WORKING PAPER
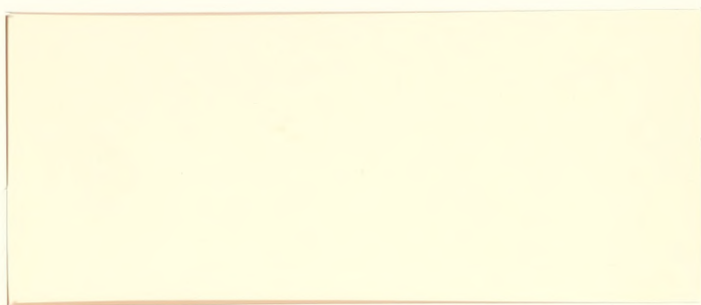# ALFRED P. SLOAN SCHOOL OF MANAGEMENT

THE ENVIRONMENTAL DETERMINANTS OF
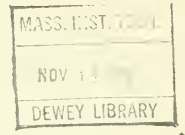
FOREIGN DIRECT INVESTMENT:

AN EX POST EMPIRICAL ANALYSIS

Stephen J. Kobrin

November 1975   WP 819-75

MASSACHUSETTS
INSTITUTE OF TECHNOLOGY
50 MEMORIAL DRIVE
CAMBRIDGE, MASSACHUSETTS 02139

THE ENVIRONMENTAL DETERMINANTS OF
FOREIGN DIRECT INVESTMENT:
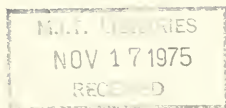AN EX POST EMPIRICAL ANALYSIS

Stephen J. Kobrin

November 1975   WP 819-75

HD28
.M414
no. 89-75

The development of international management as a distinct field is based upon an assumption that the problems of conducting simultaneous operations in a large number of varied environments are different in kind rather than degree from those encountered in a single society and/or polity. However, while the host country environment is generally acknowledged to be a crucial factor in the management of international operations, its treatment in the literature is uneven and far from coherent.

In particular, the extent to which the environment affects the foreign direct investment (FDI) decision has proven difficult to investigate empirically. FDI decisions tend to be discrete and sequential, are rarely independent of the firm's past activities or industry interactions, and are often taken in response to a specific exogenous stimulus.[1] A systematic worldwide screening of investment opportunities may well be the exception rather than the rule. As a consequence, it is often difficult if not impossible, to identify the separate effects of political, social, cultural, legal and economic variables on the investment decision.

This research represents an attempt to circumvent the problem by examining the relationship between FDI and the investment environment on an ex post basis. The specific objective is to explain the variation of FDI in terms of economic, political, social and cultural variables. The methodology is quantitative and cross-national, examining statistical relationships between variables across a large number of national units. This allows utilization of both data and analytical techniques which provide for a more thorough and rigorous examination of the topic than has been possible in the past.

BACKGROUND

The environment

What is the investment environment or climate? Nehrt defines it as
"... all of the conditions that affect (business) operations within a
country."[2] It includes the economic, political, administrative and social
climates. Borrowing from systems theory as applied to international rela-
tions, we can conceive of the multinational enterprise – the totality of
the parent and its subsidiaries – as a system considered, "... to exist
in an environment and to be composed of parts which, through interaction,
are in relation to each other."[3] One can easily substitute "subsidiaries"
for "nations" in the following passage. "... (A) systemic conception allows
us to focus upon the actions of nations as components of the system; upon
the structure and functioning of the system which results from the inter-
actions of nations; or upon the environmental factors which condition
both the actions of nations and the operation of the system."[4]

We are obviously interested in the latter, the environmental factors
which "condition," which affect, the achievement of enterprise goals, both
of a subsidiary and of the MNE as a whole. However, conceiving the MNE in
terms of a system existing in an environment does not imply that the boundary
between the two is sharp or clearly defined. On the contrary, it is typically
diffuse and permeable. Furthermore, the interaction between the enterprise and
the environment is not unidirectional. The MNE, as a vehicle for the cross-
cultural transfer of resources, is an agent of change; it acts on the host
country environment as well as being acted upon by it.[5]

It is thus difficult to isolate the foreign subsidiary from any aspect
of its environment; there is an interdependence between the two. In practice,

however, we can isolate basic economic, social, and political aspects of
the environment which, while they may be affected to some degree by foreign
investment, may be taken as parameters rather than variables over the
relevant time horizon. The distinction is somewhat arbitrary but opera-
tional. While foreign subsidiaries contribute to GNP, it can clearly be
considered as data. On the other hand, the government's economic or, more
specifically, investment policy may well be conditioned by the presence of
foreign investment. In this research we are then defining environmental
variables as factors which (1) are a function of a given country's processes
of political, social, and economic development and (2) are relatively
independent of foreign investment.[6]

The Constraint on FDI

The literature is ambiguous regarding the extent to which environmental
variables are considered in the FDI decision. In his study of the foreign
direct investment decision process, Aharoni found that "All respondents
asserted as a matter of course that the first thing they considered was
'political and economic' stability."[7] However, he goes on to note that the
determination of the risk is neither objective nor investment specific. "It
is rather described in general terms and stems from ignorance, generalizations,
projection of U.S. culture and standards to other countries, and an unqualified
deduction from some general indicator to a specific investment."[8] Nehrt feels
that in developing countries, particularly where independence has been recent,
"... the political climate is often the key factor in the foreign investor's
decision."[9] Based upon interviews with executives, Root concluded that,
"... market opportunity and political risks are the dominant factors in most

investment decisions." Most interestingly, however, he notes that "... no executive offered any evidence of a systematic evaluation of political risks ...:[10]

As previously noted, empirical work in this area is scant and is generally limited to surveys of executive perceptions. For example, in a 1970 mailed survey attempting to delineate the problems confronting U.S. investors in Latin America, restrictive economic policies and political instability were ranked first and second.[11] (The former was classed as of high or medium import by 88 percent of respondents and the latter by 87 percent.) In 1967-68 the National Industrial Conference Board conducted a survey of obstacles and incentives to FDI based upon the experiences of investors from the twelve leading capital exporting countries. While economic and structural problems were discussed in some depth, perhaps the strongest statement was found in the discussion of political obstacles. "A great many investors...report that they have eliminated countries-- and even whole geographic regions--from their investment considerations for political reasons. Some countries are ruled out because of armed conflict or the threat of it. A much more common deterrent, however, is 'political uncertainty' or 'political instability.'[12]

Two relatively recent studies have cast some doubt on the importance of political and social factors in the foreign investment decision. Both differ from research reported thus far in that they attempt to determine the importance of political (in one case all environmental) variables objectively, rather than by placing reliance on manager's perceptions. First, Piper analyzed U.S. AID files of pre-investment surveys under the 50-50 program. As the files were only available for projects which were not consummated, he attempted to redress the obvious bias by a mail survey of companies which had made positive

decisions; however, the response rate was quite low. After reviewing his data he concluded that with very few exceptions, political and social variables "... tend, in general, to be treated with the same lack of concern in the foreign context as they are in the domestic."[13] Investment surveys tended to emphasize technical, financial, and economic variables falling within the competence of a generally technical survey team.[14] One can readily question whether the factors considered important by the survey team are those upon which the final investment decision is based.

Bennett and Green investigated the relationship between political instability and marketing FDI in forty-six countries. (Marketing FDI is defined as manufacturing and trade resulting in products and services being marketed abroad.) The indicator of political instability, which was developed by Feierabend and Feierabend, is a weighted index of a number of politically relevant, aggressive behaviors occurring within a nation over a stipulated time period. [15] Controlling for GNP/capita, they found no significant relationship between marketing FDI and the index of political instability either for the overall sample or for developed or less-developed countries individually. They conclude, "The results suggest that political instability did not affect the overall allocation of U.S. foreign direct marketing investment throughout the world. International managers appear to have allocated their investments on the basis of other overriding factors."[16]

However, not finding a relationship is both conceptually and philosophically unsatisfying. If FDI is not a function of political instability, what are the other "overriding factors" that serve as the basis for its

allocation? What environmental factors, if any, explain its variance?
If one controls for the factor (or factors) that are significant, do
political variables then become important? From a more philosophical
standpoint, one cannot reject an hypothesis based upon the inability to
establish a significant relationship in a social science analysis at the
societal level. When it is impossible to set up any sort of a controlled
experiment the failure to establish a significant relationship between two
variables can never be taken as proof that the two variables are not
causally related; the relationship may merely be misspecified. The Scottish
verdict of "not proven" appears more appropriate.[17]

Objective and Hypothesis

The objective of this research is to attempt to determine the relation-
ship between FDI and various aspects of the economic, political, and socio-
cultural environment. Flowing from the overall objective are two sub-
objectives. First to quantify various aspects of the environment in a manner
that is conceptually and analytically meaningful and second to determine the
proportion of the variance of FDI accounted for by each of the aspects of
environment.

Given both the nature of the foreign investment decision and the
typically ologopolistic structure of industries in which significant foreign
investment takes place,[18] we would posit that "only the market matters." We
hypothesize the existance of a significant relationship between FDI and indi-
cators relating to market size and the absence of a significant relationship
between FDI and other social and political aspects of the environment. The
latter, of course, can never be proven in the strict sense.[19]

Much foreign investment is defensive in nature; it is a function of strategic considerations in an ologopolistic industry. Whether or not the investment can be justified on its own merit, one may feel compelled to protect a significant export market closed by tariff barriers. Similarly, if a limited number of actors are competing world-wide they may feel compelled to avoid letting any given company preempt any given market.[20]

If the scope of inquiry is limited to manufacturing investment (see below) another consideration arises. Most, if not all, of the cost of product and marketing development has been recovered in the home country.[21] There is then little incremental cost incurred in entering another market.[22] Under these circumstances one would not expect non-market related environmental variables to be of major import as a determinant of manufacturing investment. The investment decision is likely to be taken in response to an exogenous factor such as the erection of a tariff wall or a competitor's move rather than as a result of a systematic comparative analysis.

Research Method

All non-socialist bloc countries which were sovereign, of sufficient size (a population of at least one million and a GNP of at least $500 million) to represent comparable national entities,[23] and which had accumulated a minimum of one million dollars of U.S. manufacturing direct investment as of year-end 1967 are included in the analysis. Less developed countries (LDC's) are defined by a 1965 GNP per capita of less than $1,000 with the exception of Japan, which was classified as developed (following Kuznets) on the basis that its 1965 GNP per capita of $861 did not reflect its level of socio-economic development.[24] Appendix I contains a country list.

Quantification of FDI presents serious problems. The availability
of data is limited and there are significant conceptual problems
with the measures which do exist. In this research we are attempting
to determine the relationship between flows of foreign direct invest-
ment (the dependent variable) and various aspects of the environment.
However, as annual flows[25] of FDI are not available on a widespread
basis, stocks are used as a proxy. Furthermore, the study is limited
to U.S. manufacturing FDI. Only manufacturing FDI is considered as it
typically (although not universally) flows in response to conditions
within the host country and thus should be most sensitive to the
investment environment. (Extractive investment, on the other hand,
is largely a function of resource availability and world market
demand.) U.S. data is the most complete and is available for virtually
all of the countries that meet other requirements for inclusion.

Limiting the study to manufacturing FDI also mitigates problems
posed by utilizing stocks as a proxy for flows, as U.S. manufacturing
FDI more than doubled[26] from 1960 to 1967. Thus, the indicator of
FDI in the study is stocks of U.S. manufacturing FDI as of year-end 1967.[27]

A large number of variables measuring aspects of the environment (as
defined above) including measures of economic size and growth; political
structures and domestic political unrest; socio-economic development; and
infrastructure were collected from available published sources[28] and are
included as raw environmental indicators. Missing data are estimated by
cross-referencing other comparable sources. As indicators across a large
number of countries at markedly different "levels" of development are often
skewed, variables are transformed logarithmically if an histogram indicates
it would be appropriate.[29]

Factor analysis, which allows constructs to be derived from raw attributes,[30] is used to reduce the mass of initial indicators[31] to a smaller number of conceptually meaningful aspects of the environment.

The hypotheses are then tested by regressing manufacturing FDI on the variables representing aspects of the environment and evaluating the significance, size and direction of the coefficients.

Research Findings

The Environment

Table 1 contains the rotated factor matrix derived from the thirty-three environmental variables included in the study. As the factors were rotated orthogonally, the loadings define the major clusters of interrelationships among the variables,[32] and the factors are independent. The individual loadings are analogous to correlation coefficients; they are a measure of the degree to which a given variable is associated with a given factor. The column headed by h^2 contains the sum of the squares of the loadings of each of the variables across all of the factors, or the communalities. They represent the percentage of the common variance of a given variable accounted for by the six factors in total. As can be seen, the six factors capture 78 percent of the variance the thirty-three variables have in common; a considerable gain in simplicity was thus achieved at a relatively low cost.

Interpretation of a factor, in terms of its meaning or conceptual content, is necessarily subjective. However, the meaning of a factor is generally inferred from those variables with very high (or conversely, very low) loadings on it. In this instance, the pattern

Table 1

Rotated Factor Matrix

	S_1	S_2	S_3	S_4	S_5	S_6	h^2
Assoc. Groups	.89	-.12	.24	.02	-.02	-.02	.86
Non Assoc. Groups	-.76	.03	.22	-.10	.17	.12	.68
Bureaucracy	.78	-.03	.04	-.11	.05	.12	.64
GDP/Capita	.94	-.17	-.12	-.04	.08	.06	.93
% Agricultural	-.93	.17	-.06	.08	.05	.02	.90
% Manufacturing	.90	-.12	.13	-.09	.01	.06	.86
Urbanization	.74	.05	.11	.06	-.17	-.00	.59
Fractionalization	-.54	-.09	.18	-.17	.46	-.03	.58
Literacy	.88	-.09	.06	-.01	-.18	.10	.82
Enrollment	-.88	-.04	.06	-.03	-.11	.05	.79
Human Resources	.85	-.14	.14	-.03	-.06	.14	.79
Telephone	.94	-.20	-.67	-.01	.05	.04	.93
Radio	.86	.04	-.19	-.05	-.06	-.01	.78
Newspaper	.94	-.00	.05	-.14	-.18	.02	.94
Com. Vehicle	.89	-.12	-.17	.08	.08	-.04	.84
Transportation	.83	.11	-.01	.02	-.13	.16	.74
Regime Type	.11	-.63	.11	-.06	-.11	.12	.44
General Strikes	.09	.51	.13	.07	.27	-.14	.38
Riots	-.05	.43	.30	.44	.35	-.07	.60
Purges	-.15	.55	.25	.17	.25	-.11	.49
Assassinations	-.03	.53	-.05	-.02	.23	-.24	.39
Coups	-.10	.92	-.11	.00	-.19	-.01	.90
Revolutions	-.15	.75	.00	.26	.07	-.04	.65
Irregular Changes	-.11	.88	-.07	.18	-.06	-.03	.82
GDP	-.62	-.13	.67	.06	.22	-.01	.90
Population	-.07	-.01	.96	.11	.15	-.05	.95
Executive Changes	.09	.45	.00	.67	-.02	-.11	.67
Cabinet Changes	-.19	.11	.04	.80	.03	.12	.70
Crises	.15	.45	.15	.55	.24	-.01	.60
Armed Attacks	-.26	.50	.17	.20	.61	.01	.76
Guerrilla Warfare	-.15	.30	.13	.11	.67	-.12	.60
Growth GNP	.01	-.24	-.03	-.01	-.14	.92	.93
Growth GNP/Capita	.23	-.23	-.04	.04	.01	.78	.71
% Variance	39.5	17.4	7.8	5.8	3.9	3.2	
% Cum. Var.	39.5	57.0	64.8	70.6	74.5	77.7	

of loadings is relatively clear and unambiguous. One of the six factors represents socio-economic development, two are measures of the economy, and three are indicators of political instability.

The variables loading most highly on the first factor (S_1 in Table 1) include Gross Domestic Product per Capita, measures of social development, indicators of the degree of homogeneity of society, and measures of communications and transportation infrastructure. The first factor then is an indicator of socio-economic development and is so named. (It is important to note that the names given to factors are intended only as mnemonic devices and not as self-sufficient descriptions of processes encompassed.)

Factors three and six(S_3 and S_6) are clearly measures of market size and potential, and economic growth, respectively. The former contains GDP and population and the latter the annual growth rates for GNP and GNP per capita. They are thus named market size and growth.

The three remaining factors are measures of political instability. Factor two contains variables representing both planned and spontaneous rebellion against government authority, a measure of government reaction (purges) and an indicator of the type of regime most likely to be associated with active political violence. (As regime type loads negatively, protests, coups and political violence in general are more likely to be associated with civilian control.) The second factor is named rebellion. The variables loading most highly on factor four are indicators of government instability, and the factor is so named. It should be noted that the two measures of changes in government contained in factor four do not imply irregular trans- fers. The changes in the executive and/or the cabinet may be implemented by an electoral process as well as a violent overthrow of the current regime.

Factor five measures planned, quasi-military action against the regime and, following Rummel, it is named subversion.[33]

Thus, six new variables are derived via factor analyses which represent social, economic, and political aspects of the environment. As they are orthogonal, they are, by definition, independent; their correlations with one another approach zero. The factor scores, or scores for each case for each factor, derived from the loadings and original variables,[34] can then be utilized in further analysis. However, a problem was encountered in deriving scores and a minor modification in the normal procedure required. Because of the large number of highly correlated variables loading on factor one, factor scores could not be obtained for the full set of variables[35] from the SPSS factor analysis sub-program. To circumvent the problem, scores, or numerical values, were obtained for the factors in two separate steps. First, the socio-economic variables loading on factor one were deleted and the factor analysis was rerun. The resulting five factors were virtually identical to factors two through six in the original analysis; the pattern of variable loadings was unchanged and the values of the loadings themselves very similar. Second, the socio-economic variables were factor analyzed (and obviously not rotated) and the resulting loadings were then used to compute a weighted linear index.[36] In summary, the conceptual content of the six aspects of the environment used in further analysis is identical to that of the six factors shown in Table 1. Mathematically, the score for socio-economic development is a weighted linear average based upon loadings, while the scores for the remaining five aspects are actual factor scores. As a result, socio-economic development is no longer orthogonal to the other five aspects. The pattern of

Table 2

Correlation of Development and the Other Factors

Rebellion	Growth	Instability	Subversion	Market
-.02	.09	-.10	-.43	.60

Testing of Hypotheses

As noted above, the hypotheses were tested by regressing U.S. manufacturing FDI (MFDI) on the environmental variables. Preliminary analysis revealed that the residuals of Canada, and to a lesser extent the U.K., are very large, which makes sense conceptually because of their special relationship to the U.S. Both countries were dropped from further analysis as "special cases" as environmental variables are thus not very good predictors of their level of FDI.

Table 3 shows the regression equations for MFDI on the six environmental variables (the factors) for the group of countries as a whole and for the LDC's alone. (The coefficients shown are betas and the t statistic is shown in parentheses.)

Table 3

Regression of MFDI on Environmental Variables

$$(All) \quad MFDI = \underset{(4.73)}{.31} Soc\ Dev - \underset{(.14)}{.04} Reb + \underset{(.13)}{.04} Ins + \underset{(.92)}{.11} Sub$$
$$+ \underset{(.48)}{.07} Growth + \underset{(15.6)}{.50} Mkt \qquad (R^2 = .51) \qquad (1)$$

$$(LDC's) \quad MFDI = \underset{(5.59)}{.31} Soc\ Dev - \underset{(.24)}{.06} Reb + \underset{(.76)}{.10} Ins + \underset{(.07)}{.04} Sub$$
$$+ \underset{(1.13)}{.12} Growth + \underset{(14.84)}{.51} Mkt \qquad (R^2 = .47) \qquad (2)$$

In each instance, the environmental variables accounted for about one-half of the variance of MFDI. The results are clear with respect to the importance of the environmental variables. Only the size of the market and socio-economic development are significant, with the former considerably more important than the latter. Further-more, as discussed below, there is reason to believe that the signif-icance of socio-economic development is due to the fact that it is a determinant of market size.

Even if market size is the primary determinant of FDI, it is possible that other environmental variables may come into play as second order factors. Given an attractive market, investment decisions may then be sensitive to political variables. To test this hypothesis, one can control for market size through the use of residuals. MFDI was regressed on market and the residuals (the observed minus the predicted value) were then used as the dependent variable in a second regression. The independent variables were the five remaining aspects of the environment. Results again were clear; neither the regression equation (F statistic) for either the total group of countries or for the LDC's even approaches significance.

A second approach to controlling for market size is partial correlation analysis. Correlation coefficients were computed for MFDI and the five remaining environmental variables holding market constant. For both the total group and the LDC's only the coefficient for socio-economic development is significant, although weak at .25 and .35 respectively.

Two further regression analyses were conducted. The first represented an attempt to increase the variance of MFDI explained, the second to

determine if results held for non-U.S. FDI. Both empirical studies of the investment process and FDI theory indicate that previous involvement or familiarity with a market should be an excellent predictor of FDI.[37] Market familiarity is quantified by an index of U.S. manufacturing exports, to a given country, as a percentage of total U.S. manufacturing exports for the years 1958-1962.[38] Thus, the index represents involvement in the market by manufacturers (of other than produce's goods) an average of seven years before the date of the FDI data used in the analyses.

Table 4 presents the correlations coefficients of _exports_ with the six environmental variables. While the coefficients for both socio-economic development and market are significant, they are lower than one might expect, perhaps as a result of the temporal lag.

Table 4

Correlation of Exports and Environmental Variables

Soc Dev	Rebel	Ins	Sub	Growth	Market
.37	-.07	-.04	.06	.07	.42

The regression equations which result from adding exports to equations (1) and (2) are shown in Table 5.

Table 5

Regression of MFDI on Environmental Variables and Exports

$$
\text{(All)} \quad \text{MFDI} = \underset{(1.81)}{.19 \text{ Soc Dev}} - \underset{(.08)}{.03 \text{ Reb}} + \underset{(.24)}{.05 \text{ Ins}} + \underset{(.12)}{.04 \text{ Sub}}
$$

$$
+ \underset{(.17)}{.04 \text{ Growth}} + \underset{(7.38)}{.34 \text{ Mkt}} + \underset{(9.36)}{.37 \text{ Xp}} \quad (R^2 = .58) \quad (3)
$$

$$
\text{(LDC's)} \quad \text{MFDI} = \underset{(.23)}{.06 \text{ Soc Dev}} - \underset{(.06)}{.02 \text{ Reb}} + \underset{(2.34)}{.14 \text{ Ins}} - \underset{(.50)}{.08 \text{ Sub}}
$$

$$
+ \underset{}{.04 \text{ Growth}} + \underset{}{.27 \text{ Mkt}} + \underset{}{.61 \text{ Xp}} \quad (R^2 = .67) \quad (4)
$$

Several points are in order. First, adding exports results in the capture of an incremental .07 of variance for all countries and .20 for LDC's alone. Second, exports, as a proxy for prior involvement or knowledge, is extremely important, especially in the case of the LDC's. The index of export importance or market familiarity alone accounts for fourty-five percent of the variance (R^2) of MFDI in the total sample and fifty-eight percent in the LDC's. Thus, market familiarity (or prior involvement) is a major factor in determining the distribution of stocks of FDI. This is of course consistent with FDI theory.

Third, adding exports results in changes in the significance and size of the coefficients of the environmental variables. In the case of the total group of countries, the coefficient of development is no longer significant. For the LDC's alone, not only is development no longer significant, but instability becomes significant (at the .05 level), albeit with a very small coefficient.

Although the correlations among the independent variables are low, the instability of coefficients when exports is added is obviously a function of their interrelationships. This raises a not unfamiliar problem; if coefficients are sensitive to changes in the model, how does one interpret them in the absence of a conceptual basis for preferring one specification versus another? Given the objective of this analysis, the question is somewhat moot. The change in the pattern of the significance of the coefficients does not alter the findings. While government instability's coefficient is significant in the LDC group, its sign is positive. Thus, it is not an obstacle to FDI; on the contrary, it is correlated with it, although weakly. (The simple R is .16) It will be recalled that the variables loading on instability are measures of executive and cabinet change,

whether regular or irregular, and government crises. When the countries
are ranked on this factor, Greece and Brazil are one and three. Further-
more, the developed countries tend to fall in the middle. It is thus
not surprising that instability shows a weak, positive relationship to MFDI.

When one completes the analysis and regresses the residuals of
MFDI and market plus exports on the five remaining environmental
variables, the results confirm the previous analysis. The regression
equation does not approach significance for either the total sample or
for LDC's. Thus, it appears reasonable to conclude, based on either of
the two regression equations, that non-market related environmental
variables are not determinants of the distribution of MFDI.

An attempt was also made to determine if the relationship between
environmental variables and FDI uncovered was particular to U.S. invest-
ment. While a complete comparison could not be made, comparable
manufacturing FDI data is available for the OECD countries' investments
in the LDC's.[39] As can be seen from Table 6, the overall pattern is
much the same as for U.S. FDI.

Table 6

Regression of Foreign FDI on Environmental Variables

$$\text{FORMFDI} = \underset{(.07)}{.04 \text{ Soc Dev}} - \underset{(.53)}{.09 \text{ Reb}} + \underset{(3.40)}{.24 \text{ Ins}} - \underset{(.12)}{.05 \text{ Sub}}$$

$$+ \underset{(.80)}{.11 \text{ Growth}} + \underset{(13.67)}{.53 \text{ Mkt}} \qquad (R^2 = .38) \quad (5)$$

As with U.S. MFDI, the market dominates. The only other significant
variable is instability, which is not surprising as discussed above.

When one controls for market size by regressing the residual of FORMFDI
and market on the remaining variables, the equation is again not significant.

In summary, a significant relationship between MFDI and the environ-
mental variables could be found only for market size and socio-economic
development which included market related factors. When one controlled for
market size, no (significant) relationship could be established between MFDI
and the remaining environmental variables. Results held for both the total
sample and for LDC's alone, and although the evidence is weaker, appear to
hold for non-U.S. investment as well.[40]

Conclusions

The research findings are unambiguous. Market size appears to
be the overriding factor in the allocation of manufacturing FDI.
Furthermore, even when one holds market size constant--when one asks,
in effect, on what factors the FDI decision would be based if an
investor was faced with a number of comparable markets--no relationship
can be established between FDI and any of the other environmental var-
iables. While socio-economic development was also significant, it
certainly must be taken as a market related variable as it includes
both measures of economic development (GNP per capita) and infrastruc-
ture in addition to indicators of social development.

There thus appears to be a contradiction between executive's percep-
tions of factors influencing the FDI decision and the variables which
actually explain the distribution of direct investment. Furthermore, the
contradiction can not be explained by the arguments upon which the hypothesis
of this research is based. Presumably, exectuives are well aware of the
nature of both the structure of their industries and the foreign direct

investment decision. First, it should be noted that the contradiction may be a function of the model utilized to examine the relationship. This research has established that a simple or direct relationship does not exist between the distribution of FDI and non-economic environmental variables. One cannot dismiss the possibility, however, that non-economic and (specifically) political variables intervene between FDI and market size in some, as yet undefined, manner. Interaction could exist and not have been captured by the model tested.[41]

We suspect it is more likely that the apparent contradiction is a function of the definition of "political instability," "political risk," and like terms. We have defined the environment in terms (in this case) of the structure and functioning of basic political institutions. However, Robock has observed that "discontinuities" in the environment may be necessary, but are not sufficient to define risk. He notes, "... (T)o constitute a 'risk,' these changes in the business environment must have a potential for significantly affecting the profit or other goals of a particular enterprise.[42] Political activities which do not significantly alter the business environment do not represent political risk.[43]

Given a sufficiently attractive market, or a market that a firm would rather establish facilities in than lose (in an oligopolistic industry), discontinuities in the political environment alone may not represent a significant business risk. One may be able to carry on operations in spite of political violence or government instability under all but the most extreme conditions. (The large multinational banks were, after all, among the last to leave Saigon before it fell.)

Risk may result from political disruption, but only to the extent it constrains operations. Political violence may not pose a major risk unless it results in pressures for nationalization, increased local

control or ownership, regulations preventing remission of profits or fees, limits on distribution or market penetration, etc. Businessmen may well mean constraints on operations resulting from political disruption rather than the disruption itself when they talk about the importance of political factors. Any number of coups may be tolerable if they do not result in changes in policy or in business-government relationships. What is important is not political disruption and instability per se, but the ramifications that discontinuities in the political environment have for business operations. We may not be able to infer the latter from available political indicators. They may well be sources of potential political risk rather than political risk per se.

In summary, the data and empirical findings are consistent with a conclusion that "only the market matters". Factors such as violent political protests, governmental instability, rebellion, and subversion do not appear to directly influence the FDI decision process. However, the possibility that political discontinuities may indirectly influence operations cannot be dismissed. Political disruption may result in changes in business-government relationships, in the conditions of ownership and/or control, or in direct constraints on operations. If that is the case, under some circumstances political variables could intervene in the relationship between market size and FDI. We would suggest that as a fertile topic for further research.

APPENDIX I

Country List

Developed

Canada
Belgium
France
Germany
Italy
Netherlands
Denmark

Norway
Sweden
Switzerland
United Kingdom
Japan
Australia
Israel

Less Developed

Greece
Spain
Turkey
Algeria
Congo (now Zaire)
Ethiopia
Ghana
Kenya
Libya
Morocco
Nigeria
South Africa
Sudan
Tanzania
Tunesia
U.A.R.
Zambia
Costa Rica
Dominican Republic
El Salvador
Guatemala
Honduras
Jamaica
Mexico

Nicaragua
Panama
Argentina
Bolivia
Brazil
Chile
Colombia
Ecuador
Peru
Uruguay
Venezuela
Iran
Lebanon
Cambodia
Ceylon
India
Indonesia
South Korea
Malaysia
Pakistan
Philippines
Taiwan
Thailand
South Vietnam

APPENDIX II

The Environmental Variables

I. Socio-economic

1. Interest Articulation by Associational Groups--the extent of political interest articulation by specialized, voluntary groups such as trade unions and civic associations. (Banks and Textor, 1963)

2. Interest Articulation by non-Associational Groups--the extent of political interest articulation by ascriptive groups based upon kinship, religious or ethnic origins, etc. (Banks and Textor, 1963)

3. Character of the Bureaucracy--a measure of the efficiency, rationality, and the achievement orientation of the Bureaucracy. (Banks and Textor, 1963)

4. Percentage of the Economically Active Population in Agriculture. (Yearbook of Labour Statistics)

5. Percentage of the Economically Active Population in Mining and Manufacturing. (Yearbook of Labour Statistics)

6. 1965 Population. (U.N. Statistical Yearbook, 1966; U.N. Demographic Yearbook, 1965; Taylor and Hudson, 1972)

7. Urbanization--percentage of population living in cities of 100,000 or more. (Taylor and Hudson, 1972)

8. Ethnic and Linguistic Fractionalization--a measure of the cultural and linguistic homogeneity of the population. (Taylor and Hudson, 1972)

9. Literacy. (Taylor and Hudson, 1972)

10. Enrollment--percentage of relevant age groups enrolled in primary and secondary schools. (Taylor and Hudson, 1972)

11. Human Resource Utilization--an index, developed by Harbison and Myers, composed of second and third level school enrollment ratios with the latter weighted by a factor of five. (Taylor and Hudson, 1972)

12. Telephones per Capita. (Taylor and Hudson, 1972)

13. Radios per Capita. (Taylor and Hudson, 1972)

14. Newspaper Circulation per Capita. (Taylor and Hudson, 1972)

15. Commercial Vehicles per Capita. (Taylor and Hudson, 1972)

16. Transportation--an index of road and rail length per area adjusted for concentration of population. (Statesman's Yearbook; Ginsburg, 1961)

17. Gross Domestic Product, 1964 and 1965. (U.N. Yearbook of National Accounts Statistics, 1966)

18. Gross Domestic Product per Capita, 1964 and 1965. (U.N. Yearbook of National Accounts Statistics, 1966)

19. Growth Rate of Gross National Product, 1960-1965. (Taylor and Hudson, 1972)

20. Growth Rate of Gross National Product per Capita, 1960-1965. (Taylor and Hudson, 1972)

II.Political

21. Regime Type--regimes classified as civilian, military civilian, military or other as of 1965. (Banks, 1971)

22. Changes in Effective Executive--number of times effective control of executive power changes to an independent successor each year. (Banks, 1971)

23. Major Cabinet Changes--number of times a new premier and/or 50 percent of cabinet posts are named by new ministers. (Banks, 1971)

24. General Strikes--strikes involving over one thousand workers which are aimed against the national authority. (Banks, 1971)

25. Riots--violent demonstrations involving more than one hundred participants. (Banks, 1971)

26. Government Crises--any rapidly developing situation (excluding revolution) which threatens the immediate fall of the government. (Banks,1971)

27. Purges--the systematic elimination by the political elite or opposition leaders by incarceration or execution. (Banks, 1971)

28. Assassinations--any politically motivated murder or attempted murder of government or political officials. (Banks, 1971)

29. Armed Attacks--acts of violent political conflict carried out by one organized group against another. (Taylor and Hudson, 1972)

30. Coups d'Etat--number of successful extra-constitutional changes in the governing elite. (Banks, 1971)

31. Guerilla Warfare--armed attacks by irregular forces or bands of citizens aimed at the overthrow of the existing government. (Banks, 1971)

32. Revolutions--any armed attempt by a part of the citizenry to form an independent government or force a change in the governing elite. (Banks, 1971)

33. Irregular Executive Transfers--any change in the national executive accomplished outside of legal or customary procedures and which is accompanied by actual or threatened violence. (Taylor and Hudson, 1972)

III. Sources

Banks, Arthur S. and Textor, Robert B.   A Cross-Polity Survey.
     Cambridge: MIT Press, 1963.

Banks, Arthur S.   Cross-Polity Timeseries Data.   Cambridge:
     MIT Press, 1971.

Ginsburg, Norton S.   Atlas of Economic Development.   Chicago:
     University of Chicago Press, 1961.

International Labour Office.   Yearbook of Labour Statistics.
     Geneva: International Labour Office, various issues.

Steinberg, S.H.   The Statesman's Yearbook.   London: MacMillian,
     1967 and 1972.

Taylor, Charles Lewis and Hudson, Michael C.   World Handbook of
     Political and Social Indicators: Second Edition.   New Haven:
     Yale University Press, 1972.

United Nations.   Demographic Yearbook.   New York: United Nations,
     1967.

_____.   Statistical Abstract.   New York: United Nations,
     various issues.

_____.   Yearbook of National Accounts Statistics.   New York:
     United Nations, various issues.

Notes

[1] In his study of the foreign investment decision, Aharoni observed that the process may best be explained in terms of organizational behavior rather than as a "rational" economic review of alternatives. See Yair Aharoni, The Foreign Investment Decision Process (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1966). Much of the FDI literature is concerned with the fact that it generally takes place in oligopolistic industries where the decision is often a function of intra-industry relationships or exogenous factors such as the need to maintain export markets closed by tariff barriers. See Richard E. Caves, "International Corporations: The Industrial Economics of Foreign Investment," Economica (February, 1971); John H. Dunning, Studies in International Investment (London: George Allen and Unwin Ltd., 1970); and Louis T. Wells Jr., ed., The Product Life Cycle and International Trade (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1972).

[2] Lee C. Nehrt, "The Political Climate for Foreign Investment," Business Horizons 15 (June, 1972): 51-58.

[3] James N. Rosenau,"The International System; Introductory Note," in International Politics and Foreign Policy, ed. James N. Rosenau (New York: The Free Press, 1969), p. 71.

[4] Ibid.

[5] See Stephen J. Kobrin, "Foreign Direct Investment, Industrialization, and Social Change," (Ph.D. Thesis: The University of Michigan, 1975).

[6] We would agree that the distinction between independent and interdependent (versus foreign invetment) aspects of the environment is arbitrary and any given case may be arguable. For example, we have treated the various indicators of government instability as environmental variables realizing that under some circumstances foreign investment can affect the stability of the government.

[7] Aharoni, The Foreign Investment Decision Process, p. 93.

[8] Ibid., p. 94.

[9] Nehrt, "The Political Climate for Foreign Investment," p. 51.

[10] Franklin R. Root, "U.S. Business Abroad and the Political Risks," MSU Business Topics (Winter, 1968), p. 75.

[11] Robert Swansbrough, "The American Investor's View of Latin American Nationalism," Inter American Economic Affairs 26 (Winter, 1972), p. 68. Two hundred twelve questionnaires were mailed out and one hundred returned.

[12] National Industrial Conference Board, <u>Obstacles and Incentives to Private Foreign Investment, 1967-1968</u>, vol. 1: <u>Obstacles</u> (New York: National Industrial Conference Board, Inc., 1969), p. 3.

[13] James R. Piper, "How U.S. Firms Evaluate Foreign Investment Opportunities," <u>MSU Business Topics</u> 19 (Summer, 1971), p. 16.

[14] Ibid., pp. 16 and 17. While arising in a different context, Wells' conclusions that the motivations of advanced country engineers were quite important in selecting technology to be transferred to LDC's lends some support to this conclusion. See Louis T. Wells, Jr., "Economic Man and Engineering Man: Choice and Technology in a Low-Wage Country," <u>Public Policy</u> 21: 319-342.

[15] Peter D. Bennett and Robert Green, "Political Instability as a Determinant of Direct Foreign Marketing Investment", <u>Journal of Marketing Research</u> 9 (May 1972): 182-186.

[16] Ibid., p. 185

[17] Karl W. Deutsch, "The Theoretical Basis of Data Programs" in <u>Comparing Nations: The Use of Quantitative Data in Cross-National Research</u>, eds. Richard L. Meritt and Stein Rokkan (New Haven: Yale University Press, 1966), p. 35.

[18] See note 1.

[19] At a more general level, one can never "prove" the existence of causality itself, in the sense of a change in one variable producing a change in a second, in any but the most rigorously controlled experiment in the physical sciences.

[20] For a discussion of this problem in the context of competition between U.S. and European multinationals, see Stephen Hymer and Robert Rowthorn, "Multinational Corporations and International Oligopoly: The Non-American Challenge," in <u>The International Corporation</u>, ed. Charles P. Kindleberger (Cambridge: The MIT Press, 1970), pp. 57-91. Vernon discusses ologopolistic strategy in terms of "stability through hostages and alliances" and the practice of following the leader in: Raymond Vernon, "The Location of Economic Activity", <u>Economic Analysis and the Multinational Enterprise</u>, ed. John H. Dunning (London: George Allen and Unwin, 1974), pp. 89-114.

[21] See Wells, <u>The Product Life Cycle and International Trade</u>, and Maxwell Stamp, "Has Foreign Capital Still a Role to Play in Economic Development," <u>World Development</u> 2 (February 1973), p. 126.

[22] This would not hold true in the case of extractive investment where a major investment in resources and facilities is necessary in each country. For this, and other, reasons political risk appears to be a considerably more important factor in extractive than in manufacturing investment.

[23]A 1970 UNRISD study excluded countries with populations of under one million because of "the special circumstances that apply to so many of them." See D.V. McGranahan, Concepts and Measurement of Socio-economic Development (New York: Praeger, 1972), p. 14.

[24]While there are obvious problems with GNP per capita as a measure of development, it is certainly the most widely used index and is adequate for definition of the sample. For further discussion of the inclusion of Japan in the developed group see; Simon Kuznets, Modern Economic Growth (New Haven: Yale University Press, 1966), p. 400.

[25]One can utilize annual changes in stocks of FDI as a proxy for flows. However, as book value is a static balance of payments concept, annual variations do not always correspond to actual changes in investment, even on a net basis.

[26]U.S. manufacturing FDI grew from $11,152 million in 1960 to $24,124 million in 1967, an increase of 116 percent. Data is from the Survey of Current Business, September, 1961 and October, 1968.

[27]The choice of 1967 FDI data was dictated by data availability. The U.S. Department of Commerce provides detailed reports of FDI annually, but will not disaggregate on a country by country basis where doing so will compromise individual investment data. Thus, to include many of the developing countries, an OECD study conducted only in 1967 had to be relied upon. The date is fortuitous, however, as most of the environmental variables are available for a period between 1962-1966. Thus, given the rapid growth of manufacturing FDI, it is reasonable to assume that the indicator of FDI represents, to a large extent, decisions reflecting the environmental variables included in the analysis. Sources for FDI are; Survey of Current Business (October 1968), p. 24 and OECD, "Stock of Private Direct Investments in Developing Countries End 1967", (Paris: OECD, 1972). Where they overlap, the two sources agree with minor exceptions.

[28]See Appendix I for a listing of major sources. Other sources utilized are; Irma Adelman and Cynthia Taft Morris, Society Politics and Economic Development (Baltimore: Johns Hopkins Press, 1967); United Nations, UNESCO Statistical Yearbook 1972 (New York: United Nations, 1973); and the New York Times indices.

[29]Log transformations are frequently used in cross-national research to compensate for skewness in the data. See Arthur S. Banks, "Industrialization and Development: A Longitudinal Analysis" Economic Development and Cultural Change 22 (January 1974), p. 321.

[30]Jum C. Nunally, Psychometric Theory (New York: McGraw-Hill, 1967), p. 289. The analysis was conducted on the factor subprogram contained in the Statistical Package for the Social Sciences, using a straightforward principal axis algorithm to extract the factors and a varimax rotation.

[31]After variables which were either conceptually redundant or tended to load randomly were eliminated, thirty three indicators remained in the final analysis. As all variables have to associate with all factors, they tend to load randomly if a given factor or factors does not capture a significant portion of the variance. This may mean that either the variable is not in fact associated with any of the concepts that the factors represent or that the variable is not an accurate indicator of the phenomenon it purports to measure.

[32]Rudolph J. Rummel, Applied Factor Analysis (Evanston: Northwestern University Press, 1970), p. 150.

[33]While there is not a one-to-one correspondence, the three political factors are comparable to those developed by both Rummel, and Taylor and Hudson through the factor analysis of political variables. Rummel's three orthogonally rotated factors were: Revolution (coups, plots, administrative actions, etc.), Subversion (external violence, guerrilla warfare, etc.) and Turmoil (turmoil, riots, small scale terrorism, etc.). Taylor and Hudson derived four orthogonal factors named Political Protests, Political Violence, Government Controls and Adjustments, and Government Instability. See, Rudolph J. Rummel, "Dimensions of Conflict Behavior Within Nations, 1946-1959," Conflict Resolution 10: 65-73, and Taylor and Hudson, World Handbook of Political and Social Indicators, p. 389.

[34]Rummel, Applied Factor Analysis, p. 150.

[35]The formula used for computation of factor scores in SPSS (versions five or six) requires inversion of the correlation matrix. While the inversion program used in the analysis proper is of sufficient power to handle the high correlations of the socio-economic variables, the program used in the calculation of factor scores (for some unexplained reason they differ) is not.

[36]The factor scores themselves are based upon the loadings; each variable is weighted proportionally to its involvement in the factor. However, while using the loadings as weights in a simple linear index maintains the conceptual content of the factor, it sacrifices orthogonality. The index for Socio-Economic development was computed by converting variable scores to T Scores (standardized scores with a mean of fifty and a standard deviation of ten) and then utilizing the loadings as weights and summing.

[37]As has been discussed, the FDI decision is often defensive; a company reacts to a potential loss of sales in a market previously served by exports but now "closed" by a tariff wall. In addition, the product life cycle theory, for example, posits export of a specialized product as a prerequisite to local production when it has become more standardized.

[38]The source for the export data is; U.S. Bureau of the Census, United States Exports of Domestic and Foreign Merchandise: Country of Destination by Subgroup, Report FT420. (Washington: Government Printing Office, 1960, 1961, 1962, 1963). SIC codes: 310, 350, 420, 490, 595, 704, 816, 850 are included in the index.

[39]OECD, "Stock of Private Direct Investments."

[40]As discussed above, it is impossible to "prove" the absence of a relationship; the possibility always exists that the model may be misspecified. However, by using contingency tables and a non-parametric test of independence (chi squared) one may test for the presence (or absence) of a relationship without attempting to specify its nature. Thus, MFDI, market and two political variables--rebellion and subversion-- were categorized and three by three tables prepared for each of the environmental variables and MFDI. The chi square statistics and probabilities that the variables are independent are as follows:

MFDI and	x^2	Prob. of Independence
Market	55.4	.0000
Rebellion	5.0	.2889
Subversion	6.5	.3688

Thus, the null hypothesis, that MFDI and a given environmental variable are independent, can only be rejected for market.

[41] Two efforts were made to test for interaction. First, inter- active terms (market size times a political variable) were added to the regression equations. In no instance did their coefficients approach significance. Second, three by three contingency tables of manufacturing FDI and market were prepared, controlled for high and low levels of political variables. Again, there was no evidence of interaction; the nature of the relationship between MFDI and MKT appeared unaltered.

[42]Stefan Robock, "Political Risk: Identification and Assessment", Columbia Journal of World Business 6 (July-August, 1971): 6-20, p. 7.

[43]Ibid, p. 8.