



European Bank
for Reconstruction and Development

Managing Mongolia's resource boom

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Summary

With two very large mining projects expected to reach full production this decade, Mongolia is entering a commodity boom. History teaches us that commodity revenues offer unique opportunities for development but can also depress long-term economic prospects by increasing macroeconomic volatility, reducing incentives to invest in physical and human capital and undermining economic and political institutions. This paper surveys what Mongolia can do, building on reform steps it has already taken, to avoid a "resource trap". It argues that (i) cash transfers to the general population should be linked directly to the performance of the underlying mining assets to create a domestic constituency for good governance in the mining sector; (ii) social spending should be de-linked from resource revenues, better targeted and fully incorporated into the budget; (iii) macroeconomic volatility could be reduced by operationalising the fiscal stabilisation fund, issuing GDP-indexed debt instruments, and through financial sector reforms; and (iv) major infrastructure and industrial development projects should seek private sector co-investments to ensure that public money is well spent.

Keywords: natural resources, economic boom, institutions, financial development

JEL Classification Number: Q32, Q33, O10, O16

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| The findings, interpretations and conclusions expressed in this paper are those of the authors and do not reflect the official position of the organisations the authors belong to. |
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1. Introduction

Mongolia has been experiencing a large-scale commodity boom. Until recently Mongolia had remained a relatively small, landlocked, low-income economy, with a population of 2.7 million, per capita GDP of around US\$ 1,500 in 2009, and total GDP of US\$ 4.2 billion in that year. Mongolia's development potential, however, is enormous, linked primarily to two large mining development projects.

Oyu Tolgoi (OT) is a large copper and gold deposit in the South Gobi desert, approximately 80 km north of the border with China. It is estimated to hold over 35 million tonnes of copper and 1,275 tonnes of gold. Production is expected to start in 2013 and reach full capacity by 2017-18, supplying 450,000 tonnes of copper a year, close to 3 per cent of the world output. Launch of production is estimated to require investment of over US\$ 4 billion, rising to US\$ 18.6 billion over the lifetime of the mine, three times Mongolia's 2010 GDP of US\$ 6.1 billion (BAEconomics, 2011). In October 2009 the government of Mongolia signed an investment agreement for the development of OT with Canada-based miner Ivanhoe Mines backed by Anglo-Australian mining giant, Rio Tinto.

Tavan Tolgoi (TT) is estimated to hold reserves of over 6 billion tonnes of coal. It is also in the South Gobi, approximately 240 km north of the border with China and 150 kms away from OT. The field has been in operation since 1967 but the volumes have remained relatively modest. To fully develop the deposit the government launched a tender for the right to operate the West Tsankhi block, expected to be completed by mid-2012. The East Tsankhi block is expected to be developed by Erdenes TT, a state-owned mining company. TT development envisages near-term investment of around 100 per cent of 2010 GDP, with coal production increasing substantially from 2013, subject to availability of transport to ship coal to customers.

These investment projects present a unique development opportunity for the Mongolian economy as a whole. In 2010 alone, net inward foreign direct investment (FDI) reached 25 per cent of GDP. Although GDP growth was moderate in real terms (around 6.5 per cent), it reached 30 per cent in per capita dollar terms.

At the same time, the mining boom presents large policy challenges. Some of them are common to countries experiencing commodity booms. The key challenge is to sustain the growth momentum over the long term. Here past experiences of resource-rich countries are very mixed – in fact, they tell a cautionary tale. Numerous studies found that over the long term, resource-rich countries tend to underperform compared with resource-poor countries with similar initial income levels and other characteristics (for example, Sachs and Warner, 1997a, b, 2001; Auty, 2001). Auty (1993) called this tendency a “resource curse” highlighting the fact that abundance of mineral resources may impede rather than foster economic development.

Other challenges are more specific to Mongolia. In particular, development of mining depends crucially on large-scale investment in infrastructure, including transport, power supply and water supply. This is a particular challenge in a landlocked country where distances are vast and, Greenland apart, the population density is the lowest in the world. To date, Mongolia has a relatively rudimentary road network and only one major railway line running from Ulan Ude in Russia to Beijing. Without fundamental upgrades to infrastructure Mongolia will not be in a position to export large quantities

of copper and coal. In addition, infrastructure will obviously also benefit the non-mining economy.

This paper examines the policy problems faced by Mongolia in managing the current commodity boom to achieve sustainable, inclusive and rapid economic growth over the long term. It provides a brief survey of macroeconomic, structural and institutional aspects of commodity-based development, reviews recent Mongolian policy initiatives to manage its resource boom, and suggests some options for modifying or complementing these policies to make them more effective.

Many problems touched on in the paper, such as the link between resource abundance and economic institutions, or the effectiveness of policies aimed at counteracting the Dutch disease, are complex and much debated in the literature. While this paper sketches some possible solutions in the context of Mongolia, it does not pretend to have all the answers. Its main purpose is to raise the questions and provide some international background that will hopefully benefit the debate on Mongolia's evolving policy challenges, particularly within Mongolia.

2. Resource abundance and economic growth

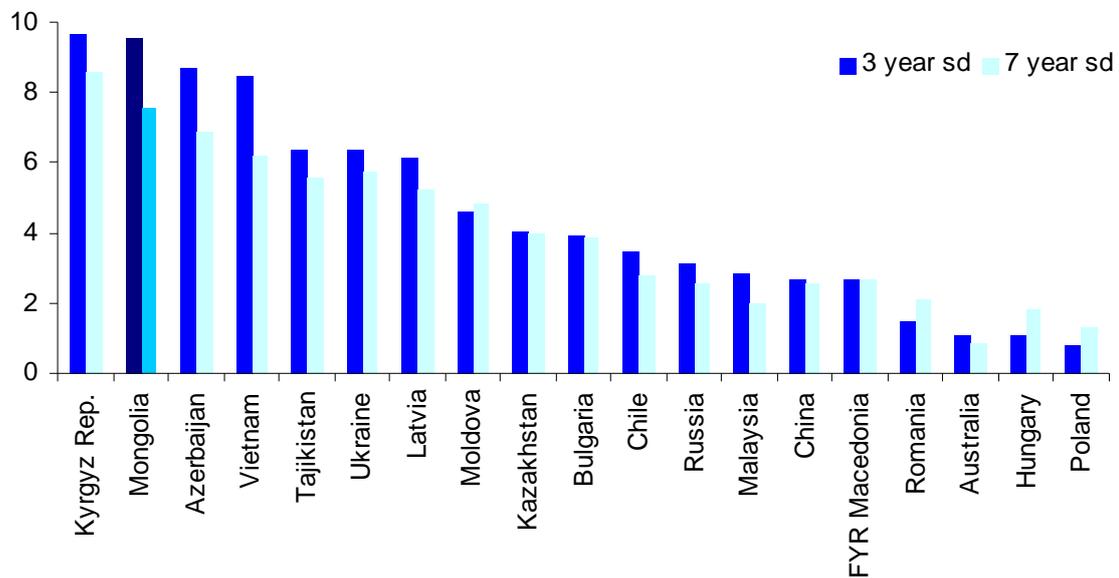
Apart from attracting investment in the natural resources and related sectors, a commodity boom has the potential to help a country to break out of an “underdevelopment trap”. Investment in one sector typically influences demand for products from other sectors. If investing in a new technology and skills is associated with high costs, the economy may remain stuck in a state of low investment and low productivity across all sectors (Murphy, Shleifer and Vishny, 1989). When the level of GDP is low relative to the cost of technologies, even high relative rates of investment – around 32 per cent of GDP on average over the past decade in Mongolia – may not be sufficient to break out of the underdevelopment trap. Commodity revenues could give an economy the impetus it needs to finance a coordinated investment effort.

However, resource abundance may also discourage productive investment and on balance suppress growth in the long run. Potential disincentives to investment leading to a resource curse may stem from macroeconomic volatility, an associated lack of investment and skill-building in the manufacturing sector, and weakening of economic and political institutions (see Guriev, Plekhanov and Sonin, 2009, for a broader discussion).

2.1. Macroeconomic volatility and structural shifts

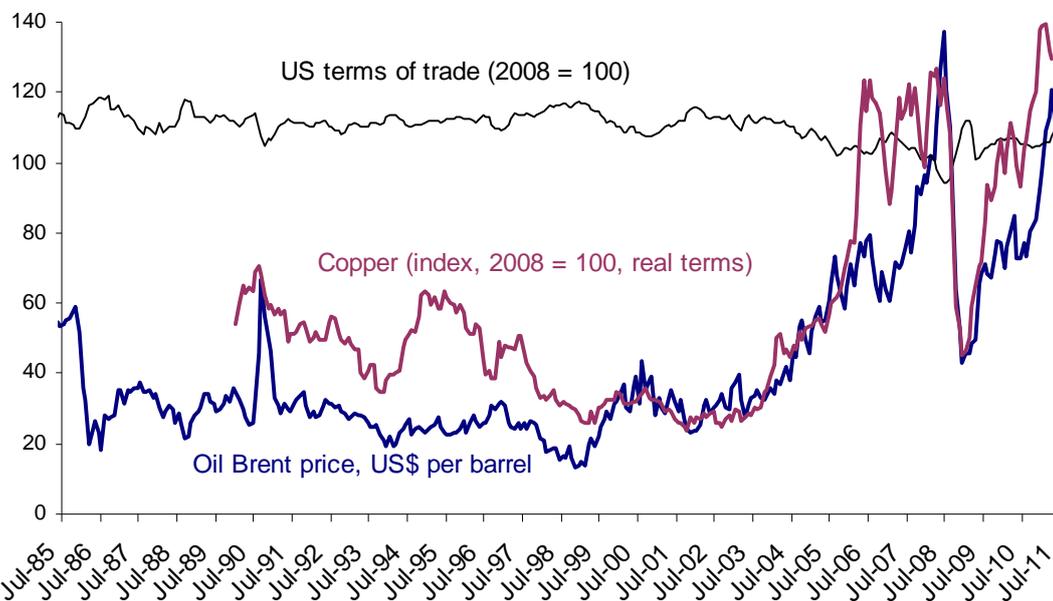
Commodity dependence typically brings about macroeconomic volatility, as the economy experiences explosive booms when commodity prices are high followed by sudden busts when prices drop. For Mongolia macroeconomic volatility is a particular concern for two reasons. First, even before the current mining boom started gaining full momentum, Mongolia was characterised by very high inflation volatility – one of the highest among the countries of emerging Europe and central Asia (Chart 1). Second, while the price of oil – the most important natural resource world-wide – has been very volatile both in recent years and historically, the price of copper, the key Mongolian export, has been much more volatile still. This is evident from Chart 2, which plots the trajectories of prices of oil and copper against terms of trade of a large diversified economy, the United States.

Chart 1
Inflation volatility in selected countries



Sources: IMF, Reserve Bank of Australia, EBRD calculations, based on monthly data for the period ending June 2011. Quarterly data for Australia.

Chart 2
Oil and copper prices



Sources: Bloomberg, IMF, EBRD calculations. Prices adjusted using US CPI.

Macroeconomic volatility makes the outcomes of investment in physical capital and in human capital (education) highly uncertain. Some of these risks could be hedged in the financial markets (for example by making debt payments contingent on prices of copper and coal or GDP growth). However, when financial markets are not developed

investors may find hedges unavailable or too costly. Indeed, terms of trade volatility was found to negatively affect investment and growth (Aghion and others, 2006). A particular type of long-term investment that often suffers in resource-rich countries is investment in education (Gylfason, 2001; Stijns, 2006). Furthermore, macroeconomic volatility impedes the development of the financial system, with a further negative impact on investment (EBRD, 2010).

Natural resource booms may also lead to structural shifts in the economy by suppressing activity in the manufacturing sector – a so-called “Dutch disease” (a term first coined by the *Economist* to refer to the experience of the Netherlands after the discovery of oil and gas in the North Sea in 1959). During a commodity boom rising inflows lead to higher demand for non-tradables (such as services and construction). Rising demand for non-tradables pushes up their prices and hence the real effective exchange rate appreciates (either by way of nominal appreciation or due to consistently high inflation). This results in an increase in labour costs across all industries as wages in the tradables and non-tradables sectors equalise. Thus resource booms can negatively affect competitiveness of the tradables sectors (non-resource manufacturing and agriculture) and change composition of output by raising the share of non-tradables in the total output and employment. Changes in skills mix and underinvestment in technologies make it difficult for the economy to regain competitiveness in these sectors when prices or volumes of natural resource exports decline and the real effective exchange rate depreciates.

The Dutch disease as such may currently be less of a concern for Mongolia given the relatively modest size of the manufacturing sector prior to the mining boom – in 2009 it accounted for around 4 per cent of GDP and 6 per cent of employment, approximately half of it in food processing. However, specialisation in natural resources will make it more difficult to develop non-resource sectors, while diversification of the economy is associated with certain benefits, discussed below.

2.2. Inequality and institutions

Resource dependence typically leads to economic inequality, as commodity rents (that is, revenues net of extraction costs) accrue to a relatively small portion of the population. High inequality may, in turn, negatively affect development prospects as talented people have little or no access to education and capital. High inequality may also undermine social cohesion and increase the likelihood of civil unrest (Ross, 2006). It may increase pressure to focus government policies on redistribution at the expense of growth (Persson and Tabellini, 2000). The trend towards higher inequality is clearly an issue in Mongolia, which historically had relatively moderate inequality levels (Gini coefficient of 32.8 in 2002, increasing to 36.6 per cent by 2008).

Resource abundance also often leads to a weakening of economic institutions, as strong institutions make it difficult to appropriate commodity rents (for example, Tornell and Lane, 1999). With weak institutions, such as property rights or courts of law, economic agents face very high transaction costs or fear arbitrary expropriation and do not have the right incentives to invest or innovate. This suppresses growth, in particular in the non-resource sectors. There is empirical evidence that commodity dependence has adverse effects on property rights (Guriev, Kolotilin and Sonin, 2011), media freedom (Egorov, Guriev and Sonin, 2009), democratic institutions (Ross, 2001), and the business environment for medium-sized businesses in the non-resource

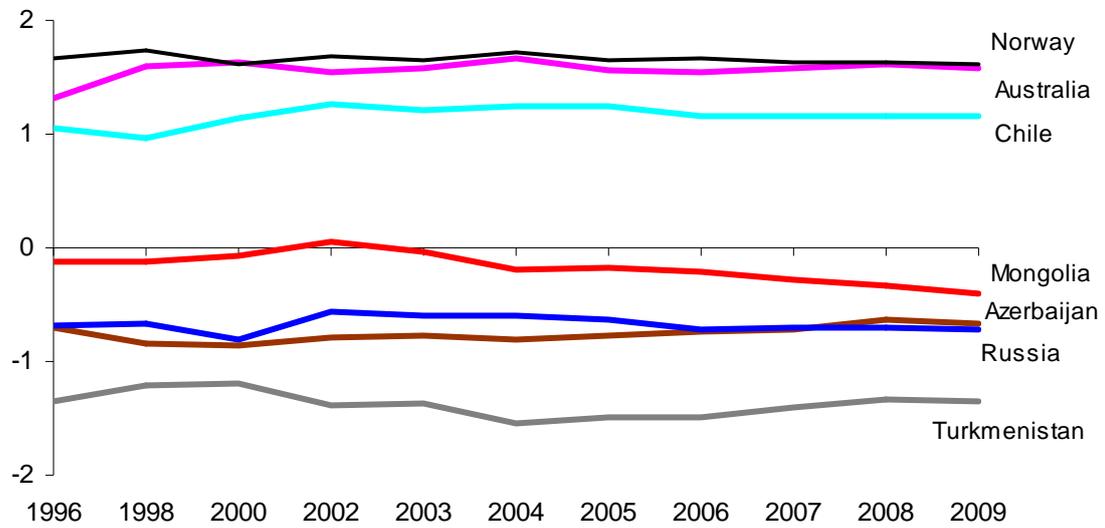
sectors (Amin and Djankov, 2009). Weak institutions also further exacerbate inequality by concentrating resource revenues in fewer hands. This in turn entrenches the interests of the beneficiaries of resource revenues to keep institutions weak. In addition, abundance of resources largely removes the need to raise revenue from cost-sensitive industries in tradable sectors, such as manufacturing and agriculture, and may thus relax government discipline in terms of efficiency of public spending and quality of public services (Karl, 1997).

At the same time, international experience suggests that the effect of resource abundance depends crucially on the initial quality of economic and political institutions (Mehlum, Moene and Torvik, 2006). In countries where institutions are insufficiently strong they further deteriorate under the “pressure” of commodity rents, while countries with initially strong institutions, like Norway or Australia, are more likely to be able to develop frameworks for dealing with natural resource wealth, which both support growth and protect institutions. Commodity-rich countries with weak institutions may thus get into an “institutional trap” characterised by a vicious circle of weak institutions and non-existent incentives to improve them.

Mongolia is perhaps near the border line. It has entered the resource boom with relatively strong institutions, as measured for example by World Bank Governance Index (WBGI, Chart 3) – scoring well above resource-rich countries in the former Soviet Union. By the same measure, however, its institutions remain much weaker than those of advanced resource-rich economies such as Norway and Australia, as well as those of Chile. While Mongolia enjoys a multi-party democracy, a free press and a vibrant network of non-governmental organisations, the WBGI has been gradually declining since 2002. This has been due particularly to a deterioration of the corruption sub-index. Assessments of the rule of law, political stability and effectiveness of government have also been downgraded in recent years, suggesting that Mongolia may not be immune to the institutional resource curse. As the resource boom gains momentum, Mongolia’s most important challenge will be to reverse this trend and further improve the quality of its economic and political institutions.

Chart 3

World Bank Governance Index



Source: World Bank Governance Indicators, 2009. An average of 6 components: voice and accountability; political stability; government effectiveness; regulatory quality; rule of law; and control of corruption. Higher values correspond to better institutions.

3. Recent policy initiatives

Based on the discussion so far, Mongolia's resource wealth raises three main policy challenges.

The first is to develop the natural resource sector itself, by attracting the necessary expertise and providing the required infrastructure. The existing stock of infrastructure assets in Mongolia is particularly low – it scored 118th out of 142 countries in terms of infrastructure quality according to the Global Competitiveness Report 2011-12, well behind other developing countries with a large mining sector such as Chile (ranked 41st), Indonesia (ranked 76th), Peru (ranked 88th), and Botswana (ranked 92nd). Upgrades are needed to railways, roads, customs infrastructure, water supply and power supply.

The second challenge is to contain the impact of natural resource production on macroeconomic volatility and to ensure that mining development does not crowd out development in other sectors of the economy.

The third challenge is to preserve, and improve, Mongolia's relatively good institutions. This requires making the management and distribution of natural resources as transparent and accountable as possible and mitigating the rise of income inequality.

The remainder of this section reviews recent policy initiatives in Mongolia in these areas in light of international experience in commodity-rich countries. The next section presents some ideas on how these could be further improved and complemented.

3.1. Infrastructure

To address the need for rapid infrastructure development Mongolia adopted a state policy on public-private partnerships (PPPs) in October 2009, a law on concessions in January 2010, and a railway policy in July 2010; and in early 2011 created a state-owned development bank with a mandate to finance development projects. The Bank employs managers with previous international experience. Debt issuance of the development bank is guaranteed by the government, initially to the tune of 10 per cent of GDP, with perhaps another 20 per cent of GDP in 2012.¹

These are important legal and institutional steps. One problem that they do not address, however, is the sheer volume of infrastructure investment required to support mining development and development of related manufacturing – primarily railways, roads, power plants and water supply. While this investment is affordable relative to prospective mining revenues, it is very expensive relative to Mongolia's GDP, not least due to very low density of population and low initial stock of infrastructure assets. For instance, the cost of the proposed 1,100 km railway link from Tavan Tolgoi to Choibalsan via Sainshand is estimated at over US\$ 3 billion, or half of the 2010 GDP. If financed by government-guaranteed debt, it will result in very large

¹ In addition to infrastructure projects, the development bank is also supposed to focus on social housing programmes, with the view to promote broad redistribution of mining benefits.

sovereign contingent liabilities. This argues for exploring more actively private sector participation in infrastructure, including through PPPs.

The case for private sector infrastructure investment in Mongolia is strong, not just because this would help the government shoulder the enormous financial burden associated with infrastructure investment, but because two common arguments in favour of government provision of infrastructure apply to a much lesser extent in Mongolia's case.

- Governments often enjoy a lower cost of funding compared with the private sector. However, this may not be true for the Mongolian government compared with the international mining companies, particularly if the government takes on high levels of debt.
- Lack of predictability of demand for infrastructure assets, such as toll roads, can imply that PPP arrangements ultimately result in high contingent liabilities for the government. However, this risk is substantially reduced in the case of Mongolia, since infrastructure in question will primarily serve two large mining projects. It is hence best internalised by the mining companies.

It should be acknowledged that governments may have specific preferences regarding standards or topography of infrastructure networks, which may reduce attractiveness of infrastructure projects to the private sector. A particular complication is the fact that Mongolian railways use the wide (Russian) gauge while bordering China, the key export market for Mongolian minerals, uses the narrow gauge. In addition, a rail link to Sainshand (and further east) will give a theoretical opportunity to ship resources into or through Russia while the cheaper, shorter southbound routes to China do not have this advantage. Hence the cost and benefits of various options need to be carefully weighed taking into account additional advantages of private sector involvement in infrastructure provision. Over time, resources permitting, the government could take a more active part in infrastructure provision and financing.

3.2. Cash transfer mechanisms

To help preserve and increase transparency of natural resource management, in 2006 Mongolia signed up to the Extractive Industries Transparency Initiative (EITI) and in October 2010 it became the fourth country to achieve full compliance status, together with Ghana, joining Azerbaijan, Liberia, and Timor-Leste.

To counteract rising inequality and distribute the benefits of the mining boom more widely, the Human Development Fund (HDF) was set up in November 2009 following completion of the OT negotiations. The fund envisages cash handouts, payment of tuition fees and possibly financing of other social benefits (Box 1). The initial contribution to the fund came from a negotiated prepayment of OT royalties. In February 2010 every citizen received a cash handout of MNT 70,000 (equivalent to about US\$ 50), followed by smaller instalments totalling another MNT 50,000 in that year. Earlier public promises were made by key political parties to make total cash transfers of MNT 1.5 million per capita (US\$ 1,200). In 2011 monthly cash handouts were sustained at MNT 21,000 (around US\$ 15), and approximately a quarter of this amount was additionally disbursed as tuition fee support, leading to projected annual spending of around US\$580 million (almost 10 per cent of 2010 GDP).

Box 1: Human Development Fund

During the previous election campaign the leading parties made promises to pay every citizen between MNT 1 million and MNT 1.5 million (around US\$ 1,200) from the prospective mining riches. To fund these promises, the 2009 Oyu Tolgoi investment agreement included frontloaded payment of future mining royalties by Ivanhoe Mines, the private investor. These payments were channelled to the specially created Human Development Fund, a general vehicle for redistribution of mining wealth and social spending.

By law, the Human Development Fund is financed from mining dividends pertaining to the state and an (unspecified) part of royalty payments to the budget. The funds can be used for cash handouts to all citizens, as well as for payments linked to pensions, health care, education and housing. The law does not contain explicit provisions determining the size of payments from the Fund. The revenues and expenditures of the Fund are approved annually as part of the general budget process.

In addition, Article 8 of the law contains a somewhat vague indication that every Mongolian may hold non-tradable preference shares in a state-owned legal entity, which holds strategic mining licences. The law leaves open to interpretation the exact relationship between such a holding and the Human Development Fund.

As of the end of 2011, the undisbursed portion of the pre-electoral promise (net of the payments made in 2010 and 2011) amounted to around 25 per cent of the projected 2012 GDP.

The general idea that a portion of natural resource revenues should be transferred on an ongoing basis to the population, rather than spent or saved by the government, is sound. In a resource-rich economy, unconditional cash transfers can be a legitimate tool that offsets the inherent trend towards a more concentrated income distribution, and hence helps to break the vicious circle through which institutions are kept weak. Experiences in other countries (most notably, in Alaska, see Goldsmith (2002, 2010) and Annex 1) show that cash transfers can in principle contribute to reducing inequality and achieving a more even distribution of natural resource wealth.

At the same time, cash transfers could have undesirable side-effects, particularly a reduction in work incentives. If individuals receive a basic income without having to work, the wages that they will need to be paid in order to persuade them to take a job – including in the non-resource sector – may need to be higher than if they do not. This would reduce the competitiveness of the non-resource sector. Hence, cash transfers could become a channel for the Dutch disease, undermining efforts to diversify the economy.

The economic evidence on disincentives effects of cash transfers in other countries is mixed (Box 2). It suggests that the effects depend on the size of the transfer, on whether the transfer is means-tested or linked to unemployment or not, and on whether transfers can help alleviate problems such as lack of access to credit or education. Transfers are unlikely to create disincentives to work, and may in fact increase the labour supply if they (i) are not conditional on income or employment status (so taking up employment is not “taxed” by a reduction in the transfer); (ii) are not too large in size, in the sense that they make poor individuals less poor but not

rich; and (iii) benefit people that would otherwise find it difficult to acquire skills or set up a business.

Box 2: Incentive effects of cash transfers

Cash transfers may in principle have a negative impact on labour supply, as they may increase the wage at which individuals are willing to work and create a culture of dependence on benefits (for example see Moffitt (1992) for a review). Such disincentives can be particularly strong in the case of means-tested or unemployment-linked transfers, as the marginal return to labour is much diminished if employment, or better-paid employment, is associated with a loss of benefit; but they could also be significant in the case of general transfers.

Indeed, some studies find such adverse effects in developing countries. For instance, Bertrand, Miller and Mullainathan (2003) argue that introduction of large pension transfers in South Africa (equal to around two times the average income of Africans) led to a decrease in labour participation of adult men from the extended families of the recipients. Funkhouser (1992) and a number of subsequent studies find that remittances from abroad are associated with lower supply of labour by their recipients, although these studies cannot fully rule out an alternative “safety net” interpretation of this finding, whereby higher remittances get sent to relatives who are unemployed.

On the other hand, many studies find neutral, or in fact positive, effects of cash transfers on labour participation. For instance, using the same data for South Africa and accounting for migration out of households, Posel, Fairburn and Lund (2006) find that provision of generous old-age pensions, if anything, increased labour force participation of adult women and had no systematic impact on male employment. Skoufias and Di Maro (2008) find no adverse effects in the case of *Progresa* cash transfers in Mexico, which on average amounted to 20 per cent of pre-programme consumption (and were conditional on school enrolment and participation in preventive health care). Alzua, Cruces and Ripani (2010) report similar findings for a number of other programmes in Latin America, with only a small adverse effect on labour participation in Nicaragua and a positive effect on participants’ wages in Mexico.

A positive effect of cash transfers on labour supply may arise through a number of channels. Social transfers help the poor workers to invest in more productive job searches, including by moving out of an extended household and migrating in pursuit of better jobs (see Ardington, Case and Hosegood (2008) for evidence for South Africa). Transfers can also enable workers to invest in skills, or set up one’s own small business (see De Mel, McKenzie and Woodruff (2008) for evidence for Sri Lanka and Sadoulet, de Janvry and Davis (2001) for Mexico). They also help the poorest to forego the worst forms of labour that they would otherwise engage in out of desperation (Wittenberg, 2002).

In Alaska, only one per cent of respondents of a survey conducted shortly after the launch of the Permanent Fund Dividend scheme reported that they started working less because of the dividend (Knapp and others, 1984).

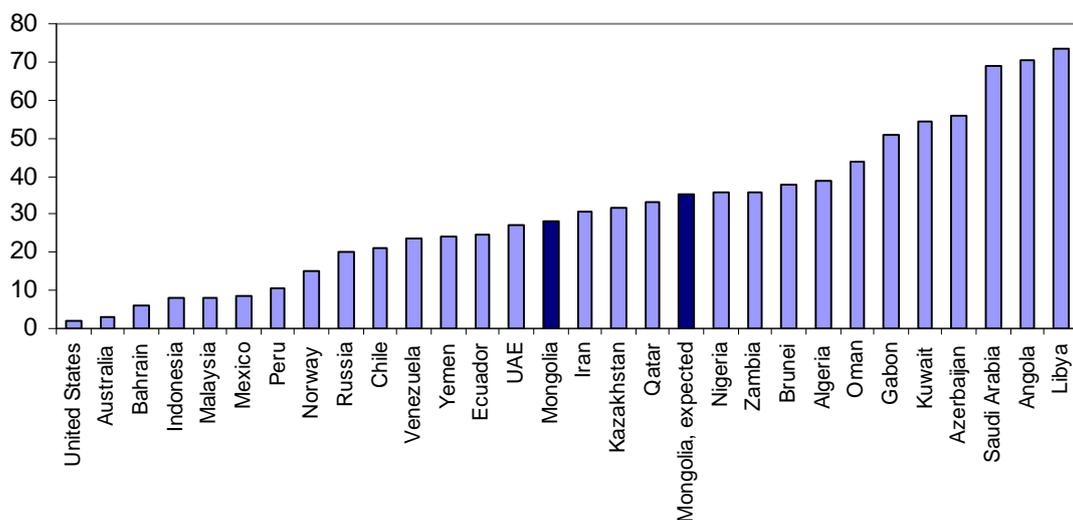
Another common criticism of untargeted (universal) transfer programmes is that they may in some cases have regressive distributional effects. This is particularly true for in-kind transfers such as fuel subsidies, as the rich consume higher quantities of fuel, but may also be true if universal cash transfers are financed through regressive taxes, such as consumption taxes (Coady and Harris, 2004). Cash transfers financed by mining dividends avoid both of these problems.

The only form of avoiding any distortion from mining revenues that might harm incentives and growth is to save them. But apart from the fact that this also means

foregoing potential growth benefits – for example, in the form of better infrastructure, more individual investment opportunities and better access to education – this “solution” to the resource curse is unlikely to be feasible in a poor democratic country such as Mongolia (or, indeed, fair to the current, poor generation). Mongolia’s prospective mining revenues as a share of GDP put it on a par with several Gulf economies (Chart 4). They are also considerable in per capita terms, where Mongolia’s mining output is expected to reach the level of Chile (Chart 5). These magnitudes of mining income call for a combination of savings and redistribution mechanisms, which could include cash transfers.

Chart 4

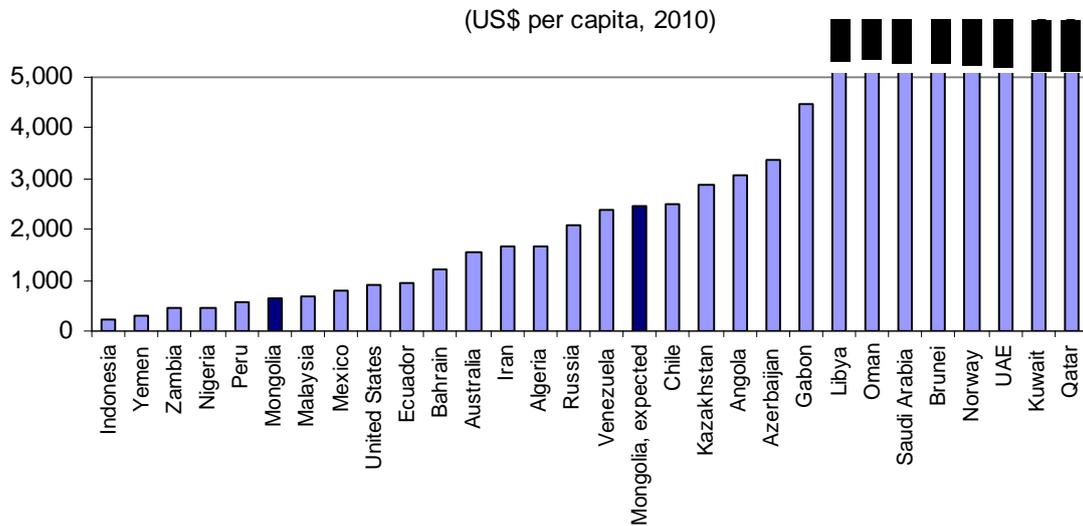
Value of key produced commodities in per cent of GDP



Sources: US Energy Information Administration, US Geological Survey, IMF, Bloomberg, BMI, and authors' calculations. Commodities are valued at international prices. Selected key commodities for each country, including oil, copper, coal, gold. Based on 2010 data. For expected share in Mongolia, IMF WEO 2015 forecast is used.

Chart 5

Value of key produced commodities per capita



Sources: US Energy Information Administration, US Geological Survey, IMF, Bloomberg, BMI, and authors' calculations. Commodities are valued at international prices. Selected key commodities for each country, including oil, copper, coal, gold.

To conclude, there is little doubt that cash transfers have a place in the distribution of future mining revenues in Mongolia. At the same time, however, the current cash transfer arrangement in Mongolia has a number of pitfalls and disadvantages.

First, unlike in Alaska, the transfers are delinked from the performance of the underlying mining assets and frontloaded (neither OT nor TT currently generate 10 per cent of GDP in government revenues needed to fund the transfers). As a result, they do not necessarily contribute to the sense of ownership of these assets by the population or to the scrutiny of revenue management. The latter could be enhanced if cash transfers were clearly linked to the performance of the mining projects themselves.

Second, generous transfers can prove unsustainable if commodity prices decline and investments are delayed. By contrast, Alaskan model (Annex 1) provides for both cash transfers and a sustained increase in the assets of the sovereign wealth fund.

Third, cash handouts contribute to inflationary pressures and overheating in an economy with so far weak absorption capacity. For instance, the first cash transfer in February 2010 – made against the background of a very cold winter, which resulted in major loss of livestock – arguably contributed to a marked acceleration in inflation, from 6 per cent to around 12 per cent. Such inflationary side-effects may have sharply negative distributional consequences as they reduce the purchasing power of recipients' other income and disproportionately affect the poor who tend to spend a higher portion of their income on food and other basic goods, the prices of which rise most as a result of transfers.

Lastly, cash transfers treat the symptoms but do not necessarily address the deeper causes of inequality, in particular divergence in skills in a rapidly changing economic environment, as Mongolia undergoes a rapid transformation from a largely

agricultural to commodity and services-based economy with new sectors growing fast around the mining industry. While primary and secondary education enrolment rates in Mongolia have been relatively high and growing (reaching 92 per cent in 2009) public spending on education has been declining rapidly as a share of GDP from 7.9 in 2002 to 5.6 per cent of GDP in 2009. This trend will need to be reversed in light of significant infrastructure requirements in education, the need to better align technical and vocational training to market demands, and the challenge of improving the quality of education services in the rural areas (see ADB, 2008).

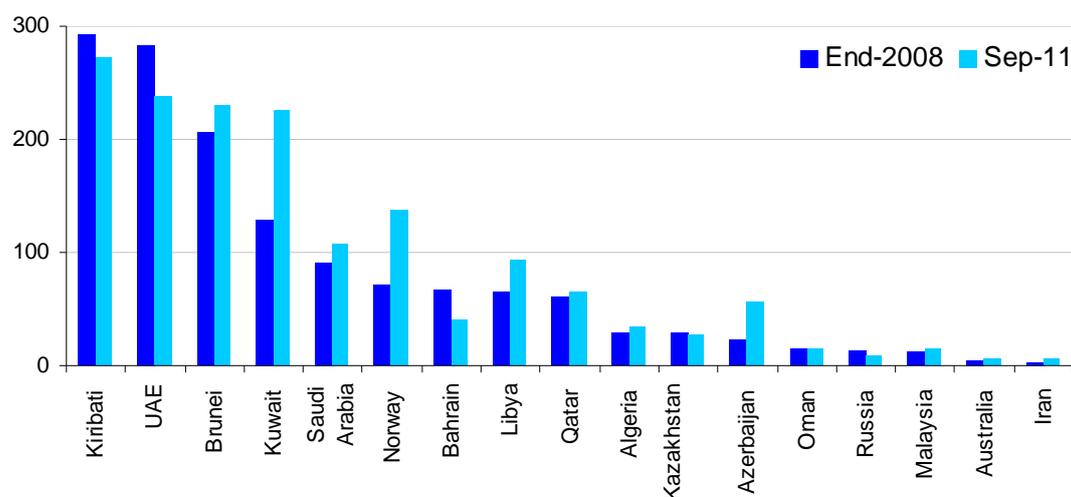
3.3. The fiscal stability framework

To anchor the macroeconomic framework and reduce macroeconomic volatility the parliament adopted the Fiscal Stability Law in June 2010, and the Integrated Budget Law is expected to follow. The Fiscal Stability Law foresees a cap on public debt (40 per cent of GDP in net present value terms starting from 2014), a structural deficit ceiling of 2 per cent of GDP applicable from 2013, and a ceiling on annual expenditure growth, also in effect from 2013 (equal to the greater of the actual growth of non-mineral GDP and the average historical growth of non-mineral GDP). The law also strengthens the role of medium-term budgeting and introduces a transparent formula for copper price projections (one of the key fiscal parameters). Importantly, it provides for the establishment of a fiscal stabilisation fund (FSF) which could accumulate “excess” commodity-related revenues (the difference between actual revenues and commodity revenues evaluated at long-term prices) during periods of high commodity prices. The proposed Integrated Budget Law aims at improving procedures for assessment and prioritisation of various capital expenditure projects, which will be consolidated into a public investment programme.

A fiscal framework that allows for the accumulation of commodity related revenues is arguably the most critical weapon in a commodity producer’s arsenal to combat the resource curse. It serves several related purposes. First, savings accumulated in times of large commodity revenues can be used to partly offset the drop in national income when commodity prices decline by financing fiscal stimulus measures. This helps to reduce macroeconomic volatility and hence improves the investment climate. For example, many commodity exporters that had accumulated substantial reserves in their sovereign wealth funds (Chart 6) were able to soften the impact of the 2008-09 recession and downturn in commodity prices by using accumulated sovereign reserves to finance comprehensive fiscal and monetary stimulus packages. As a result, commodity-rich countries seem to have been, if anything, less severely affected by the 2008-09 crisis (Berglöf and others, 2010; Chart 7). In the case of Mongolia, countercyclical fiscal policy backed by a strong stabilisation fund would reduce pressures on the real exchange rate to appreciate and help to preserve competitiveness of the economy. The alternative tool for limiting real exchange rate appreciation – sterilisation of commodity inflows, for instance, by issuing central bank bills – is fiscally very costly and generally not effective beyond the short run.²

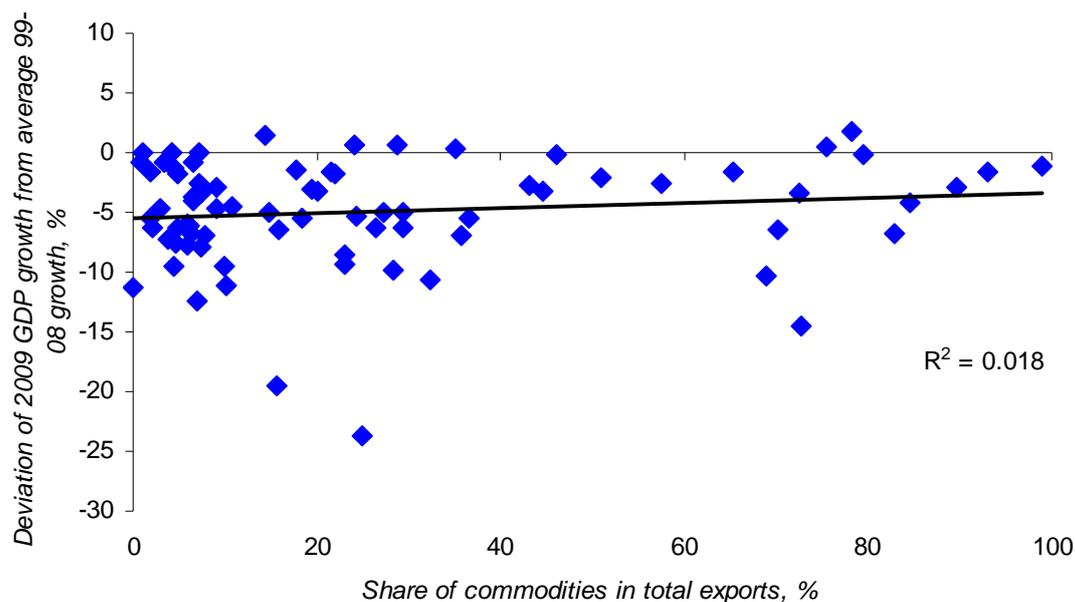
² Mongolia has been actively pursuing this strategy, resulting in outstanding short-term central bank bills worth around US\$ 1 billion (17 per cent of GDP) as of early 2011, held mainly by the commercial banks. Sterilisation strategy can be effective in the short run but it has its limitations. First, it can push up interest rates and thus attract further speculative inflows, leading to a vicious circle that has been experienced by a number of commodity-rich emerging markets, including Brazil. By the same token, excessive sterilisation may crowd out private investment and hinder financial development.

Chart 6
Sovereign wealth fund assets in per cent of GDP



Sources: Sovereign Wealth Fund Institute, IMF WEO, authors' calculations. As of September 2011 or latest available.

Chart 7
Slowdown in GDP growth in 2009 and commodity dependence



Sources: IMF WEO April 2011, WTO, authors' calculations.

Second, asset accumulation beyond shorter-term stabilisation saves wealth for future generations, which can sustain the level of income once natural resource deposits are depleted. This spreads the benefits of commodity wealth over time – an important consideration for Mongolia, as current deposits are projected to be depleted in less than 40 years.

Sterilisation will also impose a significant cost on the central bank if the return on central bank assets is substantially lower than the interest paid on its bills (as is the case in Mongolia today).

Third, and arguably most importantly, sovereign wealth funds can also support economic institutions and limit rent-seeking by directing mining revenues to clearly defined and transparent uses. To achieve this, the wealth funds need to have a strong framework for accumulation and use of revenues.

Mongolia's new fiscal stabilisation framework constitutes a crucial building block for successful stabilisation and (eventually) sovereign wealth accumulation. However, whether the current framework is sufficient to actually deliver on this promise is not clear. Two problems could undermine the intent of the framework.

- Since the framework does not fully come into effect until 2013, the accumulation of the FSF in the intervening period is essentially discretionary. In light of high commodity prices and large investment inflows during 2011-12, accumulation of assets in the Fund should have received priority in this period. Instead, large structural deficits driven by cash handouts (9.9 per cent of GDP in 2011 on a budgeted basis, and likely about 6 per cent on a projected ex-post basis due to faster-than-expected GDP growth) have undercut the accumulation of assets in the Fund. So far, the balance of the Fund is only about MNT 40 billion (less than US\$ 35 million, or 0.4 per cent of GDP), against the original projections of about MNT 183 billion. Even if the Fund reaches the legal minimum of 5 per cent of GDP by 2013, this will be too small to provide a significant cushion against future downturn.
- While the accumulation of the FSF after 2013 will be governed by the rules laid out in the Financial Stability Law (which limits the structural deficit to 2 per cent of GDP and mandates accumulation of the difference between actual and structural revenues), the Development Bank of Mongolia (DBM), inaugurated in May 2011, creates an effective loophole in the fiscal stabilisation framework in that it allows the government to build up contingent liabilities that could offset the assets accumulated in the FSF (see Box 3). In addition to financing "bankable" projects (for example, SME lending) under a standard governance structure, a declared purpose of the Development Bank is to finance social housing and infrastructure projects upon request of the cabinet. These projects are financed by government-guaranteed bonds, with interest costs at least initially covered by the budget. While the Financial Stability Law effectively caps these interest payments in the context of its general structural deficit ceiling, the contingent liability from potential poor infrastructure projects and a consequent need to recapitalise the DBM may fall outside the fiscal framework.

Box 3: Development Bank of Mongolia

By law, the Development Bank of Mongolia is a for-profit independent development institution, with capital paid in from the government budget. The law provides for parliamentary approval of the list of projects that are funded with a government guarantee. These projects are also eligible for financial support from the budget, which is initially expected to take the form of reimbursement of interest cost of servicing government-guaranteed bonds issued by the DBM. The maximum level of sovereign guarantees issued to the DBM is determined by the parliament.

Projects financed from other sources are subject to approval by the DBM Board of Directors, which meets at least once a month. The Board consists of six government-appointed and three independent directors. The independent directors are nominated by the Bank of Mongolia, Chamber of Commerce, and Bankers Association, and are subject to government approval.

While the law defines DBM as a for-profit institution, requirements with respect to individual projects are yet to be clarified. In general terms, projects have to be selected based on a technical assessment and be “efficient”.

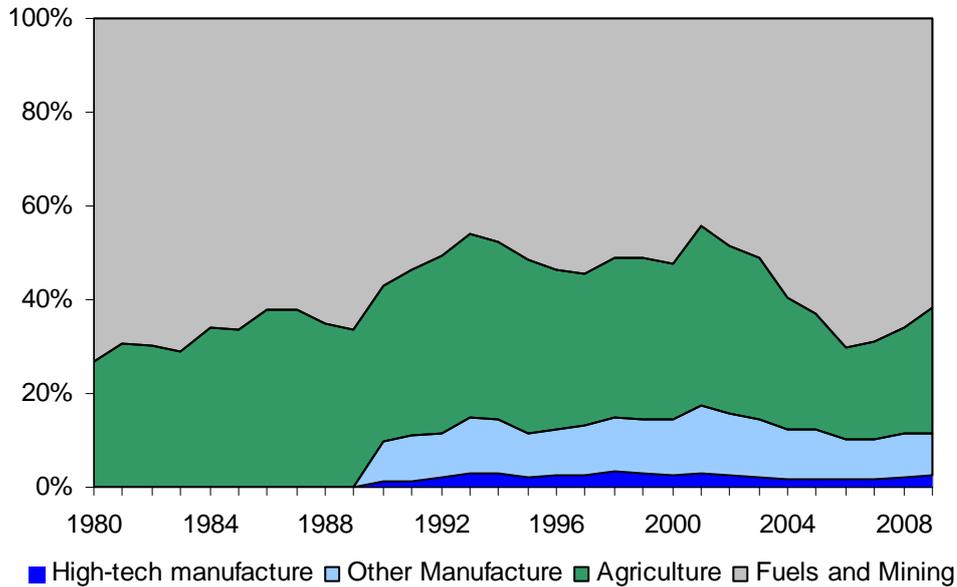
In summary, under present policies, the FSF will likely be too small. Furthermore, the financial stability framework may be undermined by large infrastructure projects that occur through government-backed operations of the DBM, rather than directly through the budget.

3.4. Diversification policies

As argued in the previous section, the centrepiece of diversification in a resource-rich economy is creation of institutions that reduce macroeconomic volatility and save a portion of resource revenues while equitably distributing the remainder. At the same time, many countries have attempted to diversify by directly encouraging investment in non-resource sectors (see EBRD, 2008, for a survey). Among many failures, there have been some successes: Chile has managed a certain degree of diversification by developing internationally competitive wine and salmon industries (Chart 8). Malaysia established technologically advanced manufacturing industries integrated into the Asian and global production chains; Indonesia significantly improved the international competitiveness of its agriculture and developed medium-to-high-tech manufacturing; Mexico leveraged FDI by US firms to establish a high-tech manufacturing sector; and United Arab Emirates became one of the global leaders in air passenger services, with aviation now accounting for over a quarter of Dubai’s value added.

Chart 8

Chile: Structure of merchandise exports

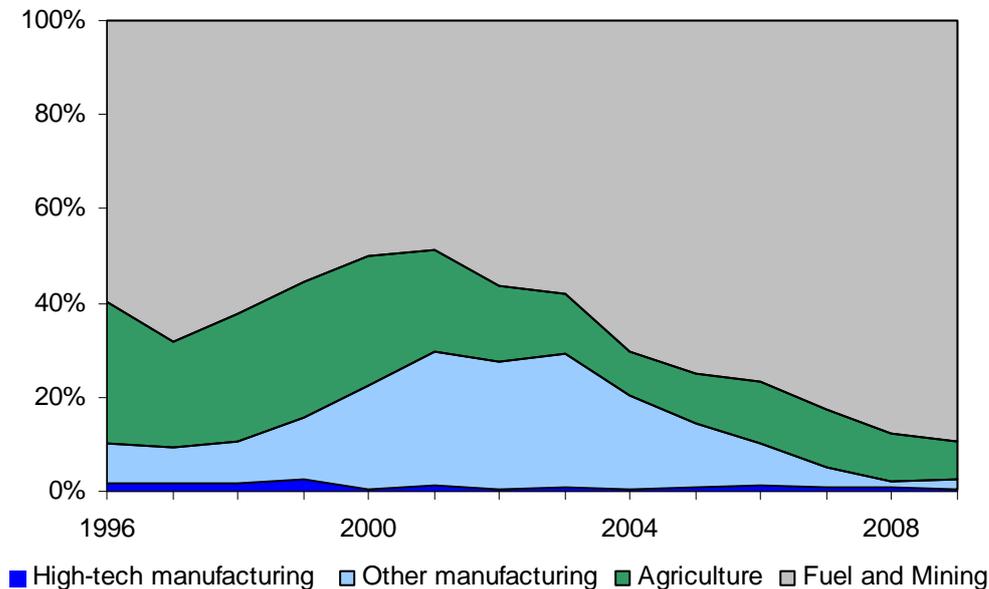


Sources: World Trade Organisation and authors' calculations. Breakdown for manufacturing is not available before 1989.

A diversification strategy of this type is also emerging in Mongolia, where the share of mining in total exports has been growing rapidly in recent years, to over 80 per cent (Chart 9). The current strategy appears to be centred mainly on two pillars: (1) the creation of an industrial park in Sainshand, a city in the south situated on the Ulaanbaatar-Beijing rail line; (2) SME lending at subsidised interest rates through commercial banks and the newly created development bank. The Sainshand park project envisages various facilities for natural resource processing (coal treatment, copper smelting, oil refining), and production of construction materials, with an estimated investment cost of over US\$ 10 billion (over 150 per cent of the 2010 GDP; NDIC, 2010).

Chart 9

Mongolia: structure of merchandise exports



Sources: World Trade Organisation and authors' calculations.

Both elements of the strategy have their merits. SME finance can help start new firms and help small firms grow, particularly when it is accompanied by other policies and institutions that encourage investment, including the rule of law, good physical and communications infrastructure, and a skilled work force.³ The industrial park project is associated with tangible benefits, including reduction in volume of natural resources that need to be shipped for primary processing, and the removal of bottlenecks in the construction industry. Ideally, this will support development in the resource sector; benefit the construction of rail and road infrastructure that also helps non-resource sectors; cluster manufacturing expertise; and help Mongolia move up the value-added chain.

This said, both approaches also involve significant risks. The main risk of subsidised SME finance is that it discourages the development of a private financial sector that may ultimately be in a better position to provide such finance. With respect to the Sainshand project, the main risk is fiscal: given the sheer scale of development (relative to Mongolia's GDP), care needs to be taken to ensure adequate economic return on public investment, and that the risks of outright commercial failure of some

³ Policies of this type are sometimes referred to as "horizontal" industrial policies because they support entrepreneurship and investment without "picking winners". In contrast, "vertical" industrial policies offer preferential treatment to specific industries, or sometimes enterprises, in the form of subsidies, direct government investment, lower taxes, or tariff and non-tariff protection from foreign competitors. Vertical industrial policies have rarely been successful in practice (see EBRD, 2008), because they rely on the discretion of government officials who may not have the technical capacity, information or incentives (particularly in weaker institutional environments) to make the right choices. Chile largely favoured horizontal policies over vertical ones (Annex 2).

of its components are minimised. In addition, the effect of the project in terms of stimulating the development of a manufacturing sector should not be overestimated: international experience suggests that, like SME finance, it will only work in the context of general improvements in the business environment.

The World Bank's Doing Business Survey indicates a substantial scope for improvement in this area. In *Doing Business 2012* Mongolia ranked 86th out of 183 countries, 26 positions down compared with its 2010 ranking, as other countries have been more actively pursuing reforms in the area of business environment. In particular, Mongolia gets low scores in the areas of starting a business, construction permits, access to electricity, trade across borders and insolvency resolution. Likewise, in the latest round of the Business Environment and Enterprise Performance Survey conducted by the World Bank and EBRD in 2009, 30 per cent of the respondents viewed business permits and licences as a major or very severe obstacle to operations of their firms.

Mongolia has already made some encouraging advances in terms of support to small businesses. For example, Growing Entrepreneurship Rapidly (GER), an externally-funded, NGO-run programme, appears to have contributed significantly to promoting entrepreneurship. The programme provided recent migrants to ger districts of large cities with business consulting and training services, financial services, employment training and matching, association development and business and legal information. It also helped small entrepreneurs to find larger buyers for their products, such as stitched garments. Over the period 2002-09 the programme is estimated to have reached out to 20 per cent of the population and half of the officially registered firms.

There is early evidence that the initiative has had some success, in particular in terms of encouraging people to become entrepreneurs: out of 1,000 individuals randomly surveyed in Mongolia as part of the 2010 round of the Life in Transition Survey, 30 per cent tried to start their own business – a higher rate than in Sweden (28 per cent) and a much higher rate than the emerging Europe and central Asia average of 12 per cent (EBRD, 2011b). Whether this high trial rate translates into a high long-term success rate, remains to be seen, but undoubtedly similar programmes could be replicated on a larger scale, with public sector and private sector support.

3.5 Financial sector reform

The financial system is key for the efficient intermediation of commodity revenues throughout the economy. In particular, well-functioning financial markets would disproportionately benefit SMEs and enterprises in non-resource sectors as those industries tend to be more dependent on external finance (Rajan and Zingales, 1998). In addition, a developed financial system can to some extent mitigate the effects of resource price volatility and improve incentives to invest. A developed financial system also reduces inequality by giving more people access to credit and therefore opportunities to invest in education or a small business.

At the same time, financial flows into commodity-rich countries tend to be strongly correlated with the commodity price cycles, in a way that financial development can also exacerbate the commodity cycles and increase leverage, and vulnerabilities, in the banking system. Furthermore, credit-fuelled consumption booms can also amplify the Dutch disease by inflating demand for services and construction. In this light, it is

perhaps not surprising that empirical evidence on the role of financial development in resource-rich countries has been scarce and inconclusive (for example, Nili and Rastat, 2007).

Mongolia has recently undertaken important steps to strengthen its financial sector. A new banking law was adopted in 2010. In 2011, the Mongolian Stock Exchange entered into a master service agreement with the London Stock Exchange. These are welcome steps. But significant challenges remain. The current blanket deposit guarantee introduced during the early days of the 2008 crisis is due to expire in November 2012 and needs to be replaced with a proper deposit insurance scheme. Capitalisation and governance of banks needs to be strengthened further, as do risk management practices and banking supervision. And money and bond markets in Mongolia are generally still in an early stage of development.

4. Making the most of Mongolia's strategy for managing the resource boom

While Mongolia has clearly come far in assembling the elements of a comprehensive strategy to make the most of its natural resources, the preceding section has shown that it still has some way to go. Specifically, there is a need to:

- address the shortcomings of the current cash transfer scheme without giving up on the objective to share the benefits of the boom widely and equitably
- mitigate fiscal risks that are not addressed in the present financial stability framework to ensure that the latter achieves its intended purpose
- ensure good returns to diversification-related public investments
- complement public-sector-led attempts to provide SME finance with reforms that will allow for private-sector-driven financial development without fanning an unsustainable credit boom.

From the perspective of ensuring good management of Mongolia's resource boom and ultimately diversification, this is not nearly an exhaustive list. In particular, it does not go into any detail on "horizontal" diversification policies in areas such as education and human capital development, public governance, judicial and administrative capacity, and other aspects of the business environment. The main reason for staying focused on the four objectives outlined above is that no single paper can credibly address all aspects of public policy that are important for diversification, and that the issues raised are most directly connected to the reforms already undertaken, and will be critical for the success or failure of such reforms.

4.1. Reform of the cash transfer programme and SWF operationalisation

The main drawbacks of the current cash transfer programme could be addressed while maintaining the premise of handout-based redistribution; in fact current policy proposals would make important steps in this direction by helping to better link cash transfers to the performance of the mining assets, create a sense of ownership and contribute to preserving and improving institutions. In particular, the authorities are considering listing the shares of the state-owned company that holds TT licences and part of development rights. A portion of the shares could be distributed equally to the population, entitling holders to a stream of dividends, which would be linked to the performance of the company and management of the commodity revenues. To avoid the pitfalls of voucher privatisations, a moratorium could be introduced on trade in this class of shares for a prolonged period of time (perhaps 7 to 10 years), until the mines operate at full capacity and members of the public are in a position to judge the value of their shares.

These proposals could be developed further, by giving each individual shares in a holding company overseeing all of the state ownership in the mining sector, as implied in the Human Development Fund Law (Box 1), rather than exclusively in TT. The Human Development Fund could act as an administrative intermediary holding

these shares on behalf of individuals. Alternatively, shares could be held by each Mongolian directly.

Upon issuance of such shares universal cash transfers from the Human Development Fund would need to be discontinued and replaced with well-targeted social transfers to the most vulnerable groups (the disabled, people with the lowest incomes, and so on). This would disentangle two functions that are conflated under the current cash transfer programme: social protection on the one hand and income redistribution linked to the resource sector on the other. There are good reasons to separate these functions.

- Social protection requires targeting to the socially vulnerable for maximum efficiency. In contrast, resource-based cash transfers should go to the general population and should not be means-tested to avoid discouraging labour supply.
- To strengthen incentives for the population to worry about governance in the resource sector, the recipients of cash transfers need to bear some risk. This runs counter to the idea of social protection.
- Finally, resource-based social programmes alone would not be a good way of making the resource sector accountable, as the beneficiaries of properly targeted poverty alleviation programmes are typically weak politically (Sen, 1995).

Hence, achieving both objectives – social protection *and* good incentives in the resource sector – require two instruments: resource revenue distribution to the general population linked to the performance of the mining sector, and a targeted transfer programme. The latter is best administered as part of the general government budget, as in any country, rather than through the HDF.

Introducing a direct link between mining dividends and cash payments received by the citizens would also ensure that cash handouts are sustainable, by signalling the ownership entitlement early while deferring the actual payments until the sector makes profits. The freed resources could be used to build up buffers in a stabilisation fund, which could then be used by the government to partially or fully offset the impact of a drop in commodity prices on incomes, including due to reduction or suspension of dividend payments. In particular, the stabilisation fund could receive the royalty revenues currently earmarked for the HDF, complemented by additional revenues that could be tied to copper and coal prices.

Resources could also be devoted to upgrading the transport and customs infrastructure, which would increase import capacity and allow for a more elastic response of supply of key food staples and basic goods to an increase in demand. This would reduce the inflationary side-effects of an increase in cash transfers. Over time, domestic absorption capacity may also rise as a result of the expansion of domestic production – if diversification policies are successful.

4.2. Extending the fiscal stability framework to contingent liabilities

The fiscal framework set out in the Fiscal Stability Law could potentially be undermined by quasi-fiscal activities of state institutions outside the budget, notably the development bank. If DBM projects approved by the parliament and financed by government-guaranteed debt deliver poor returns, the government will be faced with a large bill, likely in a situation when the external environment is unfavourable. Furthermore, as the Fiscal Stability Law becomes binding, parliament may face perverse incentives to channel some of the general government spending through the development bank, which is not subject to the deficit ceiling.

Articles 6 and 19 of the Fiscal Stability Law currently cap the net present value of government debt at 40 per cent of GDP starting from 2014 (60 per cent in 2012; 50 per cent in 2013). These provisions need to be interpreted to include government guarantees granted to the development bank and any other state or private institutions.⁴

Doing so will make the fiscal framework complete, limiting fiscal risks and reducing macroeconomic volatility.

4.3. GDP-linked bonds

If the government decides to take on substantial direct and contingent liabilities (as currently envisaged in the context of the development bank) it may be worth sharing macroeconomic risks with investors thus lowering the fiscal risks for the government. This could be achieved by issuing bonds whose returns are linked to commodity prices or GDP growth (Borensztein and Mauro, 2004; Borensztein and others, 2004). The former have been issued in the past by commodity-rich countries such as Mexico and Nigeria; while the latter were issued by Argentina (also a major commodity exporter) following its 2005 debt restructuring.

In the context of Mongolia, commodity-linked bonds are likely less desirable than GDP-indexed bonds, since Mongolia faces two distinct risks related to its natural resource sector: commodity price risk and project completion risk. In a hypothetical case in which commodity prices are high but completion of investment projects is delayed, bonds linked to commodity prices imply that the government will be faced with higher, rather than lower, interest rate bills and insufficient commodity revenues.

An alternative is to link coupon payments to economic growth. This will depend on both commodity prices and successful completion of mining projects. Moreover, there may be substantial interest from investors seeking an upside risk exposure to Mongolia given the limited pool of equity of Mongolian firms. This said, the feasibility and credibility of GDP-indexed instruments will crucially depend on the perceived quality and reliability of national accounts.

Note that debt-based risk sharing does not obviate the need for a fiscal stabilisation fund. The principal on the debt will need to be repaid in any case, even if with a discount. Significant part of the borrowed money is likely to be invested in long-term

⁴ Exclusions for borrowing to finance the government's share in paid-in capital of mining companies may continue to apply.

infrastructure projects, for which there may be little demand should commodity prices drop significantly. Fiscal savings are required to guard against insolvency in such a situation.

4.4. Structural reforms in the financial sector

Next to macroeconomic instruments such as the fiscal stability fund and GDP indexed bonds, the risks of commodity-induced volatility can be mitigated through financial sector reforms that reduce financial vulnerabilities and the procyclicality of credit. In Mongolia, these include the already mentioned introduction of a deposit insurance scheme and steps to improve the capitalisation and regulation of banks. In addition, reforms in two areas hold out significant promise: credit reporting systems (credit bureaus) and local currency money markets.

Mongolia is lagging behind most countries in emerging Europe and central Asia in terms of legal framework and economic efficiency of its credit reporting system (EBRD, 2011), and the credit information registry covers only 19 per cent of the adult population according to the World Bank Doing Business Survey. Credit information sharing could be made mandatory and the related infrastructure could be upgraded.

Finally, in an economy with very volatile terms of trade it is crucial to avoid the pitfall of excessive dollarisation of assets and liabilities and currency mismatches on the balance sheets of banks and corporates that often accompany finance booms in emerging markets. To achieve this, it is essential to develop local capital markets where financial institutions could obtain funding in local currency. One of the first steps in this area is to create a reliable interest rate benchmark, perhaps on the basis of overnight repo transactions, and gradually extend the yield curve. The success of this will depend in part on whether Mongolia can build a track-record of macroeconomic stability and predictable inflation. This in turn argues for a gradual move to formal inflation targeting on the side of the central bank.

4.5. Private sector co-financing of large development projects

International experience suggests that successful development and diversification policies with a large public spending component typically rely on significant private sector co-financing for each project (in the form of direct co-financing, private equity or venture capital). This provides a useful commercial test of project value and acceptability of risks, thus ensuring a better return on public investment and limiting fiscal risks.

In the case of Mongolia, this principle could be usefully applied to flagship diversification projects, such as the industrial park in Sainshand. It should also apply to large infrastructure projects, in particular those closely related to mining, where there is a particularly strong case for maximising private sector participation.

In addition to providing the right kind of infrastructure, the public sector can support the development of the private sector in Mongolia by improving the overall business environment, including through the rule of law and contract enforcement, providing general and targeted training programmes, and by supporting start-ups and small businesses across various industries through the DBM.

5. Conclusion

Mongolia is about to experience an extraordinary mining boom, which holds out the opportunity of accelerated growth and development over the short and medium term. At the same time, international experience suggests that natural resource abundance can endanger a country's long-term prosperity. Unstable commodity prices may induce macroeconomic volatility, which creates disincentives for investment and acquisition of skills, especially in countries with less developed financial sectors. Structural shifts in investment, employment and output towards mining and services are hard to reverse once commodity booms subside, resulting in a loss of competitiveness in manufacturing and agriculture. Most importantly, high resource rents often have a negative effect on economic institutions that underpin long-term growth. Whether institutions withstand this "resource curse" depends in part on how strong they were initially.

Mongolia's central policy challenge today can be viewed in terms of a race between institutional reform and resource extraction. Whether Mongolia succumbs to the resource curse will depend on whether it can get its institutions ready to manage the pitfalls and risks of resource revenues before large-scale revenues materialise. Fortunately, both Mongolia management of the resource sector so far and recent reforms give ground to optimism. Development rights for key deposits have been tendered in a competitive process, with interest from major international companies with the requisite expertise. A number of important laws and policy documents have been adopted, and a national development bank has been established to address the enormous infrastructure needs. The Fiscal Stability Law set a broad framework for managing commodity revenues. A Human Development Fund was created with the aim of distributing mining proceeds widely to the population. Mongolia also signed up to the EITI initiative and achieved full compliance status in 2010.

At the same time, the remaining challenges are enormous. They fall into three areas: (i) maintaining incentives for good governance and wide sharing of resource revenues; (ii) creating institutions that can handle the macroeconomic volatility that comes with resource dependence; and (iii) avoiding the pitfalls of misguided diversification policies.

- Key to the first objective are redistribution policies that both moderate the inherent trend of resource-rich economies towards higher inequality and cultivate a stronger sense of ownership of mining assets by the population. This could be achieved by linking cash transfers to mining industry dividends and separating them from the social safety net, which should be better targeted and merged into the budget.
- The second objective could be met by a three-pronged effort involving the accelerated operationalisation of the fiscal stability fund, introducing GDP indexation in new national debt, and pressing on with financial development, particularly by developing local money and bond markets that will allow banks access to local funding and improve opportunities for risk-sharing.
- Lastly, avoiding the pitfalls of diversification policies requires a ceiling on government guarantees that can be extended to the development bank and other

quasi-fiscal entities, and private sector participation in large infrastructure and industrial projects. Furthermore, emphasis should be given to “horizontal” business environment improvements that help all sectors, including education and training. There may also be scope for “vertical policies” that favour specific sectors, such as the developing value-added chain based on mining as well as tradable services (such as IT) that do not rely heavily on infrastructure, provided that subsidies or DBM loans to these sectors are structured in a way that is clearly linked to the success of the underlying project and increases competition.

As a vibrant democracy, Mongolia can rise to the challenge. By doing so, it would not only secure its own future but give hope to many resource rich-countries around the world that are currently mired in autocracy, corruption and inequality.

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Annex 1. Alaska Permanent Fund

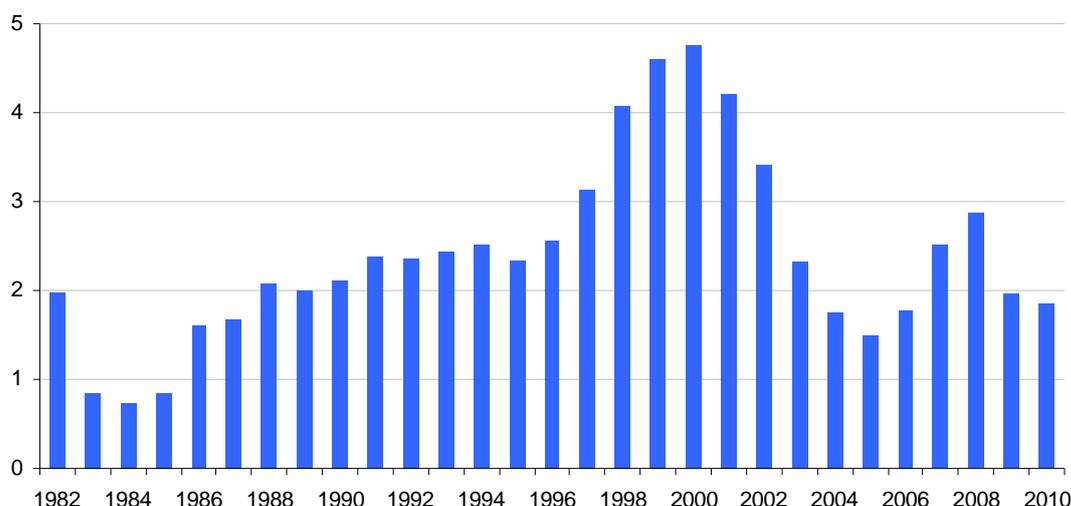
In 1976 oil production began from the largest oil field ever discovered in North America, Prudhoe Bay on the North Slope of the state of Alaska. Production, property and income tax revenue began to flow into the state treasury at an unprecedented rate, augmented by royalty payments. In the same year the Alaska Permanent Fund was established to accumulate a share of the revenues from oil production (namely, 25 per cent of royalties) for future generations and to restrict state public spending.

The fund balance grew slowly in the first two years but accumulation of earnings accelerated markedly in the early 1980s as the price of oil jumped and state revenues quadrupled. The state expanded its budget and eliminated broad-based taxes without recourse to the earning of the fund. Constitutionally, deposits paid into the fund could not be spent, while returns on investment could be spent for any purpose, and pressure to spend those gradually mounted.

The Governor of Alaska at that time, Jan Hammond, proposed a distribution of the annual earnings of the fund under a programme called “Alaska Inc.” Every citizen would receive an annual payment from the earnings of the fund, based on length of residence in the state. This initial plan failed because the court ruled that a distribution contingent on the number of years of residency in the state violated the constitutional principle of equal treatment for everyone. In response, a simpler plan was passed that envisaged equal annual cash distribution to every resident taken from half the earning of the fund (averaged over the previous five years). In the initial year, the Alaska Permanent Fund Dividend (PFD) was US\$ 1,000 per person (2 per cent of GDP per capita, Chart 1.1) and was paid out of general revenues rather than fund earnings. Since the dividend was paid out of the interest rather than principal of the fund, accumulation of reserves continued and the fund reached US\$ 10 billion by 1988 (around 50 per cent of gross regional product, GRP).

Chart 1.1.

Alaska Permanent Fund Dividend in per cent of GDP per capita



Source: Alaska Permanent Fund Corporation, US Bureau of Economic Analysis, Alaska Department of Labour and Workforce Development, authors' calculations. GRP is gross regional product.

The dividend formula based on a five-year average is designed to provide some stability to the annual payout as well as insulate long-term management of the Permanent Fund from the political pressure to maximise the dividend in the short term. The size of the individual PFD depends on the number of people eligible for a payout, and currently accounts for around 3 per cent of individual per capita income.

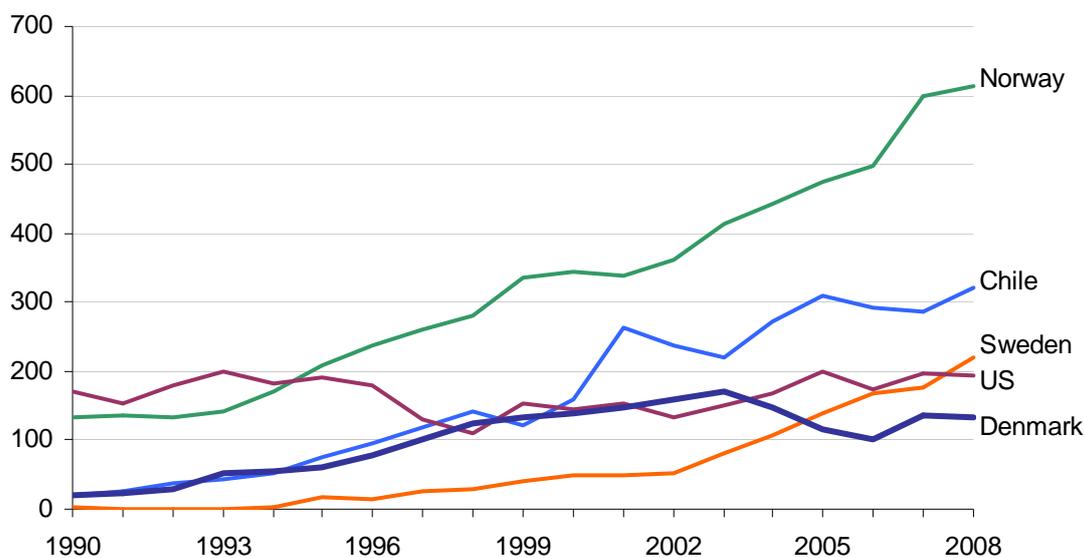
The scheme was successful in achieving several goals. It created a strong popular constituency for preserving the saving of the fund, which reached US\$ 40 billion in 2011 (89 per cent of GRP, or almost US\$ 60,000 per resident), helped to achieve the most equitable income distribution among the US states (Gini coefficient of 40.2 compared with 50.2 in New York), and served as an important “automatic stabiliser” for the state economy, smoothing economic cycles associated with swings in energy prices and production volumes.

Annex 2. Diversification policies in Chile

Chile, the world's largest producer of copper, is often cited as an example of successful industrial policies aimed at diversification. Over the last few decades, Chile has become one of the top producers of salmon and wine: for instance, between 1990 and 2002 Chile's share in the global production of farmed salmon and trout increased from about 10 to 35 per cent (Chart 2.1).

Chart 2.1.

Salmon exports by country, thousand tonnes



Source: Food and Agriculture Organization.

Chile's policies have three important features: they paid particular attention to transfer of knowledge and technologies; encouraged private sector participation; and emphasised provision of economy-wide and sector-specific semi-public goods over direct subsidies.

The government prioritised transfer of knowledge and technologies early on, in the 1960s, when it set up the first programme of scientific exchange between Chile and California, with a modest endowment of US\$ 10 million and a broad coverage of disciplines. Over time, the programme became more focused on agricultural sciences and proved instrumental for subsequent development of various industries.

Fundación Chile, a development vehicle established in 1976, has also played a major role in supporting economic diversification and facilitating knowledge and technological transfer. Set up as a 50-50 public-private venture, it invested in various innovative enterprises (including in salmon farming) and subsequently sold successful investments to domestic and foreign private companies. It operated mostly on commercial principles, and inevitably some of its ventures were less successful than others. A few went bankrupt, for instance in blueberry farming, although work in these industries and provision of industry-wide public goods paved the way for other

companies to succeed internationally. Other efforts, for instance to promote new wine growing regions, were only moderately successful. Importantly, less successful ventures were abandoned without overinvesting valuable public resources in them.

This was possible because few subsidies were provided to firms beyond industry-wide public and semi-public goods. Key elements of such industry-wide public goods were free trade agreements negotiated with the leading trade partners; export promotion campaigns abroad; support to research; facilitation of links between the industry and the universities; enforcement of quality standards; and assistance to associations of small producers in meeting these standards (Agosin and Bravo-Ortega, 2009). Beyond specific sectors, Fundación Chile has been actively involved in a number of education and cross-industry projects. In particular, it set up a hugely popular national education portal as well as a labour market monitoring service.

It is also worth mentioning that Chile pursued industrial policies in parallel with building up a sovereign wealth fund. The Copper Stabilisation Fund was established in 1985 and accumulated US\$ 22 billion (11 per cent of GDP) in reserves.