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EXPLAINING THE TERMINATION OF NATIONALIZATIONS IN THE LATE 1970s*

by

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ABSTRACT:

The termination of nationalizations in third-world countries in the late 1970s is examined with a duration model. Interdependency between competing host countries is taken into account. It is argued that nationalization was discontinued not because of reduced investments, but due to a combination of access to inexpensive foreign borrowing, falling commodity prices and increasing discouraging effects on direct investment as some countries terminated. The findings suggest that the risk of nationalization may still impede direct investment in the developing world as a whole.

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1. Introduction

Political risk is often argued to hamper the ability of capital-scarce developing countries to attract portfolio investment (Eaton and Gersovitz, 1981; Bulow and Rogoff, 1989; and others). In fact, most developing countries are today rationed in the international capital markets. This has made direct investment, i.e. equity investment undertaken by multinational enterprises, more attractive. With control retained by firms, direct investment can be expected to be less vulnerable to policy actions than portfolio investment. Empirical work has verified that taxes, performance requirements or incentives have done little to distort the pattern of direct investment across countries (Contractor, 1990). However, a host country government may also nationalize or expropriate equity.¹

The economic literature on nationalizations tends to be based on either of two weakly connected approaches.² One has conceptualized the host nation-foreign firm relationship in terms of a bargaining game (Encarnation and Wells, 1985; Grieco 1985, Lall and Streeten, 1977; Moran, 1974; Reisinger 1981; and Vernon, 1971). One problem encountered is why investment would occur in the first place when there are prospects of nationalization. In formal applications, the focus has been *either* on the consequences of nationalizations, *or* on explaining their occurrence. Eaton and Gersovitz (1984) analysed the discouraging effect on investment from the threat of nationalization, but in their framework the policy can only occur purely at random. Mohtadi (1990) explains nationalizations with rivalry between domestic and foreign firms when the host country government has both socio-economic and public choice-based motives, but does not consider the undertaking of investment.

The second approach has examined which host country attributes explain cross-country variation in nationalizations of foreign-owned equity (Green, 1972; Thunell, 1977; Kobrin 1980; and Jodice, 1980). This has mostly been concerned with the natural resource sector, and the results obtained have mostly found little systematic variation. Moreover, there have been considerable shifts in both the occurrence and the nature of nationalizations over time, which have not been well explained. Nationalizations were

mostly of a "mass" character until the late 1960s, occurring at social upheavals or communist takeovers, and encompassing more or less all firms in given industries. In the following decade, the policy became selective, less conspicuous, and pursued by a majority of developing countries irrespective of ideology. However, nationalization retreated from the late 1970s and it has virtually disappeared as of today. As can be seen from Figure 1, which illustrates the number of 'acts' each year 1960-1985, the changes have been fairly homogeneous across sectors.³

It is particularly important to understand why nationalizations were discontinued in the late 1970s. Presented explanations normally take the form of a taxonomy, listing changes in ideology, investment behaviour and costs and revenues in nationalizing countries. But did nationalization disappear because of changes primarily in country or firm behaviour? If the answer is the latter, the threat of nationalization may still be there, and prevent the developing countries from obtaining badly needed investments. The connection with the generally increased indebtedness of developing countries also presents questionmarks. Increased indebtedness has previously been viewed as a sign of economic and political distress, and been related to a greater propensity to nationalize (Kobrin, 1984; Minor 1990).

This article examines whether changes in country characteristics can provide an explanation of the cessation of nationalization which is consistent with the fluctuations in the policy over time. By building on insights from both strands of literature mentioned above, hypotheses are formulated and tested within a duration model framework. A tentative indicator is also defined for interdependency between countries that compete for the attraction of direct investment (cf. Andersson, 1991). Section 2 explores the link between investment and nationalization. The duration model is presented in Section 3. Section 4 presents hypotheses and the data base. The estimator and the results are given in Section 5. The last section discusses some policy related issues.

2. Investment - nationalization link

A major question addressed in empirical studies of nationalizations is whether the motives are primarily political or economic. There are undoubtedly anecdotal evidence that both kinds play a role at times. Allegations that political motives would have exerted a significant influence on the cross-country variation in nationalization during its spurt in the late 1960s and early 1970s have been refuted, however (Minor, 1990). For this reason, we focus on economic costs and benefits from the host country point of view.

The major economic benefit of nationalization is to retain earnings that would otherwise be repatriated by the foreign firm, i.e. an inability on the part of the host country to capture rents by taxation.⁴ There are two categories of costs. *Direct* costs stem from the loss of the parent company's firm-specific assets. *Indirect* costs relate to other actors, such as commercial creditors or firms that contemplate direct investment in the future. To illustrate the latter, let us view the specific firms targeted by selective nationalizations as picked by random. Individual firms must then calculate the risk that they will be taken, and projects for which the expected profit net of tax compensates for this risk are still carried out. Given that firms do not know whether a particular country has an inclination to nationalize or not, present behaviour may serve as a signal of future intentions - and thereby create reputation effects.

The major conceptual framework regarding political risk, the theory of 'obsolescing bargain' (Vernon, 1971, and Moran, 1974), postulates that both these costs decrease over time. Due to improved access to technology and export markets, developing countries become more able both to tax profits and to take over ownership. Williamson (1986), Tirole (1986) and others have argued that the risk of appropriation discourages or distorts investment in the first place. In models with complete information, nationalization is normally ruled out because a firm does not invest ex ante if it is to be nationalized ex post. A related argument, presented by Milgrom and Roberts (1987), is that fear of appropriation encourages parties to waste resources by investing in their bargaining position. As reported by Lipson (1985) and Moran (1985) among others, the spurt in nationalizations in the late 1960s and early 1970s undoubtedly triggered

significant adjustments in investment behaviour, increasing the direct costs of nationalization. If changes in investment behaviour terminated nationalization, the cessation of the policy should have been accompanied by a decline in investment. The investment data are uncertain and imprecise, but allow for a tentative test. To study the matter, we split the period 1974-85 for each nationalizing country into one period before the last nationalization and one after. The model is

$$I_{it} = \alpha_i + \beta_1 D_{it} + \beta_2 (1 - D_{it}) + e_{it} \quad (1)$$

where I_{it} is the investment flow into country i (35 countries) at time t , and α_i is a fixed country effect. D_{it} takes the value 1 in a country's nationalization period, and 0 thereafter. e_{it} is a random disturbance term, which is allowed to be serially correlated and heteroskedastic. Carrying out the test, we obtain a positive but insignificant trend in both variables ($b_1 = 0.55$, $b_2 = 0.37$). Even though $b_2 < b_1$, a common trend can not be rejected. There is no evidence that nationalization would have terminated because of a fall in investment.

3. Duration model

Our working assumption is that nationalization terminated due to changes in country characteristics. There have been previous explanations of this sort. Kobrin (1984) argued that the developing countries found their experience of nationalizations unsatisfactory and learned that foreign investments are more valuable as a package of benefits and costs which can be manipulated. As their administrative, managerial and technical capabilities improved, countries became more skillful in appropriating rents in other ways than through nationalization. However, there are ample examples of nationalizations turning out both as fallacies and as success stories (Moran, 1985). That the developing countries would have learned that 'nationalization does not pay' says nothing of why this was so. Furthermore, it is misleading to argue that nationalization was replaced by regulatory controls. Contractor (1990), among others, has demonstrated a general retreat of interfering host country policies in the late 1970s.

It does not seem probable that any benefits or direct costs could have changed so universally in the late 1970s as to make of nationalization completely unprofitable for *all* developing countries within a time span of only five years. Rather, the behaviour of different countries seems interrelated. Because they to some extent compete to attract direct investment, reputation effects caused by differing nationalization policies may discourage projects from one country to others. A country which nationalizes alone discourages more than one which nationalizes when its competitors do. In the terminology of Cooper and John (1988), nationalization may pose a coordination problem. Given strategic complementarities, meaning that an increase in one player's strategy increases the optimal strategy of another player, coordination problems may give rise to multiple equilibria, some of which may be inefficient. In a framework of many competing countries, we may have one 'global equilibrium' in which all countries nationalize, and one in which none do. In between, there may be intermediate equilibria where groups of competitors act one way or the other (Andersson, 1991).

A reputation effect should be temporary in time. This suggests that countries may enter or exit spells of nationalization depending on the behaviour of the countries with which they compete for direct investment. The countries which nationalized in the early 1970s belonged in the equilibrium where the policy pays. Although fairly few acted each year, most countries pursued clearcut sequences of nationalizations over a range of years until their cessation, making it appropriate to speak of the duration of spells of nationalization. These spells should have some statistical distribution across countries, which makes a *duration* model (Lancaster, 1979) applicable. Because the number of nationalizing countries was large, there should have been relatively small discouraging effects on future investments, which is given support by Andersson and Brännäs (1989). As some countries terminated, we presume that the discouraging effects increased, and that the rest were gradually shifted to the stage in which nationalizations do not pay.

The point marking the end of the duration, t , is the last year in which a country nationalized in 1974-78. This is available in discrete (end of year months) form and is truncated at the end of 1978 (cf. Figure 2). There is no data available on the 'extent' or 'seriousness' of nationalization, such as the dollar value taken, the amount of

compensation, and so forth. The exact scope of nationalizations has generally been determined in tacit negotiations, the outcomes of which are seldom public. It may also be argued, that entrepreneurial limitations and indivisibilities in the investment which can effectively be overtaken may, in practice, confront a developing host economy with a dichotomous choice whether to nationalize a certain amount, or not nationalize at all. In the former case, it obtains the revenue which would otherwise be repatriated by the nationalized firm(s), but it discourages future investments. In the latter case, rents may be repatriated but future investment is not discouraged.

Thus, the occurrence of nationalization is measured as dichotomous for a given year, taking either the value 0 or 1. The distribution of t is assumed to be continuous and vary in accordance with a Weibull distribution (Lancaster, 1979). The Weibull distribution function of t can be expressed as a function of the explanatory variable vector x in the form

$$F(t) = 1 - \exp(-t^\alpha \exp(x\beta)) . \quad (2)$$

Here, special attention should be paid to the exponent α . If $\alpha > 1$ ($\alpha < 1$), there is a positive (negative) duration dependence, meaning that the propensity to stop nationalizing increases (decreases) over time. The corresponding expected value is

$$E(t) = \exp(-\alpha^{-1}x\beta)\Gamma(1+\alpha^{-1}) , \quad (3)$$

where Γ is the gamma function. From (3) it is possible to calculate the effects of changed values in the explanatory variables on the mean duration of nationalization.

4. Hypotheses and data

Our basic hypothesis is that changes in host country characteristics associated with the costs and benefits of nationalization should have shifted countries from the equilibrium in which nationalization pays to the one in which it does not. If this is

correct, the interdependence between competing countries should account for significant effects from the variables associated with the discouragement of direct investment. Moreover, these effects should be accentuated as more and more countries had terminated to nationalize, showing up as a positive duration dependence, i.e. $\alpha > 1$.

The data on nationalizations was collected from secondary sources by Kobrin (1980 and 1984) for 1960-79 and by Minor for 1980-85 (Minor, 1987). It is the most comprehensive existing data base in the field, covering 574 acts and the taking of about 1550 firms. Included in the test below are all countries which undertook nationalizations in the first half of the 1970s and which had a stock of direct investment of at least 60 million USD in 1972-74 on average, with one exception. Countries with a smaller stock are excluded in order to avoid cases where nationalization might have ceased because practically all direct investment had been taken.⁵ The duration model applies only to countries that are shifted from the equilibrium with nationalization to that without. The examination includes nationalizations in all sectors. This is motivated by the general nature of the shifts in nationalizations, which calls for more fundamental explanations than those related to specific sectors.

For the choice of explanatory variables, we largely follow the established literature. The limited data available for the many small and poor countries which nationalized restricts the choice of variables. With nationalization as a means to prevent outflows of foreign exchange, the benefits are greater the higher the opportunity cost of capital and the larger the rent that can be withheld through nationalization compared to taxation. Meanwhile, the more investment which is discouraged by the policy, the greater the cost. Table 1 presents the definitions and descriptive measures for our explanatory variables. The rationale for their inclusion, and the expected impacts, is as follows for each variable;

x_1 = *The income level* measures the sophistication of the host economy, and the capacity to run nationalized firms. This suggests a positive impact on nationalization (Jodice, 1980). However, it is also related to a country's ability to attract direct investment. The latter accounts for a negative impact on the duration of nationalization to the extent that the discouraging effect on investment plays a major role

x_2 = *The growth rate* indicates an economy's general performance, which may render a lower opportunity cost for foreign exchange. It should then be inversely related to the

benefits of nationalization. Given that nationalization terminated due to economic improvements in developing countries, we expect a negative impact.

x_3 = *The export price* is related to the level of rents which can be captured through nationalization, at least in activities connected to resource extraction. Given that nationalization terminated due to a fall in commodity prices, we expect a positive impact.

x_4 = *The tax rate* represents the alternative source of gains from investment for the host country government, and should be negatively related to nationalization. There is no data on the specific tax revenue obtained due to foreign investment, so that the overall tax revenue in per cent of GDP is used as proxy.

x_5 = *The size of the economy* is likely to be related to a country's ability to obtain foreign exchange through other means than through nationalization, including taxation. This suggests a negative impact on the duration of nationalization.

x_6 = The greater the *stock of direct investment*, the more direct investment may pull out of a country. In particular, there is a greater potential for lost reinvestment and more repatriation of profits. Thus, we expect a negative impact. As it also measures the availability of objects to nationalize, the variable should instead exert a positive impact on nationalization if the discouraging effect is weak.

Of these, x_1 , x_2 and x_3 indicate performance during the sample period, and are measured as change over time. The variables x_4 , x_5 and x_6 indicate rather a state or condition during the sample period, and are measured for specific years only. As mentioned, the change in taxes, performance requirements and other host country policies pointed towards less demands for gains instead of more, wherefore this is not included.

Let us now turn to foreign borrowing, which Minor (1990) found to exert a negative effect on countries' propensity to nationalize 1968-76. According to Pollio and Riemenschneider (1988), raising interest rates, greater difficulties to obtain bank loans and projections of dismally low commodity prices would together have made the Third World willing to share risks as well as profits with foreign investors. However, soaring inflation actually made real interest rates negative when nationalization terminated, and commercial borrowing was available for developing countries to a previously unseen extent. When real interest rates began to climb in 1978 and 1979, the peak of nationalization was well over.

In our view, portfolio investment matters in the current context mainly because it is a major alternative source of foreign exchange. The increased availability of

inexpensive portfolio investment in the mid 1970s lowered the opportunity cost of nationalization. Moreover, a new incentive emerged to secure a reputation as reliable business partner. To the extent that a country abstained from nationalization, it could borrow at low cost. Thus, we include a seventh variable;

x_7 = The *external debt ratio* between 1973 and 1978 indicates a country's reliance on foreign borrowing in the period when interest rates were low and borrowing available. A negative change is set to zero, while an increase is expected to affect the duration of nationalization negatively.

There is a simultaneity problem here, because countries may have been induced to borrow more as lending terms improved when they abandoned nationalization. This should have been predicted by countries, however, and can consequently be viewed as part of our hypothesis why nationalization ended.

To sum up, the duration of nationalization in the late 1970s is hypothesized to be positively correlated to export price and negatively related to growth, the tax rate, the size of the economy and foreign borrowing. If discouragement of direct investment played a role, we expect variables associated with this to cut the duration of nationalization. This suggests that the income level and the stock of direct investment should exert negative impacts. If a greater risk to discourage direct investment was sensed by countries which continued to nationalize when others had terminated, we expect a positive duration dependence.

5. Estimator and estimation results

In choosing estimator, it must be considered that the data on nationalizations is available at an annual level and truncated to the right as the observation period is limited to 1979, and that the sample size is small. Based on Monte Carlo experimentation, Brännäs (1987) concludes that the most reliable estimators and test statistics for grouped or interval data are based on the likelihood function. Using this approach, it can be noted that the specification of a density for the duration variable is less crucial than in the case of exactly observed data. Furthermore, we have applied the Weibull distribution due to

the attractiveness of a simple model, which is particularly important with such a small sample size. A plotting of the expected uniform order statistic against the ordered estimated truncated distribution function does not reject the Weibull model specification.

The maximum likelihood estimator maximizes the likelihood function

$$L = \prod_{i=1}^n (F(U_i) - F(L_i)) / F(T) = \prod_{i=1}^n \frac{e^{-L_i^\alpha e^{-x_i \beta}} - e^{-U_i^\alpha e^{-x_i \beta}}}{1 - e^{-T^\alpha e^{-x_i \beta}}}, \quad (4)$$

where U_i is upper and L_i the lower limit in months of each country's duration of nationalization. The T represents the common truncation time. Estimates of the unknown parameters α and β are obtained iteratively by maximizing the log-likelihood function. The standard errors of estimates are obtained from the Hessian matrix. The distribution function $F(\cdot)$, viewed as random, is uniformly distributed in $(0,1)$. Based on this fact, a graphical test of the specification is suggested by Cox and Hinkley (1974, ch. 3) and others. A plot of the size ordered estimated distribution function against corresponding expected scores (order statistics) should follow a straight line with slope one for the specification to be supported by the data.

Three estimated models are given in Table 2, with the final three columns reporting the elasticities corresponding to each estimation. The first column presents the specification that includes all explanatory variables. As can be seen, the export price (x_3) and the external debt ratio (x_7) are significant and have the expected effects on the duration on nationalization. Thus, the results support our hypotheses that falling export prices and increased borrowing contributed to terminate the nationalizations. None of the other variables were significant. However, the estimation is somewhat disturbed by a high correlation ($r=0.64$) between GDP ($\ln x_5$) and direct investment ($\ln x_6$). Therefore, column 2 and 3 report two restricted model specifications. In column 2, $\ln x_6$ is excluded, as are the least significant variables growth rate (x_2) and tax rate (x_4). Of the remaining variables, the income level ($\ln x_1$) has the expected sign and is almost significant at the 5 per cent level. In addition, there are significant or almost significant contributions with the anticipated signs of x_3 , $\ln x_5$ and x_7 . In the third column, $\ln x_5$ is excluded. Here, x_3 and $\ln x_6$ are significant, while x_7 is significant at the 10 per cent

level. Akaike's AIC model selection criterion suggests that the specification of column 2 is slightly better than the one of column three.

It turns out that the signs are consistent with our hypotheses for every variable, even if there is some variation in the sizes for the different specifications. Both the income level and the stock of direct investment exerted significant negative impacts in the restricted specifications. This suggests that the costs of discouraging direct investment dominated the ability to run nationalized firms and the availability of more targets for the two variables respectively. The elasticities are generally very small, with the impact of export price the strongest. At average values on each explanatory variable the mean duration is 29.1 months. However, the α estimates are throughout significantly larger than 1. It should be noted that the reported α -estimates are likely to shrink towards zero in the present case, due to the presence of proxy variables and nonmeasurable variables. The 2.656 estimate in column one is therefore more trustworthy than the 2.188 estimate of column three. It follows that the propensity to stop nationalizing increases over time. This suggests that the risk of discouraging direct investment prevented nationalization with an accelerating power as more and more countries terminated to pursue the policy.

Finally, we applied a simple but rather weak test to tentatively examine whether nationalization terminated uniformly over time or in some more clustered form within geographic regions. The number of times that the observed cumulative frequency exceeds the expected and hypothetical uniform cumulative frequency is approximately binomially distributed. Probabilities for the outcomes or more extreme outcomes can then be calculated. The binomial probability of 3 or more out of 4 possible ($p=0.5$ and both cumulative frequencies have equal maxima) is 0.0625. This is a p -value and implies that the hypothesis of a uniform termination time distribution can be rejected at the 10 per cent level. The p -value for the Asian and South and Central American countries is 0.0625, for African countries 0.3125, and for Middle East countries 0.9375. Thus, there is some evidence of clustering in the Asian and American continents.

6. Concluding remarks

There has been a marked variation in the occurrence of nationalizations over time. The wave in the late 1960s and early 1970s is often interpreted as the taking of natural resources. However, only some 30 per cent of nationalization targeted natural resources, and the pattern over time is broadly the same across sectors. Finding no evidence that reductions in investment flows would have caused the cessation of nationalization, this article has instead examined whether changes in host country characteristics, related to the costs and benefits of nationalization, can explain the duration of nationalization across countries in the late 1970s.

We presumed that the fundamental motive of nationalization is to prevent repatriation of profits. The higher the opportunity cost for foreign exchange, the greater the weight that a country attaches to such prevention. By nationalizing an affiliate, a country foregoes the technology, skills in management and distribution, and potential risk-sharing provided by the parent company. Given that future direct investment is discouraged through a reputation effect, there is also a loss of long-term gains. Thus, a country must suffer an acute shortage of foreign exchange if nationalization is to pay. Our results lend support to this view, suggesting that nationalization was discontinued due to access to inexpensive foreign borrowing, a fall in commodity prices and an increasing discouraging effect on direct investment when most other countries had stopped nationalizing. The last of these findings underscored by the positive duration dependence obtained in our estimations.

Given that our interpretations are correct, and interdependency between competing host countries gives rise to multiple equilibria in nationalization, this may explain why it has not been possible to pin down the cause and effect of nationalization solely by looking at individual countries. The question of whether there is a threat of a recurrence of nationalization then boils down to whether there is a risk of a shift in equilibrium.

Although a comprehensive answer requires further studying, it can be noted that interest rates rose dramatically in the early 1980s, accumulated debts became increasingly burdensome and most developing countries were severely rationed in the international capital markets. Meanwhile, non-tariff barriers in industrialized countries limited the possibility to expand exports. Great parts of the Third World consequently experienced

an acute need of foreign exchange. According to our framework, the stage was set for a revival of nationalization, provided that individual countries felt others would follow in case they acted. As we know, this did not occur. Instead, there was a substantial decline in direct investment in 1981-1985 in developing countries. There has also been a considerable shift in the distribution of investment away from regions which are heavily indebted and rationed in the international capital markets, such as Latin America and Africa, towards East and Southeast Asia.

We do not say that political motives never give rise to nationalizations. On the contrary, such motives have dominated at the time when the economic motives were weak, as before the late 1960s. In the 1980s, there have been exceptionally few nationalizations, as seen in Figure 1. This may indicate that there have also been ideological changes, and that policy makers in developing countries today seem far from willing to resort to nationalizations. In the present situation, direct investment may still be discouraged from the Third World by the perceived risk of a general revival of the policy. This could explain why the "Multilateral Investment Guarantee Agency" (MIGA) was instituted as a new member of the World Bank in 1988 in order to promote direct investment in the face of political risk. The agency had by then been rectified by 15 capital-exporting and 56 capital-importing countries (MIGA, 1988). One may ask whether a multilateral insurance institution will make a major difference, however. Firms do not invest in the first place if they sense too large a risk of being nationalized, even if there will be some compensation. From an economic perspective, relieving the political risk is a matter of reducing the acute scarcity of foreign exchange in developing countries. This is likely to require an easing of debt burdens, and enhanced opportunities for expanded exports.

Notes

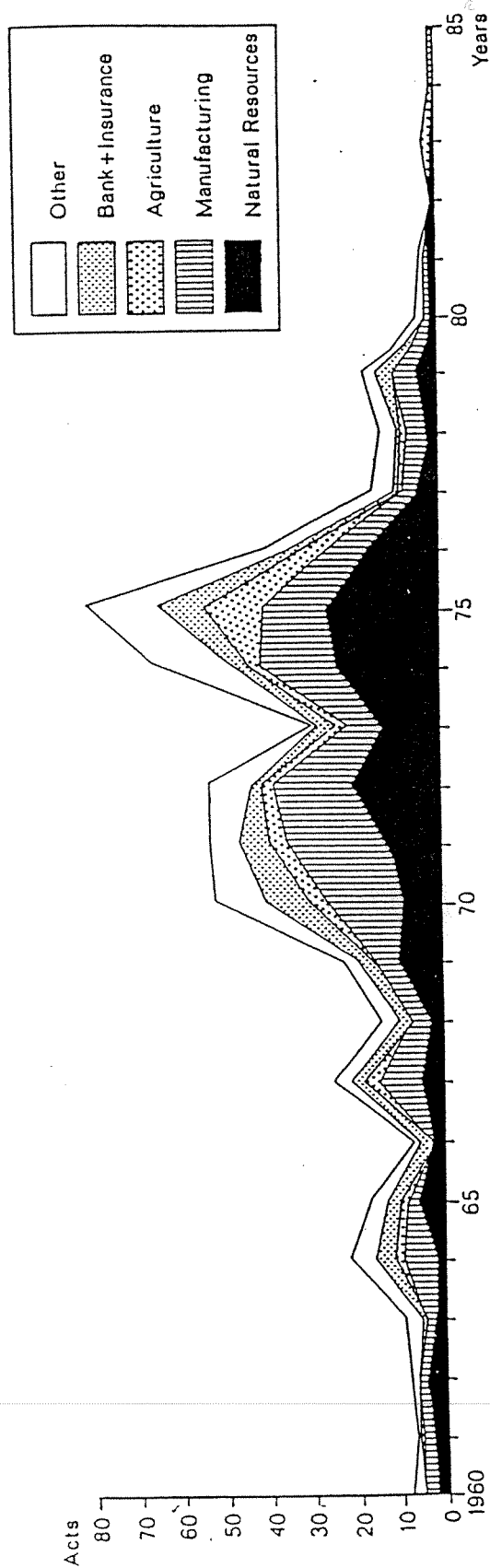
- * The authors are grateful for financial support from the Swedish Research Council for the Humanities and Social Sciences.
- 1 'Nationalization' is equivalent to 'forced divestment of foreign equity' (Kobrin, 1980, pp. 67-69). It denotes seizure of equity which is involuntary and concerns the deprivation of ownership per se. Four types are included: formal expropriation, intervention, forced sale and contract renegotiation resulting in transfer of ownership.
- 2 The so-call dependency-school is not dealt with here, see Biersteker (1978) and Jackman (1982) for summaries.
- 3 The data base is built on *acts* of nationalization - which involves the taking of any number of firms in a single industry in a given year. The sectoral distribution 1960-79 was; natural resources 31 per cent, manufacturing 27 per cent, agriculture 9 per cent, banking & insurance 12 per cent and others 21 per cent.
- 4 The importance of short-run foreign exchange earnings as a motive for nationalizations is supported by observations of countries' indebtedness and servicing requirements, level and diversification of export earnings and exposure to commodity price fluctuations. Other related factors concern the trade regime, monetary and exchange rate policy, the rigidity of import requirements, etc. (cf. De la Torre and Neckar, 1988).
- 5 The countries excluded due to a small stock have very low income and/or small market, indicating a low capacity to attract direct investment. Together they hosted less than 2 per cent of the total stock of direct investment in developing countries as of 1974. The exception mentioned is Libya, which is unique in that it lost about half its stock of direct investment in the last year it nationalized (1974). Although the stock of investment in Libya did not go beneath the limit set out, this reduction suggest that the country may have nationalized to the extent that it got rid of all possible targets for further action.

References

- Andersson, T., 1991, *Multinational Investment in Developing Countries, a Study of Nationalization and Taxation* (Routledge, London).
- Andersson, T. and Brännäs, K., 1989, Economic Factors Affecting the Nationalization Frequency, Paper presented at the European Meeting of the Econometric Society, Munich (Stockholm School of Economics and University of Umeå).
- Biersteker, T.J., 1978, *Distortion or Development? Contending Perspectives on the Multinational Corporation* (MIT Press, Cambridge).
- Brännäs, K., 1987, Linear Regression with Grouped Data on the Dependent Variable, *Metron*, XLV, 63-79.
- Bulow, J. and Rogoff, K., 1989, Sovereign Debt: Is to Forgive to Forget? *American Economic Review*, 79, 43-50.
- Contractor, F.J., 1990, Do Government Policies towards Foreign Investment Matter? An empirical investigation of the link between national policies and FDI flows, Mimeo (Graduate School of Management, Rutgers University).
- Cooper, R. and John, A., 1988, Coordinating Coordination Failures in Keynesian Models, *Quarterly Journal of Economics*, CIII, 441-463.
- Cox, D.R. and Hinkley, D.V., 1974, *Theoretical Statistics* (Chapman Hall, London).
- De la Torre, J. and Neckar, D.H., 1988, Forecasting Political Risks for International Operations, *International Journal of Forecasting*, 4, 221-241.
- Eaton, J. and Gersovitz, M., 1981, Debt with Potential Repudiation: Theoretical and Empirical Analysis, *Review of Economic Studies*, 48, 289-309.
- Eaton, J. and Gersovitz, M., 1984, A Theory of Expropriation and Deviations from Perfect Capital Mobility, *The Economic Journal*, 94, 16-40.
- Encarnation, D.J. and Wells, L.T., 1985, Sovereignty En Garde: Negotiating with Foreign Investors, *International Organization*, 39, 9-23.
- Green, R., 1972, *Political Instability as a Determinant of U.S. Foreign Investment* (University of Texas, Austin).
- Grieco, J.M., 1985, Between Dependence and Autonomy: India's Experience with the International Computer Industry, in: T.H. Moran, ed., *Multinational Corporations: The Political Economy of Foreign Direct Investment* (Lexington Books, Lexington).
- Jackman, R.W., 1982, Dependence on Foreign Investment and Economic Growth in the Third World, *World Politics*, 34, 175-196.
- Jodice, D.A., 1980, Sources of Change in Third World Regimes for FDI 1968-

- 1976, *International Organization*, 34, 177-207.
- Kobrin, S.J., 1980, *Foreign Enterprises and Forced Divestments in the LDCs*, *International Organization*, 34, 65-88.
- Kobrin, S.J., 1984, *Expropriation as an Attempt to Control Foreign Firms in LDCs: Trends From 1960 to 1979*, *International Studies Quarterly*, 28, 329-348.
- Lall, S. and Streeten, P., 1977, *Foreign Investment, Transnationals and Developing Countries* (Macmillan, London).
- Lancaster, T., 1979, *Econometric Methods for the Duration of Unemployment*, *Econometrica*, 47, 939-957.
- Lipson, C., 1985, *Standing Guard: Protecting Foreign Capital in the 19th and 20th Centuries* (University of California Press, Berkeley).
- Milgrom, P. and Roberts, J., 1987, *Bargaining and Influence Costs and the Organization of Economic Activity*, in: J. Alt and K. Shepsle, eds., *Positive Perspectives on Political Economy*, forthcoming (Cambridge University Press, Cambridge).
- Minor, M., 1990, *Changes in Developing Country Regimes for Foreign Direct Investment: The Raw Materials Sector, 1968-1985*, *South Carolina Essays in International Business*, 8, September.
- Moran, T.H., 1974, *Multinational Corporations and the Politics of Dependence: Copper in Chile* (Princeton University Press, Princeton).
- Moran, T.H., 1985, *Multinational Corporations, the Political Economy of Foreign Direct Investment* (Lexington Books, Toronto).
- Mohtadi, H., 1990, *Expropriation of Multinational Firms: The Role of Domestic Market Conditions and Domestic Rivalries*, *Economic Inquiry*, 28, 813-30.
- Multilateral Investment Guarantee Agency, 1988, *MIGA's Investment Guarantee Program* (MIGA, Washington, DC).
- Pollio, G. and Riemenschneider, C.H., 1988, *The Coming Third World Investment Revival*, *Harvard Business Review*, March/April, 114-124.
- Reisinger, W.M., 1981, *The MNC-Developing State Bargaining Process: A Review*, *Michigan Journal of Political Science*, 1, 75-83.
- Thunell, L.H., 1977, *Political Risks in International Business: Investment Behaviour of Multinational Corporations* (Praeger, New York).
- Tirole, J., 1986, *Procurement and Renegotiation*, *Journal of Political Economy*, 94, 235-59.
- Vernon, R., 1971, *Sovereignty at Bay* (Basic Books, New York).
- Williamson, O., 1986, *Economic Institutions of Capitalism* (Free Press, New York).

Figure 1 The cross time distribution of nationalizations across sectors



Source: Andersson (1991).

Figure 2 Duration of nationalization frequencies (Annual data, n = 35).

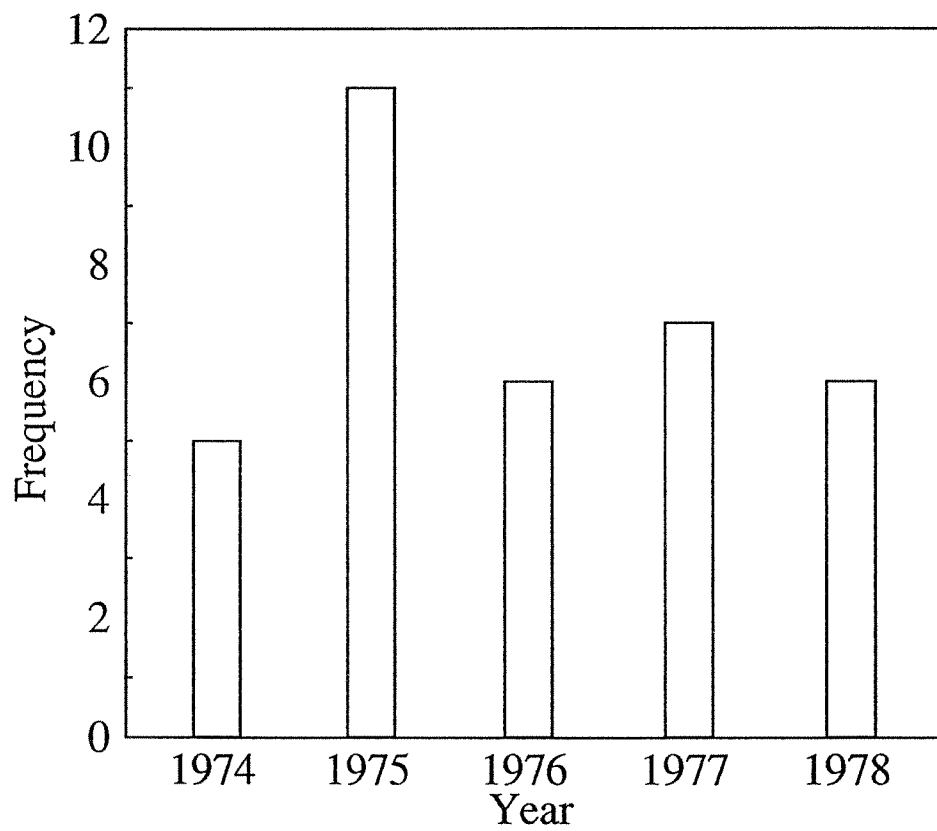


Table 1 **Variable definitions and descriptive statistics.**

Variable	Definition	Mean	Median	Standard Deviation	n
x_1	GDP/Capita (1979)	1578	650	3040	36
x_2	Average Growth (1974-1978)	2.8	4.0	4.8	36
x_3	Export Price (Change, 1970-1978)	271.7	197	222	33
x_4	Tax Rate (Per cent, 1974)	16.8	17.8	6.3	29
x_5	GDP (Size, 1974)	12231	3105	20538	35
x_6	Direct Investment (Stock, 1974)	805	345	961	36
x_7	External Dept Ratio ^a (Change, 1973-1978)	61.3	29.8	96.2	34

^a Negative change has been set to zero, since only a growth in the external debt ratio can be expected to affect nationalization behaviour.

Table 2 Weibull model results. Maximum likelihood estimates (*t*-values in parenthesis, for α the *t*-value is for the hypothesis $\alpha = 1$) and elasticities (relative effects (%)) on mean duration of a 1 % change in each mean).

Variable	Estimates			Elasticities (%)		
$\ln x_1$	.316 (.53)	.680 (1.92)	-	-.12	-.29	-
x_2	.075 (.53)	-	-	-.08	-	-
x_3	-.009 (1.98)	-.007 (2.77)	-.006 (2.20)	.92	.83	.62
x_4	.025 (.29)	-	-	-.16	-	-
$\ln x_5$	.391 (1.12)	.600 (2.68)	-	-.15	-.26	-
$\ln x_6$	.494 (1.03)	-	.697 (2.63)	-.18	-	-.32
x_7	.008 (2.11)	.006 (1.89)	.006 (1.80)	-.18	-.16	-.14
Constant	-16.691 (3.75)	-16.119 (4.07)	-10.774 (4.51)			
α	2.656 (2.98)	2.301 (2.86)	2.188 (2.74)			
l^a	-32.7	-39.3	-40.2			
n	28	31	31			

^a is the value of the log-likelihood function.