SPATIAL INTEGRATION OF POLITICAL PARTICIPATION: GUATEMALA, A CASE STUDY

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SPATIAL INTEGRATION OF POLITICAL PARTICIPATION: GUATEMALA, A CASE STUDY

By

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CHAPTER I

INTRODUCTION

STATEMENT OF PROBLEM

Voting represents the interplay of social and psychological forces both exhibiting spatial characteristics (Kirkpatrick, 1964). In electoral research, problem solving can proceed in one of two ways: a systematic analysis of the psychological and social constraints on voting or an analysis of the spatial variations of these constraints. This paper focuses on the latter while recognizing the importance of the former.

Proceeding in a problematic way, this paper attempts to answer the following question: how do aspects of the social and economic environment affect political participation and party preference? In order to systematically answer this question, one basic assumption is made. In a country requiring all eligible citizens to vote, it is assumed that the number of votes represents an index of participation.

In the following chapters, political participation is analyzed on a macro-level in all of Latin America and on a micro-level within Guatemala. At both of these levels political participation acts as a function of the social, and economic interactions between the voter and his environment. It is hoped that knowledge of these interactions may help social scientists explain and predict electoral behavior.

The social and economic environment is defined and consolidated by factor analysis. Regression coefficients are calculated to assess the nature and magnitude of the relationships between the environment and participation within Guatemala. Rank order correlation coefficients are used to determine the direction of the relationship between participation and its correlates on the macro-level.

Before an analysis of participation on these two levels effectively begins, some prerequisites must be met. One such requirement is a review of relevant literature in political behavior. Two additional demands are brief accounts of the general Latin America and Guatemalan social and economic environments. The former is covered in the following chapter while the latter is treated in subsequent chapters.

DEVELOPMENT OF ELECTORAL GEOGRAPHY

Overview

The first section of the review deals with the political and social literature which is most relevant to political participation. The second section redefines within the Latin American setting many of these political and social concepts. This second section also covers some political aspects of urbanization in Latin America. Finally, the last section places many of the above concepts dealing with participation into a spatial context including location, distance and clustering patterns.

Political Sociology of Participation

Group belongingness, interest groups and alienation are aspects of social interaction affecting participation. Behavioral scientists

have found that the feeling of group membership plays a crucial role in determining individual behavior (Festinger, 1947; Cox, 1970b; Cox, 1971). In a political context, this desire for group membership is fulfilled by the political party. If the group members are aware of other members of their party, then the group is classified as associational. However, on a large scale such as an urban area, membership in political parties is mainly non-associational (Blankenstein, 1968).

Interest groups and political parties tend to vary with social class (Burnett et al., 1968). Lower classes tend to hold different political attitudes and the members of a class who possess intra-class mobility often hold conflicting attitudes (Berelson, 1966; Converse, 1958; Beney et al., 1956). If the social classes appear to be unevenly distributed and if social status is rigidly defined, for instance by possession of land, then class oriented politics are likely to emerge (Burnett, 1968). Where this type of political climate prevails, intra-class movement and interactions are few (Lipset, 1959). From Table 1 it is apparent that the social classes within Latin American countries are unevenly distributed. The most popular classes are the urban and rural workers. As the middle class increases, it is expected that they will bridge the chasm between the workers and the entrepreneurs. It is inferred from Table 1 and the above concepts that the Latin American political environment is indeed class oriented.

Political interest groups are spatially dispersed. In Guatemala and some other parts of Latin America, the lower class interest groups find support in areas of rural as well as urban de-

TABLE 1

CLASS STRUCTURE OF LATIN AMERICAN COUNTRIES

COUNTRY	URBAN MIDDLE CLASS (%)	URBAN WORKERS (%)	LANDOWNERS ENTREPRENEURS (%)	RURAL WORKERS (%)
Argentina	28	45	8	19
Chile	21	50	1	28
Venezuela	16	45	2	37
Cuba	21	38	-	41
Ecuador	10	38	1	51
Panama	15	31	1	53
Costa Rica	14	31	8	47
Paraguay	12	33	2	53
Colombia	12	32	10	46
Brazil	13	24	2	61
Guatemala	6	31	2	61
Bolivia	7	20	1	72
El Salvador	9	27	2	62
Honduras	4	12	-	84
Haiti	2	12	1	85

SOURCE: Gino Germani, 1965, "Estrategiá para estimular la movilidad social," in J. A. Kahl (ed.) La Industrialización en América Latina, México-Buenos Aires: Fondo de Cultura Económica, pp. 294-295.

privation (Byron, 1968). The concept of political support arising from economic and social determinants indicates the non-applicability of much American political science postulates within the Latin American setting.[1] Thus the electoral researcher possesses a valuable research goal, for he must assess which concepts and theories proposed within the American context explain political behavior within the Latin setting.

In general, the political interest groups within an area influence an individual's participation rates (Billet, 1968). This type of group transmits and filters information about the candidate to the individual (Lazarsfield et al., 1948). The individual response in a political context represents a decision along a continuum. Along one part is a set of institutionally derived alternatives arising from the interest groups and the other is a set of alternatives derived from individual experience (Rokkan, 1962).

When political alternatives and interest group pressure confuse the voter, the individual may respond negatively. One of the most common reactions in such a situation is a feeling of political inefficacy. Political alienation may then soon result (Thompson et al., 1960). Other factors contributing to alienation are powerlessness, norm conflict and social isolation (Dean, 1960). Alienation is the most common among the lower social classes (Thompson et al., 1960). Protest voting or invalidating a ballot are symptoms of political apathy or alienation

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[1]The reader is referred to two of V. O. Key's major works. One of the dominant themes of his research is the idea that political groups are independent of any social determinants. The two works in which this theme is developed are: Southern Politics in State and Nation (1949), New York: A. A. Knopf, and "Social Determinism and Electoral Decision: The Case of Indiana," in E. Burdick (ed.), American Voting Behavior (1959), Glencoe, Ill.: Free Press, pp. 220-232.

within many Latin America countries. Many times this is done so that the victory is considered hollow for the opposition (Gomez, 1962; Thompson et al., 1960). Another form of vote protest is voting for a 'dark-horse' candidate (McDonald, 1967a). In a very real sense then, there are segments within an electorate who are confused and unable to make a decision; a situation which results in their being politically alienated (McDonald, 1967a). At the opposite end of the political spectrum are the politically aware individuals who become more involved in the governmental affairs and easily identify their goals and attitudes with the national government. Uneven participation patterns among individuals and their interest groups serve to increase the political autonomy of the interest groups (McDonald, 1969c).

If one assumes that the alienated voter is symptomatic of an 'unhealthy' social and economic climate within a country, then an aware voter exists in a 'healthy' environment. Some agreement exists among political scientists who have worked in Latin America that awareness and alienation are dependent upon factors such as literacy, education, status and income (Gomez, 1962; Adams, 1968; Needler, 1966). As a rule, the more urban, literate, educated and wealthier areas are more politically aware and consequently more politically active (Lerner, 1958; Horowitz, 1967). Thus economic development is closely connected to the political integration within a country and to a lessening of political alienation (Lipset, 1959; Fitzgibbon, 1967; McDonald, 1969a).

Electoral Research in Latin America

Historically, voting analysts in Latin America have questioned

two themes which presently continue to be debated within their electoral research. The first theme relates political development and economic integration. That is the political sphere needs to expand as rapidly as the economic sphere and if it does not, political inequities such as minority disenfranchisement may arise (Lipset, 1959; Needler, 1968). This dissimilarity may solidify into major issues inhibiting the establishment of effective communication between the parties. Likewise economic growth promotes the politics of 'rising expectation'. Within Latin America the failure of certain segments of the population to realize these expectations has prompted many to express their frustration as overt political dissent (McDonald, 1969a; Horowitz, 1967).

The second theme of electoral research in Latin America emphasizes the change in political behavior occurring in the migrant. The exact nature of the migrants' political metamorphosis is often disputed. Some studies claim that the migrants change their political attitudes and increase their political interest once they live in an urban area (McDonald, 1969c). Here the migrants develop a political consciousness and increase their awareness (Flinn et al., 1969). As a result, the political participation of the area is increased (Mangin, 1967; Alschuler, 1967; Micklin, 1969; McDonald, 1969a). In addition, this politicalization of the migrant induces political activity which may lead to the overthrow of the incumbent powers (Needler, 1968).

Other studies dealing with this same topic are less optimistic and stress the political alienation and anomie confronting the migrant. Within the squatter settlements of Lima, the migrants are unaware of

their political potential and view a solution to their economic problems as coming from outside of their interest group (Mangin, 1967). Political anomie and alienation tend to discourage immediate political participation (McDonald, 1967a; Byron, 1968; Flinn et al., 1969). Most studies dealing with this theme do tend to aggree that some form of increased participation does occur in areas undergoing strong in-migration (Horowitz, 1967), especially in those countries of Latin America exhibiting a pronounced urbanization like Guatemala and Brazil (Wingo, 1967). This politicalization occurring in the migrants is most pronounced in the second generation urban residents (Mangin, 1967). If the politicalization of the urban migrant takes the form of a radicalization, then the urban area may become a focus of national political dissent (McDonald, 1969a).

The rise of industrialization and urbanization in Latin America within the past twenty years has challenged the national political parties of many countries. Within this region, the political parties are interest aggregated and not areally aggregated (Blankenstein, 1959). Due to their class oriented politics, these traditional political parties, composed of a coalition of landed and commercial interests, find themselves politically ineffective (Burnett, 1968; Horowitz, 1967; Adams, 1968). The rise of the national revolutionary parties, stressing a rural-urban lower class coalition, is proof of the frustration arising from misdirected and ineffective political leadership of the traditional political parties (Alexander, 1965; Burnett, 1968). The rise of the urban-rural proletariat coalition in Chile emphasized the fact that no one

class or region can dominate the Chilean political process (Cope, 1966). Within Guatemala, the urban-rural coalition exists but a lack of a common goal hinders effective political action (Gillin, 1956). Within Colombia the urban-rural coalition had as its goal a feeling of political disenfranchisement (McDonald, 1967b).

If the political parties adopt revolutionary schemes, political change may be peacefully effected (Horowitz, 1967). In addition to this adoption, political change depends also on the rate of social change occurring in society. In Latin America, this type of change normally progresses very slowly (Micklin, 1969). One reason for this tardiness is the military and the Catholic church, two interest groups pledged to forestall radical change and maintain the status quo (Needler, 1966; Alexander, 1965; Blankenstein, 1959). Table 2 presents an assessment of social change in Guatemala.

The two above themes in Latin American electoral politics underlie research analyzing recent elections. Alienation in Colombia was evident in the protest votes cast in a recent election (McDonald, 1967a). Participation in Chile has been retarded due to the ambivalence of the political elites (Cope, 1966; 1968). The alienation of the masses in Chile is evident in the votes cast for radical candidates (Soares et al. 1967). In Guatemala, ideological conditioning has led the people to expect social and economic reforms. Numerous minor parties are formed as a response to the need for reforms. However, historically their hopes have been betrayed and as a result the political system is frowned upon by the masses (Johnson, 1967; Sloan, 1968).

TABLE 2

SOCIAL CHANGE WITHIN GUATEMALA

INDICATORS OF SOCIAL CHANGE	YEAR 1921 ABSOLUTE CHANGE (%)	YEAR 1921 RELATIVE[1] CHANGE (%)	YEAR 1950 ABSOLUTE CHANGE (%)	YEAR 1950 RELATIVE CHANGE (%)	YEAR 1964 ABSOLUTE CHANGE (%)	YEAR 1964 RELATIVE CHANGE (%)
Urbanization (Number of people living in urban areas with population greater than 20,000)	7.4	1.7	11.1	2.8	15.5	2.5
Industrialization (Percent of males not engaged in agriculture)	-	-	25.0	.9	28.0	2.3
Education (Percent of population seven or older who are literate)	13.0	4.5	30.0	1.7	37.0	4.2

SOURCE: (Micklin, 1969)

[1]The relative change is calculated on the basis of the population growth during the period in question.

Spatial Concepts of Political Participation

Some electoral research relates variation in political attitudes to changes of location and information (Cox et al., 1968b; Cox, 1969a). The flow of information is affected by an absolute change in location, for instance, migration as well as a relative change in location which may occur after a person receives higher education (Cox, 1968a). Within the city of London, an absolute change in location produced among some migrants higher participation rates (Cox, 1968c).

The spatial structure of an area's communication network affects the formation of politically meaningful information for the individual or the group (Cox, 1968a).[1] Often the network is poorly constructed and the area received outdated information. In many areas of Guatemala, as well as parts of Latin America, there are villages situated on a partially ineffective communication network. This position encourages the formation of political localism and it is most prevalent in those areas where the individual is exposed to a limited amount of politically important information (Cox, 1969b).

Distance, in addition to location, is a factor of importance when analyzing participation. An individual's sphere of influence is most pronounced around his immediate surrounding area and it decreases as distance increases (Reynolds,1969). The votes cast for a candidate often exhibit a distance-decay function from the candidate's home (McCarty, 1960; Reynolds, 1969). The decay function may vary particularly when political

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[1]Communication network as used in this paper refers to the flow of information due to the spatial spread of newspapers, radio, people and products.

boundaries are crossed for regional candidates (Birdsall, 1969). Undoubtedly, the distance-decay of votes changes as its socioeconomic determinants vary (Rumage and Roberts, 1965).

Areal variations in social, demographic and economic factors give impetus to regional voting patterns. Some of the most valuable demographic and economic indices used to study these patterns are: population density, sex and age ratios, occupations, income, education, religion, home ownership and value of property (Dean, 1949; Simmons, 1962; Van Duzer, 1962; Burghardt, 1964; Brunn et al., 1969; Brunn et al., 1970a; Ingalls, 1970). One social indicator influencing political vote is membership in voluntary organizations (Cox, 1970b). In most of these studies the votes for a particular candidate or issue are viewed as a function of a group's socioeconomic characteristics.

The level of aggregation of the above studies often is crucial. If the data are on a highly aggregated level, conclusions must be confined merely to generalizations concerning the underlying associations (Kasperson, 1965). For this reason it is best to analyze voting data on the lowest procurable level of aggregation (Nelson, 1952; Prescott, 1959).

A cartographic analysis of voting patterns and their associations reveals many underlying facets of the voting response (Prescott, 1969). Analysis of the variation and the clustering of these patterns may proceed from one of two possible methods. First, the clustering may be viewed from a differential appeal of political parties in particular elections. In such a case, the variation may occur along territorial lines which are often most pronounced in developing countries (Lipset, 1964).

Second, the clustering may occur due to the recent emergence of stage migration, industry and transportation development. In this situation, the variations are functionally defined and they are most prevalent in more developed nations (Cox, 1970b). The second approach is assumed in this paper and it is hoped that the factor analytical model provides the functional definition.

CHAPTER II

GUATEMALA'S POSITION IN LATIN AMERICA

A SURVEY OF PARTICIPATION IN LATIN AMERICA

The basic purpose of this chapter is to provide an overview of political participation in the Latin countries. In addition, this chapter develops some underlying relationships which are subsequently integrated into the analysis of political participation in Guatemala. It is assumed for this analysis that voter registration figures represent an index of participation. Although every registered voter does not vote, in most cases it is assumed that the majority do. Therefore, for the lack of a better index, registration is chosen. The final objective of this chapter is to answer the following research question: in regards to participation and its correlates, does Guatemala represent the typical Latin American country?

In order to sufficiently answer this question, all of the countries were ranked on the basis of ten social and economic indices. These ranks are then compared with a rank of countries based on participation. The comparison is accomplished through the use of Spearmen's rank-order correlation coefficient.[1] The basic advantage of the rank-order coefficient is its distribution-free tendency. Table 3 lists the variables and the ranks for each country.

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[1]The Spearmen's "rho" coefficient is equal to the squared difference between the ranks which are then summed and divided by the number of observations. The value is then standardized so that it has a range between +1.00 and -1.00.

TABLE 3

RANKINGS ON SOCIAL, ECONOMIC AND PARTICIPATION INDICES

COUNTRY	VARIABLES										
	1	2	3	4	5	6	7	8	9	10	11
ARGENTINA	19	17	18	1	2	2	2	2	22	2	4
BOLIVIA	16	12	20	8	13	18	5	4	22	6	2
BRAZIL	4	9	6	5	12	11	3	3	22	12	22
CHILE	17	18	14	2	3	3	6	4	4	9	22
COLUMBIA	9	14	2	2	10	7	14	1	22	7	3
COSTA RICA	2	4	4	2	9	3	4	2	2	4	11
CUBA	18	16	12	2	4	4	7	22	22	22	1
DOM. REP.	1	1	8	22	15	12	13	22	22	22	8
ECUADOR	7	8	7	7	5	9	17	6	22	15	12
EL SALV.	15	5	11	7	14	14	18	3	22	13	22
GUATEMALA	5	7	9	8	17	17	16	4	22	16	7
HAITI	13	10	19	10	19	19	20	1	22	22	13
HONDURAS	6	2	13	9	18	16	19	22	22	10	5
MEXICO	11	13	5	3	8	8	15	22	5	11	22
NICARAGUA	8	3	10	22	16	15	10	22	22	22	13
PANAMA	14	6	15	5	7	5	8	7	3	5	10
PARAGUAY	12	11	11	6	6	6	12	3	22	14	6
PERU	10	15	3	22	11	13	11	22	22	8	9
URUGUAY	20	20	16	22	1	1	1	22	1	3	22
VENEZUELA	3	19	1	4	4	10	9	3	22	1	5

SOURCE: Germani, 1965; Horowitz, 1967.

TABLE 3 (cont'd.)

VARIABLE NUMBER	DEFINITION
1	Urban growth
2	Rural growth
3	Percent internal migration
4.	Percent of urban population in the middle class
5	Percent of population engaged in secondary or tertiary economic activities
6	Percent of population who are literate
7	Percent of population who live in metropolitan area
8	Percent of population who are landowners
9	Voters registered in a democratic country[1]
10	Voters registered in all countries
11	Number of civil disorders
22	Missing or incomplete data

[1]The following countries were excluded from the rank in variable 10: Cuba, Dominican Republican, and Haiti. This was done due to the totalitarian nature of their political system which tended to inflate figures.

Based upon the pertinent studies treated and the above voting data and methodology, the following hypotheses are formulated:

(1) If the ranks of percent voters and percent internal migration are in close agreement, then those countries ranking in the top quartile have had migrants participating in elections.

(2) If the ranks of percent voters and percent metropolitan population in urban areas are in close agreement, then those countries in the top quartile have politically primate metropolitan areas.

(3) If the ranks of percent voters and percent land-owners are in close agreement, then those countries in the top quartile are labelled as politically stable.[1]

(4) If the ranks of percent voters in a democratic country is in close agreement with the ranks of percent literate, percent of population in secondary and tertiary activities and the percent middle class, then those countries ranking in the top quartile have a democracy based upon a well integrated, viable middle class.[2]

(5) If the ranks of percent voters and the countries experiencing a high percentage of civil disorders are in close agreement, then those countries ranking in the top quartile have had increased participation associated with a high degree of civil disturbances.

From Table 4 it is possible to infer the direction of the association between the various ranks. Thus, the rank internal migration is in close disagreement with voter registration. Research mentioned in the previous chapter supports this negative relationship existing at least in the initial years. The negative relationship between the ranks percent

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[1]The literature on political activity in Latin America supports the idea that people with fixed social mobility participate more than those with fluctuating mobility patterns (Lipset, 1959; Nash, 1958). It is assumed that people who own land have fixed social mobility. At least the patterns of these people are more stationary than migrants who have recently moved into the same area.

[2]A democratic country is defined as a country having a moderate degree of elected political succession. The classification was used by Horowitz (1967).

TABLE 4

RANK ORDER COEFFICIENT FOR THE SOCIAL, ECONOMIC AND PARTICIPATION INDICES

VARIABLE RANK	"RHO" COEFFICIENT	NUMBER OF COUNTRIES	SIGNIFICANCE LEVEL
Percent Internal Migration	-.09	16	.35
Percent Urban	-.19	16	.23
Percent Landowners	.25	12	.20
Percent Population Literate	.47 (.82)*	16 (5)	.03 (.04)
Percent Employed in Secondary and Tertiary Activities	.47 (.30)*	16 (5)	.03 (.31)
Percent Population in Middle Class	.56 (.21)*	14 (4)	.01 (.39)
Percent Population in Metropolitan Area	.65	16	.001
Deaths from Group Violence	.30	16	.12

*For the figures in parenthesis the dependent variable was voters registered in a democratic country.

SOURCE: calculated by the author.

urban and voter participation or registration is misleading and therefore nothing is inferred. The historical influence of the landed aristocracy in Latin politics remains dominant in at least twelve countries as an element favoring increased participation. Finally, the ranks of participation are in agreement with the ranks measuring educational level and economic activity. Also the most cosmopolite city favors increased participation. However, these increases in participation are costly as evidenced by the subsequent increase in deaths from group violence occurring in many of these countries.

As evident from Table 5, Guatemala is far from a typical Latin American country. On four of the six indices, Guatemala and El Salvador placed the lowest. It appears that Guatemala and El Salvador are unique countries politically, and that generalizations concerning participation within the typical Latin setting may not apply. Thus the transferability of inferences about participation is almost non-existant.

A SOCIAL AND ECONOMIC PERSPECTIVE ON GUATEMALA

For this study the following criteria are deemed as important in the choice of Guatemala as a test case:

(1) The country must legislate voter participation, thus forcing the voter to become involved;

(2) The country has had numerous social and political upheavals within the past twenty years which demand a nationwide adjustment to new claims of status and power (Lipset, 1964);

(3) The country must have recognizable class cleavages based on economic or ethnic lines (Nash, 1958; Benney et al., 1956);

(4) The country must be undergoing economic development (Benney et al., 1956);

TABLE 5

CLASSIFICATION OF SELECTED COUNTRIES IN LATIN AMERICA

ON THE BASIS PARTICIPATION CORRELATES

RELATIONSHIP (CONCEPT IT SUPPORTS)[5]	DIRECTION	COUNTRIES WHERE THE RELATIONSHIP IS THE STRONGEST[1]	COUNTRIES WHERE THE RELATIONSHIP IS THE AVERAGE[2]	COUNTRIES WHERE THE RELATIONSHIP IS THE WEAKEST[3]
Landowners and participation (higher participation among people who are economically stable)	positive	Costa Rica Argentina	Brazil	Guatemala
Literacy and participation (higher participation requires increased literacy)	positive	Argentina Uruguay Costa Rica Panama	Columbia Mexico Brazil	El Salvador Guatemala
Secondary and tertiary activities and participation (higher participation requires economic integration)	positive	Venezuela Argentina Uruguay	Panama Columbia Peru Mexico Brazil	El Salvador Guatemala
Percent of nationals living in primate city and participation (higher participation is found in the most cosmopolitan areas)	positive	Argentina Uruguay Costa Rica	Panama Bolivia[4] Peru Chile	El Salvador Guatemala
Deaths from group violence and participation (the urban area is the heart of political dissent)	positive	Argentina	Panama Peru Honduras	----------

TABLE 5 (cont'd)

Percent of population in middle class (higher participation encourages the growth of a middle class)	positive	Argentina Costa Rica	Panama Bolivia Mexico Brazil	---

[1]Countries in the upper one fourth of both ranks.

[2]Countries in the middle one-half of the ranks.

[3]Countries in the bottom one fourth of both ranks

[4]Represents a borderline case

[5]If a country is not listed in one of the three columns, then it belonged to two different ranks or data were unavailable. Therefore that country was not classified.

SOURCE: calculated by author.

(5) The country must have readily available and reliable data on social and voting activities; in addition, the elected officials must have a degree of political legitimacy (Lipset, 1959; Cope, 1966), and,

(6) The country must possess a limited degree of national integration; the latter is judged by the political and economic cleavages which are recognizable within the country (Sloan, 1970).

In Guatemala economic development and national integration are closely related. The Indian population is a good example of this relationship. They represent the largest cultural group resistant to the forces of national integration and economic advancement (Sloan, 1970). They reside primarily in the Northwest Highlands where they are able to provide for themselves and their families a subsistence level of income (James, 1969).

The Indians are integrated into the economic system principally through the growing of fresh foods which they market in the urban areas. Their position in the labor force is generally below that of a ladino who may perform a similar task (Nash, 1958).[1]

Employment opportunities for the Indian have political significance in that these often bring him into direct contact with individuals from a variety of socio-economic levels and above all into contact with the government and its regulations. The selling of fresh produce and handicrafts in the large urban centers requires that they pay a form of sales tax. The employment opportunities of the Indian males often center around the commercial farms on the south coast. Here their

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[1] In most Central American countries the term ladino rather than mestizo is used to describe the Indian-Caucasian mixture. In general, the ladino is far more urban oriented than his Indian counterpart. See text for more explanations.

working conditions, likened to the pre-1900 factory conditions in the United States, represent abuses by the farm owners. Thus, the economic activities of the Indian illustrates how the power and the influence of the national government varies among social classes and between the rural and urban areas of the country (Converse, 1958). This variation of influence and activity fosters the growth of political sectionalism which in turn affects the participation rates especially on the party level. Furthermore, the economic status of the Indian in Guatemala tends to substantiate earlier claims that Guatemala in microcosm exemplifies the characteristics of the developing world (Gillin and Silvert, 1958).

The ladino on the otherhand represents a somewhat different socio-economic system. Although the ladinos are quite ubiquitous, they tend to concentrate in the urban areas. These descendants of former Spanish settlers or Indians have abandoned their traditional life styles. This change of life styles is called ladinization and it is well documented in each ensuing census in Guatemala. Fewer and fewer people are freely admitting that they are Indian. One major requirement for this successful transformation of life styles is a change not only of language but also of location (Van de Berghe, 1968). Thus this internal migration plays a crucial role in the politicalization of the Indians.

The Indian and the ladino perception of the national government differs (Nash, 1958). The ladino is a national in a very broad sense, frequently participating in governmental functions. In addition, the ladino has historically maintained his allegiance to the national government. A form of sentimentalism directed towards the incumbent

leader cements this allegiance (Nash, 1958). At the other extreme is the Indian who reluctantly supports only the local government which he views as a compromise between the national entity and no formal structure at all. Making the Indian an active member of larger political organization is a difficult conversion due to his provincial cultural values (Nash, 1958).

The foreign born population is normally found in the larger urban areas. However, this discussion of political participation ignores the contributions of the foreign born population since they represent such a small fraction of the total population, less than three percent in 1964. Also, not being indigenous, they are unable to vote in the national elections.

The highest population densities in the country are found in the western and central sections of the country (Figures 1 and 2). Here major urban areas occupy the numerous valleys found within the highlands. Lower population densities are found in the northeast, southeast and coastal lowlands. Two exceptions to the above generalizations are the departments of Izabal and Escuintla which have undergone rapid population change (Figures 2 and 3). In general, the migration to Escuintla represents a rural-rural movement while the migration to Izabal is both a rural-rural and a rural-urban variety which reflects the increased importance of Puerto Barrios (Thomas, 1968).

The migration to urban areas in developing countries carries with it some meaningful political ramifications. Information channels, social class consciousness and the social organization patterns of the

Figure 1. Location Map of Guatemala.

SOURCE: Thomas, 1969.

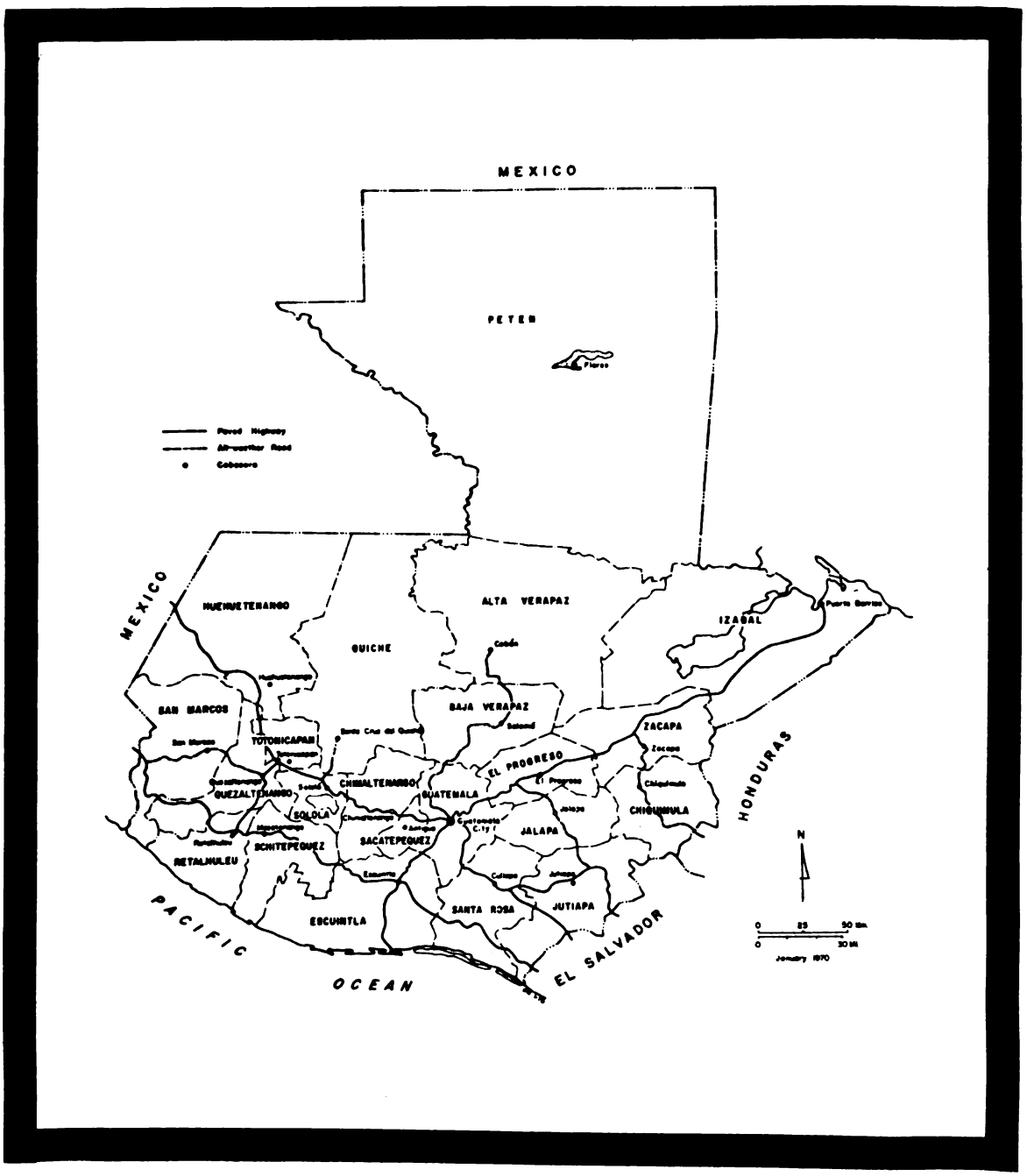

MEXICO
PETEN
Flores
Paved Highway
All-weather Road
Caboose
MEXICO
HUEHUETENANGO
ALTA VERAPAZ
IZABAL
Puerto Barrios
QUICHE
Cobán
SAN MARCOS
BAJA VERAPAZ
ZACAPA
TOTONICAPAN
EL PROGRESO
HONDURAS
QUEZALTENANGO
CHIMALTENANGO
GUATEMALA
CHIQUIMULA
SOLOLA
JALAPA
SACATEPEQUEZ
SUCHITEPEQUEZ
RETALHULEU
SANTA ROSA
JUTIAPA
ESCUINTLA
PACIFIC
OCEAN
EL SALVADOR
N
0 25 50 Km
0 30 Mi
January 1970

Figure 2. Population map of Guatemala.

SOURCE: Thomas, 1969.

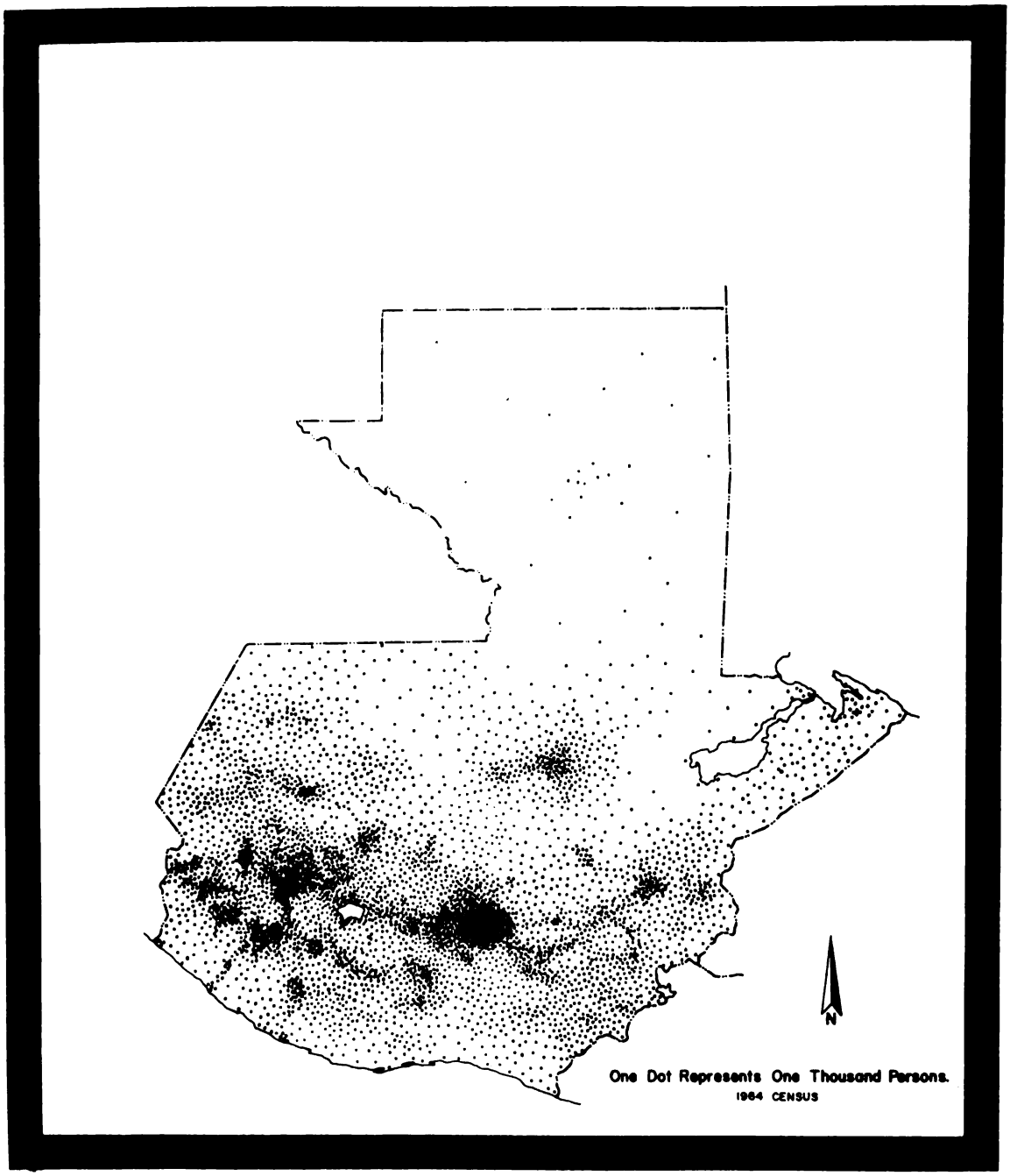
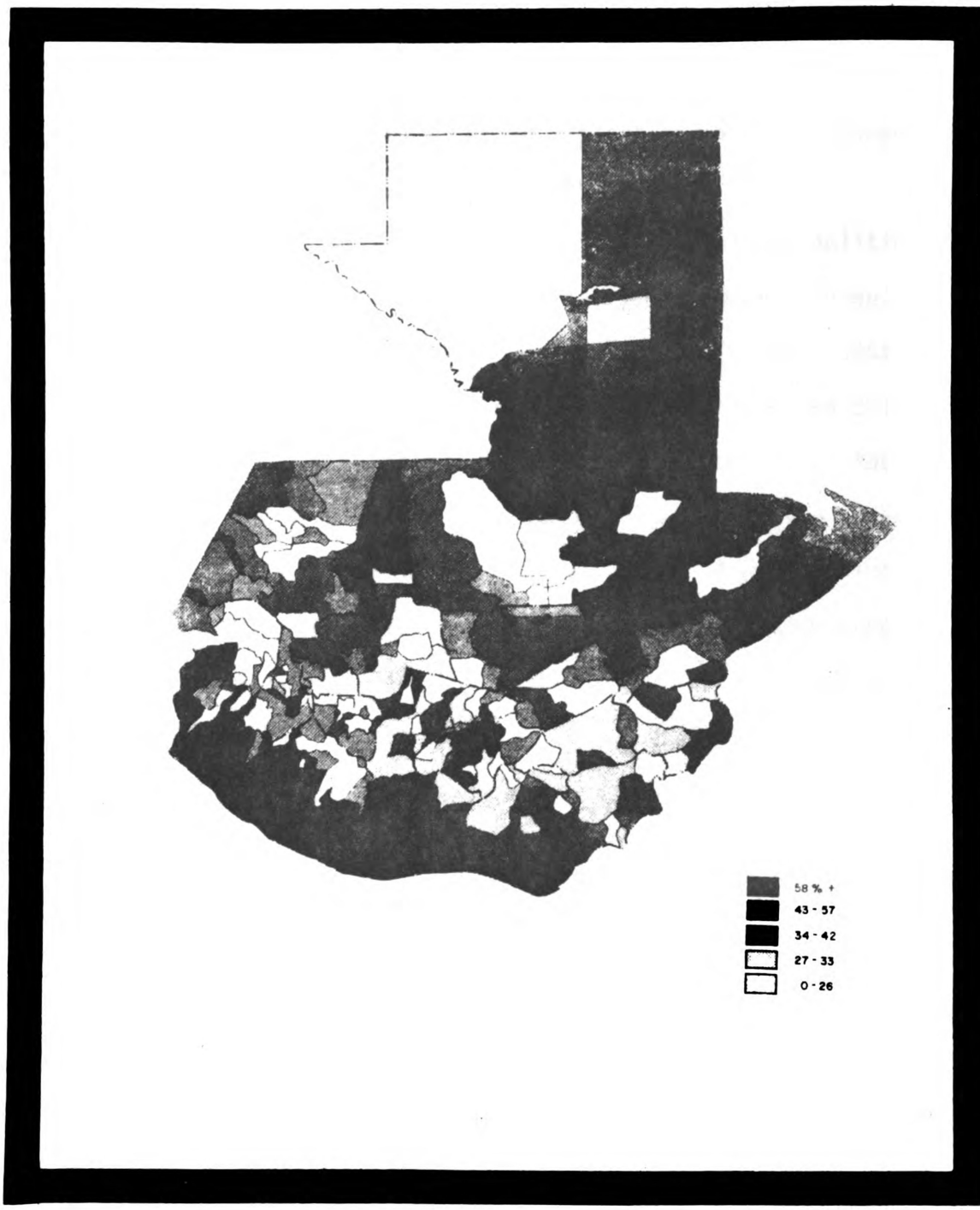

N
One Dot Represents One Thousand Persons.
1964 CENSUS

Figure 3. Population Change in Guatemala, 1950-1969.

SOURCE: Thomas, 1969.


58 % +
43 - 57
34 - 42
27 - 33
0 - 26

migrants are some of these political considerations. Urban migrants tend to lack a familiarity with the new life styles, and frequently find themselves possessing limited skills which are already a surplus in an urban area. Normally migrants perceive only a limited portion of politically important issues, often neglecting national issues while supporting local issues (Byron, 1968).

In urban areas with high in-migration, social and political adjustments to the new status, power and prestige are frequently required so that the migrants can become politically effective (Lipset, 1964). Political reformers may capitalize on the migrant's disenfranchisement by developing ideas and platforms localized for a particular locality. New migrants to the city mainly relocate in urban areas for increased economic opportunity. Hopefully, their social mobility will increase with this movement. However, a Finnish study recently discovered that people aspiring for higher social status have lower political participation rates than their contemporaries with a more stable social status (Pertti, 1964). Such may be the case in Guatemala.

Major receiving areas for the migrants are the urban centers. A hierarchy of foci exists with the large departmental capitals functioning as the receiving points. Thus, Guatemala City and the other large department capitals especially serve as political core areas for the country (McDonald, 1969a). Although the core areas are technologically advanced and possess higher standards of living than the rural areas, they often remain areas of political instability, thus contributing to intra-party hostility and competition (McDonald, 1969a; Johnson, 1967).

A tenet of political theory in developing countries states that the urban environment fosters political organization, particularly among the lower income groups. Political organizations are fostered when "re-occurring daily situations arise which place the lower class in a position to perceive of themselves as a group in opposition to others" (Byron, 1968). Within the urban slums of Guatemala City, the weak and informal political organization discourages the formation of this perception (Byron, 1968).

One of the most pervasive forces of urban political activity in Guatemala is the politics of dissent found among the young people of the middle and lower classes. One contributing cause of this type of politics is the economic isolation of the more traditional rural areas from the urban areas which tends to foster the identification of urban politics as the accepted national politics of the country (McDonald, 1969a). Thus one finds again a situation where political sectionalism functions as a response to the uneven levels of economic development and integration within a country (Gil, 1966).

Urbanization and the benefits derived from it, i.e., education and communication, foster political cosmopolitanism.[1] However, political cosmopolitanism does not imply political acceptance. Cosmopolitanism in the urban area contributes to the development of new ideologies and reform programs. Once reforms are accepted by the people

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[1]The reader is referred to Everett M. Rogers' book on the Diffusion of Innovations (Glencoe: Free Press, 1962) for a discussion of cosmopolitanism. He defines it as the "degree to which an individual's orientation is external to a particular social system," p. 17.

in the most cosmopolitan area, normally the largest city, these ideas or reforms diffuse to other areas. It is in the rural areas that support for the new reforms or ideologies may have a detrimental effect upon the level of national governmental acceptance and participation. That is, the spatial spread of the ideology of reform may only serve to widen the already existing social and economic differences within a developing country.

Political participation cannot be divorced from the social, demographic, and economic elements which together shape the overall cultural patterns of the country. Occupation, race, social class, sex and education are a few of these factors which may influence the rates of participation. If the political milieu is intertwined with the economic and social environment and if there are easily recognizeable differences in the distribution of the selected indices of this environment, then an analysis of political participation in Guatemala will reflect these differences. Moreover, if a country like Guatemala possesses political parties which are ideologically oriented to a specific class or geographic area, then analysis of participation and rates by party should effect a similar socio-economic bias. This may be one reason why new political parties are often formed in the Latin urban area. If the urban areas in Guatemala are located at the nodes of the information flow, then political participation and participation for the youngest political party (PR) will be highest in the urban socio-economic setting.

CHAPTER III

PERSPECTIVE ON THE MAJOR GUATEMALAN POLITICAL PARTIES AND THE 1966 PRESIDENTIAL ELECTION

The indices of participation consistently employed throughout this analysis are derived from the 1966 presidential election. One such index is the ratio of total votes cast to the total population of the municipio.[1] Therefore a discussion of the election laws and party alignment and composition aids in the understanding and the recognition of the political elements which may directly influence participation. In addition, a discussion of the major issues and party platforms contributes to the explanation of the differential participation rates.

Like many other Latin countries, Guatemala has undergone a high degree of political instability. An indentification of all the elements contributing to the instability is difficult. However, one such element is the political and economic primacy of the capital city. Two other factors are governmental corruption and tax inequity. Finally, there are vested commercial and landed interests that often exert some control over the elected officials who inspire political extremism among the masses (Johnson, 1967).

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[1] A municipio is the minor civil division in Guatemala, comparable to a county or a large township in the United States. All together there are some 327 of these divisions but the present research pertains only to 323. Four municipios are excluded due to a deficiency of consistent data for them.

Confronted by an historical tendency of instability and mass political deprivation, political parties in Guatemala arose. Party proliferation is considered a favorite political pastime particularly around election time (Cehelskey, 1966). However, the constitution limits the number of parties permitted to participate in any national election by requiring each one to have 50,000 'bona fide' members, twenty percent who must be literate. In the 1966 election, the reform oriented and anti-military Christian Democrats were excluded from the election because they failed to meet these requirements (Johnson, 1967).

Every literate male and female eighteen years and over is required to vote and for the illiterate, it is an option (Cehelskey, 1966). Historically, women in Guatemala voted less than men. One reason for this behavior rests with the cultural values which frowns upon political activity on the part of women in Guatemala (Johnson, 1967). The total number of eligible voters is approximately 46.5% of the population or some 1,950,000 people. This national figure is less than the number of voters permitted to vote in the local elections. The difference is equal to the number of foreigners who are not permitted to vote in the national election.

The main issues of the 1966 election were political and military in nature and only partly economic. The foremost issue was the restoration of a constitutional government which had been absent for the past three years. Since the 1963 coup overthrew the constitutionally elected president, Ydigoras Fuentens, a military government was conducted under the rule of Colonel Enrique Peralta Azurdia. The second issue of the

campaign was the reduction of terrorism and the protection of the civilian population (Cehelskey, 1966). The overall role of the military in the government was an issue only with the more conservative parties. National investment incentives and regulations of foreign companies were less important (Cehelskey, 1966).

These salient issues of the 1966 election did not significantly affect voter turnout (Cehelskey, 1966). One explanation for this may rest with the mandated participation. The major determinant of turnout is related to the amount of freedom with which the election is conducted (Sloan, 1970). It was predicted prior to the election that the freer the election, the better the chances the liberals had of winning (Eder, 1966). Since the liberals did win, this election can be viewed as a relatively free election.

In response to the various issues three legally recognized parties presented their platforms. They were Partido Institutional Democratico (PID); the Movimento de Liberacion Nacional (MLN); and the Partido Revolucionario (PR). The PID was the incumbent party and it represented the political center of the ideological continuum. It stressed a rebirth of economic nationalism so that private investment would be encouraged (Cehelskey, 1966). For this they won the support of the urban upper classes. In order to win the support of the rural electorate, composed of Indians and the landed aristocracy, the PID emphasized governmental decentralization, road building and land resettlement programs. Urban terrorism, a major issue with the other parties, was downplayed by this party since it was politically responsible (Sloan, 1968; Johnson, 1967).

The political left of the 1966 election was occupied by the PR composed of reform-minded politicians, the party directed its campaign at the urban areas. The platform stressed the reduction of the military, literacy campaigns, tax reform, consumer and labor cooperatives and a welfare program. Many of the PR's labor reforms and social welfare ideas belonged originally to the Christian Democrats who failed to gain legal recognition. Thus the supporters of the only socialistic party permitted in the election represented a fusion of businessmen, professionals, laborers and students (Cehelskey, 1966). As evident from Table 6, the coalition politics of the PR eventually won the election. Party officials were elated at the support given the party during its first real political battle. They were also optimistic about future growth due to the support given the party in areas of urban migration (Johnson, 1967) (Table 7).

The political right of the election was occupied by the MLN. Their major campaign issue was the reduction of terrorism and the elimination of communist insurgency in the rural areas. The MLN drew most of its support from the military officers, clerical personnel and large land owners. Areally the MLN received tacit support in both rural and urban departments but failed to gain a majority in either (Johnson, 1967).

It was expected that urbanization would divide the Guatemala electorate into groups favoring or opposing the dominance of the military in governmental affairs (Johnson, 1967). From Table 7 it is

TABLE 6

PERCENT OF DEPARTMENT VOTE GIVEN TO THE THREE MAJOR PARTIES

DEPARTMENT	PR	(%)	PID	(%)	MLN	(%)
Guatemala	62058	55.1	20667	18.3	29997	26.6
El Progresso	2161	34.4	2057	32.7	2158	32.8
Sacatepéquez	4012	42.7	2710	28.9	2676	28.4
Chimaltenango	4927	34.0	5560	38.3	3995	27.5
Escuintla	14050	61.8	4206	18.5	4476	19.6
Santa Rosa	6416	41.0	5409	34.5	3819	24.4
Sololá	3766	35.5	5054	47.7	1770	16.7
Totonicapán	2207	18.3	7074	58.3	2881	23.4
Quezaltenango	12927	42.3	12029	39.5	5558	18.2
Suchitepéquez	13251	57.1	5795	25.1	4131	17.9
Retalhuleu	6109	53.6	3714	32.6	1584	13.9
San Marcos	17487	52.4	10393	31.1	5453	16.3
Huehuetenango	7228	29.7	10268	42.2	6793	27.9
Quiché	2288	18.3	6674	53.2	3561	28.4
Baja Verapaz	2830	31.2	4074	44.9	2178	24.0
Alta Varapaz	4790	27.9	8418	4911	3912	22.9
Petén	1574	41.6	1547	21.0	659	17.4
Izabal	4266	44.7	3183	33.3	2102	22.1
Zacapa	4136	43.3	3309	34.7	2101	22.1
Chiquimula	5633	37.3	3866	25.6	5627	37.2
Jalapa	3085	41.4	2834	38.0	1536	20.6
Jutiapa	5698	29.5	7443	38.6	6136	31.9

SOURCE: Johnson, 1967.

TABLE 7

RANK ORDERS OF DEPARTMENT FOR URBAN POPULATION,

POPULATION CHANGE AND PARTY VOTE

DEPARTMENT	PR	PID	MLN	Percent Urban	Percent Population Change
Guatemala	3	22	8	1	3
El Progresso	15	15	2	9	15
Sacatepéquez	8	18	4.5	2	20
Chimaltenango	16	10	7	4	18
Escuintla	1	21	16	13	1
Santa Rosa	12	13	9	15	12
Sololá	14	4	20	6	21
Totonicapán	21.5	1	11	19	14
Quezaltenango	9	8	17	5	7
Suchitepéquez	2	20	18	7	6
Retalhuleu	4	16	22	11	4
San Marcos	5	17	21	21	11
Huehuetenango	18	6	6	18	10
Quiché	21.5	2	4.5	20	13
Baja Verapaz	17	5	10	17	8
Alta Verapaz	20	3	12	22	17
Petén	10	7	19	3	5
Izabal	6	14	13.5	12	2
Zacapa	7	12	13.5	8	16
Chiquimula	13	19	1	14	19
Jalapa	11	11	15	10	22
Jutiapa	19	9	3	16	9

TABLE 7 (cont'd)

SOURCE: calculated by the author.

clear that PR and the ranks of urbanized departments are close in agreement. Likewise the ranks of MLN and PID votes and urbanization approach disagreement. Similar results are obtained in a subsequent chapter dealing with the party participation at the municipio level.

The 1966 election in Guatemala substantiated the existance of party ideological cleavages. Similar cleavages were recognized in Colombia between the conservatives, liberals and leftists on one side and the rightists and fascists on the other (Johnson, 1965). According to electoral analysts, a pre-election compromise was established between the PID and PR which would have eliminated the MLN from entering the governmental machinery (Sloan, 1968). As evident from Table 8, this compromise covered a wide ideological gap. Perhaps a better compromise could have been established between the MLN and PID. Undoubtedly such a coalition is ideologically and statistically sound. As evident from the results, the PR constituency was relatively independent of the MLN and PID constituency. These last two parties robbed each other of votes. From Table 8 it is empirically verified that the PR relied more upon the urban areas than the other parties. In addition this party was dependent upon large changes in population. Those areas in Guatemala which have undergone the most pronounced population changes are also the most urban.

TABLE 8

SPEARMEN'S RANK ORDER COEFFICIENT FOR PARTIES,

URBANIZATION AND POPULATION CHANGE

	PR	PID	MLN	URBAN	POP. CHANGE
PR	1.00				
PID	- .51	1.00			
MLN	- .57	+ .62	1.00		
URBAN	+ .63	- .21	- .25	1.00	
POP. CHANGE	+ .75	+ .09	- .05	+ .67	1.00

SOURCE: calculated by the author.

CHAPTER IV

RESEARCH DESIGN

STATEMENT OF HYPOTHESES

From the previously cited literature and analysis, it is concluded that urban areas in Latin America stimulate economic viability, produce cultural invigoration and act as destination points in the migration flow. In addition the urban environment tends to realign the political activities of the migrant (Horowitz, 1967). Since the urban areas within Guatemala perform these functions, then they will also very likely stimulate political participation.

Distance affects the diffusion of political information and as distance from urban areas increases, the intensity of the information flow tends to decrease (McDonald, 1969a). Due to their location the urban areas often act as the centers of the spatial spread of information.

Description of Data

The variables were chosen for this study on the basis of their level of aggregation, overall relevance to the socio-economic environment, and availability. A total of fourteen variables were collected for 323 municipios (Table 9). Excluded from the list of possible variables were many distinctly collinear variables, i.e., percent urban and percent rural. When this occurred only one variable was chosen. The fourteen variables were then statistically analyzed within a factor analytical model.

TABLE 9

DESCRIPTION OF DATA

VARIABLE	DESCRIPTION	YEAR COLLECTED	SOURCE
1	LITERACY RATIO	1950	1
2	PERCENT URBAN	1964	3
3	PERCENT MALE	1964	3
4	PRESENCE OF ABSENCE OF INDUSTRY	1964	2
5	RATIO OF INDUSTRIAL WORKERS TO URBAN MALES	1964	2
6	PRESENCE OR ABSENCE OR BUDGET SURPLUS	1957	4
7	VALUE ADDED BY MANUFACTURING	1964	2
8	PERCAPITA MUNICIPIO TAX RECEIPTS	1957	4
9	PERCAPITA MUNICIPIO TAX EXPENDITURES	1957	4
10	PERCAPITA MUNICIPIO TAX EXPENDITURES ON PUBLIC WORKS	1957	4
11	WEIGHTED HIGHWAY DISTANCE[1]	1966	6
12	PERCENT POPULATION INCREASE 1950-1964	1964	2
13	PERCENT INDIAN OF THE TOTAL POPULATION	1950	1,3
14	RADIO STATION COVERAGE	1969	5
15	VOTES CAST IN THE 1966 ELECTION (TOTAL AND BY PARTY)	1966	7

TABLE 9 (cont'd)

SOURCES:

1. Ministerio de Economía (1950). Sexto Censo de Poblacion, Guatemala City: Ministerio de Economia.

2. Ministerio de Economia (1964). Trimestre Estadístico. Abril, Mayo and Junio. III Censo Industrial. Guatemala City: Ministerio de Economia.

3. Ministerio de Economia (1964). Población Total de la República por Departmento, Sex y areas, Urbana y Rural, Conforme al Censo Effectivado de 18 al 26 de Abril de 1964. Ministerio de Economia.

4. Dirección General de Estadística (1957). Boletjn Mensual. Numero 1, Guatemala C.A.: Dirección General de Estadística.

5. World Radio and Television Handbook (1969). Copenhagen: Lund Johansen.

6. Robert N. Thomas (1968), "Internal Migration to Guatemala City," Ph.D. Dissertation, Department of Geography, Penn State University.

7. Kenneth Johnson (1967), Analysis of the 1966 Presidential Election in Guatemala, March, 1966. Election Analysis Series, Washington: Institute for the Comparative Study of Political Systems, Operation and Policy Research, Inc.

1. The weighting is one mile of hard surface road equals two miles of dirt road.

2. The variable was derived by first locating the municipio in which each of the 55 medium range radio stations are located. Then concentrics circles were drawn, the radius proportional to the kiowatts of the emitting station. It was conservatively estimated that a 10 kilowatt station would reach 100 miles in every direction. The entire country has only six stations of the 10 kilowatt category. Most of the stations emit .5 to 2 kilowatt of power. A basic assumption is a flat to rolling topography. Once the circles were drawn, the maximum number of radio stations that could be received in each municipio was calculated.

Basic Outline of Factor Analysis

Factor analysis begins with a matrix of intercorrelation values and attempts to find the smallest set sufficient to explain the observed set of correlations (Gullahorn, 1966). The assumptions of the model are not binding and are almost tautological. The assumptions are:

(1) that a group of variables does have a set of common factors;
(2) that the summed component variance equals total variance;
(3) that the scores of the individual factors can be more economically represented in terms of reference factors (Fruchter, 1954; Russet, 1965).

Factor analysis has many varied applications. Some of these applications are:

(1) reducing data for economical description;
(2) delineating patterns;
(3) discovering primary structure by reducing complexity and increasing homogenity of units;
(4) classifying variables into categories;
(5) reducing and compressing the number of observations on the basis of independent scalar quantities;
(6) testing for the existence of hypothesized relations;
(7) transforming data to meet requirements for other techniques;
(8) permitting the mapping of social terrain (Rummel, 1967; Dingham, 1969).

Within geography factor analysis has reached widespread use and has gained descriptive importance. Perhaps the acceptance of the technique can be attributed to the pioneer work of Berry (1960, 1961, 1962, 1965, 1968); King (1966); Smith (1965), and Carey (1966) and others. Two recent uses of the factor analytical model using both principal axes and common analysis in voting behavior are Cox (1968c) and Brunn et al. (1969, 1970a).

In the factor analytical models there are two major approaches used that produce different results. The first is principal component analysis (PCA), and the other is common factor analysis (CFA). In

principal component analysis the objective is to determine a center of gravity solution on the basic structure in a 'm' dimensional space in which 'm' variables load on 'r' dimensions ($m > r$) (Harvey, 1970; Rummel, 1967; Brunn et al., 1970a). Variance is at a maximum with the first extracted factor and subsequent factors partition the residual variance. In common factor analysis the number of factors K is determined a priori and it is always less than m dimensions. In component analysis the factors are always statistically independent (orthogonal) whereas in common factor analysis the factors may be orthogonal or dependent. One of the major differences between the two approaches lies in the diagonal values of the correlation matrix, the starting point for the model. In PCA the diagonals are equal to 1 (one) while in CFA the diagonals are less than 1 (one). Thus an error term is assumed in the latter.

The factor loading is the measure of the importance of one variable with all of the others in the extracted factor. In PCA and CFA the factor loading equals $Z_{J1} = V_{JR} \cdot f_R$ where f_R equals the value of the variable and V_{JR} is the characteristic root. However, in CFA the $\sum_{i=1}^{P} (Z_{J1})^2$ $i=1 \ldots p$ & $p \leq m$ is less than one while in PCA the $\sum_{i=1}^{M} (Z_{J1})^2$ $i=1 \ldots m$ is equal to one (Harvey, 1970; King, 1969). The square summation of row factor loading $\Sigma (Z_J)^2$ is the portion of variance explained. In PCA this value must equal the value of the diagonal cells (r_{ii}) of the correlation matrix which is equal to one while in CFA the value is less than one. Therefore, PCA explains all the variance

of a characteristic while in CFA a portion of variance is attributed to random noise.

Since the researcher attributes a portion of explanation to unknown factors in CFA, he must have a yardstick with which to choose the most meaningful column vectors. The rule of thumb adopted in this study and which is supported by others, such as King and Rummel is to choose only those vectors with a latent root greater than unity. By doing this, the researcher is then compressing the variance of his data. A latent root in column one which is twice the size of an adjacent root in a second column tells the researcher that the first column has accounted for twice the variance of the second column. Dividing the latent root by the number of rows yields the percent of explained variance in the first column.

The rating of each observation on the particular factor is called the factor score. Each column vector has a column vector of scores, where $[Y_i] = [U^t] \cdot [x]$. In order to facilitate column by column comparison, the component scores are standardized. The new formula then becomes $[Y_i'] = [\lambda - \frac{1}{2}] \cdot [Y_i]$. It is noteworthy to mention that standardization does not imply normalization.

In summary PCA is most valuable for a basic assessment of structure. However, if the structure is too vague, the researcher may want to use CFA which is specifically designed for an assessment of the clustering of variables around extracted factors. Normally the factors are rotated through the center of the cluster either maintaining orthogonality or not. As a general rule, if the researcher

hypothesizes a priori the existance of certain factors then the researcher should use common factor analysis with either correlated (oblique) or uncorrelated (orthogonal) factors. However, if the researcher merely wants to reduce dimensional variation, for example data transformations or scaling, then the principal components analysis is best (Kendall, 1957).

In geography there has been a paucity of research based on principal components analysis. In many studies utilizing factor analytical models a principal components approach is combined with a rotation producing essentially a common factor analytical model (King, 1969). Most of the previously mentionned geographic applications of factor analysis have used common factor analysis.

Basic Outline of Regression Coefficient Analysis

The following section of the research design proposes and a statistical technique capable of answering the research problem proposed earlier. Regression coefficient analysis is needed to evaluate the influence that each of the segments of the socio-economic has upon the participation rates.

Analysis of correlation coefficients could possibly be employed within the research design. However, this type of analysis has many inherent weaknesses, some of which are:

a) The correlation coefficient is designed for locating important variables not in the assessing of change of one unit with another;

b) The percent of explained variation in a correlation problem

measures the degree of scatter around the least squares line. Consequently, a high percent of variation represents a low degree of scatter. Voting involves numerous intricacies the complete identification of which is close to impossible;

c) The correlation coefficient is ideal for the measurement of the nature of a relationship. That is, does a particular variable vary directly or indirectly with other variables and what is the goodness of fit of the relationship? Correlation coefficients do not measure the form of the relationship. The research problem of this paper requires a research design stressing the form of the relationship between the socio-economic cleavages and voter participation. It is assumed, based upon related research in political science, that a relationship does exist between the dependent and the independent variables;

d) The correlation coefficient is susceptible to confounding influences. The size of the correlation coefficient depends not only on the variation in the dependent variable, but also on other confounding variables affecting the variation in the dependent variable (Blalock, 1964). The regression coefficient is unaffected by confounding variables as long as the researcher assumes that any manipulations of data occurred solely with the independent variables. A manipulation is any overweighting of the sample, selection of certain cases, grouping of certain cases of shifting of areal units (Blalock, 1964). In the present study, the universe was studied with no a priori weighting in the collection or formulation of the research design. Also the independent variables were not grouped on the basis of aggregate units;

e) The correlation coefficient is based upon a set of events occurring at place (i,j). However, the events at (i,j) may be related to the events at (i+m, j+n) which in turn leads to a correlation of each observation with its neighbor (Tobler, 1966; Cliff and Ord, 1969). It is assumed that many of the variables chosen for this study represent events which are autocorrelated. However, it is beyond the scope of the present study to prove or disprove the above assumption.

Therefore, the inherent weaknesses of the correlation coefficient have eliminated its use in the present study. Substituted for it is the regression coefficient which overcomes most of these weaknesses.

The regression coefficient b_{yx} represents the units change in Y associated with a unit change in X (Yeates, 1968). In reference to

this problem b_{yx} represents the amount of change in political participation associated with a unit change in one of the socio-economic dimensions. Often the regression coefficient is symbolized with a period to the right of the variables. These variables to the right of the decimal are held constant or controlled (King, 1969). In order to compare the values of the various slopes of the regression equation, a standardization of units is necessary. The formula for this is:

$$B_j = b_j (s_j/s_i)$$

where b_j is the regression coefficient and s_j and s_i are the standard deviations of the independent and dependent variables (King, 1969).

Two assumptions which must be met prior to a valid interpretation of regression coefficients are:

a) means of zero, and

b) standard deviations of one

The following section describes the normalization of the data, a process necessary in order to meet these assumptions.

ASSESSMENT OF DATA NORMALITY

The determination of the normality of the data is accomplished through the use of the two-sided Kolmogorov-Smirnov test.[1] Since this test is non-parametric, the interval factor scores are changes to orginal variables. The variables are then classified into one of fourteen classes which represent one-half standard deviation units above and below the mean. For each class the cumulative frequency is determined.

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[1]For most tests, two-sided levels of significances represents the probability that the samples were drawn from identical populations.

The Kolmogorov-Smirnov test is based upon the acceptance or rejection of a null hypothesis.[2] If the actual difference between the test distribution and the actual distribution is less than the expected, then the null hypothesis is accepted. If the actual difference is greater, then the null hypothesis is rejected. The null hypothesis states that the two independent samples have been drawn from identical populations, one of which is normal. Therefore, the cumulative frequency distributions for the sample are equal (Blalock, 1960).

To determine at what point to reject the null hypothesis the chi-square test is used. The chi-square values for the sample distributions are calculated from the following formula:

$$\chi^2 = \frac{(4d)^2(N_1N_2)}{N1 + N2}$$

Where N_1 and N_2 equal the total number in each rank and 'd' is the largest difference between the actual data and the normal data. The last value is obtained from the fourteen categories. The above chi-square value is compared with the chi-square value based on N_1 and N_2 degrees of freedom. If the sample value is less than the expected, then the hypothesis is accepted. Likewise, if the sample value is greater then the expected, then the hypothesis is rejected.

Table 10 lists the variable, the actual difference and the expected difference at a certain level of confidence. The fourth

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[2]The Kolmogorov-Smirnov test was incorporated into a computer program written by Theodore Miller, Geography Department, University of Iowa. Norm was adapted for use on the CDC 6500 by Robert Wittick of the Computer Institute for Social Science Research.

TABLE 10

NORMALITY OF VARIABLES EMPLOYED IN STUDY

VARIABLE	ACTUAL DIFFERENCE	EXPECTED DIFFERENCE AT A CONFIDENCE LEVEL	TRANSFORMATION REQUIRED
Per Capita Vote	.355	.068-10%	$\log_{10}$
Percent Vote (PID)	.052	.068-10%	-----
Percent Vote (MLN)	.081	.091- 1%	-----
Percent Vote (PR)	.109	.091- 1%	-----
Factor 1	.176	.068-10%	$\log_{10}$
Factor 2	.155	.068-10%	$\log_{10}$
Factor 3	.057	.063-15%	-----
Factor 4	.156	.068-10%	exponential
Factor 5	.047	.063-15%	-----

SOURCE: calculated by author.

column contains a transformation which produces, in some cases a smaller actual difference. Repeated tests at less restrictive levels of confidence were conducted to see if the non-normalized variables were indeed normal. Since these variables remained non-normalized, it is assumed that the transformation indicated in Table 10 represents the closest approximation of normality attainable within the present research design.

CHAPTER V

ANALYSIS OF PARTICIPATION IN GUATEMALA

DELINEATION OF ASPECTS OF THE SOCIO-ECONOMIC ENVIRONMENT

The rotated factor analysis model for this study consists of five orthogonally related dimensions with roots greater than one. The variables loading on the five dimensions have communality values ranging from .43 to .84 (Table 11). The low communality values for some of the variables indicates that these variables load on factors with latent roots less than one.

Once the model is constructed, the next most important step is the labeling of each dimension. Although the identification of the factors is not mandatory, it does aid the reader in the subsequent interpretation of the results. The enumeration of each factor in this study is based upon the following criteria:

(1) The specific variables loading highest on the factor;

(2) The sign of the factor loading; and

(3) The spatial distribution of the factor scores.

As evidenced from Table 11 the most important factor, number one, had an urban orientation. The variables loading high on this factor are Value Added, Tax Receipts and Tax Expenditures on municipio services. Higher factor scores for this dimension are found in the more urban municipios (Figure 4).[1] Analysis of the factor scores indicates that

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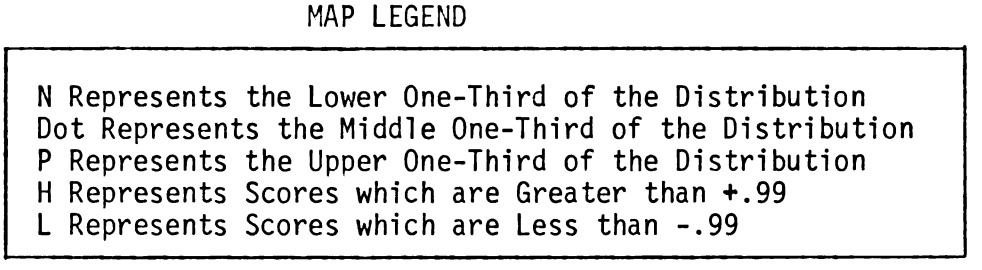
[1]The computer program SYMAP (1969) was used to construct Figures 4-8.

Figure 4: FACTOR 1

The Development Dimension



SOURCE: calculated by the author.

TABLE 11

FACTOR LOADINGS AND COMMUNALITIES

VARIABLE	FACTOR					COMMUNALTIES
	1	2	3	4	5	(%)
Literacy Ratio	+	- .81	-	-	-	78.3
Percent Urban	+	+ .51	+	-	- .42	64.0
Percent Male	-	+ .56	+	+	+	53.0
Presence/Absence of Industry	+	+	- .90	+	-	84.1
Budget Surplus	+ .42	+	- .47	-	-	43.1
Industrial Workers	+	+	- .88	+	-	82.7
Value Added by Industry	+ .81	-	-	+	-	70.8
Tax Receipts	+ .68	+ .45	-	-	+	78.6
Tax Expenditures	+ .80	+	-	-	+	86.5
Tax Expenditures on Public Works	+ .81	-	+	+	+	70.9
Weighted Highway Distance	+	-	+	-	+ .84	75.8
Percent Population Increase (1950-1964)	+	+	-	+ .88	+	79.9
Percent Indian/ Total Population	+	- .62	+	-	-	51.7
Radio Station Coverage	+	+	-	+ .70	- .54	81.1
Proportion of Variance	20.2	14.7	14.6	11.3	10.3	71.4

TABLE 11 (cont'd)

Eigenvalues	3.74	1.72	1.36	2.02	1.14

\+ = loading less than or equal to .40

\- = loading less than or equal to - .38

SOURCE: calculated by author.

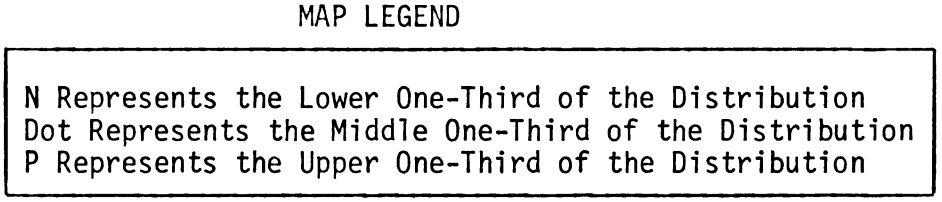
the department capitals are generally all above one standard deviation and positive. Guatemala had the highest score, a 14.8, followed by Quezaltenango, Mazantenango, Antigua, Puerto Barrios, Sololá, Totonicapán and Escuintla. This factor representative of economic integration and urbanization is labeled the Development factor.

The second factor, similar in areal extent to factor two, yet more important in overall explanation, includes the variables percent male, percent urban, percent literate and inversely related to all of these, fifteen percent Indian. Factor scores are negative and less than one for most large urban departments. Factor scores greater than plus one are found in the departments of Retalhulue, Suchitépequez, Escuintla and along the Pacific Piedmont paralleling the Pacific Coast Highway. (Figure 1 and Figure 5). High positive scores are also found in the department of Petén and Izabal. The high positive scores in this part of Guatemala are associated with recent agricultural settlement schemes where male participation is high. Therefore, this factor is called the Agricultural Settlement dimension.

The highest factor loadings on factor three are the nominal variables industry, industrial workers, urban males and budget surplus. All of these variables are directly related and indirectly related in the factor. High positive scores are found along the northern and northwest sections of the Central Highlands and in the southeastern section of the country. Areas with low negative scores are predominantly urban centers, for instance, Retalhuleu, Mazatenango, Quezaltenango, Puerto Barrios, Zacapa and Guatemala City. Other extensive areas of

Figure 5: FACTOR 2

The Agricultural Settlement Dimension



SOURCE: calculated by the author.

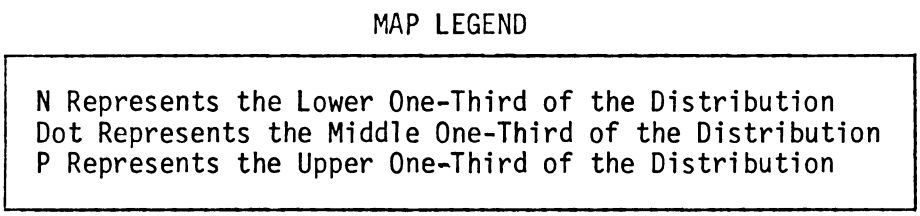
low scores occurs along the Pacific coast (Figure 6). Since this factor is composed of variables implying economic advancement and agricultural endeavors and since the scores are most significant in selected urban and rural areas, it is labeled the Industrial-Commercial Farm index.

The fourth dimension, labeled the Migration factor, is composed of the distance variable radio station coverage and population growth, both of which vary directly within the factor (Table 11). High positive factor scores are found in the department of Guatemala, Retalhuleu, San Marcos, Escuintla, Suchitepéquez, and Zacapa (Figure 7). According to Table 12 these departments have undergone a rapid population growth within the past twenty or so years. Negative scores are principally found in the central highlands around Sololá and Totonicapán and in the major northwest portions of Huehuetenango and Quiché.

Loading highest on factor five are the distance variables. They include weighted highway distance from Guatemala City; potential radio station coverage and percent urban. The two distance variables are directly related to each other and indirectly related to the percent urban. The lowest factor scores for the factor are located in the more urban areas especially those adjacent to Guatemala City and Quezaltenango (Figure 8). High factor are numerous in the northern departments of Petén, Alta Verapaz, Quiché and Huehuetenango. These departments contain a strong majority of the Indian population who live in remote municipios and daily operate outside the political and economic sphere of the large urban cetners. In addition the rugged topography

Figure 6: FACTOR 3:

The Migration Dimension



SOURCE: calculated by the author.

Figure 7: FACTOR 4:

The Migration Dimension

MAP LEGEND

N Represents the Lower One-Third of the Distribution
Dot Represents the Middle One-Third of the Distribution
P Represents the Upper One-Third of the Distribution
H Represents Scores which are Greater than +1.49
L Represents Scores which are Less than a -1.19

SOURCE: calculated by the author.

Figure 8: FACTOR 5:

The Rural Isolation Dimension

MAP LEGEND

N Represents the Lower One-Third of the Distribution
Dot Represents the Middle One-Third of the Distribution
P Represents the Upper One-Third of the Distribution
H Represents Scores which are Greater than +1.99
L Represents Scores which are Less than -1.99

SOURCE: calculated by the author.

TABLE 12

SOCIAL STATISTICS AND FACTOR SCORES FOR DEPARTMENTS AND CABECERA

DEPARTMENT	SOCIAL STATISTICS		CABECERA FACTOR SCORES				
	POPULATION INCREASE (1950-1964)	PERCENT OF POPULATION IN URBAN AREAS	1	2	3	4	5
Guatemala	85.3	78.3	14.21	-1.75	.29	2.01	-1.61
El Progresso	39.4	27.2	.02	.74	-2.02	- .47	- .61
Sacatepéquez	33.8	72.8	2.63	1.56	-1.50	- .34	- .84
Chimaltenango	34.8	37.2	.31	- .05	-2.52	- .57	-1.17
Escuintla	118.0	24.6	1.47	.72	-2.46	.06	- .46
Santa Rosa	41.5	20.6	- .01	.52	-2.19	- .26	- .52
Sololá	31.2	33.6	1.35	-4.68	-2.82	-2.57	-3.21
Totonicapán	40.5	13.9	- .11	- .55	-2.05	.03	.15
Quezaltenanto	46.0	35.8	3.17	.67	-2.08	- .69	-1.02
Suchitepéquez	49.7	31.4	2.75	.22	-1.75	- .07	.40
Retalhuleu	83.7	26.6	.40	1.66	- .61	- .92	.49
San Marcos	42.8	13.3	- .31	.89	-2.06	- .41	.48
Huehuetenango	43.4	15.9	.30	- .82	-1.59	- .68	.20
Quiché	41.6	13.4	- .03	-1.06	.54	- .04	.87
Baja Verapaz	44.2	15.8	1.91	-2.46	-1.51	.67	.05
Alta Varapaz	36.9	11.7	.28	-1.20	.54	- .26	2.13
Petén	68.2	52.0	- .24	.41	.82	- .51	2.56

TABLE 12 (cont'd)

DEPARTMENT	SOCIAL STATISTICS		CABECERA				
	POPULATION INCREASE (1950-1964)	PERCENT OF POPULATION IN URBAN AREAS	FACTOR SCORES 1	2	3	4	5
Izabal	107.8	20.9	- .52	.56	.34	.62	.78
Zacapa	38.0	28.0	- .11	-1.02	.36	.49	- .33
Chiquimula	34.0	21.2	- .31	- .24	-1.10	.13	-2.76
Jalapa	30.0	26.3	.13	- .23	-1.85	- .15	.15
Jutiapa	43.2	18.5	2.9	.95	-1.66	- .80	- .04

SOURCES:

1. Ministerio de Economía (1950). Secto Censo de Población. Guatemala C.A.: Ministerio de Economía.

2. Ministerio de Economia (1964). P blación Total de la República por Departmento, Sexo y areas, Urbana y Rural, Conforme al Censo Effectivado de 18 al 26 Abril de 1964. Guatemala, C.A.: Ministerio de Economía.

3. calculated by author

and the poor roads in the northern and northwest portions of Guatemala increases the cost and the time of movement to the large urban areas. For these reasons, this factor is called the Rural Isolation dimension.

IDENTIFICATION OF THE DYNAMIC CORRELATES OF POLITICAL PARTICIPATION

The aim of the next three sections is to identify those socio-economic dimensions which are most important in affecting a change in political participation. The analysis is conducted on two levels: first total participation and second, party participation. The generalizations derived from both are easily comparable.

Analysis of Overall Participation

The five dimensions listed in Table 11 and the necessary transformation of the variables are statistically analyzed within a linear regression model. The dependent variable is $\log_{10}$ votes cast per one-thousand people.[1] By grouping the dependent variable it is hoped that the impact of exogenous influences is reduced and that the angle of the slope subsequently increases (Blalock, 1964).

The regression coefficients, both standardized and the non-standardized are presented in Table 14. The top portion of the table

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[1] When per capita vote was used as the dependent variable, the slope of the regression line wss almost horizontal. Based upon prior research dealing with electoral geography, it is assumed that the slope should have a value greater than zero. Undoubtedly confounding influences are inhibiting the recognition of the relationship which in turn reduces the magnitude of X_1 and X_0 in the following formula:

$$B_{01} \quad \frac{[\Sigma X_0X_1-(X_1)) \cdot (\Sigma X_0) / N] \times [(\Sigma X_1^2 - (\Sigma X_0)^2 / N]^{1/2}}{[\Sigma X_0^2 - (\Sigma X_0)^2 / N]^{1/2} \times [\Sigma X_0^2 - (\Sigma X_0)^2 \cdot (\Sigma X_0)^2 / N]^{1/2}}$$

As evident from the coefficient formula, once the dependent variable is aggregated into larger units, the numerator increases in value. The empirical proof for this change is found in Table 13.

TABLE 13

SUM AND SUM OF SQUARES OF THE REGRESSION MODEL

VARIABLE	SUM (X)	SUM OF SQUARES (X^2)
BEFORE AGGREGATION OF THE DEPENDENT VARIABLE		
Factor One (Urban Development)	4.2	219.83
Factor Two (Migration)	3.7	229.83
Factor Three (Agricultural Settlement)	.0004	326.51
Factor Four (Industrialization and Commercial Farm)	.0006	322.12
Factor Five (Rural Isolation)	.0001	324.71
Per Capita Vote (dependent variable)	42.4	23.6
AFTER AGGREGATION OF THE DEPENDENT VARIABLE		
Votes Per 1000 people	651.4	1324.1

SOURCE: calculated by author.

TABLE 14

REGRESSION COEFFICIENTS FOR OVERALL PARTICIPATION

VARIABLE	COEFFICIENT	STANDARD DEVIATION	STANDARDIZED COEFFICIENT
BEFORE DELETION			
Votes/1000	-----	.1847	-----
Factor One (Urban Development)	.0376	.3038	.0634
Factor Two (Migration)	-.0212	.6125	-.0704
Factor Three (Agricultural Settlement)	.0540	1.0069	.2961
Factor Four (Industrial-Commercial Farm)	.0084	1.3952	.0636
Factor Five (Rural Isolation)	.0018	1.0042	.0103
AFTER DELETION AT THE .10 LEVEL OF SIGNIFICANCE			
Factor Two	.0307	.6125	-.1064
Factor Three	.0539	1.0069	.3139

SOURCE: calculated by author.

contains all of the coefficients while the bottom portion contains only those coefficients which are significant at the .10 level of significance. This level represents the same level attained consistently with the data transformations. A regression coefficient such as $B_{01.2345}$ assumes that variables two through five are held constant and that the mean value of the dependent variable does not change (Blalock, 1964). The value $B_{02.3}$ is different from the preceding in that this value assumes that only variable three is held constant while variables one, four and five are eliminated. Thus in the latter situation a clearer picture of the slope of the relationship is established.

Is is evident that for every unit change in the factor labeled agricultural settlement a subsequent change in the magnitude of approximately thirty percent occurs in the overall voter participation rates (Table 14). The most significant foci of increased voter activity are found not only in the urban areas but also along their periphery, particularly in the Northeast. Therefore, where the agricultural schemes are dominant, participation in political affairs in Guatemala tends to increase. Also, the regression of the factor dimensions implies that political participation is higher among the more literate.

Furthermore, it is readily established that participation decreases as distance to major urban centers increases and at the same time, participation tends to decrease in areas experiencing rapid population growth (Table 14). As a result migration to major urban centers in the Central Highlands and in the Northeast has a deterimental

effect upon increases of political activity. Perhaps the migrant to these areas lacks concern about the national issues.

Some economic considerations identified in the factor analytical model have only a minimal influence upon any increase of political activity, i.e., industrialization, commerical agriculture and their derived benefits apparently have little effect upon political activity. In contrast to these institutions is the relatively recent agricultural resettlement schemes in the North and Northeast. In all probability this type of economic activity and the residual benefits derived encourages more intensive political participation.

It is inferred from the empirical evidence that the middle class in Guatemala is a politically active force especially in the urban areas. These people, many who migrated recently to the urban area, have become technologically valuable due to their education, training and urban acculturation (Thomas, 1958; Wingo, 1967). Likewise these people who actively engage in frontier settlements also possess this economic and cultural advantage. It is these groups which have the highest rates of political participation.

Analysis of Party Participation

The foregoing analysis of participation paints a broad mosaic of the social and economic dynamics of participation. Missing from that analysis are the finer regional details of participation. This section will present some of these.

Despite the fact that is is difficult to generalize about

political behavior, this study has empirically verified that the socio-economic environment influences political activity. Undoubtedly exceptions to this statement are easily found. However, specific exceptions should not detract from the validity of the generalization. What is needed in the face of numerous exceptions is a redefinition of participation. A broadening of the earlier generalization occurs in this paper by an examination of participation by party using the same factor analytical model.

The parties chosen for the study are the PID, PR and the MLN, all of which were defined earlier. These political interest groups possess a spatially diverse constituency, ranging from the Highland Indian to the urban migrant. By analyzing the party participation rates and correlates of the socio-economic environment, it is hoped that this empirical analysis validates this spatial variance.

The results of the regression coefficient analysis (Table 15) substantiated the earlier regression results. Once again the most salient and consistent correlate of participation is the migration dimension. However, the direction of the relationship varies among the parties. The most important and significant correlates of PID participation are the migration and agricultural settlement dimensions. Both of these factors tend to adversely effect the PID dominance in rural and urban areas. In most cases once the non-significant factors are eliminated, the direction of the relationship becomes more definite. This clarification is easily observed from Table 15 particularly with the PID.

TABLE 15

REGRESSION COEFFICIENT FOR POLITICAL PARTICIPATION BY PARTY

VARIABLE	REGRESSION COEFFICIENT	STANDARD DEVIATION	STANDARDIZED COEFFICIENT
PID - DEPENDENT VARIABLE BEFORE DELETION		11.2	
Factor 1 (Urban Development)	3.37	.05	.015
Factor 2 (Agricultural Settlement)	-1.60	.92	- .133
Factor 3 (Industrial-Commercial Farm)	.40	2.54	.098
Factor 4 (Migration)	- 8.25	.05	- .175
Factor 5 (Rural Isolation)	.70	.89	.057
AFTER DELETION .05 LEVEL			
Factor 4	-40.6	.05	- .186
MLN - DEPENDENT VARIABLE BEFORE DELETION		6.7	
Factor 1	-32.2	.05	- .231
Factor 2	.0004	.92	.0002
Factor 3	- .17	2.54	- .052
Factor 4	10.5	.05	.0785
Factor 5	.42	.89	.056

TABLE 15 (cont'd)

VARIABLE	REGRESSION COEFFICIENT	STANDARD DEVIATION	STANDARDIZED COEFFICIENT
AFTER DELETION .05			
Factor 1	- .31.8	.05	- .237
PR - DEPENDENT VARIABLE BEFORE DELETION		12.5	
Factor 1	27.9	.05	.113
Factor 2	1.6	.92	.121
Factor 3	- .22	2.54	- .048
Factor 4	27.7	.05	.111
Factor 5	- 1.13	.89	- .093
AFTER DELETION .05			
Factor 1	21.7	.05	.088
Factor 4	29.7	.05	.119

SOURCE: calculated by author.

Relating the results of Table 15 to the specific composition of the dimension, it is evident that the PID rates are negatively associated with a factor containing a negative percent Indian. Therefore, the PID rates are positively related with this variable. Likewise, the agricultural settlement dimension is composed of a positive urban variable and it is negatively related to the PID rate. In addition, population growth and urban proximity, two variables composing the migration dimension, are negatively associated with PID support.

Participation for the MLN varies negatively with the urban-development dimension. Once again, a negative dependent variable is associated with a factor composed largely of negative loadings. The result is a positive relationship between the dimension and the dependent variable. MLN support is also negatively paired with the industrial commercial farm index and positively related with the migration dimension. These last two dimensions contain many positive variables.

The regression coefficient for the PR participation exhibits some similarity in direction with the preceding two parties. However, in this case the direction of the regression line is opposite of the earlier rates. Positively associated with PR participation are the migration and the urban-development dimension, both of which are composed mainly of positive variables. Negatively associated with the only socialistic party are two rural based, social and economic dimension, rural isolation and industrial-commercial farm.

An analysis of the dynamic correlated using the same factor

analytical model but choosing only those municipios which ranked one standard deviation above the urban or rural mean produced the results in Table 16. The results of this analysis are consistent with the earlier findings at the higher levels of aggregation. In these highly urban areas of Guatemala, the migration and urban development dimensions produce a high positive change in PR and MLN participation while the migration dimension produces a low negative change in the PID rate and the overall participation rates. MLN participation in the very urban or rural areas is less than the rates for the other two parties in these areas.

This cursory analysis of party participation not only provides a substantiation but also an expansion of the previously expounded empirical generalizations. PID participation appears to be the strongest in the rural Indian areas which have experienced only minimal levels of population growth. MLN participation is highest in rural areas of limited government activity as well as urban areas experiencing rapid population growth. Some departments of future MLN support appear to be Guatemala, Quezaltenango, Alta Verapaz, Baja Verapaz, and Huehuetenango. The urban migration and the economic and social integration of the city appear to favorable influence increased PR participation. Therefore, the future locations of PR strength would seem to rest in the most urban departments such as Guatemala, Sacatepéquez, Quezaltenanto, Solola, Isabal and Chimaltenango.

In summary, this chapter has not only identified some important socio-economic dimensions of voter participation but also has provided an

TABLE 16

REGRESSION COEFFICIENT FOR POLITICAL PARTICIPATION BY PARTY IN SLEECTED AREAS

HIGHLY URBAN AREAS N = 48				
VARIABLE	COEFFICIENT			
	O ERALL PARTICIPATION	PID	MLN	PR
Factor 1 (Urban Development)	.165	.026	- .377	.241
Factor 2 Agricultural Settlement)	.051	- .079	- .050	.145
Factor 3 (Industrial-Commercial Farm)	.1125	.057	- .051	- .037
Factor 4 (Migration)	- .014	- .1648	.248	.410
Factor 5 (Rural Isolation)	.253	.159	- .053	.1770
HIGHLY RURAL AREAS n = 133				
Factor 1	.033	.117	- .245	.024
Factor 2	.223	.001	.158	- .079
Factor 3	- .023	.032	.032	- .042
Factor 4	.142	- .257	- .035	.225
Factor 5	- .158	.092	- .054	- .047

SOURCE: calculated by author.

assessment of each dimension's influence upon increased participation. With this information the comparison of the participation correlates is treated in the next chapter.

CHAPTER VI

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

DISCUSSION

The logical rationale for the following conclusions comes from a synthesis of political participation and its dynamic correlates on the three levels of aggregation: overall, part and urban.

(1) Political participation not only reflects regional, social and economic differences, but it also illustrates the degree of economic integration, government influence and social mobility of that region. In areas of high political participation these social and economic forces are most intense. Evidence for this generalization is derived from the large average coefficients for the urban-related dimensions, that is, factors 1,2 and 3,4 (Table 17).

(2) The urban environment disrupts the political stability of the migrant; however, if the political parties stabilize the environment and if the researcher views the stabilization only in the urban areas, then the migrant tends to participate in the political activities. Proof for this supposition comes from the fact that the migration dimension is negatively associated with overall participation but positively associated with certain party rates. Within Guatemala the party which appears to motivate migrant participation is the PR. MLN participation also is consistently positive with the migration dimension.

TABLE 17

AVERAGE COEFFICIENTS FOR THE CORRELATES OF POLITICAL PARTICIPATION IN GUATEMALA

CORRELATES	SUM OF TWELVE COEFFICIENTS	MEAN	STANDARD DEVIATION
Factor 1	1.650	.1375	.0982
Factor 2	1.101	.1101	.0820
Factor 3	.646	.0537	.0331
Factor 4	1.919	.1593	.0878
Factor 5	1.199	.1001	.0580

SOURCE: calculated by author.

However, based upon its platform, it is assumed that the MLN support in areas of high population growth arises among urban people who may unfavorably react to migration, such as the upper class.

(3) Location and distance surrogated influence the spatial diffusion of politically relevant information which subsequently prepares the area for higher participation. The large urban areas in Guatemala are nodes in the network of this flow. Since the flow is most intense at the nodes, here it is most easily regulated. Likewise as shown by this study, the largest changes in political participation whether overall or party are caused by urban related measures (factors 1, 2 and 3). In addition, the consistent positive coefficient of the newest legally recognized party in Guatemala, the Partido Revolucionario, with the major urban indicators substantiates this generalization.

(4) It is predicted that the socialistic oriented parties of Guatemala will find their support increased if the middle and lower classes continue their integration into the modern day economy. This prediction is based upon the assumption that the middle class in Guatemala maintains and increases its present economic and political viability. A measure of this strength is found in the coefficients between factors 1 and 2 and the overall and PR participation. As evidenced from these values and its party philosophy, is is suggested that the PR which presently controls, will continue to maintain control in the future.

LIMITATIONS OF THE STUDY

One of the major restrictions of the present analysis is the time

delay incorporated into the study by the limited availability of data. As evident from Table 8, this covers a period of fourteen years. The variables chosen for this study were deemed the only ones available which also fit the research problem. For this reason the time element was consciously neglected.

The decision to vote represents the interaction of not only social and economic factors but also psychological variables. The latter were empirically ignored in this study due to the level of aggregation. The procurement of psychological indices for a given population, other than sample data, is almost impossible to obtain for a country such as Guatemala.

Finally, the level of aggregation prevents any elaborations or application of the findings of this research to individual political behavior. An application of this type can only occur if the individual composes the basic unit of data aggregation.

SUGGESTIONS FOR FUTURE RESEARCH

Voting tends to be the product of group and individual factors, most of which vary regionally. Generalizations or conclusions from empirical works often find themselves localized and mathematically deterministic. For this reason, it is recommended that the research design of future electoral analyses incorporate some probabilistic aspects which will enhance the applicability and the validity of the empirical model.

Field research is valuable when data are unavailable. The psychological factors mentioned above can only be procured presently by means of a sample survey. More of these types of data procurement

are required in electoral analyses.

Future research may also concentrate on the analysis of participation as it varies between groups of people of similar socio-economic background. For example, this type of research could then be used to expand or reject the conclusions derived from present highly aggregated analysis.

The present study of political participation in a developing country besides yielding some elements of voting participation levels in a developing country has raised some questions about the nature of political participation. It is hoped that the heuristic nature of the conclusions will serve not to discourage but foster similar electoral research in other developing countries.

BIBLIOGRAPHY

Adams, Richard S. (1968), The Problems of Political Development in Light of Recent Socio-Political History of Guatemala. Washington: Brookings Institute.

Alexander, Robert. (1965), Latin American Politics and Government. New York: Harper and Row.

Alschuler, Lawrence R. (1967), "Political Participation and Urbanization in Mexico," An Unpublished Ph.D. Dissertation, Department of Political Science, Northwestern University.

Benney, M. and A. Gray. (1956), How People Vote: A Study of Electoral Behavior in Greenwich. New York: Humanities Press.

Berelson, B. R., W. N. McPhee and P. F. Lazarsfeld. (1966), Voting, A Study of Opinion Formation in a Presidential Campaign. Chicago: University of Chicago Press.

Berry, B. J. L. (1960), "An Inductive Approach to the Regionalization of Economic Development," in N. Ginsberg (ed.), Geography and Economic Development," Resource Paper No. 62, Department of Geography, University of Chicago.

_____. (1961), "A Method for Deriving Multifactor Uniform Regions."

_____. (1962), "Sampling, Coding and Storing Flood Plain Data, U.S. Department of Agriculture, Farm Economics Division, Agriculture Handbook No. 237.

_____. (1965), "Identification of Declining Regions," in W. D. Wood and R. S. Thomain (eds.), Areas of Economic Stress in Canada. Kingston, Ontario:

_____. (1968), "Essays on Commodity Flows and the Spatial Structure of the Indian Economy," Resource Paper No. 111, Department of Geography, University of Chicago.

Billet, Jean. (1968), "L'Expression Politique in Gresivaudan et son Interpretation Geographique," Revue de Geographie Alpine, vol. 46, pp. 97-128.

Birdsall, Stephen S. (1969), "Preliminary Analysis of the 1968 Wallace Vote in the Southeast," Southeastern Geographer, vol. 9, pp. 55-66.

Blalock, Hubert M. (1960), Social Statistics. New York: McGraw-Hill.

_____. (1964), Causal Inferences in Non-Experimental Research. Chapel Hill: University of North Carolina.

Blankstein, George L. (1959),"Political Groups in Latin America," American Political Science Review, vol. 53, pp. 106-127.

Brunn, Stanley D., Wayne L. Hoffman and Gerald Romsa. (1969), "The Defeat of the Youngstown School Levy - A Study of Urban Political Geography," Southeastern Geographer, vol. 9, pp. 67-79.

Brunn, Stanley D. and Wayne L. Hoffman. (1970a), "The Spatial Response of Negroes and Whites Toward Open Housing: The Flint Referendum," Annals of the Association of American Geographers, vol. 60, pp. 18-36.

Brunn, Stanley D., Wayne L. Hoffman and Gerald Romsa, (1970b), "The Youngstown School Levies - A Geographical Analysis in Voting Behavior," Urban Education, vol. 5, pp. 20-48.

Burghardt, A. F. (1964), "The Basis of Support for Political Parties in Burgenland," Annals of the Association of American Geographers, vol. 54, pp. 372-390.

Burnett, B. G. and K. F. Johnson. (1968), Political Forces in Latin America: Dimensions of the Quest for Stability. California Wadsworth Press.

Byron, Robert. (1968), "Politics in a Neighborhood of Guatemala City," Sociology, vol. 2, pp. 185-203.

Carey, G. W. (1966), "The Regional Interpretation of Manhattan Population and Housing Patterns Through Factor Analysis," The Geographical Review, vol. 56, pp. 551-569.

Cehelskey, M. (ed.) (1966), Election Factbook for Guatemala, 1966. Washington: Institute for Comparative Studies of Political Systems.

Cliff, A. and K. Ord. (1969), "The Problem of Spatial Autocorrelation," in A. Scott (ed.), Studies in Regional Science. London: Pion Limited, pp. 1-27.

Converse, Philip E. (1958), "The Shifting Role of Class in Political Attitudes and Behavior," in E. Maccoby, T. Newcomb and E. Hartley, (eds.), Readings in Social Psychology. New York: Holt, Rinehart and Winston.

Cornford, James. (1964), "The Adoption of Mass Organization by the British Conservative Party," in E. Allardt and Y. Littunen (eds.). Cleavages, Ideaologies and Party Systems. Helsinki: Westermarck Society, pp. 400-425.

Cope, O. G. (1966), "The 1964 Presidential Election in Chile: The Politics of Change and Access," Inter-American Economic Affairs, vol. 19, pp. 3-29.

_____. (1968), "The 1965 Congressional Election in Chile: An Analysis," Journal of Inter-American Studies, vol. 10, pp. 256-276.

Cox, Kevin. (1968a), "Spatial Interactional Model for Political Geography," East Lakes Geographer, vol. 4, pp. 58-76.

Cox, Kevin and G. Demko. (1968b), "Conflict Behavior for a Spacio-Temporal Context," Sociological Focus, vol. 1, pp. 58-67.

Cox, Kevin. (1968c), "Suburbia and Voting Behavior in the London Metropolitan Area," Annals of the Association of American Geographers, vol. 58, pp. 111-127.

_____. (1969a), "The Voting Decision in a Spatial Context," in B. R. Chorley, P. Haggett and D. Stoddart (eds.). Progress in Geography. International Reviews of Current Literature, vol. 1, London: Edward Arnold, Ltd.

_____. (1969b), "The Spatial Structure of Information Flow and Partisan Attitudes," in M. Dogan and S. Rokkan (eds.). Quantitative Ecological Analyses in Social Science. Cambridge: M.I.T. Press, pp. 55-68.

_____. (1970a), "The Spatial Evolution of National Voting Response Surfaces - Theory and Measurement, Department of Geography Ohio State University. Publication No. 10.

_____. (1970b), "Residential Relocation and Political Behavior: Conceptual Model and Empirical Tests," Acta Sociologica, vol. 13, pp. 40-53.

_____. (1971), "The Spatial Component of Urban Voting," Economic Geography, vol. 47, pp. 27-35.

Dean, V. K. (1949), "Geographic Aspects of the Newfoundland Referendum," Annals of the Association of American Geographers, vol. 39, pp. 70-77.

Dingham, Harvey. (1969), "The Scientific Method and Reproducibility of Results," Multivariate Behavioral Research, vol. 4, pp. 517-522.

Eder, Richard. (1966), "Free Vote Urged on Guatemalans," New York Times, February 23, 1966, pp. 22:1.

Festinger, L. (1947), "The Role of Group Belongingness in a Voting Situation," Human Relations, vol. 1, pp. 154-181.

Fitzgibbion, R. H. (1967), "Measuring Democratic Change in Latin America," Journal of Politics, Vol. 29, pp. 129-166.

Flinn, W. L. and A. Comacho. (1969), "The Correlates of Voter Participation in a Shantytown Barrio in Bogota, Columbia," Inter-American Economic Affairs, vol. 22, pp. 47-58.

Fruchter, B. (1954), Introduction to Factor Analysis. Princeton, N. J.: Van Nostrand Co. Inc.

Germani, Gino. (1970), "Mass Immigration and Modernization in Argentina," in I. L. Horowitz (ed.). Masses in Latin America. New York: Oxford University Press, pp. 319-333.

Gil, F. G. (1966), The Political System of Chile. Boston: Houghton Mifflin Co.

Gillin, J. and K. Silvert. (1956), "Ambiguities in Guatemala," Foreign Affairs, vol. 34, pp. 469-482.

Gomez, R. A. (1962), Government and Politics in Latin America. New York: Random House.

Gullahorn, Jeanne E. (1966), "Multivariate Approaches in Survey Data Processing: Comparison of Factor, Cluster and Guttman Analysis and of Multiple Regression and Correlation Methods," Multivariate Behavioral Research Monograph.

Harvey, David. (1969), Explanation in Geography. New York: St. Martin's Press.

Hoffman, Wayne L. (1966), "A Statistical and Cartographic Analysis of the 1954 and 1964 Urban Renewal Referendums for Columbus Ohio," An Unpublished M.A. Thesis, Department of Geography, Ohio State University.

Horowitz, I. L. (1967), "Electoral Politics, Urbanization and Social Development in Latin America, Urban Affairs Quarterly, vol. 2, pp. 3-35.

Ingalls, Gerald L. (1970), "A Geographic Analysis of Three Costa Rican Presidential Elections: 1958, 1962 and 1966," An Unpublished M.A. Thesis, Department of Geography, University of Florida.

James, Preston E. (1969), Latin America (4th edition). New York: Odyssey Press.

Johnson, Kenneth. (1967), Analysis of the 1966 Presidential Election in Guatemala, March, 1966. Election Analysis Series, Washington: Institute for the Comparative Study of Political Systems, Operation and Policy Research, Inc.

Kasperson, Roger E. (1965), "Toward a Geography of Urban Politics: Chicago, A Case Study," Economic Geography, vol. 41, pp. 95-107.

Kendall, M. G. (1957), A Course in Multivariate Analysis. New York: Hafner Publishing Company.

Key, V. O. (1949), Southern Politics in State and Nation. New York: Vintage Press.

Key, V. O. and F. Manger, (1959), "Social Determinism and Electoral Decision, The Case of Indiana," in E. Burdick and E. Brodbeck (eds.). American Voting Behavior. New York: Free Press of Glencoe.

King, Leslie J. (1966), "Cross-Sectional Analysis of Canadian Urban Dimensions: 1951 and 1961," Canadian Geographer, vol. 10, pp. 205-224.

_____. (1969). Statistical Analysis in Geography. Englewood Cliffs, N. J.: Prentice-Hall, Inc.

Kirkpatrick, E. (1964), "The Impact of the Behavioral Approach on Traditional Political Science," in A. Ranney (ed.). Essays on the Behavioral Study of Politics. Urbana, Illinois: University of Illinois Press.

Lazarsfeld. P., B. Berelson and H. Gaudet. The People's Choice: How the Voter Makes Up His Mind in a Presidential Campaign. New York: Columbia University Press.

Lerner, Daniel. (1958), The Passing of Traditional Society. Glencoe: Free Press.

Lewis, P. F. (1965), "Impact of Negro Migration on the Electoral Geography of Flint, Michigan: A Cartographic Analysis," Annals of the Association of American Geographers, vol. 53, pp. 1-25.

Lipset, Seymour M. (1959), "Some Social Requisites of Democracy: Economic Development and Political Legitimacy," American Political Science Review, vol. 53, pp. 69-105.

_____. (1964), "Political Cleavages in Developed and Emerging Politics," In E. Allardt and Y. Littunen (eds.). Cleavages, Ideaologies and Party Systems. Helsinki: Westermarck Society.

Mangin, William. (1967), "Poverty and Politics in Cities of Latin America," in W. A. Bloomberg and H. J. Schmandt (eds.) Power, Poverty and Urban Policy. Urban Affairs Annual Review, vol. 2, Sage Publications, pp. 397-432.

McCarthy, Harold H. (1960), "McCarthy on McCarthy: The Spatial Distribution of the McCarthy Vote, 1952," An Unpublished Manuscript, Iowa City: Department of Geography, State University of Iowa.

McDonald, Ronald, (1967a), "Political Protests and Alienation in Voting - The Case of Columbia," Inter-American Economic Affairs, vol. 21, pp. 3-19.

_____. (1967b), "Electoral Systems, Party Representation and Political Change in Latin America," Western Political Quarterly, vol. 20, pp. 694-708.

_____. (1969a), "National Urban Voting Behavior: The Politics of Dissent in Latin America," Inter-American Economic Affairs, vol. 23, pp. 3-20.

_____. (1969b), "Apportionment and Party Politics in Santiago, Chile," Midwest Journal of Political Science, vol. 13, pp. 445-470.

_____. (1969c), "Electoral Behavior and Political Development in El Salvador," Journal of Politics, vol. 21, 00. 397-419.

Micklin, Michael. (1969), "Urbanization, Technology and Traditional Values in Guatemala: Some Consequences of a Changing Social Structure," Social Forces, vol. 47, pp. 438-446.

Nash, Manning. (1958), "Political Relations in Guatemala," Social Economic Studies, vol. 7, pp. 67-75.

Needler, Martin. (1966), "Political Development and Military Intervention," American Political Science Review, vol.60, pp. 616-626.

Nelson, H. J. (1952), "The Vernon Area, California: A Study of Political Factor in Urban Geography," Annals of the Association of American Geographers, vol. 42, pp. 177-191.

NORM, Computer Institute for Social Science Research. Programmer: Theodore Miller, Department of Geography, University of Iowa. Adapted to CDC 6500 by Robert Wittick, 1970.

Pertti, Personen. (1964), "Studies on Finnish Political Behavior," in Austin Ranney, Essays on the Behavioral Study of Politics. Urbana: University of Illinois.

Prescott, J. R. V. (1969), "Electoral Studies in Political Geography," in Roger Kasperson and Julian Minghi (eds.), The Structure of Political Geography. Chicago: Aldine.

Reynolds, David R. (1969), "A Friends and Neighbor Voting Model as a Spatial Interactional Model for Electoral Geography," in K. Cox and R. Golledge (eds.), Behavioral Problems in Geography: A Symposium. Evanston: Northwestern University, Department of Geography, No. 16.

Rogers, Everett. (1962). Diffusion of Innovations. New York: Free Press.

Rokkan, Stein. (1962), "The Comparative Study of Political Participation: Notes Toward a Perspective on Current Research," in A. Ranney (ed.), Essays on the Behavioral Study of Politics. Urbana: University of Illinois.

Rossi, Peter. (1959), "Four Landmarks in Voting Research," in E. Burdick and A. Brodbeck (eds.), American Voting Behavior. New York: Free Press of Glencoe.

Rumage, K. W. and M. C. Roberts. (1965), "The Spatial Variations in Urban Left Wing Voting in England and Wales in 1951," Annals of the Association of American Geographers, vol. 55, pp. 161-178.

Rummel, R. J. (1967), "Understanding Factor Analysis," Journal of Conflict Resolution, vol. 11, pp. 444-480.

Russett, Bruce. (1966), "Discovering Voting Groups in the United Nations," The American Political Science Review, vol. 60, pp. 327-340.

Simmons, J. W. (1967), "Voting Behavior and Socio-Economic Characteristics - The Middlesex East Federal Election, 1965," Canadian Journal of Economics and Political Science, vol. 33, pp. 389-400.

Sloan, John. (1968), "The 1966 Presidential Elections in Guatemala - Can a Radical Desiring Fundamental Change Win An Election in Guatemala?" Inter-American Economic Affairs, vol. 22, pp. 15-32.

Smith, R. H. T. (1965), "Method and Purpose in Functional Town Classification," Annals of the Association of American Geographers, vol. 55, pp. 539-548.

_____. (1970), "Electoral Frauds and Social Change: The Guatemalan Example," Science and Society, vol. 34, pp. 78-91.

Soares, G. and R. L. Hamblin. (1967), "Socio-Economic Variables and Voting for the Radical Left: Chile 1952," American Political Science Review, vol. 61, pp. 1053-1065.

Stokes, Donald. (1967), "Parties and Nationalization of Electoral Forces," in W. Chambers and W. Burnham (eds.), The American Party Systems: Stages of Political Development. New York: Oxford University Press, pp. 182-202.

SYMAP, Laboratory for Computer Graphics, Department of City and Regional Planning, Graduate School of Design, Harvard University, Cambridge, Massachusetts, Modified by the Computer Institute for Social Science Research, Technical Report 100, Michigan State University, East Lansing, Michigan, June, 1969.

Thomas, Robert N. (1968), "Internal Migration to Guatemala City," Ph.D. Dissertation, Department of Geography, Pennsylvania State University.

Thompson, W. E. and J. C. Horton. (1960), "Political Alienation as a Force in Political Action," Social Forces, vol. 38, pp. 190-195.

Tobler, Waldo. (1966), "On Geography and Geometry," Unpublished Manuscript, Department of Geography, University of Michigan.

Van de Berghe, Pierre. (1968), "Ethnic Membership and Cultural Change in Guatemala," Social Forces, vol. 46, pp. 514-522.

Whetten, Nathan L. (1961), Guatemala, The Land and the People. London: Yale University Press.

Wingo, Lowdon, Jr. (1967), "Recent Patterns of Urbanization Among Latin American Countries," Urban Affairs Quarterly, vol. 2, pp. 81-110.

Yeates, Maurice. (1968), An Introduction to Quantitative Analysis in Economic Geography. New York: McGraw Hill.