

TO BENEFIT FROM PLENTY:
LESSONS FROM CHILE AND NORWAY

by
Gøril Havro and Javier Santiso

- The lessons from resource-rich Chile and Norway highlight important points for international development policy.
- Resource-rich countries need advice on how to build institutions to manage inflows.
- Learning from Norway, Chile and other resource-rich economies could make commodity-related international co-operation a major aspect of foreign affairs policies, bringing expertise to neighbouring or other middle- and low-income countries.
- The creation in Chile, the world largest exporter and producer of the metal, of a World Copper Institute could be one example of a resource-based foreign policy.

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Executive Summary

Countries which possess resources, such as oil, diamonds or copper, for which there is high demand seem to become poorer, more corrupt and more likely to suffer from conflict. Counter examples do exist – Botswana, Canada, Australia or Norway, for example – but these are exceptions. In general, the consequences of oil wealth tend to be negative, bringing slower than expected growth, barriers to economic diversification, poor social welfare performance and high levels of poverty, inequality and unemployment (Karl, 2007).

This seeming contradiction – called “the paradox of plenty” by Terry Lynn Karl (1997) – has prompted a body of research from which some overall conclusions have emerged. For instance, it appears that good, solid institutions – including both an incorruptible and reliable civil service and good market conditions – coupled with responsible and stable economic policy can help avoid the negative effects of possessing valuable underground resources. For low- or middle-income countries, the resource curse can be avoided by those with sufficiently sound institutions (Collier and Goderis, 2007a). Where the resource curse is avoided, mainly in rich developed countries with sound and solid institutions such as Canada or Australia, endowments in natural resources have a significant positive effect on GDP per capita (Boulhol, *et al.*, 2008).

High commodity³ prices also represent a great opportunity for the exporting countries. They added nearly 2.5 percentage points to the growth of the typical African economy in both 2005 and 2006, as pointed out by Collier (2007). Sub-Saharan African commodity exports were estimated to amount to nearly USD 150 billion in 2004, according to Collier and Goderis (2007b), or nearly 30 per cent of the region’s GDP, while aid amounted to a meagre 5 per cent of GDP. Yet, as past experience from resource-rich countries shows, investment in institutions, human capital, infrastructure and good economic policy is urgent. If oil-rich Africa lags behind other oil exporters, in terms of diversification, global market share or the overall investment climate, this poor performance can be largely attributed to weak infrastructure and institutional quality (Qureshi, 2008).

The experiences of Norway and Chile show that natural-resource wealth can be a blessing rather than a curse if the economic and institutional parameters are well adapted to the task. The growth in these two countries has not taken place in spite of natural resources; to a large extent their resource management has enabled increased growth and development, although Chile lags behind Norway in many areas. The success of the two countries has been made possible not only through well-adapted macroeconomic policy choices but also through reliable and well-informed civil servants implementing the policy, through a relatively well-developed business community and through across-the-board good standards of human capital. These are important messages for other resource-rich countries currently battling to manage their resource revenue, but it also sends a message to the international development community. The institutional and educational preconditions are not present in many of the countries currently enjoying high inflows of natural-resource rents. On top of that, as will be argued, Norway and Chile can be actors on the aid and international co-operation scene, focusing on niches related to governance and capacity building. Norway is already doing this. Chile could develop it in the future.

The Paradox of Plenty – Why More Resources Could Imply Lower Growth

"Dutch disease", Volatility and Rent-seeking Stalls Growth and Development

The natural resource curse has fascinated many researchers and has generated substantial academic effort. Because of its impact on the economic development of the concerned countries, international organisations, non-governmental organisations (NGOs) and donor governments have also contributed to this literature. The effects of natural-resource wealth have been found to affect a country's economy in a wide range of patterns. In particular, it appears that such wealth is lowering economic growth, exacerbating the risk of conflict, civil war and non-democratic tendencies, and giving rise to heightened social divisions, weakened institutional capacity, poverty, inequality, corruption, negative savings rates and low levels of R&D.

The resource paradox has largely been explained by a mixture of economic effects, volatility effects and rent-seeking arguments. The economic effects are primarily transmitted through "Dutch disease" and thus the crowding-out of non-resource sectors (see Corden and Neary, 1982). Economists have applied the Dutch experience to explain the lack of development in other commodity-rich countries — particularly Venezuela, Nigeria and Indonesia. The high demand for commodities, especially when coupled with high commodity prices, leads to the crowding-out of the remaining sectors as the exchange rate appreciates or as wages in the commodity sectors are bid up. Companies in non-resource sectors thus see costs increase relative to those of their competitors. As dependence on one or few commodity exports increases, the economy also faces negative impacts from higher volatility. Natural resource supply is relatively inelastic in the short run, while making up a large part of GDP, and particularly of fiscal revenues. Volatility in oil and mineral prices, therefore, can have large impacts on the overall economy and on government budgets, causing greater uncertainty and lower growth.

Political economy outcomes are also affected by discoveries of natural-resource wealth, as the incentives facing political and economic actors change. Primarily, resource wealth spurs increased economic rents, thus increasing the returns from rent-seeking. The existence of weak and unreliable institutions, together with increased opportunity for acquiring spoils through lobbying activities or corruption, leads to

diminished involvement in productive activities. At the same time, increased opportunity to depend on patronage politics coupled with the increased profitability (rents) of staying in office, the absence of fiscal controls, and greater problems of transparency and accountability contribute to ineffective governance and higher levels of corruption. Resource wealth might, for instance, trigger excessive external borrowing based on future resource income, serving the short-term popularity of the government, as well as its strength, while increasing long-term risks. In addition, the political economy dynamics of resource wealth tend to aggravate social tensions and conflict. As these different dimensions are interrelated, the chance of a resource curse increases.

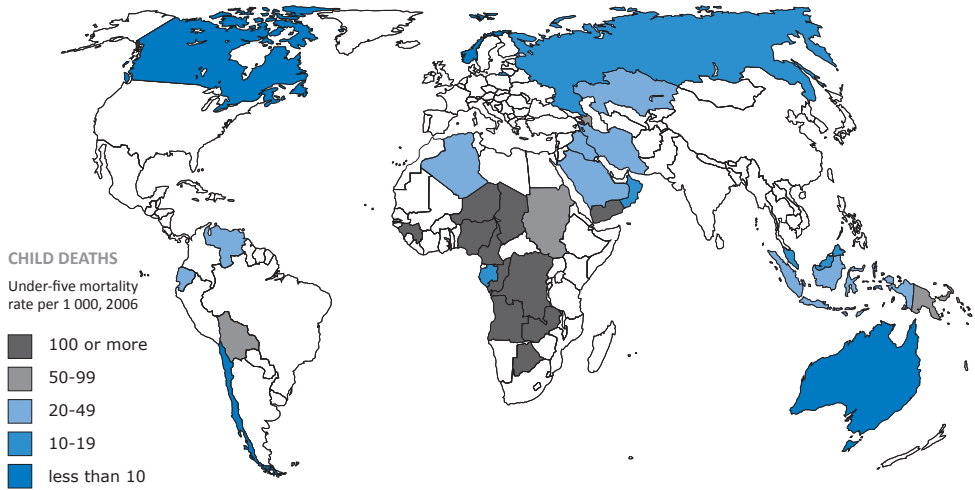
Some of the World's Poorest People Are At Risk

The paradox of plenty has very real implications for the populations it affects. Many resource-rich countries, and especially the least diversified countries, have real poverty problems and are among recipients of international aid.

As Figure 1 shows, many countries considered to be resource-rich have high mortality rates among children under five, a major sign of development challenges. This primarily includes African countries, but also other commodity exporters. A particular group of countries with poor development indicators and large resource reserves risks forgoing opportunities for growth unless natural resources are managed in a way that promotes development.

High commodity prices put increasing pressure on some of the least developed economies and increase the potential damage from the resource curse. The UN classifies as Least Developed Countries (LDCs) those that have the lowest per capita income, the lowest health, nutrition and education indicators and the highest economic vulnerability. As seen in Figure 2, LDCs saw over 50 per cent of their exports consisting of fuel and mining products in 2006. In comparison, these products make up only 7.5 per cent of total EU (EU-27) exports (WTO Statistics, 2008). What is more, the proportion has actually been increasing since 2000, with other export sectors decreasing.

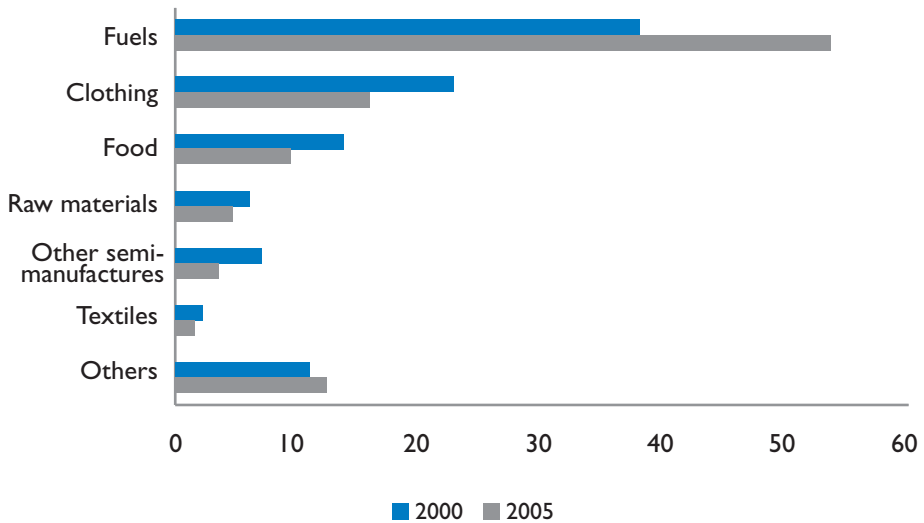
Figure 1. **Under-five Mortality per 1 000, Selected Resource-rich Countries^a**



a) Authors' selection from countries frequently mentioned in the natural resources literature.

Source: Authors' calculations.

Figure 2. **Exports of Least Developed Countries by Product**



Source: Authors' calculations based on WTO, 2007.

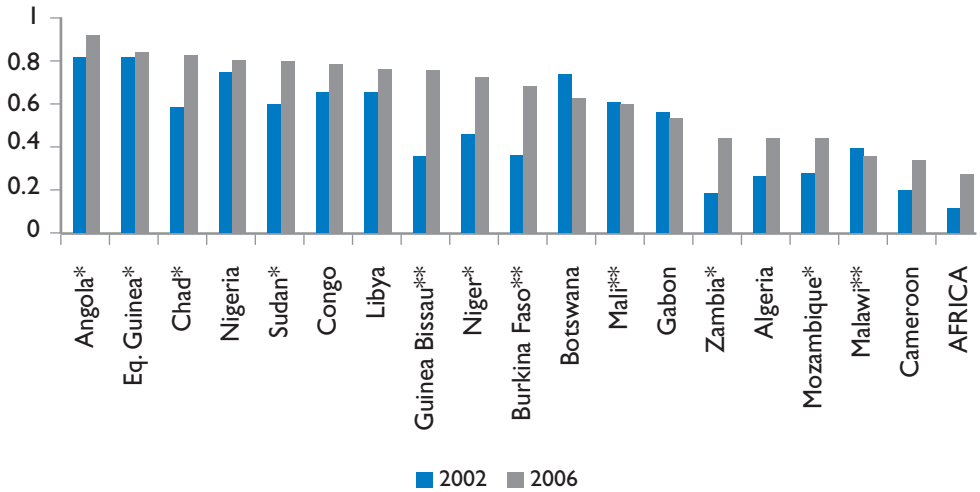
While the shares of fuel and mineral exports are increasing, so is the resource-rich countries' specialisation in these sectors. This leaves countries more vulnerable to shocks in these sectors and more dependent on the resources they are exporting. Figures 3 and 4 show the Herfindahl-Hirschmann⁴ specialisation index for selected African and Latin American countries respectively. Not only has export concentration been growing in general, but it has increased particularly in those countries that already had the highest concentration and are highly dependent on mineral and fuel exports⁵.

Figure 3 shows the African countries with the highest export product concentration. Among the most concentrated African countries, Angola, Equatorial Guinea, Chad, Nigeria, Sudan, Congo, Libya, Algeria, Gabon and Cameroon all had a high concentration in petroleum exports, while Zambia is a leading copper exporter and Mozambique a leading aluminium exporter (OECD/AfDB 2008). Botswana, the one highly specialised country that has seen a decrease in export concentration, is well-known for the successful management of its diamond resources and is an often cited example of a country that is avoiding the resource curse. As can be seen from Figure 3, many of these countries are also classified as LDCs. These same countries also face substantial governance problems. Of the countries in Figure 3, only three rank in the first 100 countries (out of 179) in Transparency International's Corruption Perception Index: Botswana (38), Gabon (84) and Algeria (99) (OECD/AfDB 2008).

Latin America, too, has seen export concentration increase (Figure 4), especially in countries with exports concentrated in mining and fuel products, including Venezuela, Ecuador, Chile, Bolivia and Peru. These countries are doing better in terms of their level of specialisation and in terms of per capita income and human development, but the increased specialisation in natural resources still poses them some very real economic challenges.

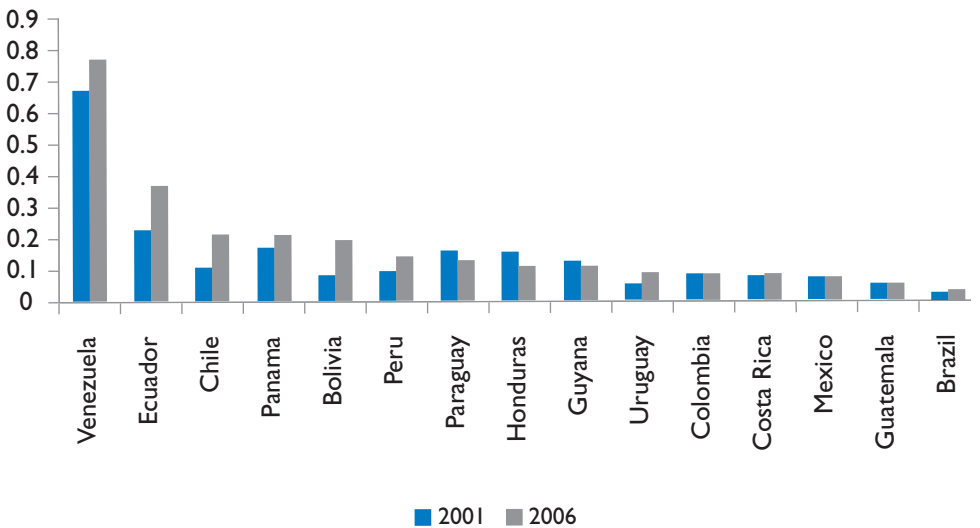
In sum, a number of resource-rich countries have a major task on hand to improve human development. Increased inflows represent an opportunity for development, yet the paradox of plenty has shown that they also present increased difficulties, especially as many of these same countries do not have the institutional strength and capacity needed to avoid the resource curse. At the same time, many of the resource-rich countries are specialised in one or a few commodities. This makes their economies particularly vulnerable to changes in the global market and can represent very real future problems.

Figure 3. **Export Concentration, Selected African Countries**



Source: OECD Development Centre Statistics 2008. Countries marked with an asterisk (*) are classified as LDCs by the UN (2008). Countries marked ** do not specialise in fuels and minerals.

Figure 4. **Export Concentration in Products for Latin America**



Source: OECD Development Centre calculations.

Paragons of Plenty – Norway and Chile have Both Benefited from Natural Resources

The experiences of Chile and Norway are particularly interesting. They are both small, open economies with a relatively heavy reliance on natural resources. They are also among the most cited exceptions to the resource curse. Indeed, these two economic paragons are probably the two most outstanding exceptions to the “paradox of plenty”, along with other OECD countries already mentioned such as Canada or Australia, also rich in oil and minerals (see Boulhol, de Serres, Molnar, 2008). In addition, their experiences complement each other because of their very different historical, geographical, mineral, social and political backgrounds.

The Norwegian story is not an obvious example for developing economies, simply because the Norwegian economy in the late 1960s – with its relatively high level of education, democratic consolidation and secure institutions – was far from that of a resource-rich LDC today. However, Norway was not a rich country by OECD standards when oil was discovered. Over the past three decades, its GDP per capita has increased from 90 per cent of the OECD average, to 150 per cent (OECD, 2007a). While its experience is completely different from that of many other resource-rich countries, it has nevertheless seen an astonishing performance, from which some cautious lessons can be drawn. As shown by Figure 5 Norway more than matched the growth rates of its neighbours in the 25 years after having found oil, and overtook other more developed Scandinavian economies such as Denmark and Sweden in terms of GDP.

Norway is a leading contributor in the field of international development. It should be better placed to give policy advice and other forms of aid to countries with great natural-resource wealth. Its “Oil for Development” programme is already providing support for developing countries with high resource dependence, and “Oil and Clean Energy” is one of the four priorities in the international development policy.

Chile is the world’s prime producer and exporter of copper, yet, while its share of world copper exports has increased, it has undergone astonishing economic development in real terms and in comparison with the rest of Latin America. In the period 1986-1998 Chile had growth rates averaging 7.3 per cent, similar to those of the Asian tigers. While profiting from its copper wealth, Chile has managed to diversify its economy and develop innovative industries. In 1973, mining made up 89 per cent of Chilean exports, while in 2001 only 41 per cent of exports were mining

products (OECD Development Centre calculations, 2007). Chile's successful diversification is illustrated by the growth of other export industries, notably wine and fruit production and development, and salmon farming, where Chile is now the world's second largest exporter.

Macroeconomic Management: Fiscal Stability and Prudence

The experiences of Norway and Chile alike demonstrate the value of fiscal prudence, supported by overall macroeconomic stability. Governments in both countries have refrained from spending indiscriminately to satisfy political pressures and establish potential popularity gains, and have been largely able to run balanced budgets. Coupled with debt payments in the first years, and later establishment of resource funds, fiscal prudence appears to have helped prevent inflation and "Dutch disease" effects related to oil and copper booms. If all the foreign currency earned as petroleum revenue were converted to local currency and spent, supply side limitations would have implied that increased aggregate demand could have fostered price increases and consecutive interest rate hikes, given the inflation-targeting regimes, thus leaving the non-oil sectors in an anti-competitive position.

Limiting fiscal spending, and especially pro-cyclical spending, has been a priority for both countries. Although the 1970s saw large expenditure on human capital and infrastructure in Norway, and the government increased its overall outlays by five to seven percentage points of GDP between 1970 and 1985, Denmark and Sweden increased spending by 20 percentage points over the same time. Even in the deep recession which hit the rest of the Nordic countries hard in the early 1990s, Norway only went into fiscal deficit twice, in 1992 and 1993, when the economy faced a considerable downturn and negative output gap (OECD, 2007a). In the 1970s, the increased revenues were mainly used to pay down government debt, but as demographic concerns developed, a petroleum fund was set up in 1990, to cater for future generations' pensions and to limit excessive petroleum revenues flowing into the budget. The policy has been based on the so-called "action rule", where petroleum earnings are being phased into the economy based on expected real return on the Pension Fund – Global (formerly Petroleum Fund), which is estimated at 4 per cent. The fund was valued at USD 373 billion at the end of 2007, and is invested internationally in financial instruments in 42 countries and 31 currencies.

In Chile, too, cautious fiscal policy has been one of the central pillars of copper revenue management. This was true during the authoritarian regime of General Augusto Pinochet but also, and more importantly, once democracy returned to the country. Following the return of democracy, successive governments have maintained a cyclically adjusted budget surplus. This was first implemented through an implicit fiscal rule, and from 2001 with an explicit fiscal surplus target (structural revenues – expenditure) of 1 per cent of GDP. Two panels of independent economic experts are asked for projections of potential output and the potential copper price, from which the copper reference price and potential output are calculated (by simple average, excluding outliers). The surplus target was cut to 0.5 per cent in May 2007, freeing funds to increase spending on education (OECD 2003, 2007*b*) and reflecting the improved debt levels. Central government debt has come down from 45 per cent in 1990 to only 4 per cent in 2007.

The fiscal structure was further strengthened in 2006 with the Fiscal Responsibility Law (see de Mello, 2008), where the budget surplus target is now enacted in law and where surplus earnings are allocated to the Economic and Social Stabilisation Fund, the Pensions Reserve Fund and the Contingency Unemployment Programme. The two funds replace what was previously called the Copper Stabilisation Fund. In January 2008, the Pension Reserve Fund had values of USD 1.5 billion, while the Economic and Social Stabilisation Fund had values of USD 14 billion (OECD, 2007*b*). The two funds are invested by the Central Bank, though the responsibility lies with the government. Investments can be made both nationally and internationally, but the government is realising the virtues of investing the funds abroad, both in preventing “Dutch disease” and avoiding overinvestment on the local financial market.

Keeping a large tax base has allowed for extra security in the face of commodity downturns, and has arguably kept the electorate more determined to hold their governments accountable. The two countries have also both continued to draw the bulk of their revenues from non-resource sources, thus maintaining a reliable source of government revenue, independent of commodity price volatility. While copper revenues have been important, the Chilean state received on average 72 per cent of its income from tax revenues between 1994 and 2006 and efforts are being made to increase tax efficiency and lower the rate of tax evasion. In Norway, 62 per cent of state revenue is non-petroleum-related. Both are therefore independent from commodities in fiscal terms but both managed to use this windfall wisely and developed sound sovereign institutions to manage their wealth (on sovereign wealth funds see Reisen, 2008).

Sector-specific Management and Industrial Policy: Room for Government Involvement

While maintaining fiscal prudence, both countries chose to direct spending to areas contributing to further diversified growth, notably human resources, infrastructure and innovation. A number of these projects have seen successful collaboration between the government or public agencies and private companies, including the Fundación Chile project and Norwegian support for petroleum-related human capital development, for example. Fundación Chile is a non-profit private organisation started by the Chilean government in 1976 together with the US ITT Corporation to transfer management and technological skills for use in natural resource sectors, through undertaking R&D, adapting foreign technology and aids in the diffusion of technology. This initiative has been central in the development of non-copper industries, and is thus important in Chile's successful diversification. Among its achievements are the development of quality wine production and the facilitation of fruit exports (OECD, 2007).

Both countries also made more direct efforts to diversify their economy and to support industries associated with the natural-resource sector – such as engineering and supply – as well as non-resource sectors. Norwegian policies in the 1970s were markedly interventionist in this regard. A condition for according licences was that the licensee use onshore Norwegian bases and use Norwegian labour as far as possible, and technology transfer agreements were entered into with companies and targeted R&D efforts. The legal framework emphasised local content until 1990, to develop the infant petroleum supply industry. Norway also pushed for state participation in the same areas, in spite of reluctance on the part of many of the international companies.

Chilean policies have been less interventionist, given the economic orthodoxy of the Pinochet regime, although state-owned giant Codelco's particular role in the Chilean copper industry, and its support of smaller mining-related companies, have been helpful in developing Chilean human capital and support industries. International firms did not face any local content demands, but Codelco had an internal policy which supported the participation of local engineering competence in big projects. When Codelco entered into co-operation with the big international companies, this policy also meant that its smaller Chilean co-operating companies gained experience from the international mining companies. By comparison, the private Escondida mining company hardly used local mining services.

Contrary to calls for privatisation in the literature, it seems that both these countries have been able to benefit from their natural resources, regardless of the presence of state-owned companies. After Pinochet's military coup in 1973, the nationalised assets remained the property of the state, and Codelco, was established in 1976. It remains the world's biggest copper producer and the fifth biggest metal mining company. While in the 1970s around 10 per cent of engineering services came from Chilean providers, in the 1990s, the proportion had increased to 90 per cent, and Codelco, as seen above, was the company working closest with local Chilean areas of competence. In Norway, the state-owned oil company Statoil was founded in 1972. The government also chose to allocate one of the most attractive blocks to the three Norwegian oil companies; Statoil and two other Norwegian companies, Saga and Norsk Hydro, had also decided to launch petroleum activities. The presence of these companies arguably allowed Norway to develop technological know-how, as well as increasing the revenues from petroleum.

These examples show that industrial policy can play a role in successful economic development. That does not mean that they could easily be replicated with success in other countries and contexts. Crucial to this relative success has been the fact that local human capital levels were already high when state-owned companies were founded, and particularly that these companies have not become vehicles for private profiteering and rent-seeking, while controlling institutions and the civil service have been of a high quality both in terms of competence and integrity. In Norway, for instance, strong industries were already present, notably in the maritime and shipping sector and pulp and paper, fertiliser and aluminium industries. Engineers and entrepreneurs could therefore change direction towards the petroleum industry. There was also an education system that could be adapted to the needs of the petroleum sector.

Finally, the general business climate and, in particular, the government's relationship with industry are important. The Chilean terms of mineral investment, both political and geological, were considered to be some of the best in the world, as remarked upon by the Fraser Institute annual surveys of mining companies. Conducted since 1997, the last survey ranked Chile again among the top countries. Free market policies, security of property rights and stable investment and political conditions made Chile a good investment prospect. This was also supported by the fact that Chile did not require royalty payments, and that the overall government take was lower than in most other mining countries. Both countries

have also had open economies and developed financial sectors. Chile undertook rapid liberalisations of its trade policies in the 1970s and 80s, and has acted to promote exports through international marketing and bilateral treaties. Norway's economy has also been relatively open, with the marked exception of agriculture (OECD, 2007a) – while the country managed oil well, it has, however, underperformed in other areas such as fisheries.

Norway's example also demonstrates the wisdom in the "leaving the oil underground" argument. Seeking to avoid "Dutch disease" and job losses in other industries, the authorities were reluctant to move forward too quickly, and they also supported non-oil sectors directly. Licensing activity from 1969 to 1978 was relatively restrictive, and abundant hydroelectric power supply meant that energy needs were less dependent on the new petroleum discoveries. It was considered important to strike the right balance between the developing petroleum industry and the remaining domestic industry and putting in place expert institutions, policies and human capital to deal with the new windfall revenue. At the same time, spending increased through subsidies to agriculture and industry. Extraction speed was less of an issue for Chile, which had been depending on copper for a long time already in the 1970s and before.

The question of "government take" was treated quite differently in the two economies. Norway's claims were relatively high compared to other oil-producing countries, notably the United Kingdom, which also had large oil reserves in the North Sea. In comparison, Chile's tax rates were for a long time among the lowest of all copper exporters, in spite of the country's offering one of the highest internal rates of return for international investors. Norway's situation in the 1970s was arguably much stronger than Chile's in the 1980s and 1990s, both because of the nature of petroleum and the 1970s oil shocks and of Norway's reputation for political stability and reliable negotiation, while Chile still needed to lure international mineral companies back to the country after the previous nationalisation at times when the copper price was much lower than at present. Nonetheless, Chile's stake in Codelco in particular, did allow the government to profit from copper exploitation. This led to heated discussion on royalties in Chile, where foreign companies' contributions were questioned, with a 2005 decision to implement a 5 per cent mining tax for annual sales over 50 000 metric tonnes, which goes directly to support a special fund for innovation

Institutions: the Key?

A number of the above comparisons have shown the important role of institutional quality as an underlying factor which has contributed to successful policy implementation. Both Norway and Chile have reliable private-sector institutions such as property rights, an independent judiciary, a civil service reputed for its integrity and competence, and independent institutions functioning as checks and balances. They also both have strong ministries of finance, relative to the mining and petroleum ministries for instance, and in Chile's case, relative to the parliamentary minorities.

The quality of the civil service has been seen as one of Chile's strong points. The reputation of the bureaucracy in Chile as a low-corruption country developed in the 20th century and was thus already present before the high growth period. It was also marked, nonetheless, by strong centralisation, relative rigidity and an absence of civil society participation. Altogether, however, the long tradition of public administration attitude, emphasis on the gradual process of accumulating experience and skills, and a relative degree of efficiency and transparency appear to have been central in shaping the Chilean economic reality.

Norway, too, is particularly well endowed in terms of the quality of its institutions. Several such features of the Norwegian economy have been underlined in the literature (see Boschini *et al.*, 2007 for a review): the country's mature democracy and consensus-oriented policies; lack of corruption; firm established institutions with independent civil servants and depoliticised resource management; recruitment by merit; and egalitarian societal structures. They have, however, been reinforced by the rules and regulations governing the different institutions and the checks and balances in place. While the ministry of finance has the responsibility for the government revenue system, including the Pension Fund, the management of which is delegated to the Central Bank, the ministry of petroleum and energy is responsible for the petroleum sector as a whole, including StatoilHydro. The Norwegian Petroleum Directorate is one of its subordinate agencies and has advisory and regulatory functions. Parliament is responsible for the budget and for the overall framework. In addition, the operational management and investment decisions of the Pension Fund are delegated to the Central Bank and Norges Bank Investment Management (NBIM), while the ministry sets the fund's benchmark portfolio with risk limits.

The strength of Chile's institutions can also be seen in the independence of some important institutions and the checks and balances they provide. On the one hand Chile has a strong presidency, even stronger than in most other Latin American countries. This has allowed a tighter control of the budget, as the minister of finance together with the budget director, on behalf of the president, are in charge of setting spending limits and leading budget preparatory negotiations. On the other hand, the independence and political insulation of the judiciary, the constitutional tribunal and the comptroller general, are seen as important checks on presidential power. The ministry of mining and energy is responsible for the copper mining sector, including the support of initiatives to stimulate growth. The Chilean Copper Commission (Cochilco), on the other hand, is responsible for regulation and legal compliance, and acts as an advisory body to state companies concerning development strategies. The National Service for Geology and Mining (Sernaceomin) advises on technical geological and mining-related matters, while CORFO, the Chilean Economic Development Agency established in 1939, aims to promote economic development also in the mining sector.

The policy-making climate has also helped implement the various policies described above. While Norway has seen frequent changes in government, the policies regarding the petroleum industry and its development have been relatively consensual. In addition, the centralised system and the economic responsibility taken by trade unions have led to an overall focus on economic outcomes, and this has also helped shield the economy from excessive pressures. Røed Larsen (2004) has called this a part of Norway's social contract: The work force accepts a degree of moderation, knowing that it will result in higher longer-term growth. In addition, the country's relative economic equity is helpful in promoting consensual decision making.

The political stability in Chile, after the reintroduction of democracy, has been underlined by the co-operative behaviour of the country's political parties, leading to a political economy style labelled as "possibilist", made up of incremental reforms, a policy of continuity, piecemeal engineering avoiding the big U-turns that characterised the previous decades of high ideological input into both the design and implementation of the reforms (Santiso, 2006). Most of Chile's social indicators have improved considerably, among them life expectancy, infant mortality and literacy, making Chile one of Latin America's top performers.

Transforming the Parameters of Plenty

Lessons for Resource-rich Countries

Some of the policies that have been successful in Norway and in Chile could potentially be adapted to other resource-rich countries. However, the vast difference in countries' economic environment and political culture must be borne in mind, and policy adaptation should only be considered with great caution. While some resource-rich countries are devastatingly poor, with very poor human development indicators, others have much better development indicators. Nonetheless, the experiences from Norway and Chile give some indication of the kinds of policies which would be useful also in developing and emerging resource-rich countries.

The relevance of fiscal prudence and a stable macroeconomic policy framework has been amply demonstrated in the literature and is confirmed by the case studies of Norway and Chile. There is, however, a case for spending more on investment in infrastructure and human capital in less developed resource-rich countries, where needs are even higher. Without such spending, the development of both resource industry linkages and of non-resource sectors is hampered. Many resource-rich countries have low rates of tertiary enrolment, inadequate infrastructure and undeveloped markets. It is important that the economy be able to absorb increased spending, and that it does not go into "white elephants", big prestige projects with little productive use.

Fiscal rules have helped avoid some of the political pressures to spend more. The Chilean fiscal rule, which targets a specific structural surplus, appears to be better at stabilising the economy than the Norwegian action rule, which allows for a 4 per cent return of the fund to be channelled into the budget each year. Since 2006, even though the rule has been kept, the output gap has been increasing. While in the Norwegian case discretionary policy has been used to ensure fiscal stability, discretion is riskier in economies with less stable institutions, and clearer rules such as the Chilean one would be likely to work better in developing economies.

In some cases, stabilisation and future generation funds could also be useful in developing economies, especially when the absorption capacity is small, and the potential foreign exchange inflows so large that they are bound to put pressure on the exchange rate. At the same time, the "future generation" argument is less convincing for economies that are currently very poor and where there is reason to hope that the

next generation would benefit from today's economic growth. In such economies, productive investments in infrastructure and human capital – as well as the strengthening of institutions – can be a better long-term solution than investment in external funds. At the same time, transparency and accountability must be such that resources invested in the fund can be accounted for.

The state involvement seen in Norway especially, and to some extent also in Chile, through the ownership of Codelco, is unlikely to be a good solution in states with poorer institutions. At best, it could create major inefficiencies because of the poor capacity of institutions, at worst it could facilitate corrupt practices as it would allow state officials to make discretionary decisions without needing to account for them. This does not, however, mean that there is no role for the government: productive investments that can stimulate future growth and development are likely to pay off. Support for human capital, infrastructure and innovation are obvious tasks at hand. In addition, improving business conditions through, for instance, facilitating the starting of a business, is likely to have positive effects.

Local-content requirements could potentially have beneficial effects as well, as seen in Norway, since they would contribute to developing domestic economic activity rather than relying on rents, while at the same time increasing human capital through learning-by-doing and technological spillovers. However, there is a need for good co-operation with the foreign companies to ensure that such requirements are not commercially unviable, and at the same time to ensure that they have a real learning impact and are not just seen as another tax payment by companies. Standardised local-content agreements worked out with experts in the field could be useful in achieving this.

One crucial part of the experience of Chile and Norway, as already underlined, is the centrality of good quality, honest and efficient institutions. Some of this can be achieved through capacity building, both to develop the skills and efficiency of officials in implementing agencies, and of personnel in independent institutions with overseeing responsibilities, including NGOs, enacting transparency and accountability standards and signing up to international initiatives such as the Extractive Industries Transparency Initiative (EITI) which is a coalition of governments, companies, civil society groups, investors and international organisations supporting revenue transparency through a set of principles that become a transparency standard for implementing governments and companies. Major supporters of the EITI are the United States, the United Kingdom, the Netherlands,

Norway, Canada, Australia, Belgium, Germany and France. Most of these initiatives have been implemented only recently, so it is still difficult to draw major conclusions about their success. Such commitments, as well as co-operation with businesses and other organisations, governments and institutions, can help obstruct the pay-offs from engaging in corrupt practices and to constrain otherwise corruptible elements within public institutions.

The usefulness of political consensus-building seen in the Norwegian and Chilean cases is likely to be of great importance in other countries. Especially when the electorate or strong political groups are fragmented and the potential for conflict is high, policies must be seen to benefit a larger part of the population, and redistributive policies – especially between regions – can be of great importance.

The need for strong institutions and the benefit to be had from linkages and technological spillovers means that a less rapid extraction rate might also have positive effects for poorer countries. Yet current international movements for energy security and access to minerals, especially from major geopolitical actors, would make poor, resource-rich economies with weak institutions unlikely to handle the pressure. Nevertheless, both these actors and the world at large would be well served with a positive development in these countries, especially to maintain access to scarce resources. Lack of real development in resource-rich countries risks creating increased social tension and conflict. For these reasons, too, as well as for more altruistic ones, the development of these countries should be promoted.

Lessons for Development Policy

The case for showing increased attention to resource-rich countries' development is especially relevant in the current environment of high commodity prices. The lessons from the cases of Chile and Norway underline some important points from the resource-curse literature, some of which might be useful in suggesting directions for international development policy. Below these are considered under three main headings: technical capacity building, institutional and governance strengthening, and improved business relations. Resource rich countries do not primarily need further financial inflows, since these are already present through the natural resource revenues, but rather advice on how to build institutions which can manage these inflows.

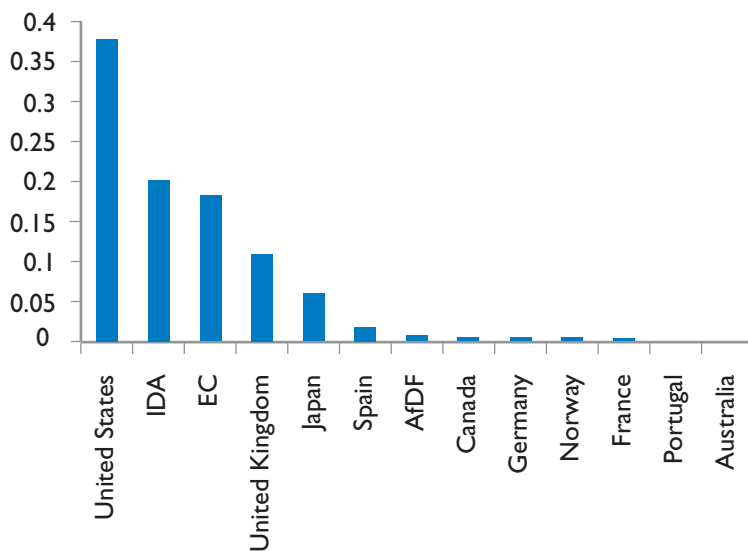
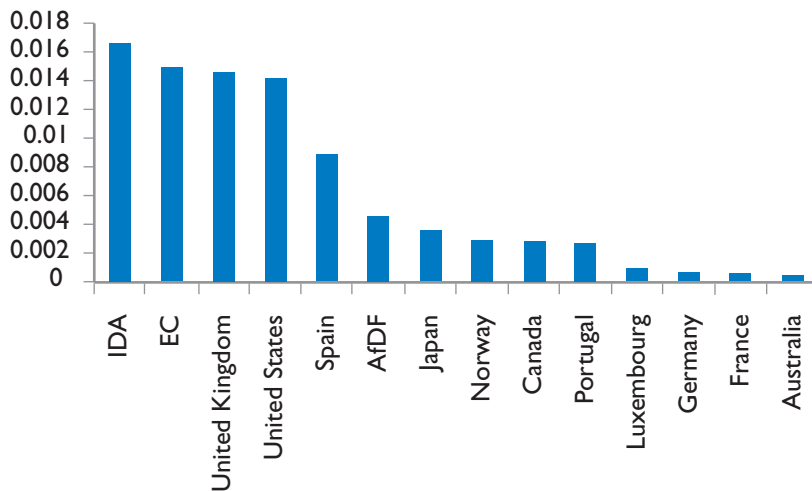
Here, the presence of international institutions can help. Norway is already a major contributor to international development. Chile is only just moving from being a recipient to a donor country, but its successful experience in managing natural resources suggests that its contribution to development in other resource-rich countries can be considerable. These countries are frequently cited as the most successful resource-rich countries, but there are also others which could contribute in a similar way. Canada, Australia, Botswana and Indonesia are other countries that have avoided the “paradox of plenty”. Furthermore, countries such as the United States, the United Kingdom, Brazil, Mexico and the Netherlands all have experience with extractive industries, and could also participate actively.

Current Efforts

For institutions wishing to contribute to global development, it seems clear that the resource curse is a factor to take into consideration, not least because many of the world’s poorest countries are hit by it. Currently, technical assistance to improve natural-resource management and avoid the resource curse has been scarce. Of all OECD DAC (Development Assistance Committee) members, only Japan and Norway explicitly mention energy and mining as a major sector in their development policy, and only Norway has set petroleum management in resource-rich countries as a main priority.

Several donors are, however, carrying out projects related to natural-resource management and international institutions have been active in this regard, although it makes up a very small part of their overall development budgets (Figure 5). These projects involve both support for facilities relating to mining, oil and gas, including environmental protection. This shows that a number of development actors do currently contribute on the development side of the extractive industries and have scope to continue contributing in this field. The increasing awareness over issues related to climate change is also contributing to increasing the importance of commodity issues in the international development community. The continuing shifting wealth of nations, where commodity-rich countries are benefitting from the current high prices, also raises the relevance of such issues.

Figure 5. **Contribution to Oil; Gas, Mining and Minerals**



Source: Authors based on OECD DAC Statistics (2008), Aid purpose categorised as oil and gas, mineral/mining policy and administration management, mineral prospecting and exploration, ferrous metal, non-ferrous metals, precious metals/materials, and off-shore minerals. Average yearly contribution 2000-06.

The above-mentioned aid is varied and includes, for instance, US technical aid to Azerbaijan and capacity building aid to the Azerbaijani oil fund, Japanese aid to mining research in Bolivia, UK technical assistance to the Sierra Leone diamond sector and Canadian support to mining regulation in the Democratic Republic of Congo. Above all, Norway has been particularly active in this area and has made “Oil for Development” one of its priorities in international development policy, on the basis that the country’s own experience makes it better placed to give advice to petroleum-producing countries. This includes co-operation with countries such as Angola, where Norway has been supporting vocational training related to the petroleum industry and technical aid on, for instance, data collection and production measurement in Nigeria, as well as support for the Nigerian EITI. It has also included major involvement in Timor Leste, with capacity building as a key focus, through macroeconomic advice, advice on petroleum taxation and an extensive education programme. Norway has also co-operated with net importers or small exporters where petroleum production is just starting up, such as Uganda, to facilitate development.

International institutions have also contributed actively in mineral- and petroleum-related development aid, in particular the World Bank. An extractive industry related scheme which has also met with substantial interest and attention is the EITI.

Technical Capacity Building

The lessons from Chile and Norway, and their implications for other resource-rich countries, suggest the comeback of technical know-how assistance. While high-income countries have traditionally supported international development through the disbursement of aid, resource-rich countries in many ways represent different challenges from those of resource-poor countries with similar levels of income, and deserve special attention.

The success stories of Chile and Norway show the importance of human capital both to support the growth of linkages and non-resource industries, and to build institutions able to deal with the complex technical details involved in resource extraction. This is also a potential source of growth for poorer resource-rich countries, yet the domestic capacity to improve human capital and strengthen institutional capacity might not be present. Putting such policies into action is difficult for countries that do not have the same starting point in terms of educational level and technical know-how. Yet this is precisely the kind of knowledge possessed

by some of the more successful countries. The suggestions given below, therefore, must not only be seen as indications for policy action by Norway and Chile, but also for other developed or rich emerging countries with experience from extractive industries.

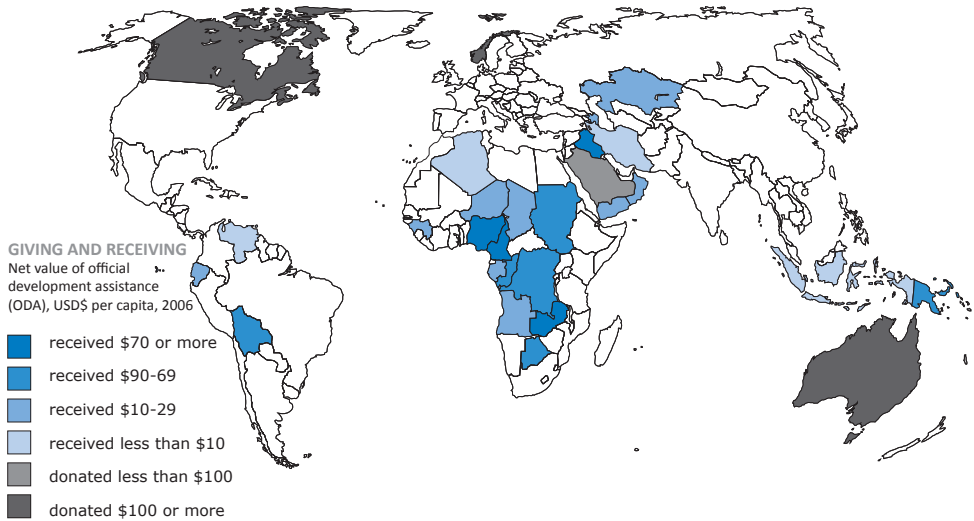
In a number of areas there are very clear learning processes where successful countries can share their experiences and successful regimes, including the civil service, geological and tax (royalty) system capacity, management of overseas funds, implementation of fiscal rules, negotiations with companies, human capacity development in a natural-resource related supplier industry, for instance. Oil and mineral commodity-related endowments might present a different set of challenges. Most of the technical co-operation is focused on oil-related endowments, as in the case of Norway. Copper could be another area where a country such as Chile could deploy its international co-operation. The creation of a World Copper Institute could be a useful value added, with an institution focused on generating technical training in and for other copper-rich countries, helping to generate research and innovation on copper and the related clusters that can range from explosives industries to geological and biological applied research.

Most important of all are policy exchanges and views on how to develop linkages. This can be done through direct aid, not least by stimulating research in the natural-resource-linked (engineering and economic) areas, and helping to develop competence centres in resource-rich countries through exchanges between researchers, businesses and policy makers. These kinds of exchanges have been important in fostering cluster environments both in Chile and Norway, and sharing from this experience and building similar environments could have very positive effects.

Several resource-rich countries receive large inflows of aid per capita, even though many of them also receive large inflows from their natural-resource exports (Figure 6). The goal must be for these countries to be able to use their resource flows directly for development in their own countries, to the extent that the economy is capable of absorbing them.

Altogether, there are several international development efforts geared towards resource-rich countries and extractive industries, though their effects have yet to be seen. Many of these countries are also receiving overall large inflows of aid. At the same time, increased demand for natural resources has also heightened the geopolitical stakes. While this implies that many commodity importers have an interest in stability in these countries, it also means that they are likely to push for quick development, without necessarily the development of linkages and the have been central to the success of Norway and Chile.

Figure 6. Aid Receipts Per Capita in Resource-rich Countries



Source: Authors' calculations based on OECD-DAC Statistics, 2008.

Norway, as seen above, has a wealth of experience and a developed apparatus of international development and finance. It is therefore well placed to give advice both on macroeconomic policy, potential resource-fund management and more technical details and capacity building in the petroleum sector itself. Its intimate knowledge of the petroleum sector allows it both to help develop capacity in other resource-rich countries' public institutions, to share its own experience and to suggest direct policies to develop linkages and on the way to reach an optimal balance between profiting from company payments and attracting foreign investment into the sector.

Much the same also applies to Chile, though some of its experience might be even more pertinent because its own institutional and technical starting point was probably lower than that of Norway, making the Chilean experience closer to that of other resource-rich emerging economies, in particular those where minerals such as copper are present. Chile has itself faced many of the challenges currently experienced by developing countries, including high inequality and poverty, political turmoil, regime change and democratisation, and might be better placed to give advice based on the need to balance growth stimulation with tackling social problems.

Institutions and Governance

The importance of institutional quality suggests efforts in improving governance in resource-rich countries should be increased, and, especially in the international framework for extractive industries, transparency and accountability promoted. The situation in resource-rich countries accentuates the need to focus more directly on governance issues.

Improving institutional quality is a question of institutional design, where technical aid can again be of help, but might also be a question of international decisions. While, ultimately, well-intentioned donor governments are in no position to impose conditions on governments which are already receiving high inflows, they can help adjust the returns to good transparent institutions. They can do so by affecting the international environment through support for and development of initiatives such as the EITI and the OECD guidelines for multinational companies and by giving incentives to and co-operating with their own businesses active in extractive industries.

Institutional capacity and accountability can also be improved through exchanges with successful resource-rich countries, whose experiences have taught them how more easily to shape institutions to promote good governance. This includes measures mentioned above, such as separation of powers between institutions, fuelling all funds through the main budget, increasing transparency and accountability regulations and routines, increasing awareness of public officials and improving meritocratic selection within institutions. Exchanges with countries such as Chile and Norway can therefore be successful, as long as there is real willingness to improve institutions and adopt relevant procedures, and as long as there is an awareness of the different political and economic environments which mean that policies would have to be specifically adapted to the country in question.

However, when there is no real willingness to engage, technical assistance and exchanges would not suffice. The evaluations both of the Norwegian Agency for Development Co-operation's Oil for Development programme and the various World Bank efforts in extractive industries show that support to resource-rich countries whose governments are not willing to improve institutional quality is unlikely to result in success.

Successful resource-rich countries can make invaluable contributions through participating in such institutions and supporting them politically, for several reasons. First, their own experiences mean that they understand

both the institutional and political economy dynamics of resource-rich countries, which would allow them to make informed recommendations to improve international initiatives. Norwegian civil servants, for instance, have in-depth knowledge of the mechanisms of licensing rounds and might be able to suggest ways that international initiatives can try to combat corruption in these rounds. Second, they are major actors internationally, and their support for international institutions such as the EITI might contribute to improving the institutions' political clout. Third, as exemplified by both Norway and Chile, many successful resource-rich countries are themselves home to extractive-industry companies, StatoilHydro and Codelco, for instance, as well as an array of less well-known companies both in extractive and supporting industries. This last point feeds into the third area through which successful resource-rich countries can contribute to development in poorer countries, namely through their knowledge of and contact with extractive companies.

Industry Relations

As has been seen from the above case studies, a good relationship and co-operation with business have been of great importance for both Norway and Chile. Extractive-industry companies, many of them based in donor countries with a history of resource exploitation, can contribute to the laying of the groundwork for development in the countries in which they operate, given the right incentives.

This relationship between corporations and governments is particularly tricky in countries where the government has less capacity to interact and negotiate with the extractive-industry companies and is another area where advice from successful resource-rich countries would be of value. One main problem: technical advice, particularly related to business negotiations, might often conflict with a country's own interest through companies based there. Norwegian StatoilHydro was criticised in the media for becoming too closely involved with the Oil for Development initiative, and it was argued that Sweden might be better qualified to play a role in such an initiative, since it does not have strong state interests in oil-related industries. This is one of the central problems in using development policy to improve the situation for resource-rich countries, but it can be overcome through transparency with business co-operation and by involving several partners in an international initiative.

The three areas considered here, namely technical aid – both in economic and sector specific policy –, support for institutions and governance, and

good relations with the private sector, are three main areas through which successful countries can help contribute to development in other resource-rich countries. The list is not exhaustive and other lines of development support can be envisaged: supporting non-resource investment in these countries, supporting credit rating agencies' work, spreading knowledge and giving investment credits, as well as opening markets to industrial trade from these countries.

Conclusion

The current boom in oil and mineral prices has caused concern primarily in countries importing these products, yet as this paper shows that concern should also be shared by the exporting countries. While large revenue inflows can certainly help contribute to development, past experiences with the "paradox of plenty" have shown that mineral and fuel wealth can often represent a curse rather than a blessing. A vast literature has considered this surprising fact, and the overall conclusions tend to suggest that the countries that need development the most are also the hardest hit, i.e. those that have weak and unreliable public- and private-sector institutions and high social fragmentation.

While the general trends have suggested that countries are better off without natural resources, there are some examples to the contrary. Norway and Chile are two of these. Not only have they seen continued broad growth coupled with soaring income from extractive natural resources, they have also performed better than comparable neighbouring countries and have seen vast improvements in living standards.

Studying their economic development over the past four decades provides some good indications as to what policies have been successful. Responsible macroeconomic, and particularly fiscal, policy, rapid payment of external debt and subsequent build-up of resource funds, investment in human capital development and strong incentives for technical spillovers and broad industrial development have all been part of the package. In fact, the experiences of Norway and Chile include decisive government action to develop natural-resource related industries, sometimes with more state involvement than has been recommended in the literature. The clear underlying factor, however, is the quality of their institutions, something stressed in other OECD Development Centre studies too (see for example Arndt and Oman, 2006), which has allowed both the implementation of these policies and has prevented rent-seeking activities from prevailing and crowding out productive parts of the economy.

The experiences of Norway and Chile have some important lessons for other resource-rich countries. Fiscal prudence, productive investment in human capital, infrastructure and innovation, separation of powers, and adherence to transparency and accountability appear to point the way forward. However, not all countries are as well equipped when it comes to governance indicators and strong independent institutions. Beyond the choice of policies, therefore, the case studies of Norway and Chile underline the importance of institution building: being able to rely on incorruptible and well-informed civil servants and a functioning and fair justice system, for instance, are key to the flourishing of entrepreneurship and thus diversification of the economy.

Yet institution-building itself might be beyond the immediate capacity of a country currently faced with high resource revenues. There is therefore a clear role for the international development community, since some of these countries are also some of the world's least developed, and – if the paradox of plenty persists – their development challenges might be even larger in the future. Aid, in the traditional sense, is not the solution, because these countries have large flows coming in, especially after the natural-resource income has started arriving. It is, rather, a question of technical support and capacity building, support of international anti-corruption mechanisms and imposing transparency and legal demands on their own companies which can help the poorer resource-rich countries develop. This is an opportunity both for countries such as Norway – with an already extensive development co-operation history – and for emerging donors, such as Chile, whose experience might be closer to that of other emerging and developing countries, and which might well be able to transfer vital technical knowledge to its co-operation partners.

Oil and mineral commodity-related endowments might present a different set of challenges. Most of the technical co-operation is focused on oil related endowments, as in the case of Norway. Copper might be another sector where a country such as Chile could deploy its international co-operation. The creation of a World Copper Institute could be a useful value added, with an institution focused on generating technical training in and for other copper-rich countries, helping to generate research and innovation on copper and the related clusters that can range from explosives industries to geological and biological applied research.

Notes

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2. Javier Santiso is Director and Chief Economist of the OECD Development Centre. He is also the chair of the OECD Emerging Markets Network (EmNet). Contact: Javier.Santiso@oecd.org
3. The paper focuses on extractive industries, as these types of commodity exploitation have been most clearly affected by the natural resource curse (Isham *et al.*, 2005).
4. The Herfindahl-Hirschman concentration index is constructed to measure the sum of market shares in total exports: 0 implies an atomistic market, while high values imply specialisation (OECD Development Centre calculations, 2007).
5. Of the countries that have higher specialisation than the African average, only Guinea Bissau, Burkina Faso, Mali and Malawi are specialised in a product not pertaining to an extractive industry (OECD/AfDB, 2008).

References

- ARNDT, C. AND C. OMAN (2006), *Uses and Abuses of Governance Indicators*, OECD, Paris.
- BOSCHINI, A., J. PETTERSSON AND J. ROINE (2007), "Resource Curse or Not: A Question of Appropriability", *Scandinavian Journal of Economics*, vol. 109 (3), pp. 593-617.
- BOULHOL, H., A. DE SERRES AND M. MOLNAR (2008), "The contribution of economic geography to GDP per capita", OECD Economics Department Working Paper, 602, April.
- Collier, P. (2007), "Managing commodity booms: Lessons of international experience", Paper prepared for the African Economic Research Consortium, Department of Economics, University of Oxford <http://users.ox.ac.uk/~econpco/research/pdfs/ManagingCommodityBooms.pdf>.
- COLLIER, P. AND B. GODERIS (2007a), "Commodity prices, growth and the natural resource curse: reconciling a conundrum", Department of Economics, University of Oxford <http://www.csaee.ox.ac.uk/workingpapers/pdfs/2007-15text.pdf>.
- COLLIER, P. AND B. GODERIS (2007b), "Prospects for Commodity Exporters: Hunky Dory or Humpty Dumpty?", Department of Economics, Oxford University.
- CORDEN, W.M. AND J.P. NEARY (1982), "Booming Sector and De-industrialisation in a Small Open Economy", *The Economic Journal*, vol. 92 (368), pp. 825-848.
- DE MELLO, L. (2008), "Managing Chile's Macro-economy During and After the Copper Price Boom", OECD Economics Department *Working Paper*, 605.
- ISHAM, J., M. WOOLCOCK, L.H. PRITCHETT AND G. BUSBY (2005), "The Varieties of the Resource Experience: Natural Resource Export Structures and the Political Economy of Economic Growth", *World Bank Economic Review*, 19 (2), pp. 141-74.
- KARL, T.L. (2007), "Oil-Led Development: Social, Political and Economic Consequences", Center on Democracy, Development and the Rule of Law, *Working Paper*, Stanford University.
- KARL, T.L. (1997), *The Paradox of Plenty: Oil Booms and Petro-States*, University of California Press, Palo Alto.

- RØED LARSEN, R. (2004), "Escaping the Resource Curse and the Dutch Disease? When and Why Norway Caught up with and Forged ahead of Its Neighbors", *Discussion Papers 377*, Research Department of Statistics Norway, Oslo.
- OECD (2007), *Latin American Economic Outlook 2008*, OECD Development Centre Studies, Paris.
- OECD/AfDB – OECD Development Centre and African Development Bank (2008), *African Economic Outlook*, Paris and Tunis, OECD and AfDB.
- OECD (2007a), *Economic Survey of Norway*, Paris
- OECD (2007b), *Economic Survey of Chile*, Paris.
- OECD (2007c), *OECD Reviews of Innovation Policy – Chile*, Paris.
- OECD (2003), *Economic Survey of Chile*, Paris.
- QURESHI, M. (2008), "Africa's Oil Abundance and External Competitiveness: Do Institutions Matter?"? *IMF Working Paper*, WP/08/172.
- SANTISO, J. (2006), *Latin America's Political Economy: Beyond Good Revolutionaries and Free Marketeers*, MIT Press, Cambridge, Mass.
- REISEN, H. (2008), "How to Spend it: Commodity and Non Commodity Sovereign Wealth Funds", Deutsche Bank Research, *Working Paper Series*, Research Notes 28.
- WTO (2007), *International Trade Statistics*.

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To Benefit from Plenty: Lessons from Chile and Norway

by

Gøril Havro¹ and Javier Santiso²



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Executive Summary

Countries which possess resources, such as oil, diamonds or copper, for which there is high demand seem to become poorer, more corrupt and more likely to suffer from conflict. Counter examples do exist – Botswana, Canada, Australia or Norway, for example – but these are exceptions. In general, the consequences of oil wealth tend to be negative, bringing slower than expected growth, barriers to economic diversification, poor social welfare performance and high levels of poverty, inequality and unemployment (Karl, 2007).

This seeming contradiction – called “the paradox of plenty” by Terry Lynn Karl (1997) – has prompted a body of research from which some overall conclusions have emerged. For instance, it appears that good, solid institutions – including both an incorruptible and reliable civil service and good market conditions – coupled with responsible and stable economic policy can help avoid the negative effects of possessing valuable underground resources. For low- or middle-income countries, the resource curse can be avoided by those with sufficiently sound institutions (Collier and Goderis, 2007a). Where the resource curse is avoided, mainly in rich developed countries with sound and solid institutions such as Canada or Australia, endowments in natural resources have a significant positive effect on GDP per capita (Boulhol, *et al.*, 2008).

High commodity³ prices also represent a great opportunity for the exporting countries. They added nearly 2.5 percentage points to the growth of the typical African economy in both 2005 and 2006, as pointed out by Collier (2007). Sub-Saharan African commodity exports were estimated to amount to nearly USD 150 billion in 2004, according to Collier and Goderis (2007b), or nearly 30 per cent of the region’s GDP, while aid amounted to a meagre 5 per cent of GDP. Yet, as past experience from resource-rich countries shows, investment in institutions, human capital, infrastructure and good economic policy is urgent. If oil-rich Africa lags behind other oil exporters, in terms of diversification, global market share or the overall investment climate, this poor performance can be largely attributed to weak infrastructure and institutional quality (Qureshi, 2008).

The experiences of Norway and Chile show that natural-resource wealth can be a blessing rather than a curse if the economic and institutional parameters are well adapted to the task. The growth in these two countries has not taken place in spite of natural resources; to a large extent their resource management has enabled increased growth and development, although Chile lags behind Norway in many areas. The success of the two countries has been made possible not only through well-adapted macroeconomic policy choices but also through reliable and well-informed civil servants implementing the policy, through a relatively well-developed business community and through across-the-board good standards of human capital. These are important messages for other resource-rich countries currently battling to manage their resource revenue, but it also sends a message to the international development community. The institutional and educational preconditions are not present in many of the countries currently enjoying high inflows of natural-resource rents. On top of that, as will be argued, Norway and Chile can be actors on the aid and international co-operation scene, focusing on niches related to governance and capacity building. Norway is already doing this. Chile could develop it in the future.

The Paradox of Plenty – Why More Resources Could Imply Lower Growth

"Dutch disease", Volatility and Rent-seeking Stalls Growth and Development

The natural resource curse has fascinated many researchers and has generated substantial academic effort. Because of its impact on the economic development of the concerned countries, international organisations, non-governmental organisations (NGOs) and donor governments have also contributed to this literature. The effects of natural-resource wealth have been found to affect a country's economy in a wide range of patterns. In particular, it appears that such wealth is lowering economic growth, exacerbating the risk of conflict, civil war and non-democratic tendencies, and giving rise to heightened social divisions, weakened institutional capacity, poverty, inequality, corruption, negative savings rates and low levels of R&D.

The resource paradox has largely been explained by a mixture of economic effects, volatility effects and rent-seeking arguments. The economic effects are primarily transmitted through "Dutch disease" and thus the crowding-out of non-resource sectors (see Corden and Neary, 1982). Economists have applied the Dutch experience to explain the lack of development in other commodity-rich countries — particularly Venezuela, Nigeria and Indonesia. The high demand for commodities, especially when coupled with high commodity prices, leads to the crowding-out of the remaining sectors as the exchange rate appreciates or as wages in the commodity sectors are bid up. Companies in non-resource sectors thus see costs increase relative to those of their competitors. As dependence on one or few commodity exports increases, the economy also faces negative impacts from higher volatility. Natural resource supply is relatively inelastic in the short run, while making up a large part of GDP, and particularly of fiscal revenues. Volatility in oil and mineral prices, therefore, can have large impacts on the overall economy and on government budgets, causing greater uncertainty and lower growth.

Political economy outcomes are also affected by discoveries of natural-resource wealth, as the incentives facing political and economic actors change. Primarily, resource wealth spurs increased economic rents, thus increasing the returns from rent-seeking. The existence of weak and unreliable institutions, together with increased opportunity for acquiring spoils through lobbying activities or corruption, leads to

diminished involvement in productive activities. At the same time, increased opportunity to depend on patronage politics coupled with the increased profitability (rents) of staying in office, the absence of fiscal controls, and greater problems of transparency and accountability contribute to ineffective governance and higher levels of corruption. Resource wealth might, for instance, trigger excessive external borrowing based on future resource income, serving the short-term popularity of the government, as well as its strength, while increasing long-term risks. In addition, the political economy dynamics of resource wealth tend to aggravate social tensions and conflict. As these different dimensions are interrelated, the chance of a resource curse increases.

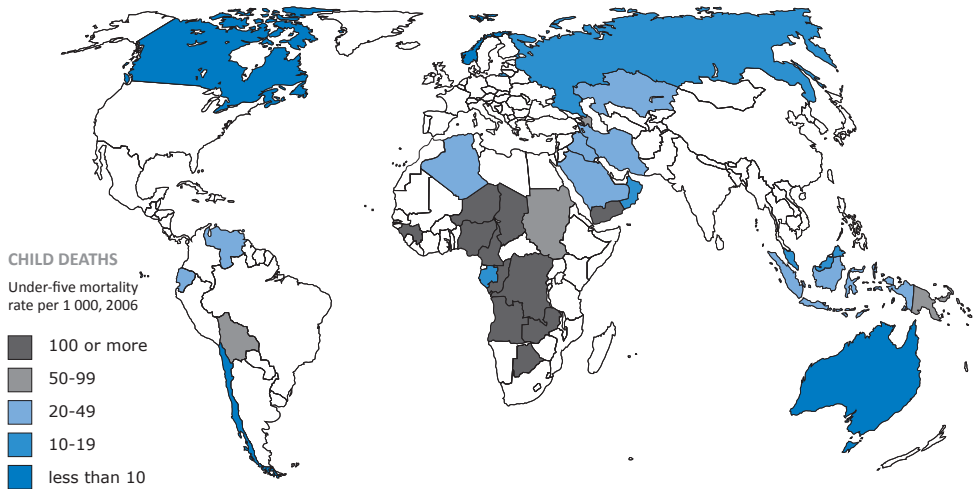
Some of the World's Poorest People Are At Risk

The paradox of plenty has very real implications for the populations it affects. Many resource-rich countries, and especially the least diversified countries, have real poverty problems and are among recipients of international aid.

As Figure 1 shows, many countries considered to be resource-rich have high mortality rates among children under five, a major sign of development challenges. This primarily includes African countries, but also other commodity exporters. A particular group of countries with poor development indicators and large resource reserves risks forgoing opportunities for growth unless natural resources are managed in a way that promotes development.

High commodity prices put increasing pressure on some of the least developed economies and increase the potential damage from the resource curse. The UN classifies as Least Developed Countries (LDCs) those that have the lowest per capita income, the lowest health, nutrition and education indicators and the highest economic vulnerability. As seen in Figure 2, LDCs saw over 50 per cent of their exports consisting of fuel and mining products in 2006. In comparison, these products make up only 7.5 per cent of total EU (EU-27) exports (WTO Statistics, 2008). What is more, the proportion has actually been increasing since 2000, with other export sectors decreasing.

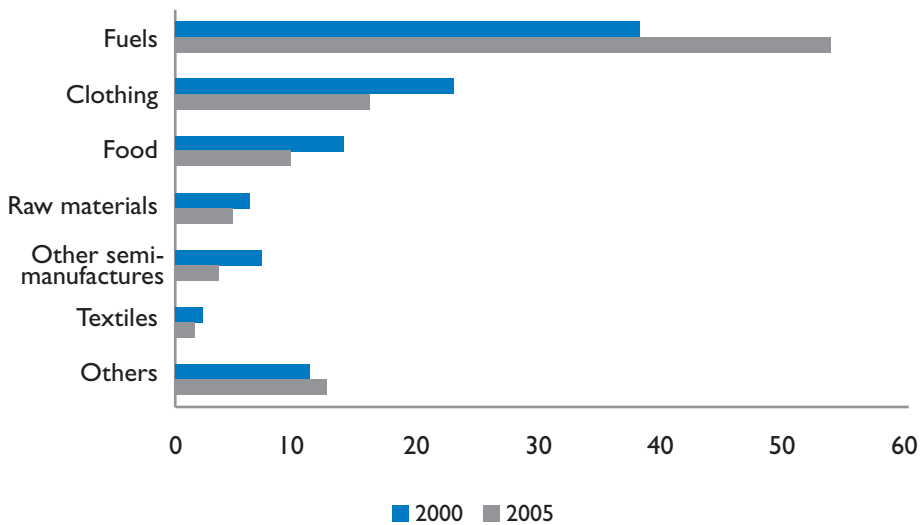
Figure 1. **Under-five Mortality per 1 000, Selected Resource-rich Countries^a**



a) Authors' selection from countries frequently mentioned in the natural resources literature.

Source: Authors' calculations.

Figure 2. **Exports of Least Developed Countries by Product**



Source: Authors' calculations based on WTO, 2007.

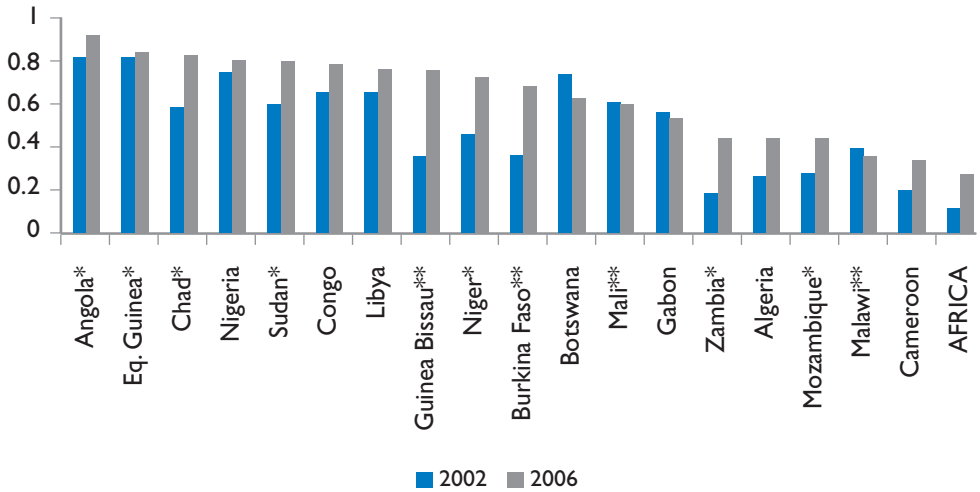
While the shares of fuel and mineral exports are increasing, so is the resource-rich countries' specialisation in these sectors. This leaves countries more vulnerable to shocks in these sectors and more dependent on the resources they are exporting. Figures 3 and 4 show the Herfindahl-Hirschmann⁴ specialisation index for selected African and Latin American countries respectively. Not only has export concentration been growing in general, but it has increased particularly in those countries that already had the highest concentration and are highly dependent on mineral and fuel exports⁵.

Figure 3 shows the African countries with the highest export product concentration. Among the most concentrated African countries, Angola, Equatorial Guinea, Chad, Nigeria, Sudan, Congo, Libya, Algeria, Gabon and Cameroon all had a high concentration in petroleum exports, while Zambia is a leading copper exporter and Mozambique a leading aluminium exporter (OECD/AfDB 2008). Botswana, the one highly specialised country that has seen a decrease in export concentration, is well-known for the successful management of its diamond resources and is an often cited example of a country that is avoiding the resource curse. As can be seen from Figure 3, many of these countries are also classified as LDCs. These same countries also face substantial governance problems. Of the countries in Figure 3, only three rank in the first 100 countries (out of 179) in Transparency International's Corruption Perception Index: Botswana (38), Gabon (84) and Algeria (99) (OECD/AfDB 2008).

Latin America, too, has seen export concentration increase (Figure 4), especially in countries with exports concentrated in mining and fuel products, including Venezuela, Ecuador, Chile, Bolivia and Peru. These countries are doing better in terms of their level of specialisation and in terms of per capita income and human development, but the increased specialisation in natural resources still poses them some very real economic challenges.

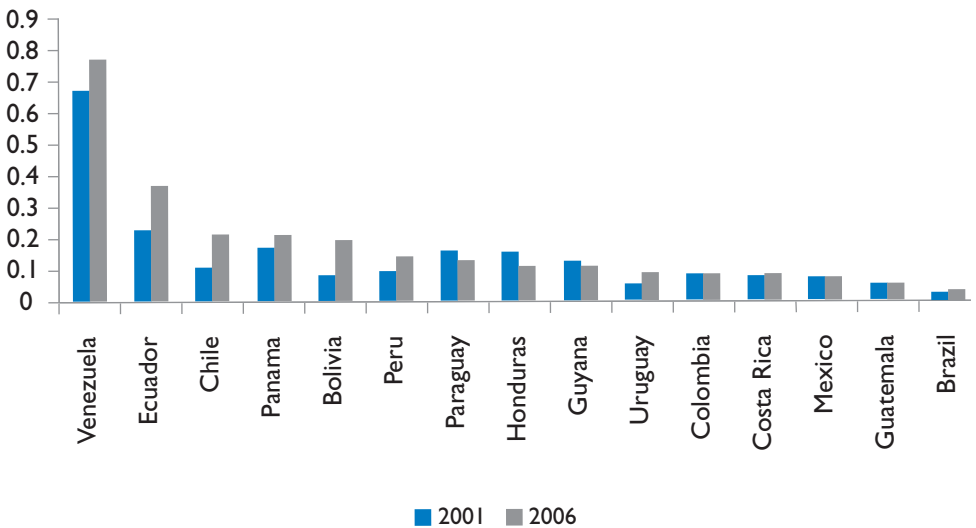
In sum, a number of resource-rich countries have a major task on hand to improve human development. Increased inflows represent an opportunity for development, yet the paradox of plenty has shown that they also present increased difficulties, especially as many of these same countries do not have the institutional strength and capacity needed to avoid the resource curse. At the same time, many of the resource-rich countries are specialised in one or a few commodities. This makes their economies particularly vulnerable to changes in the global market and can represent very real future problems.

Figure 3. **Export Concentration, Selected African Countries**



Source: OECD Development Centre Statistics 2008. Countries marked with an asterisk (*) are classified as LDCs by the UN (2008). Countries marked ** do not specialise in fuels and minerals.

Figure 4. **Export Concentration in Products for Latin America**



Source: OECD Development Centre calculations.

Paragons of Plenty – Norway and Chile have Both Benefited from Natural Resources

The experiences of Chile and Norway are particularly interesting. They are both small, open economies with a relatively heavy reliance on natural resources. They are also among the most cited exceptions to the resource curse. Indeed, these two economic paragons are probably the two most outstanding exceptions to the “paradox of plenty”, along with other OECD countries already mentioned such as Canada or Australia, also rich in oil and minerals (see Boulhol, de Serres, Molnar, 2008). In addition, their experiences complement each other because of their very different historical, geographical, mineral, social and political backgrounds.

The Norwegian story is not an obvious example for developing economies, simply because the Norwegian economy in the late 1960s – with its relatively high level of education, democratic consolidation and secure institutions – was far from that of a resource-rich LDC today. However, Norway was not a rich country by OECD standards when oil was discovered. Over the past three decades, its GDP per capita has increased from 90 per cent of the OECD average, to 150 per cent (OECD, 2007a). While its experience is completely different from that of many other resource-rich countries, it has nevertheless seen an astonishing performance, from which some cautious lessons can be drawn. As shown by Figure 5 Norway more than matched the growth rates of its neighbours in the 25 years after having found oil, and overtook other more developed Scandinavian economies such as Denmark and Sweden in terms of GDP.

Norway is a leading contributor in the field of international development. It should be better placed to give policy advice and other forms of aid to countries with great natural-resource wealth. Its “Oil for Development” programme is already providing support for developing countries with high resource dependence, and “Oil and Clean Energy” is one of the four priorities in the international development policy.

Chile is the world’s prime producer and exporter of copper, yet, while its share of world copper exports has increased, it has undergone astonishing economic development in real terms and in comparison with the rest of Latin America. In the period 1986-1998 Chile had growth rates averaging 7.3 per cent, similar to those of the Asian tigers. While profiting from its copper wealth, Chile has managed to diversify its economy and develop innovative industries. In 1973, mining made up 89 per cent of Chilean exports, while in 2001 only 41 per cent of exports were mining

products (OECD Development Centre calculations, 2007). Chile's successful diversification is illustrated by the growth of other export industries, notably wine and fruit production and development, and salmon farming, where Chile is now the world's second largest exporter.

Macroeconomic Management: Fiscal Stability and Prudence

The experiences of Norway and Chile alike demonstrate the value of fiscal prudence, supported by overall macroeconomic stability. Governments in both countries have refrained from spending indiscriminately to satisfy political pressures and establish potential popularity gains, and have been largely able to run balanced budgets. Coupled with debt payments in the first years, and later establishment of resource funds, fiscal prudence appears to have helped prevent inflation and "Dutch disease" effects related to oil and copper booms. If all the foreign currency earned as petroleum revenue were converted to local currency and spent, supply side limitations would have implied that increased aggregate demand could have fostered price increases and consecutive interest rate hikes, given the inflation-targeting regimes, thus leaving the non-oil sectors in an anti-competitive position.

Limiting fiscal spending, and especially pro-cyclical spending, has been a priority for both countries. Although the 1970s saw large expenditure on human capital and infrastructure in Norway, and the government increased its overall outlays by five to seven percentage points of GDP between 1970 and 1985, Denmark and Sweden increased spending by 20 percentage points over the same time. Even in the deep recession which hit the rest of the Nordic countries hard in the early 1990s, Norway only went into fiscal deficit twice, in 1992 and 1993, when the economy faced a considerable downturn and negative output gap (OECD, 2007a). In the 1970s, the increased revenues were mainly used to pay down government debt, but as demographic concerns developed, a petroleum fund was set up in 1990, to cater for future generations' pensions and to limit excessive petroleum revenues flowing into the budget. The policy has been based on the so-called "action rule", where petroleum earnings are being phased into the economy based on expected real return on the Pension Fund – Global (formerly Petroleum Fund), which is estimated at 4 per cent. The fund was valued at USD 373 billion at the end of 2007, and is invested internationally in financial instruments in 42 countries and 31 currencies.

In Chile, too, cautious fiscal policy has been one of the central pillars of copper revenue management. This was true during the authoritarian regime of General Augusto Pinochet but also, and more importantly, once democracy returned to the country. Following the return of democracy, successive governments have maintained a cyclically adjusted budget surplus. This was first implemented through an implicit fiscal rule, and from 2001 with an explicit fiscal surplus target (structural revenues – expenditure) of 1 per cent of GDP. Two panels of independent economic experts are asked for projections of potential output and the potential copper price, from which the copper reference price and potential output are calculated (by simple average, excluding outliers). The surplus target was cut to 0.5 per cent in May 2007, freeing funds to increase spending on education (OECD 2003, 2007*b*) and reflecting the improved debt levels. Central government debt has come down from 45 per cent in 1990 to only 4 per cent in 2007.

The fiscal structure was further strengthened in 2006 with the Fiscal Responsibility Law (see de Mello, 2008), where the budget surplus target is now enacted in law and where surplus earnings are allocated to the Economic and Social Stabilisation Fund, the Pensions Reserve Fund and the Contingency Unemployment Programme. The two funds replace what was previously called the Copper Stabilisation Fund. In January 2008, the Pension Reserve Fund had values of USD 1.5 billion, while the Economic and Social Stabilisation Fund had values of USD 14 billion (OECD, 2007*b*). The two funds are invested by the Central Bank, though the responsibility lies with the government. Investments can be made both nationally and internationally, but the government is realising the virtues of investing the funds abroad, both in preventing “Dutch disease” and avoiding overinvestment on the local financial market.

Keeping a large tax base has allowed for extra security in the face of commodity downturns, and has arguably kept the electorate more determined to hold their governments accountable. The two countries have also both continued to draw the bulk of their revenues from non-resource sources, thus maintaining a reliable source of government revenue, independent of commodity price volatility. While copper revenues have been important, the Chilean state received on average 72 per cent of its income from tax revenues between 1994 and 2006 and efforts are being made to increase tax efficiency and lower the rate of tax evasion. In Norway, 62 per cent of state revenue is non-petroleum-related. Both are therefore independent from commodities in fiscal terms but both managed to use this windfall wisely and developed sound sovereign institutions to manage their wealth (on sovereign wealth funds see Reisen, 2008).

Sector-specific Management and Industrial Policy: Room for Government Involvement

While maintaining fiscal prudence, both countries chose to direct spending to areas contributing to further diversified growth, notably human resources, infrastructure and innovation. A number of these projects have seen successful collaboration between the government or public agencies and private companies, including the Fundación Chile project and Norwegian support for petroleum-related human capital development, for example. Fundación Chile is a non-profit private organisation started by the Chilean government in 1976 together with the US ITT Corporation to transfer management and technological skills for use in natural resource sectors, through undertaking R&D, adapting foreign technology and aids in the diffusion of technology. This initiative has been central in the development of non-copper industries, and is thus important in Chile's successful diversification. Among its achievements are the development of quality wine production and the facilitation of fruit exports (OECD, 2007).

Both countries also made more direct efforts to diversify their economy and to support industries associated with the natural-resource sector – such as engineering and supply – as well as non-resource sectors. Norwegian policies in the 1970s were markedly interventionist in this regard. A condition for according licences was that the licensee use onshore Norwegian bases and use Norwegian labour as far as possible, and technology transfer agreements were entered into with companies and targeted R&D efforts. The legal framework emphasised local content until 1990, to develop the infant petroleum supply industry. Norway also pushed for state participation in the same areas, in spite of reluctance on the part of many of the international companies.

Chilean policies have been less interventionist, given the economic orthodoxy of the Pinochet regime, although state-owned giant Codelco's particular role in the Chilean copper industry, and its support of smaller mining-related companies, have been helpful in developing Chilean human capital and support industries. International firms did not face any local content demands, but Codelco had an internal policy which supported the participation of local engineering competence in big projects. When Codelco entered into co-operation with the big international companies, this policy also meant that its smaller Chilean co-operating companies gained experience from the international mining companies. By comparison, the private Escondida mining company hardly used local mining services.

Contrary to calls for privatisation in the literature, it seems that both these countries have been able to benefit from their natural resources, regardless of the presence of state-owned companies. After Pinochet's military coup in 1973, the nationalised assets remained the property of the state, and Codelco, was established in 1976. It remains the world's biggest copper producer and the fifth biggest metal mining company. While in the 1970s around 10 per cent of engineering services came from Chilean providers, in the 1990s, the proportion had increased to 90 per cent, and Codelco, as seen above, was the company working closest with local Chilean areas of competence. In Norway, the state-owned oil company Statoil was founded in 1972. The government also chose to allocate one of the most attractive blocks to the three Norwegian oil companies; Statoil and two other Norwegian companies, Saga and Norsk Hydro, had also decided to launch petroleum activities. The presence of these companies arguably allowed Norway to develop technological know-how, as well as increasing the revenues from petroleum.

These examples show that industrial policy can play a role in successful economic development. That does not mean that they could easily be replicated with success in other countries and contexts. Crucial to this relative success has been the fact that local human capital levels were already high when state-owned companies were founded, and particularly that these companies have not become vehicles for private profiteering and rent-seeking, while controlling institutions and the civil service have been of a high quality both in terms of competence and integrity. In Norway, for instance, strong industries were already present, notably in the maritime and shipping sector and pulp and paper, fertiliser and aluminium industries. Engineers and entrepreneurs could therefore change direction towards the petroleum industry. There was also an education system that could be adapted to the needs of the petroleum sector.

Finally, the general business climate and, in particular, the government's relationship with industry are important. The Chilean terms of mineral investment, both political and geological, were considered to be some of the best in the world, as remarked upon by the Fraser Institute annual surveys of mining companies. Conducted since 1997, the last survey ranked Chile again among the top countries. Free market policies, security of property rights and stable investment and political conditions made Chile a good investment prospect. This was also supported by the fact that Chile did not require royalty payments, and that the overall government take was lower than in most other mining countries. Both countries

have also had open economies and developed financial sectors. Chile undertook rapid liberalisations of its trade policies in the 1970s and 80s, and has acted to promote exports through international marketing and bilateral treaties. Norway's economy has also been relatively open, with the marked exception of agriculture (OECD, 2007a) – while the country managed oil well, it has, however, underperformed in other areas such as fisheries.

Norway's example also demonstrates the wisdom in the "leaving the oil underground" argument. Seeking to avoid "Dutch disease" and job losses in other industries, the authorities were reluctant to move forward too quickly, and they also supported non-oil sectors directly. Licensing activity from 1969 to 1978 was relatively restrictive, and abundant hydroelectric power supply meant that energy needs were less dependent on the new petroleum discoveries. It was considered important to strike the right balance between the developing petroleum industry and the remaining domestic industry and putting in place expert institutions, policies and human capital to deal with the new windfall revenue. At the same time, spending increased through subsidies to agriculture and industry. Extraction speed was less of an issue for Chile, which had been depending on copper for a long time already in the 1970s and before.

The question of "government take" was treated quite differently in the two economies. Norway's claims were relatively high compared to other oil-producing countries, notably the United Kingdom, which also had large oil reserves in the North Sea. In comparison, Chile's tax rates were for a long time among the lowest of all copper exporters, in spite of the country's offering one of the highest internal rates of return for international investors. Norway's situation in the 1970s was arguably much stronger than Chile's in the 1980s and 1990s, both because of the nature of petroleum and the 1970s oil shocks and of Norway's reputation for political stability and reliable negotiation, while Chile still needed to lure international mineral companies back to the country after the previous nationalisation at times when the copper price was much lower than at present. Nonetheless, Chile's stake in Codelco in particular, did allow the government to profit from copper exploitation. This led to heated discussion on royalties in Chile, where foreign companies' contributions were questioned, with a 2005 decision to implement a 5 per cent mining tax for annual sales over 50 000 metric tonnes, which goes directly to support a special fund for innovation

Institutions: the Key?

A number of the above comparisons have shown the important role of institutional quality as an underlying factor which has contributed to successful policy implementation. Both Norway and Chile have reliable private-sector institutions such as property rights, an independent judiciary, a civil service reputed for its integrity and competence, and independent institutions functioning as checks and balances. They also both have strong ministries of finance, relative to the mining and petroleum ministries for instance, and in Chile's case, relative to the parliamentary minorities.

The quality of the civil service has been seen as one of Chile's strong points. The reputation of the bureaucracy in Chile as a low-corruption country developed in the 20th century and was thus already present before the high growth period. It was also marked, nonetheless, by strong centralisation, relative rigidity and an absence of civil society participation. Altogether, however, the long tradition of public administration attitude, emphasis on the gradual process of accumulating experience and skills, and a relative degree of efficiency and transparency appear to have been central in shaping the Chilean economic reality.

Norway, too, is particularly well endowed in terms of the quality of its institutions. Several such features of the Norwegian economy have been underlined in the literature (see Boschini *et al.*, 2007 for a review): the country's mature democracy and consensus-oriented policies; lack of corruption; firm established institutions with independent civil servants and depoliticised resource management; recruitment by merit; and egalitarian societal structures. They have, however, been reinforced by the rules and regulations governing the different institutions and the checks and balances in place. While the ministry of finance has the responsibility for the government revenue system, including the Pension Fund, the management of which is delegated to the Central Bank, the ministry of petroleum and energy is responsible for the petroleum sector as a whole, including StatoilHydro. The Norwegian Petroleum Directorate is one of its subordinate agencies and has advisory and regulatory functions. Parliament is responsible for the budget and for the overall framework. In addition, the operational management and investment decisions of the Pension Fund are delegated to the Central Bank and Norges Bank Investment Management (NBIM), while the ministry sets the fund's benchmark portfolio with risk limits.

The strength of Chile's institutions can also be seen in the independence of some important institutions and the checks and balances they provide. On the one hand Chile has a strong presidency, even stronger than in most other Latin American countries. This has allowed a tighter control of the budget, as the minister of finance together with the budget director, on behalf of the president, are in charge of setting spending limits and leading budget preparatory negotiations. On the other hand, the independence and political insulation of the judiciary, the constitutional tribunal and the comptroller general, are seen as important checks on presidential power. The ministry of mining and energy is responsible for the copper mining sector, including the support of initiatives to stimulate growth. The Chilean Copper Commission (Cochilco), on the other hand, is responsible for regulation and legal compliance, and acts as an advisory body to state companies concerning development strategies. The National Service for Geology and Mining (Sernaceomin) advises on technical geological and mining-related matters, while CORFO, the Chilean Economic Development Agency established in 1939, aims to promote economic development also in the mining sector.

The policy-making climate has also helped implement the various policies described above. While Norway has seen frequent changes in government, the policies regarding the petroleum industry and its development have been relatively consensual. In addition, the centralised system and the economic responsibility taken by trade unions have led to an overall focus on economic outcomes, and this has also helped shield the economy from excessive pressures. Larsen (2004) has called this a part of Norway's social contract: The work force accepts a degree of moderation, knowing that it will result in higher longer-term growth. In addition, the country's relative economic equity is helpful in promoting consensual decision making.

The political stability in Chile, after the reintroduction of democracy, has been underlined by the co-operative behaviour of the country's political parties, leading to a political economy style labelled as "possibilist", made up of incremental reforms, a policy of continuity, piecemeal engineering avoiding the big U-turns that characterised the previous decades of high ideological input into both the design and implementation of the reforms (Santiso, 2006). Most of Chile's social indicators have improved considerably, among them life expectancy, infant mortality and literacy, making Chile one of Latin America's top performers.

Transforming the Parameters of Plenty

Lessons for Resource-rich Countries

Some of the policies that have been successful in Norway and in Chile could potentially be adapted to other resource-rich countries. However, the vast difference in countries' economic environment and political culture must be borne in mind, and policy adaptation should only be considered with great caution. While some resource-rich countries are devastatingly poor, with very poor human development indicators, others have much better development indicators. Nonetheless, the experiences from Norway and Chile give some indication of the kinds of policies which would be useful also in developing and emerging resource-rich countries.

The relevance of fiscal prudence and a stable macroeconomic policy framework has been amply demonstrated in the literature and is confirmed by the case studies of Norway and Chile. There is, however, a case for spending more on investment in infrastructure and human capital in less developed resource-rich countries, where needs are even higher. Without such spending, the development of both resource industry linkages and of non-resource sectors is hampered. Many resource-rich countries have low rates of tertiary enrolment, inadequate infrastructure and undeveloped markets. It is important that the economy be able to absorb increased spending, and that it does not go into "white elephants", big prestige projects with little productive use.

Fiscal rules have helped avoid some of the political pressures to spend more. The Chilean fiscal rule, which targets a specific structural surplus, appears to be better at stabilising the economy than the Norwegian action rule, which allows for a 4 per cent return of the fund to be channelled into the budget each year. Since 2006, even though the rule has been kept, the output gap has been increasing. While in the Norwegian case discretionary policy has been used to ensure fiscal stability, discretion is riskier in economies with less stable institutions, and clearer rules such as the Chilean one would be likely to work better in developing economies.

In some cases, stabilisation and future generation funds could also be useful in developing economies, especially when the absorption capacity is small, and the potential foreign exchange inflows so large that they are bound to put pressure on the exchange rate. At the same time, the "future generation" argument is less convincing for economies that are currently very poor and where there is reason to hope that the

next generation would benefit from today's economic growth. In such economies, productive investments in infrastructure and human capital – as well as the strengthening of institutions – can be a better long-term solution than investment in external funds. At the same time, transparency and accountability must be such that resources invested in the fund can be accounted for.

The state involvement seen in Norway especially, and to some extent also in Chile, through the ownership of Codelco, is unlikely to be a good solution in states with poorer institutions. At best, it could create major inefficiencies because of the poor capacity of institutions, at worst it could facilitate corrupt practices as it would allow state officials to make discretionary decisions without needing to account for them. This does not, however, mean that there is no role for the government: productive investments that can stimulate future growth and development are likely to pay off. Support for human capital, infrastructure and innovation are obvious tasks at hand. In addition, improving business conditions through, for instance, facilitating the starting of a business, is likely to have positive effects.

Local-content requirements could potentially have beneficial effects as well, as seen in Norway, since they would contribute to developing domestic economic activity rather than relying on rents, while at the same time increasing human capital through learning-by-doing and technological spillovers. However, there is a need for good co-operation with the foreign companies to ensure that such requirements are not commercially unviable, and at the same time to ensure that they have a real learning impact and are not just seen as another tax payment by companies. Standardised local-content agreements worked out with experts in the field could be useful in achieving this.

One crucial part of the experience of Chile and Norway, as already underlined, is the centrality of good quality, honest and efficient institutions. Some of this can be achieved through capacity building, both to develop the skills and efficiency of officials in implementing agencies, and of personnel in independent institutions with overseeing responsibilities, including NGOs, enacting transparency and accountability standards and signing up to international initiatives such as the Extractive Industries Transparency Initiative (EITI) which is a coalition of governments, companies, civil society groups, investors and international organisations supporting revenue transparency through a set of principles that become a transparency standard for implementing governments and companies. Major supporters of the EITI are the United States, the United Kingdom, the Netherlands,

Norway, Canada, Australia, Belgium, Germany and France. Most of these initiatives have been implemented only recently, so it is still difficult to draw major conclusions about their success. Such commitments, as well as co-operation with businesses and other organisations, governments and institutions, can help obstruct the pay-offs from engaging in corrupt practices and to constrain otherwise corruptible elements within public institutions.

The usefulness of political consensus-building seen in the Norwegian and Chilean cases is likely to be of great importance in other countries. Especially when the electorate or strong political groups are fragmented and the potential for conflict is high, policies must be seen to benefit a larger part of the population, and redistributive policies – especially between regions – can be of great importance.

The need for strong institutions and the benefit to be had from linkages and technological spillovers means that a less rapid extraction rate might also have positive effects for poorer countries. Yet current international movements for energy security and access to minerals, especially from major geopolitical actors, would make poor, resource-rich economies with weak institutions unlikely to handle the pressure. Nevertheless, both these actors and the world at large would be well served with a positive development in these countries, especially to maintain access to scarce resources. Lack of real development in resource-rich countries risks creating increased social tension and conflict. For these reasons, too, as well as for more altruistic ones, the development of these countries should be promoted.

Lessons for Development Policy

The case for showing increased attention to resource-rich countries' development is especially relevant in the current environment of high commodity prices. The lessons from the cases of Chile and Norway underline some important points from the resource-curse literature, some of which might be useful in suggesting directions for international development policy. Below these are considered under three main headings: technical capacity building, institutional and governance strengthening, and improved business relations. Resource rich countries do not primarily need further financial inflows, since these are already present through the natural resource revenues, but rather advice on how to build institutions which can manage these inflows.

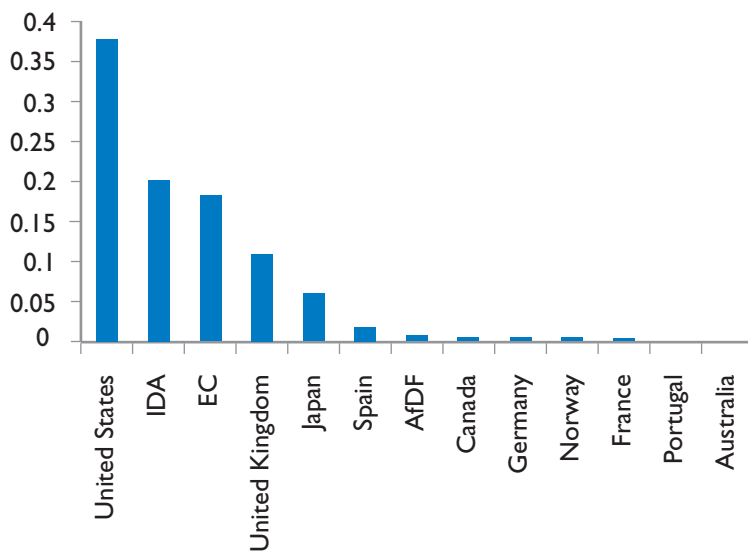
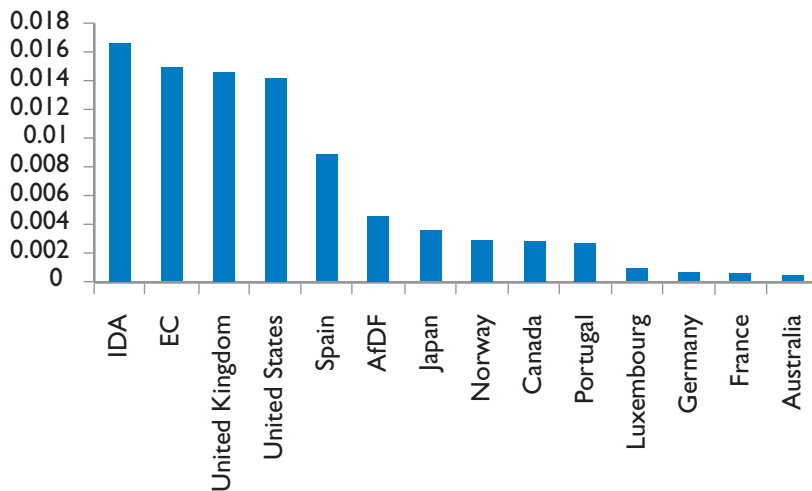
Here, the presence of international institutions can help. Norway is already a major contributor to international development. Chile is only just moving from being a recipient to a donor country, but its successful experience in managing natural resources suggests that its contribution to development in other resource-rich countries can be considerable. These countries are frequently cited as the most successful resource-rich countries, but there are also others which could contribute in a similar way. Canada, Australia, Botswana and Indonesia are other countries that have avoided the “paradox of plenty”. Furthermore, countries such as the United States, the United Kingdom, Brazil, Mexico and the Netherlands all have experience with extractive industries, and could also participate actively.

Current Efforts

For institutions wishing to contribute to global development, it seems clear that the resource curse is a factor to take into consideration, not least because many of the world’s poorest countries are hit by it. Currently, technical assistance to improve natural-resource management and avoid the resource curse has been scarce. Of all OECD DAC (Development Assistance Committee) members, only Japan and Norway explicitly mention energy and mining as a major sector in their development policy, and only Norway has set petroleum management in resource-rich countries as a main priority.

Several donors are, however, carrying out projects related to natural-resource management and international institutions have been active in this regard, although it makes up a very small part of their overall development budgets (Figure 5). These projects involve both support for facilities relating to mining, oil and gas, including environmental protection. This shows that a number of development actors do currently contribute on the development side of the extractive industries and have scope to continue contributing in this field. The increasing awareness over issues related to climate change is also contributing to increasing the importance of commodity issues in the international development community. The continuing shifting wealth of nations, where commodity-rich countries are benefitting from the current high prices, also raises the relevance of such issues.

Figure 5. **Contribution to Oil; Gas, Mining and Minerals**



Source: Authors based on OECD DAC Statistics (2008), Aid purpose categorised as oil and gas, mineral/mining policy and administration management, mineral prospecting and exploration, ferrous metal, non-ferrous metals, precious metals/materials, and off-shore minerals. Average yearly contribution 2000-06.

The above-mentioned aid is varied and includes, for instance, US technical aid to Azerbaijan and capacity building aid to the Azerbaijani oil fund, Japanese aid to mining research in Bolivia, UK technical assistance to the Sierra Leone diamond sector and Canadian support to mining regulation in the Democratic Republic of Congo. Above all, Norway has been particularly active in this area and has made “Oil for Development” one of its priorities in international development policy, on the basis that the country’s own experience makes it better placed to give advice to petroleum-producing countries. This includes co-operation with countries such as Angola, where Norway has been supporting vocational training related to the petroleum industry and technical aid on, for instance, data collection and production measurement in Nigeria, as well as support for the Nigerian EITI. It has also included major involvement in Timor Leste, with capacity building as a key focus, through macroeconomic advice, advice on petroleum taxation and an extensive education programme. Norway has also co-operated with net importers or small exporters where petroleum production is just starting up, such as Uganda, to facilitate development.

International institutions have also contributed actively in mineral- and petroleum-related development aid, in particular the World Bank. An extractive industry related scheme which has also met with substantial interest and attention is the EITI.

Technical Capacity Building

The lessons from Chile and Norway, and their implications for other resource-rich countries, suggest the comeback of technical know-how assistance. While high-income countries have traditionally supported international development through the disbursement of aid, resource-rich countries in many ways represent different challenges from those of resource-poor countries with similar levels of income, and deserve special attention.

The success stories of Chile and Norway show the importance of human capital both to support the growth of linkages and non-resource industries, and to build institutions able to deal with the complex technical details involved in resource extraction. This is also a potential source of growth for poorer resource-rich countries, yet the domestic capacity to improve human capital and strengthen institutional capacity might not be present. Putting such policies into action is difficult for countries that do not have the same starting point in terms of educational level and technical know-how. Yet this is precisely the kind of knowledge possessed

by some of the more successful countries. The suggestions given below, therefore, must not only be seen as indications for policy action by Norway and Chile, but also for other developed or rich emerging countries with experience from extractive industries.

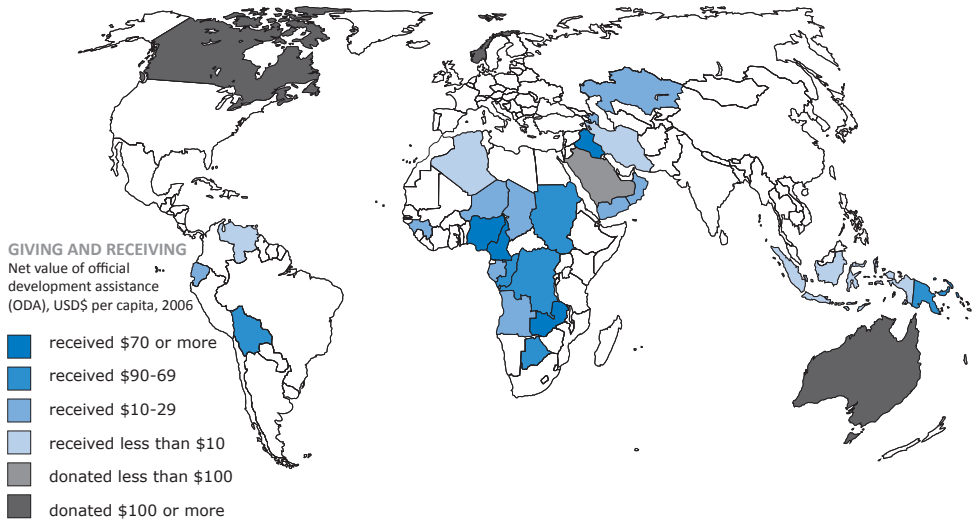
In a number of areas there are very clear learning processes where successful countries can share their experiences and successful regimes, including the civil service, geological and tax (royalty) system capacity, management of overseas funds, implementation of fiscal rules, negotiations with companies, human capacity development in a natural-resource related supplier industry, for instance. Oil and mineral commodity-related endowments might present a different set of challenges. Most of the technical co-operation is focused on oil-related endowments, as in the case of Norway. Copper could be another area where a country such as Chile could deploy its international co-operation. The creation of a World Copper Institute could be a useful value added, with an institution focused on generating technical training in and for other copper-rich countries, helping to generate research and innovation on copper and the related clusters that can range from explosives industries to geological and biological applied research.

Most important of all are policy exchanges and views on how to develop linkages. This can be done through direct aid, not least by stimulating research in the natural-resource-linked (engineering and economic) areas, and helping to develop competence centres in resource-rich countries through exchanges between researchers, businesses and policy makers. These kinds of exchanges have been important in fostering cluster environments both in Chile and Norway, and sharing from this experience and building similar environments could have very positive effects.

Several resource-rich countries receive large inflows of aid per capita, even though many of them also receive large inflows from their natural-resource exports (Figure 6). The goal must be for these countries to be able to use their resource flows directly for development in their own countries, to the extent that the economy is capable of absorbing them.

Altogether, there are several international development efforts geared towards resource-rich countries and extractive industries, though their effects have yet to be seen. Many of these countries are also receiving overall large inflows of aid. At the same time, increased demand for natural resources has also heightened the geopolitical stakes. While this implies that many commodity importers have an interest in stability in these countries, it also means that they are likely to push for quick development, without necessarily the development of linkages and the have been central to the success of Norway and Chile.

Figure 6. Aid Receipts Per Capita in Resource-rich Countries



Source: Authors' calculations based on OECD-DAC Statistics, 2008.

Norway, as seen above, has a wealth of experience and a developed apparatus of international development and finance. It is therefore well placed to give advice both on macroeconomic policy, potential resource-fund management and more technical details and capacity building in the petroleum sector itself. Its intimate knowledge of the petroleum sector allows it both to help develop capacity in other resource-rich countries' public institutions, to share its own experience and to suggest direct policies to develop linkages and on the way to reach an optimal balance between profiting from company payments and attracting foreign investment into the sector.

Much the same also applies to Chile, though some of its experience might be even more pertinent because its own institutional and technical starting point was probably lower than that of Norway, making the Chilean experience closer to that of other resource-rich emerging economies, in particular those where minerals such as copper are present. Chile has itself faced many of the challenges currently experienced by developing countries, including high inequality and poverty, political turmoil, regime change and democratisation, and might be better placed to give advice based on the need to balance growth stimulation with tackling social problems.

Institutions and Governance

The importance of institutional quality suggests efforts in improving governance in resource-rich countries should be increased, and, especially in the international framework for extractive industries, transparency and accountability promoted. The situation in resource-rich countries accentuates the need to focus more directly on governance issues.

Improving institutional quality is a question of institutional design, where technical aid can again be of help, but might also be a question of international decisions. While, ultimately, well-intentioned donor governments are in no position to impose conditions on governments which are already receiving high inflows, they can help adjust the returns to good transparent institutions. They can do so by affecting the international environment through support for and development of initiatives such as the EITI and the OECD guidelines for multinational companies and by giving incentives to and co-operating with their own businesses active in extractive industries.

Institutional capacity and accountability can also be improved through exchanges with successful resource-rich countries, whose experiences have taught them how more easily to shape institutions to promote good governance. This includes measures mentioned above, such as separation of powers between institutions, fuelling all funds through the main budget, increasing transparency and accountability regulations and routines, increasing awareness of public officials and improving meritocratic selection within institutions. Exchanges with countries such as Chile and Norway can therefore be successful, as long as there is real willingness to improve institutions and adopt relevant procedures, and as long as there is an awareness of the different political and economic environments which mean that policies would have to be specifically adapted to the country in question.

However, when there is no real willingness to engage, technical assistance and exchanges would not suffice. The evaluations both of the Norwegian Agency for Development Co-operation's Oil for Development programme and the various World Bank efforts in extractive industries show that support to resource-rich countries whose governments are not willing to improve institutional quality is unlikely to result in success.

Successful resource-rich countries can make invaluable contributions through participating in such institutions and supporting them politically, for several reasons. First, their own experiences mean that they understand

both the institutional and political economy dynamics of resource-rich countries, which would allow them to make informed recommendations to improve international initiatives. Norwegian civil servants, for instance, have in-depth knowledge of the mechanisms of licensing rounds and might be able to suggest ways that international initiatives can try to combat corruption in these rounds. Second, they are major actors internationally, and their support for international institutions such as the EITI might contribute to improving the institutions' political clout. Third, as exemplified by both Norway and Chile, many successful resource-rich countries are themselves home to extractive-industry companies, StatoilHydro and Codelco, for instance, as well as an array of less well-known companies both in extractive and supporting industries. This last point feeds into the third area through which successful resource-rich countries can contribute to development in poorer countries, namely through their knowledge of and contact with extractive companies.

Industry Relations

As has been seen from the above case studies, a good relationship and co-operation with business have been of great importance for both Norway and Chile. Extractive-industry companies, many of them based in donor countries with a history of resource exploitation, can contribute to the laying of the groundwork for development in the countries in which they operate, given the right incentives.

This relationship between corporations and governments is particularly tricky in countries where the government has less capacity to interact and negotiate with the extractive-industry companies and is another area where advice from successful resource-rich countries would be of value. One main problem: technical advice, particularly related to business negotiations, might often conflict with a country's own interest through companies based there. Norwegian StatoilHydro was criticised in the media for becoming too closely involved with the Oil for Development initiative, and it was argued that Sweden might be better qualified to play a role in such an initiative, since it does not have strong state interests in oil-related industries. This is one of the central problems in using development policy to improve the situation for resource-rich countries, but it can be overcome through transparency with business co-operation and by involving several partners in an international initiative.

The three areas considered here, namely technical aid – both in economic and sector specific policy –, support for institutions and governance, and

good relations with the private sector, are three main areas through which successful countries can help contribute to development in other resource-rich countries. The list is not exhaustive and other lines of development support can be envisaged: supporting non-resource investment in these countries, supporting credit rating agencies' work, spreading knowledge and giving investment credits, as well as opening markets to industrial trade from these countries.

Conclusion

The current boom in oil and mineral prices has caused concern primarily in countries importing these products, yet as this paper shows that concern should also be shared by the exporting countries. While large revenue inflows can certainly help contribute to development, past experiences with the "paradox of plenty" have shown that mineral and fuel wealth can often represent a curse rather than a blessing. A vast literature has considered this surprising fact, and the overall conclusions tend to suggest that the countries that need development the most are also the hardest hit, i.e. those that have weak and unreliable public- and private-sector institutions and high social fragmentation.

While the general trends have suggested that countries are better off without natural resources, there are some examples to the contrary. Norway and Chile are two of these. Not only have they seen continued broad growth coupled with soaring income from extractive natural resources, they have also performed better than comparable neighbouring countries and have seen vast improvements in living standards.

Studying their economic development over the past four decades provides some good indications as to what policies have been successful. Responsible macroeconomic, and particularly fiscal, policy, rapid payment of external debt and subsequent build-up of resource funds, investment in human capital development and strong incentives for technical spillovers and broad industrial development have all been part of the package. In fact, the experiences of Norway and Chile include decisive government action to develop natural-resource related industries, sometimes with more state involvement than has been recommended in the literature. The clear underlying factor, however, is the quality of their institutions, something stressed in other OECD Development Centre studies too (see for example Arndt and Oman, 2006), which has allowed both the implementation of these policies and has prevented rent-seeking activities from prevailing and crowding out productive parts of the economy.

The experiences of Norway and Chile have some important lessons for other resource-rich countries. Fiscal prudence, productive investment in human capital, infrastructure and innovation, separation of powers, and adherence to transparency and accountability appear to point the way forward. However, not all countries are as well equipped when it comes to governance indicators and strong independent institutions. Beyond the choice of policies, therefore, the case studies of Norway and Chile underline the importance of institution building: being able to rely on incorruptible and well-informed civil servants and a functioning and fair justice system, for instance, are key to the flourishing of entrepreneurship and thus diversification of the economy.

Yet institution-building itself might be beyond the immediate capacity of a country currently faced with high resource revenues. There is therefore a clear role for the international development community, since some of these countries are also some of the world's least developed, and – if the paradox of plenty persists – their development challenges might be even larger in the future. Aid, in the traditional sense, is not the solution, because these countries have large flows coming in, especially after the natural-resource income has started arriving. It is, rather, a question of technical support and capacity building, support of international anti-corruption mechanisms and imposing transparency and legal demands on their own companies which can help the poorer resource-rich countries develop. This is an opportunity both for countries such as Norway – with an already extensive development co-operation history – and for emerging donors, such as Chile, whose experience might be closer to that of other emerging and developing countries, and which might well be able to transfer vital technical knowledge to its co-operation partners.

Oil and mineral commodity-related endowments might present a different set of challenges. Most of the technical co-operation is focused on oil related endowments, as in the case of Norway. Copper might be another sector where a country such as Chile could deploy its international co-operation. The creation of a World Copper Institute could be a useful value added, with an institution focused on generating technical training in and for other copper-rich countries, helping to generate research and innovation on copper and the related clusters that can range from explosives industries to geological and biological applied research.

Notes

1. Gøril Havro is an economist at the Central Bank of Norway. While working on this paper she was an economist at the OECD Development Centre in the OECD Emerging Markets Network (EmNet) unit.
2. Javier Santiso is Director and Chief Economist of the OECD Development Centre. He is also the chair of the OECD Emerging Markets Network (EmNet). Contact: Javier.Santiso@oecd.org
3. The paper focuses on extractive industries, as these types of commodity exploitation have been most clearly affected by the natural resource curse (Isham *et al.*, 2005).
4. The Herfindahl-Hirschman concentration index is constructed to measure the sum of market shares in total exports: 0 implies an atomistic market, while high values imply specialisation (OECD Development Centre calculations, 2007).
5. Of the countries that have higher specialisation than the African average, only Guinea Bissau, Burkina Faso, Mali and Malawi are specialised in a product not pertaining to an extractive industry (OECD/AfDB, 2008).

References

- ARNDT, C. AND C. OMAN (2006), *Uses and Abuses of Governance Indicators*, OECD, Paris.
- BOSCHINI, A., J. PETTERSSON AND J. ROINE (2007), "Resource Curse or Not: A Question of Appropriability", *Scandinavian Journal of Economics*, vol. 109 (3), pp. 593-617.
- BOULHOL, H., A. DE SERRES AND M. MOLNAR (2008), "The contribution of economic geography to GDP per capita", OECD Economics Department Working Paper, 602, April.
- Collier, P. (2007), "Managing commodity booms: Lessons of international experience", Paper prepared for the African Economic Research Consortium, Department of Economics, University of Oxford <http://users.ox.ac.uk/~econpco/research/pdfs/ManagingCommodityBooms.pdf>.
- COLLIER, P. AND B. GODERIS (2007a), "Commodity prices, growth and the natural resource curse: reconciling a conundrum", Department of Economics, University of Oxford <http://www.csaee.ox.ac.uk/workingpapers/pdfs/2007-15text.pdf>.
- COLLIER, P. AND B. GODERIS (2007b), "Prospects for Commodity Exporters: Hunky Dory or Humpty Dumpty?", Department of Economics, Oxford University.
- CORDEN, W.M. AND J.P. NEARY (1982), "Booming Sector and De-industrialisation in a Small Open Economy", *The Economic Journal*, vol. 92 (368), pp. 825-848.
- DE MELLO, L. (2008), "Managing Chile's Macro-economy During and After the Copper Price Boom", OECD Economics Department *Working Paper*, 605.
- ISHAM, J., M. WOOLCOCK, L.H. PRITCHETT AND G. BUSBY (2005), "The Varieties of the Resource Experience: Natural Resource Export Structures and the Political Economy of Economic Growth", *World Bank Economic Review*, 19 (2), pp. 141-74.
- KARL, T.L. (2007), "Oil-Led Development: Social, Political and Economic Consequences", Center on Democracy, Development and the Rule of Law, *Working Paper*, Stanford University.
- KARL, T.L. (1997), *The Paradox of Plenty: Oil Booms and Petro-States*, University of California Press, Palo Alto.

- LARSEN, R. (2004), "Escaping the Resource Curse and the Dutch Disease? When and Why Norway Caught up with and Forged ahead of Its Neighbors", *Discussion Papers 377*, Research Department of Statistics Norway, Oslo.
- OECD (2007), *Latin American Economic Outlook 2008*, OECD Development Centre Studies, Paris.
- OECD/AfDB – OECD Development Centre and African Development Bank (2008), *African Economic Outlook*, Paris and Tunis, OECD and AfDB.
- OECD (2007a), *Economic Survey of Norway*, Paris
- OECD (2007b), *Economic Survey of Chile*, Paris.
- OECD (2007c), *OECD Reviews of Innovation Policy – Chile*, Paris.
- OECD (2003), *Economic Survey of Chile*, Paris.
- QURESHI, M. (2008), "Africa's Oil Abundance and External Competitiveness: Do Institutions Matter?"? *IMF Working Paper*, WP/08/172.
- SANTISO, J. (2006), *Latin America's Political Economy: Beyond Good Revolutionaries and Free Marketeers*, MIT Press, Cambridge, Mass.
- REISEN, H. (2008), "How to Spend it: Commodity and Non Commodity Sovereign Wealth Funds", Deutsche Bank Research, *Working Paper Series*, Research Notes 28.
- WTO (2007), *International Trade Statistics*.

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