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# EVALUATION OF THE INVESTMENT CLIMATE OF DEVELOPING ECONOMIES

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## 1. DEVELOPING COUNTRIES AND PRIVATE FOREIGN INVESTMENT

The spectacular growth performance by several newly industrialised countries (NICs), particularly in the Association of South East Asian Nations (ASEAN), has reinforced the proposition that private foreign investment (PFI) is an engine of growth. The case for PFI has been argued in development economics as a gap filler with respect to foreign exchange, savings, budgetary deficits and technology (Todaro, 1980, p. 328-30). However, others argue that PFI flows through Multinational Corporations (MNCs) can have baneful effects on host Developing Countries (DCs). The eventual reverse flows or leakages in the form of profit, dividend and royalty remittances may outweigh the initial PFI inflow; the importation of inappropriate technology may exacerbate the acute unemployment problem; the infusion of a technological dependence may undermine the growth of an indigenous technological base; inferior products may replace superior products, for example, baby foods as a substitute for breast milk (Griffin, 1978, p.47).

The host DCs' perception of the deleterious effects of PFI and MNCs led to the demands for the regulation of PFI and MNCs by a "code of conduct" during the height of the debate on the New International Economic Order (NIEO). However in the 1980s, in the context of persistent global stagflation and the spectacular break-through by the NICs even the most hard-headed countries have revised their confrontationist stance against PFI and the MNCs. The contention that PFI leads to dependency is recanted and the nexus between centre PFI and peripheral growth without deleterious marginalisation is acknowledged (Godfrey, 1980, p.1).

The nexus between PFI and growth performance of host DCs in Asia is unmistakably clear in the data given in Table 1. The respective five ASEAN economies with a large dosage of PFI recorded growth rates of over 7 % during 1970-77 whilst the sample of developing economies with poor flows of PFI performed badly or declined when the inflow of PFI was substantial (see Table 1).

Country	Net dir	ect PFI	GDP growth rate (%)	
	1970	1977	1970-77	
Indonesia	23	226	7.6	
Malaysia	44	873	7.9	
Philippines	-29	75 815	6.2	
Singapore	93		8.4	
Thailand	43	52	7.7	
Pakistan	31	61	4.5	
Sierra Leone	9	13 -16	1.6 -0.9	
Jamaica	161			
Panama	33	40	3.4	
Ghana	8	- 1	-0.1	

Table 1: Private Foreign Investment and Growth Rate

Source: World Development Report 1981. Table 2, p.136-37 and Table 14, p.160-61.

Developing economies that have perceived the benefits of PFI have engaged in a feverish scramble to attract PFI and the MNCs by offering "free trade zones", "tax havens" and other incentive packages. At the same time in the economically Advanced Economies (AEs) PFI has been made scape-goats for the mounting unemployment and balance of payments crises. However, empirical studies refute the allegation that PFI exports jobs and causes pressures on the AEs' balance of payments. On the contrary, there seems to be ample evidence to corroborate the claim that foreign direct investment is a win: win proposition for both the host and home countries (Freeman and Person, 1981, p.50).

#### 2. THE CONCEPT OF INVESTMENT CLIMATE

The flow of PFI to developing economies depend on the perceived attractiveness of the investment climate in the host DC. There are several techniques that attempt to evaluate the attractiveness or, inversely, the riskiness of the political and business environment in the host nation from the vantage point of PFI or MCNs. Since most of these techniques are premised on the value-judgements and corporate objectives of private investors or MNCs they do not, however, fully meet the needs of planners and other decision-makers in DCs.

Some of the techniques are based on exaggerated phobias of expropriation or

divestiture and intuitively arrive at dichotomous go, no-go decisions. Empirical evidence based on the study of 76 DCs revealed that less than 10 countries expropriated PFI during 1960-76 (Kobrin, 1980). Besides, there is no evidence to suggest that political riskiness and instability diminishes the flow of PFI (Root and Ahamed, 1979). Thus 'investment climate' in a host DC is a much broader concept than that alluded to in conventional models of risk analysis undertaken by consultants for private investors.

The investment climate embraces elements of the unsystematic alpha-risk (particularly political risks) as distinct from the systematic beta-risk evaluations encountered in capital budgeting appraisal. Political risk or alpha-risk can be quantified on the basis of probabilities assigned to occurrence of events. Uncertainty results when such objective assignment of probabilities are precluded. In practice, risk analysing techniques make use of subjective probabilities based on panels of expert opinion or personalistic beliefs of erudite individuals. However, these subjective probability calculations based on interviews of expert panels generally are costly and may be unsatisfactory.

# 3. LIMITATIONS OF TECHNIQUES OF ECONOMIC CLIMATE EVALUATION

The concept of 'attractive economic climate' or its inverse acronym 'riskiness of business environment' are fraught with many conceptual ambiguities. The methods formulated to evaluate economic climate or business riskiness are also deficient in several respects that refinement of existing methodologies or formulation of alternative techniques is warranted. A good 'investment climate' evaluation technique should be systematic or contain an explicit assessment or forecasting procedure. Besides, a good evaluation technique should be structured or have an objective methodology relating the causes to effects or the process in a clear manner. Based on the two criteria of systematisation and structure a classification of existing evaluation techniques of investment climate based on Kobrin's work is possible (see Figure 1).

The intuitive decision making based on check-lists leading to dichotomous go or no-go decision as examplified by the reports of the US Department of Commerce is representative of unsystematic-unstructured methodologies. The BERI technique (Haner, 1979) which recently announced that Singapore shared the number one spot along with Germany, Japan, Switzerland and USA in the quarterly investment climate appraisal of 45 countries (Drysdale, 1982, p.16) is typical of a systematic-unstructured technique. Despite the systematic quantification of 15 factors that affect business climate on the basis of ratings of 105 exports, BERI is unstructured - it is not structured. Other than attempting weighting of factors the index does not base itself on an explicit model for either the political-economic environment or of its potential impacts on the firm (Kobrin, 1981, p.261).

	Unsystematic	Systematic
-	INTUITIVE	BERI
no thigh theme	(Go-No Go REPORTS)	Business Environment Risk Index (Haner)
	(Source : US State Department Reports)	ESP
	nin sister une one of the second seco	ASPRO
		(Assigning Probabilities) Shell Oil
		WPRF

Figure 1: 2 x 2 Classification of Investment Climate Models

Source: Kobrin, S.J. (1981): "Political Assessment by International Firms: Models or Methodologies?", Journal of Policy Modeling 2 (2), p.252-270 (1981).

A good representative of structured systematic methodologies is the Shell Company's ASPRO technique. The political risks of not maintaining an oil contract over a 10 year period is decomposed into nine sub-events in phase I. In phase II a set of indicators associated with each sub-event are assessed in a supporting or refuting sense by interviewing a panel of chosen experts. In ASPRO a statistical algorithm weighs and combines different assessments by experts and the resultant probability estimates are corrected on the basis of feed-back from the panel using a quasi Delphi approach. Despite the fact that ASPRO has a formal model conceptualising the factors that determine the 'investment climate' of a host country it, nevertheless, presents a number of formidable problems.

First, ASPRO and BERI type techniques are costly in their empirical validation. They require expensive payments to panels of experts. Second, the heavy reliance in these methods on the subjective assessment of experts (or ratings of factors based on personalistic beliefs) lends a mystic character to the methodology. It has been alleged that these procedures "... are somehow dishonest because they entail frequent revision of assessments based on expert group interactions" (Mancini et al., 1981, p.197). Thirdly, most of these techniques advise PFI/MNCs from the vantage point of private enterprise and not from the strategic development objectives of the host nations.

As such, decision-makers, planners and bureaucrates in DCs devising policies to attract PFI and taking measures to make the investment climate more attractive to PFI should evolve methodologies that reflect the dominant valuejudgements that prevail in the country as well as the macro-economic development goals articulated in the nation's development plans.

## 4. FORESHADOWING AN APPROPRIATE MODEL

The costly, subjective assessment and vested value-stances of PFI that vitiate existing techniques of economic climate evaluation can be rectified by conceptualising an appropriate model or procedure. The costly handouts for expert opinions can be obviated by more use of secondary sources of information on cross-country macro and micro-economic variables. The subjective ratings of experts can be replaced by weighting systems based on objective analytical methods. One such promising method is factor analysis.

Factor analysis has been used for cross country comparisons of the level of development (Adelman and Morris, 1967), for predicting expropriations in developing countries (Jones, Jr., 1980), and for objective weighting in risk analytic models (Rummel and Heenan, 1978). Principal components techniques could be deployed to factor analyse an appropriate list of independent variables comprising micro-economic or short-term impact variables on the performance of a project and macro-economic or structural variables influencing the long-term investment climate or scenario of a host DC. Factors that show numerical values greater than 1 or some other pre-determined cut-off point could be extracted and such factors rotated using Kaiser's varimax rotation algorithm. The rotated factors would invariably account for a substantial portion of the total variance. This variance measures are indicative of the importance of the associated factor components and could serve as an objective weighting system replacing the expert panels subjective ratings in popular models of investment climate assessment.

Factor analytic methods could also be used to compile weight diagrams for a set of short-term or micro-economic variables that affect the performance of a firm. The method can be used to compile weights for variables that impinge on the economic environment of a host nation in the long-run.

## 5. A DEMONSTRATION MODEL FOR INVESTMENT CLIMATE APPRAISAL

In the demonstration model postulated here, to evaluate the 'investment climate' in the ASEAN group, the weight diagrams for short-term or micro-risks and for long-term macro-risks have not been computed by factor analytic techniques. But weight diagrams reportedly computed by such objective factor analytic techniques from other modelling experiments are used in this exercise (Kern, 1981).

The Kern model evaluates short-term attractiveness of a country's investment climate by using micro-economic or financial variables and the long-run or macro-risks are evaluated by using a set of structural variables (see Table 2). The short-run weight diagram differs from the long-run weight diagram in that the macro-risk or strategic variable weightage diagram increases from 50 % to about 75 % (Kern, 1981, p.79).

The competing candidate variables for inclusion in the short-term list are quite large. Basically, the performance of a project in the short-run will be conditioned by the state of play of financial and monetary variables. Five variables have been deemed critical and sufficient to proxy the gamut of shortterm impact on micro-economic performance. These variables are: "debt service ratio", "outstanding external debt", "import average", "current account deficit" and "inflation rate". Information on these variables are routinely published by international agencies and governments of developing countries and therefore are available readily at little expense (see Table 2).

#### 6. RESUME ON THE SHORT-RUN VARIABLES

- (1) The 'debt service ratio' used is the annual interest and capital repayments expressed as a percentage of total outstanding debt. This variable purports to reflect the magnitude of a host DCs financial burdens.
- (2) The "external debt ratio" is the external debt as a percentage of the host country's GNP. It supplements the role of debt service ratio as debt servicing depends on the country's portfolio's maturity and interest rate structure.
- (3) The "import average" denotes the ratio of external reserves to average monthly exports. It states the number of months for which external reserves are available to finance imports, which for host nations average around 3 1/2 months typically.
- (4) The "current account deficit" of the balance of payments expressed as a percentage of GNP is regarded as a good indicator of a host country's short-run economic performance. In conjunction with other financial

Unattractiveness	
Economic	
of	
Indicators	
2	
Table	

F.F.	COUNTRY Ir FACTOR	ndonesia	Malaysia	Indonesia Malaysia Philippines	Singapore Thailand	Thailand	Short-Run Weight W	Long-Run Weight W
1							:	
1.	Debt Service	13.4	4.7	12.6	1.3	4.2	20	10
2.	External Debt	28.3	15.4	17.3	14.8	9.9	10	5
3.	Reciprocal Import Coverage	29.4	16.9	21.7	24.4	23.8	5	2
4.	BOP deficit	- 3.5	- 7.6	4.3	12.1	7.0	10	2
Ω.	Inflation rate	20.1	7.3	13.3	5.5	9.5	Ð	e
6.	Dependence	98	62	99	54	75	5	10
7.	Energy Vulnerability	2	6	32	31	28	ũ	10
8.	Instability	90.3	64.2	82.8	0	84.8	20	30
9.	Stagnation	24.3	25.0	38.5	13.5	21.7	15	20
10	10. Consumption propensity	59	51	67	63	67	5	G
N	Notes:							
1.	Debt Service as a % of Exports	rts				Table 13		
2.	External public debt outstanding as a % of GNP	ding as a	% of GNP			Table 15		
3.	Reciprocal of import coverage in months by reserves	ge in mor	iths by rese	erves		Table 15		
4.	Negated balance of payments deficit as % of GDP	s deficit a	s % of GDP			Table 3		
5.	Inflation rate 1970-79					Table 1		
6.	Percentages share of all primary exports in Merchandise exports	mary exp	orts in Mer	cchandise exp	orts	Table 9		
7.	Energy vulnerability: imports as % of merch. exports	ts as % of	f merch. ex	ports		Table 7		
8.	Political instability = 100 stability (Singapore p.c. income = 100)	ability (S	ingapore p.	c. income = 1	(00)	Table 1		
9.	Reciprocal of GNP growth rate 1960-79	ate 1960-	62			Table 1		
10	10. Propensity to consume as a $\%$ of GDP	% of GDP				Table 5		

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Source: World Development Report 1981.

variables it provides additional information on a DC's financial robustness.

(5) The prevailing "inflation rate" reflects the efficacy of the financial and monetary policies pursued by a host nation and it is indicative of the level of sophistry attained by financial institutions in the host DCs. Moreover, the inflation rate provides insights into the stability of the domestic currency and gives an indication of the magnitude of the prevailing inflation.

The short-run economic climate is also affected by macro-risks or structural variables, and the following are identified for inclusion in the demonstration model: "commodity instability", "energy vulnerability", "political stability", "stagnation prospects" (or, inversely, growth prospects), "propensity to save", or its complement the "propensity to save", or its complement the "propensity to save", or its complement the "propensity to save", and a prospective project. The short-run effect will be less than the long-run effects and this is captured in the weighting differentials used to validate the demonstration model.

# 7. LONG-RUN VARIABLES AFFECTING ATTRACTIVENESS OF ECONOMIC CLIMATE

- (1) The "commodity instability" index captures the fluctuations of the terms of trade due to primary product dependence of DCs. Although several sophisticated indicies are available to proxy instability the percentage of manufactured exports in the total exports is deemed to be a satisfactory proxy for the purpose of this exercise.
- (2) "Energy vulnerability" is a critical determinant of the long-term economic prospects of a DC. The availability of indigenous energy resources and the level of domestic consumption determines the energy vulnerability of an economy. The percentage of imports in domestic oil consumption could be used as a satisfactory proxy for this variable.
- (3) "Political stability" is a complex variable that can be quantified at varying levels of sophistication. The variation can encompass factors such as expropriations, number of years since independence, ethnic composition, riots and upheavels, threats of subversion by hostile neighbours. The magnitude could be assessed by judgemental evaluation of the analyst using a scale of 0 to 100 or on the basis of outside expert ratings. For this model a personal judgement was used to quantify this variable.
- (4) "Stagnation prospects" or its inverse the growth dynamics operate in a simultaneous manner on PFI flows. A dynamic economy would attract PFI or, as we hypothesised at the outset, PFI could dynamise and accelerate growth of a DC. The rate of growth of an economy is clearly related to the

sectoral composition and the structural balance of the economy (Chenery and Taylor, 1968). A fast growing economy offers a more attractive investment climate than a slow growing one, and the GNP growth rate could effectively capture these aspects of economic stagnation or dynamism.

(5) The 'propensity to consume'' or its complement the propensity to save is a critical determinant of investment and growth as hypothesised in the Harrod-Domar type growth models. In this demonstration model high propensity to consume is assumed to lower the attractiveness of a host DCs economic climate (see Table 2 for factors described above).

## 8. ALGEBRAIC EXPOSE OF AN EVALUATION PROCEDURE

The magnitude of variables selected for the evaluation of the 'investment climate' indicate the contribution to the unattractiveness or riskiness of the investment climate. The weighting diagrams for the short-run weights, (wi), assign relatively higher importance to the micro or financial variables, whilst the weighting diagram for the long-run weights, (wi'), beef up the main or structural variables. The weighting scores should ideally be derived from the variance of factor analytic techniques.

An algebraic expose of the evaluation technique is given next: Let  $X_{ij}$  denote the ith factor/variable for the jth economy. In this exercise i = 1, 2...10. The 10 variables used in the study are detailed in Table 2. Here j = 1, 2...5 refer to the five ASEAN economies. The expected short-run weighted average is interpreted as the prior short-run probability for a specified factor,

i.e. 
$$P(S_j) = \frac{\sum_{i=1}^{10} X_{ij} W_i}{\sum_{i=1}^{10} \sum_{j=1}^{5} X_{ij} W_i}$$
 is the prior probability

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for the jth country. This  $P(S_j)$  is used as the proxy indicator for the short-run unattractiveness of the economic climate. The cardinal scores of short-run unattractiveness for ASEAN economies are in Column (1) of Table 3. The weighted average based on long-run weights is interpreted as a conditional probability of the long-run factor given that short-run event has occurred,

i.e. 
$$P(L_j/S_j) = \frac{\sum_{i=1}^{10} X_{ij} W'_i}{\sum_{i=1}^{10} \sum_{j=1}^{5} X_{ij} W'_1}$$
. This conditional probability is the proxy

indicator measuring long-run unattractiveness of a country's economic climate. The cardinal scores for ASEAN economies, long-run unattractiveness is given in Column (2) of Table 3. A composite criterion for the short-run and longrun attractiveness can be calculated by an application of the Bayes' theorem, thus:

$$\mathbf{U}_{j} = \mathbf{P}(\mathbf{S}_{j}/\mathbf{L}_{j}) = \frac{\mathbf{P}(\mathbf{S}_{j} \ \boldsymbol{\Omega} \ \mathbf{L}_{j})}{\mathbf{P}(\mathbf{L}_{j})} = \frac{\mathbf{P}(\mathbf{S}_{j}) \ \mathbf{P}(\mathbf{L}_{j}/\mathbf{S}_{j})}{\sum_{i=1}^{10} (\mathbf{P}(\mathbf{S}_{j}) \ \mathbf{P}(\mathbf{L}_{j}/\mathbf{S}_{j})}$$

This unattractiveness index  $U_j$ , or its reciprocal can be designated as an attractiveness indicator  $(A_j)$  of a host economy's investment climate. The composite criterion's cardinal magnitudes for the unattractiveness  $(U_j)$  and attractiveness scores are given in Columns (5) and (6) of Table 3 for the ASEAN economies.

# 9. EMPIRICAL VALIDATION OF THE PROPOSED CRITERIA IN THE ASEAN CONTEXT

The results of empirical validation of the short-run, long-run and composite unattractiveness scores of investment climates of ASEAN economies are given in Table 3.

The cardinal scores for the reciprocal unattractiveness scores are instructive in that they reveal the magnitude of attractiveness of one economy compared to another. For example, Singapore on the basis of the short-run attractiveness score (see Column (5) Table 3) has nearly a three times more attractive investment climate than the Philippines (see Column (6) Table 3).

The ordinal rankings of the various scores do not show much sensitivity to the variations of investment climate for the small sample of five countries as all criteria give the following order of attractiveness ranking: Singapore, Malaysia, Thailand, Indonesia, Philippines. However, the application of the above criteria for a larger sample of countries would give a more discriminating ranking than that seen from this small sample exercise.

Thus the model criteria can be applied for a larger sample of countries with much more meaningful insights on the basis of the three criteria proposed to measure short-run, long-run and composite attractiveness of economic climate. Besides, the model considers explicitly country risk or economic climate analysis with commercial profitability analysis as explained in the next section.

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Table 3: Economic Climate Unattractiveness Indicators (short-run, long-run and composite)

łank	4	73	ى 1	1	e
$ \begin{array}{cccc} (2) \\ P(L_j/S_j) \end{array} Rank  \begin{array}{cccc} (3) \\ P(L_j S_j) \end{array} Rank  \begin{array}{ccccc} (4) \\ P(S_j/L_j) \end{array} Rank  \begin{array}{ccccccc} (5) \\ A_{j^\pm} \displaystyle \frac{1}{P(S_j)} \end{array} Rank  \begin{array}{ccccccccccccccccccccccccccccccccccc$	3.43	10.82	3, 24	32, 36	3.66
Rank <sub>A</sub>	4	1	ß	1	es
$A_{j^{=}}\frac{(5)}{P(S_{j})}$	3,95	6,96	3.74	10.82	4,11
Rank	4	63	ß	-	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
$^{(4)}_{P(S_j/L_j)}$	0.2916 4	0.0924 2	0.3115	0.0309 1	0.2735
Rank	4	73	a	1	თ
(3) $P(Lj S_j)$	0.0660 4	0.0209 2	0.0705 5	0.0070 1	0.0614
Rank			a		n
(2) $P(L_j/S_j)$	0.2605 4	0.1455 2	0.2637 5	0.0753 1	0.2545
Rank	4	63	ى		<i>ი</i>
$\begin{array}{c} (1) \\ P(S_j) \end{array} Rank \end{array}$	0.2532 4	0.1437	0.2674	0.0924 1	0.2433
Country	Indonesia	Malaysia	Philippines	Singapore	Thailand

## 10. INTEGRATION OF INVESTMENT CLIMATE AND COMMERCIAL PROFITABILITY ANALYSIS OF A PROJECT

The indicators of investment climate attractiveness can be combined with commercial profitability calculations of a project to determine the optimal economic location of a candidate project. The unattractiveness indicator Uj when multiplied by the discounted cash flow (DCF) magnitude will give a scaledown profitability indicator to compare alternative geographic locations. However, it needs to be noted that profitability calculations using DCF techniques can be arrived at by either net present value (NPV) method, internal rate of return method (IRR) or, the terminal value method.

In conventional procedures, riskness or unattractiveness of a project is accounted for by either of three approaches: (1) by inflating the riskless discount rate by a pre-determined magnitude; (2) by raising or reducing cash flows by magnitudes that correspond to certainty or uncertainty equivalents; (3) or by truncating the project's life span to a period shorter than that associated with a riskless project (US Government, 1950). The favoured method amongst risk analysts is the first technique of risk discounting.

However, risk discounting by adding a risk premium may be inaccurate for a number of reasons. First, it assumes that riskness or unattractiveness of a project is a monotonically increasing function of time. However, in reality unattractiveness may be the upshot of discontinuities of the economic system caused by political upheavels or, in other words, risk may behave in a catastrophic manner. Secondly, the addition of risk premia may overestimate political or structural long-term risks and may lead to unduly adverse or negative computations of cash flows when DCF techniques are used.

The above considerations lead us to favour the certainty equivalent technique of risk or unattractiveness adjustment. This is tantamount to the scaling down of the commercial profitability results by the unattractiveness indicator, thus:

Scaled NPV = 
$$\sum_{t=1}^{n} \frac{(B_{jt} - C_{jt}) U_i}{(1 + r)}$$

where B<sub>it</sub>: Benefit of the project in the jth country in the t-th period.

Cit: Costs of the project in the jth country.

r : Riskless discount rate.

Ui : Unattractiveness indicator for the jth country.

Alternatively, the commercial profitability measure can be scaled separately for the short-run and long-run to yield an acceptable profitability indicator on addition, thus:

$$\mathrm{NPV}^{\star} = \sum_{t=1}^{n} \frac{(\mathrm{B}jt - \mathrm{C}jt)}{(1+\mathrm{r})} \quad \mathrm{P}(\mathrm{S}_{j}) + \frac{7}{t=6} \frac{(\mathrm{B}jt - \mathrm{C}jt)}{(1+\mathrm{r})} \quad \mathrm{P}(\mathrm{L}_{j}/\mathrm{S}_{j})$$

Given commercial profitability calculations for any candidate set of projects using the attractiveness scores in Table 3, one could generate data that could be useful to decision-makers and prospective investors in developing economies.

## 11. CONCLUSIONS

The methodology for evaluation the 'investment climate' provides a basis for a rational economic dialogue between planners in developing economies and private foreign investors. The criteria can be empirically validated using data from published international sources such as the United Nations. Therefore, the methodology can be easily operationalised and extended to a larger sample of developing economies.

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