Will the new Australian mining tax drive out investment in the minerals sector?

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Response to RSPT by miners

- Tom Albanese, CEO of Rio Tinto, stated that:
  - "From my own perspective, [the RSPT] is the no. 1 sovereign risk issue on a global basis" adding that if the RSPT had been in place earlier "we would not have made the investment starting in 2004 in the Pilbara. We would not be producing 220 million tonnes of iron ore a year. It would be a smaller business and that would not be a good thing for Australia." (*Sydney Morning Herald*, May 25, 2010)

What were some economists saying?

- The RSPT changes tax rates on existing mining investments, but a retrospective tax should not affect future behaviour.
- Ben Smith constructed an analogy:
  - "Suppose the government announced a one-off measure to expropriate 5 per cent of the wealth of every citizen measured at midnight last night… it wouldn't stop anyone turning up for work tomorrow."
- But Ergas, Harrison and Pincus (2011) have worried that "[t]he greatest uncertainty is the size and persistence of this effect on investor concerns about sovereign risk in Australia".

How do international investors respond to expropriation?

- Models of investment and debt typically set up "punishment" for expropriation/repudiation through a withdrawal of future investment or debt purchases- Eaton and Gersovitz (1981), Cole and English (1991):
  - The foreign investors or lenders follow a "grim trigger" strategy- "Cheat me and I'll never trust you again."
- Or some direct sanction- Bulow and Rogoff (1989)
- Or a "loss of reputation" Cole, Dow and English (1995) and Tomz (2007)
- In these models, loss of reputation is permanent. If true, this would be catastrophic for Australia. A short-term RSPT tax bonus followed by a future of low investment in mining.

What happens after expropriation?

- Due to the lack of re-investment (and lack of access to foreign capital), withdrawal of foreign expertise or poor management after nationalisation, we might expect mining output to decline in countries that expropriated.
- But the "obsolescing contract" model of Vernon (1971) or Thomas and Worrall (1999) produces the same prediction, but with different reasoning- mines that are declining and at the end of their productive lives will be expropriated.
- So an additional question is: Can countries <u>undo</u> expropriations- lower taxes or sell off assets- and bring the foreign investors back? Does "de-expropriation" work? If de-expropriation works, that is evidence against the obsolescing contract model.

But is this what we observe in reality?

- Albanese was threatening a future where a short-term RSPT bonanza is followed by a long-term lower level of minerals output and so taxes for Australia.
- Mining companies can not pull out much from existing projects, but mining companies could refuse to invest in expanding existing operations or in new mines in Australia in the future.
- On the other hand: There are only a limited number of countries with known minerals deposits. Mining companies face all sorts of risks, and sovereign risk is just one.
- So how do mining companies respond to a government which expropriates their investments? What happens in the long-term to countries that cheat?

Long-term data on expropriation in the minerals sector

- Duncan (2006) tracked expropriations in major LDC producers in 7 minerals- bauxite, copper, lead, nickel, silver, tin and zinc- between 1960 and 2002.
- Here I use a longer data set of expropriations between 1960 and 2008 and track what happened to countries who expropriated, and even later de-expropriated.
- Expropriations can be seizure of mining assets, compulsory acquisition of company shares or change of tax rates. De-expropriations are the reverse of these.
- We might also differentiate between a wholesale seizure of assets (a nationalisation) and grabbing more of the income stream through a tax rise or equity grab.

Expropriations/De-Expropriations in selected minerals

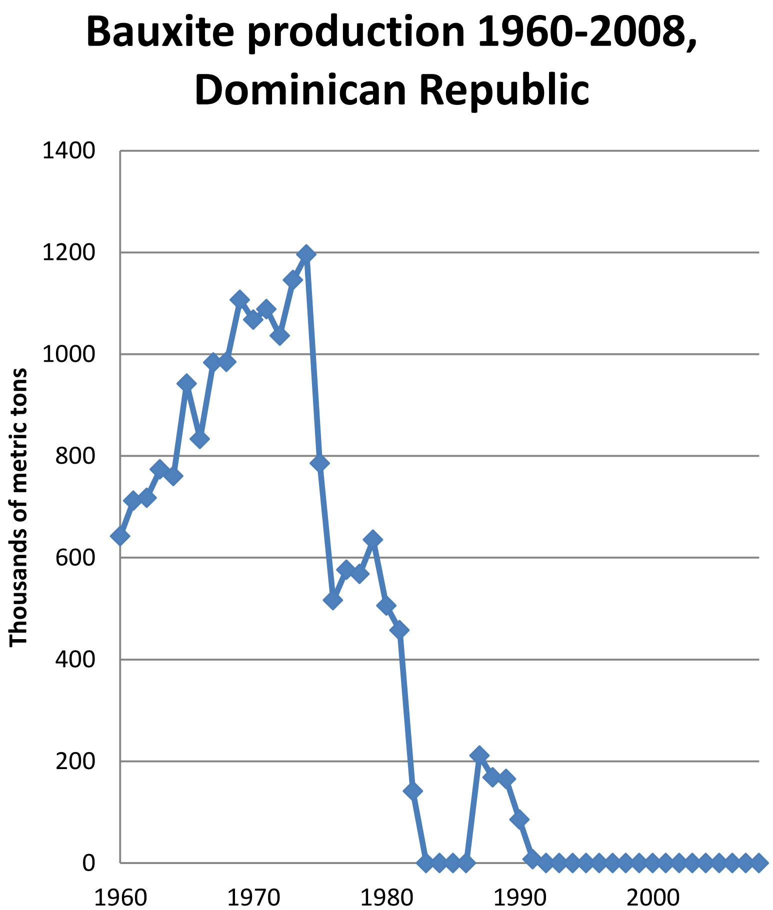
Mineral	Expropriations 1960-2008	De-Expropriations 1960-2008
Bauxite	16	8
Copper	11	10
Lead	2	2
Nickel	1	9
Silver	3	5
Tin	13	13
Zinc	4	3

Expropriations/De-Expropriations by decade

	1960s	1970s	1980s	1990s	2000s
Average Price	1.04	1.33	1.10	0.70	0.84
Expropriations	12	37	1	0	0
De-Exp’ns	3	10	25	12	0

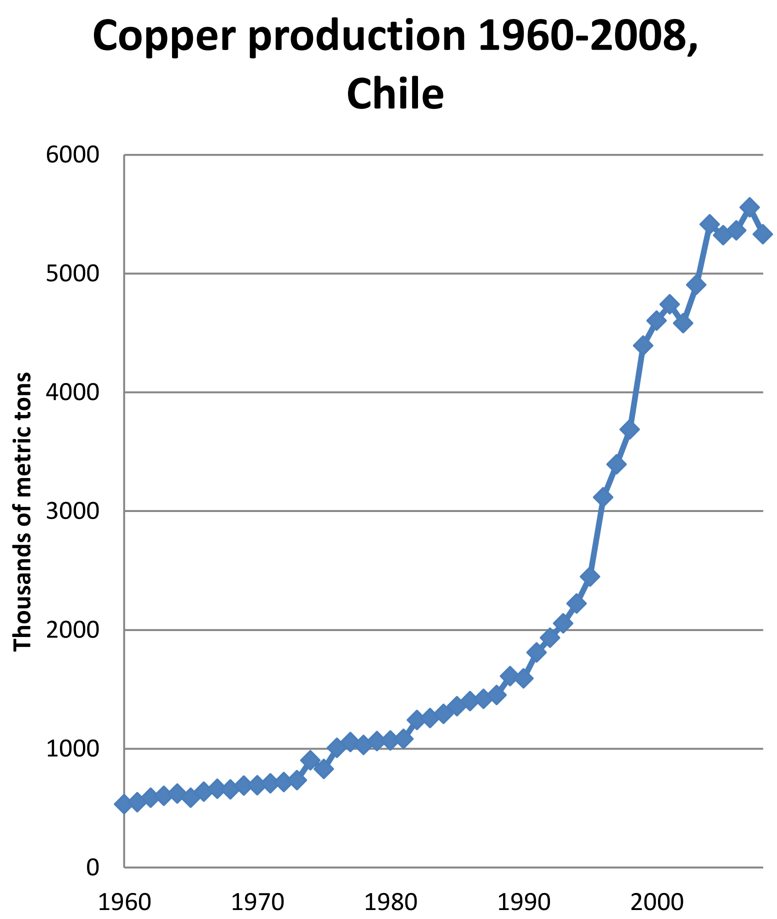
Anecdotal data

- There are plenty of country experiences that support the hypothesis that expropriations lead to lower growth.
- In 1960 the Dominican Republic produced 2.3% of the world's bauxite. In 1974 the Dominican government retroactively doubled tax rates from bauxite by raising the export tax to 5.5 of export revenues.



Anecdotal data*

- But then there are just as many country experiences which run counter to this.
- The Chilean government nationalised several US-owned copper mining companies and acquired equity in other companies between 1967 and 1971.
- Chile produced 34.6% of the world's copper in 2008.



Regression model of minerals supply

- Following Fisher, Cootner and Bailey (1972) estimate a supply function for each mineral *j* and each country *i* using a stock-adjustment model:

$$q_{ijt} = \alpha_1 + \alpha_2 q_{ij(t-1)} + \alpha_3 p_{jt} + \alpha_4 t + \alpha_5 Nat_{jt} + \alpha_6 Tax_{jt} + \alpha_7 De - Exp_{jt}$$

- Where q_{ijt} is the log of mine output of country *i* for mineral *j* in year *t*, p_{jt} is the log of real price of mineral *j* in year *t*, Nat/Tax_{jt} and $De\text{-}Exp_{jt}$ are dummy variables which take the value 1 if the country has expropriated or de-expropriated in that mineral in that or a previous year. The inclusion of a time trend follows Czelusta (2004).

Panel regression results

(t-stats in parentheses)

Coefficient on	Bauxite	Copper	Lead	Nickel	Silver	Tin	Zinc
Past Output	**6.77 (83.40)**	**4.65 (91.48)**	**1.95 (39.91)**	**1.00 (21.36)**	**3.70 (49.77)**	**1.33 (34.34)**	**2.93 (60.90)**
Price	-0.0594 (-0.72)	0.00582 (0.22)	-0.0126 (-0.37)	0.0608 (0.98)	-0.0477 (-1.93)	0.0415 (0.73)	-0.0489 (-1.29)
Time	0.00025 (0.101)	**0.00424 (4.90)**	**-0.00614 (-7.36)**	**0.0193 (8.03)**	**0.0110 (10.51)**	**-0.00529 (-2.32)**	**0.0038 (4.12)**
Nat	**-0.0788 (-2.26)**	**0.104 (2.95)**	**0.171 (3.59)**	-	0.00200 (0.04)	**-0.339 (-3.05)**	-0.0637 (-1.37)
Tax	**0.0972 (2.45)**	-0.0130 (-0.29)	-	0.0397 (0.763)	**-0.349 (-3.36)**	**0.323 (3.83)**	**-0.133 (-2.20)**
De-Exp	0.0623 (1.30)	-0.00461 (-0.14)	**0.421 (6.60)**	-	-0.0845 (-1.45)	0.129 (1.43)	**0.52 (8.15)**
n	357	368	376	288	379	330	360
R^2 overall	0.96	0.97	0.91	0.71	0.94	0.86	0.95

Pattern of results (statistically significant)

- Past nationalisations were followed by future declines in output in 2 minerals, but past nationalisations were associated with increases in future output in 2 minerals. The link between past tax increases/equity grabs and minerals output was likewise ambiguous.
- Acts of expropriation do not always result in the capital market reaction that Albanese threatened.
- Past de-expropriations were associated with higher future output in 2 out of the 7 minerals. Reputational or capital market access losses might not be permanent for countries which expropriate. It does not appear that the obsolescing contract model can explain all acts of expropriation.

Past Australian experience

- In the past mining companies in Australia have faced tax increases and equity demands from Australian governments, both State and Federal.
  - In 1973 a new Federal law required majority Australian equity in all minerals project and a bond of one-third the value of the foreign investment. This law was relaxed in 1975.
  - Australian states have been prone to raising royalties during boom periods. The Queensland state government raised royalties on bauxite in 1964 and again in 1974.
- But just as frequent have been tax and other concessions granted to mining companies during periods of low minerals prices (de-expropriations).

Problems with our thinking about mining taxes

- Nothing is forever. Punishments for expropriation do not appear to have long, if any, lives.
- De-expropriations occur just as frequently as expropriations.
- Our tax structures are not time consistent. Governments in both developed and developing countries raise and lower tax rates in reaction to the profitability of mining. We already have a “super-royalty” (state dependent) tax structure, but one that is changed as events change over time.

- Yet none of these facts is reflected in our recent debate about the RSPT.