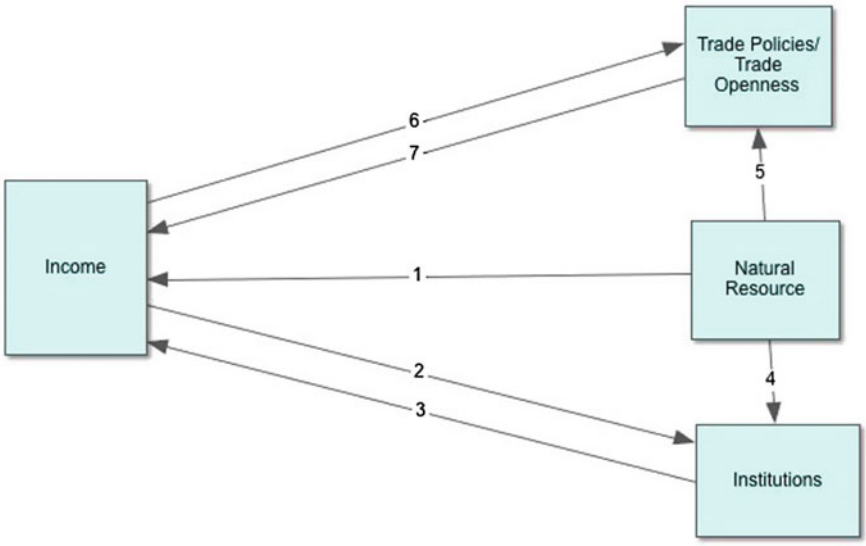

Fig. 2.2 Direct and indirect effects of natural resources on income per capita (Arezkiand Van der Ploeg 2007, p. 12)

which natural resources may aggravate the negative impact of existing low institutional quality on income by increasing corrupt behaviour amongst officials and those in public positions. Arrows 5 and 7 represent the argument that Dutch disease (a decline in non-resource traded commodities due to rises in the real exchange rate) may result in a decline in income per capita. Under this condition, governments are forced by political pressure exerted by interest groups to adopt restrictive trade policies, such as import substitution and subsidies, which reduce income per capita. These inappropriate fiscal policies may accelerate corrupt behaviour, since transfers of oil revenues to protected industries may not be transparent because of low institutional quality. This means that institutional quality may also affect income per capita (Arrows 3 and 7) by diverting resource revenues from more productive use, such as diversification of the wider economy. Arrows 6 and 2 show that institutional quality and trade openness may be affected by income during an oil boom, as huge oil revenues in resource-dependent countries may induce more rent seeking, as well as corruption and patronage.

It can be concluded that the quality of pre-existing institutions may affect the impact of natural resources on growth while, conversely, resource abundance may also have an effect on institutional quality, leading to ineffective governance through rent seeking, corruption and patronage.

2.3.3 Rent Seeking

A major focus of research associated with the resource curse is the link between the resource curse and rent-seeking behaviour. Mehlum et al. (2006) explain that entrepreneurs tend to specialise in rent-seeking rather than productive activities due to high resource revenues and the poor quality of public institutions. Poor economic performance may be attributable to the escalation of unproductive activities through rent seeking in oil- and gas-rich countries. In other words, inefficient governing institutions may waste resources rather than translating them into assets for long-term growth.

Mehlum et al. (2006) also link high growth in resource-abundant states with the effective rule of law, which may enhance institutional quality. It is suggested that well-functioning institutions may account for economic progress in some resource-rich countries, such as Norway, Botswana, Canada and Australia. Therefore, an increase in productivity, and thus economic growth, may be hampered by low-quality institutions, creating the potential for increased rent seeking and corruption among the powerful.

Kolstad (2009) argues that increased rent seeking and a tendency towards patronage are aggravated by inefficient governing institutions, and highlights that the development of institutional quality may contribute to the sound management of natural resources. This means that an effective state may turn its resource endowment into a blessing rather than a curse. The same author mentions that rent-seeking incentives and patronage tend to emerge among powerful groups and politicians, which may cause a decline in the productivity of public sector activities and projects. Several other authors also argue that natural resources may impede democratisation by increasing rent-seeking and patronage incentives in countries excessively dependent on oil and gas revenues, namely rentier states (Ross 2001; Busse and Gröning 2013).

2.3.4 Corruption

The literature dealing with the resource curse (e.g. Karl 2004) explains corrupt behaviour as a tendency by politicians and officials to satisfy individual interests through the illegitimate use of authority, while sacrificing the public interest associated with the distribution of resource rents. Corruption is a consequence of poor institutions and may harm a resource-abundant state's efforts to enhance its economic performance. For instance, Al-Kasim et al. (2013) argue that weak petroleum governance may have a negative impact on the provision of welfare in oil-exporting countries. In this regard, corruption between those in authority and oil firms is considered to be a major obstacle to optimal oil and gas production. Under such circumstances, corruption may occur in the form of bribes, cash or payments in kind by oil firms to officials to secure access to the national reserve base.

In this setting, another study also considers the state's involvement in petroleum production in oil-producing countries through national oil companies to be a determining factor for increased corruption among officials related to the oil and gas sector. For instance, Arezki and Bruckner (2011) highlight that the ownership structure of oil and petroleum industries plays a major role in the existence of corruption in the resources sector. Furthermore, rentier states are granted greater authority over resource development, and thus oil rents directly accruing to the government budget may create more opportunities for corrupt state leaders in connection with oil production because of poor institutional practices and a lack of transparency. Consequently, rentier states' attempts to reduce political rights in order to promote their own interests are the most likely reasons for conflict and civil war (Ross 2001).

Similarly, Hammond's (2011) case studies on Angola and Venezuela indicate that increased political control over oil companies and state participation in petroleum production have encouraged corruption. Nigeria is another frequently-cited example of a corrupt country associated with oil revenues (Osoba 1996; Watts 2004). Widespread corruption in Nigeria has resulted in inefficiency in terms of domestic investment and low-quality projects, both of which may impact negatively on economic development.

2.3.5 Patronage

In addition to corruption and rent-seeking behaviour, the existence of a patronage system among politicians and other powerful groups is another reason for poor institutional capacity in resource-dependent countries. It is widely accepted that in many resource-rich countries, where abuse and mismanagement of resource rents has resulted in low growth, governments may try to remain in power through the distribution of resource rents to those in official positions and other powerful groups (Kolstad and Soreide 2009).

To counter the problems discussed above, Collier and Hoeffler (2005) propose a model of democratic politics that compromises between electoral competition and checks and balances to impede patronage behaviours. A lack of effective functioning institutions may result in poor accountability and transparency in resource revenue allocation and spending. Under such circumstances, governments tend to use resource rents for their own patronage purposes, which may bring a democratic regime into question. Similarly, Robinson et al. (2006) emphasise that resource rents tend to be used by politicians for patronage purposes in order to generate political support and achieve re-election. For example, the expansion of public spending was a contributory factor in the results of parliamentary and presidential elections in Russia in 2007 (Sturm et al. 2009). Another way for political leaders to increase patronage is the allocation of lucrative and influential public sector posts to their supporters.

2.3.6 *Other Political Economic Explanations*

Inequality and social conflict are other negative consequences of poor institutional quality in terms of the redistribution of resource rents in extractive countries. Ramsay (2011) argues that there may be a negative correlation between increasing petroleum revenue and institutional capacity in oil-producing countries. This negative relationship, which may result in inequality and authoritarianism, arises from such factors as the diverse economic and political histories of resource-rich countries. According to Johan (2007), political instability may result in poor economic performance in oil-producing countries. Social and political conflict may be caused by a lack of transparency and accountability in terms of revenue management in resource-rich countries. In this context, rent seekers attempt to increase their profits from oil revenues, which in turn generates inequality in the distribution of oil income, and is likely to cause social conflict and even civil war in resource-rich countries.

Democracy in extractive countries is perhaps under most threat from strong competition between powerful groups to gain profit from resource revenues. The lack of effective systems of checks and balances in the resources sector, linked to weak fiscal institutions, may lead to the mismanagement of oil revenue collection and spending. Elbadawi and Soto (2012) and Collier (2010) argue that many resource-rich countries have been afflicted by the resource curse due to poor monitoring mechanisms in relation to the flow of rents from the exploitation of natural resources. They argue that this weakness on the part of institutions is inconsistent with the practice of democracy in oil-exporting states.

As discussed above, the development of human resource capacity is often ignored in petroleum-exporting countries in terms of failing to fund education adequately (Gylfson 2001; Papyrakis and Gerlagh 2004; Humphreys et al. 2007). Furthermore, human resource development is delayed by a lack of resource revenue allocation to industries with intensive learning by doing (Van Wijnbergen 1984). As a result, many such countries may suffer from poor institutional quality. Kronenberg (2004) explains that inefficient institutions may stem from unprepared and unskilled actors in relation to the resources sector. Under these conditions, a rise in corruption and an ineffective rule of law endanger the public interest.

Political and economic instability, which may seriously damage a resource-rich country's economy, may be due to the mismanagement of oil rents through poor institutional capacity. Guenther (2008) stresses that a resource curse may develop in resource-dependent countries as a result of a weak political economy and bad governance associated with the resources sector. Ruling élites tend to gain profits by increasing their control over the resources sector. In this context, rentier states levy low taxes because a large proportion of oil revenues accrue directly to these states. This leads to a decline in the need for an effective taxation system (Ross 1999; Karl 1999; Mahdavy 1970; Collier and Hoeffler 2005), and consequently these governments do not meet their commitment to be held accountable for the spending of resource revenues in economies over-dependent on these revenues.

2.3.7 *Accountability and Transparency*

Many authors dealing with the resource curse attribute its root cause to a lack of institutional quality in resource-rich countries such as petroleum exporters. However, producer-friendly institutions may combat the emergence of the resource curse and promote the creation of wealth within resource-rich nations (Mehlum et al. 2006). These producer-friendly institutions seek transparency and accountability, which may provide substantial opportunities to increase productive activities and so encourage long-term economic growth. Kolstad and Wiig (2008) assert that transparency is a key factor in curbing the negative impacts of the resource curse. Improvement of institutional quality through transparency, making information with respect to resource revenue collection and spending available to public scrutiny, may reduce corruption and patronage. These authors point out that the emergence of various international initiatives may enforce extractive states to improve their institutional quality, thereby promoting transparency. High-quality institutions may encourage human resource development, which may be regarded as a pillar of economic growth. Butkiewicz and Yanikkaya (2010) indicate that producer-friendly institutions may enhance human resource capacity in resource-rich countries.

The implementation of transparency and accountability may result in an increase in public trust, which may resolve political and social tensions in oil- and natural gas-exporting countries. In this regard, Herringshaw (2004) argues that the poor economic performance of resource-abundant countries may be attributed to a lack of transparency in resource revenue management. For instance, the governments of many African natural resource extractive countries are unable to handle resource income effectively in order to improve the welfare of their nations, due mainly to poor institutional quality. In such contexts, social conflict is highly likely.

2.4 Conclusions

A key shortcoming of the resource curse literature is the lack of clear understanding of the effect of the managerial model of the oil sector, in particular its effects on the sector's economic performance. Few case studies have focused on effective administrative design as a causal factor affecting the performance of the oil sector. The literature suggests that an effective model of governance for the national petroleum sector enables the effective management of petroleum resources and revenues (Heller and Marcel 2012; Lahn et al. 2009; Thurber et al. 2010a, b; 2011; Luong and Weinthal 2006).

The main contribution of the current research will be to identify the main channels through, which oil and gas resources may promote or impede economic growth from a broader social perspective. This information will be used to outline the main policy implications for domestic policy makers in achieving desirable

growth outcomes. In other words, this research will provide a social explanation for the resource curse in resource-rich countries. Therefore, high priority should be given to policies that address the enhancement of 'social capital'. This means that policies in resource-abundant countries should be less about macro-economic management and more about administrative and human capacity building to reduce or prevent the negative impacts of the resource curse, thus providing the right incentives to players in the resources sector. Moreover, all policies need to take into account existing bureaucratic capacity—the government's capability to deliver effective policies and public services independently of political pressures and interventions—and human resource capacity as determining factors in success or failure.

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