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Comparison of the Levels of Political and Economic Development in Latin America

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COMPARISON OF THE LEVELS OF POLITICAL AND ECONOMIC DEVELOPMENT IN LATIN AMERICA

by

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VITA

The author, Carolyn Hostetler Anderson, is the eldest daughter of Dale R. Hostetler and Lola Herin Hostetler. She was born January 16, 1946 in Adrian, Michigan.

Her elementary education was obtained in the public schools of Bronson, Michigan and the public schools of Madison Township in Michigan. She received her secondary education in the Madison Township High School of Michigan. She graduated from her high school in June 1964.

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INTRODUCTION

Countries with a high level of economic development tend to have a high level of political development. The thesis has been widely accepted. In the late 1950's, scholars began to subject this thesis to statistical analysis. The analyses supported the belief that nations which have a high level of economic development usually have a high level of political development.[1]

While critics praised these early attempts, they pointed out flaws in the definition and operationalization of political development. Other scholars refined the definition and variables of political development, and continued to look at the relationship between levels of political democracy and economic development. The result was a fine series of cumulative researches into the relationship between economic development and democratic political development.

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[1]Seymour Martin Lipset, "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," American Political Science Review, LIII, (March 1959) pp. 69-105. This article, along with other leading articles in the literature is available in Empirical Democratic Theory, editors Charles F. Cnudde and Deane E. Neaubauer, (Chicago: Markham Publishing Co., 1969) pp. 151-92, from which citations are abstracted. And Phillips Cutright, "National Political Development: Measurement and Analysis," American Journal of Political Science, XVII, (August 1963) pp. 289-314, Ibid., 193-224.

In 1959, Lipset published the first attempt to test empirically the nature of the relationship between democratic political development and economic development.[2] Cutright developed an index of democratic development, and re-examined the relationship. He found a direct relationship between the levels of economic development and democratic political development.[3] More sensitive measures of democratic development were devised by Neubauer, and he found a linear relationship between the levels of democratic and economic development, which did not hold beyond a threshold point.[4] In 1973, Jackman retested Neubauer's findings, and concluded that there is a curvilinear relationship between the levels of economic development and democratic political development.[5]

Because a relationship which exists for all nations may not exist for a subset of nations, scholars began to look at the relationship between the levels of economic and political development in Latin America. Fitzgibbon

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[2]Lipset, 151-92. [3]Cutright, 193-224.

[4]Deane Neubauer, "Some Conditions of Democracy," American Political Science Review, XLI, (December 1967) pp. 672-91, Ibid., pp. 221-35.

[5]Robert W. Jackman, "On the Relation of Economic Development to Democratic Performance," American Journal of Political Science, XVII, (August 1973) pp. 611-21.

and Johnson found that the levels of political development were slowly increasing in Latin America.[6] Needler created more rigorous and exclusive measures of political development, and he found only a weak relationship between the levels of economic and political development in Latin America. Needler's work was limited to the examination of only four variables, and his findings were tentative.[7]

The purpose of this paper is to examine again the relationship between the levels of political and economic development in Latin America. In addition, this paper is designed to be part of the cumulative research into the relationship between the levels of economic and political development. Therefore, the research design is replicable and applicable for regional studies and studies of all nations.

The paper has five sections. The first section is a review of the literature in the field. The second section contains the definitions of technical terms and a list of the hypotheses to be tested. The third section is

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[6]Russell H. Fitzgibbon and Kenneth F. Johnson, "Measurement of Latin American Political Change," American Political Science Review, LV, (September 1961) pp. 515-26. This article is also available in Latin American Politics: Studies of the Contemporary Scene, editor Robert D. Tomasek (New York: Doubleday & Company, Inc., 1966) pp. 4-22 from which citations were abstracted.

[7]Martin Needler, "Political Development Socio-Economic Development: The Case of Latin America," American Political Science Review, XLII, (Spring 1968) pp. 84-97.

one containing the definitions of the variables and the justification of the indicators representing them. An explanation of the methodology is provided in the fourth section. The final section of the paper contains the hypotheses test results, and the interpretation of those results.

The interpretation has two foci. First is the nature of the relationship between the levels of development in Latin America. Second is the implications of these results for future research.

CHAPTER I

LITERATURE REVIEW

The literature review provides a survey of some of the major works in the field. It establishes the research context and the justification for this paper. The survey includes three major cross-national researches, and two studies of the relationship between the levels of political development and economic development in Latin America.

Cross-National Literature

The cross-national studies which are reviewed are by Lipset (1959), Cutright (1963), and Adelman and Morris (1965). They furnish an overview of the evolution of the empirical testing of the relationships between aspects of economic and political development.

1. Seymour Martin Lipset - The Lipset article compares a nation's level of political democracy with its level of economic development and political legitimacy. Lipset operationalizes economic development using various quantitative indicies of industrialization, urbanization, wealth and education. To measure political democracy, he employs a four-part classification system. There are two classes of European countries and two classes of Latin

American nations. The two classes of European countries are: 1) stable democracies; and 2) unstable democracies and stable dictatorships. The two classes of Latin American countries are: 1) democracies and unstable dictatorships; and 2) stable dictatorships. There is one method of classification for European countries, and another for Latin American countries. "Election results are sufficient to locate the European countries, and the judgment of experts and impressionistic assessments based on fairly well-known facts of political history will suffice for Latin America."[1] There are no specific criterion for the measurement of political legitimacy. Lipset concludes that there is an interdependent relationship among the levels of political democracy, economic development and political legitimacy.

Lipset's paper provided the impetus for research analyzing the relationship between aspects of political and economic development. However, the paper has several serious flaws.

One flaw involves the way in which the Latin American countries are classified. The dichotomous rankings of the Latin American nations are neither verifiable nor replicable. Therefore, the rankings are methodologically unsound. A second flaw is the absence of an index for

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[1]Lipset, 156-7.

political legitimacy. Although Lipset's discussion of the relationship between democracy and political legitimacy is interesting, the discussion is based upon impressionistic views and historical interpretations, rather than rigorous statistical analysis.

Others have also criticized the Lipset paper. Cutright argues that the research lacks focus, and that the conceptualization of a national political system is inadequate. He also faults Lipset for failing to scale his indicators of economic and democratic development.[2] Jackman maintains that Lipset's dichotomized tabular data is unnecessarily insensitive. He criticizes the democratic development categorizations as ad hoc, and the criterion as based on stability more than notions of democracy.[3]

Although Lipset's research has some serious shortcomings, it is one of the first efforts to systematically study the relationship of political development to other aspects of modernization.

2. Phillips Cutright - The purpose of Cutright's research is to test the hypothesis, "that political institutions are interdependent with educational systems, economic development, communications systems, urbanization and labor force distribution".[4] His first step is to make an

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[2]Cutright, 193. [3]Jackman, 612-3. [4]Cutright, 194.

index of political development. The index is created by assigning point values for the levels of democratic political performance. Performance of the legislative branch is scored as follows: 1) 2 points for parliaments in which minority parties held at least 30% of the seats; 2) 1 point for parliaments that violated the 30% rule; and 3) 0 points for parliaments dissolved by the executive, parliaments which were not self-governing bodies, and parliaments whose members were not members of political parties. The performance of the executive branch was scored in this way: 1) 2 points for executives in a multiparty system elected by direct popular vote; 2) 1 point for executives elected in free elections, but where the 30% rule was violated; 3) ½ point for executives holding power by means other than elections or heredity; and 4) 0 points for hereditary chief executives or executives who interfered with the multiparty nature of their parliments--at the time of interference they stopped receiving points.[5]

The study measures the degree of association between political development and other types of socioeconomic development; educational systems, economic development, communications systems, urbanization and labor force distribution. Cutright finds a high degree of correlation

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[5] Ibid., 196-7.

between each type of socioeconomic development and political development. He concludes that a nation with a high level of political development will tend to have a high level of socioeconomic development.

The Cutright analysis of the relationship between political development and five aspects of socioeconomic development has clear indicies of development which are verifiable and replicable. However, the study has one important flaw. The index of political development is a measure of one type of political development, democratic development. It is not a measure of the general concept, political development.

Nuebauer criticizes the Cutright index of political development as inaccurate, and asserts that democratic development cannot be accurately measured by Cutright's index of national political development.[6] According to Ralph Retzlaff, the Cutright index is a measure of institutionalization and complexity of parliamentary forms of government, and not necessarily sensitive to other aspects of democratic development.[7] Both Neubauer and Jackman criticize Cutright for assuming that the relationship between political development and other aspects of socioeconomic

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[6]Neubauer, "Some Conditions...," 224-5.

[7]Ralph Retzlaff, "The Use of Aggregate Data in Comparative Political Analysis," Journal of Politics, XXVII, (November 1965) pp. 811-2.

development, is linear.[8]

Criticism and analysis of the Cutright paper has led to the splitting of the study of political development's relation to economic development into two areas. The first is the study of the relationship between democratic political development and economic development. The second area is the continued examination of the relationship between economic development and general political development.

3. Irma Adelman and Cynthia Taft Morris - Adelman and Morris have attempted to devise more precise measures of political development to compare with GNP per capita. Using factor analysis, they examine the nature of the relationship between economic development and sociopolitical development. Economic development is represented by GNP per capita. The indicators of sociopolitical development are of three types: "1) those for which classification could be based solely on published statistics; 2) those for which it is necessary to combine statistical and qualitative elements; and 3) those which were purely qualitative in nature".[9] The purely judgmental characteristics

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[8]Neubauer, "Some Conditions...," 224, and Jackman, 611-2.

[9]Irma Adelman and Cynthia Taft Morris, "A Factor Analysis of the Interrelationship between Social and Political Variables and per capita Gross National Product," Quarterly Journal of Economics, LXXIX, (September 1965) pp. 561-2. Nesvold and Gillispie, 333.

were obtained by consulting AID and other country experts and by referring to published country and regional studies. After classification of the countries for each of 22 social and political indicators, each of the 74 less-developed nations is given a letter score, A, A-, B+, B, etc. The letter scores are then given a numerical score on the basis of a linear scale.[10]

The sociopolitical indicators are grouped into four factors and analyzed. The nature of the interrelationship between economic development and sociopolitical development for each of three regional groupings, Africa, Near East and Far East, and Latin America, is broken out. Adelman and Morris find that the strength of the relationships between economic development and the factors of sociopolitical development are different for each area. Even though there are intra-area differences in the relationships, they are able to draw some general conclusions.

They find that the association is strongest between per capita GNP and two factors.

> In particular, an association was derived between per capita GNP and two aspects of sociopolitical change: the sociocultural concomitants of the industrialization-urbanization process (Factor I) and the Westernization of political institutions (Factor II). . . In contrast, a rather weak relationship appears between broad levels of development and indicators summarizing the character of leadership and the degree of social and political

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[10] Ibid., 334-5.

stability in the past decade (Factors III and IV).[11]

Unlike other work in the field, this research examines the relationship between economic development and several aspects of sociopolitical development. The result is the interesting finding that per capita GNP, as a broad measure of economic development, correlates most strongly with the industrialization-urbanization process, not the nature of political institutions or political stability.

There are two problems with this fine research work. First, the accuracy and precision of the data is lost because "hard" statistical data is mixed with "soft" judgmental data, and resulting indicators are assigned one of a limited number of scalar values. Second, the paper also has few indicators which would measure the relationship between economic development and specifically non-Western political development. Measures such as "estimated membership of the party in a single party system, and percent of votes cast for the party in a single party system,"[12] would have made possible findings on the relationship between economic development and non-Western political development. Absence of this information limits the significance

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[11] Ibid., 347-8.

[12] For similar suggestions see, Roger W. Benjamin and John H. Katusky, "Communism and Economic Development," American Political Science Review, XLII, (Spring 1968) pp. 110-23, Ibid., 353-74.

of the good correlation between economic development and Western style political development.

Adelman and Morris suggest the need for additional research in two directions. First is the need for further research into the interrelationships among economic, social and political variables. Second is the need for additional research at the regional level of analysis.[13]

Latin American Literature

Two studies analyzing development in Latin America are reviewed in this section. The first study by Fitzgibbon and Johnson (1961) is one of the earliest attempts to statistically measure political change in Latin America. The second study by Needler (1968) is an analysis of the relationship between democratic political development and socio-economic development in Latin America.

1. Russell H. Fitzgibbon and Kenneth F. Johnson - The authors found that the earliest cross-national analyses of development did not contain sufficiently objective measures of political development.[14] Their research is an attempt to measure democratic political development in Latin America, using more objective indicators of development.

On four occasions, 1945, 1950, 1955, and 1960, the

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[13]Adelman and Morris, 347.

[14]Fitzgibbon and Johnson, 4.

> authors conducted a survey among groups of Latin American specialists to elicit evaluations . . .
> . . . . . .
> The objective of these successive surveys was to determine, with as much certainity as possible, . . . trends of democratic or undemocratic change in the several Latin American states and the correlations and inter-relationships among contributory factors.[15]

The analysis contains fifteen criteria of democratic development, including "a fairly adequate standard of living, and free and competitive elections".[16] Each criterion is weighted to reflect its significance as a factor in democratic development. Then the nations of Latin America are ranked according to the level of democratic performance in each year. The findings are as follows. "In the broadest terms, a tentative conclusion might be reached that Latin America has gained somewhat in recent years in total democratic achievement."[17]

Although this is an important first work in the statistical analysis of development in Latin America, it has two defects. The first defect is in the creation of the index of democratic development. The method of determining the weight of a factor "to reflect its significance as a factor in democratic development"[18] is not clear. It seems to have been done on the basis of impressionistic

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[15] Ibid., 4-5. [16] Ibid., 7. [17] Ibid., 12.

[18] Ibid., 7.

judgments. Therefore, the index appears to be methodologically unsound. The second defect is a sloppy conceptualization of political development, which includes aspects of economic development, such as "a fairly adequate standard of living".[19] This error has also been criticized by Needler (1968).

2. Martin C. Needler - He examines the relationship between political development and socioeconomic development in Latin America. There are two measures of political development, constitutionality and political participation.

> A constitutional year has been defined operationally as one in at least six months of which the country was ruled by a government chosen in (more or less) free elections, and in which that government on the whole respected institutional procedures and individual civil liberties, and in which no extra-constitutional changes in government took place.[20]

Political participation is a measure of the extent of the political franchise within a nation. The two measures of economic development are GNP per capita and life expectancy.

Needler finds a weak correlation between political development as represented by "constitutionality" and economic development, as represented by GNP per capita.[21] On the other hand, he finds a much stronger correlation between the mean values of the two variable sets. His conclusions

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[19] Ibid. [20] Needler, 89. [21] Ibid., 89-90.

are interesting.

> In other words, a country developing economically develops politically, but this heightened level of political development can appear either as a greater fidelity to constitutional norms or as a higher degree of participation in the political process...[22]

Needler's research is much more statistically rigorous than the earlier Fitzgibbon and Johnson (1961) work. The measures of political and economic development are clear and replicable. There is no confusion between the indicators of political and socioeconomic development. However, this work is also flawed. The author equates democratic development with political development. The analysis also ignores an important aspect of political development in Latin America, political instability.

There is a need for additional research into the levels of political development and economic development in Latin America, research which takes into account the factor of political instability, and which expands the range of economic variables in economic development. This paper is designed to fill these needs, and the need for a universally applicable research design.

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[22] Ibid., 95.

CHAPTER II

THE HYPOTHESES AND TECHNICAL TERMS

The chapter is designed to explain the theoretical underpinnings of the hypotheses tests, define some of the technical terms which will be used, and list the hypotheses to be tested.

The Theoretical Base

The examinations of the relationships between economic development and political development did not occur in a theoretical vacuum. As far back as the famous work, The Wealth of Nations, by Adam Smith a relationship between a nation's economy and its political system has been recognized. Indeed, the relationship is so complex that one scholar may place a particular phenomenon, such as educational development, into the category of an economic development process, while another researcher may place it in the category of a social, cultural or political development process.

That a relationship between nation's levels of political and economic development exists has rarely been questioned. Nor has the ability to pull them apart theoretically in order to study their interrelationship, been often doubted.

> Clearly, in all societies, politics and economics are very much bound up with each other, and the idea of their rigid separation has very seldom been seriously entertained . . . . . .
> . . . . . .
> However, it is possible to distinguish the state and the economy as distinct social systems, performing different functions in society and it would appear that modern man does conventionally perceive such a distinction, though he is hard put to define it exactly.[1]

From this general belief in the close relationship of economic processes and political processes and the experiences of nations since the Industrial Revolution has come a number of theories of economic development and political development. This general agreement dissolves, however, when the theories describe what political and economic development are, and how they relate to each other.

Precise definitions of the concepts of political development and economic development, and their operationalization will be treated in detail in Chapter III. At present, more general considerations of the nature of political development and economic development are put forth.

Some economists see the engine behind political development and economic development as technological innovation. "Thus, what happens to society is determined jointly by the forward urging of technology and the backward pressure

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[1]Charles W. Anderson, Politics and Economic Change in Latin America, (New York: Van Nostrnad Reinhold Co., Inc., 1967) pp. 5-6.

of its ceremonial system."[2] Indeed, most empirical studies of the relationship between economic development and political development treat political development as the dependent variable.

On the other hand, social scientist, Karl Deutsch sees the complex of social changes, including political development, which he terms social mobilzation, as necessary before economic development can begin.

> The relationship between the total process of social mobilization and the growth of national income . . . is by no means symmetrical. Sustained income growth is very unlikely without social mobilization, but a good deal of social mobilization may be going on even in the absence of per capita income growth. . .[3]

Scholars agree that countries' levels of political development and economic development are related. Some believe that technological development or economic development is the independent variable. They contend that political development is the dependent variable, and changes in response to changes in economic development. Other social scientists hold that social and political development

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[2]C.E. Ayers, The Theory of Economic Progress, Second edition, (New York: Schocken Books, 1962) p. ix.

[3]Karl Deutsch, "Social Mobilization and Political Development," American Political Science Review, LV, (September 1964) p. 494, cited by Roy C. Macridis and Bernard E. Brown editors, Comparative Politics, 3rd edition, (Homewood, Illinois: Dorsey Press, 1968) p. 563.

must precede economic development, that is to say, political development is the independent variable and economic development is the dependent variable.

In this study, an asymmetrical relationship between political development and economic development is not assumed. There will be a series of hypotheses tested, in which each variable is treated as the dependent variable. The relationships between the variables, economic and political development are tested. These variable's scores are the mean scores of the variable's six indicator scores. The relationships between the dependent variable and the six indicators of the independent variable are also tested.

The Technical Terms

The hypotheses being tested are concerned with the probability of a positive relationship between variables, the degree of correlation or association between variables, and the amount of explained variance. To aid in the understanding of the hypotheses, brief definitions of these technical terms are provided.

1. Significance level - The significance level is a measure of the probability that a hypothesized relationship exists. For example, the significance level of .10 indicates that there is only one chance in ten that the hypothesized relationship does not exist.

2. Positive relationship - A positive relationship

is a relationship between variables such that the value of the independent variable will be accompanied by a similar value for the dependent variable. In other words, a country with a high level of political development would have a high level of economic development. For these tests, the hypothesis of a positive relationship is accepted when the significance level is .10 or better.

3. Correlation or association - The test of correlation or association tells whether the relationship found characterizes a large portion of the cases tested. The stronger the degree of correlation or association found, the larger the number of cases where a relationship exists.

4. Explained variance - The explained variance is the square of the correlation or association value. It is a measure of how close the "real" value of the dependent variable is to the value predicted by the independent variable. It is a measure of the prediction accuracy of the hypothesis.

The relationships between the variables are examined to determine their strength and direction, their degree of association or correlation, and the amount of variance in the dependent variable which is explained by the independent variable. In a perfect relationship, the amount of variance explained is 1.00. The result is the series of hypotheses tests listed below.

The Hypotheses To Be Tested

1. For the years 1955-1959, there is a positive relationship between the levels of political development and economic development in Latin America, when political development is treated as the dependent variable.

2. For the years 1955-1959, there is a correlation of political development with economic development of .30 or better for the nations of Latin America, when political development is treated as the dependent variable.

3. For the years 1955-1959, the amount of variance in political development which is explained by the levels of economic development is .09 or more for the Latin American nations.

4. For the years 1955-1959, there is a positive relationship between political development and Primary and Secondary Enrollments per capita in Latin America.

5. For the years 1955-1959, there is a correlation of political development with Primary and Secondary Enrollments per capita of .30 or better for the nations of Latin America.

6. For the years 1955-1959, the amount of variance in political development which is explained by Primary and Secondary Enrollments per capita is .09 or more for the Latin American nations.

7. For the years 1955-1959, there is a positive relationship between political development and Percent of

Population Literate in Latin America.

8. For the years 1955-1959, there is a correlation of political development with Percent of Population Literate of .30 or better for the nations of Latin America.

9. For the years 1955-1959, the amount of variance in political development which is explained by Percent of Population Literate is .09 or more for the Latin American nations.

10. For the years 1955-1959, there is a positive relationship between political development and GNP per capita in Latin America.

11. For the years 1955-1959, there is a correlation of political development with GNP per capita of .30 or better for the nations of Latin America.

12. For the years 1955-1959, the amount of variance in political development which is explained by GNP per capita is .09 or more for the Latin American nations.

13. For the years 1955-1959, there is a positive relationship between political development and Energy Consumption per capita in Latin America.

14. For the years 1955-1959, there is a correlation of political development with Energy Consumption per capita of .30 or better for the nations of Latin America.

15. For the years 1955-1959, the amount of variance in political development which is explained by Energy

Consumption per capita is .09 or more for the Latin American nations.

16. For the years 1955-1959, there is a positive relationship between political development and Percent of GNP derived from Industry in Latin America.

17. For the years 1955-1959, there is a correlation of political development with Percent of GNP derived from Industry of .30 or better for the nations of Latin America.

18. For the years 1955-1959, the amount of variance in political development which is explained by Percent of GNP derived from Industry is .09 or more for the Latin American nations.

19. For the years 1955-1959, there is a positive relationship between political development and Population in Cities of 50,000 or More per capita in Latin America.

20. For the years 1955-1959, there is a correlation of political development with Population in Cities of 50,000 or More per capita of .30 or better for the nations of Latin America.

21. For the years 1955-1959, the amount of variance in political development which is explained by Population in Cities of 50,000 or More per capita is .09 or more for the Latin American nations.

22. For the years 1962-1966, there is a positive relationship between the levels of political development

and economic development in Latin America, when political development is treated as the dependent variable.

23. For the years 1962-1966, there is a correlation of political development with economic development of .30 or better for the nations of Latin America, when political development is treated as the dependent variable.

24. For the years 1962-1966, the amount of variance in political development which is explained by the levels of economic development is .09 or more for Latin American nations.

25. For the years 1962-1966, there is a positive relationship between political development and Primary and Secondary Enrollments per capita in Latin America.

26. For the years 1962-1966, there is a correlation of political development with Primary and Secondary Enrollments per capita of .30 or better for the nations of Latin America.

27. For the years 1962-1966, the amount of variance in political development which is explained by Primary and Secondary Enrollments per capita is .09 or more for the Latin American nations.

28. For the years 1962-1966, there is a positive relationship between political development and Percent of Population Literate for Latin America.

29. For the years 1962-1966, there is a correlation

of political development with Percent of Population Literate of .30 or better for the nations of Latin America.

30. For the years 1962-1966, the amount of variance in political development which is explained by Percent of Population Literate is .09 or more for Latin American nations.

31. For the years 1962-1966, there is a positive relationship between political development and GNP per capita in Latin America.

32. For the years 1962-1966, there is a correlation of political development with GNP per capita of .30 or better for the nations of Latin America.

33. For the years 1962-1966, the amount of variance in political development which is explained by GNP per capita is .09 or more for the nations of Latin America.

34. For the years 1962-1966, there is a positive relationship between political development and Energy Consumption per capita in Latin America.

35. For the years 1962-1966, there is a correlation of political development with Energy Consumption per capita of .30 or better for the nations of Latin America.

36. For the years 1962-1966, the amount of variance in political development which is explained by Energy Consumption per capita is .09 or more for Latin American nations.

37. For the years 1962-1966, there is a positive relationship between political development and Percent of GNP derived from Industry in Latin America.

38. For the years 1962-1966, there is a correlation of political development with Percent of GNP derived from Industry of .30 or better for the nations of Latin America.

39. For the years 1962-1966, the amount of variance in political development which is explained by Percent of GNP derived from Industry is .09 or more for Latin American nations.

40. For the years 1962-1966, there is a positive relationship between political development and Population in Cities of 50,000 or More per capita in Latin America.

41. For the years 1962-1966, there is a correlation of political development with Population in Cities of 50,000 or More per capita of .30 or better for the nations of Latin America.

42. For the years 1962-1966, the amount of variance in political development which is explained by Population in Cities of 50,000 or More per capita is .09 or more for the Latin American nations.

43. For the years 1955-1959, there is a positive relationship between the levels of economic development and political development in Latin America, when economic development is treated as the dependent variable.

44. For the years 1955-1959, there is a correlation of economic development with political development of .30 or better for the nations of Latin America, when economic development is treated as the dependent variable.

45. For the years 1955-1959, the amount of variance in economic development which is explained by the levels of political development is .09 or more for Latin American nations.

46. For the years 1955-1959, there is a positive relationship between economic development and the Number of Coup'd Etats in Latin America.

47. For the years 1955-1959, there is a correlation of economic development with the Number of Coup'd Etats of .30 or better for the nations of Latin America.

48. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Coup'd Etats is .09 or more for Latin American nations.

49. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Constitutional Changes in Latin America.

50. For the years 1955-1959, there is a correlation of economic development with the Number of Major Constitutional Changes of .30 or better for the nations of Latin America.

51. For the years 1955-1959, the amount of variance

in economic development which is explained by the Number of Major Constitutional Changes is .09 or more for the Latin American nations.

52. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Cabinet Changes in Latin America.

53. For the years 1955-1959, there is a correlation of economic development with the Number of Major Cabinet Changes of .30 or better for the nations of Latin America.

54. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Major Cabinet Changes is .09 or more for Latin American nations.

55. For the years 1955-1959, there is a positive relationship between economic development and the Number of Changes in Effective Executive in Latin America.

56. For the years 1955-1959, there is a correlation of economic development with the Number of Changes in Effective Executive of .30 or better for the nations of Latin America.

57. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Changes in Effective Executive is .09 or more for the Latin American nations.

58. For the years 1955-1959, there is a positive

relationship between economic development and the Defense Budget as a Percent of National Expenditures in Latin America.

59. For the years 1955-1959, there is a correlation of economic development with the Defense Budget as a Percent of National Expenditures of .30 or better for the nations of Latin America.

60. For the years 1955-1959, the amount of variance in economic development which is explained by the Defense Budget as a Percent of National Expenditures is .09 or more for the Latin American nations.

61. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Government Crises in Latin America.

62. For the years 1955-1959, there is a correlation of economic development with the Number of Major Government Crises of .30 or better for the nations of Latin America.

63. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Major Government Crises is .09 or more for Latin American nations.

64. For the years 1962-1966, there is a positive relationship between economic development and political development in Latin America, when economic development is treated as the dependent variable.

65. For the years 1962-1966, there is a correlation of economic development with political development of .30 or better for the nations of Latin America, when economic development is treated as the dependent variable.

66. For the years 1962-1966, the amount of variance in economic development which is explained by the levels of political development is .09 or more for Latin American nations.

67. For the years 1962-1966, there is a positive relationship between economic development and the Number of Coup'd Etats in Latin America.

68. For the years 1962-1966, there is a correlation of economic development with the Number of Coup'd Etats of .30 or better for the nations of Latin America.

69. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Coup'd Etats is .09 or more for the Latin American nations.

70. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Constitutional Changes in Latin America.

71. For the years 1962-1966, there is a correlation of economic development with the Number of Major Constitutional Changes of .30 or better for the nations of Latin America.

72. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Constitutional Changes is .09 or more for the Latin American nations.

73. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Cabinet Changes in Latin America.

74. For the years 1962-1966, there is a correlation of economic development with the Number of Major Cabinet Changes of .30 or better for the nations of Latin America.

75. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Cabinet Changes is .09 or more for the Latin American nations.

76. For the years 1962-1966, there is a positive relationship between economic development and the Number of Changes in Effective Executive in Latin America.

77. For the years 1962-1966, there is a correlation of economic development with the Number of Changes in Effective Executive of .30 or better for the nations of Latin America.

78. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Changes in Effective Executive is .09 or more for the Latin American nations.

79. For the years 1962-1966, there is a positive relationship between economic development and the Defense Budget as a Percent of National Expenditures in Latin America.

80. For the years 1962-1966, there is a correlation of economic development with the Defense Budget as a Percent of National Expenditures of .30 or better for the nations of Latin America.

81. For the years 1962-1966, the amount of variance in economic development which is explained by the Defense Budget as a Percent of National Expenditures is .09 or more for Latin American nations.

82. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Government Crises for Latin America.

83. For the years 1962-1966, there is a correlation of economic development with the Number of Major Government Crises of .30 or better for the nations of Latin America.

84. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Government Crises is .09 or more for the Latin American nations.

The regression tests will be performed on the scores of the variables economic development and political development, and on the scores of the individual development indicators. The methods of indicator and variable score

derivation and their justification are presented in Chapter III.

CHAPTER III

THE RESEARCH COMPONENTS

This chapter outlines the research design and its objectives, establishes the data used and the limitations on it, provides the methods of variable and indicator validation, and defines the variables and justify their indicators.

The research design and the design objectives are the framework upon which the regression tests are constructed. The creation of the regression tests is also affected by the nature and limitations of the data used. The usefulness of the regression tests is also dependent upon the validity of the regression variables and their component indicators. A general discussion of the methods of establishing indicator validity is followed by the definition of each variable and the demonstration of indicator validity.

The Research Design and Its Objectives

The research design must accomodate two objectives. The first objective is to provide the framework for the analysis of the relationship between political and economic development in Latin America. The second objective is to

create a study that can be built upon by other researchers. In order to accomplish these goals, the research must have a method of analysis and variables which are appropriate for all areas of the world.

There are two types of analysis which meet these criteria. They are regression analysis and factor analysis. In this study, regression analysis is employed. This choice of methodology is discussed further in Chapter IV. Variables, which are suited for regression analysis, replicable and universally appropriate, have certain limitations. These are limitations imposed by data availability and reliability.

Data Use and Limitations

Only interval level data is used in this research. The data is for the years, 1955-1959 and 1962-1966. The reasons for the use of interval level data from two five-year time spans are related to data availability and reliability.

Availability - Some important judgmental characteristics of political development cannot be used. For example, the characteristics, "modernization of the bureaucracy, and a generally stable government since World War II,"[1] are not generally created precisely enough to distinguish among

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[1]Arthur Banks and R. B. Textor, A Cross-Polity Survey, (Cambridge: The MIT Press, 1963) pp. 84-97.

Latin American countries. This fact severely reduces the number of useable judgmental characteristics.

Reliability - There is also a problem of reliability with judgmental data. "The researcher seldom knows to what extent the judgments reflect biases and misinformation."[2] The problem of reliability is not confined to judgmental data. "The only reliable social data that seem to have been frequently and widely reported by nations before the 1950's are those for educational enrollment."[3]

When there is data available form several sources, the problem of data reliability is readily apparent. Information such as military spending in constant U.S. dollars can vary widely depending upon the source.[4] There are even problems with the raw statistics available from generally reliable sources such as the Inter-American Development Bank.

> Two basic inconsistencies were found: (1) those relating to the types of data present from year to year, and (2) those relating to the means of calculation of similar forms of statistical information.[5]

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[2]Robert Ted Gurr, Politimetrics: An Introduction to Quantitative Macropolitics, (Englewood Cliffs, New Jersey: Prentice-Hall, 1972) p. 83.

[3]Ibid., 44.

[4]Martin C. Needler, "United States Government Figures on Latin American Military Expenditures," Latin American Research Review, VIII, (Summer 1973) pp. 101-3.

[5]Thomas I. Dickson, "The Contribution of the Inter-American Development Bank to the Latin American Statistics Muddle," Inter-American Economic Affairs, XXVIII, (Winter 1974) p. 80.

In order to reduce the scope of these problems of data comparability and consistency, all the statistical measures are taken from a single source. The data source is Cross-Polity Time-Series Data,[6] a compilation of statistical data specifically designed for use in longitudinal studies by social scientists. Its data for Latin American nations is available on a consistent basis for the years 1955 through 1966.[7]

There is a final problem of reliability, which involves data collection at set intervals and the possible effects of such practices on test results.

> It is the custom, and indeed a requirement, in time-series analysis that observations of the variables are collected at fixed and regular intervals . . . . I have doubts about the effects of such customs and requirements on results . . . .
>
> What we are, in fact, doing when we observe at such intervals is [sic] insert into our process some interval causation . . . . It is my proposition that underestimation or overestimation of the interval causation will lead to stroboscopic effects in examining diachronic social processes.[8]

In order to minimize the possible effects of interval causation, and distortion of the test results, there is a two-year interval between time periods analyzed.

Thus, the relationships between economic development

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[6]Arthur Banks, Cross-Polity Time-Series Data, (Cambridge: The MIT Press, 1971).

[7]Ibid.

[8]Gordon Hilton, Intermediate Politometrics, (New York: Columbia University Press, 1976) pp. 211-2.

and political development in Latin America for the years 1955-1959 and 1962-1966 are examined through the use of regression analysis. The data subjected to regression analysis is interval level, time-series data from a single statistical source.

Variable and Indicator Validity

Variable creation is a complicated matter. First, one must clearly define the concept which each variable represents. Then, the researcher must find one or more indicators to operationalize the variable concept. The problem of determining the accuracy of an indicator as the operationalization of a concept is never completely soluble. The indicators are statistical measures of the concept, and the translation of concepts into statistical measures is always an inexact science.

> The first point to be made is that there are no absolute criteria for judging an indicator's validity, not in political or any other research. There are only relative standards for validity, such as a consensus among scholars that a particular measure represents a variable more or less well.[9]

Another method of establishing indicator validity is to demonstrate an indicator's face validity. "One, face validity is a theoretically and substantively plausible argument that spells out how and why an indicator represents a significant aspect of a conceptual variable."[10] The two

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[9] Gurr, 44. [10] Ibid.

types of indicator validity used in this study are consensual and face validity. The indicators are operationalizations of the concepts of economic development and political development.

Economic Development

There is a wide recognition and acceptance of the kind of phenomenon which is termed economic development. Often authors define the concept simply through its operationalization.[11] "In a broad sense, economic development is a concept readily operationalized. Commonly, such indicators as gross national product or gross national product per capita are used in measuring economic development . . . ."[12] When economic development is defined, the definitions are composed of such characteristics as Lipset's "economic development complex; wealth, education, industrialization and urbanization".[13] In this paper, economic development is defined as; the levels of wealth, education, urbanization and industrialization. These characteristics are represented by six statistical indicators.

1. The levels of wealth are operationalized by the measures, Gross National Product (GNP) per capita in constant U.S. dollars, and Energy Consumption per capita in kilowatt hours. GNP per capita is used as the sole measure

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[11]Jackman, 614.

[12]Nesvold and Gillespie, 283.

[13]Lipset, 153.

of economic development by Adelman and Morris,[14] and as one of a group of measures of economic development by Harbison et al.[15] Energy Consumption per capita is also used as a measure of economic development, and some researchers hold that it is more indicative of a country's level of development than GNP per capita, because it shows the relative modernization of power facilities.[16]

2. The levels of education are represented by the indicators, Primary and Secondary Enrollments per capita, and Percent of Population Literate. Literacy has been used as a measure of economic or socioeconomic development by many authors, including Lipset[17] and Cutright[18]. The second measure of education levels, Primary and Secondary Enrollments per capita, is also an indicator of future economic potential. "Enrollment ratios are probably the most useful indicator of the flow of human resources: they illustrate the generating capacity of future stock."[19]

3. The level of urbanization is measured by Population in Cities of 50,000 or More per capita. The city size used as an indicator of urbanization varies. However,

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[14]Adelman and Morris.

[15]Frederick H. Harbison, Joan Maruhnic and Jane Resnick, Quantative Analyses of Modernization and Development, (Princeton: Princeton University Press, 1970) p. 8.

[16]Ibid., 5. [17]Lipset. [18]Cutright.

[19]Harbison, et al., 11.

the city size of 50,000 or More has been used by Harbison et al.[20]

4. The level of industrialization is operationalized by the statistic, Percent of GNP derived from Industry. It is not the most commonly used measure of industrialization. However, the indicator is particularly appropriate in Latin America, where the statistics on agriculture and landholding are often subjected to manipulation for political reasons.[21] Indeed, it has been used as a measure of industrialization by other Latin American scholars, including Douglas Bwy.[22]

Economic development is the levels of wealth, education, urbanization and industrialization. Six indicators operationalize the economic development concept.

Political Development

There is no single widely held concept of political development.

> If the concept of economic development and its operationalization have been used imprecisely, the

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[20] Ibid., 15.

[21] Phillip C. Schmitter, "New Strategies for the Comparative Analysis of Latin American Politics," Latin American Research Review, IV, (Spring 1969) p. 85.

[22] Douglas P. Bwy, "Political Instability in Latin America: The Cross-Cultural Test of a Causal Model," Latin American Research Review, III, (Spring 1968) pp. 37-66, cited by Nesvold and Gillespie, pp. 113-140.

> use of the concept of political development has been thoroughly muddled. In early analyses, cross-national researchers often made the hypothesis and conclusion, which for some became a kind of natural law of politics, that economic development leads to pluralistic, competitive political structures. The difficulty with this naive and culturally biased outlook is that it confuses political development with democratization . . . . For analytic purposes, it is important to distinguish between political development and democratization.[23]

Illustrative of the present status of the concept of political development is the fact that no less than ten major definitions of political development are given by Lucien Pye (1966).

Some of the confusion is due to the definitions' widely varying levels of abstraction. For example, Gurr offers a highly abstract definition. "By 'modernization' we mean the growth of complex, functionally specialized, and adaptable political organization."[24] Nesvold presents a similar but less abstract definition of political development. "Political development refers to the degree to which the political system exhibits modern management methods, its degree of bureaucratization, government employment, and expenditure patterns."[25] Pye gives another list of observable characteristics to describe political development, which fits the same general pattern.

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[23]Nesvold and Gillespie, 283-4.

[24]Gurr, 46.

[25]Nesvold and Gillespie, 284.

> Political development consists of the organization of political life and performance of political functions in accordance with standards expected of a modern nation-state . . . . Specifically, this involves the development of a capacity to maintain a certain level of public order, to mobolize resources for a specific range of collective enterprises, and to make and to effectively uphold certain types of international commitment.[26]

Obviously, the concept of political development is amorphous, has a wide variety of interpretations, and is difficult to define. To attempt an all-encompassing definition of political development, which satisfies everyone is to attempt the impossible. Indeed, a more fruitful approach has been recommended.

> The field now needs not so much definitional unity as the establishment of empirical relationships among the various dimensions of political change that have already been identified and more or less measured. We are not now and possibly never will be in a position to find indicators of the political development process; we must mork at the indicators of several processes. Only after gathering these and analyzing their functional relationships, if then, can we attempt an overarching definition of that elusive term political development.[27]

Therefore, political development shall be represented by a group of important political development processes, not all political development processes. The first political process operationalized is the maintenance of political

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[26]Lucien Pye, Aspects of Political Development, (Boston: Little Brown Press, 1966) p. 37.

[27]Nancy Baster, Measuring Development: The Role and Adequacy of Development Indicators, (London: Frank Cass Press, 1972) p. 103.

stability. The second aspect of political development, which is used, is the ability of a nation to allocate resources for a range of collective enterprises.[28] The third aspect of political development to be studied is constitutional development, that is the growth of rules by which authoritative decisions can be made.[29] A nation which is stable, can allocate its resources reasonably well, and has a well-developed set of rules by which authoritative decisions are made, has many important characteristics of a politically developed country. Thus, the degree to which any nation exhibits these characteristics is one measure of that nation's level of political development.

Operationalization of these characteristics is by no means an easy task. Frequently, judgmental characteristics, such as "degree of modernization of the bureaucracy,"[30] are not precise enough to distinguish among Latin American countries. To overcome these problems of imprecision with regard to Latin America, and to avoid the problem of politically manipulated data, Schmitter (1969) recommends the use of event-scores to measure political development in Latin America. Event-scores are number counts of events such as changes in executive leadership, which can be obtained from sources other than official government documents.[31]

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[28]Pye, 37. [29]Baster, 101.

[30]Banks and Textor, 43. [31]Schmitter, 85.

As recommended, event-scores are employed as measures of political development characteristics, whenever possible.

1. Political stability is represented by the indicators, Number of Coup d'Etats, Number of Changes in Effective Executive, and the Number of Major Government Crises. The indicators, Number of Coup d Etats and Number of Major Government Crises are used to measure political stability by several authors, including Bwy.[32] The Number of Changes in Effective Executive is also included, because numerous changes in executive leadership, legal and illegal, indicate a degree of political instability. For example, in Italy although there have been no coup'd etats or other illegal changes in executive leadership, the frequent legal changes in executive leadership are indicative of that nation's political instability.

2. The ability to use resources for a range of collective enterprises is measured by the indicators, Number of Major Cabinet Changes and the Defense Budget as a Percent of National Expenditures. In any political system the ability to use resources is directly affected by the functioning of the bureaucracy. Bureaucracies which experience frequent changes in their leadership, are limited in their capacity to carry out collective enterprises.[33] Therefore, the Number of Major Cabinet Changes is used to measure the

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[32]Bwy, 117. [33]Anderson, 144-5.

limitations upon a country's ability to use its resources.

Another constraint upon the ability of a government to use its resources is the relative size of the military budget. The larger the portion of the national budget, which is spent on the military, the smaller the portion of resources which are available to be spent for other national requirements, such as education.[34] Nor do the military budgets of Latin American nations contribute directly to the economy, since military hardware is purchased abroad, not produced at home. Therefore, Defense Budget as a Percent of National Expenditures is the other indicator representing a nation's ability to use its resources for a range of collective enterprises.

3. Constitutional development is the third characteristic of political development. One measure of the level of development in a country's legal system is the need to make major changes in its constitution. A country which is constitutionally developed does not experience the need for frequent major changes in its constitution, because it has an established, widely accepted, set of rules for decision making, which is adequate for a complex, modern society. Therefore, the Number of Major Constitutional Changes is employed as an indicator of the level of constutional development.

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[34] Ibid., 157.

Political development processes are examined, using the indicators of political stability, the ability to use resources for a range of collective enterprises and the level of constitutional development. The processes are operationalized by six indicators.

The relationships between the concepts, economic development and political development, are tested by means of regression analysis. The relationships for two time periods, 1955-1959 and 1962-1966, are studied. Results of the regression tests, and interpretation of those results are found in the final chapter.

CHAPTER IV

METHODOLOGY

The explanation of the research methodology has three components. First, the preparation of the raw data is illustrated. Second, the means of testing the data, multiple and stepwise regression analysis, is explained. Finally, the functions of the statistical measures of the tested relationships' probability and strength are made clear.

Data Preparation

The data preparation has two steps. The first step is to convert the raw data into like terms. The second step is to use the converted data scores to create variable scores.

Indicators - The indicators are converted into percentage scores. The percentage scores are comparative in nature. That is to say, the percentage score of each indicator represents the scalar position of that indicator score as compared to the indicator score of every other nation for which information was available.[1] The conversion of

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[1]The list of nations, whose raw statistics were used in the creation of the percentage scores is given in Appendix A.

the raw scores into percentage scores can be expressed in equation form.

$$\frac{X_1 + X_2 + \ldots + X_n}{N} = T_1 + T_2 + \ldots + T_n$$

The raw scores are X_1 through X_n, the converted scores are T_1 through T_n, and N is the number of scores.[2] The converted scores are used to create the variable scores.

Variables - Each development variable is composed of six indicators' scores. The variable score is the mean value of the six indicator scores. The following equation represents the creation of the variable scores.

$$\frac{I_a + I_b + \ldots + I_f}{F} = V$$

The converted indicator scores are I_a through I_f, F is the total number of indicator scores, and V is their mean value or the variable score.

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[2]The following is an illustration of the method of raw data conversion. Ten pupils take an arithematic test. The maximum number of points which a student could score was 100. Two students scored 80; two students scored 40; two students scored 30; and four students scored 25. Since many of the students scored low on the test, the teacher decides to grade them on the basis of a percentage scale based upon student scores, rather than the number of possible points. Therefore, the teacher wishes to convert the actual scores into percentage scores based upon student performance. The total number of points scored by the students was 400. Ten students took the test. The average or mean score is 400 divided by 10 or 40. Thus, the pupils with raw scores of 40 received a percentage score of 50. Similarly, since 40 is fifty percent of 80, students with raw scores of 80 were given converted scores of 100 percent. Because 30 is 36.5 percent of 80, the pupils with raw scores of 30 had converted scores of 36.5 percent. Students with raw scores of 25 received converted scores of 31.25 percent, since 25 is 31.25 percent of 80.

This method of variable creation is recommended by several authors, including Jackman.

> The index of democratic development was then created by taking the mean of a country's scores on those components for which data were available. This method of creating the index has two major advantages. First, the metrics of the original variables remain substantively meaningful within the new index . . . . Second, it is useful because it allows us to handle the small amount of missing data; if a country had data on all four components (as most do), the index is equal to the sum of four scores divided by four; if data are present for only three components, the index is equal to the sum of those scores divided by three.[3]

The method of handling missing data, which is suggested above, is the one used in this work. After the converted indicator scores and the variable scores are prepared, the data is ready for analysis.

Method of Analysis

The methodology used in cross-national analyses of political development and economic development is usually factor analysis or regression analysis. In research where many or all of the variables are at the ordinal level of measurement, factor analysis is used.[4] When the data of a study is at the interval level of measurement, regression

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[3]Jackman, 616.

[4]E. g. Phillips M. Gregg and Arthur S. Banks, "Grouping Political Systems: Q-Factor Analysis of A Cross-Polity Survey," The American Behavioral Scientist, LIX, (Fall 1965) pp. 555-578. And Adelman and Morris.

analysis is used.[5] Since the data in this paper is at the interval level of measurement, regression analysis is used.

Regression analysis is the test of the probability and strength of a relationship between variables. The null hypothesis of no positive relationship between variables is always the hypothesis tested.

The null hypothesis is that there is no positive relationship between the levels of political development and economic development in Latin America. It can be expressed:

$$H_0: \quad 0 = R^2_{x.y}$$

When the probability that no positive relationship exists is very low, the alternative hypothesis that a positive relationship exists, is accepted.

The alternative hypothesis of a positive relationship between political development and economic development in Latin America is expressed:

$$H_1: \quad 0 < R^2_{x.y}$$

The null hypothesis is subjected to two forms of regression analysis, multiple regression analysis and stepwise regression analysis.

Multiple regression analysis is the test of the strength direction and probability of a relationship between the two

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[5]E. g. Cutright. And Neubauer.

variables. Its regression equation is:

$$Y = a + bX$$

The Y is the dependent variable. The X is the independent variable. The "a" is the amount of the value of Y which is not explained by the value of bX. The "b" represents the variation between X and Y which is explained.

The stepwise regression analysis is the test of the relationships between a dependent variable and a series of independent variables. Its regression equation is:

$$Y = a + b_1X_1 + b_2X_2 + \ldots + b_kX_k$$

As before, Y is the dependent variable, and "a" is the unexplained variance. The X_1 through X_k are the independent variables, and b_1 through b_k are called partial regression coefficients.

There can be problems with the accuracy of the partial regression coefficients. When two or more independent variables have a high degree of correlation between themselves, they are said to be multicollinear. When such multicollinearity exists, the partial regression coefficients may not be accurate.[6] The problem of multicollinearity arose in this research. Some independent variables were multicollinear, and their partial regression coefficients

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[6]Norman H. Nie, Dale H. Bent, and C. Hadlai Hull, Statistical Package for the Social Sciences, 2nd edition, (New York: McGraw-Hill Book Company, 1975) p. 184.

would vary from test to test. Therefore, the relationships between the dependent variable and each indicator were tested separately.

Measures of Probability and Strength

These regression tests produce three measures of the strength and probability of the relationships between variables. The measures are: 1) the F-statistic, a measure of the probability that a relationship exists; 2) the correlation coefficient (r), a measure of the strength and direction of a relationship; and 3) the coefficient of determination or explained variance (r^2), a measure of the accuracy with which the dependent variable can be predicted by the independent variable, or to put it another way, the amount of variance in the dependent variable which is explained by the independent variable.

The F-statistic is the measure of the probability that a relationship exists. The question at what level is the F-statistic considered significant, and the null hypothesis rejected, is complicated. Whenever a hypothesis is rejected or accepted, there is a risk of error.[7] Often researchers choose to minimize the risk of rejecting a null hypothesis unless the probability that it is correct is less

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[7]The possible errors are: Type I, rejecting a correct null hypothesis; and Type II, accepting an incorrect null hypothesis. The possibility of making an error cannot be eliminated.

than .05 or even .01. This practice of requiring a significance level of .05 or .01 before rejecting the null hypothesis of no relationship between variables has been the subject of controversy.

> The frequent use of .05 or .01 levels of significance is a matter of convention having little scientific or logical basis. When the power of tests is likely to be low under these levels of significance, and when Type I and Type II errors are of approximately equal importance, the .30 and .20 levels of significance may be more appropriate than .05 and .01 levels.[8]

Since the Type I and Type II errors are of approximately equal importance in this study, the level of significance for rejection of the null hypothesis is .10.

The correlation coefficient measures a relationship's strength and direction. The square of the correlation coefficient is the explained variance, a measure of prediction accuracy. Meaningful values for these measures are more widely accepted. "Correlations of less than .30 are not highly regarded by researchers."[9] Therefore, in this study, correlations of .30 and explained variances of .09 or more are considered meaningful.

A final word about the nature of the variables being

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[8]B. J. Winer, Statistical Principles in Experimental Design, (New York: McGraw-Hill Book Company, 1962) p. 13. For further discussion of appropriate significance levels see: Denton E. Morrison and Ramon E. Henkel, editors, The Significance Test Controversy, (New York: McGraw-Hill Book Company, 1975) pp. 566-93.

[9]William Buchanan, Understanding Political Variables, second edition, (New York: Charles Scribners' Sons, 1974) p. 255.

tested. The relationships between the variables, economic development and political development, are not assumed to be asymmetrical. Therefore, regression tests are made in which political development is treated as the dependent variable and then tests are made in which economic development is treated as the dependent variable. The procedure is repeated for both time periods, 1955-1959 and 1962-1966.

CHAPTER V

ANALYSIS AND CONCLUSIONS

The test results upon which the analyses and conclusions are based are presented first. The presentation consists of the following elements, a table of the variable scores, tables of the test results and a list of the hypotheses tests and their results. The fourth section contains the interpretations of the test results. The conclusions drawn and the implications for future research, which are found, are addressed in the final section of the paper.

Variable Scores

The regression analyses of the relationships between economic development and political development in Latin America employ the variable scores provided in Table I and the converted indicator scores contained in Appendix B.[1]

It should be noted that a high number score for political development represents a low level of political development. The situation arises because the political development indicators are number counts of incidents which reflect political instability, such as the Number of Changes

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[1]Appendix B contains the raw scores and the converted indicator scores for each of the Latin American countries.

in Effective Executive or the inability to use resources, such as the Number of Major Cabinet Changes. Therefore, although the hypothesized relationships are positive, the regression line has a negative slope, and the correlation coefficients are negative numbers.

TABLE I

VARIABLE SCORES FOR EACH COUNTRY

COUNTRY	1955-1959 POLITICAL DEVELOPMENT	1955-1959 ECONOMIC DEVELOPMENT	1962-1966 POLITICAL DEVELOPMENT	1962-1966 ECONOMIC DEVELOPMENT
Argentina[1]	62.15	53.79	61.16	52.44
Bolivia[2]	54.98	44.34	61.09	46.02
Brazil	52.49	47.05	60.66	46.81
Chile	50.06	52.72	47.37	53.73
Colombia	57.03	47.96	53.83	47.59
Costa Rica	43.52	49.87	45.48	49.91
Cuba[3]	53.60	51.22	45.72	51.00

[1]Population in Cities of 50,000 or More per capita - data missing for both time periods.

[2]Defense Budget as a Percent of National Expenditures - data missing for both time periods.

[3]Population in Cities of 50,000 or More, Defense Budget as a Percent of National Expenditures and Percent of GNP derived from Industry - data missing for both time periods.

TABLE I -- continued

COUNTRY	1955-1959 POLITICAL DEVELOPMENT	1955-1959 ECONOMIC DEVELOPMENT	1962-1966 POLITICAL DEVELOPMENT	1962-1966 ECONOMIC DEVELOPMENT
Dominican Republic[4]	48.12	47.25	56.10	44.25
Ecuador	46.23	46.68	59.59	47.22
El Salvador	45.16	44.50	47.11	44.73
Guatemala	61.09	42.11	58.89	41.89
Haiti	74.06	39.32	51.01	38.33
Honduras	53.59	41.98	54.87	42.97
Mexico	44.15	49.81	44.44	50.43
Nicaragua[4]	45.08	45.36	46.72	44.95
Panama[5]	48.35	49.64	46.88	49.05
Paraguay[4]	44.68	48.14	43.90	46.75
Peru	48.33	48.11	55.40	48.07
Uruguay[4]	48.86	52.57	46.42	52.91
Venezuela	47.42	56.49	47.37	56.16

[4]Defense Budget as a Percent of National Expenditures - data missing for both time periods.

[5]Defense Budget as a Percent of National Expenditures, and Primary and Secondary Enrollments per capita - data missing for both time periods.

The regression analyses in which these variables were employed had the results presented in the next four tables.

TABLE II

DEPENDENT VARIABLE POLITICAL DEVELOPMENT 1955-1959

INDEPENDENT VARIABLE	r	r^2	F-STATISTIC	SIGNIFICANCE LEVEL
P&SE*	-.69	.48	13.93390	.002
% Lt	-.63	.40	10.17943	.01
GNP pc	-.32	.10	1.65537	.22
EC pc	-.20	.04	.66089	.43
I % GNP	-.29	.08	1.24550	.28
PC pc	-.39	.15	2.62379	.13
ENC DVL	-.75	.57	2.40912	.10

*Abbreviations key: P&SE - Primary and Secondary Enrollments per capita; %Lt - Percent of Population Literate; GNP pc - GNP per capita; I % GNP - Percent of GNP derived from Industry; PC pc - Population in Cities of 50,000 or More per capita; ENC DVL - Economic Development.

TABLE III

DEPENDENT VARIABLE POLITICAL DEVELOPMENT 1962-1966

INDEPENDENT VARIABLE	r	r^2	F-STATISTIC	SIGNIFICANCE LEVEL
P&SE	-.27	.07	1.20163	.29
% Lt	-.54	.29	6.19996	.03
GNP pc	-.51	.26	5.39122	.04

TABLE III -- continued

INDEPENDENT VARIABLE	r	r^2	F-STATISTIC	SIGNIFICANCE LEVEL
EC pc	-.27	.07	1.18399	.29
I % GNP	-.18	.03	.44864	.51
PC pc	-.29	.08	1.24108	.28
ENC DVL	-.77	.59	2.35411	.11

TABLE IV

DEPENDENT VARIABLE ECONOMIC DEVELOPMENT 1955-1959

INDEPENDENT VARIABLE	r	r^2	F-STATISTIC	SIGNIFICANCE LEVEL
CDE*	-.42	.18	2.38448	.15
MCnC	-.43	.19	2.52180	.14
McbC	-.45	.20	2.74253	.13
CEE	-.49	.24	3.45385	.09
NE/DB	.03	.00	.00774	.93
MGtC	.01	.00	.00164	.97
POL DVL	-.85	.73	2.71418	.13

*Abbreviations key: CDE - Number of Coup'd Etats; MCnC - Number of Major Constitutional Changes; MCbC - Number of Major Cabinet Changes; CEE - Number of Changes in Effective Executive; NE/DB - Defense Budget as a Percent of National Expenditures; MGtC - Number of Major Government Crises; POL DVL - Political Development.

TABLE V

DEPENDENT VARIABLE ECONOMIC DEVELOPMENT 1962-1966

INDEPENDENT VARIABLE	r	r^2	F-STATISTIC	SIGNIFICANCE LEVEL
CDE	-.12	.02	.18959	.67
MCnC	-.75	.57	15.85531	.002
MCbC	-.21	.04	.53423	.48
CEE	-.09	.01	.09789	.76
NE/DB	-.27	.07	.95384	.35
MGtC	-.40	.16	2.28327	.16
POL DVL	-.88	.77	3.99646	.05

These statistics indicate that some of the hypotheses should be accepted and some rejected. The list of hypotheses which follows states whether each hypothesis should be accepted or rejected on the basis of these regression analyses.

The Hypotheses and Their Results

1. For the years 1955-1959, there is a positive relationship between political development and economic development in Latin America, when political development is treated as the dependent variable. It is accepted.

2. For the years 1955-1959, there is a correlation of political development with economic development of .30

or better for the nations of Latin America, when political development is treated as the dependent variable. It is accepted.

3. For the years 1955-1959, the amount of variance in political development which is explained by economic development is .09 or more for Latin American nations. It is accepted.

4. For the years 1955-1959, there is a positive relationship between political development and Primary and Secondary Enrollments per capita in Latin America. It is accepted.

5. For the years 1955-1959, there is a correlation of political development with Primary and Secondary Enrollments per capita of .30 or better for the nations of Latin America. It is accepted.

6. For the years 1955-1959, the amount of variance in political development which is explained by Primary and Secondary Enrollments per capita is .09 or more for Latin American nations. It is accepted.

7. For the years 1955-1959, there is a positive relationship between political development and the Percent of Population Literate in Latin America. It is accepted.

8. For the years 1955-1959, there is a correlation of political development with the Percent of Population Literate of .30 or better for the nations of Latin America.

It is accepted.

9. For the years 1955-1959, the amount of variance in political development which is explained by the Percent of Population Literate is .09 or more for Latin American nations. It is accepted.

10. For the years 1955-1959, there is a positive relationship between political development and GNP per capita in Latin America. It is rejected.

11. For the years 1955-1959, there is a correlation of political development with GNP per capita of .30 or better for the nations of Latin America. It is accepted.

12. For the years 1955-1959, the amount of variance in political development which is explained by GNP per capita is .09 or more for Latin American nations. It is accepted.

13. For the years 1955-1959, there is a positive relationship between political development and Energy Consumption per capita in Latin America. It is rejected.

14. For the years 1955-1959, there is a correlation of political development with Energy Consumption per capita of .30 or better for the nations of Latin America. It is rejected.

15. For the years 1955-1959, the amount of variance in political development which is explained by Energy Consumption per capita is .09 or more for Latin American nations. It is rejected.

16. For the years 1955-1959, there is a positive relationship between political development and the Percent of GNP derived from Industry in Latin America. It is rejected.

17. For the years 1955-1959, there is a correlation of political development with the Percent of GNP derived from Industry of .30 or better for the nations of Latin America. It is rejected.

18. For the years 1955-1959, the amount of variance in political development which is explained by the Percent of GNP derived from Industry is .09 or more for Latin American nations. It is rejected.

19. For the years 1955-1959, there is a positive relationship between political development and the Population in Cities of 50,000 or More per capita for Latin America. It is rejected.

20. For the years 1955-1959, there is a correlation of political development and the Population in Cities of 50,000 or More per capita of .30 or better for the nations of Latin America. It is accepted.

21. For the years 1955-1959, the amount of variance in political development which is explained by the Population in Cities of 50,000 or More per capita is .09 or more for Latin American nations. It is accepted.

22. For the years 1962-1966, there is a positive

relationship between political development and economic development in Latin America, when political development is treated as the dependent variable. It is accepted.

23. For the years 1962-1966, there is a correlation of political development with economic development of .30 or better for the nations of Latin America, when political development is treated as the dependent variable. It is accepted.

24. For the years 1962-1966, the amount of variance in political development which is explained by economic development is .09 or more for Latin American nations. It is accepted.

25. For the years 1962-1966, there is a positive relationship between political development and Primary and Secondary Enrollments per capita in Latin America. It is rejected.

26. For the years 1962-1966, there is a correlation of political development with Primary and Secondary Enrollments per capita of .30 or better for the nations of Latin America. It is rejected.

27. For the years 1962-1966, the amount of variance in political development which is explained by Primary and Secondary Enrollments per capita is .09 or more for Latin American nations. It is rejected.

28. For the years 1962-1966, there is a positive

relationship between political development and the Percent of Population Literate in Latin America. It is accepted.

29. For the years 1962-1966, there is a correlation of political development with the Percent of Population Literate of .30 or better for the nations of Latin America. It is accepted.

30. For the years 1962-1966, the amount of variance in political development which is explained by the Percent of Population Literate is .09 or more for Latin American nations. It is accepted.

31. For the years 1962-1966, there is a positive relationship between political development and GNP per capita in Latin America. It is accepted.

32. For the years 1962-1966, there is a correlation of political development with GNP per capita of .30 or better for the nations of Latin America. It is accepted.

33. For the years 1962-1966, the amount of variance in political development which is explained by GNP per capita is .09 or more for Latin American nations. It is accepted.

34. For the years 1962-1966, there is a positive relationship between political development and Energy Consumption per capita in Latin America. It is rejected.

35. For the years 1962-1966, there is a correlation of political development with Energy Consumption per capita of .30 or better for the nations of Latin America. It is

rejected.

36. For the years 1962-1966, the amount of variance in political development which is explained by Energy Consumption per capita is .09 or more for Latin American nations. It is rejected.

37. For the years 1962-1966, there is a positive relationship between political development and the Percent of GNP derived from Industry in Latin America. It is rejected.

38. For the years 1962-1966, there is a correlation of political development with the Percent of GNP derived from Industry of .30 or better for the nations of Latin America. It is rejected.

39. For the years 1962-1966, the amount of variance in political development which is explained by the Percent of GNP derived from Industry is .09 or more for Latin American nations. It is rejected.

40. For the years 1962-1966, there is a positive relationship between political development and Population in Cities of 50,000 or More per capita for Latin America. It is rejected.

41. For the years 1962-1966, there is a correlation of political development with the Population in Cities of 50,000 or More per capita of .30 or better for the nations of Latin America. It is rejected.

42. For the years 1962-1966, the amount of variance in political development which is explained by the Population in Cities of 50,000 or More per capita is .09 or more for Latin American nations. It is rejected.

43. For the years 1955-1959, there is a positive relationship between economic development and political development in Latin America, when economic development is treated as the dependent variable. It is rejected.

44. For the years 1955-1959, there is a correlation of economic development with political development of .30 or better for the nations of Latin America, when economic development is treated as the dependent variable. It is accepted.

45. For the years 1955-1959, the amount of variance in economic development which is explained by political development is .09 or more for Latin American nations. It is accepted.

46. For the years 1955-1959, there is a positive relationship between economic development and the Number of Coup d'Etats in Latin America. It is rejected.

47. For the years 1955-1959, there is a correlation of economic development with the Number of Coup d'Etats of .30 or better for the nations of Latin America. It is accepted.

48. For the years 1955-1959, the amount of variance

in economic development which is explained by the Number of Coup d'Etats is .09 or more for Latin American nations. It is accepted.

49. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Constitutional Changes in Latin America. It is rejected.

50. For the years 1955-1959, there is a correlation of economic development with the Number of Major Constitutional Changes of .30 or better for the nations of Latin America. It is accepted.

51. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Major Constitutional Changes is .09 or more for Latin American nations. It is accepted.

52. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Cabinet Changes in Latin America. It is rejected.

53. For the years 1955-1959, there is a correlation of economic development with the Number of Major Cabinet Changes of .30 or better for the nations of Latin America. It is accepted.

54. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Major Cabinet Changes is .09 or more for Latin American

nations. It is accepted.

55. For the years 1955-1959, there is a positive relationship between economic development and the Number of Changes in Effective Executive in Latin America. It is accepted.

56. For the years 1955-1959, there is a correlation of economic development with the Number of Changes in Effective Executive of .30 or better for the nations of Latin America. It is accepted.

57. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Changes in Effective Executive is .09 or more for Latin American nations. It is accepted.

58. For the years 1955-1959, there is a positive relationship between economic development and the Defense Budget as a Percent of National Expenditures for Latin America. It is rejected.

59. For the years 1955-1959, there is a correlation of economic development with the Defense Budget as a Percent of National Expenditures of .30 or better for the nations of Latin America. It is rejected.

60. For the years 1955-1959, the amount of variance in economic development which is explained by the Defense Budget as a Percent of National Expenditures is .09 or more for Latin American nations. It is rejected.

61. For the years 1955-1959, there is a positive relationship between economic development and the Number of Major Government Crises in Latin America. It is rejected.

62. For the years 1955-1959, there is a correlation of economic development with the Number of Major Government Crises of .30 or better for the nations of Latin America. It is rejected.

63. For the years 1955-1959, the amount of variance in economic development which is explained by the Number of Major Government Crises is .09 or more for Latin American nations. It is rejected.

64. For the years 1962-1966, there is a positive relationship between economic development and political development in Latin America, when economic development is treated as the dependent variable. It is accepted.

65. For the years 1962-1966, there is a correlation of economic development with political development of .30 or better for the nations of Latin America, when economic development is treated as the dependent variable. It is accepted.

66. For the years 1962-1966, the amount of variance in economic development which is explained by political development is .09 or more for Latin American nations. It is accepted.

67. For the years 1962-1966, there is a positive

relationship between economic development and the Number of Coup d'Etats in Latin America. It is rejected.

68. For the years 1962-1966, there is a correlation of economic development with the Number of Coup d'Etats of .30 or better for the nations of Latin America. It is rejected.

69. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Coup d'Etats is .09 or more for Latin American nations. It is rejected.

70. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Constitutional Changes in Latin America. It is accepted.

71. For the years 1962-1966, there is a correlation of economic development with the Number of Major Constitutional Changes of .30 or better for the nations of Latin America. It is accepted.

72. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Constitutional Changes is .09 or more for Latin American nations. It is accepted.

73. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Cabinet Changes in Latin America. It is rejected.

74. For the years 1962-1966, there is a correlation of economic development with the Number of Major Cabinet Chantes of .30 or better for the nations of Latin America. It is rejected.

75. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Cabinet Changes is .09 or more for Latin American nations. It is rejected.

76. For the years 1962-1966, there is a positive relationship between economic development and the Number of Changes in Effective Executive in Latin America. It is rejected.

77. For the years 1962-1966, there is a correlation of economic development with the Number of Changes in Effective Executive of .30 or better for the nations of Latin America. It is rejected.

78. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Changes in Effective Executive is .09 or more for Latin American nations. It is rejected.

79. For the years 1962-1966, there is a positive relationship between economic development and the Defense Budget as a Percent of National Expenditures in Latin America. It is rejected.

80. For the years 1962-1966, there is a correlation

of economic development with the Defense Budget as a Percent of National Expenditures of .30 or better for the nations of Latin America. It is rejected.

81. For the years 1962-1966, the amount of variance in economic development which is explained by the Defense Budget as a Percent of National Expenditures is .09 or more for Latin American nations. It is rejected.

82. For the years 1962-1966, there is a positive relationship between economic development and the Number of Major Government Crises in Latin America. It is rejected.

83. For the years 1962-1966, there is a correlation of economic development with the Number of Major Government Crises of .30 or better for the nations of Latin America. It is accepted.

84. For the years 1962-1966, the amount of variance in economic development which is explained by the Number of Major Government Crises is .09 or more for Latin American nations. It is accepted.

Interpretations

Education and Political Development - Social scientists agree that a key factor in economic development is the level of educational development. The indicators of educational development are Primary and Secondary Enrollments per capita and the Percent of the Population Literate. For 1955-1959, both indicators are strongly correlated with

political development and have a positive relationship with it. The close association between political development and educational levels is logical. A complex bureaucracy of a "modern" political system requires educated manpower, just as the sophisticated technology of economically developed nations requires educated, skilled workers.

In the second time period, 1962-1966, the Percent of Population Literate continues to be positively related to the level of political development in Latin America. However, there is no longer a positive relationship between political development and Primary and Secondary Enrollments per capita. The amount of correlation is also below meaningful levels. There appear to be two reasons for these test results. First, the correlation of political development with Primary and Secondary Enrollments per capita is generally less strong in 1962-1966, than it was in 1955-1959. Second may be the effects upon the test results of a few deviant cases. (See Appendix C, graph I). "When the population size is small, a few deviant cases can have an affect upon the regression test results."[2]

The rate of enrollments expansion in Latin America did not keep pace with the rates of expansion in most countries of the world. Thus, the converted scores of Primary and Secondary Enrollments per capita for Latin America are

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[2]Herbert M. Blalock, Social Statistics, (New York: McGraw-Hill Book Company, Inc., 1960) p. 290.

lower[3] and the correlation with political development has weakened.

These may be signs of future problems in sustaining the levels of economic and political development in Latin America. Harbison and others argue that enrollment levels are excellent indicators of future development potential.[4] Educational levels are part of economic development and a lag in the levels of education would adversely affect the general level of economic development. Educational levels are also strongly associated with the levels of political development. Thus, lagging educational levels might be accompanied by the stagnation or decrease in the levels of political development in Latin America, as compared to most nations.

Wealth and Political Development - A nation's wealth is measured by GNP per capita and Energy Consumption per capita. Researchers have used either of them as the sole determinant of a nation's level of economic development. Indeed, some scholars have stated that they are equivalent measures of wealth and can be used interchangeably.

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[3]The converted scores are the percentage rankings of an indicator value as compared to the indicator values for all other nations. Thus, when a country's indicator value increases more slowly than the indicator values for most nations, the converted indicator score falls. This occurred in the second time period for many economic indicators of Latin America.

[4]Harbison, et al., 11-2.

> We have taken energy consumption (expressed in million metric tons of coal equivalent) per capita. Other measures available in the main data set such as Gross National Product per capita or Gross Domestic Product per capita would have yielded the same results as these three variables are so highly intercorrelated ($r \approx .98$) that they can be considered to be theoretically and empirically equivalent.[5]

These test results contradict the assertion that GNP per capita and Energy Consumption per capita are equivalent measures of national wealth. Political development and Energy Consumption per capita have no meaningful correlation or positive relationship in either time period. On the other hand, there is a strong correlation of political development with GNP per capita from 1955-1959 and from 1962-1966. In the second time period, a positive relationship between them is also found. The failure to prove a positive relationship between political development and GNP per capita, for the years 1955-1959 may again be caused by the effects of a few deviant cases on the test results, when the population size is small. (See Appendix C, graph II).

These results raise serious questions about the assumption that the indicators, GNP per capita and Energy Consumption per capita can be used interchangeably. It appears that interchangeability cannot be assumed for all regions of the world in all time periods. For Latin America, during the years 1955-1959 and 1962-1966, GNP per

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[5]Jackman, 616.

capita and Energy Consumption per capita are not equivalent.

Other scholars also question the assertion of equivalence of the measures GNP per capita and Energy Consumption per capita. Chapman (1976) argues that GNP per capita and Energy Consumption per capita are measures of two distinct phenomena and must not be used interchangeably.[6] This researcher must agree.

As noted earlier, there is a strong association of political development with GNP per capita in each time period. In addition, the association strengthened when the converted indicator scores of GNP per capita were generally lower, that is in the second time period. This may show that GNP per capita levels were pulling back into closer alignment with the political development levels. It may also indicate that there is a slowing in the rise of the levels of GNP per capita in Latin America as compared to the rise for most nations. Since the levels of political development and GNP per capita are strongly correlated, this slowing could be accompanied by a deceleration in the rise of the levels of political development in Latin America as compared to most countries in the world.

Industrialization and Political Development - The indicator representing industrialization is the Percent of GNP derived from Industry. For the years 1955-1959 and

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[6]Peter Chapman, Fuel's Paradise, (London: Penguin Press, 1976) pp. 27-8.

1962-1966, the Percent of GNP derived from Industry has no meaningful association with political development in Latin America. Nor is there a positive relationship between them. In fact, the levels of GNP derived from Industry are usually below those which would correlate well with the levels of political development in Latin America. (See Appendix C, graphs III & IV). One reason for the lack of association between political development and the Percent of GNP derived from Industry may be that several Latin American nations have commodity sales which contribute heavily to their GNP per capita. Examples would be the coffee sales of Colombia and Brazil, and the sale of bananas in Guatemala and Honduras.

If a country's level of industrialization is crucial to its continued economic development, then the lower levels of industrialization in Latin America could inhibit future economic development.

Urbanization and Political Development - The final characteristic of economic development to be considered, is urbanization. The indicator operationalizing urbanization is Population in Cities of 50,000 or More per capita. Political development does not have a positive relationship with the Population in Cities of 50,000 or More in either time period. However, there is a meaningful correlation of political development with the Population in Cities of

50,000 or More per capita during 1955-1959, and the correlation is just below meaningful levels from 1962-1966. Additional study might reveal an association throughout most of the ten years.

On the other hand, it may be that increasing urbanization is a fact of modern demographics which will continue independent of many other social, political or economic factors. The movement of the rural populations to urban centers is a worldwide phenomenon found in developed nations such as the United States, developing nations such as Brazil and Costa Rica, and the poorer nations such as Honduras and Guatemala.[7] Further research is needed to determine whether or not the association of urbanization with political development is diminishing over time for Latin America.

Political Development and Economic Development - During the years 1955-1959, there is a very strong correlation of political development with economic development and a positive relationship for Latin American nations, when political development is treated as the dependent variable. The positive relationship exists, even though political development is positively related to only two indicators of economic development, Primary and Secondary Enrollments per capita and Percent of Population Literate.

The question arises as to why there is a positive

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[7]The statistics for every nation, except the United States, are given in Table VI of Appendix B.

relationship, when political development has a positive relationship with just two indicators of economic development. It may be because the magnitude of the correlation coefficient depends on the range of variability in both variables. The overall correlation may be high but within a limited range of X's the correlation may be close to zero. This indicates that there is insufficient variability in X within a limited range to counteract the effects of numerous uncontrolled variables.[8]

There is also a strong correlation of political development with economic development for the Latin American nations for the years 1962-1966, when political development is treated as the dependent variable. Yet, a positive relationship between them is not proven. The lack of an established relationship may again be the result of the effects of a few deviant cases on the regression test, since the population size is small. (See Appendix C, graph V).

When political development is treated as the dependent variable, there is a very strong association of political development with economic development in Latin America for the years 1955-1959 and 1962-1966. In addition, the amount of explained variance is large, which means that the level of economic development can be used to predict

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[8]Blalock, 290-1.

the level of political development with a good degree of accuracy. Thus, while a positive relationship between the levels of political and economic development is not established for both time periods, it is clear that the levels of development in Latin America are strongly correlated for the time spans, 1955-1959 and 1962-1966. More importantly, one can predict the level of political development fairly accurately, using the level of economic development.

Stability and Economic Development - The indicators representing political stability are the Number of Coup d'Etats, the Number of Changes in Effective Executive, and the Number of Major Government Crises. During the years 1955-1959, there is a meaningful correlation of economic development with two stability indicators, the Number of Coup d'Etats and the Number of Changes in Effective Executive. A positive relationship between economic development and the Number of Changes in Effective Executive is also revealed. In the case of the analysis of the relationship of economic development with the Number of Coup d'Etats, it appears that a few deviant cases affected the regression test, and caused the significance level to fall below acceptable levels. (See Appendix C, graph VI). Yet, there is no meaningful correlation or positive relationship of economic development with the Number of Major Government Crises for Latin American countries from 1955-1959.

The test results are strikingly different for the years 1962-1966. The Number of Coup d'Etats and the Number of Changes in Effective Executive have no meaningful correlation or positive relationship with economic development in Latin America. In this time period, however, there is a meaningful correlation of economic development with the Number of Major Government Crises. Most of the points representing variable pairs cluster around the regression line (See Appendix C, graph VII), and it seems that a few deviant variable pairs affected the results, preventing the establishment of a positive relationship.

The reasons for these dramatic changes in the strength of the correlations between economic development and the political stability indicators are not clear. The lack of variability in the X's, that is the relatively small amount of possible scores for these event counts, may have caused a correlation close to zero within a limited range of X. This theory is supported by the fact that strength of the association between economic development and political development, when economic development is treated as the dependent variable, changes very little from one time period to the next. Obviously, more research is needed to clarify the situation.

It may be that economic development correlates well with political stability, but that its correlation with any

single aspect of political stability can vary greatly in strength, particularly in a relatively short period of time such as five years.

Resource Allocation and Economic Development - The indicators of the ability to allocate resources for a range of collective enterprises are the Number of Major Cabinet Changes and the Defense Budget as a Percent of National Expenditures. During the years 1955-1959, there is a good correlation of economic development with the Number of Major Cabinet Changes. One strongly deviant score seems to have affected the regression test and caused the significance level to fall below the level needed to accept the hypothesis. (See Appendix C, graph VIII).

For the years 1962-1966, the correlation of economic development with the Number of Major Cabinet Changes has weakened and is no longer meaningful. There is no positive relationship between the variables, economic development and the Number of Major Cabinet Changes.

The other measure of resource allocation abilities is the Defense Budgetas a Percent of National Expenditures. This is a measure which has extremely sensitive political conotations for some countries. Consequently, the measure is sometimes subjected to manipulation or unavailable. Unfortunately, the raw data for this statistic is missing for seven Latin American countries from 1955 through 1966.

In all those nations, Bolivia, Cuba, the Dominican Republic, Nicaragua, Panama, Paraguay and Uruguay, expenditures on the military may well have been high. In the case of Guatemala the published statistics are astonishingly low and may not be accurate. The lack of a meaningful amount of correlation or positive relatioship occurs in both time periods. It is possible that a stronger association of economic development with Defense Budget as a Percent of National Expenditures would have been found, if complete and accurate statistics had been available.

There is an association of economic development with the Number of Major Cabinet Changes from 1955-1959. No other correlation of economic development with an indicator of the ability to allocate resources for a range of collective enterprises is found. No positive relationship is found. Evidence of an association between them is tenuous and more research should be done, before any conclusions can be drawn.

Constitutional Development and Economic Development - The measure of constitutional development is the Number of Major Constitutional Changes. There is a strong correlation of economic development with the Number of Major Constitutional Changes in both time periods. Moreover, for the years 1962-1966, the prediction accuracy or explained variance is extremely strong, and a positive relationship

proven. The absence of a positive relationship from 1955-1959 appears to be caused by the effects on the regression test of a few deviant cases. (See appendix C, graph IX).

The association of constitutional development with economic development has been rarely studied. The research of Needler (1968) revealed a weak correlation of economic development with the "degree of constitutionality" in Latin America.[9] In this study, different measures of economic development and constitutionality were employed, and a stronger association between them is found.

The good correlation of economic development with the Number of Major Constitutional Changes for the ten years tested, suggests that during those years, frequent major changes in the "rules of the game" were accompanied by lower levels of economic development in Latin America. It would be interesting to know if such associations occur in other regions. Further cross-national and regional studies of this association could be very fruitful.

Economic Development and Political Development - When economic development is treated as the dependent variable, an extremely high correlation of economic development with political development exists for the nations of Latin America. The strong correlations occur in both time periods. The explained variance is also extremely high. In

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[9]Needler, "Political Development . . . ," 87.

fact, the prediction accuracy of the equations are better when economic development is treated as the dependent variable, than when political development is treated as the dependent variable.

Yet, a postive relationship between the levels of economic development and political development in Latin America, when economic development is treated as the dependent variable, is proven only for the years 1962-1966. A positive relationship for the years 1955-1959 is not established. Again a few deviant cases appear to have adversely affected the test results. (See Appendix C, graph X).

Although the association of economic development with political development is extremely strong, there are few meaningful correlations of economic development with the indicators of political development in the second time period. It may be that there was insufficient variability of X within a limited range to counteract the effects of numerous uncontrolled variables. The strong associations were accompanied by very high explained variance scores. Thus, the regression equations' predicition accuracy is excellent.

Conclusions and Implications

Conclusions - It appears that there can be different levels of development indicators for the same nation. The differences probably must occur within a general

development parameter, when sustainable development is occurring. Wildly disparate indicator scores are apparently an indication that long-term, sustainable development is not taking place. For example, Saudi Arabia currently has a high GNP per capita, but much lower levels of the Percent of Population Literate. If this disparity continues, then high national income is present, not long-term, sustainable development. An historical example would be Spain. During the colonization period, large amounts of gold flowed into the country. National wealth was high. However, the levels of industrialization and education did not rise, and Spain's apparent development disappeared with the gold.

If this analysis is correct, the lagging levels of educational development and industrialization in Latin America may inhibit the continued economic development of Latin American nations. Since there is also a strong association of economic and political development in Latin America, political development levels might also stagnate or decrease.

At least for the years 1955-1959 and 1962-1966, the levels of constitutional development and economic development were strongly correlated in Latin America. Frequent major changes in the "rules of the game" were accompanied by lower levels of economic development. A stable legal framework seems to have been necessary for the maintenance of the level of economic development in Latin American

nations.

While a positive relationship between political development and economic development in Latin America is not found in all cases, the degree of correlation between them is always strong. Moreover, the prediction accuracy of each regression equation is very good. These factors give support to the theory that the levels of political and economic development in Latin America are interrelated. In addition, there is some evidence to suggest that a positive relationship was not found in all cases, because the population size was small, and a few deviant cases affected the regression tests. Thus, the levels of economic development and political development in Latin America are highly correlated, and a positive relationship between them may exist for the years 1955-1959 and 1962-1966, when either variable is treated as the dependent variable.

The findings reveal the interdependence of the development variables; either variable can be successfully treated as the dependent or independent variable. Perhaps, the dependency of the variables is not fixed through time. For example, a period of political development such as happened in Bolivia in the 1950's may have provided the underpinnings for the economic development which continued into the 1960's. On the other hand, the economic development of Venezuela in the 1950's may have provided the base for its

increasing levels of political development in the 1960's. In other words, a complex interdependent relationship between economic development and political development in Latin America appears to have been functioning. An interrelationship in which neither variable is completely dependent upon or independent of the other variable.

Implications - The test results have several important implications for future research. First, it is clear that the assumption of the equivalence of GNP per capita and Energy Consumption per capita as measures of national wealth is not always valid, and must be made with extreme care, if at all. The indicators are better used as the measures of two distinct phenomena.

Second, the strong correlation of economic development with political development, when economic development is treated as the dependent variable, illuminates the value and validity of hypotheses tests, which treat economic development as the dependent variable. It also points up the tenuousness of the common assumption that political development should always be treated as the dependent variable.

Third, the positive relationship between two variables when the dependent variable has a positive relationship with only one or two indicators of the independent variable makes clear a potential pitfall in the analysis

of test results. It is the subtle error of assuming that a positive relationship or strong correlation between variables indicates that a positive relationship or strong correlation occurs between the dependent variable and the individual indicators which compose the independent variable.

Finally, the test results support the contention of Adelman and Morris (1965) that regional studies of the relationships between economic development and sociopolitical development are necessary, because regional differences in the nature and strength of the relationships may occur. To illustrate, Lipset (1959) found a good correlation of political development with industrialization and urbanization, when examining all nations. These correlations were not found in Latin America.

This study was an effort to make some contribution to the development literature, and to the understanding of the nature of the relationships between economic development and political development in Latin America in the 1950's and 1960's. Hopefully, it has also provided the impetus and research design for additional studies into development relationships in Latin America and elsewhere.

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APPENDIX A

TABLE VI

THE LIST OF NATIONS, WHOSE RAW STATISTICS WERE USED IN THE CREATION OF CONVERTED SCORES

Afghanistan[a]	Costa Rica	Haiti
Albania[a]	Cuba[a]	Honduras
Argentina	Czechoslovakia	Hungry
Australia	Denmark	Iceland[a]
Austria	Dominican Republic[a]	India
Belgium	Ecuador	Indonesia
Bolivia[a]	El Salvador	Iran
Brazil	Ethiopia[a]	Iraq
Bulgaria[a]	Finland	Ireland
Burma	France	Israel
Cambodia[a]	German Democratic Republic[a]	Italy
Canada		Japan
Ceylon	German Federal Republic[a]	Jordan[a]
Chile	Greece	Korean People's Republic
Colombia	Guatemala	

[a]Defense Budget as a Percent of National Expenditures - data missing for both time periods.

[b]Defense Budget as a Percent of National Expenditures - inappropriate, because the country has no national defense system.

TABLE VI -- continued

Laos	Paraguay	Thailand
Lebanon	People's Republic of China[a]	Tunisia[a]
Liberia[a]	Peru	Turkey
Libya[a]	Philipines	U.S.S.R.
Luxembourg[b]	Portugal[a]	United Arab Republics
Mexico	Republic of Korea[a]	United Kingdom
Mongolia[a]	Saudi Arabia[a]	United States
Morocco[a]	South Africa	Uruguay[a]
Nepal[a]	Spain	Venezuela
Netherlands	Sudan[a]	Vietnam People's Republic[a]
New Zealand	Norway	Republic of Vietnam[a]
Nicaragua[a]	Sweden	Yemen[a]
Pakistan	Switzerland	Yugoslavia[a]
Panama[a]		

[a]Defense Budget as a Percent of National Expenditures - data missing for both time periods.

[b]Defense Budget as a Percent of National Expenditures - inappropriate.

APPENDIX B

TABLE VII

PRIMARY AND SECONDARY ENROLLMENTS PER CAPITA

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	.1423	53.20	.1471	49.99
Bolivia	.0751	40.35	.1602	52.58
Brazil	.1005	45.15	.1388	48.35
Chile	.1664	57.80	.1833	57.13
Colombia	.1132	47.64	.1416	48.90
Costa Rica	.1786	60.29	.2156	63.51
Cuba	.1511	54.92	.1796	56.40
Dominican Republic	.1688	58.37	.1714	54.79
Ecuador	.1379	52.62	.1639	53.31
El Salvador	.1130	47.64	.1490	50.37
Guatemala	.0754	40.35	.1006	40.81
Haiti	.0680	39.01	.0707	34.91
Honduras	.0800	41.31	.1309	46.79
Mexico	.1433	53.39	.1785	56.19
Nicaragua	.0992	44.95	.1304	46.69
Panama	.1787	60.30	no data	---
Paraguay	.1786	60.29	.1872	57.90
Peru	.1370	52.24	.1831	57.10
Uruguay	.1229	49.55	.1531	51.17
Venezuela	.1405	52.81	.1879	58.04

TABLE VIII

PERCENT OF POPULATION LITERATE

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	88.78	58.40	90.60	58.01
Bolivia	36.66	42.81	41.40	42.23
Brazil	53.44	47.83	57.60	47.42
Chile	82.24	56.44	85.60	56.41
Colombia	57.44	49.03	58.10	47.58
Costa Rica	81.98	56.37	84.70	56.12
Cuba	78.30	55.27	79.20	54.35
Dominican Republic	32.90	41.69	35.00	40.17
Ecuador	62.40	50.51	69.30	51.18
El Salvador	45.46	45.45	51.70	45.53
Guatemala	32.36	41.53	35.50	40.33
Haiti	13.42	35.86	16.50	34.24
Honduras	42.40	44.53	46.50	43.86
Mexico	63.00	50.69	68.90	51.05
Nicaragua	44.38	45.12	50.50	45.14
Panama	70.96	53.07	76.30	53.42
Paraguay	72.70	53.59	75.90	53.10
Peru	55.80	48.54	64.20	49.54
Uruguay	85.92	57.54	91.00	58.14
Venezuela	60.80	50.03	69.10	51.11

TABLE IX

GROSS NATIONAL PRODUCT PER CAPITA

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	585.8	53.59	684.0	51.40
Bolivia	107.0	42.99	141.4	42.77
Brazil	225.2	45.60	241.8	44.36
Chile	383.0	49.10	516.8	48.74
Colombia	216.2	45.40	260.4	44.66
Costa Rica	330.0	47.92	370.8	46.41
Cuba	290.4	47.50	374.0	46.47
Dominican Republic	201.2	45.07	240.0	44.33
Ecuador	168.2	44.34	189.4	43.53
El Salvador	218.0	45.44	243.4	44.57
Guatemala	237.8	45.88	286.4	45.07
Haiti	87.0	42.54	83.0	41.84
Honduras	176.4	44.52	200.2	43.70
Mexico	282.0	46.86	412.0	47.07
Nicaragua	233.6	45.79	306.4	45.39
Panama	349.4	48.46	457.0	47.79
Paraguay	128.6	44.07	193.4	43.59
Peru	178.6	44.44	229.8	44.17
Uruguay	427.0	50.07	529.8	48.94
Venezuela	852.4	59.49	857.2	54.15

TABLE X

ENERGY CONSUMPTION PER CAPITA

COUNTRY	1955-1959 RAW SCORE	1955-1959 CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	1048.4	49.12	1090.4	47.51
Bolivia	149.0	43.23	186.4	42.73
Brazil	313.4	44.30	365.4	43.68
Chile	813.2	47.58	1095.4	47.54
Colombia	442.8	45.15	527.0	44.35
Costa Rica	240.6	43.83	275.6	43.20
Cuba	753.0	47.19	952.4	46.78
Dominican Republic	166.8	43.29	190.0	42.75
Ecuador	145.2	43.20	197.0	42.79
El Salvador	116.4	43.01	162.6	42.61
Guatemala	139.4	43.16	180.8	42.70
Haiti	35.2	42.28	33.4	41.92
Honduras	136.2	43.14	160.2	42.59
Mexico	751.4	47.18	960.0	46.82
Nicaragua	149.6	43.23	238.8	43.01
Panama	408.8	44.93	972.8	46.89
Paraguay	67.2	42.69	109.6	42.32
Peru	295.6	43.87	585.8	44.84
Uruguay	711.4	46.19	686.0	45.37
Venezuela	2406.8	58.03	2821.2	56.67

TABLE XI

PERCENT OF GROSS NATIONAL PRODUCT DERIVED FROM INDUSTRY

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	32.20	54.66	36.00	55.29
Bolivia	25.00	49.01	26.60	48.60
Brazil	25.00	49.01	26.60	48.60
Chile	25.20	49.46	37.40	56.20
Colombia	20.20	45.75	22.00	45.32
Costa Rica	14.80	41.74	17.80	42.33
Cuba	no data	---	no data	---
Dominican Republic	14.70	41.53	18.40	42.75
Ecuador	18.40	44.42	19.60	43.61
El Salvador	13.20	40.16	17.00	42.19
Guatemala	13.40	40.17	14.80	40.19
Haiti	11.60	39.37	15.80	40.90
Honduras	11.60	39.37	16.00	41.04
Mexico	28.20	51.69	31.00	51.73
Nicaragua	13.40	40.17	15.00	40.33
Panama	12.20	39.81	17.80	42.33
Paraguay	17.00	43.48	16.00	41.04
Peru	19.60	45.31	21.00	44.61
Uruguay	23.80	48.43	26.20	48.31
Venezuela	37.60	58.67	40.00	58.41

TABLE XII

POPULATION IN CITIES OF 50,000 OR MORE PER CAPITA

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	no data	---	no data	---
Bolivia	.194	47.62	.220	47.18
Brazil	.226	50.11	.244	48.84
Chile	.301	55.94	.265	50.29
Colombia	.286	54.77	.327	54.57
Costa Rica	.213	49.09	.230	47.87
Cuba	no data	---	no data	---
Dominican Republic	.125	42.25	.126	40.69
Ecuador	.160	44.97	.245	48.91
El Salvador	.159	44.89	.170	43.73
Guatemala	.116	41.55	.148	42.21
Haiti	.056	36.88	.060	36.14
Honduras	.083	38.98	.115	39.94
Mexico	.212	49.02	.213	46.70
Nicaragua	.255	52.36	.248	49.11
Panama	.305	56.25	.331	54.84
Paraguay	.152	44.35	.153	42.56
Peru	.164	45.28	.234	48.15
Uruguay	.400	63.64	.486	65.54
Venezuela	.352	59.92	.389	58.85

TABLE XIII

NUMBER OF COUP D'ETATS

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	2	80.65	2	85.48
Bolivia	0	46.27	1	65.74
Brazil	0	46.27	1	65.74
Chile	0	46.27	0	46.01
Colombia	1	63.46	0	46.01
Costa Rica	0	46.27	0	46.01
Cuba	1	63.46	0	46.01
Dominican Republic	0	46.27	2	85.48
Ecuador	0	46.27	2	85.48
El Salvador	0	46.27	0	46.01
Guatemala	1	63.46	1	65.74
Haiti	3	97.48	0	46.01
Honduras	1	63.46	1	65.74
Mexico	0	46.27	0	46.01
Nicaragua	0	46.27	0	46.27
Panama	0	46.27	0	46.01
Paraguay	0	46.27	0	46.27
Peru	0	46.27	1	65.74
Uruguay	0	46.27	0	46.01
Venezuela	1	63.46	0	46.01

TABLE XIV

NUMBER OF MAJOR CONSTITUTIONAL CHANGES

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	0	45.80	0	43.40
Bolivia	0	45.80	2	69.49
Brazil	0	45.80	2	69.49
Chile	0	45.80	0	43.40
Colombia	1	62.60	0	43.40
Costa Rica	0	45.80	0	43.40
Cuba	0	45.80	1	56.45
Dominican Republic	0	45.80	2	69.49
Ecuador	0	45.80	1	56.45
El Salvador	0	45.80	1	56.45
Guatemala	3	96.21	2	69.49
Haiti	0	45.80	1	56.45
Honduras	1	62.60	2	69.49
Mexico	0	45.80	0	43.40
Nicaragua	0	45.80	0	43.40
Panama	0	45.80	0	43.40
Paraguay	0	45.80	0	43.40
Peru	0	45.80	0	43.40
Uruguay	0	45.80	0	43.40
Venezuela	0	45.80	0	43.40

TABLE XV

NUMBER OF MAJOR CABINET CHANGES

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	3	50.90	3	53.17
Bolivia	4	55.28	3	53.17
Brazil	3	50.90	4	57.08
Chile	5	59.51	2	49.25
Colombia	5	59.51	5	61.00
Costa Rica	1	42.28	2	49.25
Cuba	4	55.28	0	41.41
Dominican Republic	5	59.51	4	57.08
Ecuador	1	42.28	4	57.08
El Salvador	2	46.59	1	45.33
Guatemala	5	59.51	3	53.17
Haiti	11	85.37	4	57.08
Honduras	3	50.90	2	49.25
Mexico	1	42.28	1	45.33
Nicaragua	1	42.28	1	45.33
Panama	4	55.28	3	53.17
Paraguay	1	42.28	1	45.33
Peru	4	55.28	4	57.08
Uruguay	3	50.90	1	45.33
Venezuela	3	50.90	2	49.25

TABLE XVI

NUMBER OF CHANGES IN EFFECTIVE EXECUTIVE

	1955-1959			
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	3	60.63	3	62.85
Bolivia	1	48.08	3	62.85
Brazil	3	60.63	4	69.92
Chile	1	48.08	1	48.72
Colombia	2	54.22	2	55.79
Costa Rica	1	48.08	2	55.79
Cuba	1	48.08	0	41.66
Dominican Republic	0	41.93	5	76.98
Ecuador	1	48.08	2	55.79
El Salvador	1	48.08	1	48.72
Guatemala	3	60.63	3	62.85
Haiti	8	91.09	0	41.66
Honduras	2	54.22	2	55.79
Mexico	1	48.08	1	48.08
Nicaragua	1	48.08	2	55.79
Panama	3	60.63	1	48.72
Paraguay	0	41.93	0	41.66
Peru	1	48.08	2	55.79
Uruguay	2	54.22	1	48.72
Venezuela	2	54.22	1	48.72

TABLE XVII

DEFENSE BUDGET AS A PERCENT OF NATIONAL EXPENDITURES

	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	.198	50.40	.153	47.80
Bolivia	no data	---	no data	---
Brazil	.258	56.20	.169	49.45
Chile	.188	49.44	.157	48.21
Colombia	.206	51.15	.189	51.48
Costa Rica	.043	35.72	.033	35.36
Cuba	no data	---	no data	---
Dominican Republic	no data	---	no data	---
Ecuador	.167	47.35	.149	47.33
El Salvador	.102	41.25	.108	43.08
Guatemala	.087	39.31	.100	42.34
Haiti	.177	48.49	.235	56.22
Honduras	.122	43.25	.134	45.84
Mexico	.083	39.53	.079	40.10
Nicaragua	no data	---	no data	---
Panama	no data	---	no data	---
Paraguay	no data	---	no data	---
Peru	.167	47.35	.181	50.60
Uruguay	no data	---	no data	---
Venezuela	.090	40.20	.101	42.45

TABLE XVIII

NUMBER OF MAJOR GOVERNMENT CRISES

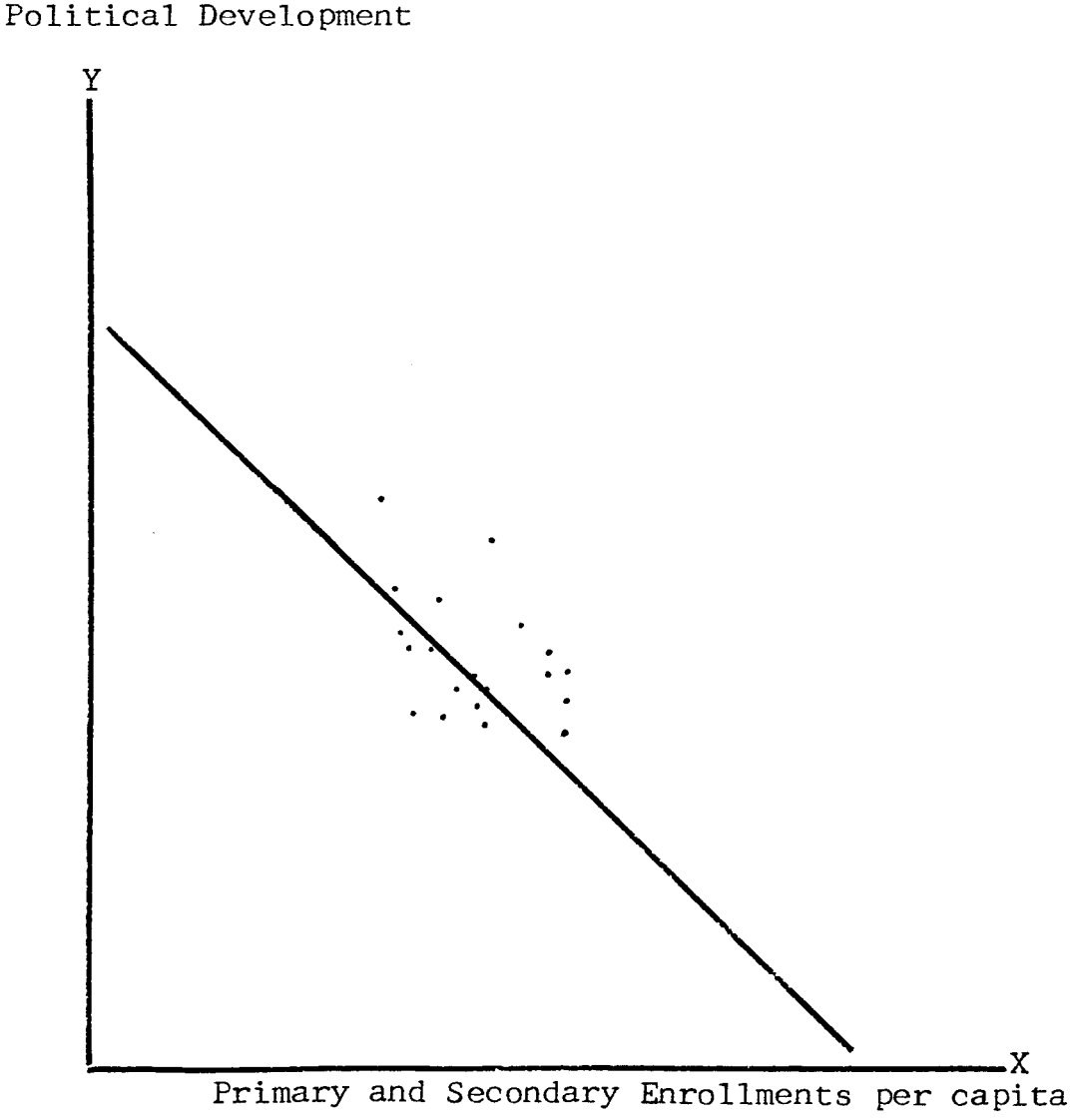
	1955-1959		1962-1966	
COUNTRY	RAW SCORE	CONVERTED SCORE	RAW SCORE	CONVERTED SCORE
Argentina	10	84.43	11	99.99
Bolivia	4	59.55	2	54.21
Brazil	3	55.40	4	65.32
Chile	2	51.25	1	48.65
Colombia	2	51.25	4	65.32
Costa Rica	0	42.96	0	43.09
Cuba	3	55.40	0	43.09
Dominican Republic	1	47.11	1	48.65
Ecuador	1	47.11	2	54.21
El Salvador	0	42.96	0	43.09
Guatemala	1	47.11	3	59.77
Haiti	8	76.13	1	48.65
Honduras	1	47.11	0	43.09
Mexico	0	42.96	0	43.09
Nicaragua	0	42.96	0	43.09
Panama	1	47.11	0	43.09
Paraguay	1	47.11	0	43.09
Peru	1	47.11	3	59.77
Uruguay	1	47.11	1	48.65
Venezuela	1	47.11	2	54.21

APPENDIX C

GRAPH I

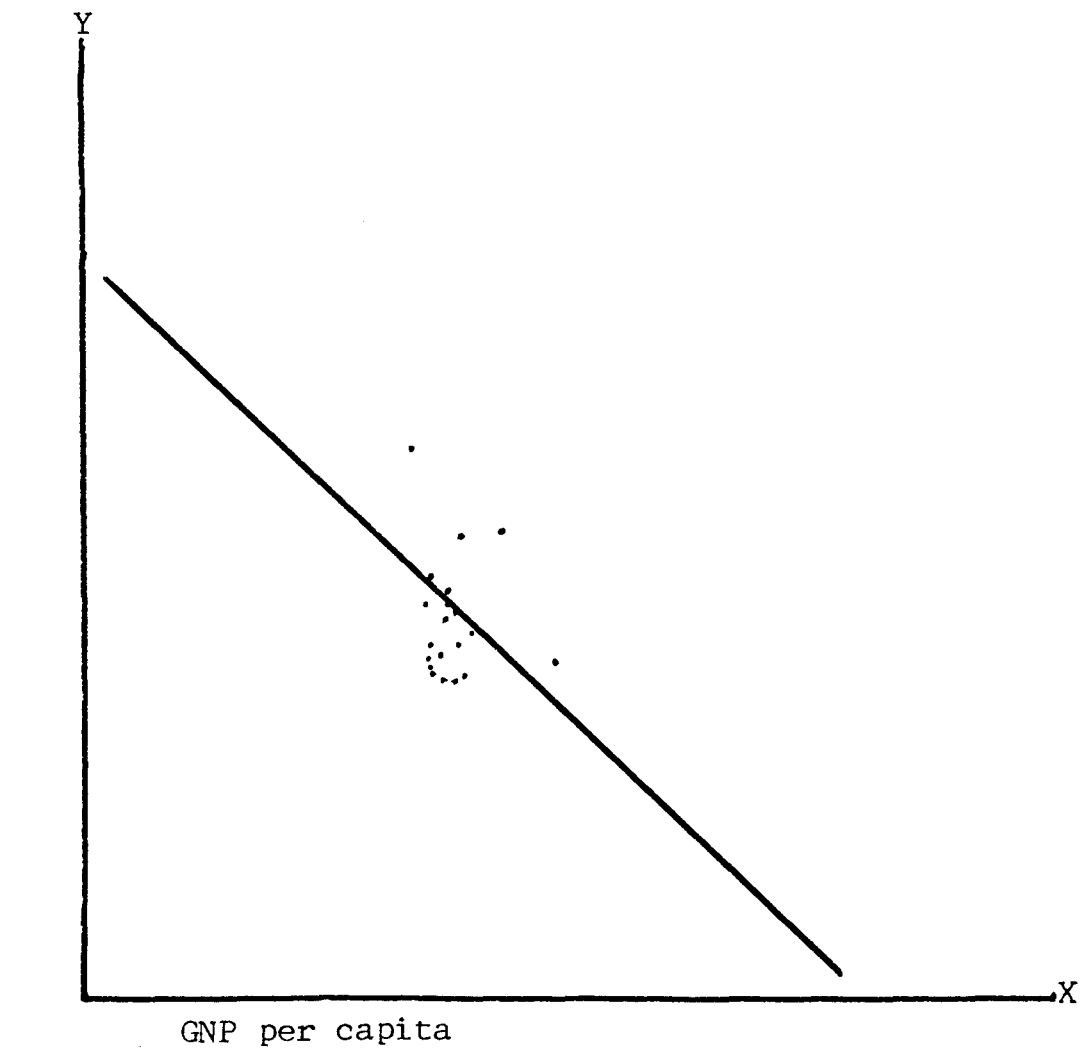
POLITICAL DEVELOPMENT & PRIMARY AND SECONDARY ENROLLMENTS

PER CAPITA, 1955-1959



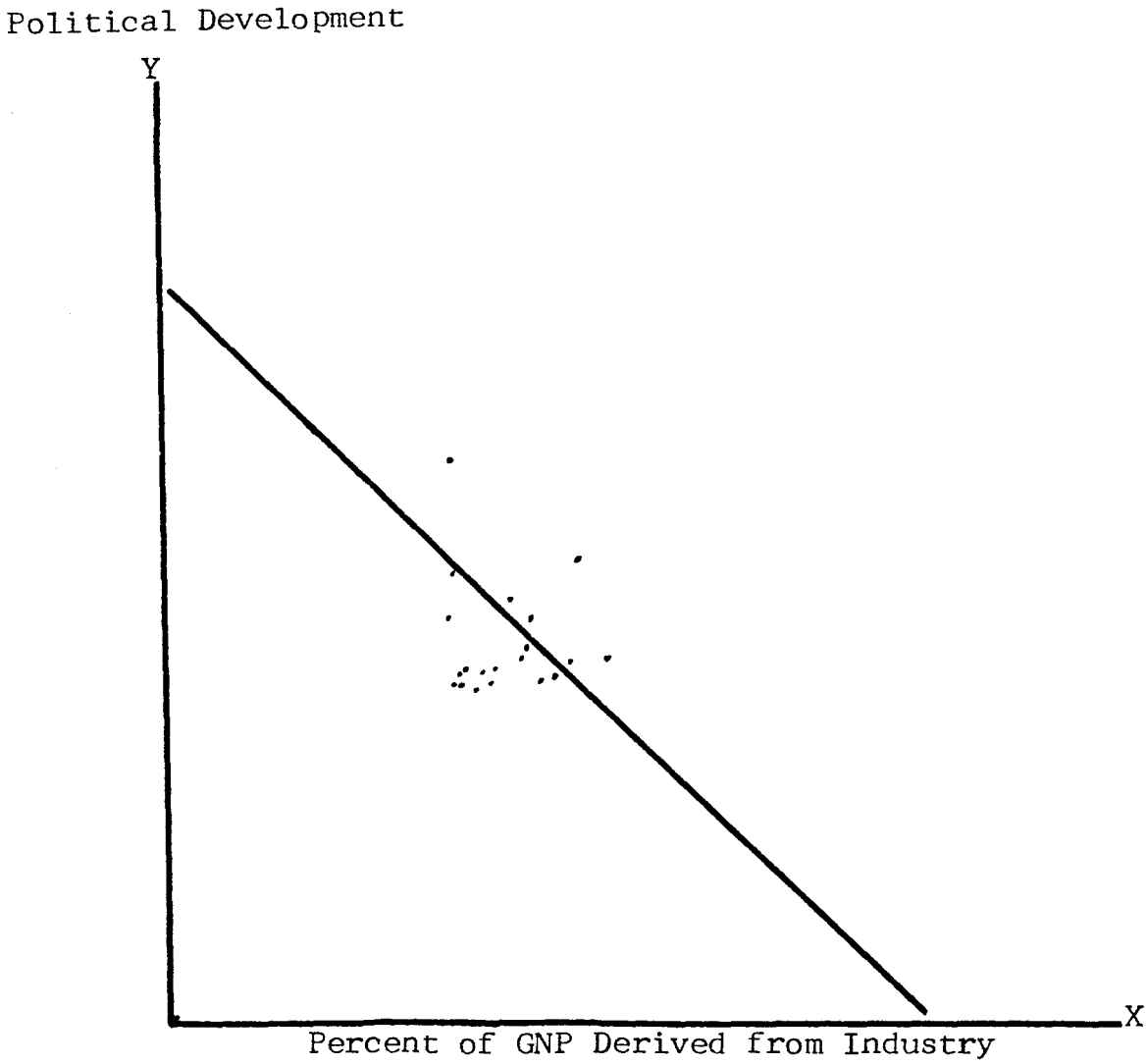
GRAPH II

POLITICAL DEVELOPMENT & GNP PER CAPITA, 1955-1959



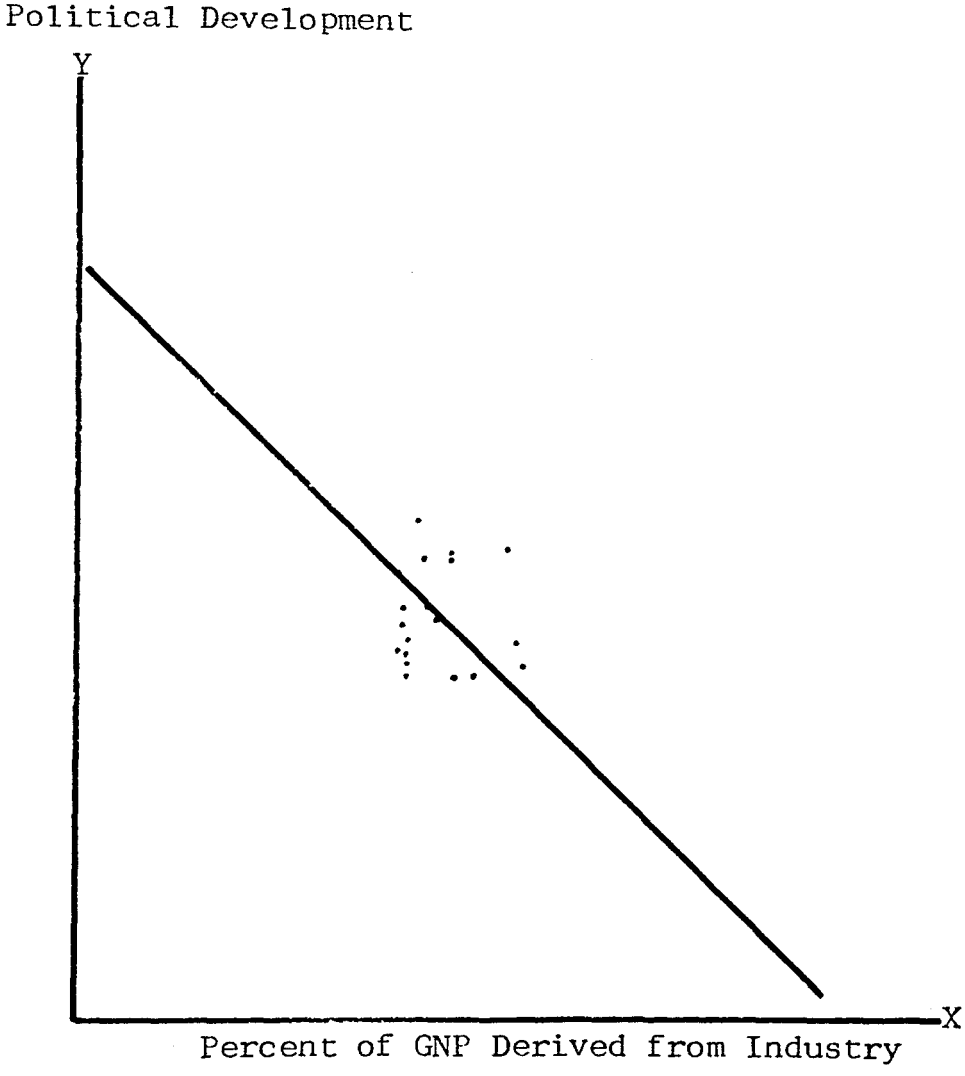
GRAPH III

POLITICAL DEVELOPMENT & PERCENT OF GNP DERIVED FROM INDUSTRY, 1955-1959



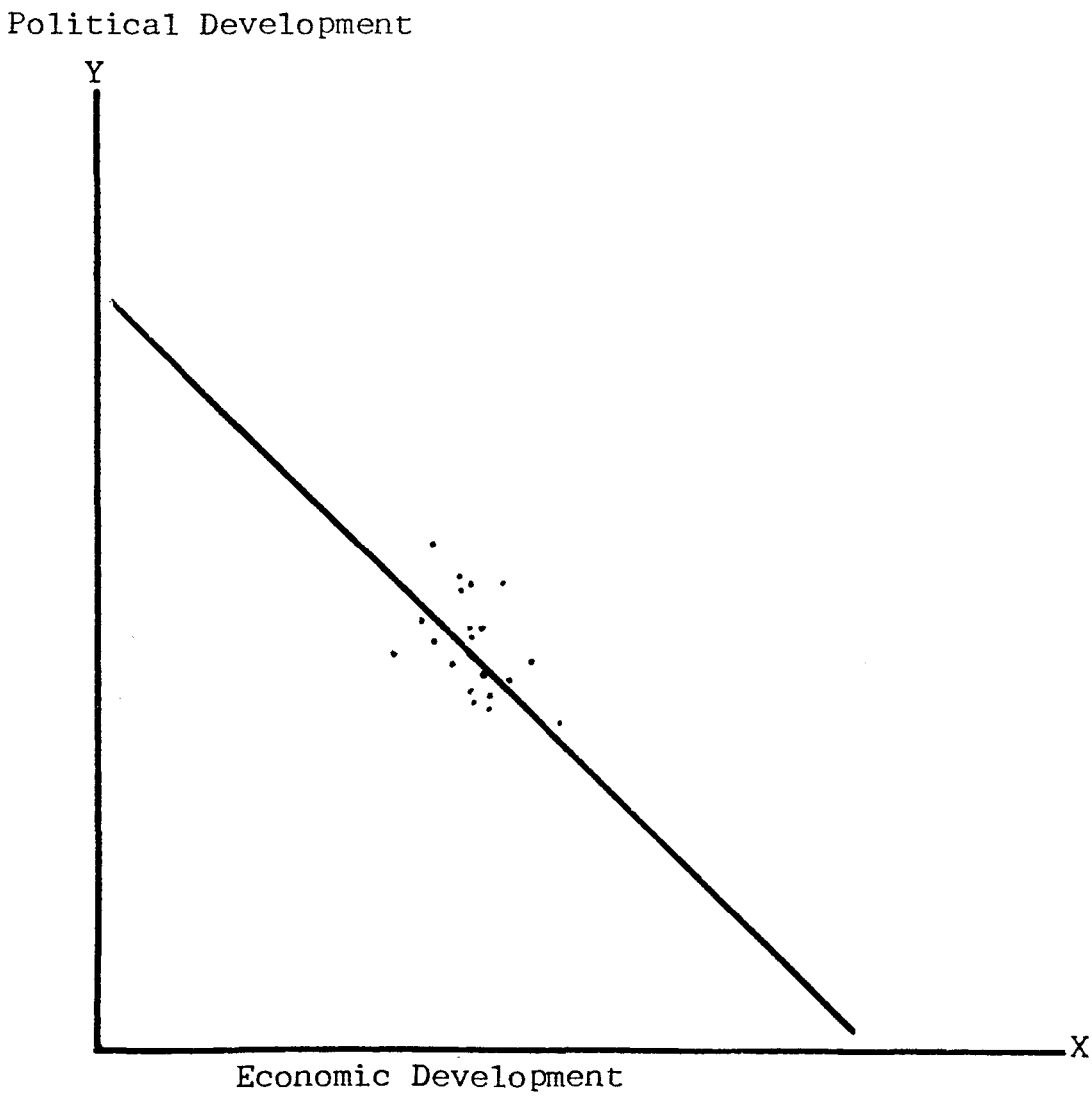
GRAPH IV

POLITICAL DEVELOPMENT & PERCENT OF GNP DERIVED FROM INDUSTRY, 1962-1966



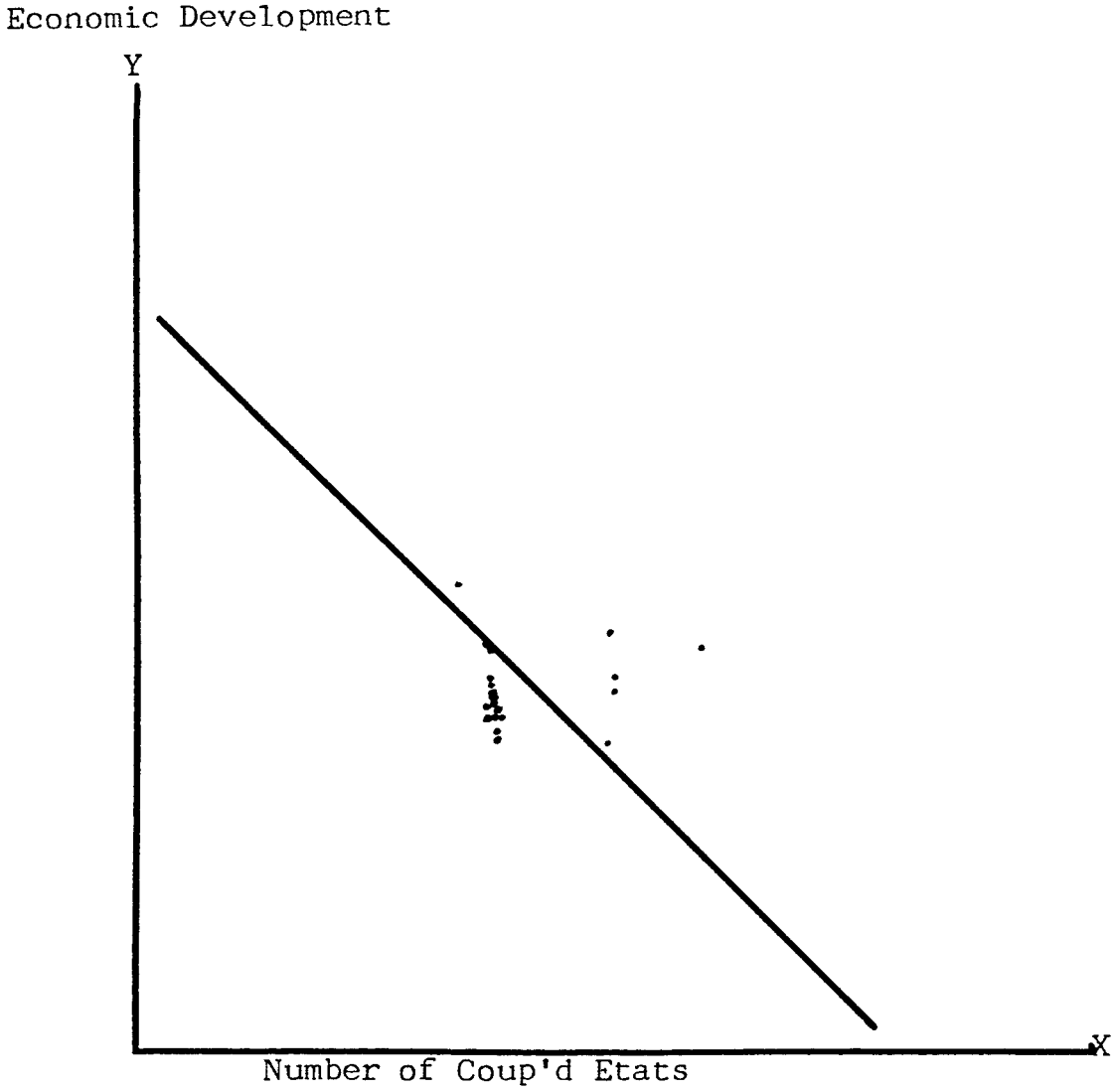
GRAPH V

POLITICAL DEVELOPMENT & ECONOMIC DEVELOPMENT, 1962-1966



GRAPH VI

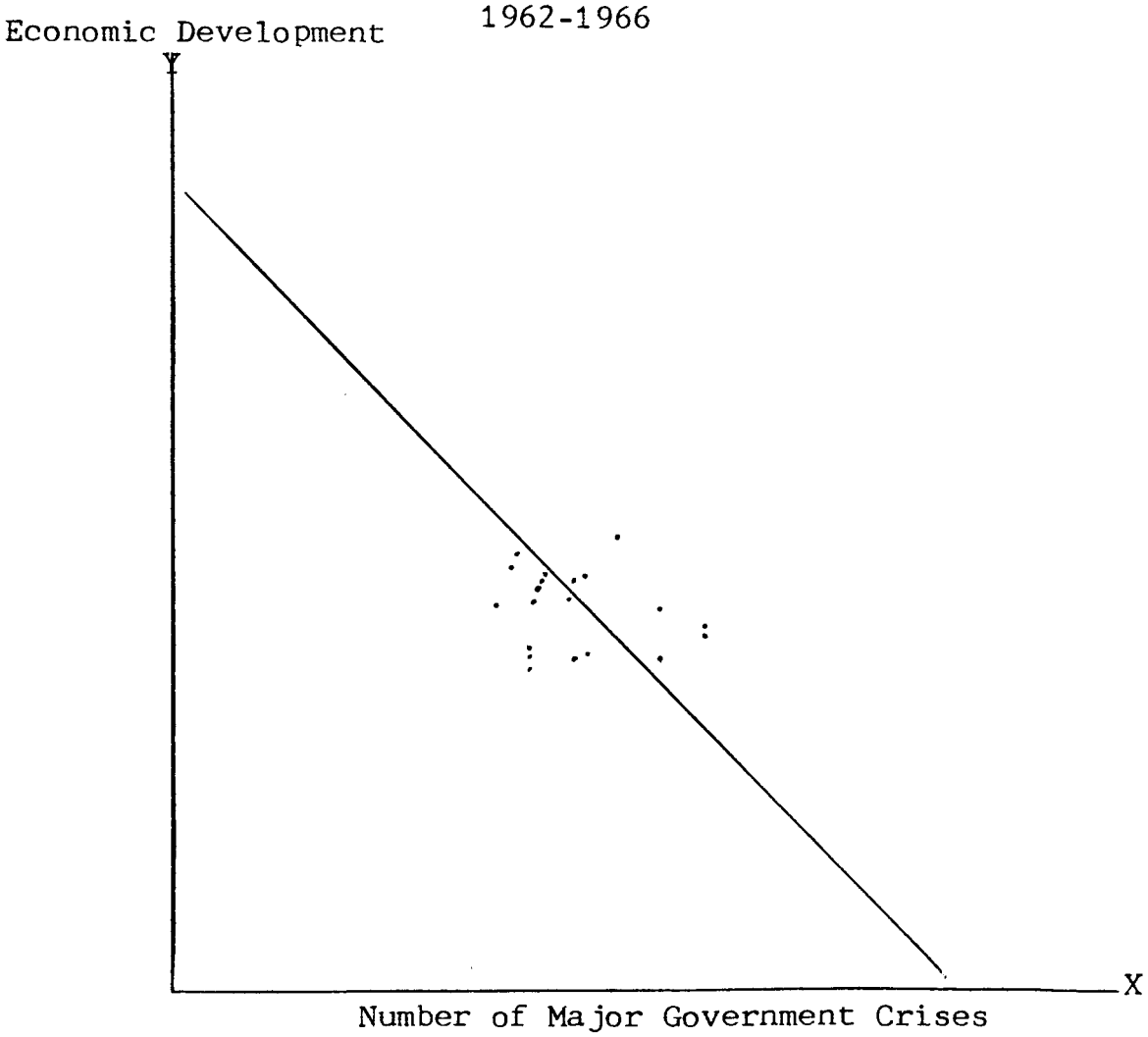
ECONOMIC DEVELOPMENT & NUMBER OF COUP D'ETATS, 1955-1959



GRAPH VIII

ECONOMIC DEVELOPMENT & NUMBER OF MAJOR GOVERNMENT CRISES,

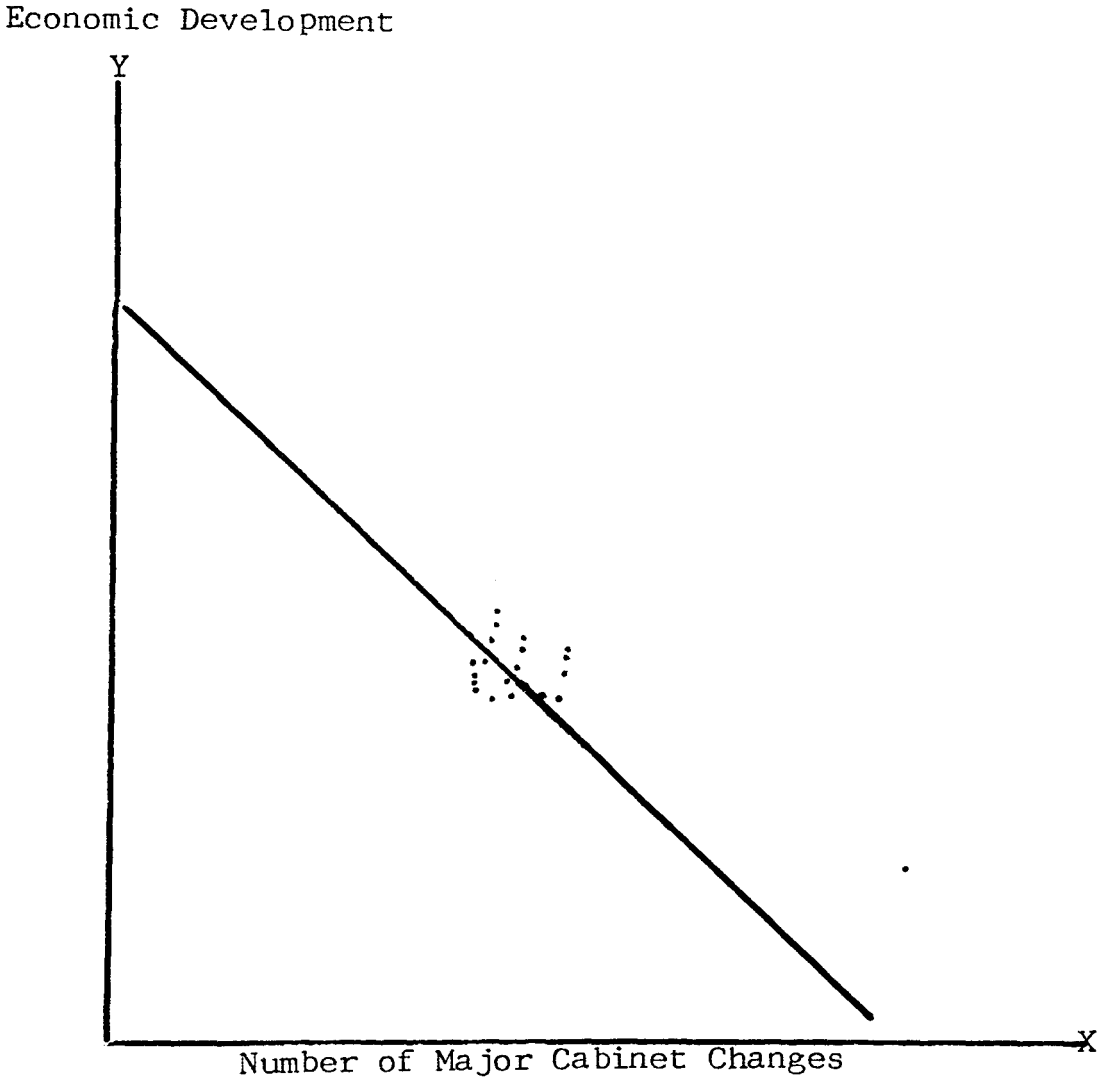
1962-1966



GRAPH VIII

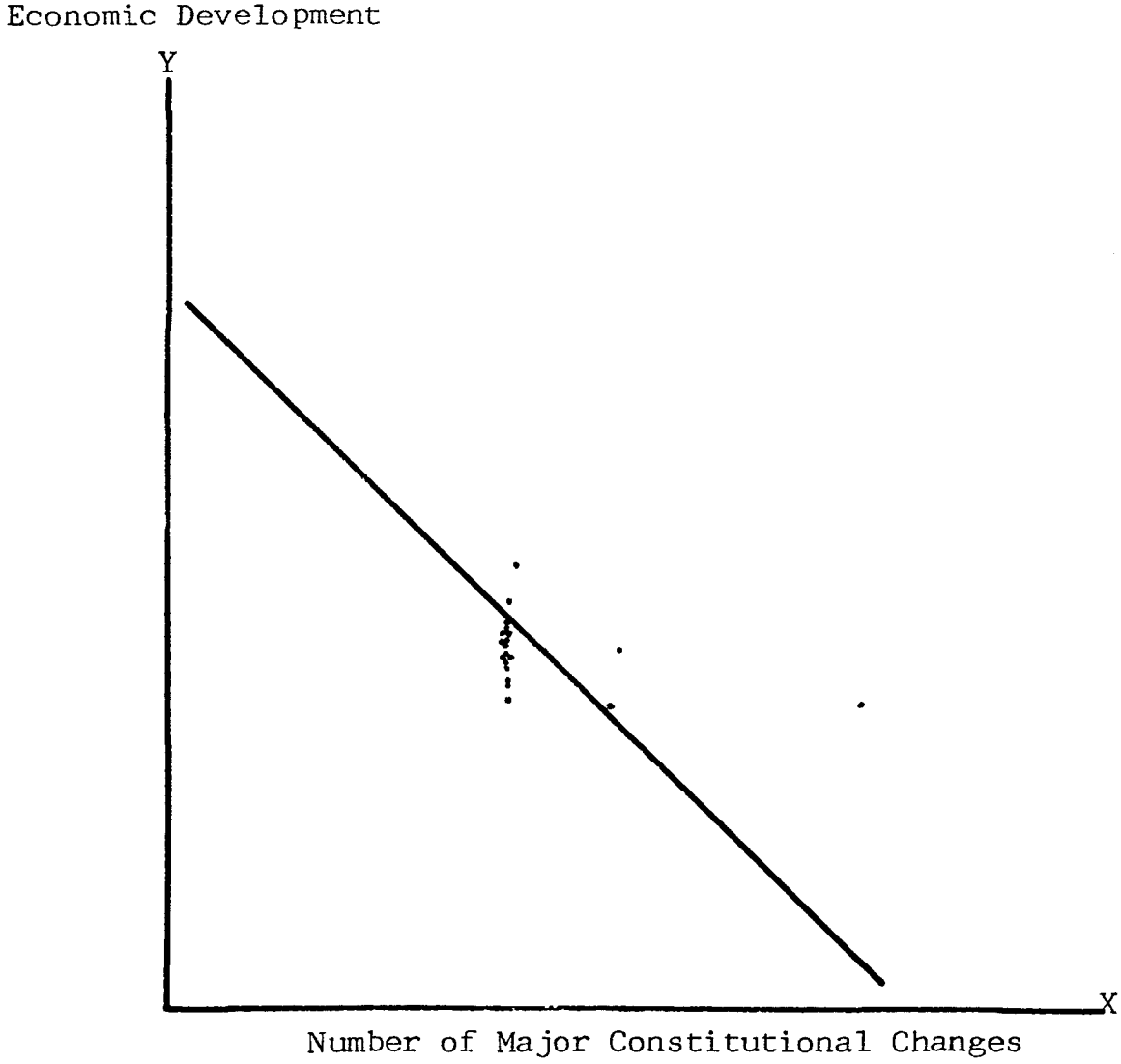
ECONOMIC DEVELOPMENT & NUMBER OF MAJOR CABINET CHANGES,

1955-1959



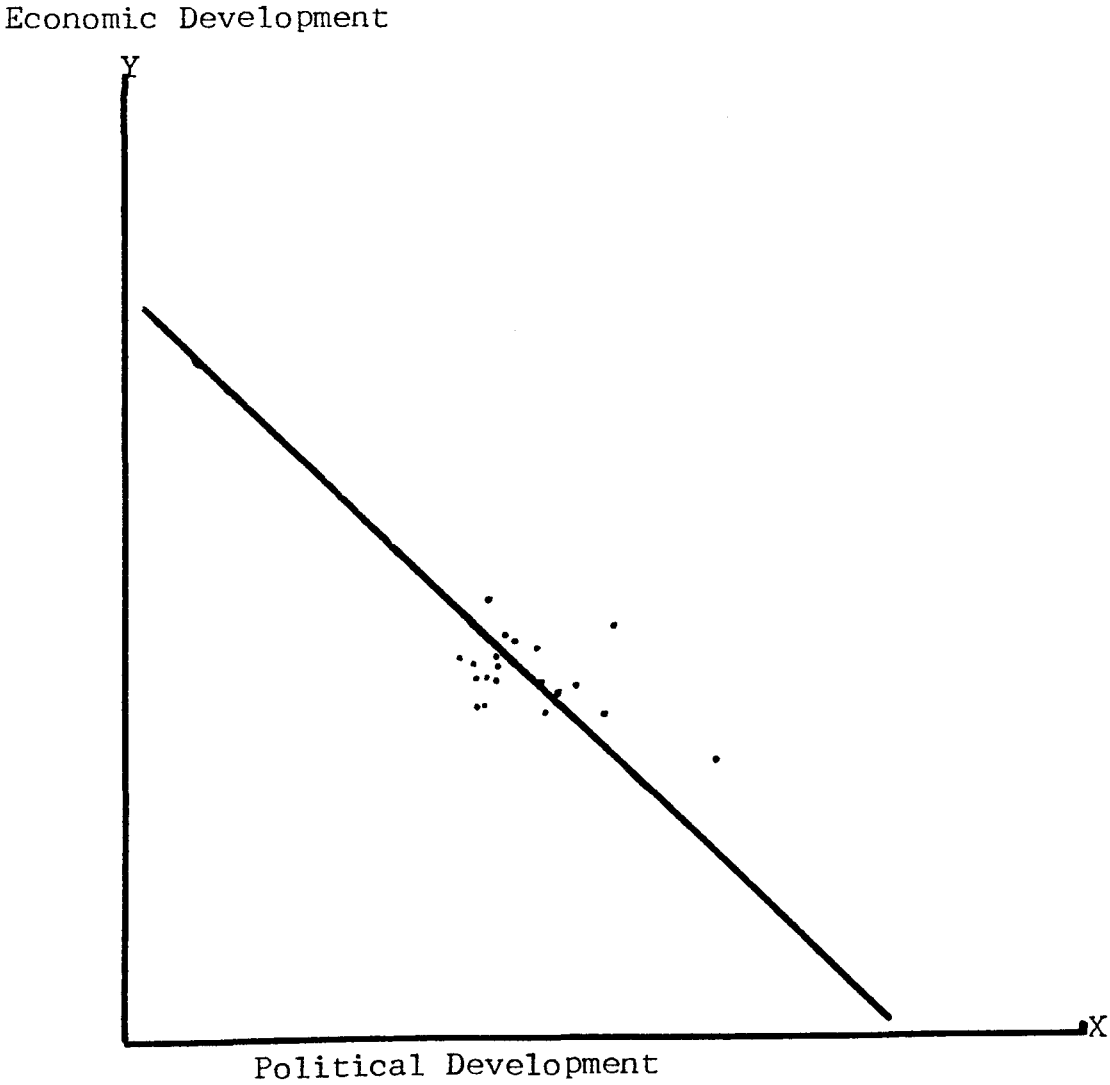
GRAPH IX

ECONOMIC DEVELOPMENT & NUMBER OF MAJOR CONSTITUTIONAL CHANGES, 1955-1959



GRAPH X

ECONOMIC DEVELOPMENT & POLITICAL DEVELOPMENT, 1955-1959



APPROVAL SHEET

The thesis submitted by Carolyn Hostetler Anderson has been read and approved by the following committee:

Dr. Sam Sarkesian, Director
Chairman, Political Science, Loyola

Dr. Alan Gitelson
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Dr. Allan Larson
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The final copies have been examined by the director of the thesis and the signature which appears below verifies the fact that any necessary changes have been incorporated and that the thesis is now given final approval by the Committee with reference to content and form.

The thesis is therefore accepted in partial fulfillment of the requirements for the degree of Master of Arts.

Feb 25, 1980
Date

Sam C. Sarkesian
Director's Signature