

# BEHAVIORAL SCIENCE

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# LEGITIMACY, COERCION, AND SCOPE: AN EXPANSION PATH ANALYSIS APPLIED TO FIVE CENTRAL AMERICAN COUNTRIES AND CUBA<sup>1</sup>

by Richard J. Heggen<sup>2</sup> and Alfred G. Cuzán<sup>3</sup>

In an earlier paper, Cuzán presented a micropolitical model on the relationships between the legitimacy of government, the scope of government, and the level of coercion administered by government to implement its commands; the model was successfully applied to 1974 data from five Central American countries. This paper takes Cuzán's original model as its point of departure. It deals with the implementation of decisions in societal systems. It argues that the structure of Cuzán's construction is essentially the same as that of a two-dimensional production function of the type used in micro- and engineering economics. This permits the incorporation of expansion path analysis that is familiar to these disciplines into the political model. Longitudinal data for the same five Central American countries and an historical analysis of the Cuban revolution are used to evaluate the theory empirically, with encouraging results.

KEY WORDS: society, decision making, legitimacy, coercion, scope, expansion path analysis.

## A MICRO-POLITICAL MODEL

IN AN EARLIER paper, Cuzán (1980) presented a model of government whose "control function" consists of three variables: legitimacy, coercion, and scope. Legitimacy refers to the degree to which people subject to the authority of government can be persuaded to recognize the right of public officials to rule, i.e., to control resources. Coercion is the level of force or threats employed by government; it is the amount of military power used by the rulers to enforce their commands. Scope is the extent of government control over resources in society; the more government owns, taxes, spends, and regulates, the greater its scope.

This theory posits an inverse or negative relationship between legitimacy and coercion, as shown in Fig. 1. The rationale is simple: The greater the legitimacy of government, the greater the voluntary compliance with government laws and decrees, and thus the lower the level of coercion required to implement any level of scope (Gurr, 1979). In order to implement or ad-

minister greater scope, a government has to acquire more legitimacy, impose greater coercion, or both. This is shown in Fig. 2. Expanding scope from  $S_1$  to  $S_2$  while legitimacy remains constant requires that coercion be raised from  $C_1$  to  $C_3$ . If coercion remains the same due to the inability or unwillingness of the rulers to raise the level of force, then  $S_2$  can be implemented only if legitimacy grows to  $L_3$ . Finally, the same result can be achieved by moderate increases in both legitimacy and coercion to  $L_2$  and  $C_2$ .

## GOVERNMENT-FIRM COROLLARY

The model's corollary with microeconomic behavior is direct. Government can be reduced to a firm whose objective is to make a profit by acquiring scope with the use of legitimacy and coercion.

A firm achieves optimum production by mixing inputs (factors) of capital and labor in an economically efficient manner. As both factors cost something (measured monetarily in economics), the optimum inputs to production are a combination of capital and labor which minimizes costs to the firm

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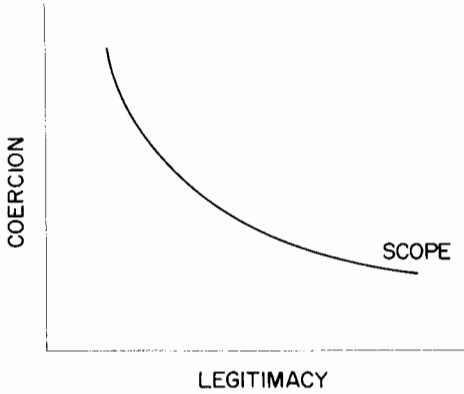


Fig. 1

for a given output. Similarly, governments acquire scope by combining legitimacy and force. As both of these factors are costly (a topic pursued later in the paper), an efficient government is one which reaches a level of scope (control) by selecting a mix of coercion and legitimacy which minimizes total costs to the government. A successful firm expands production as long as the marginal value of additional output exceeds the marginal costs of additional inputs. Likewise, an efficient government increases scope as long as the marginal benefits from additional control outweigh the marginal costs of acquiring greater legitimacy or administering additional coercion.

Table 1 presents a brief systematic comparison between a "micropolitical" model

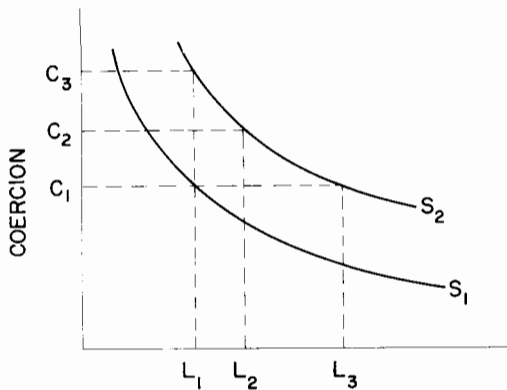


Fig. 2

and the microeconomic construct of the firm. The reader less familiar with economics is advised to read the portion of an introductory microeconomics text dealing with production functions, marginal rates of substitution, isoquants, isoclines, and expansion paths (Lumsden, Attiyeh, Bach, 1970; Ferguson, 1972). Once visualized from a traditional microeconomics point of view, key aspects of government decision making are readily translated into the equivalent elements of a "micropolitical" model. The discussion that follows explores several implications which stem from these equivalencies.

TABLE 1  
GOVERNMENT-FIRM EQUIVALENCIES.

Firm (traditional microeconomic model)	Government (micropolitical model)
(1) Input, factor, capital, or labor	(1) Legitimacy and/or coercion
(2) Output, production	(2) Scope, control
(3) Production isoquant	(3) Isoscope, or line on legitimacy-coercion plane of constant scope
(4) Marginal rate of technical substitution (MRTS)	(4) Slope of isoscope line at a given point
(5) Diminishing MRTS	(5) Asymptotic approach of isoscope lines to legitimacy-coercion axes
(6) Region of efficient production	(6) Area on legitimacy-coercion plane where the costs of coercion and legitimacy do not exceed the benefits of resultant scope
(7) Marginal cost	(7) Cost to government of increasing an incremental unit of coercion or legitimacy, or cost saved by government through reducing an incremental unit of coercion or legitimacy
(8) Marginal benefit	(8) Benefit to the rulers from increasing one unit of scope
(9) Isocosts	(9) A line on the legitimacy-coercion plane identifying combinations of coercion and legitimacy that could be obtained at a given total cost
(10) Minimized cost for a given output	(10) A unique point on each scope curve indicating the combination of coercion and legitimacy which achieves that scope at least total cost to the rulers
(11) Expansion path	(11) A line connecting minimum cost points on all scope curves.

## COSTS AND RETURNS

The government-firm corollary implies that both coercion and legitimacy are costly, while scope yields benefits, or an income, to government. Public officials, or the rulers of government, profit personally as long as the value or benefits from governing exceed its costs.

Scope is valued by public officials for the income which is generated from political control over resources. These benefits include money from salaries and "kickbacks," titles, plus all other rewards which power bestows on whomever wields it. These include control over physical space in public (and often historic) buildings, servants and aides, travel, celebrity status, public adulation, the opportunity to make contacts and friends, the acquisition of knowledge and information which can be financially helpful upon leaving government, the ability to execute pet projects and hobbies at public expense, the pleasures from ruling itself, the opportunity to further a political point of view or "ideology," and whatever satisfaction is derived from "doing good." Different rulers will weigh these advantages differently. One may be primarily interested in the wealth that can be accumulated from kickbacks elaborately built into public expenditures. Another may simply seek recognition or social standing. Still another may be interested mostly in furthering an ideology or world vision. Whatever the objectives sought—and all rulers pursue a combination of them—scope is the means by which objectives are obtained. Political control over resources yields a stream of returns to the rulers (Tullock, 1965).

Like all action, however, ruling also involves a cost. This cost is twofold: It encompasses direct expenses of money, time, and energy, and it reflects opportunity costs, i.e., the value given up by acting politically, rather than in markets, families, and other social contexts. Constrained by taxpayer resistance, technical ability, bureaucratic rigidities, political rivals, internal and external opposition, etc., a ruler can exert a limited effort towards satisfying given goals. Much of the resources raised by the rulers must be spent securing or maintaining political support within and without the

government, influencing the behavior of bureaucrats and subjects, trying to persuade the population of the rightness of government's actions, compelling recalcitrant citizens to obey laws and regulations, and jailing or executing those who defy the government or violate its commands. Expenditures on propaganda, campaigning, elections, symbolic acts of patriotism, education, and culture constitute the costs of acquiring legitimacy with which to rule. Expenditures on police, internal military activities, the penal system, and the judiciary represent the costs of administering coercion on the population.

The difference between the value of scope to the rulers, and the costs of maintaining themselves in power at the chosen level of scope, constitutes political profit. This is what motivates actions in government. In this sense, rulers are no different from the owners and managers of a business firm (Cuzán, 1979; Tullock, 1965; Auster & Silver, 1979).

## INTERNAL VERSUS SOCIAL EFFICIENCY

There is a difference between internal or organizational efficiency and social efficiency. Both the firm and the government make production decisions from the perspective of those in charge. Politicians and bureaucrats, no less than investors and managers, act to further their own private, personal interests when they aim at a chosen amount of scope and decide on the combination of legitimacy and coercion to employ. Both the firm and the government are concerned with the welfare of those who control it, i.e., *internal efficiency*. In order to be *socially efficient*, both the firm and the government must operate at a point of production or scope where net benefits are maximized or net costs minimized, not only for the decision makers, but also for society as a whole.

For the firm, this condition tends to be approximated as long as it bears the full costs of all the factors which go into its production function. If the firm generates "externalities," i.e., if it uses up factors such as air or water for which it does not pay a price equivalent to social cost (the price which the owners of these factors would

demand if a market over these things could be established), the firm is socially inefficient (Coase, 1960; Littlechild, 1978). A socially inefficient firm may produce the wrong amount of a given good or choose inappropriate combinations of factors in its production function. Suggested remedies are that property rights be recognized over the "free" factors which the firm obtains at zero price, that the government tax the firm for the use of unowned factors, or that the production function of the firm be publicly regulated to minimize social costs (Seneca & Taussig, 1974; Myrick, Haveman, & Kneese, 1973).

Similarly, a government can be internally efficient but socially inefficient. This happens whenever a government either (1) controls an amount of resources in excess of what its capabilities to persuade and coerce the population permit, or (2) relies on a suboptimal combination of legitimacy and coercion. The first case is unstable (see Cuzán & Heggen, forthcoming). The second requires additional discussion.

A highly repressive government is no more likely to be socially efficient than a firm which obtains an input without paying its full cost. This is because the costs of coercion fall most heavily not upon the rulers but on society as a whole, i.e., they constitute an "externality." True, the rulers must use some resources to pay, equip, and influence the behavior of the police, the military, the judiciary, and the penal system. True, a sensitive ruler pays a psychic cost from knowing that some of his subjects will suffer when the government acts to enforce compliance among those who resist its policies and commands. True, the destruction or confiscation of property, the imprisoning or exiling of people, and the execution of opponents reduce the future revenue of the government by discouraging production and investment among those victimized by the government as well as others who fear similar treatment. And true, the use of coercion exposes the rulers to the risk of violent retaliation from their political enemies. But the bulk of the costs of coercion either do not fall directly upon the rulers or are fed back too slowly to them. Rather these costs fall upon and are ab-

sorbed by the victims, those whose property is confiscated or destroyed, are forced to emigrate, lose their lives or freedom, or out of fear do without their share of government services.

For every ruler who suffers from knowing about the deprivations of his opponents there is another who relishes such knowledge. Some rulers are less concerned about the long-run negative effects of their actions on the economy than on the immediate or short-term benefits to themselves. Some rulers enjoy commanding large armies, if only to entertain themselves during parades and other displays of military might, such as killing "traitors" or "subversives." Finally, rulers can protect their persons from attack by building up personal guards and fortifying their offices and homes. For all these reasons, it is easy for government to underestimate the social costs of coercion and to use too much of it in its efforts to administer a chosen level of scope.

Governments face two decisions. One is how much scope to acquire. The other is what combination of legitimacy and coercion to use in order to achieve the preferred level of scope. While these two decisions are analytically distinct, in practice they are interrelated. Estimates of how much legitimacy and coercion may be relied upon help determine how much scope to aim for; as these decisions are implemented, the availability of the two factors may be altered, requiring a change in scope. An internally efficient government is one that maintains control with a mix of coercion and legitimacy which minimizes total costs for itself. In economic terms, the government acquires scope by moving along or toward an expansion path. As the costs of coercion and legitimacy vary either with time or circumstances, the internally efficient government maintains its scope by trading one for the other, such that the marginal rate of technical substitution of coercion for legitimacy at any point is the ratio of the marginal cost of legitimacy to the marginal cost of coercion for the rulers.

Efficient combinations of legitimacy and coercion defining an expansion path may be identified as the tangential points between the concave-upward isoscope lines of

Fig. 2 and another set of isocost lines  $B_1$  and  $B_2$  as in Fig. 3. The efficient points are where the slopes of the isocost and isoscope curves are equal. Mathematically,

$$\frac{dC}{dL}\Big|_B = \frac{dC}{dL}\Big|_S.$$

Whereas the slopes of these isocost lines can be linearly graphed as the ratio of price for two production factors in an economic study, it is difficult to plot the lines for legitimacy and coercion when there is no clear numeraire such as dollars. Isocost lines in a legitimacy-scope-coercion plot are likely to be concave-downward, reflecting diseconomies of scale for both legitimacy and coercion. While a study of isocost lines is not pursued in this paper, the topic represents another potential development of our model.

In the short-run, the cost of an additional unit of coercion may be low, while a quick increase of legitimacy may be expensive if not impossible. Heroic acts capable of capturing people's imagination and trust are risky; the design and implementation of agreeable constitutions take much time debating and negotiating. In contrast, it is not immediately expensive to acquire men and weapons necessary to coerce opponents. One can launch a military expedition with a few thousand dollars and a couple of dozen soldiers. In the long run, however, the *social costs* of legitimacy are less than for coercion, since the application of force destroys rather than economically exploits

resources. In other words, the private or "start-up" costs are low for coercion but high for legitimacy, while the social costs are low with legitimacy but high with coercion. Thus, a long-term *socially efficient* government might apply a large amount of coercion to increase its scope initially—as when a revolution or coup brings about a change in a regime—but as rapidly as possible shift to legitimacy as the basis of its "control function."

On the basis of this reasoning, we hypothesize that the expansion of a *socially efficient* government on a coercion-legitimacy plane will rise from the origin quickly to a moderate scope at a moderate to high level of coercion, after which coercion declines and legitimacy grows, permitting the acquisition of greater scope with less and less force. This is shown in Fig. 3. An economist would visualize this behavior as the response of an expansion path to variable marginal costs where the relative costs of coercion are rising.

A socially efficient government is cognizant of the variable and temporal nature of scope's attractiveness to society. People's perceptions of what government can and should do vary according to time and circumstance. During war, when legitimacy tends to be great, the optimum amount of scope is higher than during periods of scandals or increased public skepticism regarding the motives or capabilities of public officials. Rather than raise coercion to compensate for a loss of legitimacy, a socially efficient government contracts scope instead. Thus, optimum scope is variable, capable of growth when legitimacy grows, but subject to curtailment when it declines.

Without homogeneous analysis of the costs of each parameter of the model, optimum scope cannot be identified graphically. An attempt to fix econometrically the optimal degree of government control appears impossible. Nevertheless, the model does provide a basis for conceptualizing the trade-offs of control as the isoscope and isocost lines migrate with history or psychological changes. The expansion path shifts, but never ceases to exist. If alternative theories of value were employed, alternative expansion paths would result.

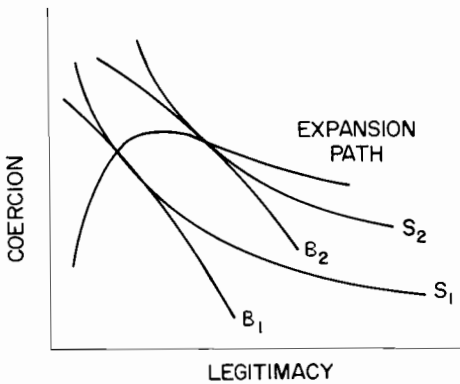


Fig. 3

Societies economizing on the use of coercion in a manner that is socially efficient in our model are able to grow economically at a faster rate than societies ruled by "inefficient" governments, as fewer resources are consumed by compulsion and resistance, conflict, and internal war. In economic terms, the ratio of coercion's marginal social cost to marginal social benefit is likely to exceed the ratio of legitimacy's marginal social cost to marginal social benefit. The socially efficient government realizes this and substitutes legitimacy for coercion in its rule.

#### AN EMPIRICAL EVALUATION

Cuzán's original model explains the behavior of four of five Central American countries at one point in time, the year 1974. This paper now applies the "expansion path" version of the model to the same five countries over a 10 to 15 year period. For each nation, we estimate the historical changes in legitimacy, coercion, and scope during the 1960s and early 1970s. As an approximate estimate of the social efficiency of these changes, we consider each country's real per capita GNP growth during the same period. These data are included in Table 2.

Table 3 shows how these countries have changed on legitimacy, scope, and coercion with time. Scope is estimated by the proportion of gross domestic product consumed by government. Coercion is measured by the ratio of military men per 1000 inhabitants. Finally, legitimacy is inferred from the status of democracy, or electoral competition, in each country. Here we can only assign a qualitative estimate of the direction of change, based on the assump-

tion that democracy lends legitimacy to these governments. While democracy is not universally related to legitimacy, it is in Latin America, where Western ideals of "good" government are strongly held. As Needler (1977, p. 107) puts it: "One of the most interesting features of Latin American politics is the extent to which legitimacy derives from elections . . . . The principal source of legitimacy for Latin American governments is constitutional legitimacy, enjoyed by governments that originate in popular elections."

In our estimation, during the period under study El Salvador, Guatemala, and Honduras, which had relatively little legitimacy to begin with, became even less legitimate. Nicaragua experienced little or no change as it continued to be dominated by the Somoza family. Only in Costa Rica did the government become more legitimate (Wiarda & Kline, 1979).

The bases for our judgment are as follows:

*El Salvador.* The military has run this country directly for almost fifty years; contests for power have taken place within the armed forces. Yet, after two coups were staged in 1960, a period of liberalization through the early and mid-sixties permitted increased electoral competition from several parties, especially for congressional and local elections. The largest opposition party won and retained control of the capital city's municipal government. Expectations were built up; it appeared as if the country was on its way to becoming a full-fledged democracy. But, as the sixties drew to a close, the military became alarmed at the political strength built up by the opposition. Fearing loss of control of the presidency and the congress, the military, through fraud and force, beat back the opposition during the early seventies. The effect was to destroy the legitimacy which the government had acquired during the previous decade.

*Guatemala.* During the late 1940s and early 1950s this country was ruled by "reformist" elected governments. In 1954, however, the government was overthrown with the aid of the military. A semblance of democracy was restored toward the end of

TABLE 2  
PER CAPITA GNP GROWTH, 1960-1976, FIVE  
CENTRAL AMERICAN COUNTRIES.\*

Country	Average Annual Rate of Per Capita GNP Growth
Costa Rica	3.4%
El Salvador	1.8
Guatemala	2.4
Honduras	1.5
Nicaragua	2.4
Central American Average	2.3%

\* Source: *World Development Report* (1977).

TABLE 3  
CHANGES IN LEGITIMACY, COERCION, AND SCOPE, 1960-1976, IN FIVE CENTRAL AMERICAN COUNTRIES.\*

Country	Legitimacy**			Coercion*				Scope**			
	1960	1975	Change	1966	1975	Absolute change	% change	1960	1976	Absolute change	% change
Costa Rica	high	higher	+	1.3	1.02	-28	-22	10	17	7	70%
El Salvador	low	lower	-	1.3	1.94	.64	49	10	11	1	10%
Guatemala	low	lower	-	1.9	2.2	.3	16	8	7	-1	-13%
Honduras	low	lower	-	2.1	3.7	1.6	76	11	14	3	27%
Nicaragua	low	low	0	3.5	2.2	-1.3	-37	9	9	0	0

\* Source: *Statistical Abstract for Latin America* (1977) and *World Development Report* (1978).

\*\* See text.

\* Measured by change in ratio of military men per 1000 inhabitants, 1966-1975.

\*\* Measured by change of proportion of gross domestic product consumed by government, 1960-1976.

the decade, but in 1963 a coup brought three more years of military rule. In 1966, elections brought to power a civilian as president. Yet during the next four years an anti-guerrilla campaign repressed opposition elements and allowed the commander of the campaign to build enough power to become president in 1970. He, in turn, hand-picked his successor four years later. The legitimacy of the government hit a low point as the opposition charged large-scale fraud.

*Honduras.* During the 1950s, this country's politics became liberalized as new groups formed and built up political strength. This process was interrupted in the second half of the decade by a military coup. However, the military set the stage for a constitutional assembly in which the bulk of the seats were won by a party which had been in opposition for many years. This party won the 1957 elections and enacted a number of "reforms." But before the next presidential election the military intervened and in 1963 a coup brought to power a colonel who retained control of the presidency into the 1970s. The democratization of the country was reversed, resulting in a loss of legitimacy.

*Nicaragua.* For almost fifty years (until August, 1979) this country was ruled by a "dynasty," the Somozas. A father and two sons held the presidency, the top post in the national guard, or both. During the 1960s and early 1970s this situation did not change. Thus we infer that legitimacy remained constant during the period. (For an application of the model to Nicaragua's 1979 revolution, see Cuzán and Heggen, forthcoming.)

*Costa Rica.* This is the only genuine democracy in Central America. Modern Costa Rican democracy originated after the 1948-1949 revolution. The first election under the new constitution was held in 1953. During the 1960s and early 1970s the system gained increasing credibility as six elections were held. Competition among the parties was open. Four elections were won by one party and two by another. All power contenders regarded the electoral system as honest and free of fraud. During the period of our study, legitimacy continued to grow as democracy became more and more secure.

The changes in legitimacy, coercion, and scope shown in Table 3 are mapped in Fig. 4. Fig. 4 should be compared to Fig. 3, where the hypothesized expansion path of a socially efficient government is shown.

The following observations can be made about Fig. 4. First, only Costa Rica exhibits changes similar to the socially efficient expansion path hypothesized in our model. It was the only country which significantly

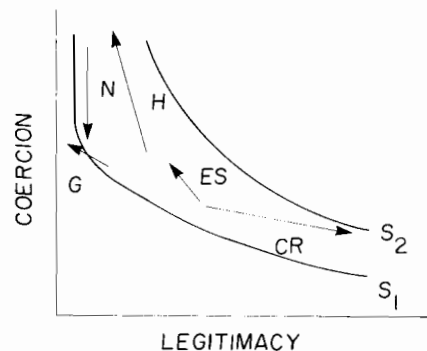


Fig. 4



expanded scope during the period. The government did so by substituting additional legitimacy for coercion. As Table 2 reveals, this country had the highest rate of economic growth, which lends support to our hypothesis regarding the economic impact of a socially efficient government.

Two countries, El Salvador and Honduras, behaved in a manner which is the opposite of our hypothesized socially efficient expansion path. That is, instead of moving downward and to the right along the same or marginally higher scope lines, both governments climbed the higher scope curves leftward, i.e., the governments in these countries increasingly relied on coercion rather than legitimacy to increase scope. As Table 2 shows, these two countries have grown below the regional average. Honduras, which experienced the largest increase in coercion and the second-highest in scope, had the least growth. This is exactly what our model would predict: Socially inefficient governments drain national economies as they expand.

We should note that at least part of the increase in coercion for El Salvador and Honduras reflected in our measure was probably caused by a brief war which the two countries fought in 1968. This is particularly true for Honduras, whose territory was invaded by its neighbor. After the war, the Honduran government may have felt compelled to build up its military strength to forestall another Salvadoran invasion. Diplomatic relations between the two governments have not been restored since the war. Thus, while we are confident that coercion in the two countries rose during the period, we are less sure about the magnitude of the change.

The fact that the two countries went to war may not be unrelated to the loss of legitimacy of their respective governments, however. Rulers often justify their power in the interest of "national defense." Wars can be attractive to rulers whose legitimacy is weak or questionable since they serve the twofold purpose of coercing "traitors" and securing some legitimacy in the eyes of the nationalistic elements of the population.

In Guatemala, the government reduced scope as it lost legitimacy; coercion was

raised, but by a relatively small factor. In terms of Fig. 2, Guatemala moved from  $S_2$  to  $S_1$  roughly along  $C_1$  as the government lost legitimacy ( $L_3-L_1$ ). Economically, the country grew faster than the Central American average.

Nicaragua presents a unique case. Here the government reduced coercion even more than in Costa Rica, but this loss was not offset by any gain in legitimacy. Yet, scope remained constant. As we argue elsewhere, this explains why Somoza was overthrown by a revolution in 1979 (Cuzán and Heggen, forthcoming). During the period under study the effect of lowering coercion was reflected in a rate of economic growth which was faster than the Central American average.

In sum, the data show that three of five countries ruled by governments tending toward or along our hypothesized socially efficient expansion path grew faster than the two which did not. Moreover, the country with the greatest increase in legitimacy, Costa Rica, grew economically faster than any of the others, while the one which raised coercion the most, Honduras, had the least growth.

#### THE CASE OF CUBA

An analysis of the history of Cuba between 1959 and 1976 provides additional support for our hypothesis (Thomas, 1977). On January 1, 1959, a new government came to power made up of a loose coalition of revolutionary groups who had overthrown the seven-year-old dictatorship of Batista's inept regime. A wave of good will on the part of the vast majority of politically active Cubans lent the new rulers a great deal of legitimacy, especially since one of their stated goals was the reestablishment of democracy in a country where constitutional ideals were strong. Castro had promised to abide by the constitution of 1940 which Batista had violated.

Within two months, Castro, who had assumed control over the new armed forces, became Prime Minister and sole de facto ruler of the country. Through the first half of 1959, he led an unstable alliance into expanding the role of government, proclaiming an agrarian reform law, regulating

rents and meat prices, and implementing similar "populist" policies. These actions probably resulted in a net gain of legitimacy for the government.

By the middle of 1959, Castro had struck a working alliance with the communists, had accumulated far more power than any other political figure, and had begun to govern dictatorially. Opposition to the "revolutionary" process began to spring up even among groups which had fought Batista for years, such as university students, professionals, and older politicians.

During the second half of the year, large land confiscations and other nationalizations enlarged scope beyond the limits which many politically active individuals within Castro's own forces could be persuaded to accept. In-fighting within the government between Castro and the communists on the one hand, and a loose coalition of anti-communists and anti-Castroites, on the other, grew in intensity. Castro responded by raising the level of coercion. By the end of the summer of the first year of the revolution there were more people in jail than there had been under Batista. Many of the prisoners had been among Castro's early supporters. Before the year was over, resignations and purges of former rebel army leaders like Hubert Matos strengthened Castro's faction. Through 1960, the conflict inexorably escalated as the collectivization of the economy continued unabated, elections were postponed, and the government's military forces strengthened. Newspapers were confiscated and freedom of expression sharply restricted. A mass exodus of Cubans began, a clear indication of a quantum drop in the legitimacy of the regime. A force of 2,000 exiles backed by the U.S. Government attempted to overthrow Castro in 1961 by triggering a nation-wide insurrection with their ill-fated landing in south-central Cuba. The effort failed as tens of thousands of the regime's opponents were rounded up in Havana and elsewhere.

During the decade of the sixties, hundreds of thousands of Cubans left their homeland. Nearly 10% of the population emigrated, an unprecedented event in the history of modern Latin America. Cubans

of all classes, but especially the most educated, skilled, and politically sophisticated—i.e., those most likely to challenge or compete with Castro's government—left the country. Many, if not a majority of them, still regard themselves Cuban *politically* and, for the most part, remain bitter opponents of the revolutionary government. They, too, have to be counted when estimating the legitimacy of Castro's regime during the period under study.

Fig. 5 illustrates the expansion path followed by Castro's government between 1959 and 1975. During the first year it expanded rapidly, gaining legitimacy and reducing coercion. No later than by the end of 1959, however, legitimacy began to erode while increasing coercion was applied to continue the expansion of the government. During the following decade, coercion escalated rapidly as the economy became one of the most collectivized in the world. Coercion peaked in 1969 and remained high through 1974, where it dropped for the first time since 1960 (see Table 4). Obviously, the actual values of these variables are not known. What we can estimate is the probable direction of change during different periods of "revolution."

The data clearly show that between 1960 and 1970 Castro applied greater and greater coercion (the highest in Latin America), and it was not until 1975 that coercion was reduced. According to our model, 15 years of high coercion is likely to be an inefficient

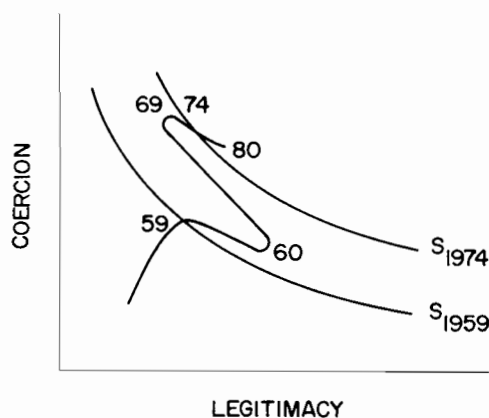


Fig. 5

TABLE 4  
COERCION IN CUBA, 1966-1975.\*

Year	Military men/1000 population	Year	Military men/1000 population
1966	13.95	1971	16.28
1967	13.66	1972	15.96
1968	13.41	1973	15.70
1969	16.79	1974	15.40
1970	16.53	1975	12.97

\* Source: *Statistical Abstract for Latin America* (1977).

way of gathering scope. So we should expect that the Cuban economy did not fare well during the period. The facts bear this out. Between 1960 and 1976, Cuba's real per capita GNP declined at an annual rate of about half a percent (.4%), the only country in Latin America to have experienced a drop in living standards.

#### CONCLUSIONS

This paper has identified equivalencies between Cuzán's initial micropolitical model and familiar constructions on production functions and expansion paths used in micro- and engineering economics. This permitted the modification of the original model to incorporate insights from these disciplines in the analysis of political "control functions." We hypothesized how socially efficient governments behave and have indicated the impact of such behavior on the economy. An examination of longitudinal data for six Latin American countries lent strong support to the model. The three countries where the government behaved according to our model experienced above-average economic growth, and the three countries ruled otherwise had a poor economic record. We believe that the new model can be used to predict, as well as to explain, the behavior of governments and the impact of their behavior on the economies under their control. It is our hope that the model will be tested by scholars

familiar with the politics of other countries throughout the world.

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