José De Gregorio: Economic growth in Chile and copper

Speech by Mr José De Gregorio, Governor of the Central Bank of Chile, at the CESCO conference "1984-2009, 25 Años de la Industria del Cobre y su impacto en Chile", Santiago, 1 September 2009.

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I want to begin by thanking you for inviting me to this Conference celebrating the copper and mining research center CESCO's twenty-fifth birthday. It is an honor to have the opportunity to speak about the impact of the mining industry, and of copper especially, on Chile's development, given its importance for the country and in which I have great professional interest.

Chile is abundant in natural resources. One of the most distinctive characteristics of our economy is its large mining sector, particularly of copper, which places it as the world's main copper producer. As a country we were blessed by nature with this enormous treasure. But as with every benefit, there can be related costs and risks that must be assessed.

For a long time, natural resources have been part of the discussion about economic development. Many years ago, natural resources were thought to be destined to a path of permanent price decline, which served as an argument to push forced industrialization. Such a vision proved to be based on wrong grounds. Nonetheless, development-related problems within the context of natural resource abundance have made their way back to the academic discussion in recent years. There are those who claim that natural resources are bad for a country's development. They find that the abundance of natural resources has been associated with a poor growth performance. This finding leads them to the conclusion – a wrong one in my view – that natural resources are hazardous to a country's development.

As I will be asserting over this presentation, natural resources are a blessing, but their abundance in a scenario of institutional and economic weakness may turn it into a curse. I will also comment that, in the case of Chile, solid bases have been in place to take advantage of the copper industry, very different from what occurred with nitrate in the early twentieth century.

I will begin with a review of the international evidence on the relationship between natural resources and growth, to then focus on Chile's specific case and the relationship between abundance in our mining resources and our development. Then I will talk briefly about the current economic scenario and how copper price fluctuations are no longer a source of instability, as used to be the case in the past or still is in some large commodity exporters. This is attributed to the significant advances we have made in our foreign exchange, fiscal, and monetary policies. The importance of this cannot be overemphasized, because said progress in macroeconomic policies has allowed us to implement unprecedented expansionary policies that should help Chile to overcome successfully the international crisis that hit the world at large in recent months. I will end with some final remarks.

Economic growth and natural resources

One paramount issue in our country's development is its concentration of natural resources and, very specially, of copper ore. The world evidence shows that there are major differences in growth rates among natural resource abundant economies. One example is Botswana, rich in diamonds, which early this decade could account for nearly 40% of GDP (Acemoglu et al., 2003). This country's per capita GDP grew by an average 6.6% per year between 1960 and 2007, which meant that in 2007, its per capital GDP was 19 times the one in 1970. An example to the contrary is the case of Nigeria, rich in oil, yet virtually stagnant. Its per capita

GDP increased by an average 1.2% per year over the same period, which meant that in 2007 Nigeria had barely 1.5 times its per capita GDP of 1960.

It has been found that, on average, countries rich in natural resources grow less than those that are not (figure 1). Based on this evidence, much research effort has been devoted to unraveling the link between economic growth and natural resource abundance, and that is what I intend to briefly cover now.

International evidence and discussions on the relationship between natural resources and economic development are varied. Some economists, mainly Sachs and Warner (1995, 1997, 2001), have argued that rather than a blessing, abundance of natural resources is a curse. The reasons for this are that natural resources can lead to rent-seeking activities diverting scarce resources such as human and physical capital away from activities that favor growth. At the same time, natural resource abundance may cause a persistent real appreciation that may weaken the rest of tradable goods sectors, which is known as the Dutch disease. A natural conclusion of these works is that in countries that prevent rent-seeking, with human capital abundance, access to credit and macroeconomic policies that promote stability, these damaging effects can be avoided. Subsequent studies have been oriented in that direction.

Several studies have explored new links between natural resources and growth, controlling for the strengths of each economy. For example, Arezki and van der Ploeg (2007) find that this negative relationship between natural resource abundance and growth is heavily affected by the country's openness to international trade. They find that, the more open the economy, the less likely for natural resources to have a negative contribution to growth. Therefore, trade openness can change the curse into a blessing. Meanwhile, Mehlum et al. (2006), using the same data as Sachs and Warner (1997), include an interaction between the quality of institutions and natural resource abundance to examine its effect on growth. They find that the critical element behind the natural resource curse is bad institutions. In other words, if the country has good institutions, natural resources allow them to grow faster.[1]

The interaction with the human capital endowment is also important. Bravo-Ortega and De Gregorio (2005) state that, whenever natural resources draw the scarce human capital away from growth favoring activities, the development of natural resources might reduce growth. Thus, countries with high endowment of human capital can more than offset the negative effect of natural resource abundance on growth. Still, while growth can be slower, abundant natural resources do result in higher income, which is what ultimately matters from the standpoint of the welfare of the population.

Finally, it is worth to make the distinction between the abundance of and the dependence on natural resources. This issue has been analyzed in Cerný and Filer (2006), who find that natural resource dependent countries are the ones associated with low economic growth, not natural resource abundant ones.[2]

When studying the case of Chile, it can be argued that there is no evidence of the problems that associate natural resource abundance with bad economic performance. On the one hand, we can observe that our country is more and more open to international trade (figure 2). This integration not only brings benefits because of the traditional gains from trade based

[1] Another closely related work is Boschini et al. (2003). These authors claim that the natural resource curse depends not only on the quality of institutions but also on the characteristics of the resources. Specifically, whether it is easy to obtain large earnings in a short period of time from having control over the resource.

[2] Defining dependence as the percentage of natural capital in total capital (i.e., natural, physical, and human) and abundance as the amount of per capita commodity exports in 1970.

on comparative advantages, but it also induces better practices and technologies, as well as more competition in the markets, all factors that enhance economic growth.

On the other hand, we know that Chile is rich in natural resources, especially mining ores, but our dependence on them is ever smaller. Actually, mining exports contribute every year a large amount of resources to the country, but their share of total exports has steadily declined over time, with the exception of the last few years due to the soaring price of copper (figure 3).

Another critical element mentioned in the literature, that for Chile is a strong one, is the quality of its institutions. Sound institutions, including fiscal discipline, have prevented the "voracity" effects. A well educated labor force and full access to international capital markets have kept investments in other activities free of barriers, and the real exchange rate, although widely fluctuating, has not been detrimental to the development of the exporting sector.

By way of example, and to see the good position we are in now as compared with previous years, let us recall what happened with nitrate. As we all know, there was a "golden era" for nitrate between the years 1880 and 1930, where thanks to our resources and the external demand, Chile increased strongly its international trade, obtained large amounts of fiscal resources and was able to take a leap forward.

Our economy's nitrate dependence is visible in the proportion of fiscal resources that came from this sector (figure 4). This is the typical case where high earnings coming from natural resources create incentives to reduce the other taxes, placing the economy in great fiscal vulnerability, as it later occurred. Thus, when the golden era ended, the public external debt skyrocketed (from 28% of GDP in 1929 to 221% in 1932) and the economy suffered a severe contraction (figure 5), which was also fostered by the Great Depression.

We can also see the negative effects of natural resource dependence if we compare the behaviors of nitrate, copper, and output. The fluctuations of nitrate output value had an enormous effect on GDP, with a correlation of 0.66 (figure 6). This is quite different nowadays, with a correlation between growth in copper output value and GDP of 0.05 (figure 7).

Summing up, the review of the international evidence allow us to state that our abundant copper has been a positive contribution to the Chilean economic growth and welfare, which is reinforced by institutional and economic strengths that prevent the distortions that natural resource abundance could have on the economy. Continuing on this subject, I will next talk about the way macroeconomic policies have helped in the context of the large swings of the price of copper.

Macroeconomic policies and copper in the current scenario

To make economies less vulnerable to commodity price fluctuations, having an adequate macroeconomic policy framework is imperative. As will be argued in this section, this is the case in Chile today.[3]

It is common knowledge that in Latin America, cycles have historically been very pronounced. Global economic downturns have triggered strong adjustments in the countries in the region. This is largely due to the destabilizing effects of terms of trade fluctuations on public finances (Gavin and Perotti, 1997). Due to the importance of copper for fiscal income, a positive shock on its price should be expected to prompt destabilizing policies. This does not occur, however, because Chile's fiscal policy is countercyclical, and is based on a

[3] This issue is also discussed in De Gregorio (2006).

structural fiscal balance rule. To determine the structural balance, a key element is the estimated long-term copper price. This rule began being applied in 2001 with a target of 1% of GDP; last year it was brought down to 0.5% because of a large accumulation of resources in sovereign funds, and this year, to provide an extra fiscal impulse, it was reduced to 0% (figure 8).

Although the structural balance policy was launched in this decade, fiscal efforts to smooth the copper price fluctuations began in the 1980s, with the copper stabilization fund. In fact, throughout most of the 1990s, the structural balance was near 1%. This countercyclical fiscal policy makes the effective fiscal balance highly correlated with the price of copper. Thus, our fiscal policy has been contributing for more than 20 years to stabilizing the Chilean economic cycle.

As a result of the application of the rule, a large amount of resources has been saved in sovereign funds when the price of copper has been high.[4] In the period 2007-2008, 22 billion US dollars were placed in these funds, of which 20 billion – the equivalent to 12% of GDP – came from the accumulation of new funds, and the difference was the funds' net financial gain. This has had significant implications in the current economic scenario.

Since last year, particularly as from September, the world has been enduring the worst recession in the last 60 years and our country, despite being in an excellent position to address these shocks, has not been spared its consequences. But today, our fiscal policy has been able to make an important reactivation effort, thanks to the prudence with which the years of high copper prices were managed.

The other critical elements in our macroeconomic policies that favor stabilization are monetary and foreign exchange policies. Although they play a somewhat more subtle role than fiscal policy, they are no less important. In the first place, a credible inflation-targeting regime ensures the proper reaction of monetary policy to significant deviations of output from its full-employment level. In particular, negative demand shocks that may come from worsened external conditions should be accompanied by a reduction of the monetary policy rate to prevent a deanchoring of inflation expectations and allow the economy to stabilize without suffering unsustainable, and costly to revert, contractions. This is especially visible today that the Central Bank board has reduced the monetary policy rate by 775 basis points, placing it at its minimum level of 0.5%, and has complemented this reduction with additional measures to boost the monetary impulse.

A second key element in this scheme is the floating exchange rate. This policy favors stability, allowing the real exchange rate to adjust to internal economic conditions and minimizing output adjustments. Oftentimes, persistent attempts to prevent the exchange rate to adjust to market conditions may encourage excessive capital flows and abrupt foreign exchange adjustments that may complicate the conduct of monetary policy (figure 9). Thus, the flexible exchange rate we have in place facilitates the adjustment as long as it is combined with a consistent macroeconomic policy and a solid and resilient financial system, as we have in Chile. If fiscal and monetary policy were inadequate, exchange rate fluctuations could occur that would exacerbate macroeconomic swings. In any case, our current foreign exchange scheme contemplates the possibility of intervening in the market under exceptional circumstances, which we have done in the past.

In summary, the combination of a flexible exchange rate, a prudent fiscal policy, a solid financial system and a monetary policy based on inflation targeting, contribute to stabilize the economy, and particularly to reduce the impact of copper price fluctuations on domestic activity.

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[4] The economic and social stabilization fund and the pension reserve fund.

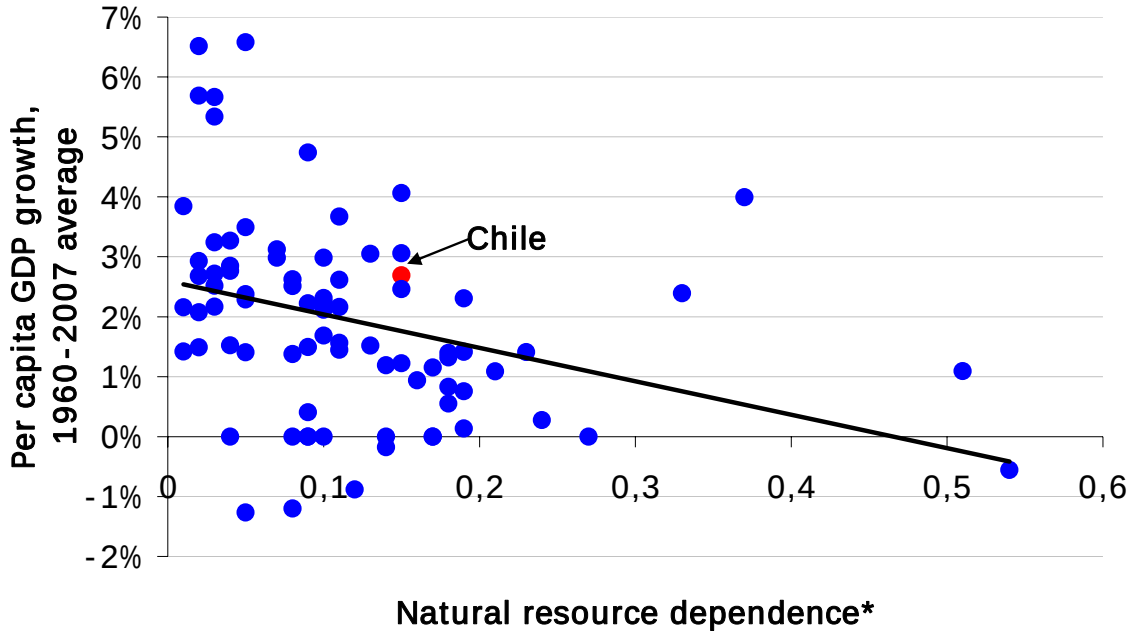
Conclusions

The effect on economic growth of natural resource abundance has been at the center of the world's economic debate throughout the years. This issue is also greatly important for Chile, especially because of our mineral resources and copper ores. As international research studies have found, natural resource dependence may have destabilizing effects on the economy, and, hence, result in reduced growth. The critical connection between these two variables is institutions. When weak, the abundance of natural resources may have negative effects on macroeconomic stability and growth. But when the institutions and the policies are adequate, natural resources are an enormous source of benefits for the country, as copper has proven to be for Chile.

The fiscal rule, the inflation targeting regime, and the floating exchange rate have cushioned the impact of copper price swings on the domestic economic cycle. Therefore, it is no surprise that in the past few years economic growth was slower compared to previous copper price booms. This same stabilizing effect allowed the economy to grow by an average of over 3% in the early 2000s, when the price of copper was at is lowest level since the Great Depression. Naturally, our economy is affected by international events, as shown by the current scenario. However, the recent experience also shows something that is not only predictable in the current policy framework but also desirable: less dependence of the Chilean economic cycle on copper price fluctuations. Thank you very much.

Figure 1

Development and natural resource dependence

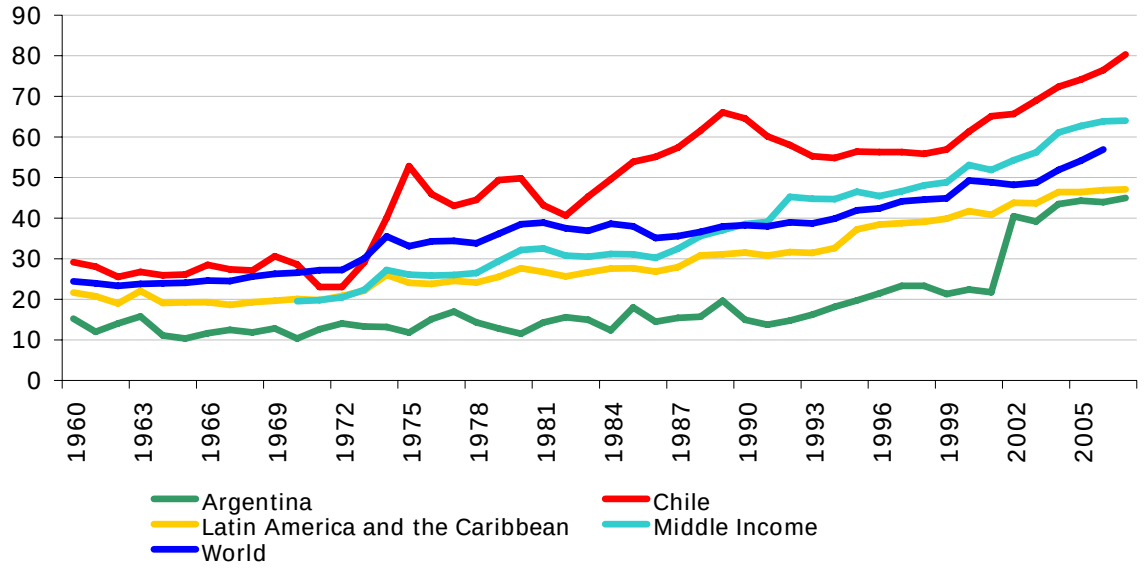


* Measured as commodity exports as a percentage of 1970's GDP
Sources: Mehlum, Moene, and Torvik (2006); World Development Indicators.

Figure 2

Trade openness over time

(percentage of GDP)

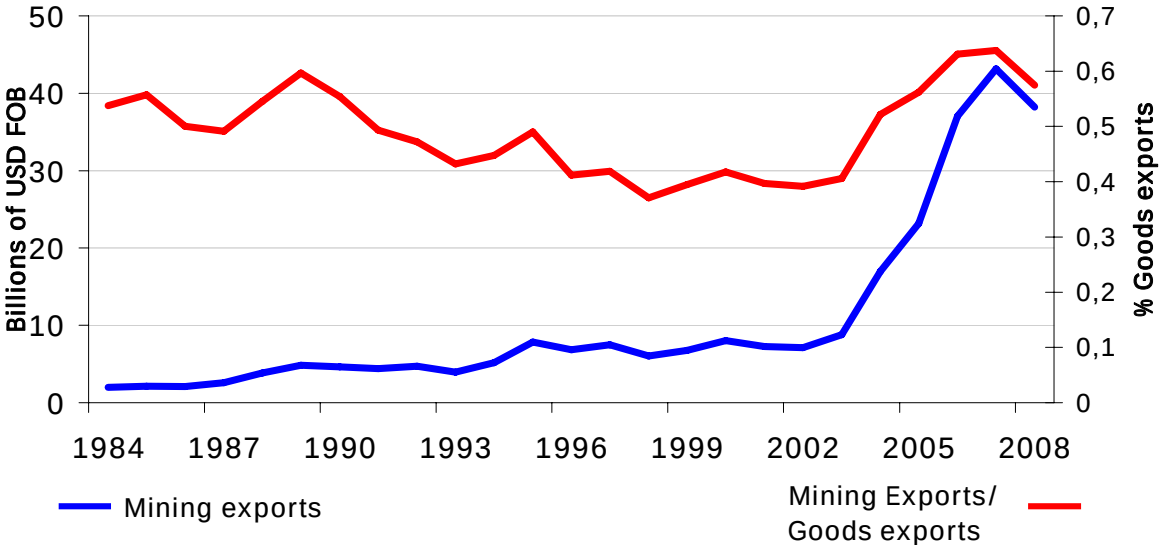


Source: World Development Indicators.

Figure 3

Mining exports

(percentage)

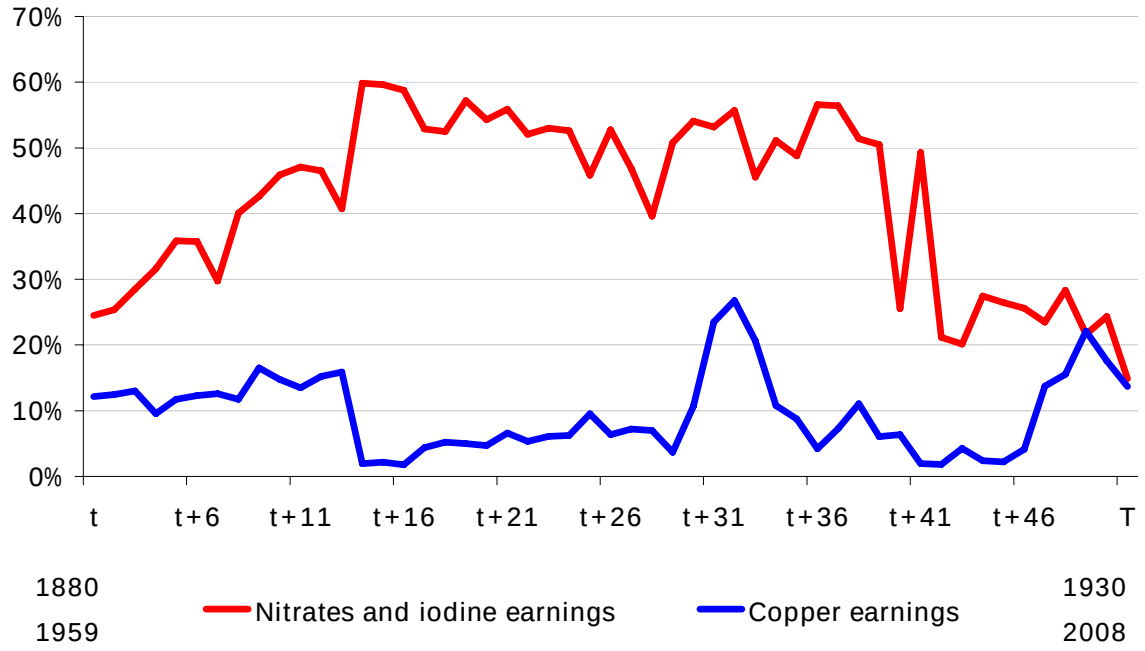


Source: Central Bank of Chile.

Figure 4

Earnings from nitrates-iodine and from copper

(percentage of total fiscal income)

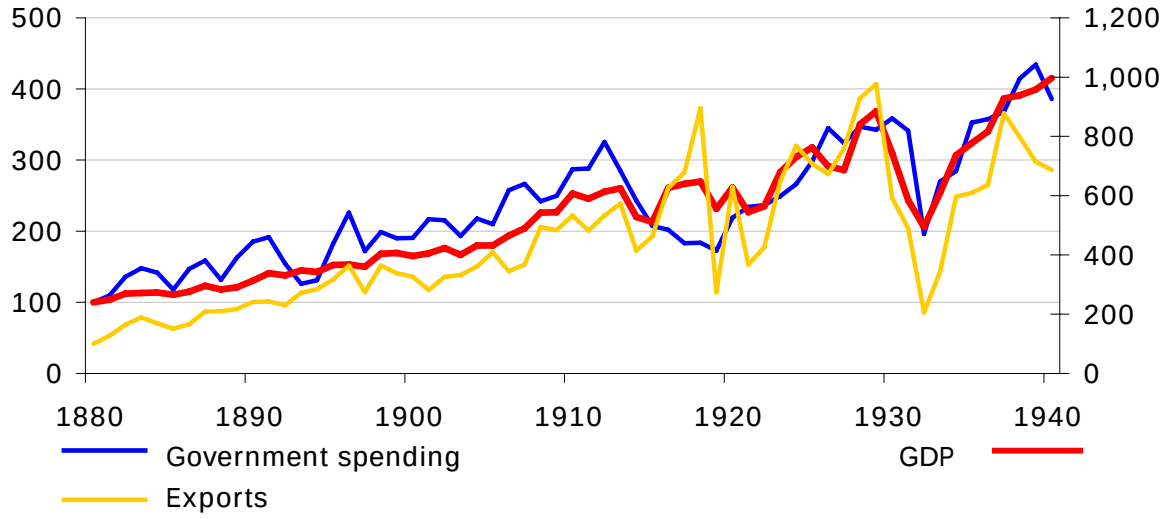


Sources: Jeftánovic, Jofré, and Lüders (2000); Central Bank of Chile.

Figure 5

Government spending, exports and GDP

(index, 1880=100)

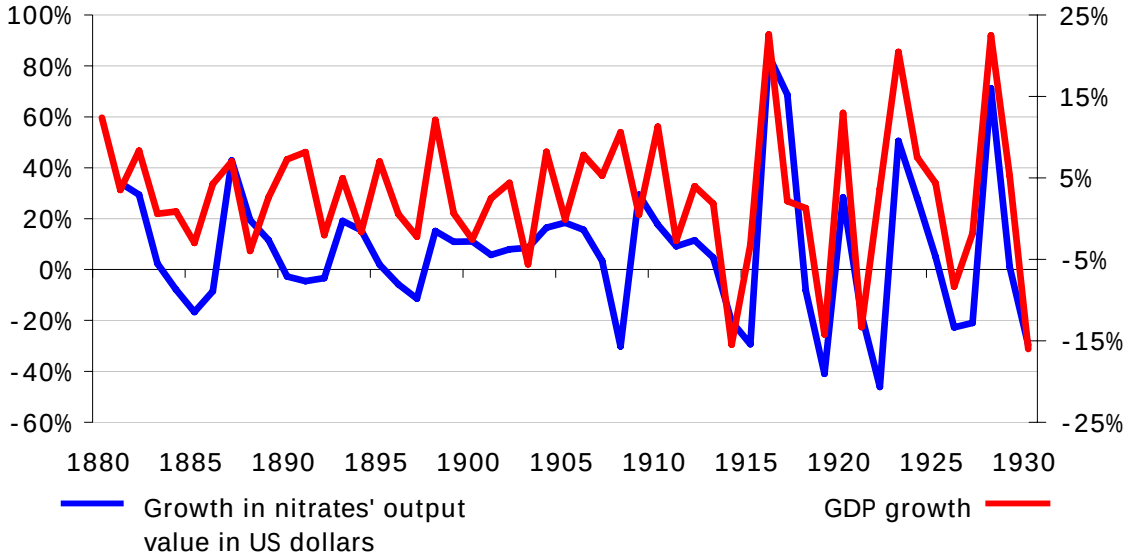


Source: Braun, Braun, Briones, and Díaz (2000).

Figure 6

Growth in nitrates' output value and real GDP

(percentage)

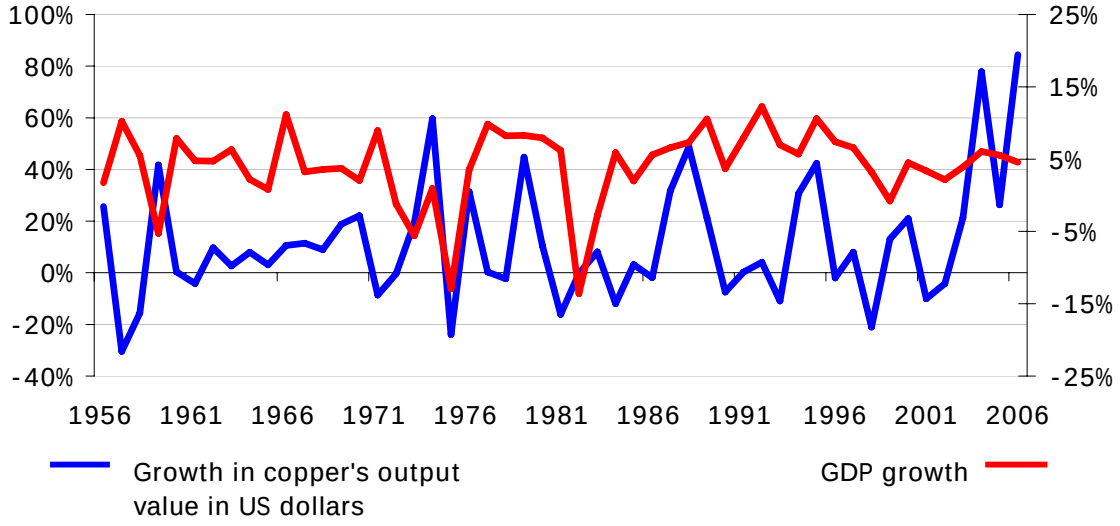


Source: Braun, Braun, Briones, and Díaz (2000).

Figure 7

Growth in copper's output value and real GDP

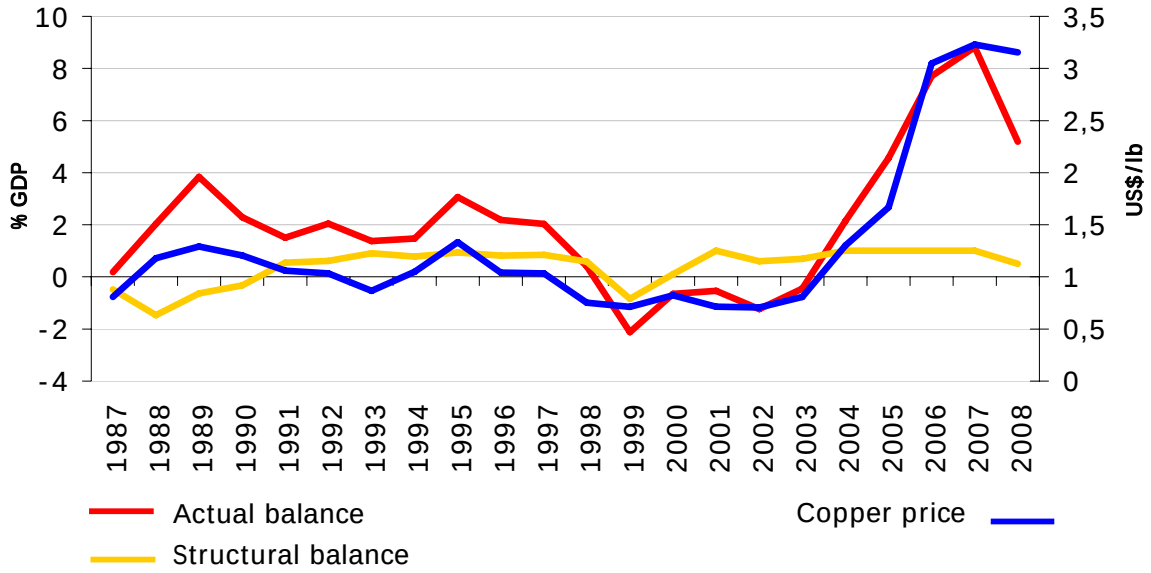
(percentage)



Sources: Braun, Braun, Briones, and Díaz (2000); Ministry of Mining; Central Bank of Chile.

Figure 8

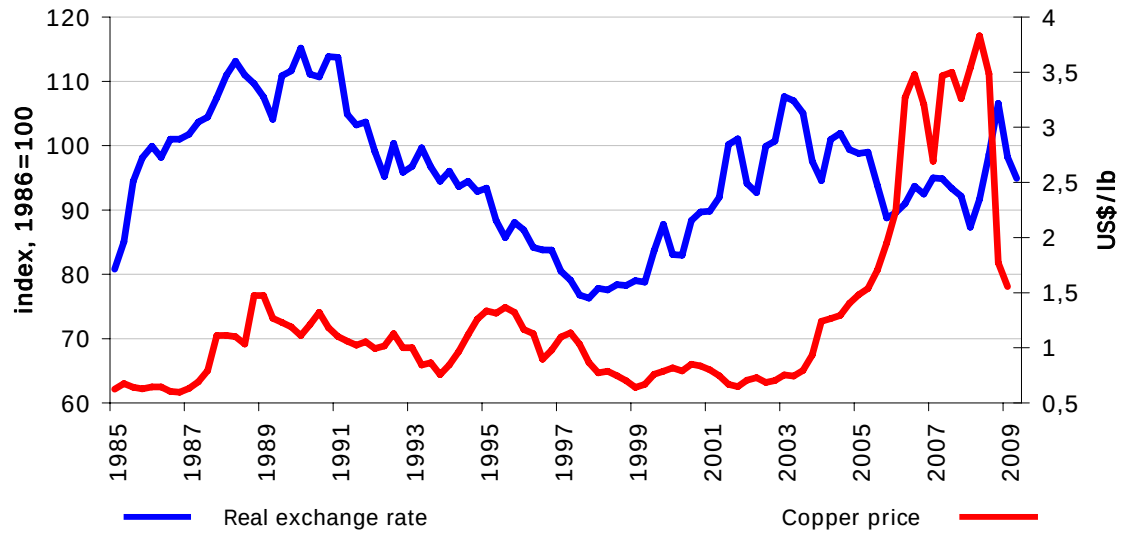
Copper price and fiscal balances



Sources: Bloomberg; Budgets Bureau, Ministry of Finance.

Figure 9

Real exchange rate and copper price



Sources: Central Bank of Chile; Bloomberg.

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