FDI in mining and development: With a look at copper in Chile

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Plan of the presentation

1. General considerations regarding the growth benefits of FDI
2. Mining investment in Latin America
3. Specifically, the contribution of copper in Chile
4. Conclusions

1. Why is FDI desirable?

- Technologies are not off-the-shelf: They are an asset that cannot be exploited at arms lenght
  - If a country is to benefit from them, it must usually invite in a multinational
- Technological disparities are enormous: multinationals embody the most advanced
- Disparities in human resource development are also huge, and multinationals can assist in transferring skills to domestic economy of recipient countries
  - This is particularly valuable in the case of non-firm-specific skills

What do countries expect from FDI?

- Higher investment than without FDI
  - Crowding in of domestic investment, not crowding out
- Introduction of new technologies
- Introduction of new skills through training of labor force
- New skills should be able to migrate to other parts of the economy or to other firms in the sector; ideally, create new firms
- Management methods not available or in use in host countries
- New exports: Access to product design and markets
- Participating in multinational supply and R&D networks

Some probable conclusions from the literature …

- Greenfield investments are probably more valuable for development than M&A, although the latter may also bring modern technology and management
- Investments that broaden a country's comparative advantages are particularly desirable
- Don't bottle them up in EPZ, where they have no linkages with the rest of the economy (unless you transform the entire country into an EPZ, like Mauritius)
- Agnostic as to what sectors are better
- I will argue that mining is not a particularly favorable sector, but that a lot depends on policy

In a recent paper, I was particularly interested in the investment issue …

- "Foreign investment in developing countries: Does it crowd in domestic investment" (with R. Machado), *Oxford Development Studies*, June 2005.
- The aim was to calculate an FDI investment multiplier.
- We calculated whether (in a statistical sense)
  - m = 1 (neutral effect on domestic investment)
  - m < 1 (crowding out)
  - m > 1 (crowding in)
- We estimated this coefficient by region, with a large sample of country data for a long period of time (1971-2000) and for individual decades
- No instances of crowding in and some region-decade combinations with crowding out
- Latin America, where there is a lot of mining FDI, did particularly poorly in our exercise

Some results

	Multiplier	Effect
1971-2000		
Africa	0.98	N
Asia	0.43	N
Latin America	0.11	CO
1971-1980		
Africa	1.66	N
Asia	2.10	N
Latin America	-0.46	CO
1981-1990		
Africa	0.72	N
Asia	-0.32	N
Latin America	1.50	N
1991-2000		
Africa	-0.71	CO
Asia	0.40	N
Latin America	0.79	N

When should we expect crowding in?

- When FDI is in a new sector of the economy and/or has proprietary technology or tacit knowledge that is unavailable to domestic producers
- When it produces a good that is used as inputs for domestic or foreign producers downstream
  - E.g., domestic production of semiconductors makes it attractive to produce computer parts
- When it uses inputs produced domestically upstream
  - E.g., car production induces investment by parts producers
- In other words, when it has a lot of linkages to the rest of the economy

Other cases …

- When it trains labor or human resources in non-firm specific skills that can tehn migrate to other domestic firms – this is likely to lower the cost of such labor and make it profitable for domestic firms to invest
- Per contra, when the foreign firm uses scarce domestic skills it may raise its price and make them more expensive for domestic users
- Crowding out may occur in the capital markets if the foreign firm is large and borrows domestically
- A particular case of crowding out in mining, under current circumstances, is through the impact on the exchange rate

2. Where does mining investment in LAC stand?

- It isn't in new sectors! Most of the investment is taking place in sectors developed a very long time ago.
- It isn't taking place in sectors with a lot of linkages to the rest of the domestic economy.
- This may be the fault of policy makers, who haven't explicitly tried to develop upstream or downstream sectors.
- There are state enterprises in the sector and also some important domestic investors.
- Technology and human resource contribution is limited: standardized technologies, some countries have developed human resources in these sectors over the years.

There are two important contributions

- Mining is very capital intensive
  - Even state owned enterprises find it difficult to raise the capital
- Mining is an important contributor to the budget: in fact, in some countries it could contribute more through a more appropriate royalty
- This is a double-edged sword:
  - Potential for converting natural resources into long-term improvements in human capital and wellbeing
  - State institutions are weak in LAC and there is the temptation to use mining resources to satisfy demands by various groups
  - Countries may be tempted to lower domestic taxation or not raise it sufficiently

Under current conditions …

- Prices are well above their long-term levels
- This implies that budgets should use an estimate of long-term price when planning expenditures
- Theoretically, this is done in Chile (although not in other countries) but even in Chile the copper price used to prepare the budge is too high, with the result that a lot of expenditure is financed with foreign currency revenues from copper

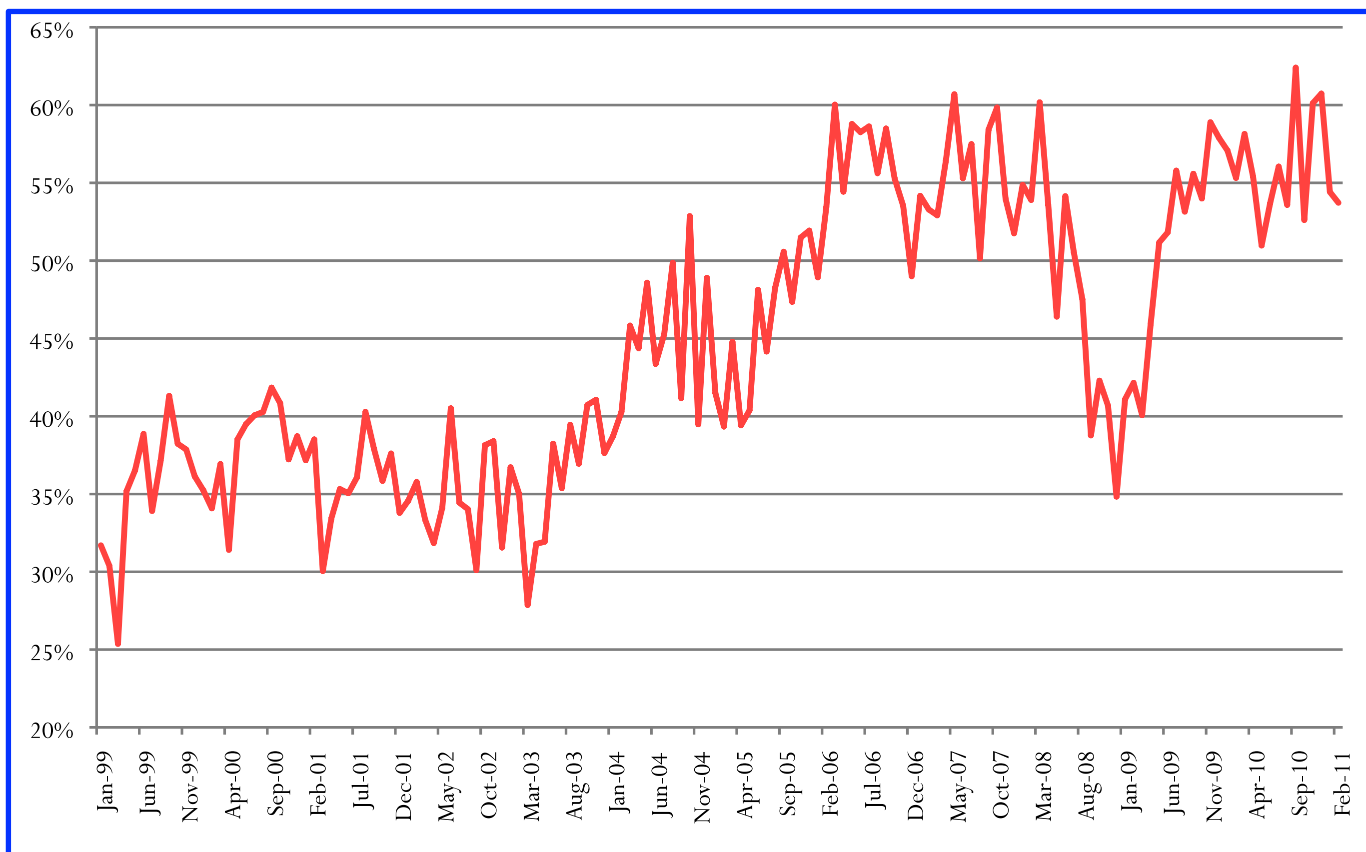
Under current conditions …

- More generally, most countries are suffering Dutch disease: almost everything else for international markets is unprofitable
- A boom exacerbated by capital inflows into stock markets and construction
- Sowing the seeds of future crises: when prices come down and capital heads for the exits.

3. Copper mining in Chie

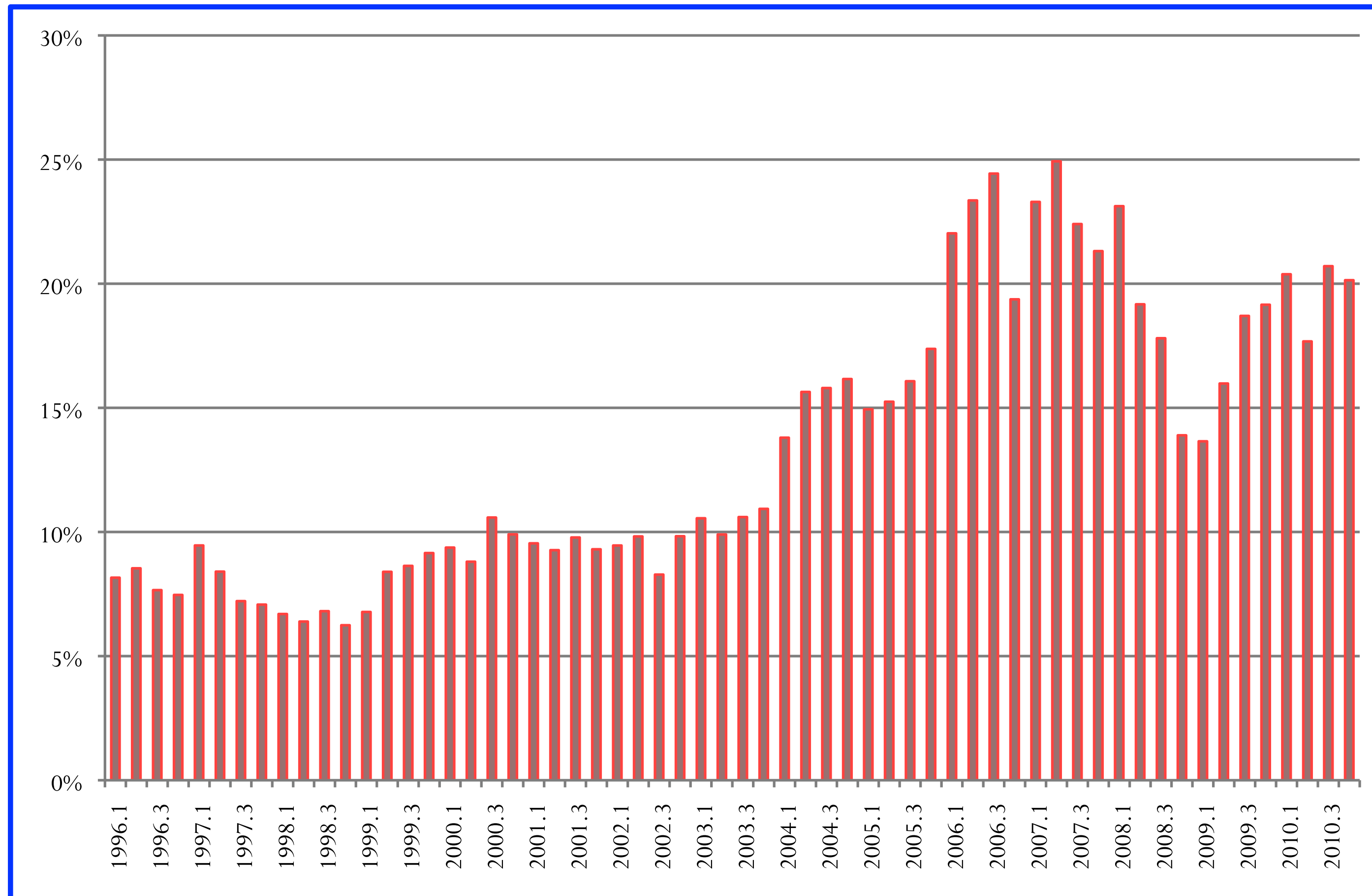
1. High contribution to GDP and exports
2. Absorbs an insignificant share of the labor force
3. Weak linkages to the rest of the economy, partly because policy has been passive: imported capital equipment, inputs, services; little downstream use (exports have no ellaboration)
4. Big contributor to the budget: potentially interesting, but excessive reliance on copper revenues rather than domestic taxation, which is appreciating the real exchange rate

Contribution to exports



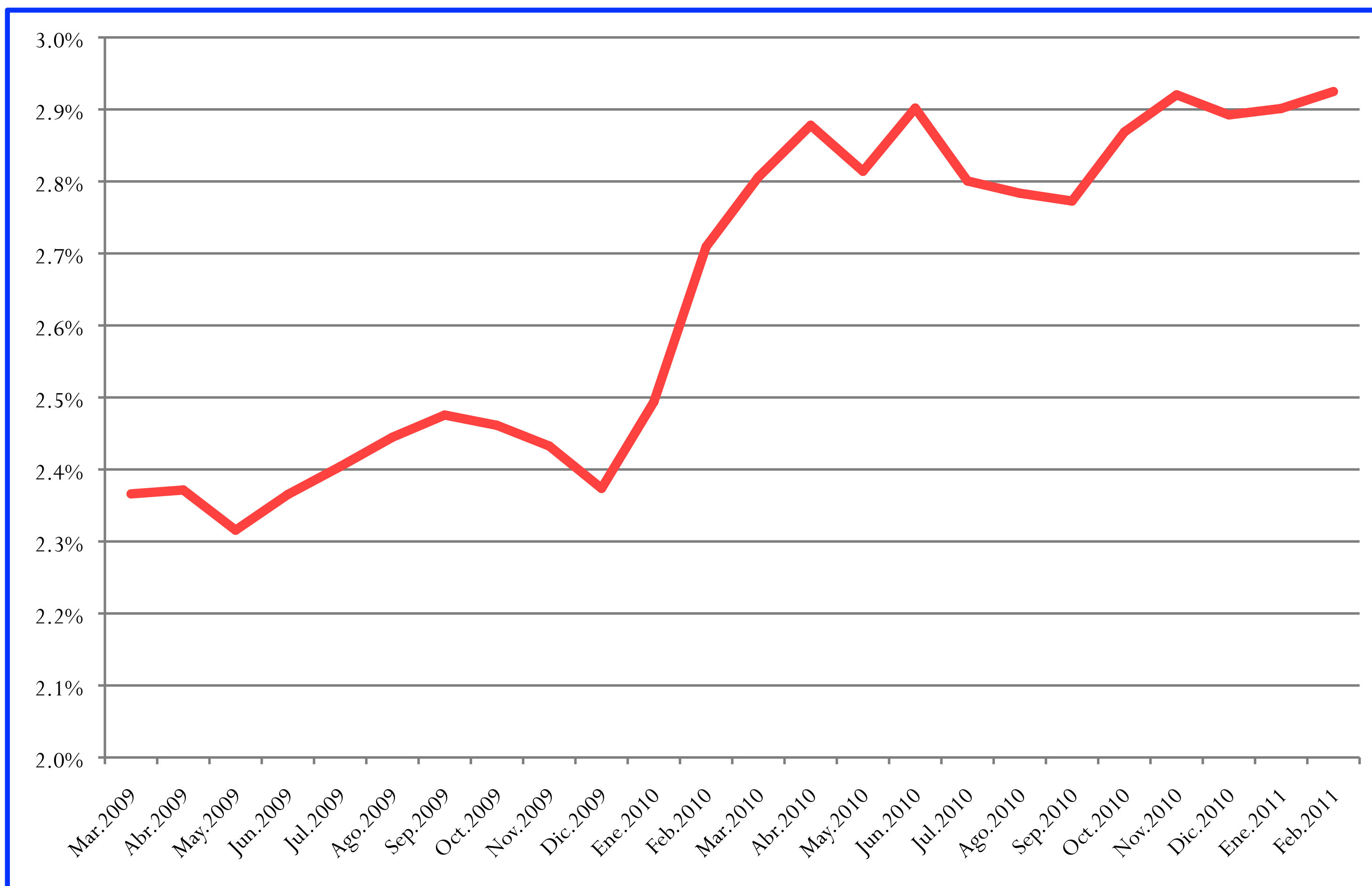
Source: Central Bank of Chile

Contribution to GDP



Source: Central Bank of Chile

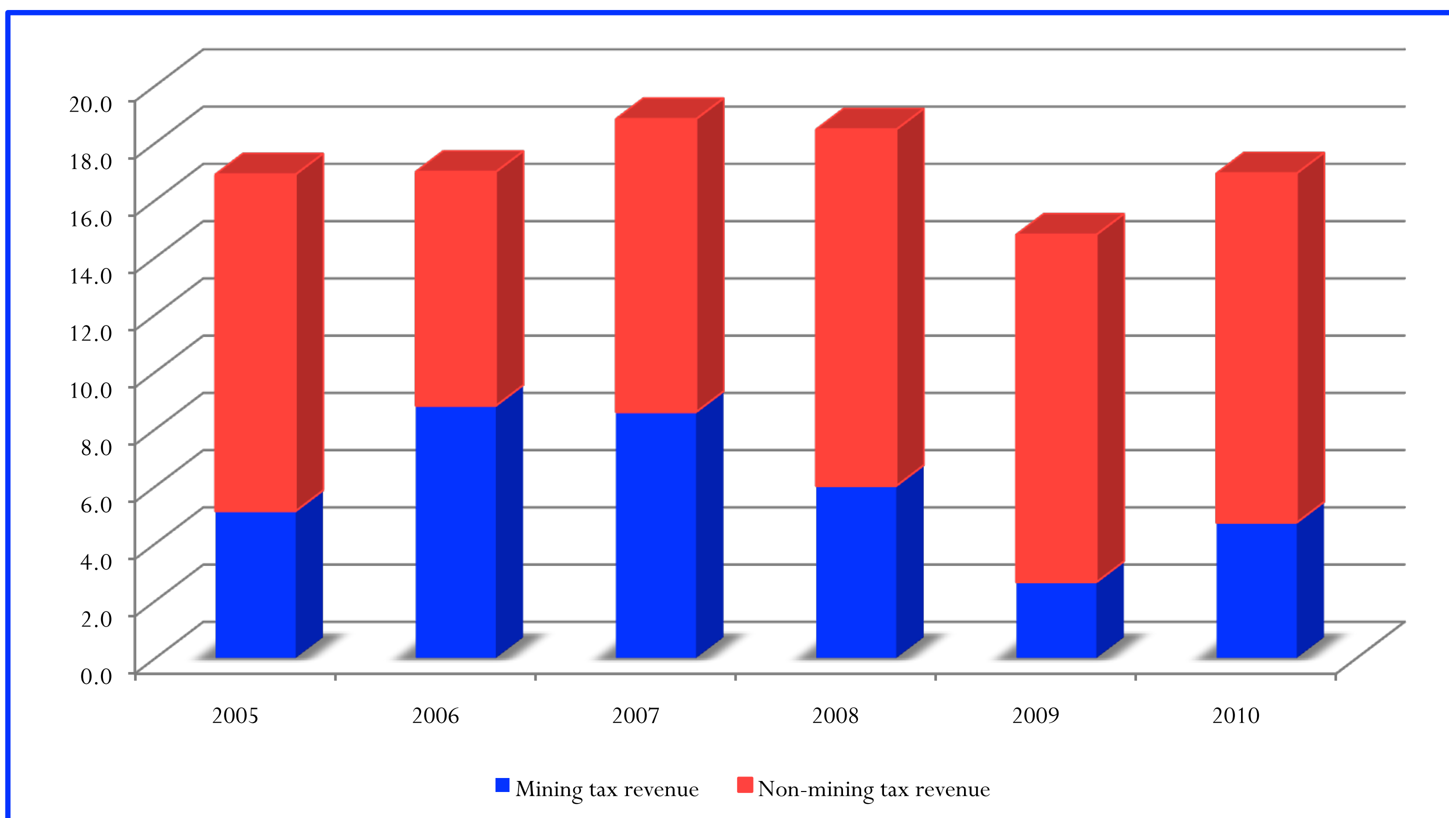
Contribution to employment



Source: INE

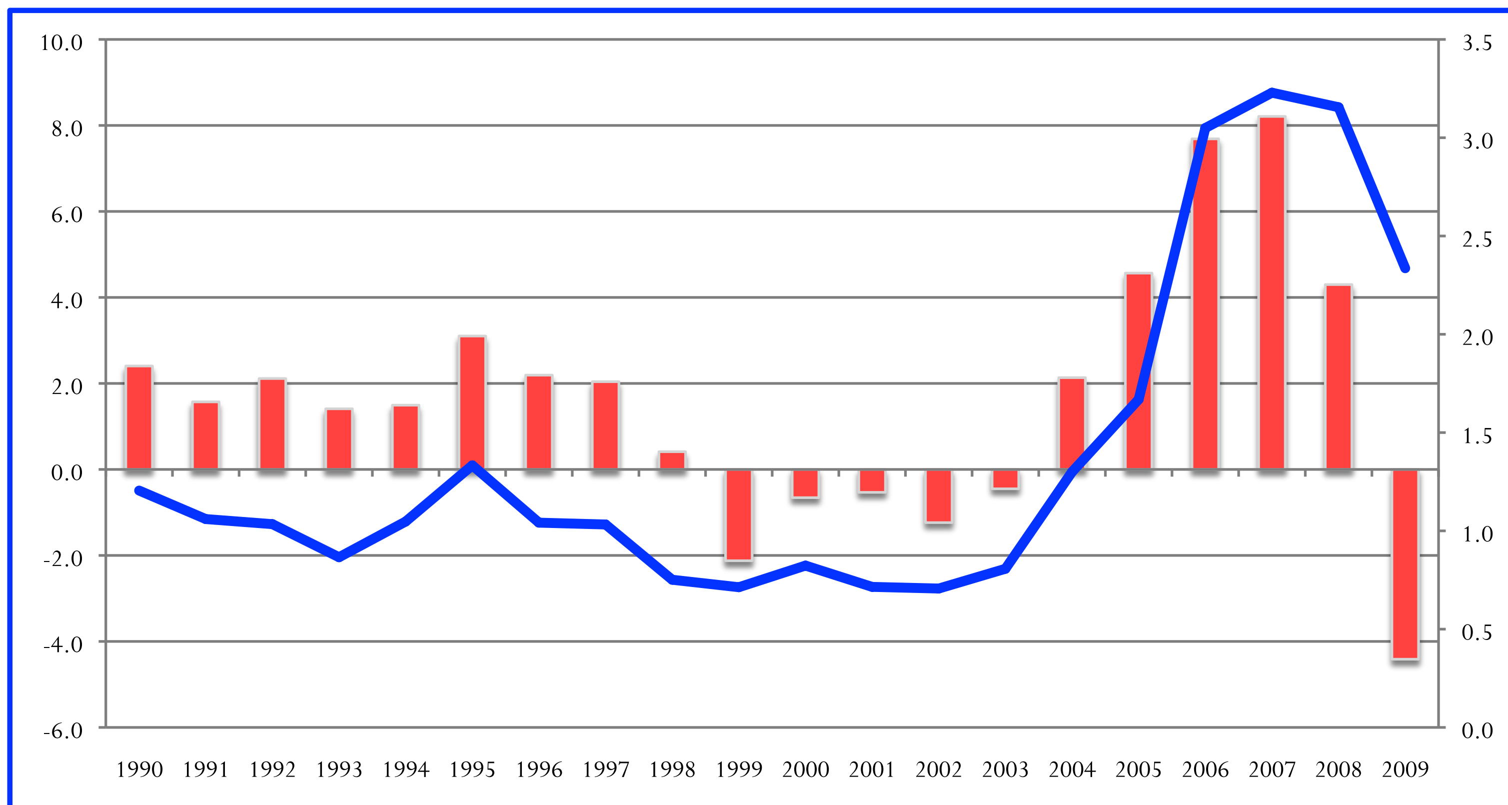
Contribution to tax revenue

Tax revenue as a % of GDP



Source: DIPRES

Public sector net borrowing or net lending (% GDP, left, red) and copper price (right,blue)



Source: Central Bank of Chile.

Mining taxation has been on the rise since 2005

- “Royalty” instituted in 2005 as 5% of operating income (4,5% of profits); invariability up to 2017
- Last year raised temporarily to 5-9% for those who voluntarily accepted to move to new rates, with invariability up to 2025
- New investments will have a range of 9-14%
- They will be paying approx. 41% of profits at current copper prices

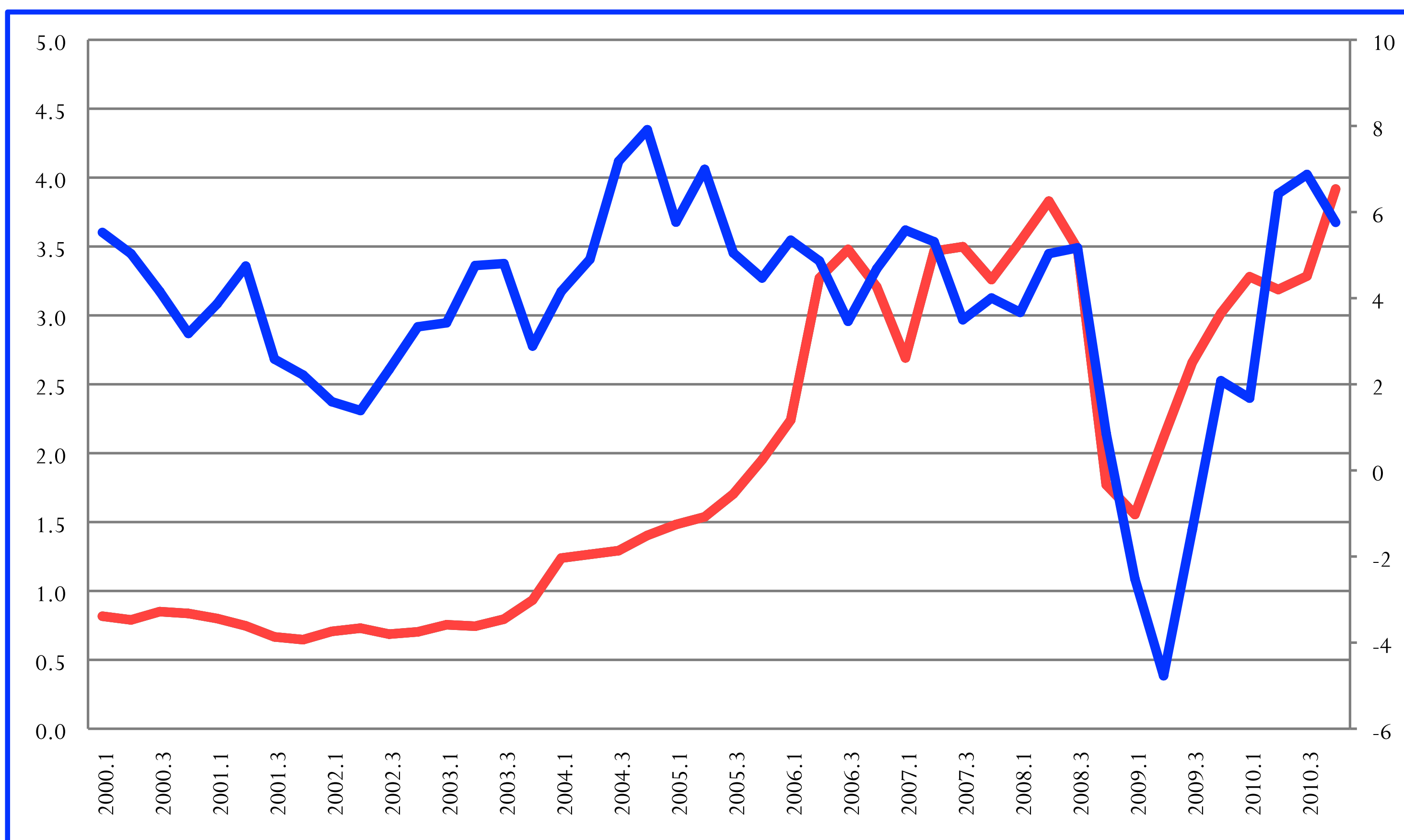
Evolution of copper prices makes mining very profitable ...

Copper price in USD per pound

Source: Central Banjk of Chile.

Chilean growth has become increasingly dependent on copper price

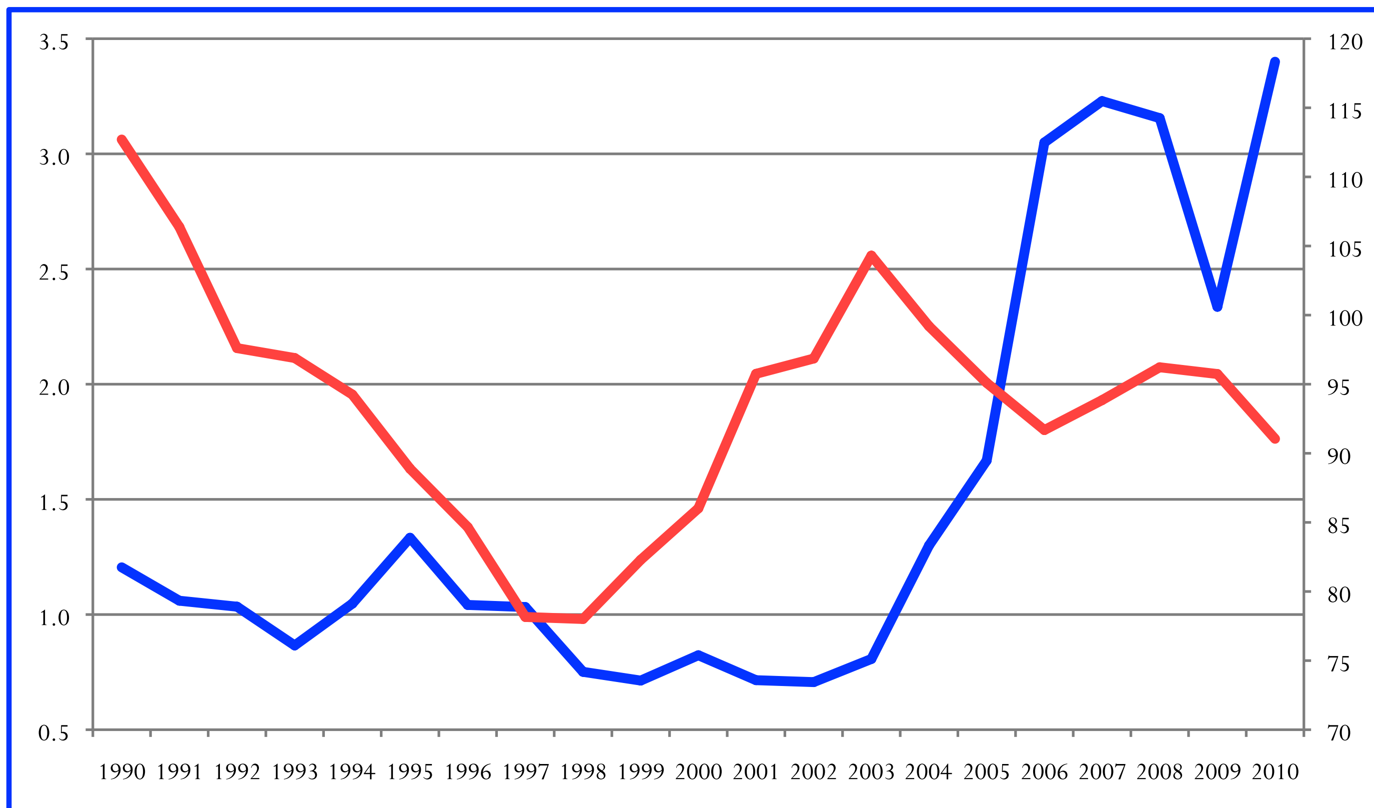
Copper price (left, red, USD?lb); growth (right, blue, %)



Source> Central Bank of Chile.

Chile has a serious Dutch disease problem

Copper price, left, blue; real exchange rate, right. red



Source: Central Bank of Chile.

4. Conclusions

- Mining is not your typical foreign investment that brings the benefits of new technology, higher investment, access to markets, human capital
- Certainly it can make a contribution to development, but it will not broaden recipient's comparative advantages (in most Latin American countries)
- In capital-scarce countries, it can be useful when governments or private firms cannot raise the required capital

The key is government policy …

- Taxation is important: Governments can transform non -renewable wealth into human capital
- But there is a political economy issue here: rich governments are always under pressure to use resources to satisfy pressure groups (or to stay in power, as the Middle East is showing right now) or to lower domestic taxation
  - This is dangerous, because mineral prices are volatile
- The creation of backward and forward linkages from mining is also critical government policy
- Companies have to get accustomed to sharing the rents with the host country

A final issue …

- Management of sudden wealth important:
  - Constitution of sovereign wealth fund not only to smooth out the cycle but also to avoid Dutch disease
  - And to use resources also to fund a long-term development program
- The idea is to use the windfall for long-term objectives and prevent it from being a booty that can be appropriated by special interest groups with political clout
- Norway is the prime example: it converted a good share of its oil wealth into financial wealth, using mostly interest and dividends to finance expenditure
- Venezuela is the counter-example: it has frittered away four oil shocks and has little to show for them