Costs and consequences of the expropriation of FDI by host governments

Roderick Duncan

School of Marketing and Management

Charles Sturt University

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Abstract: There are no laws preventing a host government from seizing the capital of a foreign direct investment in its borders and then denying any compensation for the foreign investor. Why do we not see many more expropriations of investor capital by host governments? Compiling a database of expropriations within the minerals sectors of developing countries, I show that there is a cost for expropriation by a host government in the form of lower growth in the sectors of countries that expropriated in the past. It is possible to lose a bad reputation by a host government's actions after expropriation.

Keywords: Expropriation; Foreign direct investment; Natural resources

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*School of Marketing and Management, Charles Sturt University, Bathurst NSW 2795, Australia. Email: rduncan@csu.edu.au Website: csusap.csu.edu.au/~rduncan Phone: 02-6338-4982. Fax: 02-6338-4769.

1. Introduction

International law is clear that a sovereign country can seize capital and resources within its borders. In response, the only right existing for a foreign investor is to seek compensation through the courts of the country in which the investment was made. So there is no legal barrier to seizure of a foreign investor's assets for a host government, and the foreign investor has no right of appeal except through the courts of the same government that seized the property.

The only point of contention in international law is over the form of compensation for the foreign investor. While investor countries such as the United States have argued that compensation should be "prompt, adequate and effective", developing countries have argued that national sovereignty allows for partial or even zero compensation for foreign investors. For a thorough summary of the international law of investment, see Sornarajah (2004).

In the case of FDI in the minerals industry in developing countries, much of the development and production investment is made at the start of the project. These assets are located within the borders of the developing country and so are subject to seizure possibly without compensation. A foreign investment in a mining project worth a considerable percentage of a developing country's GDP is essentially subject to the whim of the government of the developing country.

The puzzle then is why there are not many cases of expropriation of FDI in mining projects by host governments. Here "expropriation" is used in a wide sense including:

- seizure of capital, including mining equipment, reserves of the mine or mining rights (a complete seizure of domestic assets of the foreign company is known as a "nationalisation");

- compelled sale of mining company shares/equity to the government or domestic nationals; or

- raising taxes on mining company revenues or profits

where this act was not a part of the original agreement between the foreign investor and the government.

In an earlier paper (Duncan (2006)), a study of the eight largest developing country exporters in each of seven major minerals over the period 1960 – 2002 found only 50 instances of expropriation out of a total of 2352 observations. On any basis then, expropriations in the minerals industry in developing countries are rare events. But why are expropriations so rare given the obvious gains to a host country?

Anyone with a passing knowledge of game theory would state that the answer is that the threat of punishment from foreign investors and the international community is what prevents expropriation. The theorist would say that attracting FDI from foreign investors by a host government is a repeated event, not a one-off situation. In a repeated game, as long as the host government does not discount the future too highly, the future consequences of expropriation prevent expropriation. The theorist would cite the "folk theorem of repeated games" and use the tools from Fudenberg and Maskin (1986) or Abreu (1988) to prove this result.

If future punishment is what prevents expropriation by host governments, then we should be able to observe this punishment following historical instances of expropriation. While the theoretical literature on FDI and punishment is large, there is almost no empirical literature examining the punishment that followed historical instances of expropriation. In this paper, I provide some empirical evidence of the cost of expropriation of FDI.

What costs does a country pay for expropriating a foreign direct investment? Two questions arise from a consideration of these costs- "where do these costs come from?" and "how significant are they?"

The cost of expropriation is determined by:

- the relative efficiency of government operation of the mine versus private operation (if the government takes over operation the mine);

- the reinvestment response of the investor (if the investor keeps operation of the mine but has a lower equity share or pays higher taxes in the mine);

- any punishment exacted by outside parties, such as countries of origin of the investors or multilateral lending agencies; and

- any compensation for lost capital paid by the host government to the investors.

For a nationalisation the cost will be determined by third party responses and compensation plus the relative inefficiency of the government in operation of the project and the reinvestment level of the government. For a tax/equity rise, the cost will be determined by third party responses and compensation plus the reinvestment response of the investor following the expropriation.

Broadly speaking, costs of expropriation can be broken into costs that are internal and costs that are external to the original contract. Internal costs arise because the government is less efficient than the original investor in operating the mine or because the investor lowers the rate of investment after the expropriation- that is, a change in the operation of the mine. External costs are costs that are imposed by third parties to the agreement. External costs include responses by multilateral agencies, other foreign investors and even foreign governments.

This paper focuses on the internal costs of expropriating foreign direct investment. The first aim of this paper is to determine whether there are costs for expropriation that arise out of lower profitability of the mining operation.

The second question is the size of the costs of expropriation. Using the same database as this paper, Duncan (2006) found that expropriations occurred in times of price booms in the output mineral of the mining project and not in times of political or economic crises. This suggests that expropriations were not a result of abnormal decision-making processes by the host governments but were a function of calculated economic and political decisions. The expropriations were a form of contract renegotiation between investors and governments.

It could be argued that as renegotiations are a normal part of business dealings, renegotiations of foreign direct investment contracts should not be severely punished. Kindleberger (1969) argued for a more lenient view of renegotiation demands by host governments stating that (page 151):

> Renegotiation of contracts is familiar in the Anglo-Saxon tradition... [An appropriate analogy to renegotiation demands] may be with the successful TV comedian whose agent has little difficulty in getting the network to tear up an old contract with years to run at $500 a week and substitute a new one at $5,000.

> "My client can be funny only when he's happy", the agent presumably says, "and now that he has made a hit and is worth five thousand dollars a week, he can't be happy at five hundred."

> Facts are more compelling than the sanctity of contract.

This example is equivalent to the "opportunistic" explanation of expropriation in Cole and English (1991).

In response it could also be argued that a limited reaction by investors and third parties means that the cost of changing the contract is not very high for the host government. But this can actually turn out to be a bad result for host governments. A high cost of expropriation lowers the average number of expropriations and so lowers the risk faced by investors. With less risk, investors would offer more investments to host governments, making the host government better off. This result is a typical one in the principal-agent literature. Host governments may be better off in an environment in which punishments are very high, as in Eaton and Gersovitz (1984).

So we can not be certain in advance whether or not expropriations are severely punished. The second aim of the paper is to see historically whether the internal costs of expropriation have been high.

2. Models of foreign direct investment with expropriation

In an environment where governments are free to seize foreign capital within their borders, there must be some punishment or threat which is restraining governments from misbehaving, otherwise expropriation would be a common event. The lack of legal enforceability of the contract between the investor and the domestic government is the same for a direct investment as it is for a loan agreement. In the two literatures, there have been several approaches to modelling the enforceability of contracts facing expropriation.

One punishment that may enforce contracts is the loss of future access to capital. Loss of future access is a common assumption of models of loan contracts and has no theoretical features to differentiate a direct investment from a loan contract. Loss of access might be loss of access to future capital within the project itself, as in Thomas and Worrall (1994), or it might be loss of access to all future capital, as Eaton and Gersovitz (1981), Sachs (1984) and Cole and English (1991).

If the loss of access to future capital is only within the project, the project will display what is called the "obsolescing contract" feature from Vernon (1971), from Thomas and Worrall (1994) or from Schnitzer (1999). In this type of contract, loss of future reinvestment is the only cost of expropriation. As future reinvestment in the project falls away, the government receives a higher share of the value of the project.

At the time after which there is no future reinvestment, the project must be wholly owned by the government. For mining projects where the bulk of the investment is up-front and reinvestment tails off as the mine becomes depleted, the obsolescing contract should entail the government taking the entire value of the mine towards the end of the mine's life. What looked like expropriation might simply be the operation of the contract. We have to be careful then to allow for the possibility of obsolescing contracts in direct investment in mining.

Loss of access to all future capital requires the support of third parties. As this requires third-party cooperation, loss of all future access is part of the external costs of expropriation and will not be considered in this paper.

A second punishment is the loss of foreign management and technical expertise. In the case of nationalisation, the government has taken over the entire operation of the mine and so must replace foreign workers with domestic workers. In the case of a tax/equity rise, the foreign company may respond by reducing its manpower commitment in the mine. Eaton and Gersovitz (1984) and Raff (1992) provide models of direct investment where the cost of expropriation is the loss of foreign expertise either managerial or technical. Mine profitability would be expected to suffer with the withdrawal of foreign capital and expertise.

The internal cost of expropriation is expected to take one of two forms- either a loss of future reinvestment in that project or a loss of foreign expertise in

that project. Both of these responses will result in lower future growth in that industry in that country.

3. The data

I have constructed a database of government interventions for seven major minerals from 1960 to 2002. The minerals selected were: bauxite, copper, lead, nickel, silver, tin and zinc. These minerals were selected because they are important minerals for developing countries' export revenues and for developed countries' industry. The countries chosen for the sample are the eight largest developing country exporters for the period 1965-1975 for each of these minerals. I have excluded (formerly) Communist countries as I assume these countries were not sufficiently linked to the world minerals markets over this period.

To produce this database I searched through various issues of *Minerals Yearbook*- an almanac of the minerals industry produced by the US Bureau of Mines. I take as an observation whether an expropriation took place in a project for that mineral, in that country, in that year.

For each of the seven minerals, I have an index of the real price of that mineral. Real prices of minerals were obtained from the United States Geological Survey "Historical Statistics" website. These real prices were normalized to have a mean of one over the period 1960-2002.

The data on political crises and democracy is derived from the Polity IV database. This database is fully described in Marshall and Jaggers (2001) and is available from the Inter-University Consortium for Political and Social Research. This database contains information on most of the countries and years in the mineral database. The Polity IV database contains indices for the level of democracy and autocracy of the political institutions for each country-year.   The scale runs from 0 (least democratic/most autocratic) to 10 (most democratic/least autocratic) for each index. Marshall and Jaggers derive a combined measure for each country-year by subtracting the autocracy score from the democracy score to generate a scale of -10 (least democratic) to 10 (most democratic) for the country's institutions in that year. I call this the "democracy index". A political crisis in any country-year is indicated by a change in this combined index of three points or more from that of the previous year, according to Marshall and Jaggers.

I have created a series of decade dummies which record the decade in which the observation was made for each of 1960s, 1970s, 1980s and 1990s. I have also created a series of continent dummies that record whether the observation was made on the African, the Caribbean or the Latin American areas. These dummies are hoped to capture any decade-specific or continent-specific political or cultural effects.

4. The Punishment Model

If internal punishment is effective, past expropriations are expected to be associated with lower levels of direct investment and lower levels of foreign workers in that sector in a country that expropriated. Past expropriation should also be associated with lower levels of profits and lower productivity for a project due to loss of foreign investment and expertise.

Unfortunately data is not available for direct investment, profits of foreign companies or foreign manpower in a sector for developing countries for the period of most interest- 1960s. As data is not available, I use output of the sector for that country as a proxy for profits. Our interest then is whether a past expropriation significantly lowers the path of output for a country sector below that of a country sector which did not experience an expropriation.

Since we are only interested in the slope of the path of output, a natural normalization is to use the percentage change in output per year, or, equivalently, to use the first difference of the logs of output in each sector of each economy from each year to the previous year.

Output growth in a mineral industry in a host country is expected to be influenced by several sets of factors. Firstly, output growth might be a function of past, present and future prices of the output mineral. The real price of the output mineral is included, while lagged prices were not found to be significant and were discarded.

Secondly factors specific to the year or continent of the output could be expected to influence growth. Decade and continent dummies were created to capture these effects.

Thirdly political events could affect output growth in an industry. One possibility is that the turmoil surrounding a political crisis could disrupt the entire economy, included the mining operation. A political crisis dummy was created to reflect the occurrence of a political crisis in the host country in that year. A second possibility is that factors associated with the political climate could affect output. An index of the level of democracy in the host country in that year is included.

Finally output growth could be affected by the actions of the host government with respect to the mining project. I test whether a past expropriation has any effect on current growth of output. This test is generated by creating a dummy variable "Badname" that takes on the value one if there has been an expropriation in that country/sector in that year or any prior year and zero otherwise.

Similarly it is proposed that governments may be able to reduce the costs of past expropriations by de-expropriating. This might involve selling off government assets in that industry to foreigners, selling government equity to foreigners or lowering tax rates in that industry. Such actions might be interpreted as a "costly signal" of change in behaviour by the host government along the lines of Ben-Porath and Dekel (1992). I test whether a de-

expropriation has any effect on lessening the negative consequences of a prior expropriation. This test is generated by creating a dummy variable "Goodname" that takes on the value one if there has been a de-expropriation in any year since an expropriation took place and zero otherwise.

An alternative hypothesis for expropriation and the path of output would be the concept of foreign investment as an obsolescing bargain. According to Vernon, as the end of the life of a mine approaches, reinvestment becomes less important. As reinvestment is lower, the government's need for the foreign investor drops. At some point, the host government would simply take over the mine and run the mine down.

Under the Vernon hypothesis, we would expect that governments would take over a mine as it is depleting, so Badname would have a negative expected sign, but Goodname would also have a negative expected sign, as no subsequent actions by the government could make a depleted mine function again.

It is proposed that the change in output might be a function of current price for that mineral. Lagged prices were introduced, but they were not significant in the regressions and their exclusion did not affect the results. Additional regressors which may be of importance are the occurrence of a political crisis or internal war that same year and the level of democracy of the political institutions of that country. Additionally I have dummy variables for the decade concerned and the continent/area in which the country is located.

Indexing is represented by i for the particular country/sector and t for the time. The model we estimate is of the form

$$(\text{Change in Output}_{it}) = a_0 + a_1 \text{Price}_{it} + a_2 \text{Badname}_{it} + a_3 \text{Goodname}_{it} + a_4 \text{Politics}_{it} + a_5 \text{Dummies}_{it}$$

where the set of country variables and dummies changes across the regressions. I call this the "Punishment Regression".

Under the punishment model, the coefficient on Badname is expected to be negative and the coefficient on Goodname is expected to be positive. Under the obsolescing bargain model, the coefficient on Badname is expected to be negative and the coefficient on Goodname is expected to be zero.

5. Presentation of the results of the Punishment Model

Table 1 presents the results of the Punishment Regression. I have suppressed the coefficients from the time and continent dummies, as the importance of these effects comes out only in the predictions in Table 2. I use Table 1 to discuss the sign and significance of the variables. Table 2 is useful for illustrating the economic importance of the variables.

Current price is positive but insignificant in all three regressions. Despite the failure of price to be a significant regressor, I retain price in the regression as there are strong reasons to believe price is important in the output decision.

The estimated effect of past expropriations is to reduce output by about 6 percent each year. This coefficient is stable and statistically significant at the 1 percent level across all many sets of regressors.

The estimated effect of a past de-expropriation is to increase output by about 5 percent per year. This coefficient is stable across the regressions. The coefficient is significant at the 10 percent level.

The occurrence of a political crisis is estimated to lower output by 7 percent in the same year for the second regression. The political crisis dummy is significant at the 1 percent level in the second model. The democracy index is not significant in any regression. The democracy index will be dropped from the set of regressors.

Table 2 presents the predicted percentage rates of change from the second regression on Table 1. We see that the 1980s and 1990s were poor decades for this subset of minerals exporters. A prior expropriation made turned a slow growth decade (the 1980s) into a decade of declining output.

Table 2 also shows that countries with prior expropriations could regain their reputation partly by de-expropriating. On net those countries that de-expropriated grew about 1 percent less than those countries that never expropriated, but 5 percent faster than those countries that did not de-expropriate.

5.1. Accounting for the form of expropriation

Table 3 tests whether there is a significant difference between the effect of expropriation through nationalisation or through taxes/equity increases. Comparing the estimated coefficients from Table 3 with those derived for the regression in Table 1, we see that the individual effects of a nationalisation or a tax rise are approximately equal and reduce growth of output by 3-4 percent each.

6. Discussion of the regression results and conclusion

Across all specifications of the Punishment Regression, current real price of the mineral was not a significant regressor of output growth. While price is not a crucial part of the logic of the model used here, there are strong reasons to believe that price should be correlated with output. However no evidence was found of a correlation between present or lagged real prices and output growth.

One possible explanation is that mining projects have a fixed capacity that is difficult to adjust within the span of a year. Mines may respond to price changes but only over a much longer horizon. Another possibility is that mines are reacting to expectations about future minerals prices, which are not related to present or past prices.

We see that past expropriations have a significant cost in terms of foregone future output. The coefficient of past expropriation was large, negative and strongly significant across all the formulations of this model. This data suggests that countries with past expropriations can expect to have output growth of that mineral almost 6 percent less than countries with no past history of expropriations. The Kindleberger view that expropriations should be handled leniently does not seem to be the accepted view of investors.

This cost is approximately equal for countries which nationalized and countries which raised taxes or government equity. The form of expropriation was not important for determining the costs of expropriation.

For the first question that this paper posed "where do these costs come from?", some of the cost does come from within the industry itself. The loss of foreign expertise/management and the loss of direct reinvestment lead to much lower revenues for the government from the mining project. Additional punishment may come from outside the contract, through investors in other industries, through foreign governments or through multilateral lending agencies, but those sources are not examined in this paper.

The second question asked about the costs of expropriation "how significant are they?" A difference of 6 percent a year in growth rates is significant. In some cases, countries that were the large developing country exporters of a mineral all but disappeared in the years following expropriation, such as Congo for copper or Congo and Zambia for zinc.

The coefficient on de-expropriations was positive and significant at the 10 percent level across all the regressions. This suggests that future actions can go some way to reducing the cost of past expropriations. This result also weakly rejects the Vernon hypothesis of expropriation as an obsolescing contract.

In the obsolescing contract explanation of expropriation, expropriation should occur towards the end of a mine's life, as future reinvestment would become less important. If this were the explanation of expropriation, we would not expect to see de-expropriation following an expropriation, and following a de-expropriation, we would not expect to see a positive jump in output of the industry. Yet we observe both occurring.

An explanation that fits better with the experiences of the minerals industry in the last 40 years is that countries regretted the expropriations that they undertook in the 1960s and 1970s and spent the 1980s and 1990s unwinding their actions against foreign investors. The costs of expropriation with the

loss of foreign expertise and capital led countries to reverse their decisions, as evidenced by many of the case studies in Sigmund (1980).

Political crises were found to have a large negative affect on output growth. However the level of democracy of the political institutions of the host country was not found to have significant effect on output growth in the minerals industry.

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Table 1: Results of the Regressions for Punishment Model
(Dependent variable is the log change in mineral output per year multiplied by 100)

Regression:	Price Only	Price and Politics	Full Model
Real Price of Mineral	1.18 (1.99)	1.63 (2.01)	1.83 (2.09)
Political Crisis	-	-6.93*** (2.48)	-7.20*** (2.48)
Democracy Index	-	0.11 (0.25)	0.12 (0.25)
Past Expropriation	-	-	-5.79*** (1.92)
Past De-Expropriation	-	-	5.07* (2.85)
Decade Dummies	Yes	Yes	Yes
Continent Dummies	Yes	Yes	Yes
No. Observations	2085	1927	1927
R-squared	0.021	0.027	0.032

Notes: 1. The numbers in parentheses are standard errors. ***, ** and * denotes significance at 1%, 5% and 10% respectively. 2. Intercepts and dummy variables are included in the regressions but are not reported.

Table 2: Predicted Annual Output Growth per Year from Punishment Model Regression Estimates

(Predicted Percent Growth in Output per Year)

Continent: Africa

Government Reputation	Decade			
	1960s	**1970s**	**1980s**	**1990s**
With no past expropriation	6.2	7.9	1.8	-2.6
With past expropriation	0.4	2.1	-4.0	-8.4
With past expropriation and subsequent de-expropriation	5.5	7.2	1.1	-3.3

Continent: Caribbean

Government Reputation	Decade			
	1960s	**1970s**	**1980s**	**1990s**
With no past expropriation	1.2	3.0	-3.2	-7.6
With past expropriation	-4.6	-2.8	-8.9	-13.4
With past expropriation and subsequent de-expropriation	0.5	2.2	-3.9	-8.3

Continent: Latin America

Government Reputation	Decade			
	1960s	**1970s**	**1980s**	**1990s**
With no past expropriation	5.6	7.4	1.3	-3.2
With past expropriation	-0.1	1.6	-4.5	-9.0
With past expropriation and subsequent de-expropriation	4.9	6.6	0.5	-3.9

Continent: Oceania, Others

Government Reputation	Decade			
	1960s	**1970s**	**1980s**	**1990s**
With no past expropriation	7.4	9.1	3.0	-1.4
With past expropriation	1.6	3.3	-2.8	-7.2
With past expropriation and subsequent de-expropriation	6.7	8.4	2.3	-2.2

Table 3: Test for Importance of Form of Expropriation
(Dependent variable is the log change in mineral output per year multiplied by 100)

Real Price of Mineral	1.77
	(2.09)
Political Crisis	-7.42***
	(2.48)
Past Nationalisation	-3.81*
	(2.24)
Past Tax/Equity Increase	-4.66**
	(1.95)
Past De-Expropriation	5.45*
	(3.05)
Decade Dummies	Yes
Continent Dummies	Yes
No. Observations	1927
R-squared	0.031

Notes: 1. The numbers in parentheses are standard errors. ***, ** and * denotes significance at 1%, 5% and 10% respectively.
2. Intercepts are included in the regressions but are not reported.