Social Structure and Party Choice in Peru
- Labor and the Left in the 1980 Elections

Dag P. Svendsen

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Department of Political Science

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Introduction

In their seminal work in 1967 on the impact of social structure on party system formation, Lipset and Rokkan found that the economic cleavage resulting from industrialization had effect on workers' party choice in all Western European countries (Lipset and Rokkan 1990). Later research has confirmed a strong relationship between social class and voting behavior in several European countries, but also identified a weak relationship in e.g. Great Britain and the United States (Rose and Urwin 1969; Przeworski and Sprague 1986; Nieuwbeerta 1990; Franklin et al. 1992). Thus, the strength of social structure on party choice has varied across countries. The purpose of this thesis is to measure the impact of social structure on voting in a Latin American context through quantitative and qualitative analyses of Peruvian industry labor's support to the left parties at national and sub-national level in the 1980 presidential election.

The following concrete research questions are asked in order to analyze the relationship between social structure and party choice. Specific hypotheses will later be developed in order to provide answers:

1) Was the level of workers' left party support above the national average? Where there differences in support levels for respectively the communists and for the social democrats? Did support to the left parties increase with the level of industrialization? These questions are included for descriptive analyses of national averages and will measure the overall salience of social structure on party choice.

2) In which geographical regions were industry workers' support to the communists strongest, and where did APRA votes dominate? What characterized the local communities in these regions? How can the observed differences be explained?

The 1980 election was the first free and fair political competition in the Peru's history in which all citizens were entitled to vote and all existing political parties were permitted to compete. Prior to the Constitution of 1979, analphabets were excluded from the right to vote, among them industry workers in the poor Andean highlands such as Apurímac, Huancavelica, Ayacucho, and Cusco, where they represented between 30 % and 50 % of the population. APRA shared the historical origins and focus with the *Partido Comunista*. The former was prohibited from the 1930s and until the 1950s, when it left its radical ideology. The *Partido Comunista*, prohibited since the 1930s, and the New Left parties founded during the 1960s were legalized during the 1970s and competed in elections for the first time in the 1979 Constituent Assembly Election and the 1980 election. Consequently, the 1980 election provides the first historical case for the study of the relationship between industrialization and political response in which all citizens voted and the whole range of political alternatives were included.

There is some controversy with respect of the classification of the *Alianza Popular Revolucionaria Americana* (APRA) as a Social Democratic party, or whether it should be labeled a populist party, and its location in the center-left or the center in the political space in 1980 (discussion follows in Chapter two). In order to empirically examine the impact of the economic cleavage on APRA votes, analyses will be done both for the overall left support (APRA and the communists), and separately for respectively the APRA and the communist parties.

This is the first commune level quantitative analysis of voting behavior in Peru. The units of analysis are the 1682 communes or *distritos* existing in Peru in 1980. Variables from aggregate election and census data, digitalized for the purpose of this study, are combined with a geographical database in order to analyze voting patterns.

The dataset (Microsoft Excel or SPSS format) used in this thesis is available upon request for the Thesis Committee members. In order to accomplish with the standard of replication (King 1995; King 2003), the dataset is also available upon request for researchers at dag.p.svendsen@consultant.com.

Chapter one presents theories that explain the relationship between social structure and political response, in addition to the specific hypotheses that will test the

implications of the theories. Lipset and Rokkan (1990) provide a broad theory of the historical development of social cleavages and their constitutive role in the formation of political parties and party systems up to the 1920s in Western Europe. Lafferty (1974) presents an integrated deductive-nomothetic and inductive-contextual theoretical approach that goes beyond Lipset and Rokkan in the sense of explaining sub-national variation in political labor response (Lafferty 1974: 1). Finally, Knutsen (2004), in a contemporary study identifies the role of crossing cleavages and their weakening or strengthening effects on class voting. At the end of the Chapter, a brief overview of class voting research in Latin America is presented. On one hand, Dix discards the existence of cleavage based voting and cleavage based political parties. On the other, Petras, Soares, Cameron, and Tuesta find through empirical analyses that social structure did had salience on voting behavior in the cases they studied.

Chapter two presents sources, data, operationalizations, and methodology. Some of the most recent methodological contributions in the field of Political Science and Political Geography, including innovative software, are used in the analysis of the aggregate data. Gary King's method of Ecological Inference and his software package *EzI* estimates individual electoral behavior from aggregate electoral data (King 1997). Luc Anselin's *GeoDa* provides a series of spatial statistical techniques in order to identify geographical clustering of left party support (Anselin 2004).

Chapter three summarizes the basic characteristics of the development of the economic cleavage in Peru. Emphasis is given to the interaction between the main actors in this process, and to the uneven speed and geographic concentration of the industrialization process.

Chapter four presents the empirical data analyses. The first part of the Chapter presents national averages of the ecological estimates of labor's overall left party, communist, and APRA support. In the second part, the ecological estimates are analyzed with spatial statistical techniques in order to identify regional differences in labor's vote for the communists and APRA.

Chapter five discusses the empirical results presented in the foregoing Chapter. A discussion of the national level findings is followed by an assessment of the combined quantitative and qualitative analyses of regional differences in support to the

communists and the APRA. Finally, new hypotheses derived from the insight gained in this study and suggestions of new directions of research will be presented.

Chapter six contains a critical summary and the conclusions of the empirical findings and the overall use of theory, data, and methods.

1. Theoretical approaches to social structure and party choice

1.1 Introduction

Neither the working class nor the left parties in Peru by 1980 were homogenous entities. Variation in the pace, extent, and the nature of the socioeconomic changes brought about by industrialization resulted in diverging demands, according to differences in work and living conditions, and to ideological convictions. These differences grossly traced a division between workers with respectively radical and moderate political demands, the former voting for the communists, the latter for the Social Democrats. In addition, we may also expect that sectors of waged labor did not vote for left parties, but supported other political alternatives. Workers' primary political identity may rather have been religious, ethnical, or regional, than class based. Alternatively, other factors, such as patron-client relations, may have had effect on voting preferences.

In Lipset and Rokkan's seminal article from 1967, the authors present a cleavage theory that explains the basic characteristics of the structural relationship between industrialization and political response. Their main hypothesis is that industrialization, given certain conditions, produced an economic cleavage, i.e. that social structure, mediated by unions and left parties, had effect on workers party choice. However, as the authors acknowledged, the theory may be too broad and lack the required specificity in dealing with sub-national variation in workers' voting behavior. Lafferty presents a level specific theory through his local community typology, accounting for sub-national contextual factors in the explanation of observed variation in labor's political response. Knutsen's theory takes the analysis still further. He explains why and how crossing conflict lines, such as the religious or regional cleavages, may weaken the effect of class on voting. Finally, the Chapter closes with a brief overview of some relevant theories on social structure and party choice in Latin American.

1.2 Lipset and Rokkan's cleavage theory

In *Party Systems and Voter Alignment* (1990), Seymour Martin Lipset and Stein Rokkan traced the historical development of social cleavages and the relationship between the cleavages and the formation of political parties and structuring of party systems in Western Europe. The cleavages were consequences of the National and the Industrial Revolutions and produced two crossing conflict dimensions with four poles. The Centre-periphery dimension reflected conflicts between geographical regions, often between the Capital and peripheral provinces, and was related to ethnic, linguistic, and religious differences between those regions. The conflict between state and Church represented the cleavage between the state led secularization of education and the influence of the Church in the same sector, and more generally between state led modernization and the historical and cultural privileges of the Church. The conflict in the labor market opposed owners and employers against the employees and the conflict in the commodity market developed between producers and buyers of agricultural products, and as a consequence thereof, between rural and urban regions (Lipset and Rokkan 1990: 130).

The political representation of the social cleavages occurred gradually and after passing successive thresholds, or political barriers (Lipset and Rokkan 1990: 113). The thresholds included the *legitimation* of political actors, the *incorporation* of different actors in the political system, the *representation* of the political actors in the political system, and the extent to which the political actor was able to reach executive power. Further, Lipset and Rokkan argue that the social cleavages that articulated political parties and structured the party systems in Western Europe occurred while the thresholds for political participation still were quite high. From this follows the hypothesis of the "freezing" of the structure of the party systems: Parties founded around 1920 and before the extension of the rights of suffrage, were to be preserved despite posterior social and economic changes (Randall 2001: 241).

Due to the limits of space in the present thesis, the threshold and the "freezing" hypotheses will not be discussed further. The historical situatedness of Lipset and Rokkan's cleavage theory and the role of cleavages in party system formation are neither subject of analysis. What is to be explained through Lipset and Rokkan's

theory is the translation of economic conflicts resulting from industrialization into political response in 20th century Peru, i.e. the development of an economic cleavage.

Lipset and Rokkan emphasize the importance of the economic cleavage in explaining voting behavior. While the three first cleavages were most important in accounting for differences *between* party systems, the economic cleavage was important for explaining variation *within* a given party system. "(I)n sheer statistical terms, the fourth cleavage line will in at least half of the cases under consideration explain much more of the variance in the distributions of full-suffrage votes than any one of the others" (Lipset and Rokkan 1990: 128).

Second, the presence of an array of different lower-class mass parties, some radical, some moderate, some unified and others fragmented, was a common phenomenon in Western Europe because of industrialization (Lipset and Rokkan 1990: 121). The raise of these parties presupposed though the development of a relationship between industrialization and labor response. Some basic conditions existed:

> "(A)ll countries of Western Europe developed lower-class mass parties at some point or other before World War I. These were rarely unified into one single working-class party. In Latin Europe the lower-class movements were sharply divided among revolutionary anarchist, anarcho-syndicalist, and Marxist factions on the one hand and revisionist socialists on the other (Lipset and Rokkan 1990: 121).

> "The rising masses of wage-earners, whether in large-scale farming, in forestry, or in industry, resented their conditions of work and the insecurity of their contracts, and many of them felt socially and culturally alienated from the owners and the employers. The result was the formation of a variety of labour unions and the development of nationwide Socialist parties. The success of such movements depended on a variety of factors: the strength of the paternalist traditions of ascriptive recognition of the worker status, the size of the work unit and the local ties of the workers, the level of prosperity and the stability of employment in the given industry, and the chances of improvements and promotion through loyal devotion or through education and achievement" (Lipset and Rokkan 1990: 108).

Another factor that influenced the salience of the economic cleavage in voting behavior was the position of the Church in relation to the State. Lipset and Rokkan found that the worker class tended to be much more divided in countries were:

> "…the 'nation-builders' and the Church were openly or latently opposed to each other during the crucial phases of educational development and mass mobilization … than in the countries where the Church had, at least initially, sided with the nation-builders against some common enemy outside…" (Lipset and Rokkan 1990: 132).

There were thus factors that strengthened or weakened the formation of an economic cleavage. Consequently, to predict the existence of political movements originating in the conflict between labor and capital was relatively easy; identifying factors that reinforced or debilitated these movements or political parties, their capacity to mobilize the underprivileged classes for action, were more difficult:

> "To predict the presence of such movements was simple; to predict which ones would be strong and which ones weak, which ones unified and which ones split down the middle, required much more knowledge of national conditions and developments and a much more elaborate model of the historical interaction process. Our three-step model does not go this far for any party; it predicts the presence of such-and-such parties in polities characterized by such-and-such cleavages, but it does not give any formula for accounting for the strength or the cohesion of any one party" (Lipset and Rokkan 1990: 129).

Such a "formula" may be built into the model by adding a series of variables, as the percent that speak different languages and dialects, percent members or followers of the Church or with dissenter associations, concentration of wealth etc. (Lipset and Rokkan 1990: 129).

Two basic implications are derived from Lipset and Rokkan's cleavage theory. First, industrialization produced an economic cleavage, which often had a strong effect on workers party choice. Consequently, the cleavage theory is strengthened if Peruvian workers' vote for the left parties in 1980 was above the national average. However, the eventual numerical confirmation of above average labor vote to left parties does not imply that workers' party choice was *cleavage* based. Other variables may explain the relationship between social structure and party choice. On the other side, the theory is not straightforwardly weakened if labor support was below the national average. National averages may hide as much as they reveal. Variation in the degree of politization of the economic conflicts within the worker class may have existed, explaining the prevalence of left votes in some sectors while it was absent in others.

The second implication will add further understanding of social structure's effect on party choice: the strength of the movements grown out of the economic cleavage depended on a series of factors, such as the size of the work unit, local ties of the workers, stability of employment, and the level of prosperity in a given industry. Consequently, the cleavage theory is strengthened if left party support is higher in communes with high proportions of industrial workers (as a proxy for the "rising

masses of wage-earners" and the size of the working unit, i.e. concentration of waged labor). However, as in the case of the first implication, the cleavage theory is not straightforwardly weakened if a linear relation is absent. Intraclass variation may have existed, some sectors of labor may have been politized while others not. Additional variables are needed in order to understand the relationship between social structure and party choice.

1.3 Lafferty's typology of local community contexts

Parts of a "formula" that would complement Lipset and Rokkan's model and contribute to the explanation of "the strength or the cohesion of any one party" (Lipset and Rokkan 1990: 129) and radical or moderate labor response is provided by Lafferty's typology of local community contexts. In *Industrialization, Community Structure and Socialism* (Lafferty 1974) he constructs a framework for ecological analysis of labor's response to industrialization, parting from a typology of four local community contexts. Lafferty's independent variables are the different effects of "structural strain" resulting from industrialization. The dependent variable is seen as "an aspect of the symbolic function of ecological adaptation" while the independent variables are connected to the "institutional change associated with industrial techno-structural development" (Lafferty 1974: 25). The *community ecosystem* frames the interaction between the variables, which "implies the holistic adaptation of populations to their environments" (ibid.).

Processes of *symbiosis*[1] and *commensalismen*[2] integrate the parts - population, technology, and organization - in a community ecosystem (Lafferty 1974: 25). The two aspects exist in all types of local communities, constitute the basis of a community's cohesion, and are seen as the core concepts in a series of sociological dichotomies, as in mechanic versus organic solidarity in Durkheim, and *gemeinschaft* versus *gesellschaft* in Tönnies. (Lafferty 1974: 26-27). *Corporate* and *categoric*

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[1] "*Symbiosis* (…) is an interaction between two organisms living together in more or less intimate association or even the merging of two dissimilar organisms" (www.wikipedia.com).

[2] "In ecology, c*ommensalism* is an interaction between two living organisms, where one creature benefits and the other is neither harmed nor helped. As with all ecological interactions, commensalisms vary in strength and duration from intimate, long-lived symbioses to brief, weak interactions through intermediaries. The term *commensalism* derives from the Latin *com mensa*, meaning *sharing a table*. Originally it was used to describe the use of waste food by second animals, like the carcass eaters who follow hunting animals, but wait until they have finished their meal" (definiton from www.wikipedia.com).

groups are related to symbiosis and commensalism. *Corporate* groups have developed from symbiotic relations in society and are internally differentiated, symbiotically integrated, and constitute minor units in a larger societal context (Lafferty 1974: 27). A *categoric* group is an "association of functionally homogeneous individuals", most frequently a specific occupational class. Categoric groups are the organized form of commensalistic relations and are therefore more than a simple static concept. In addition, "(t)he more specialized an institution becomes, the larger the community must be to support it.

Lafferty presents four ideal types of local community contexts in order to explain the relation between industrialization and political response. Type I communities, characterized by *corporate segmentation* are found in relatively undifferentiated communities that have little degree of control over their localities. Low-technology, family-centered agricultural or small artisan units, in which values and norms are integrated further typifies these communities. The socialist potential is weak because labor ideology is not needed to resolve problems related to the locality's adaptation to industrialization (Lafferty 1974: 36).

Categoric consciousness

	Weak	*Strong*
Corporate *Strong*	Type I: <u>Corporate Segmentation</u> Segmented, traditional society with nondifferentiated familial corporate groups. Socialist Potential: Weak, intra-corporate status equality, weak categoric consciousness. Theory-I Type: Non	Type II: <u>Categoric Stratification</u> Hierarchic, agricultural or industrial society with differentiated, monotypical corporate groups. Socialist Potential: Strong and radical; intracorporate status inequality, strong categoric consciousness; the "discontented". Theory-I: Vulgar Marxism and Marxism
dominance *Weak*	Type III: <u>Corporate Competition</u> Structurally disrupted society with competing, non-integrated corporate groups. Socialist Potential: Strong and radical; both intra-corporate and status incon-sistency and low categoric conscious-ness; the "anomic". Theory-I Type: Anomie and Curvi-linearity.	Type IV: <u>Corporate Pluralism</u> "Modern Industrial" society, with integrated multitypical corporate groups. Socialist Potential: Strong and moderate; weak intra-corporate status inequality and high cate-goric consciousness; the "relatively satisfied". Theory-I Type: Vulgar Marxism, Curvilinearity

(Source: Lafferty 1974: 36)

Type II communities, characterized by *categoric stratification*, include communities stratified along occupational classes in layered hierarchies. Differences of status are significant, *corporate group integration* is weak. Examples are commercial agricultural units and communes characterized by isolated extraction activity in e.g. mining. C*ategoric consciousness* is strong due to differentiation of occupational classes, in addition to high levels of *awareness of similarity* (Lafferty 1974: 21). This may lead to organized protests, as peasant uprisings, religious sectarism, or prototype labor movements. Communities are dependent on external trade, technologically more complex and have more population than Type I (Lafferty 1974: 36). The communist ideal, emphasizing the transference of power, or *corporate control* to the lower strata is the most attractive alternative. The social democratic option, implying reforms towards a corporative integrated political community, has little sense.

Type III, *corporate competition*, is characterized by the "invasion" of a different type of *corporate* unit which interrupts the structural balance that exist in Type I and II without the replacement of old by new symbolic structures. In cases where agricultural communities of Type II are invaded by a *corporate* group, e.g. mining activity, the encounter between the types is characterized by a mild confrontation because both are stratified. Invasion of Type I is different: Huge differences exist, confusion of norms and status may lead to anomie. Radical labor response augments with increased loss of norms and status. In invaded Type I communities, direct action, and anarcho-syndicalism may be preferred alternatives in invaded by creating an immediate group identity. In Type II, Communism is preferred due to the stronger development of *categoric group traditions* (Lafferty 1974: 39).

In Type IV, *corporate pluralism*, we find the modern industrial form of socially complex organization. These communities are, according to Lafferty, the result of a compromise of resolved conflicts in Type III, resulting in less control of norms and less status inequality. *Categoric consciousness* is strong; segmented occupational classes and high mobility led to increased *awareness*. The Socialist potential is strong because of a high level of class-consciousness. Due to comparatively high levels of

community prosperity, dominant political values are stability, continuity, and welfare policies (Lafferty 1974: 40).

Some modifications of Lafferty's typology are done in order to adapt the ideal types to available data and the research strategy. First, Type I communities, i.e. small agricultural units, are not included; the analysis is delimited to wage labor in industry. Second, Type II and III communities are aggregated into one ideal type of response, subsequently denominated Type A. What is of interest is the variation in labor's radical versus moderate left vote, which justifies the aggregation of the two ideal types of radical response into one. Communities of type II and III have in common a strong radical socialist potential, even if the underlying conditions that explain this common potential are different (i.e. are explained with vulgar Marxist and Marxist theory versus anomie and curvilinearity theories). What the two types have in common though, is their shared characteristics of being peripheral or semi-peripheral, relatively deprived communities, characterized by mono-industrial activity. Third, local communities of Lafferty's Type IV are here denominated Type B, and include those characterized by modern, diversified industrial activities, relatively high levels of stratification, and where socioeconomic differences are less pronounced than in Type A. In these communities, the socialist potential is strong, but in moderate, social democratic direction (Lafferty 1974: 40).

The identification of geographical clustering of strong communist support in type A regions and strong Social Democrat support in type B regions will strengthen the theory. On the other side, the theory will be weakened if these relations are absent.

The empirical analyses may show low support to communists in type A regions and high communist support in type B regions. A central hypothesis in the explanation of factors that weakens the economic cleavage's salience on voting behavior is that of crossing cleavage lines. The main political identity of industry labor may not be that of leftist labor ideology. Other identities may be more important.

1.4 Knutsen: The effect of crossing cleavages on class vote

Knutsen's (2004) contribution underlines the comparative differences in the salience of different cleavages on voting behavior. In his research, he analyzes the

comparative variations in the impact of different structural variables on party choice in seven European in the period 1970-1997. Knutsen's analyses are relevant for this thesis due to the potential salience of crossing cleavages in the explanation of variation in class voting.

The effect of the religious cleavage on party choice shows larger variation between the eight West European countries in the analysis. The most important polarization along the religious cleavage concerns to a large degree the left party voters versus the Right party voters. Especially in the Catholic and religiously mixed countries as Netherland, Belgium, Italy, and France, and mainly in the period 1970-1984, a significantly higher proportion of voters with a high score on the religious indicators, measured by church membership and frequency of mass assistance, are to find among the left parties' voters. In the case of the Protestant countries of Great Britain and Denmark, high score on the religious indicators have a much lower correlation with left vote. The tendencies in the majority of the countries in the period 1970-1997 converge in direction of somewhat lower correlation, but with respect of the whole period, the stability is more remarkable than the variation (Knutsen 2004: 128).

The cleavage between rural and urban regions reflects the interests of agriculture and the rural population, mainly centered on the conflict in the commodity market between producers and buyers of agricultural products. Knutsen emphasizes Lipset and Rokkan's findings (1990): In a majority of countries, the cleavage between rural and urban regions was seldom expressed directly in the party systems. Distinctive Agrarian parties surged only when strong cultural conflicts made the economical conflicts deeper and bitterer (Knutsen 2004: 132). Knutsen finds that the rural-urban cleavage has strong effect on socialist vote and is strongest in Denmark, which is the only country in the study with a distinctive Agrarian party (the other two Scandinavian countries are not included in the analyses). The Christian Democrats and the Conservatives parties receive stronger support from the rural population than from the inhabitants of the bigger cities. All the left parties receive the strongest vote from the urban population and the main differences along the rural-urban cleavage concerns the left Socialists, communists, and the Green. Sector also shows high effect on voting in

the eight countries. The effect of this cleavage is more important within the service sector (public versus private) than in the other socioeconomic classes. Public employees vote largely for the leftist parties, while the Right receives most votes from private employees.

No specific hypothesis will be derived from Knutsen because of the absence of relevant data for their tests. However, in the discussion of the empirical results, the effect of crossing cleavages will be considered.

1.5 Studies of social structure and voting behavior in Latin America

Maxwell A. Cameron (1994) argues that social class had a strong effect on voting in Peru during the 1980s. He presents bivariate correlations between percent left votes – including only communist and New Marxist parties, defining APRA as belonging to the political Center - and percent workers in all of Lima's communes. Cameron argues that the correlation values "…demonstrate remarkably strong, stable, and statistically significant ecological correlations between the size of major social groups in Lima and the shares of the vote for ideological parties" (Cameron 1994: 20). The bivariate correlations between votes for the communist parties and workers for the 25 communes shows that for parliament and commune elections between the Constituent Assembly in 1978 to the parliamentary elections in 1989 shows a *Pearson's r* between .864 and .934. Cameron also refers to survey data from 1983 (N=595), covering Lima metropolitan area: Data show that respectively 39 % and 52 % in the "upper and lower working class" voted for the left, compared to 30 % of the "lower middle class" and 23 % of the "high class" and "upper middle class" (the latter, by the way, being a remarkable high percentage). Ecological correlations between working class and APRA votes varied from - .056 in the 1980 presidential election to .695 in the 1989 municipal election.

Soares and Hamblin's applied logistic regression analyses on the dependent variable percent votes to the Marxist candidate Allende in a study of Chilean radicalism in 1967 (Lafferty 1974: 44). The statistically significant positive beta coefficients were percent divorced, percent in urban areas (2500 or more), percent

employed in mining and in primary sector. The negative coefficients were percent with high school or higher education, and percent immigrants (op.cit.: 46).

Petras and Zeitlin's findings in 1967 support Soares and Hamblin. The units of analysis were communes and they analyzed the effects of regional proximity of radical core-areas (Lafferty 1974: 45). Petras and Zeitlin identified the mining regions as the most important factor in Chilean radicalism. The effect of mining communities' radicalism on neighboring and more peripheral localities showed that 93 % of the mining communities presented high support to radical left parties in the elections in 1958 and 1964. Neighboring communes presented the second highest support, while support to the radical left was moderate in communes without common borders to mining communities. The mining communities had a diffusion effect on contiguous geographical areas, both in primary and non-primary sector communes. The neighbor effect showed that the political differences between socioeconomic classes tended to disappear in mining communes and their satellite communes (Lafferty 1974: 47).

Robert Dix (1989) discusses to what degree the cleavage model is relevant in explaining the development of Latin American political parties and party systems and to what extent European historical experiences may constitute a comparative basis for studies of Latin American developmental patterns. In Europe, cleavages developed before the existence of party systems, while the Latin American party systems and the political parties were formed in a parallel development. The Latin American countries have also a different historical development with respect of opposition and polarization; the pattern has instead been popular loyalty to the elites, not collective class mobilization in order to achieve political power. Dix concludes therefore that mass based class parties did not develope in Latin America. Even when mass parties were formed, the result was a pragmatic, multi-class party basis, in contrast to the class centered mass parties in Europe.

1.6 Discussion

Lipset and Rokkan's hypothesis states in short that the economic cleavage resulting from industrialization will influence workers' voting behavior in situations where masses of wage labor is concentrated, and labor unions and left parties are

present. The degree of workers' left vote is then a measure of the economic cleavage's salience on voting behavior. If workers vote for the left to a higher extent than the rest of the population, then the hypothesis is strengthened.

However, the mere numerical fact that workers' average vote to the left was above the national average does not necessarily imply that their party choice was *cleavage* based. First, this would be a tautological argument. Second, Lipset and Rokkan's loose definition of "cleavage" make it difficult to discriminate between effects of the cleavage and other intervening variables on voting (Bartolini 2000: 15-25; Sartori 1990: 162). Third, national averages may hide as much as they reveal about the relationship between social structure and party choice because eventual variation within the working class is not measured.

The tautology may be avoided through a more precise definition of "economic cleavage". What is clear is that the economic cleavage was a consequence of industrialization; economic conflicts surged as workers demanded higher pay and better working conditions. However, as Bartolini argues, the term "cleavage" implies more than referring to the existence of an economic conflict; the economic cleavage manifest itself and is formed in the *translation of economic conflicts into political response*. Further, as Sartori argues, class action comprises class voting, but the vice versa is not true. The relative strength of labor unionism is both a cause and a consequence of class politics (Sartori 1990: 168). In addition to statistical evidence of voting preferences, a description of the process of cleavage formation, including the main actors therein, is necessary in order to isolate effects from class condition versus other effects (ibid.).

The main expectation in Lafferty's theory is that moderate left support are expected in comparatively prosperous, modern, complex industrialized regions, and radical left support is expected in local community contexts characterized by relatively poor, mono-industrial enclaves, surrounded by otherwise traditional community structures. However, non-structural variables may have stronger effect than social structure on the observed variation. As Sartori argues, "organizational coverage and pressure" is an important intervening variable and the empirical findings may support the hypothesis that a "thoroughgoing organizational network is a necessary condition

of class consciousness and behavior, for the latter varies with, and follows the destiny of, the organization" (Sartori 1990: 168). Hypothetically, if the 1980 elections results in Peru show that communes where communist votes outweigh the APRA are identified as those regions in which the communists were the first to establish the "apparatus mass party", then the success of communists could be "found to coincide systematically with the occupancy of an organizational void, rather than with objective conditions of deprivation" (Sartori 1990: 168-169). He continues, "(i)n that case, what we really are observing, via class behavior, is the impact of an organizational variable, the influence of party and trade union control". Class conditions are then only a "facilitating condition" and the class receives its identity from the party (op.cit.: 169).

Knutsen shows that the salience of the economic cleavage on voting behavior may be weakened by crossing cleavages (Knutsen 2004). The primary identity at work in workers' party preferences may be religious, regional, or ethnical. The weakening of a given cleavage, as the economic, does not necessarily correspond to the effect of crossing cleavages' in the sense of Knutsen. In the Latin American context, patron-client relations may have considerable influence on voting behaviour, especially in rural, backward regions (Roberts 2000: 7; Schedler 2002: 4). A weak effect of the economic cleavage when a strong effect is expected may is thus not necessarily an indication of the effect of crossing cleavages, but may be explained by other, non-structural factors.

1.7 Conclusion

According to Lipset and Rokkan, the salience of the particular social structure resulting from industrialization, i.e. the economic cleavage, is manifest if workers' vote for the left is above the national average. They also argue that the salience of the economic cleavage is determined by the size of the worker class; left voting increase when the proportion of industry workers increase in comparison to other occupational classes. However, as Bartolini and Sartori argue, the fact that workers vote for left parties does not confirm the presence of an economic cleavage.

Lafferty argues that the relationship between social structure and voting behavior is more complex than Lipset and Rokkan's model. The crucial factor in

explaining variation in the impact of social structure on voting behavior is the character of local community contexts. Workers in mono-industrial, relatively backward and poor regions are expected to vote for communist parties, while workers in more prosperous regions with diversified industry are expected to vote for social democratic parties. Sartori warns though that a relationship between structural conditions and voting behavior not necessarily strengthens a hypothesis of class effects. It is necessary to control for other variables, such as the influence of organizations on voting.

Knutsen adds further theoretical complexity to the relationship between social structure and voting behavior; the expected effect of social structure on voting behavior may be altered due to crossing cleavages. Workers may thus vote for religious or regional political parties, rather than left parties. However, weakening of the impact of the economic cleavage may be attributed to non-cleavage factors, such as patron-client relationships.

Theories on specific Latin American contexts are divided in two groups, one arguing that cleavage theories are futile due to different historical and cultural characteristics between the Latin American and European electorates and party system formations; the other arguing that cleavages do have clear effects on voting behavior.

2. Sources, data, and methodology

2.1 Introduction

This Chapter presents definitions of key concepts and operationalizations of the hypotheses derived from theories in Chapter 1. A presentation and discussion of the methods applied in this thesis close the Chapter. These include on one side Gary King's software *EzI*[3] and his method of ecological inference and on the other side Luc Anselin's *GeoDa*[4] for spatial statistical analysis.

2.2 Defining cleavage, parties included, a definition of *verzuiling*, and a note on occupational categories

Bartolini's cleavage definition goes beyond Lipset and Rokkan in the sense that it accounts more specifically for the linkage and the mutually reinforcing process between the actors in the formation of the economic cleavage:

> "…(T)he concept of cleavage can be seen to incorporate three dimensions: an empirical element, which identifies the empirical referent of the concept and which we can define in sociostructural terms; a normative element, that is, the set of values and beliefs that provides a sense of identity and role to the empirical element and reflects the self-awareness of the social group(s) involved; and an organizational behavioral element, that is, the set of individual interactions, institutions, and organizations, such as political parties, that develop, as part of the cleavage" (Bartolini 2000: 17).

Bartolini suggest that the concept of cleavage should be "restricted to the indication of a dividing line in a polity that refers to and combines all three aspects, and alternative terms should be adopted when referring to objective social distinctions or to ideological, political , and organizational divisions *per se*" (Bartolini 2000: 17). An economic cleavage is thus the result of the mutual reinforcement of these three elements. A cleavage may then "be considered as only one particular kind of division rather than as a concept that exhausts the realm of all possible divisions" (ibid.).

The definition of "left" parties in this thesis is anchored in the "set of ideas and political and social organizations stemming from the Industrial Revolution: *socialism*"

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[3] http://gking.harvard.edu/stats.shtml
[4] http://www.csiss.org/clearinghouse/GeoDa/

(Bartonlini 2000: 10). This definition is "a historical identification of the left with no ambition to being a theoretical definition" (ibid.). This pragmatic conceptualization of "left parties" should underline its use as "a meaningful term of reference for long-term electoral changes… sub[summing] the three elements of the *social constituency* (support), the *ideological orientation* (appeal), and the *organizational structures* (representation) within the general historical process of class cleavage structuring" (Bartolini 2000: 11). In addition, these parties also share the characteristics of being part of "the genetic process of lower-class enfranchisement and early political mobilization; they had and have maintained closer contact with the trade unions than any other political family" (ibid.).

The left parties in Peru include on one hand the two left parties that were founded during the early phase of industrialization in Peru, the *Partido Comunista,* and the *Alianza Popular Revolucionaria Americana* (APRA). On the other, parties founded during the 1960s: the New Marxist left that surged after splits in the two original left parties, Maoists and Trotskists from the *Partido Comunista*, and Guevarists and other minor ideological groups from APRA (Roncagliolo 1980: 87; Lynch 1999: 137).

In this thesis, APRA is included in the left party family because the party may have represented the *moderate left option* among workers. However, this inclusion is not extent of problems. Stein highlights APRA's populist character, arguing that in the 1930s, the party "did not appeal to voters using specific issues or ideology" and "cut across class and status lines to include individuals from various levels of Peruvian society" (Stein 1999: 99). He continues pointing to the party's constituency, consisting both of "large segments of working-class voters … mainly from the upper reaches of the working class – those more organized and unionized – as well as from the ranks of middle-class voters" (Stein 1999: 102). Stein's account of the paths to populism in Peru starts in the 1930s and ends with Fujimori's government in the 1990s. However, an analysis of APRA's ideological profile, location in the political space, and structural composition of its constituency between the 1930s and 1985 is absent. A broad social constituency does not disqualify APRA as a left party: "whenever leftist parties are successful in mobilizing large electoral support from anyone else they suffer a loss of opportunities among narrowly defined workers" (Przeworski and

Sprague 1986: 60). Planas classify APRA as a mass party and a social democratic center-left party at the time of the 1980 elections, emphasizing the radical leftist discourse of the new party leadership that succeeded party founder Haya de la Torre after his death in 1979 (2000: 204-207)[5]. However, he classifies the APRA as a center-right party in the period 1967-1968 (Planas 2000: 123-125). Tuesta Soldevilla (1989: 38) locates APRA in the political center in 1980, and Coppedge, informed by country experts, also places APRA in the center-left political space[6] (Coppedge 1997: 38). McDonald defines APRA as a "pragmatic, social democratic party of the center-left", opposed to communism, and underlines that although the party "always has been a multi-class party, its most dependable sources of electoral support have been concentrated in the urban and coastal popular sectors (e.g., sugar workers) and in northern departments such as La Libertad and Lambayeque" (MacDonald 1989: 215).

Since Haya's *convivencia* policy in the 1950s, APRA continued during the 1960s and 1970s to move in a conservative direction. However, by the time of the elections in 1980 and after Haya's death in 1979, Villanueva del Campo, representing the center-left faction, challenged and finally won over the centrist Townsend faction. The former wanted the party to return to its compromises with the popular constituencies, among them important radical labor sectors in the coastal agro-industrial "solid north" (Planas 2000: 139). This reorientation is stated in APRA's political program for the 1980 elections, which expresses a social democratic ideology through keywords as "social justice", "economic redistribution", "mixed economy", "anti-imperialism", "anti-colonialism", "solidarity with oppressed peoples all over the world" (Podesta 1980: 232-245).

Lastly, the dichotomization of the political space in 1980 into a left and a Right, and classifying the communist parties and the APRA as left parties *for exploratory purposes*, rests on the premises of a directional theory of ideology, "based on the idea that for most voters issues represent a choice between two sides" (Listhaug et al.: 112).

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[5] Planas classifies APRA as a center party in the 1978 Constituent Assembly. However, with the death of its founder and leader Haya de la Torre in 1979, under the leadership of Villanueva, APRA moved left. Moreover, Planas classifies PPC as a center-right party, he locates AP in the center; APRA in the center-left; and defines PSR, FOCEP, UDP, PCP, PRT, as Left parties (Planas 2000: 204-205).
[6] "Parties that stress justice, equality, social mobility, or the complementarity of distribution and accumulation in a way inended not to aienate middle- or upper-class voters" (Coppedge 1997: 8).

The parties defined as communist parties in this study include orthodox communist and New Marxist parties that presented lists in the 1980 election (Roncagliolo 1980: 93; Planas 2000: 169; Tuesta Soldevilla: 95). The orthodox communists were represented by the electoral front *Unidad de Izquierda* (UI) that included the *PCP-Unidad* (aligned with the Soviet Union's international policies) and the *Partido Socialista Revolucionario* (PSR). UI managed the larger parts of the centralized union organization *Central General de los Trabajadores del Perú* (CGTP). *Frente Obrero, Campesino y Estudiantial del Perú* (FOCEP) was also orthodox, receiving its most important support in Pasco, but also in Junín and Ayacucho. Lastly, the *Partido Socialista Peruano* (PSP), borne out of the PCP, gained support in the oil region in the north. The trotskists included *Partido Revolucionario de los Trabajadores* (PRT), with strongholds in Tacna, Puno, Moquegua and Arequipa, the *Partido Socialista de los Trabajadores* (PST) and the *Partido Obrero Marxista Revolucionario* (POMR, joint list with the PRT in the 1980 elections) (Sulmont 1980: 169). The New Marxist left was influenced by experiences and theories produced in countries that had raised against imperialism, as Leninism, Maoism, Guevarism, and other theories developed in Latin America and the Third World. In the 1980 election, these parties joined the *Union de Izquierda Revolucionaria* (UNIR), receiving strong support in Arequipa, Moquegua, Junín, and Ancash). UNIR was formed by *Partido Comunista del Perú Patria Roja* (PCP Patria Roja), *Vanguardia Revolucionaria – Proletario Comunista* and *Frente de Liberación Nacional*; *Partido Comunista del Perú* (PCP), the *Unidad Democrático Popular* (UDP, with stronghold among the mining workers, in Piura's coastal and highland regions, the provinces Espinar and Chumbivilcas in Cusco, and in the province of Melgar in Puno), the *Vanguardia Revolucionaria* (VR), *Movimiento de Izquierda Revolucionaria* (MIR). In addition, some minor left parties, as the *Acción Popular Socialista*, presented lists (Sulmont 1980: 170). Planas comments that one of the smallest parties participating in the elections in 1980 was the *Partido Socialista del Perú* (PSP). Its constituency was mainly in the northern region of Piura and the party did not present electoral lists in 15 *departamentos*. The other political parties were of national, relatively permanent

character, organized for electoral participation, and had a centralized party organization and a member base (Planas 2000: 35).

However, Bartolini's warning has to be taken in mind: "Grouping all these parties since the end of the nineteenth century into one category such as the "class left" on the assumption that they all represent and hinge on the class cleavage, is a daring task from ideological, political, and social points of view" (Bartolini 2000: 10). In this thesis, the only party for which a critical review of its "hinge on the class cleavage" will be done is APRA. There is not space for a revision of the communist or New Marxist parties.

The concept of *verzuiling* is defined in accordance with Rokkan in order to assess "the degree of interlocking between cleavage-specific organizations active in the corporate channel and party organizations mobilizing for electoral action" (Rokkan 1988: 142).

The terms "industry workers", "workers", "working class", and "labor" are used interchangeably in this study, and refers to the 1981 census classification of "manual workers in the industry sector". This occupational class includes workers in mining, agro-industry, metallurgy, textile industry, metal-mechanic industry, petroleum, and chemical industry, in addition to vehicle drivers in the industry sector)[7]. This classification of manual labor is to a high degree in accordance with Alford (1963).

The census classification discriminates between the occupational classes "workers in the primary sector" and "workers in the industry sector". However, the amount of workers in the primary sector shows such high numbers that it is most likely that the variable also include small agricultural proprietors[8]. Analysis of the geographical distribution of the variable strengthens the supposition; there are high frequencies of "workers in primary sector" in areas without agro-industry or large farms, as in the oriental hillsides of the Andean highlands. The variable is thus

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[7] The national census in 1981 contains two variables in which the occupational classes are operationalized in different manners. It would be desireable to use data from both variables in the analysis in order to compare the empirical results for both and as such increase the reliability. However, one of the two variables presented very high levels of missing and was not included.

[8] Sulmont's calculations, based on ca. ca. 1 300 000 employed in the category "workers" (tab. 3.1) against ca. 1 000 000 in my own calculations (tab. 5) and based on numbers from the 1981 census data (INEI 1981). Sulmont finds that ca. 18 percent are employed in construction, industry and mining, in other words ca. 1 000 000 personer (tab. 3.1). This parallels my numbers. From this it is reasonable to consider the difference, ca. 300 000 persons, represent waged workers in the primary sector.

excluded from the analyses as discrimination between agricultural proprietors and free labor in the primary sector is impossible.

2.3 Operationalization of the hypotheses

Two basic implications, testable with available data, are derived from Lipset and Rokkan's cleavage theory. First, industrialization produced an economic cleavage, which often had a strong effect on workers party choice. Consequently, the salience of the economic cleavage on voting behavior is measured by the extent to which workers voted for the left parties. The cleavage theory is strengthened if the following hypothesis is confirmed:

H1: The proportion of labor votes to the left parties was above the national average.

The second implication of Lipset and Rokkan is that the strength of the movements grown out of the economic cleavage depended on a series of factors. Available data permit hypothesis testing only with regard to the expectation that the economic cleavage's effect on voting behavior is higher in communes with high proportions of industrial workers (as a proxy for the "rising masses of wage-earners" and the size of the working unit, i.e. concentration of waged labor). If H2 is confirmed, the cleavage theory is strengthened.

H2: The support for left parties was higher in communes with high proportions of industry workers.

Tests of H1 and H2 will be repeated for the variables workers' overall left support, and separately for communist and APRA support. H1 is operationalized by the construction of a truncated bivariate normal distributed variable (King 1997: 103; page 37 below), through a bounded regression of the univariate variable "percent industry workers per commune", on the three univariate variables and in separate analyses, percent votes to a) the overall left, b) the communist parties, and c) the

APRA, all with data on commune level. The truncated bivariate variable contains the estimated beta values for the "proportion of workers who voted for the (combined left, communist parties, APRA) per commune". H1 will first be tested against the average value of all communes. If workers' aggregated left vote is above the national average the hypothesis is confirmed, and the theoretical expectation that the economic cleavage had effect on industry workers' voting behavior is strengthened. However, the salience of social structure may depend on whether APRA is included in the analysis. The hypothesis is therefore tested against the communist parties and the APRA separately.

H2 is operationalized with the same truncated bivariate variables as in the case of the first hypothesis. H2 will be tested against visual assessment of scatter plots for the combined left, the communist parties, and APRA.

Both the communists and APRA competed for labor votes in the 1980 election. The expectation from Lafferty's typology is that radical and moderate political parties have different constituencies in the industrial proletariat: communist votes will dominate in Type A communities, Social Democrat votes prevail in Type B. A less rigorous research strategy, combining both spatial statistical analyses of quantitative data and descriptive qualitative data of a rather general character, will lay the ground for the testing of hypotheses deduced from Lafferty's typology. Two hypotheses are constructed to test Lafferty's theory:

H3: Industry workers' support to the communists was strongest in relatively deprived, peripheral, or semi-peripheral regions, dominated by extractive, mono-industrial activity.

H4: Industry workers' support to the Social Democrats was strongest in relatively affluent, diversified and modern industrial regions.

H3 and H4 are operationalized in the same way as H1 and H2. The ecological estimates will be analyzed with different spatial statistical techniques and the results will be presented in maps. The identification of type A and type B regions will be done with qualitative census data (INE 1981) and with qualitative data from other sources.

The hypotheses will be tested against ecological estimates of workers' communist and APRA support, and qualitative data from the census and from Sulmont (1980) and other sources. The research strategy for testing H3 and H4 is less stringent than in the case of H1 and H2 and to a larger degree interpretative.

2.4 Sources

The electoral data are digitalized from original data in the double volume *Perú: Elecciones Generales 1980*, edited by the *Jurado Nacional de Elecciones* (the National Electoral Court) (JNE 1980). Selected variables from the national census in 1981 were digitalized from data in the census manuals edited by the *Instituto Nacional de Estadística* (National Institute of Statistics) (INE 1981). The *Instituto Nacional de Estadística e Informática* produced the geographical database and the corresponding digital map employed in this study (INEI 2001). Sulmont (1980) provides all other quantitative data.

The country specific literature was mainly provided by the libraries at the *Pontificia Universidad Católica* and the *Instituto de Estudios Peruanos*, both in Lima. Second hand bookstores in Lima provided some of the older literature. The University Library at the University of Oslo and the JSTOR Scholarly Journal database has provided the main part of the general literature in this study.

In October 2005, I interviewed two of Peru's leading scholars in the field of political parties; Dr. Fernando Tuesta Soldevilla, former Director of the *Oficina Nacional de Procesos Electorales* (National Office for Electoral Processes), actually Professor in Political Sociology at the Pontificia Universidad Católica in Lima, and Dr. Martin Tanaka, Director at the *Instituto de Estudios Peruanos* (IEP, Institute for Peruvian Studies), Lima. I presented the analytical advances that where ready by the time of the interviews, including the basic research problems and the cartographic presentations of communist support clusters. However, by that time, only the electoral data were digitalized; the census data were ready for analysis a couple of weeks later. Thus, Tuesta and Tanaka could not comment the results of the final empirical analysis. However, both contributed with relevant references. In addition, they agreed upon the importance of this study, and recommended its continuation and extension.

2.5 Data

The Peruvian government initiated digital storage of electoral and census data in 1995 and 1993, respectively. Consequently, electoral and census data from 1980 and 1981 had to be digitalized prior to the analyses. The dataset used for the present analyses includes electoral and census data for the 1678 Peruvian communes that existed in 1980. These data were merged with a geographical database prior to the statistical analyses.

The digitalization of data and the creation of datasets were done manually and for all the communes or *distritos*. I employed an assistant in Lima, Mrs. Patricia Arroyo de Castañeda, who did an invaluable job digitalizing the data during the period from early February to mid October 2005[9].

Electoral data from 1980 are publicly available in a double volume edition in the libraries of the Peruvian Congress, the *Jurado Nacional de Elecciones* (JNE, the National Electoral Jury) and in private entities such as the *Instituto de Estudios Peruanos* and the *Pontificia Universidad Católica*. The variables in the electoral dataset include all the competing political parties in the election in 1980, null and blank votes, total number of voters, and the number of voting locals. In addition was a separate variable of valid votes constructed (total number of votes minus blank and null votes) is calculated.

Census data from the national census in 1981 are publicly available from the library of the *Instituto Nacional de Estadística e Informática* (INEI, the National Institute of Statistics and Informatics). Over 50 manuals contain the data from the 1981 national census, including a vast number of variables. The variables digitalized for the present research include the following demographic and socioeconomic variables for all communes: First, total population 18 years and over and total urban and rural population 18 years and over. Second, the occupational classes, all including population 15 years and over, a) workers in the primary sector, b) workers in the industrial sector, c) professionals/technicians, d) public functionaries and mid-level functionaries in the private sector, e) administrative personal, f) commerce and sales,

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[9] Mrs. Arroyo de Castañeda is a former secretary of the Japan International Cooperation Agency (JICA) in Lima, Peru.

g) employed in the service sector, and h) non-specific occupations. In addition, one variable includes persons seeking work for first time. In total, three demographical and eight occupational variables (plus one) are included. Originally, these variables were divided into age cohorts of five years, each constituting a separate variable (plus the cohorts of 18 and 19 years in the case of the 3 demographic variables). Thus, a number of 93 original political, demographical, and occupational variables lay to ground for the present dataset.

The control of the data included as a first step the calculation of percentages[10] of each variable in the election and census datasets. The percentages were then summed; units with percentages diverging from 100 were compared to the original data manuals in order to identify and correct the error. In those cases were the error resided in the original data, the value was registered as missing if the divergence from 100 percent was large (over 5 %). If the divergence was minor (under 5 %), the variable was left intact. There is therefore an inherent margin of error[11] in the database, especially in the variables of urban and rural population. The shortage of time made a throughout evaluation of these two variables impossible, consequently, they have to be "washed" before use in future analyses[12]. However, the remaining data are of a very good quality and highly reliable. A third person controlled that all the digitalized data were correctly digitalized from the original sources during the punching. The values of each and one of the variables for all communes were checked. In addition, a random sample of about 10 percent of the communes has been compared, variable by variable, with original data.

The geographical database and the digital map from 2001 are produced by the INEI[13] and contain 1827 communes as the smallest political-administrative unit. A six-digit identification number codifies each commune, indicating its geographical location (*Ubicación Geográfica*, UBIGEO). The two first digits of the code identifies the *departamento*, the next two the *provincia*, and the last two the *distrito*. Thus, the

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[10] In the case of the political party variables the percentage is based on total valid votes, the census variables' percentages are calculated from total population 18 years and over and total economically active population, respectively

[11] There are some divergences between the official election results and the averages calculated in the digitalized electoral data set: APRA: 27,4 % (off. result), 27,78 (digital data set); Communist parties: 14,4 % (off. result), 14,83 (digital data set).

[12] This dataset will be used in future research on the subsequent elections during the 1980s and 1990s in Peru. Datasets for the elections in 1985 (partially done) and 2001 (finished) will be merged with census data from 1993.

[13] www.inei.gob.pe

UBIGEO 021804 identifies the *departamento* of Ancash, the *provincia* of Corongo, and the *distrito* of Yanac. The geographical position of each *distrito*, using the cities or towns where the administrative center of each *distrito* is located as centroids, is defined by latitude and longitude (Datum WGS 1984, units with decimal degrees)[14]. The polygons are proportional and with geographic form[15]. The 1827 *distritos* in the geographic database are not organized in descending order; the geographical coordinates define the position of each *distrito*. This in turn means that election and census data for each *distrito* had to be plotted manually into the corresponding *distrito* in the geographical database. This was a very time consuming task, but permitted a throughout control of the data during the merging of the three data sets.

The digital map database includes 1828 communes. 1682 of these communes existed at the time of the elections in 1980, 63 were created between 1981 and 2001. Of the 1682 communes that existed in 1980 do 83 present missing electoral or census values, or both. Missing values may reduce the reliability of spatial statistical estimations. When data are presented in the digital map, the communes created after 1980 will appear as zero-values. The elimination of these communes is not possible due to the particular functioning of the software used for the analyses. However, the problem is minor in the case of simple descriptive analyses. It may be more challenging when testing for *Local Indicators of Spatial Autocorrelation* (LISA). In this case, the existence of communes with zero-values within a cluster of high value neighbors may sub estimate spatial autocorrelation. However, a visual inspection of the clusters of communes with high percentages of communist and APRA vote show very low interference of communes with missing values. In the non-map based statistical and spatial statistical analyses with *EzI*, *GeoDa*, and *SPSS* are missing values excluded; in consequence, averages for the electoral results may diverge somewhat from the official results. Missing values in *GeoDa* may be excluded when calculating *Moran's I* through a selection tool[16] that permits the codification of missing values.

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[14] Documentation contained in INEI's digital map. For more information, contact INEI (http://www.inei.gob.pe).
[15] Ibid.
[16] Use the command "exclude selected" in combination with the "linking" function (Anselin 2005: 56).

The problem of missing values represented by communes created after 1980 cannot be resolved in any simple way. The only solution would be to modify the digital map in order to rearrange the border structure of the *distritos* to reflect the situation in 1980. I ordered information about the 1980 commune structure from the INEI in October 2005, asking for the geographical identification number, the year of creation, and the geographical coordinates for each of the communes created after 1980, precisely for the reconstruction of the 1980 structure. However, except for a summary of the names of the communes, additional data were not available. Data exist, but are not centralized; collecting the data at this stage would be too time consuming and costly, but will be done in the future.

A minor reliability problem is attached to the two diverging census-defined lowest age limits in respectively the occupational class variables, which is 15 years and more, and the right to vote in the election, in 1980 lowered from 21 to 18 years and more. A pragmatic compromise was done by estimating that the proportion of workers in the age cohort 15-18 years is similar to the proportion of voters in the age cohort of 18 years. This will necessarily lead to less precision in the estimates, but is at the same time necessary in order to do the analyses.

2.6 Methodology

2.6.1 King's model for ecological inference

The classical problem of ecological inference resides in the incorrect conclusions that are drawn when data on aggregate level are used to infer about individual behavior (Ogburn and Goltra 1919; Robinson 1950; Duncan and Davis 1953; Goodman 1959; King 2003). King's model for ecological inference provides a solution to this problem, using the information that exists in the aggregated values to estimate values at the individual level. The method has gained a great deal of attention in political science since it was first introduced and is now fairly well known to political scientists (O'Loughlin 2000: 2). However, the method has only recently been combined with spatial analysis (O'Loughlin 2002: 8[17]).

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[17] On the internet, a short and a long version of the paper are available. This page annotation refers to the short version (http://www.colorado.edu/IBS/ PEC/johno/pub/ nazi_ pa.pdf). Everywhere else in this thesis, the long version is used when referring to O'Loughlin (2002).

In the absence of survey data, the only quantitative data source for the analysis of voting behavior in the Peruvian 1980 elections is aggregate statistics. Three aggregate key variables – the estimated overall left vote and the separate estimation of respectively communist and APRA vote among industry workers – are examined in this study. The estimates are then mapped and analyzed with spatial statistical methods[18].

The goal in King's model is to infer from the marginals to the cells (tab. 2.1), employing the variables proportion of votes to the left parties[19] (T_i), the proportion of industry workers (X_i) in each commune i ($i=1,\dots$, p), and total economically active population 18 years and more (N_i). The sums of interest, but that are unknown because elections are secret, are the proportions of industry workers who voted for the left parties (β^b_i) and the proportion of other occupational classes who voted for the left (β^w_i):

Tab. 2.1: The problem of ecological inference at commune level. The goal is to infer from the marginal distributions to the cells (method of bounds). Source: King 1997: 14.

Class	left parties	Other parties	Total
Industry workers	?	?	3500
Other	?	?	4500
Total	2500	4500	8000

Tab. 2.2: Items in each cell refers to the absolute number of persons in the various variables. The marginals are observed values of the sums of the non-observable elements in respectively row or column. Source: King 1997: 29.

Class	Votes		
	left parties	*Other parties*	
Industry workers	N_i^{bD}	N_i^{bR}	N_i^b
Others	N_i^{wD}	N_i^{wR}	N_i^w
	N_i^D	N_i^R	N_i

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[18] For examples on the combination of King's method and spatial statistical analyses, see O'Loughlin (1999, 2002) on voting behavior in Weimar Germany in the 1930s. Also King et al. (2004) on nazi support in the 1930s in the Weimar republique.

[19] Separate analyses are done for overall Left, Communist, and APRA support.

The table 2.2 describes one commune in a dataset with *k* communes. The table shows the variables included in the model for the election in 1980: Industry workers who voted for left parties (N_i^{bD}), workers in industry who voted for other parties (N_i^{bR}), other occupational classes who voted for the left parties (N_i^{wD}) and finally other occupational classes who voted for other parties (N_i^{wR}).

Table 2.3 shows the elements from table 2.2 as proportions in the first two columns. The values in the cells are the proportions of industry workers and the other occupational classes that voted for the left parties and other parties (λ_b^i and λ_w^i). In the rightmost column the estimates are presented; the beta values (β_i^b) and (β_i^w) for how many industry workers versus other occupations that voted for the left.

Tab. 2.3: Estimated proportions of industry workers and other classes who voted for the left.
Source: King 1997: 30.

Class	left parties	Other parties	Prop. left votes
Industry workers	λ_i^b	$1-\lambda_i^b$	β_i^b
Other	λ_i^w	$1-\lambda_i^w$	β_i^w
			T_i

The development of the model starts with identifying *X*, on which everything depends. Then, the model estimates the β_i^b and β_i^w from a truncated[20] normal, followed by the estimation of T_i, computed via the accounting identity deterministically (illustrated with an example the 1980 election data, the commune of Huanza, province of Huarochiri, in the *departamento* of Lima, with geographical identification number indicated with subscript):

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[20] The relationship between the two variables is defined by a bivariate normal distribution with its tails truncated at the deterministic bounds. "If the underlying patterns of variability associated with the bivariate normal (BN) distribution are such that values below or above some points are not possible (i.e., are truncated or censored), then the resulting distribution is, in reality, a bivariate truncated normal (BTN) distribution. Specifically, we assume that the otherwise normally distributed random variable *x*1 is truncated (unobservable) at values below a lower limit *x*L1 and that the otherwise normally distributed random variable *x*2 is truncated at values below a lower limit *x*L2" (Johnson 2003: 2).

$$T_i = \beta^w_i + (\beta^b_i - \beta^w_i)X_i$$

For the unknowns:

$$\beta^w_i = \left(\frac{T_i}{1-X_i}\right) - \left(\frac{X_i}{1-X_i}\right)\beta^b_i$$

$$\beta^w_i = \left(\frac{0.223}{1-0.561}\right) - \left(\frac{0.561}{1-0.561}\right) = \beta^b_i$$

$$= .398 - 1.277\beta^b_{150708} = .398 - 1.277\beta^b_{150708}(0.1) = .847$$

$$T_i = \beta^b_i X_i + \beta^w_i (1 - X_i)$$

The random variable is then T (given X), which is truncated bivariate normal distributed. A distribution of the bivariate truncated variable shows where most of the values of β^b_i and β^w_i are located. The distribution permits correlation of the estimates between - 1 to 1. The formula of the probability density of (β^b_i, β^w_i) is:

$$P(\beta^b_i, \beta^w_i) = \text{TN}(\beta^b_i, \beta^w_i \mid \mathcal{B}, \Sigma)$$

where TN is the truncated normal distribution with truncation limits $B^b_i \in [0,1]$ and $\beta^w_i \in [0,1]$. From simulations of these parameters, the quantities of interest, β^b_i, β^w_i are computed. The *maximum likelihood* function (two averages, two standard deviations, and one correlation coefficient), as shown above, estimates the distribution (King 1997: 132-140). The parameters are then transformed and rescaled. Values from these parameters are subtracted from the residual distributions through an importance sampling. The averages of the distributions of β^w_i and β^b_i are used as point estimates and the standard errors and confidence limits are based on selected percentiles of the simulated values. This is a great advantage in comparison to earlier models that could not give precise levels of confidence in the estimates (King 1997: 58-73).

Tomography plots generated by *EzI* present a visual version of the likelihood of β^w_i and β^b_i, in which each line represent a commune (fig. 4.8 - 4.10, page 63 below).

The truncated bivariate normal distribution helps discover an area in the plot where the majority of the lines are crossing each other. The true value of $\beta^b_i \, \alpha\nu\delta \, \beta^w_i$ has to be somewhere along the line. The red lines traces 95 % confidence bounds and indicate the extent of uncertainty in the estimates.

King adds three assumptions to the model. First, that β^b_i and β^w_i are bivariate truncated: "(I)nstead of assuming these parameters are constant over precincts (as in Goodman's regression model, we only assume, roughly speaking, that they have something in common – that they vary but are at least partly dependent upon one another. This distribution has a single mode, indicating where most values of β^b_i and β^w_i lies, and also allows any degree of variation in each around the model" (King 1997: 93). Second, the absence of aggregate bias, i.e. "that β^b_i and β^w_i are "mean independent" of Xi, which is a weaker assumption than requiring β^b_i and β^w_i to be stochastically" (that is, completely unrelated)". "This assumption … is technically necessary to obtain consistent estimates of $\mathfrak{B}$ and Σ. However, and somewhat surprisingly, this assumption is not always necessary to obtain accurate estimates of the quantities of interest" (op.cit. 94). Third, the absence of spatial autocorrelation, i.e. that values of T_i in different precincts are independent after conditioning on X_i. … (V)iolating this assumption does not have major consequences" (King 1997: 92-94).

2.6.2 Critique of King's method

2.6.2.1 Problematic substantial results

Cho and Gaines argue that ecological inference may be a reasonable research strategy, but recommend "extreme caution during both analysis and interpretation" and that "at minimum, three conditions are necessary (but far from sufficient)" in order to proceed with the estimations (Cho and Gaines 2004: 153). The first condition to be met is that "data should appear to be amenable to ecological inference, i.e., there should be evidence that the aggregate data are "informative" about the micro level process". Second, there should be "some evidence that the aggregation process did not introduce bias that is not modeled". Third, "one should have a good micro theory and an explicit understanding of how that micro theory should be related to the observed macro data" (Cho and Gaines 2004: 153, original emphasis).

Firstly, data are "informative" when the bounded parameters are sufficiently narrow. EzI provides tomography plots of the estimated quantities in order to assess the deterministic information in the data. If the bounds are too wide, they will not yield any parametric information and the first condition is violated (Cho and Gaines 2004: 154-155). In addition, and related to the parametric nature of the bounds, the tomography plots do also provide information in order to assess the form of the underlying distribution by identifying the intersection of β^b and β^w. The distributional assumption is important both for estimating means and for the computation of standard errors (Cho and Gaines 2004: 155). However, "deciding whether a tomography plot is informative is something of an art, no one has devised a concrete measure for "informativeness" or any formal test for accepting or rejecting the (truncated bivariate normal) distributional assumption…" (Cho and Gaines 2004: 155). On the other side, a tomography presenting an uninformative plot with wide bounds does not necessarily point to an underlying non-normal truncated bivariate distribution (Cho and Gaines 2004: 155). Due to the lack of useful deterministic information in the truncated data, we may simply not be able to decide the real form. On the other side, distributional misspecification has proven *not* to affect the model if the assumptions of spatial autocorrelation and aggregate bias hold (Cho 1998: 146).

Secondly, the condition of aggregation bias is met if the parameters β^b and β^w are uncorrelated with the regressor, the X variable. However, observes that the tomography is not very useful in order to detect bias because there are so many possible scatters of β^b and β^w (Cho 1998: 159). King argues that that his model is robust also in case of aggregation bias. This is challenged by both Cho (1998: 148-149) and Cho and Gaines (2004: 159), who criticize King's definition of "robustness" – that EI is robust because the model will never estimate parameters outside the [0, 1] bounds (King 1997: 177, 182). This may be the case, "(b)ut estimates constrained to respect bounds need not to be close to the truth, or even within a few standard errors of the actual values" (Cho and Gaines 2004: 159). Further, "when regressors are correlated with parameters, the estimates from EI are not equal to their respective population parameters, in expectation, and the discrepancy between the estimates and the true values do not converge in distribution to zero as the sample of data points

become large" (Cho and Gaines 2004: 159). This also produces inaccuracy in the estimation of the standard errors (ibid.).

Thirdly, the estimators resulting from the ecological inference should be micro theoretical plausible: "(M)odels that provide a good fit to the aggregate data may not provide an accurate portrayal of the underlying individual-level behavior. Indeed, this is the ecological fallacy – that what appears to be the case among macrounits may be vastly misleading with regard to the microunits" (Cho and Gaines 2004: 160).

The next crucial point in the assessment of the model is the presence of spatial autocorrelation. The model is conditioned on the absence of spatial autocorrelation $(T_i | X_i)$. Achen and Shively argue that the problem of aggregation bias is closely connected to that of spatial autocorrelation: "Different constituencies will exhibit different loyalty and defection rates, and it is only by quirk that these differences will fail to correlate with the aggregate independent variable" (Achen and Shively 1995: 106). Resembling Cho and Gaines above, Achen and Shively argue that in order to deal with "the mean disturbances" resulting from aggregation bias and spatial autocorrelation the solution "is strong substantive knowledge of how individuals group themselves into constituencies and how best one might control for the resulting differences in mean disturbances" (Achen and Shively 1995: 114). Anselin and Cho argue that the main consequence of violations of the assumption of spatial autocorrelation is that the resulting effect may cause problems for proper inference, mainly as a loss of precision in the resulting estimators (Anselin and Cho 2002: 296).

2.6.2.2 Methodological inconsistence

Herron and Shotts points to possible logical inconsistency when the estimates from King's ecological inference model are used as dependent variables in a second-stage linear regression (King 1997: 279). The assumptions in the first stage of this two-stage procedure may contradict the assumptions in the second stage. In other words, the ecological inference model assumes absence of aggregation bias, while the opposite is assumed in the *EzI* based regression model. If the EzI estimate based regression is inconsistent, the estimates have no known properties, and the standard

errors will be meaningless because they are grounded on logically inconsistent sets of assumptions (Herron and Shotts 2003: 3).

Finally, commenting on the usefulness of the method of bounds, Achen and Shively argue that it is a rather crude technique compared with covariance-based estimates. "(T)he range of error indicated in the mean error of estimate, for instance, is generally large compared with what we would expect from covariance-based estimates". Further, the probably " most troubling aspect of bounds methods to users – bounds estimates are not embedded in a structure of statistical theory that allow us to assess them against probability distributions (Achen and Shively 1995: 209).

2.6.3 Spatial statistical analyses

It is expected that industry workers' voting behavior vary geographically, mainly due to the existence of mining and agro-industrial enclaves in the peripheries (Planas 2000: 152). This sub-national variation is not captured by national level averages. In order to identify geographical clustering of left supporting workers, spatial statistical methods are employed. According to King:

> "… (w)e need political geography because political scientists don't understand enough about politics. Political scientists need political geographers because they are skillful at pointing out what we do not understand. Geographical tools are essential for displaying areal variation in what we know, but this is nowhere near as powerful as the role of geography in revealing features of data and the political world that we would nor otherwise have considered." (King 1996: 161).

While King argues that spatial analysis is necessary only if relevant quantitative data do not exist, geographers as Agnew (1996) in contrast holds that:

> "(t)he concept of geographical context can be used to draw attention to the spatial situatedness of human action in contrast to the non-spatial sorting of people out into categories based on census and other classification schemes that inspires most conventional social science. The categorical approach suffers from a sort of 'agnosia' or disorder of perception in which representations of space only set boundaries for nonspatial processes. Space is thereafter eliminated from theoretical consideration" (Agnew 1996: 131).

This discussion will not be further commented. The quotations are included in order to highlight the importance of spatial analysis in this investigation due to the absence of relevant survey and census data.

Spatial analysis is useful for data exploration and hypothesis testing in this particular study due to various factors. The use of conventional regression models is problematic. First, the explanatory value of the (few available) structural variables may be limited due to the nature of the dependent variables, i.e. the estimates resulting from ecological inference. The underlying form of the dependent variables' distribution may be very difficult to identify (Cho and Gaines 2004: 155, 157). Even in the best case, if the dependent variable is bivariate normal distributed, the estimated proportions are truncated between 0 and 1. In addition, Herron and Shotts points to the methodological inconsistency between the assumptions of zero spatial autocorrelation in King's model, as opposed to the assumption of the existence of spatial autocorrelation in a second-stage regression analysis (Herron and Shotts 2003). The use of logistic regressions is also problematic because of the assumption of spatial autocorrelation (cf. Achen and Shively's argument above). In addition, the uneven pace and geographical expansion of industrialization in Peru implies that the use of linear models may be directly misguiding.

In order to overcome these methodological problems, the geographical space is provided a central role in the description, exploration and explanation of industry workers left party support. Two measures are central in that task: The *global* spatial dependency and the *local* spatial dependency. Coefficients from respectively *Moran's I* (global indicator) and *Local Indicators of Spatial Association* (local indicators) will calculate the regional variation in the distribution of the estimates from King's ecological inference model.

Spatial dependence is measured by how values of a given variable are correlated when the variables are located close together and how the correlation decreases with distance. Spatial independence exists when the variable is not correlated with adjacent spatial units (O'Loughlin 2002: 15). *Moran's I* measures the correlation between X and $X_{(neighbors)}$ and is calculated by dividing the spatial covariance with the total variance in a variable. The resulting values range from -1 to 1, in which positive values indicate global spatial autocorrelation, i.e. clustering, zero values indicate absence of spatial autocorrelation, and negative values points to a regular pattern without correlation. *Moran's I* is based on the equation:

$$I = (N/So)\Sigma_i \Sigma_j \ w_{ij} \ x_i \ x_j \ / \ \Sigma_i \ x_i^2$$

in which $_{wij}$ is an element in a spatial weight matrix W that indicates whether $_i$ and $_j$ are adjacent. The spatial weight matrix has standardized rows, so that the sum of its elements is 1; $_{xi}$ is an observation in the location $_i$ (expressed as a divergence from the observed mean); and So is a normalization factor equal to the sum of all weights ($\Sigma_i \Sigma_j$ $_{wij}$). The significance of *Moran's I* is measured by a standardized normal distributed z score, which is calculated by subtracting the theoretical mean from I and divide the rest sum with the standard deviation. The correlation coefficients from *Moran's I* are visualized in scatter plots in *GeoDa 0.9.5i*[21].

Spatial weights impose structure in terms of what are the "neighbors" for each location (Anselin 2005: 1). *GeoDa* permits the construction of *contiguity* and *distance based* spatial weights. The former include *Rook* and *Queen* criteria, calculating respectively 4-way adjacent spatial units at edge only, and 8-way adjacent units at edge and points. The latter weight group includes distance band and K-nearest neighbors. The former use the XY coordinates to automatically calculate distance between points or centroids of polygons. The latter specify the exact number of neighbors that a unit should have based on the distance between units. The number, e.g. four or six, determines how many neighboring values that will affect the value of each unit. K-nearest neighbors is irrespective of the distance between units (Anselin 2003: 82).

Rook and Queen weights tend to overestimate spatial autocorrelation, the latter more than the former, because of the connectedness structure the weights impose on the spatial units. Spatial weights based on a simple distance threshold criterion results often in a very unbalanced connectedness structure when large spatial units have varying areal size; small units will have many neighbors, large units will have few (Anselin 2003: 96). In these cases, weighting with *k-Nearest Neighbors* is recommended. Each spatial unit is analyzed through the nearest e.g. four units, over which the spatial means are calculated for the identification of clusters.

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[21] Utviklet av Luc Anselin ved Spatial Analysis Laboratory ved Institutt for Geografi, University of Illinois, Urbana-Champaign. GeoDa er offentlig tilgjenglig på https://geoda.uiuc.edu/downloadin.php

In addition to *Moran's I* as a measure of global spatial autocorrelation, eventual clusters of left party supporting workers will be identified with *Local Indicators of Spatial Autocorrelation* (LISA), based on *Moran's I*. The LISA statistics gives a measure of spatial autocorrelation in the case of each individual locality, in this study communes. The correlation coefficients have to be interpreted with caution; they tend to be overestimated. Areas with higher concentrations of the analyzed phenomenon are assigned a larger weight in the calculation of the models and will overestimate the precision in the estimates. Usually, there are less independent observations than what is estimated in the model (Anselin et al. 2004: 30).

Finally, a comment on some reliability problems related to the mapping of the variables. In the digital map database, all the 1827 communes that existed by the time of the production of the digital map in 2001 are included, whereas in the *EzI* analyses only those communes that existed at the time of the 1980 election are included. *GeoDa* does not permit exclusion of missing values; there was no alternative but to include all the 1827 communes. This distorts the results of the analyses by lowering the averages. Therefore, the averages of the beta values that *GeoDa* visualizes, as in the geographical distribution of standard deviations, are below their real level. Moreover, the lowest standard deviation includes in practice only those communes created after 1980; these missing units are thereby identified as dark blue units. However, the issue is not too problematic; this is not an exercise in high precision statistics – the uncertainty in the *EzI* estimates permits only the identification of broad patterns of communist and APRA support among industry workers. However, in the calculation of *Moran's I*, a command in *GeoDa* permits the exclusion of missing values, i.e. communes created after 1980 (Anselin 2005: 56).

2.7 Conclusion

Bartolini's definition of an economic cleavage underline the importance of the linkage and mutual reinforcement of social structure, ideology, and unions/parties. If workers' voting behavior is cleavage based, then it should be possible to trace the existence of these three elements in the sectors and/or regions where left voting dominated. The effect of social structure on workers' voting behavior - eventually of

the economic cleavage if its consolidation is confirmed by the analyses below - is measured by the level of support to the left parties. The inclusion of APRA in the analyses of workers' support to the left parties is important because the party may have constituted a *moderate* socialist alternative, in Lafferty's sense. The estimates from King's model have to be interpreted with caution: "To a limited extent, one can gauge the suitability of EI's assumptions for the data by the model diagnostics. Hence, the model diagnostics should be used *every* time EI is employed. However, the diagnostics are problematic in that they do not always signal deviations from the model even when they do exist. Alternatively, the diagnostics sometimes point toward a poor model fit when the estimates are actually quite reasonable. In addition, the diagnostics are based on visual assessments and substantive beliefs – two elements which can be completely random but equally believable across researchers" (Cho 1998: 162, original emphasis). The estimates will be analyzed with spatial statistical techniques in order to identify geographical clusters of communist and APRA support.

3. LABOR AND THE LEFT IN PERU, 1900-1980

3.1 Introduction

The levels of stratification and complexity increased in the industrial regions in Lima and in a few larger cities as modernization of Peru's economy accelerated from the 1940s and onward. However, in the industrial enclaves in the peripheries, especially in the Andean highlands, the capitalistic mode of production in the 20th century developed through "a late, limited and to a large extent undifferentiated process of proletarization" (Cotler 1979: 145). Working conditions were especially harsh in the mining enclaves in the highlands; the coastal industrial regions were in comparison relatively prosperous and working conditions were better. Labor unions and political left parties soon engaged in the politization of economic conflicts in the industrialized regions. The brief democratic interludes in a succession of authoritarian military governments did not permit an uninterrupted development of organized labor's political struggle; persecution and prohibition of unions and the left parties were obstacles in the process. Yet, the continuities in this process strikes as much as the interruptions. Six decades after the beginning of organized labor and the left parties' political struggle for workers' rights, the historical goal was reached: In 1980, the workers could finally throw 'paper stones'[22] at its adversaries in the election.

In his historical analysis of the Peruvian labor movement, Sulmonts argues that class-consciousness, also by the late 1970s, was mainly a union phenomenon, and although the politization of the economic cleavage had increased since the leftist military government in 1968 it had yet not been translated into a political identity and into a solid political organization (Sulmont 1980: 179). "The crisis of centralization [of organized labor] can't be explained without having in mind the fact that the process of politization of the workers is still stronger tied to the experience of union organization and struggle, than to a more political [experience]" (Sulmont 1980: 149, my translation). The relation between unions and the communist parties, "between spontaneous actions and organized resistance, was characterized by bureaucracy and

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[22] "Barricades were no longer needed when workers could cast ballots: votes were "pater stones" (Przeworski and Prag: 1986).

conflicts, which weakened the political parties' programmatic platforms and paved way for individual protagonism in well-known *caudillo* style and internal divisions" (Sulmont 1980: 179).

Sulmont concludes that the left's incapacity to centralize the efforts to organize the popular sectors is due to the great diversity within these classes and the absence of an axis around which the unification would vertebrate. This axis continues to be, argues Sulmont, *the principal sectors of the mining and metallurgy, metal-mechanic, and textile proletariat* (Sulmont 1980: 178).

The following outline of the formation of the economic cleavage in Peru is broadly based on Rokkan's suggestion of the development of

> "… a scheme for the analysis of steps in the translation of cleavages into organizational structures in which the interaction between workers, their organizations, and the political parties were decided by political opportunity and the strategic choices of the mobilizing actors during the formation and politization of the economic cleavage (Rokkan 1977: 140)

in which the steps broadly uncover aspects of the path "from some phase of cleavage accentuation to the later phases of organizational structuring" (Rokkan 1977: 140).

3.2 Steps in the formation of the economic cleavage

3.2.1 Early organization of labor and left parties

The first phase of the formation of an economic cleavage occurred between the last decade of the 19th century and until 1930. The modernization process and the "initial generation of cleavage lines through macro-processes such as monetization and urbanization, industrialization and secularization" (Rokkan 1977: 140) developed comparatively late in Peru. The export boom of raw materials during the second half of the 19th century enriched the landed elites and the commercial bourgeoisie to the extent that industrialization of the economy was postponed (Cotler 2005: 113; Klarén 2000: 158). However, Chile's defeat of Peru in the War of the Pacific in 1883 ended the export boom. After the war, the state and foreign capital were assigned predominant roles in the reactivation and modernization of the economy. By the end of the century, industrialization led to the diffusion of a monetized economy and

increased urbanization[23] (Cotler 2005: 139). The sectors and regions targeted for industrialization were mainly the mining industry in the central and southern Andean highland, the petroleum industry in the northern Piura area, and sugar production in the northern coastal regions of La Libertad, Lambayeque, Cajamarca, and Ancash. In addition, cotton production set off in several parts of the northern and southern coast, and wool production in the southern Puno region (Cotler 2005: 141-144). However, industrialization in the highlands was postponed due to "the imperialist character of foreign capital" and "extensive use of pre-capitalist labor force in the mining industry", which tied the region to the coastal regions in "a complex articulation of the capitalist mode of production" (Cotler 2005: 148).

The labor question became a central theme in Peruvian politics during the first two decades of the 20th century and led to the "crystallization of cleavage lines into conflicts over public policy and the centralization of political decision-making" (Rokkan 1977: 140)[24]. As the pace and expansion of the process of industrialization accelerated, the formation of labor unions and the surge of nationwide political left parties that actively engaged in the mobilization of support followed in the 1920s (Sulmont 1980: 21). In 1924, Agusto Haya de la Torre founded the *Alianza Popular Revolucionaria Americana* (APRA) as an anti-imperialistic and Indo-American political front of manual workers and intellectuals (Cotler 2005: 194). Four years later, due to ideological disputes with the *Apristas* who by then abandoned the "class towards class" ideology and approached the middle classes, José Carlos Mariategui founded the first communist party in Peru, the *Partido Socialista* in 1928. Mariategui avoided the communist label due to a general atmosphere of intense anti-communism in Lima; however, a few years later, the party changed its name to the *Partido Comunista Peruano* (PCP) in 1930 (Sulmont 1980: 48). This tying of labor to the political parties on the left expressed an incipient translation of economic conflicts into political response. Yet, the formation of an economic cleavage occurred only in minor geographic areas where industrialization and modernity had penetrated; the

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[23] During the first decade of the 20th century were there about 100 000 waged workers in Peru. 21 000 were employed in the sugar industry, 10 000 in rice production, 40 000 in the cotton industry, and 20 000 in mining. The manufacture employed about 10 000 persons (Cotler 2005: 139).

[24] As an example, Peruvian labor unions' first great victory, after a series of strikes and severe governmental repression, was the eight-hour day in 1919 (Sulmont 1980: 21).

overwhelming parts of the Peruvian geography consisted of semi-feudal and pre-modern rural peripheries where waged labor not yet existed (Cotler 1979: 145).

3.2.2 Repression and persecution

The next step occurred between 1930 and 1956. The geographical expansion of industrialization accelerated and so did the formation of labor unions. The landed elites, the commercial bourgeoisie, and the Church demanded the use of state repression in order to end workers' each time more radical demands. In 1932, the military government of Sánchez Cerro intensified repression of labor and the persecution of members of the APRA and the *Partido Comunista* (Cotler 2005: 213). The development of organized labor was severely restrained and the CGTP would later succumb after years of repression and persecution of its leaders and members. The PCP suffered the same faith and the party was brought into a prolonged crisis. APRA, on the other side, chose a strategy of political moderation in order to avoid the destiny of the communists. A new APRA leadership, dominated by the radical *petit bourgeoisie*, moved the party, which by the midst of the 1930s had a hegemonic position in the labor movement, in conservative direction (Sulmont 1980: 56).

The industry boom due to war demands from 1942 and onward augmented the proletariat and organized labor gained renewed strength. With the election of the *Frente Democrático* in 1945, repression and persecution of organized labor and the left parties was for the time brought to an end (Sulmont 1980: 60). The CGTP had lost its organizational infrastructure during the persecution of its leaders during the 1930s; the reconstruction of its successor during this period of renovation of labor activism resulted in the foundation of the *Confederación de Trabajadores del Perú* (CTP) in 1943. Initially the communists and APRA shared influences in the union, but in 1945 APRA took control over the CTP. The agro-export bourgeoisie, led by the political Right, soon demanded a clear-cut end to the renewed labor activism during the brief democratic interlude initiated in 1945. The leadership of APRA once again turned the party in a conservative direction and approached the parties on the political Right in order to calm the calls for military intervention. The *aprista* bases however, more tied to organized labor and the popular masses voiced the takeover of political power

through popular insurrection and challenged the moderate line of the party leadership. A divided APRA could not prevent a military coup d'etat in 1948 and a new period of prohibition of the left parties and organized labor (Sulmont 1980: 61-63).

The choice of mobilization strategies (Rokkan 1977: 140) differentiated the *Partido Comunista* from APRA, both ideological and organizational. By the 1940s, APRA initiated a process of political identity construction that resembles Rokkan's concept of *verzuiling*[25]. First, APRA's political moderation broadened the social bases of its constituency. Second, the party used both preexisting organizational networks, such as professional associations and labor unions as spheres of influence, and it built an extensive network of popular services, providing their supporters with bazaars, health services, and educational activities (Stein 1999: 99). The result was a social, political and cultural encapsulation of its supporters in order to create and maintain a political identity that pervaded a series of aspects of the supporters' daily life. The *Partido Comunista*, on the other hand, did not engage in any *verzuiling*; long periods of prohibition and persecution from the 1930s and until 1968 obliged the party to work in clandestinity.

3.2.3 Industry growth and increased politization

The choice of arena and the strategy for the confrontation of mobilized supporters with political opponents (Rokkan 1977: 140) also differentiated APRA from the communists. Towards the 1956 elections, repression against APRA led to the party leadership's separation of a faction that voiced the taking of political power through popular insurrection. APRA initiated – in order to regain political influence – a period of *convivencia*, of coexistence and conciliation with the oligarchy by supporting the candidates of the political Right in the 1956 elections. APRA gained a strong parliamentary representation through the winning candidate Prado's permission of the participation of *apristas* in his electoral list[26], thereby initiating a penetration of

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[25] As Rokkan states it, "(t)he greater the strength and the stability of such alliances the closer we come to organizational *verzuiling* in the strict sense: an interlocking network of agencies covering a wide range of sectors of collective activity, both at the leadership, the recruitment of active members, the mass-level support base" (Rokkan 1977: 143).
[26] Due to general Odría's ban of APRA, the party did not present candidates to parliament in 1956, but *apristas* entered the lists of Prado, which offered APRA an alliance in change for the party's support in the 1956 elections (Roncagliolo 1980: 32).

public administration, and the fortification of political and labor activities (Cotler 2005: 269).

The democratic opening that the *convivencia* represented permitted the reorganization and revitalization of the *Partido Comunista* and the strengthening of the party's influence in organized labor. Old labor unions reorganized and the growth of new unions was remarkable: In 1955, there were 493, in 1961, the number raised to 1093, and in 1968, the government recognized 2317 unions (Sulmont 1980: 212-214). In addition, a series of legal dispositions led to a stepwise institutionalization of labor conflicts and acceptance of labor's demands. However, the task of organizing labor in the mining sectors was difficult due to authoritarianism and paternalism, but in 1959, the miners could consolidate their unions after prolonged and difficult struggles (Sulmont 1980: 76).

During the early 1960s, both the pace and the diversification of industrialization incremented. In Lima, the assembly and textile industry, chemical, metallic and mechanic industry expanded. The fishing boom led to industry growth in major coastal cities. Growth in mining activities due to the expansion of foreign investment pushed industrialization forward in the Andean highlands. A series of new labor unions surged with the expansion of industrial activities and the expansion of waged labor; industrial labor expanded from 330 000 in 1961 to 500 000 in 1972 (Sulmont 1980: 186).

APRA continued to exercise a powerful influence in the unions, particularly in the CTP, but the opposition from the communists was strong. APRAs left wing reacted to the party's lack of compromise with the workers and to the party's moderate political stance. The party leadership did not risk the position gained vis-à-vis the economic and political power groups due to its *convivencia* policy. As APRA continued its moderate line, resulting in the loss of influence in organized labor. The most recalcitrant left wing was therefore expulsed from the party by the early 1960s, resulting in the formation of the New Marxist left in Peru, including minor Maoist and Trotskist parties (Sulmont 1980: 89). Increased popular mobilization and the radicalization of demands both in the cities and in the rural areas opened the way for the Marxist left's influence in unions. Some of the New Marxist left groups abandoned the struggle for democratic participation and initiated guerrilla movements, mainly in

the southern regions of Peruvian Amazonas and in the southern highlands. These armed attempts to mobilize popular support where soon ended due to government repression[27] (Sulmont 1980: 92).

3.2.4 Breaking up with the past

After general Velasco's Coup d'Etat in 1968, a series of reforms were initiated, among them a wide-ranging land reform, in order to change the structural bases of economical and political power in Peru (Klarén 2000: 340).. Due to the leftist character of the military government, negotiations with the CTP were discarded because of its lack of prestige and credibility resulting from APRA's *bourgeoisement* (Sulmont 1980: 101). The military government conceded the CGTP a hegemonic position in the representation of organized labor in negotiations with the government, both due to pressure from the bases and because the union leadership promised support to the government. This was nevertheless a problematic relationship: Quite contrary to CGTP's "class line", the government's policy was to "unite capital and workers in benefit of production and to stabilize a sector of the workers who was lined with the *participationism* in order to create a counterweight to the class movement" (Sulmont 1980: 120, my translation). The military leadership during the second phase of the *Gobierno Revolucionario* from 1975 to 1980 abandoned the "revolutionary" goals and steered towards liberalization of economy. By 1977, popular discontent with the regime increased and the economic crisis deepened. When the government fired thousands of union leaders and activists, popular sectors radicalized its political stance and organized labor entered a more politicized period. The government considered now the CGTP as too radical in its demands and APRA resurged as the solution to calm popular pressure. To some degree, the maneuver was successful; APRA aligned with the military government and this new alliance acted as a counterforce to the popular protests initiated by the Marxist left (Sulmont 1980: 108).

The golden years of unionism and left party activism during the military government were brought to an end by the late 1970s as the economic recession affected unionization rates. Huge numbers of workers defected from the unions and

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[27] However, on the 18th of May, the day of the election in 1980, the Maoist *Partido Comunista del Perú–Sendero Luminoso* (Shining Path) initiated a prolonged armed insurrection that would last until 1993, with a toll of near 70 000 dead.

pursued individual strategies, not collective protests, in order to survive the crisis. Sulmont comments that in addition to the general weakening of labor unions due to the economic crisis, the majority of worker movements built up during the military government were rather spontaneous and active mainly during negative economic cycles. By the late 1970s, union strength was notably reduced. Worker's weak identification with the political parties and the profound divisions between the parties on the left blocked the revitalization of the unions (Sulmont 1980: 155).

By 1977, 600 000 workers were affiliated with the APRA-led CTP, mainly in the agro-industrial sector. About 950 000 workers were affiliated with the CGTP (Marxist), 85 000 with CNT and 80 000 with the CTRP (both pro-government). 450 000 workers aligned with the Marxist class-confrontational ideology, but were not affiliated with a union. Among the most numerous union among the unaffiliated, and with interest for this research, was the powerful *Federación Nacional de Trabajadores de Minas y Metalurgia* (National Federation of Mining and Metallurgy Workers). The

Tab. 3.1: The labor force in 1981. Source: INE 1981.

Occupational classes	Absolute	Percent
Workers, primary sector	2 006 123	35,4
Workers, industry	1 055 453	18,6
Professional/technicians	411 236	7,3
Public employees	24 502	0,4
Administrative personal	577 681	10,2
Commerce, sales	566 632	10,0
Service sector	405 166	7,1
Non-specified occupations	298 074	5,3
First-time job seekers	327 369	5,8
Total	5 672 236	100,1

nonaffiliated organizations were among the most important and active unions in the country and were influenced by New Marxist left parties opposed to the by the *Partido Comunista*, by then perceived of large labor sectors as a conservative and reactionary political force (Sulmont 1980: 147).

3.2.5 The left in the 1980 elections

In the election to the Constituent Assembly in 1978 the left parties, including APRA, achieved a surprisingly high support; the communists near 30 %, APRA 35 % (Tuesta Soldevilla 1994: 156). The results after the elections on the 18th of May 1980 showed that the combined left had lost a significant proportion of the votes compared to 1978; the left received around 14 % of the valid votes, APRA 27 %. This reverse was explained by the left's extreme fragmentation and internal conflicts and APRA's negative legacy as allied to the military government (Sulmont 1980: 176).
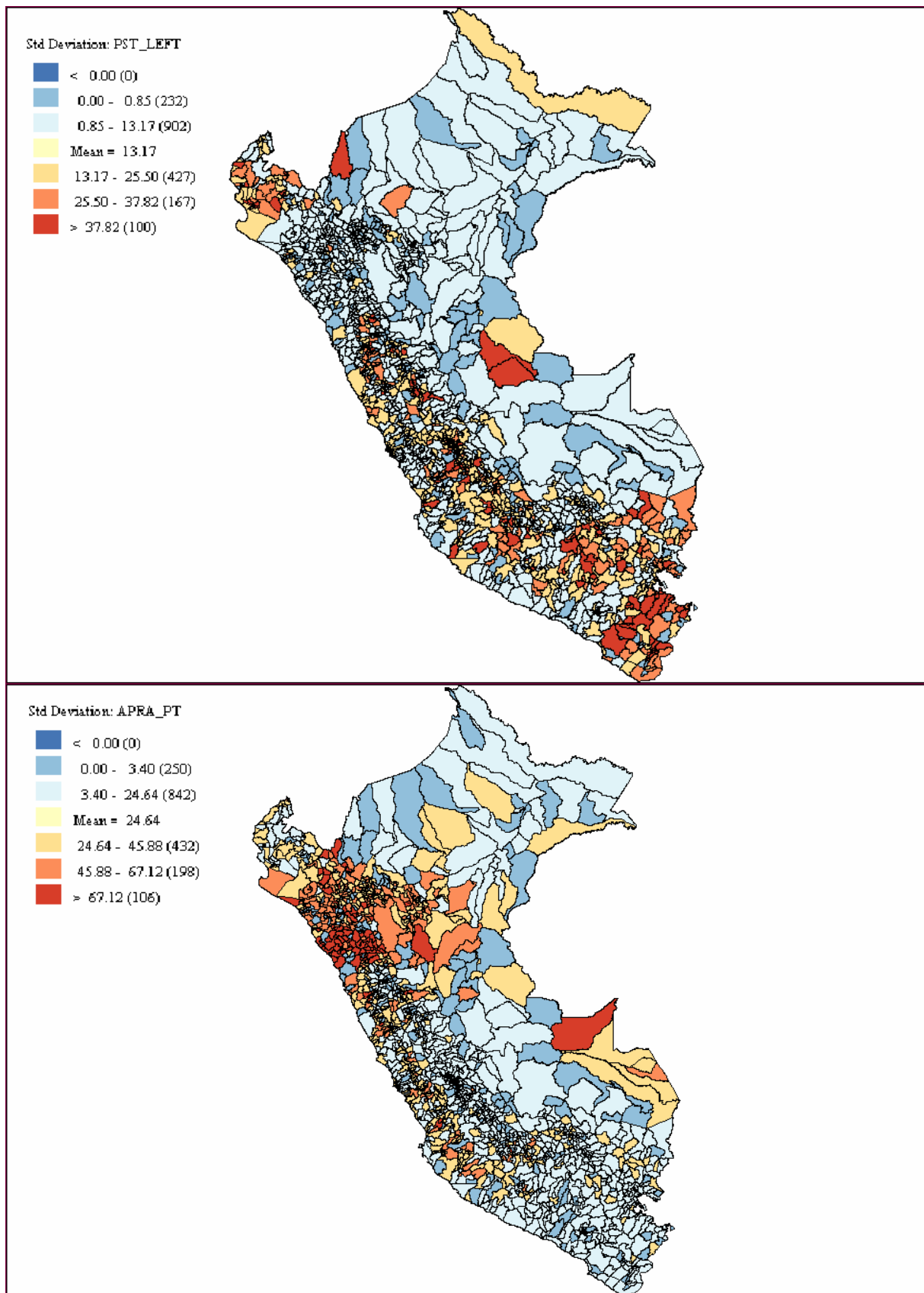
The contours of the pay-offs of the political parties' strategies, "whether in the form of legislation or in other forms of corporate agreements about the distribution of rights and obligations" (Rokkan 1977: 140), became visible by the late 1970s. In 1980, the Peruvian left reached a historical goal, the representation of organized labor's interests in the parliament. The process of translating economic conflicts into political response had initiated in the 1920s, involving organized labor, the political parties on the left, the economic elites, and the state. The numerical manifestation of an economic cleavage became visible by the electoral support to the left parties in 1980. However, when the economic crisis affected the unionization rate by the late 1970s, support for the left parties declined (Sulmont 1980: 155). Apparently, the Marxist left had failed to construct a political identity among its constituency (Sulmont 1980: 177). APRA, on the other hand, initiated by the 1940s a *verzuiling* of the party; the hearts and minds of potential *apristas* in the party's each time broader support bases were to be gained for the cause by providing an extensive network of social services, encapsulating the supporters in a kind of *aprista gemeinschaft*. However, the ideological moderation that successfully provided APRA with new supporters in the middle classes led to the loss of influence in organized

Tab. 3.2: Voting results in the 1980 Presidential elections. Percentages. (JNE 1980).

Left	
FOCEP	1,4
UI	2,9
UNIR	3,3
PRT	4,0
PSP	0,2
APS	0,3
UDP	2,4
Subtotal	14,4
Center-Left	
APRA	27,5
Center	
AP	45,2
Right	
PPC	9,4
Other	
FRENATR.	2,0
UNO	0,5
OPRP	0,4
MDP	0,3
Mov. País	0,2
Subtotal	3,4
Total	100,0

Std Deviation: PST_LEFT

- < 0.00 (0)
- 0.00 - 0.85 (232)
- 0.85 - 13.17 (902)
- Mean = 13.17
- 13.17 - 25.50 (427)
- 25.50 - 37.82 (167)
- > 37.82 (100)

Std Deviation: APRA_PT

- < 0.00 (0)
- 0.00 - 3.40 (250)
- 3.40 - 24.64 (842)
- Mean = 24.64
- 24.64 - 45.88 (432)
- 45.88 - 67.12 (198)
- > 67.12 (106)

Fig. 3.1 and 3.2: Communist (above) and APRA votes (below), standard deviation of percentages, 1980 election. Note that communes created after 1980 have zero values, which lowers the averages. Source: JNE 1980.

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labor. The Marxist left on the other hand gained influence in the unions due to its radical political stance, but not in the broader constituency.

The geographical distribution of communist votes (fig. 3.1) and APRA votes (fig. 3.2) are presented below. The two highest standard deviations of communist support are concentrated in the southern Andean highlands: in Puno, in the mountain regions of Tacna and Arequipa, and in central Andes in Huancayo, Pasco and the mountain regions of Ancash. As for the coast, the highest support for the communist parties is comparatively lower than in the highlands and less concentrated geographically. Yet, there are concentrations in the northern Piura area, in Chimbote, Lima, and Cañete in the center, and Ilo and Tacna in the south. In the case of APRA, the concentration of the highest standard deviations are located in "the solid north", in La Libertad, parts of Ancash, Lambayeque, Cajamarca, parts of Amazonas, and parts of San Martin. There is also a belt of support in the occidental Andes, in the lower parts of the highlands towards the coast. The lowest standard deviations are located in the oriental Andes, and in an extensive region in the southern highlands and coastal regions.

3.3 Overview of industrialized regions

The National Census of 1981 provides qualitative descriptive data on the location and type of industrial activities in the country's *departamentos* (INE 1981). Regions with medium and large industrial sectors, measured by the percentage of industry workers per commune, were mainly concentrated in some coastal regions and in the Andean highlands, the *sierra* (fig. 3.3. Maps of *departamentos* and altitudes in fig. 3.4 and 3.5 below). *Grosso modo*, the industrialized regions may be divided in two groups[28]. The first group comprises mono-industrial enclaves in highland peripheries. The second group includes the relatively modernized and prosperous industrialized regions along the Peruvian coast.

Region A 1: The large mining regions in southern Andes: Arequipa (Cerro Verde and other mines in the provinces of Cayoma, Castilla, Condesuyo); Moquegua

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[28] The Amazon basin is excluded from the analysis due to the region's small population and absence of significant industry.
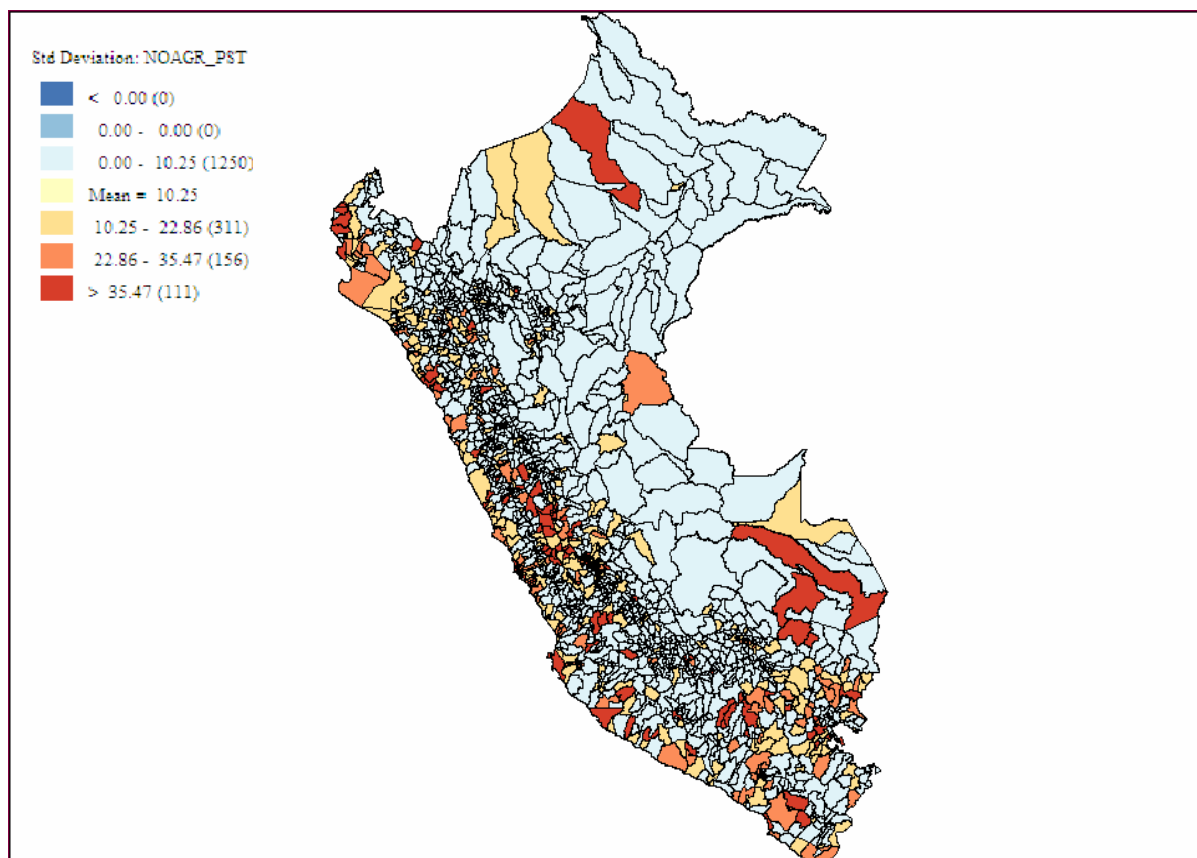
Fig. 3.3: Industry workers in percent, 1981. Distribution of percentages, standard deviation[29].
Source: INE 1981.

(Cuajone and Quellaveco in the province of Mariscal Nieto); and Tacna (large mines in Toquepala).

Region A 2: Cusco (large mines in the provinces of Chumbivilcas and Espinar, minor mining areas and manufacture in Cusco and Quispicachi).

Region A 3: Junín in central Andes (large mines and important metallurgy plants in the provinces of Yauli, Jauja, and Junín).

Region A 4: The *departamento* of Pasco in northern central Andes (metal extraction in several mines, among the largest in the country, in Pasco province).

Region A 5: Puno (metal extraction of minor importance, almost 500 industry plants, mainly in the process industry of non-metallic minerals and soda water production in the provinces of Juliaca, Puno, and Chucuito).

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[29] The two lowest standard deviations have no values. This is because the values below average are located within the first standard deviation below the average values. The values above the average are, on the other hand, located within three standard deviations. This is explained by the variable's normal distribution, which is strongly skewed to the left and with a long tail to the right (see fig. 4.1). The variable percent votes to the Left parties have approximately the same normal distribution pattern, the absence of values in the two lowest standard deviations have the same explanation.

Region A 6: Cajamarca (minor mines in Hualgayoc, Contumaza, Cajabamba). The second group includes the relatively prosperous and diversified industrialized regions in the coast:

Region B 1: Lima metropolitan area (metallurgy, metal mechanic, chemical, pharmaceutical, and assembly industries in Carabayllo, Puente Piedra, Ventanilla, Comas, El Agustino, Ate, San Juan de Miraflores, among others) and the *departamento* of Lima (minor mining activities in the provinces of Huarochiri and the *sierra* region of Huaral and Chancay. Manufacture in the coastal areas of Huaral and Chancay).

Region B 2: Coastal region of Ancash, north of Lima (metallurgy, fishmeal, and sugar production in the province of Santa in the coast, minor mining areas in the provinces of Bolognesi and Recuay in the highland).

Region B 3: The agro-industrial northern regions of La Libertad (provinces of Trujillo and to a lesser degree Pacasmayo) and Lambayeque (province of Chiclayo).

Region B 4: The petroleum industry and manufacture sector in the northern *departamento* of Piura (provinces of Talara, Paita, and Piura).

Region B 5: The southern agro industrial regions of Ica (agro-industry in Chincha and Ica, fishing related industry in Pisco, minor mining areas in Nazca)

The lack of precise data makes the empirical identification of Lafferty's ideal types in the Peruvian geography rather difficult. Only a broad characterization of the larger industrialized regions is therefore possible. The categorically stratified monotype industrialized communities and corporate competitive disrupted and non-integrated Type A communities would be common, *grosso modo,* in the peripheries and semi-peripheries in the Central and Southern Andean highlands, i.e. regions A 1 – A 6. These industrialized regions are characterized by some degree of urbanization and are more complex than surrounding rural agricultural communities due to the existence of mining activities, and are stratified along a few occupational classes in layered hierarchies. The Andean highlands were the most deprived region economically and socially, with high socioeconomic differences between classes, in addition to the highest levels of ethnical differences in the country (López Jiménez 1997: 445, 448, 463). Corporate multitype or pluralist Type B communities were located in the

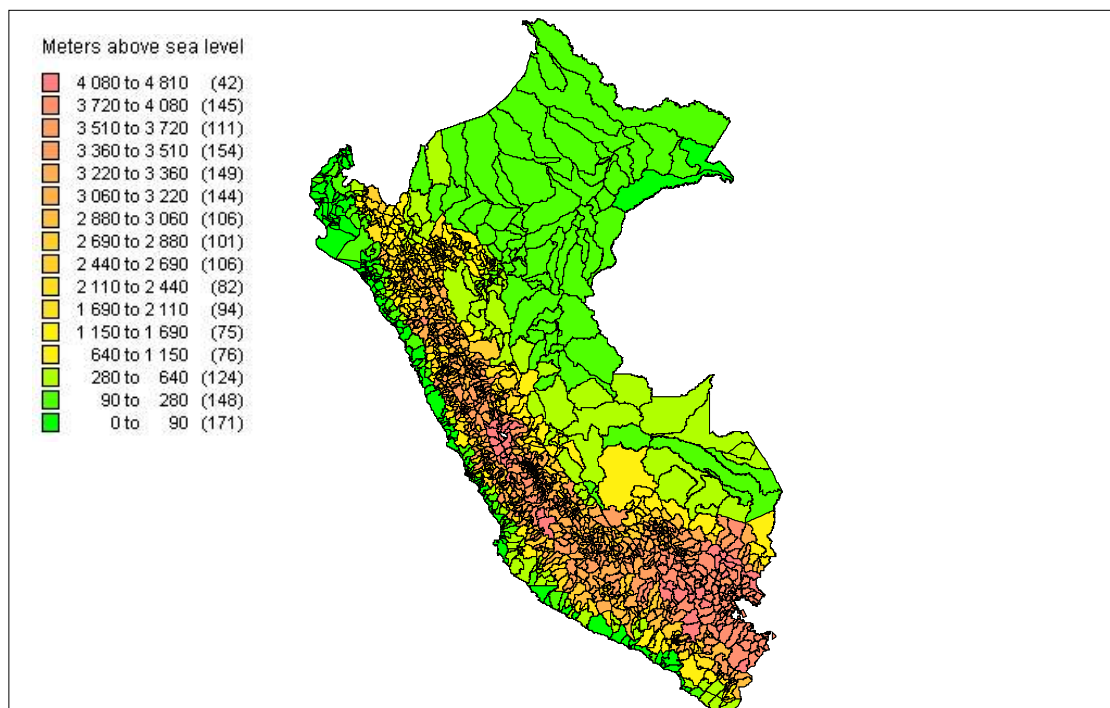*Fig. 3.4: Map of the Peruvian* **departamentos.** *Source: INEI 2001.*

Fig. 3.5: Overview over coastal and highland regions. Altitude, meters above sea level. Source: INEI 2001.

industrialized coastal regions, i.e. regions B 1 – B 6, especially in the comparatively affluent agro industrial sector in the north (López Jiménez 1997: 448, 463). These regions had reached higher levels of modernization and the industry sector was

diversified, including manufacture, metal-mechanic industry, metallurgy, pharmaceutical and chemical industry, assembly and so on (ibid.).

3.4 Conclusion

Sulmont argues that class-consciousness in the industry sector by the late 1970s and at the time of the elections in 1980 mainly was a union phenomenon, and that the most ideologized workers were those in mining and metallurgy, metal-mechanic industry, and the textile proletariat. Despite a process of formation that had lasted over five decades, an economic cleavage had hardly consolidated. The communist parties and the APRA had influenced different sectors in the industry, and there were ties between organized labor and the parties. The communist parties had not been capable to articulate with organized labor and the workers in such a manner that labor ideology had taken root in the masses of wage earners; only minor sectors, especially in mining, metallurgy and a few others, had workers developed higher levels of ideological convictions. APRA on its side had apparently been more successful through its *verzuiling* process or the encapsulation of supporters through a web of social services in order to spread moderate labor ideology and create a party identity. Support to the communists was strongest in the central and southern Andes; APRA support was strongest in the northern coastal and highland regions.

4. Empirical analyses

4.1 Introduction

The chapter is divided in four parts. First, the distribution of the variables *prior to* the ecological inference is briefly described. Second, descriptive statistics of the ecological inferences, i.e. the truncated bivariate variables, are presented in figures and tables. Third, the reliability of the ecological estimates is assessed with *EzI* diagnostics. Fourth, in order to identify regularities in the geographical distribution of the values, the estimates are analyzed with spatial statistical techniques.

4.2 Labors' left votes. National averages.

The normal distribution of "percent industry workers per commune" is strongly skewed to the left (mean and median values at 11 % and 6 %); few communes had high proportions of workers. The variables "percent votes to the communist parties" and "percent votes to APRA", are also left-skewed, APRA votes somewhat less than communist votes (communist mean 14,8 % and median 11,6 %; APRA mean 27,7 %, median 21,7 %).

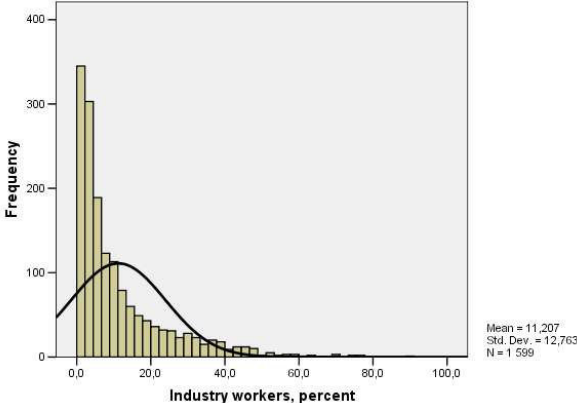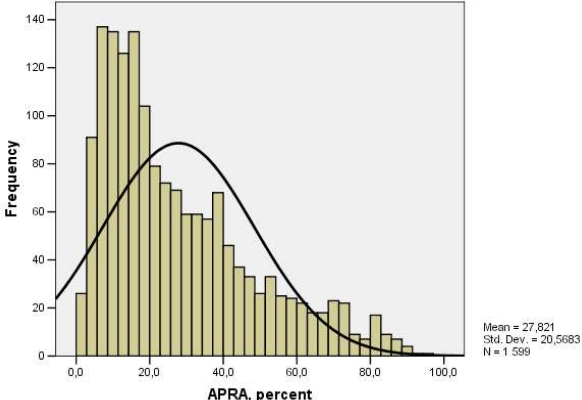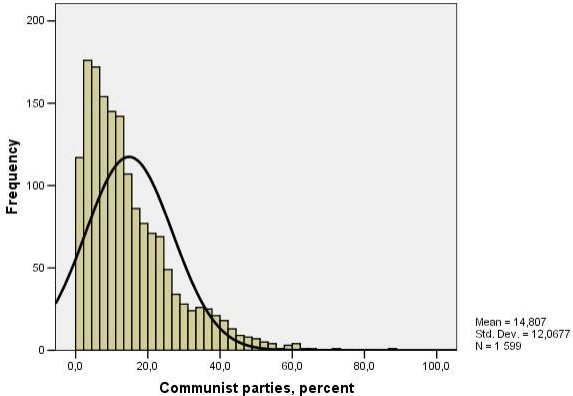Fig. 4.1: Industry workers, percent. (Source: INE 1981)

Mean = 11,207
Std. Dev. = 12,763
N = 1 599

Fig. 4..2 and 4.3: Percent votes to communist parties and APRA per commune. Sources: JNE 1980.

Mean = 14,807
Std. Dev. = 12,0677
N = 1 599

Mean = 27,821
Std. Dev. = 20,5683
N = 1 599

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The estimates resulting from ecological inference with *EzI* provides the average differences between workers (beta B) and other occupational classes (beta W) with respect of overall left, communist, and APRA support are described in tab. 4.1 and in fig. 4.4 - 4.6.

Tab. 4.1: Descriptive statistics, beta B and beta W for overall left, communist parties, and the APRA.

		Beta B Left	Beta W Left	Beta B Communists	Beta W Communists	Beta B APRA	Beta W APRA
N	Valid	1599	1599	1599	1599	1599	1599
	Missing	0	0	0	0	0	0
Mean		,44130	,424874	,228276	,137853	,265730	,279111
Median		,42960	,402800	,235000	,099400	,247200	,212500
Mode		,419[a]	,3193	,2122[a]	,0005	,2180	,0005
Std. Deviation		,104297	,2004563	,0592188	,1257226	,0886924	,2171284
Minimum		,044	,0144	,0010	,0005	,0015	,0005
Maximum		,979	,9919	,7004	,9009	,8630	,9811

[a]. Multiple modes exist. The smallest value is shown

The difference between beta B and W for overall left support is very low. Workers' support to APRA was about 2 percentage points higher than other occupational classes. However, the mode value for beta B indicates a higher concentration of votes around the average. For communist parties, the difference is larger; workers' support was near 23 %, other classes near 14 %, but with considerably lower median and mode values for the latter. APRA received practically the same degree of support from workers and other classes, although the median for beta B is somewhat higher, and the mode is considerably higher for beta B. The distributions of the variables are presented graphically in fig. 4.4 - 4.6.

The scatter plots in fig. 4.7 – 4.9 display Goodman's regression line (green) and the *EzI* generated Maximum Likelihood estimation (yellow). The size of the electoral population in each commune is identified by a circle - the larger the population, the larger the circle. The overall left support scatter plot (fig. 4.7) indicates no correlation between the proportion workers and the proportion left votes per commune. In the case of the communist parties (fig. 4.8), there is a weak positive correlation between the proportion of workers and the proportion of communist votes per commune. The next
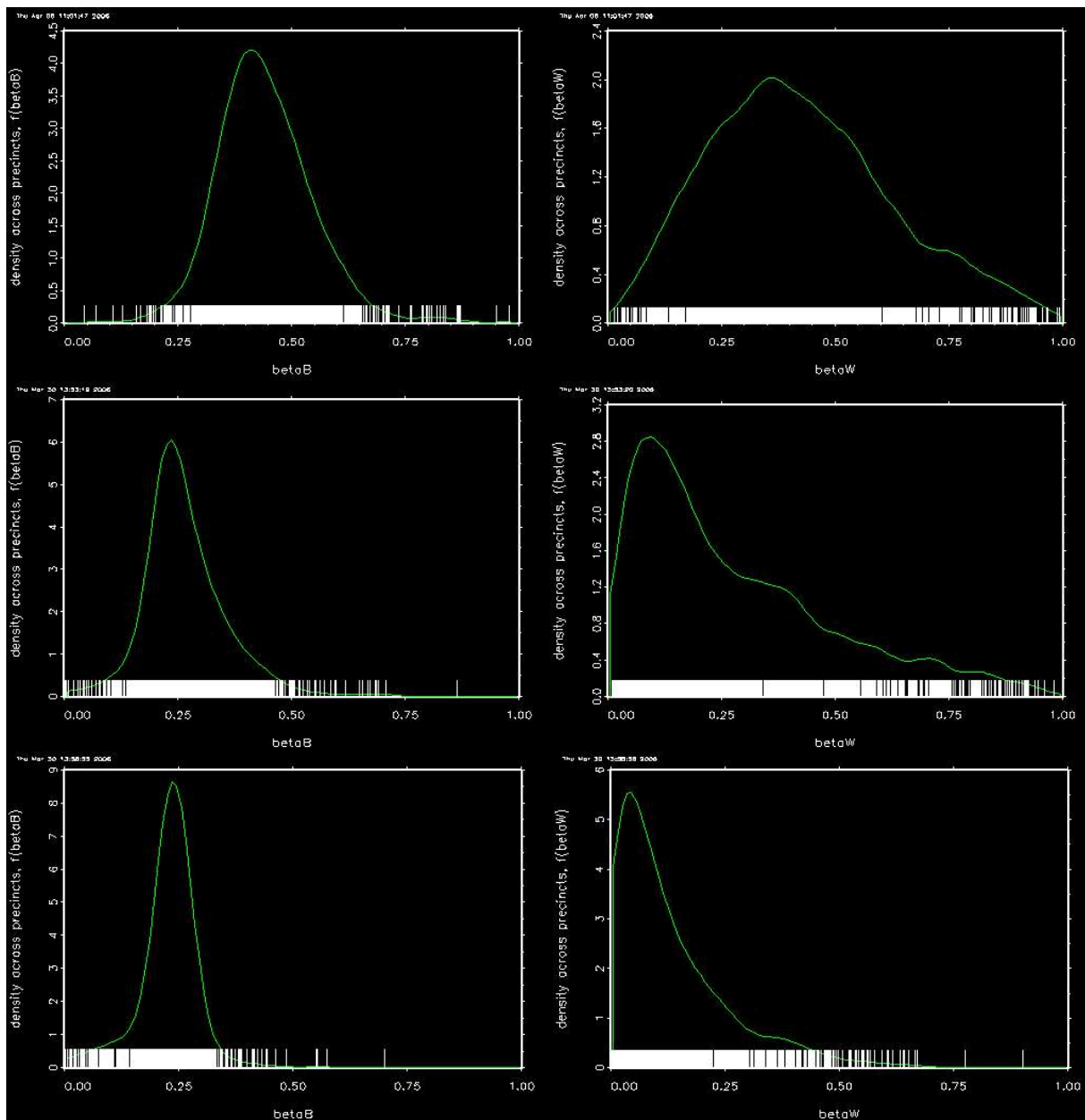
Fig. 4.4, 4.5, 4.6: Distribution of beta B and beta W: Overall left (first row), APRA (center row), and the Communist parties (last row).

scatter plot (fig. 4.13, below) show a slightly weak negative correlation between the proportion of workers and the proportion of APRA votes per commune. The scatter plots shows, however, considerable variation in industry workers' voting patterns. The national averages may hide as much as they reveals.
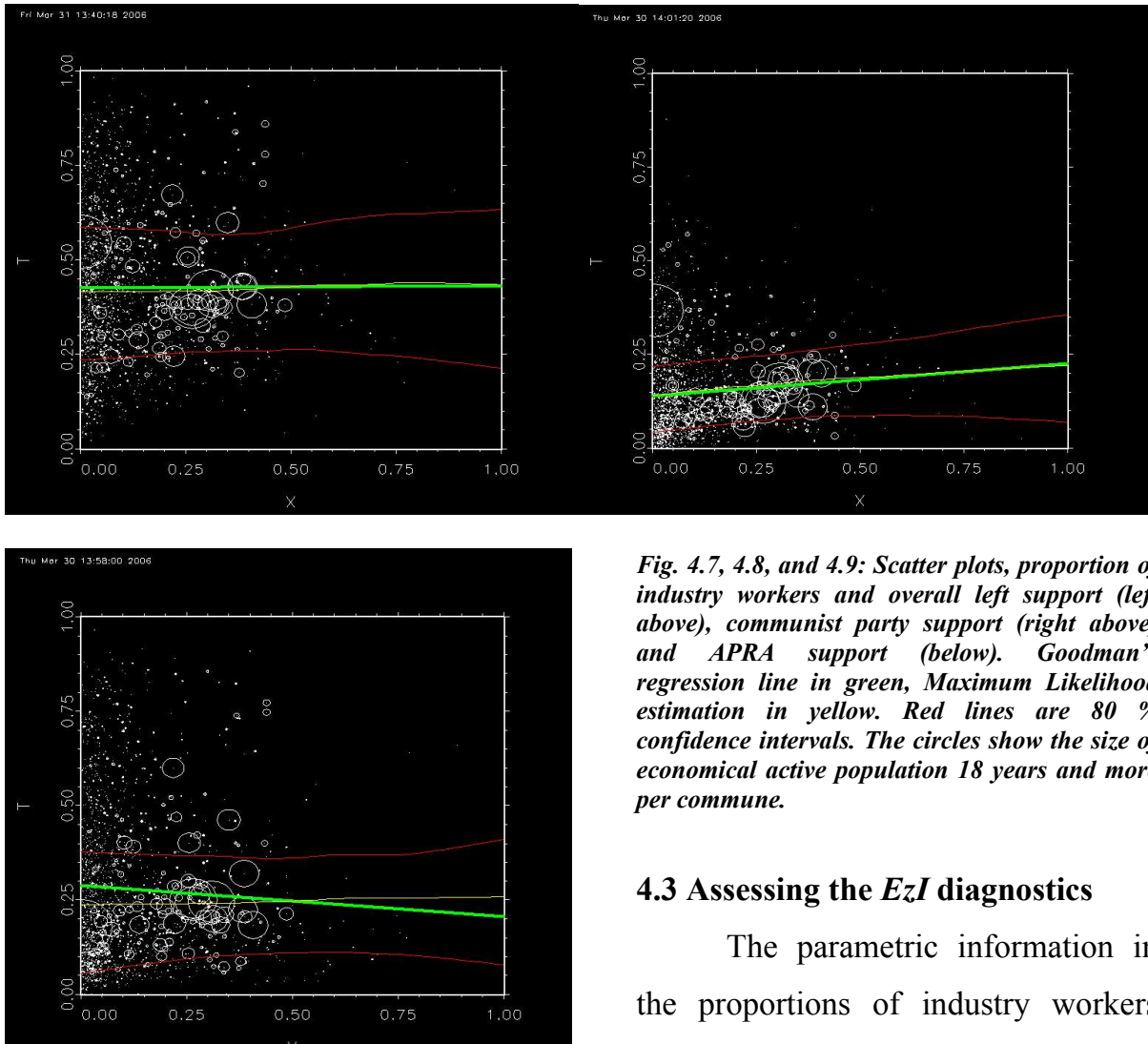
Fig. 4.7, 4.8, and 4.9: Scatter plots, proportion of industry workers and overall left support (left above), communist party support (right above) and APRA support (below). Goodman's regression line in green, Maximum Likelihood estimation in yellow. Red lines are 80 % confidence intervals. The circles show the size of economical active population 18 years and more per commune.

4.3 Assessing the *EzI* diagnostics

The parametric information in the proportions of industry workers and respectively proportion left, communist, and APRA votes in each commune is informative if the bounds are narrow (King 1997: 79-90). However, the bounds of the included variables are too wide to provide useful information (the exact bounds for each commune are included in the dataset, available upon request). The statistical uncertainty of the *EzI* estimates is therefore considerable, as seen in the tomographies in fig. 4.8 - 4.10. The estimates for each commune are located somewhere along the lines in the tomography plot (King 1997: 81). Relatively flat lines give narrow bounds on of β_i^w and wide bounds for of β_i^b, and steep lines indicate narrow bounds for β_i^b and wide bounds for β_i^w (King 1997: 81, 282). In the case of overall left party support, the yellow lines indicate a similar distribution of estimates in the case of both beta B and beta W, although it appears that APRA support is lower in communes with high proportions of workers. In the case of the estimates of communist

party support, most of the lines are flat, presenting highest density in the inferior part of the space, indicating a generally low communist support in the majority of the communes. The APRA estimates cover a wider range, pointing to the existence of a higher proportion communes with high APRA support as compared to the proportion of communist supporting communes. However, both tomographies are very dense and uninformative. The bounds on the beta B and W axis for overall left party support covers wide parts of the [0-1] range. Beta B for communist support is projected between approximately .01 and .50) and the beta W covers practically the whole range
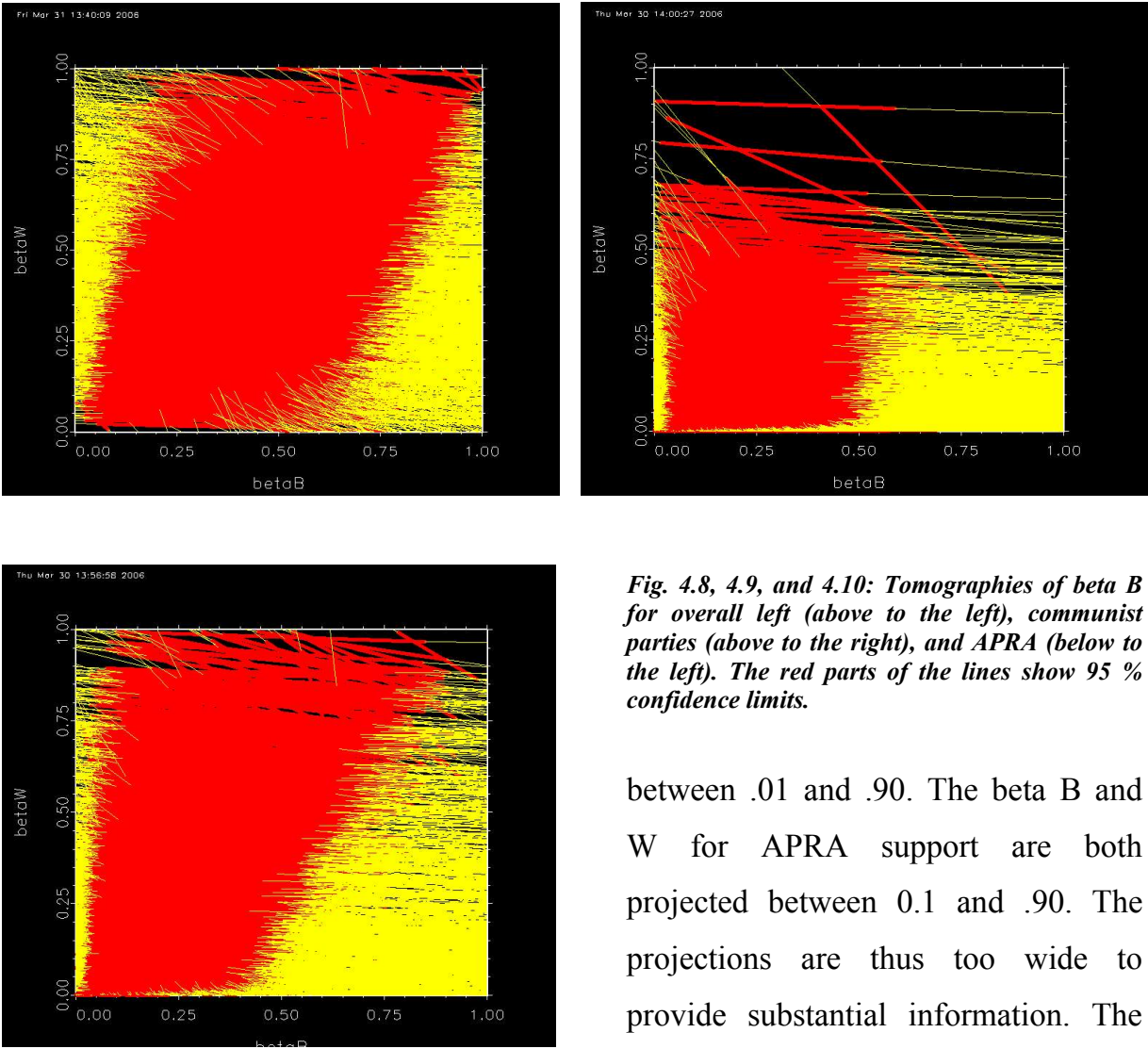
Fig. 4.8, 4.9, and 4.10: Tomographies of beta B for overall left (above to the left), communist parties (above to the right), and APRA (below to the left). The red parts of the lines show 95 % confidence limits.

between .01 and .90. The beta B and W for APRA support are both projected between 0.1 and .90. The projections are thus too wide to provide substantial information. The tomographies are also useful for the

assessment of the underlying distribution of data (King 1997: 124- 132). In neither of the tomographies are there clear intersections at a common point, i.e. a common value

of β_i^b and β_i^w. The red contour lines on the graph lines, representing 95% maximum likelihood intervals, would, with more informative data, have defined the truncated bivariate normal distribution of β_i^b and β_i^w. Inspection of *EzI*'s nonparametric tests[30] (not shown here) points to the same pattern as the tomographies: the contours show a very large variance in β_i^b and somewhat lower in β_i^w, for both overall left, communist, and APRA support. Consequently, the form of the underlying distribution *may or may not* be truncated bivariate normal, due to the statistical uncertainty in the data, the true form cannot be identified.

The information available in the tomographies includes also an assessment of the variation in X_i. More uncertainty should be added to the results if X_i shows little variation, indicated by nearly parallel lines that points to a small range of values (King 1997: 229, 285, 286). If aggregation bias is absent, there is no correlation between the parameters β_i^b and β_i^w and the regressor, the X variable. Regression analyses with SPSS of X_i on β_i^b and β_i^w give coefficients with zero values in all cases, although several coefficients are not statistically significant. A cautious conclusion is therefore that aggregation problems are not representing a problem in this case.

In conclusion, the diagnostics points clearly to a cautious interpretation of the estimates. Both the uninformative bounds and the uncertain form of the beta values' underlying distribution do affect the precision in the *EzI* generated estimates.

4.4 Labor's left votes. Sub-national variation

Fig. 4.12 presents the mapping of beta values for communist party support. The figure shows a relatively unstructured and heterogeneous spatial structure. The communes included in the two highest standard deviations are to a large degree located in the southern Andes, in eastern parts of Cusco, the westernmost provinces of Arequipa and the *sierra* of Moquegua and Tacna (regions A 1 and parts of A 2, cf. pp. 56-58 above). Further, there are scattered high values in Junín and Pasco in the central Andes (regions A 3 and A 4), in Piura (region B 4), and Lima (region B 1). A concentration of the lowest values is located in the northern coastal region of La

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[30] Nonparametric density estimation with contour plot and surface plot representation (see also King 1997: 101-96, 229)

Libertad and Lambayeque (B 3), and Cajamarca (A 6). Few clear patterns, with the exception of the clusters of high support in regions A 1, A 2, A 3, and A 4, and of low support in La Libertad (region B 3), are identified. As already mentioned, the large Amazon region is excluded from the analyses due to low population and absence of significant industry. *GeoDa* does not permit zooming with the present map format, consequently, Lima metropolitan area is not visible in the map.
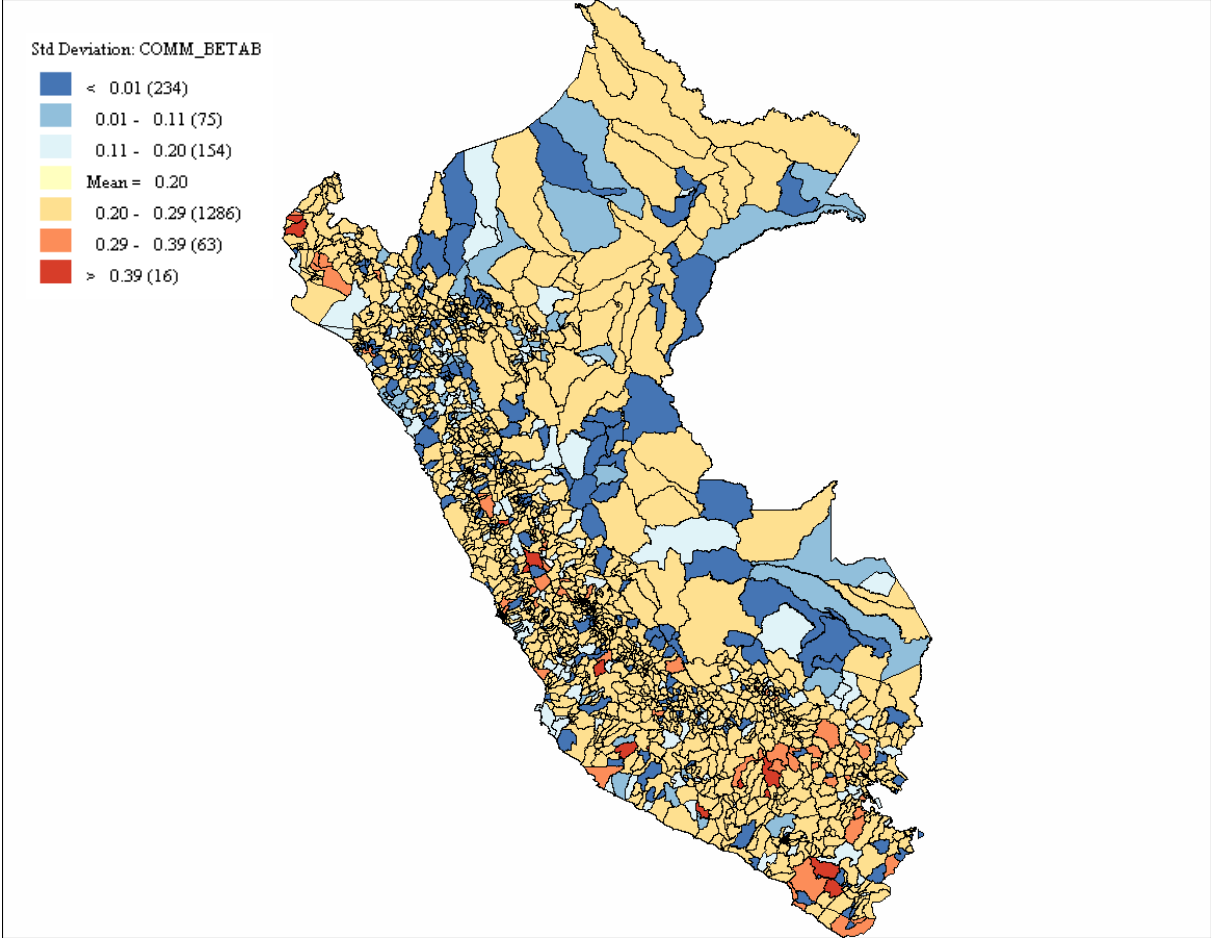
Fig. 4.12: Geographical distribution, standard deviation of estimated proportions of industry workers who voted for the communist parties (beta B).

The map of APRA support shows much more structured spatial patterns. There are clear concentrations in northern La Libertad and Lambayeque, in the *sierra* of Ancash, and in Cajamarca (regions B 2, B 3, and A 6). This large cluster stretches also into some provinces of Amazonas and San Martin. Further, an interesting homogeneous pattern of relatively high APRA support is uncovered in the western regions of the Andes and the coast, beginning in Chancay in the north of the

departamento of Lima and continuing to Ica in the south. This is also the case of the oriental side of the Andes from Huancavelica and south to Puno. This pattern may suggest that APRA support was stronger in the valleys and the lower regions in the Andean highland, while weaker in the highest regions of the *sierra*. In turn, this would suggest that APRA support was low in the mining regions, situated in the highest areas
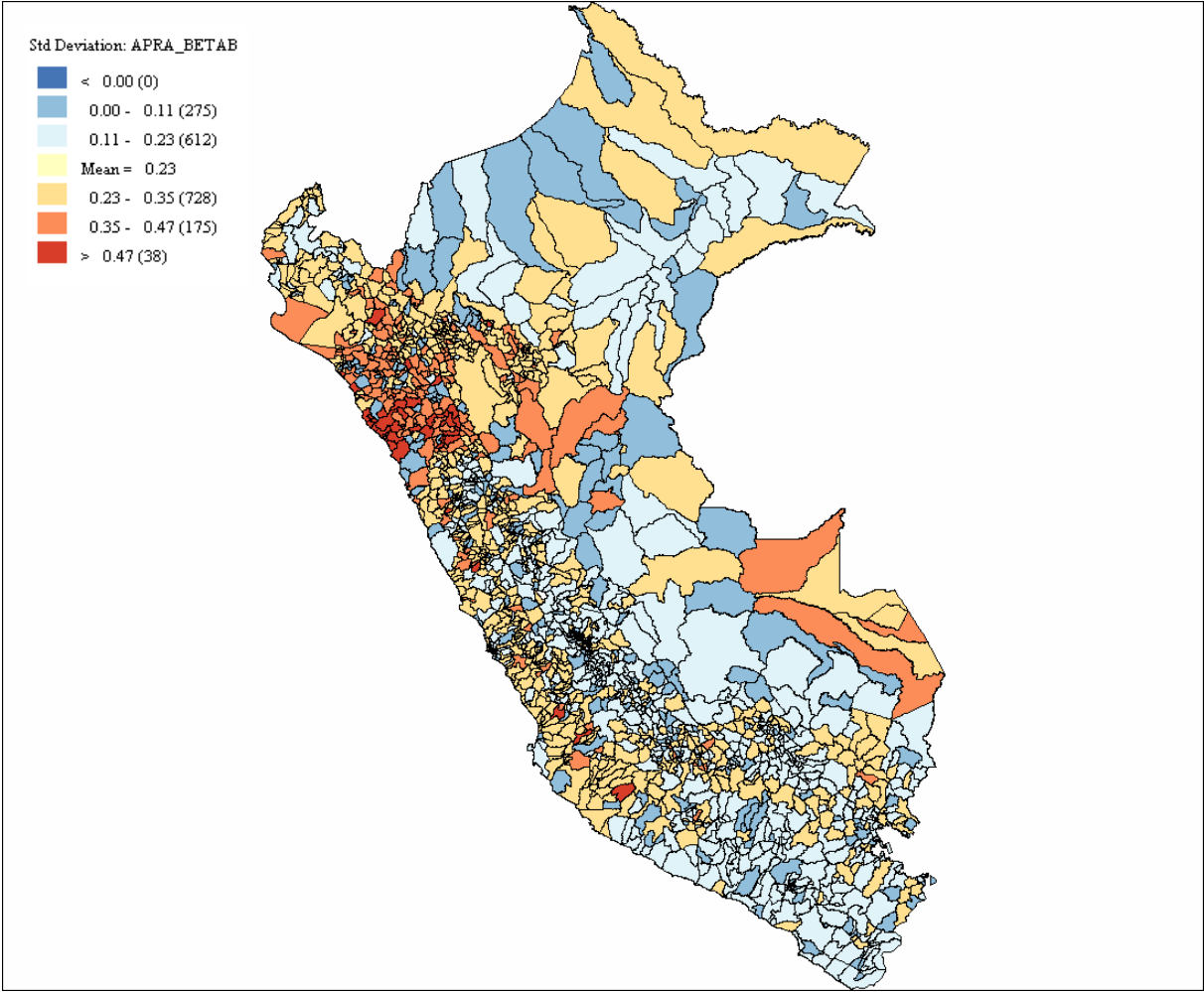

Fig. 4.13: Geographical distribution, standard deviation of estimated proportions of industry workers who voted for APRA (beta B).

of the Andes. These areas of average or relatively high support to APRA are contrasted by the low-support triangle in the south, including especially the western parts of Cusco (region A 1), Tacna, Arequipa, and Moquegua (region A 1), and Puno (A 5). Another region of low APRA support is the central Andes, including Junín (region A 3) and Pasco (region A 4).

4.5 Spatial analysis of left vote distributions

In order to uncover geographical clusters in the distribution of left party support, spatial analyses of both global and local indicators of spatial autocorrelation are employed. Calculations of *Moran's I* and LISA are weighted with distance bands. K-nearest neighbors could also have been used, but the definition of a specific distance band, in this case 40 kilometers, provides more accuracy to the estimations. Thus, units that are located further away geographically, identified by measuring the distance from each observation to all others in the dataset, are given declining salience. The areal size of the spatial units, i.e. the communes, is relatively homogenous, preventing that small units will have many neighbors, and large units will have few. The exceptions are the large communes in the Amazon rainforest region, but this area is excluded from the analysis due to the limited population size and absence of significant industry.

The variables (*EzI* estimates) are standardized so that the values, both those in the *Moran's I* graphs and the LISA values mapped with *GeoDa*, correspond to standard deviations. The four quadrants in the graph classify four types of spatial autocorrelation, measured with *Moran's I*: *high-high* (above to the right), *low-low*
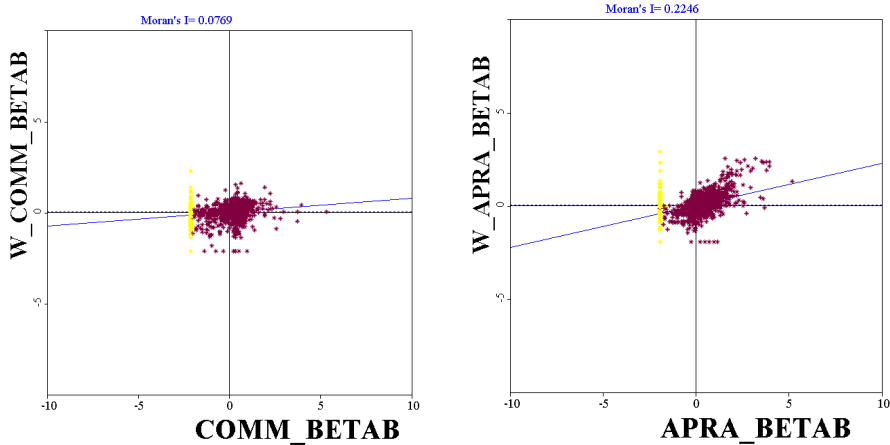
Fig. 4.14 and 4.15: Moran's I for beta B communist parties (left) and APRA (right). Communes created after 1980 are excluded (yellow color).

(below to the left) identifies positive spatial autocorrelation; *high-low* (below to the right) and *low-high* (above to the left) identifies negative spatial autocorrelation. The regression line is *Moran's I* and its value is given on the top of the graph. The yellow

points along the vertical line to the left in the graphs (fig. 4.14 and 4.15) are communes created after 1980 and excluded as missing. Calculation of the *Moran's I* suggests that there is a weak positive global autocorrelation at approximately .07 in the case of communist votes, while APRA votes show a slightly stronger positive value at approximately .22. This points to the existence of APRA and communist supporter clusters.

The next step is to identify the geographical location of these clusters. The *local indicators of spatial autocorrelation* (LISA) test identify distinctive regional clusters of communes with high beta values for APRA and communist support. Sensitivity analyses were done before the clusters were interpreted in the LISA maps. Randomization with 999 permutations of the spatial-statistical calculations increases the numerical stability in the estimations. The significance filter is defined at $p < .05$. *GeoDa* permits the significance level to vary between .05 and .001 in order to show how conclusions depends on the level of significance, and constitute an informal mechanism for the comparison of different estimations (Anselin 2005: 142).

The largest cluster of communist support is located in the following *high-high* regions (beginning with the largest cluster and moving north):

Cluster A: **Region A 1:** Eastern parts of Arequipa (Union, Parinacochas, Condesuyo, Cailloma, and Castilla); northern parts of Puno (province of Lampa).

**Region A 2:** Western parts of Cusco (province of Espinar)

Cluster B: **Region A 2**: Eastern parts of Cusco (provinces of Chumbivilcas, Paruro, Acomayo, Cusco, Urubamba, Canchis, Anta).

Cluster C: **Region A 3**: Junín (Tarma, Yauli, Jauja, Concepción, Huancayo), including the highlands in the eastmost parts of Lima *sierra* (province of Yauyos).

Cluster D: **Region A 4**: Pasco (provinces of Pasco, Ambo, Daniel A. Carrión), including the highlands in the northernmost parts of Lima *sierra* (province of Chancay).

Cluster E: **Region B 1**: Northern coastal region of Lima (province of Chancay).

Cluster F: **Region B 4**: Piura (provinces of Piura, Talara, Paita and Sullana).
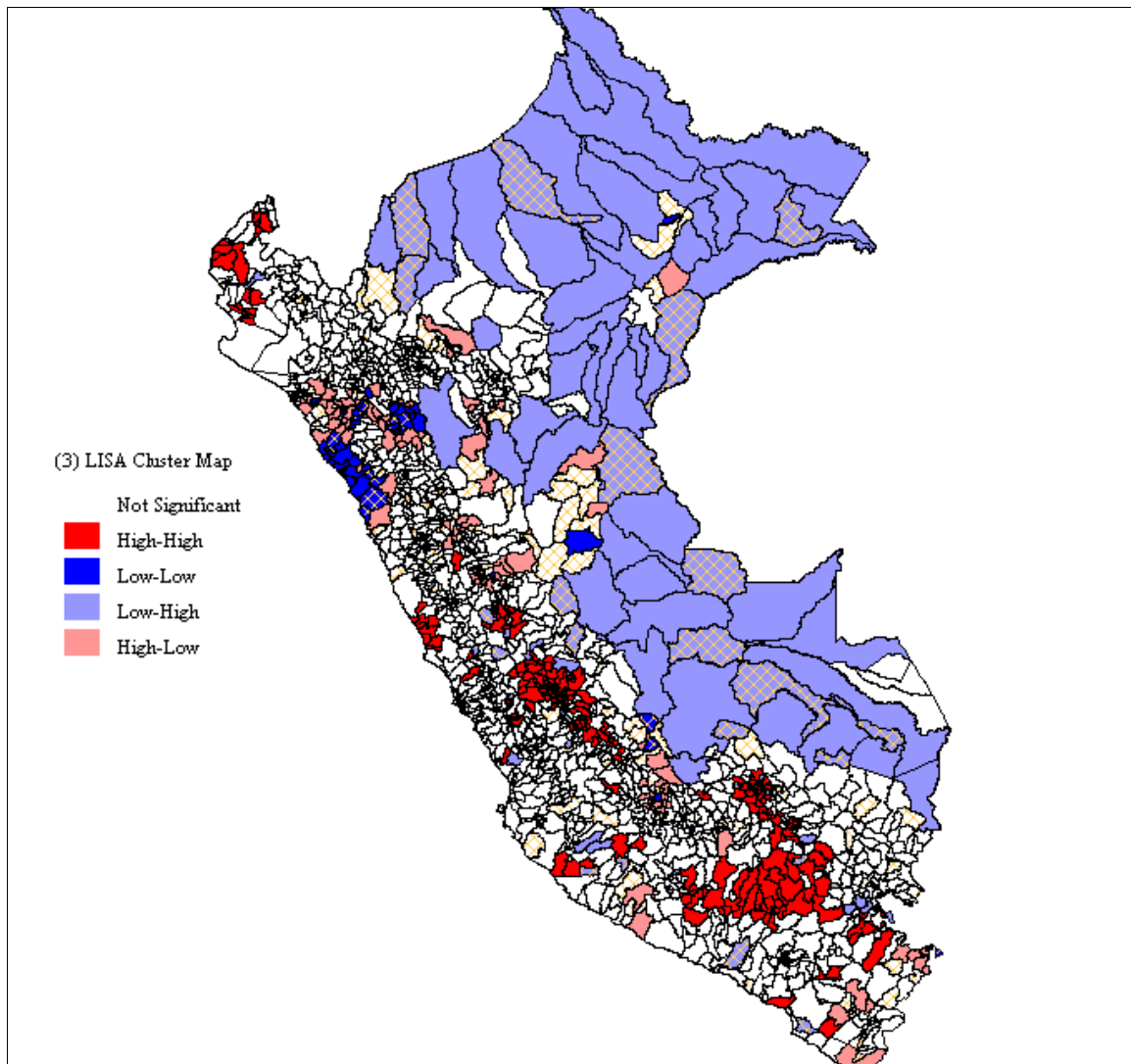
*Fig. 4.16: Univariate LISA of beta B communist parties. Weighted with 25 km distance band (999
permutations). Units marked with yellow lines are communes created after 1980.*

On the other hand, relatively large *high-low* clusters (communes with high
values located among communes with low values) are located in the highland
departamento of Ayacucho, west of Cusco, and in western parts of Cajamarca (region
A 6, provinces of Contumaza, Cajamarca, and San Miguel), and in some eastern
provinces in the same *departamento* (provinces Encañada and Los Baños). In addition,
some *high-low* values are located in Lambayeque (region B 3).

Finally, two distinctive *low-low* clusters (communes with low values located
among other communes with low values) are located in i) La Libertad (region B 3, the

coastal province of Trujillo and the eastmost *sierra* province of Bolivar), and in ii) Cajamarca (region A 6, provinces of Celendin and Cajabamba).

The LISA test of APRA support shows *high-high* clusters in an extensive region in the "solid north", expanding into provinces in the Amazon region:

Fig. 4.17: Univariate LISA of beta B, APRA. Weighted with 25 km distance band (999 permutations). Units marked with yellow lines are communes created after 1980.
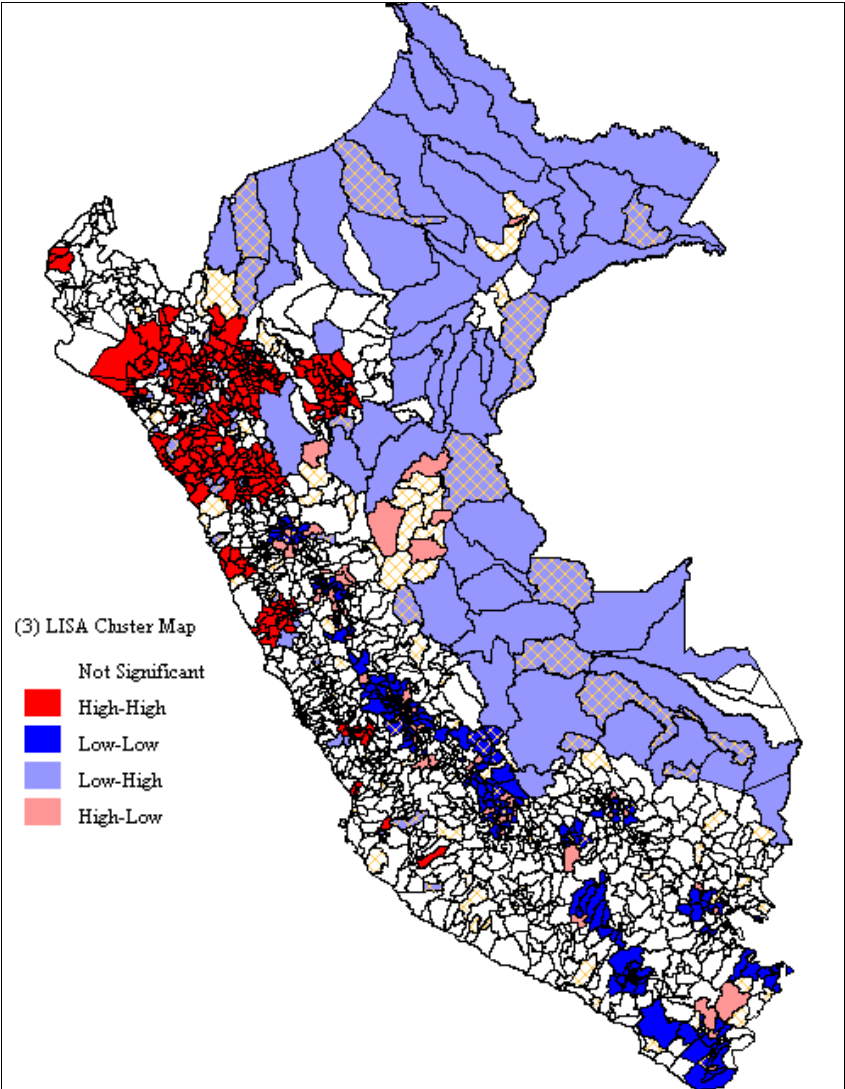
Cluster I: **Region B 3**: La Libertad (provinces Huamachuco, Santiago, Pataz, Pacasmayo, and Trujillo) and Lambayeque (Chiclayo, Lambayeque).

Region B 2: Ancash, both coastal and the highland provinces.

Region A 6: Cajamarca (Cajabamba, Contumaza, San Miguel, Cutervo, Chota, Santa Cruz, Jaen, San Ignacio).

Region B 4: Piura, parts of the *sierra* (province of Huancabamba).

In addition, east of Piura and northeast of Cajamarca: Amazonas (Bagua, Chachapoyas, Luya) and San Martin (San Martin, Huallaga, Lamas, and Moyobamba).

Cluster II: **Region B 2**: Ancash (province of Casma).

Cluster III: **Region B 1**: Northern parts of Lima (Chancay) and Ancash (Bolognesi).

Distinctive *low-low* clusters are located in the i) eastern part of Ancash highlands (Mariscal Castilla, Yungay, and Pomabamba), and along a large belt that stretches from ii) Pasco (provinces of Pasco and Daniel A. Carrion) through Huancayo (Tarma, Yauli, Junín) and south to Junín (Jauja, Concepción), Huancavelica (Huancavelica, Tayacaja, Angaraes, Acombamba) and Ayacucho (La Mar, Lucanas, Cangallo, Huamanga, Huanta). Finally, a second belt stretches from iii) Arequipa (Islay, Condesuyo, Cailloma, Castilla, Arequipa) through Moquegua (General Sánchez Carrion and Mariscal Castilla) and south to Tacna (Tacna and Tarata).

In order to conclude, clusters of communist supporting industry workers are mainly located in a) highland mining regions, and b) coastal general industrial and petroleum regions. The APRA supporting industry workers are clustered in the a) agro-industrial regions in the coast, in b) the lower non-industrialized highlands in the northern *sierra*, and in c) the western parts of the Amazon region in the north and north east.

4.6 Conclusion

The estimates resulting from ecological inference with *EzI* have to be interpreted with caution due to the existence of statistical uncertainty. Both uninformative bounds and an unidentified underlying distributional form of the truncated bivariate variables affect the precision in the estimates and their level of probability. The ecological estimates show that social structure had more effect on workers' vote to the communists than to APRA. Labor support to the communist parties increase slightly with increasing proportions of workers. In the case of APRA, the opposite is occurring; as the proportion of workers increase, the level of support to

APRA diminishes. Broad clusters of communist support are mainly identified in the mining regions in the Andean highlands; clusters of APRA support in the coastal agro-industrial regions in the north, and in the less industrialized northern highlands.

5. Discussion: The relevance of social structure in the explanation of labor's voting behavior in 1980

5.1 Introduction

The Chapter briefly discusses the process of cleavage formation in Peru and assesses, with qualitative data, its impact on labor's voting behavior in 1980. Then, each of the four hypotheses is tested with results from the empirical analyses.

Due to statistical uncertainty in the ecological inferences, a cautious interpretation of the estimates is imperative. The *EzI* diagnostics identifies mainly two problems: Lack of information in the bounds and lack of specification of the underlying distribution of the truncated bivariate variables. The first problem may affect the level of precision in the estimates, the second the calculation of probability. It is therefore important to assess the results with what is known from qualitative evidence. The maps are helpful in evaluating the results, and will be compared with what is known about the various geographic regions and serves to identify outliers. Although it is impossible to know with certainty the level of precision and the level of probability of the ecological inferences, it is reasonable to argue that the estimates do point to important tendencies. Paraphrasing Franklin, Mackie, and Valen: in this exploratory study, it is more important to be able to build upon the findings, in order to reach conclusions of substantive interest and conceptual relevance, than to achieve accuracy to the second decimal (Franklin et al. 1992: 23).

5.2 The degree of cleavage formation

Was labor's vote to the left in 1980 *cleavage* based? In accordance with Bartolini's definition and Sulmont's account of the relationship between workers, organized labor, and the political parties by 1980, an economic cleavage was apparently not consolidated. Sulmont's comments on the relation between labor and the communist parties are relatively informative; comments on APRA with respect of this issue are few and not explained in detail. Other sources, as e.g. Planas (2000), Cotler (2005), and Tuesta (1995) consulted in this study do neither provide much information. APRA will therefore only briefly be commented.

Bartolini's cleavage definition includes three dimensions, an empirical, a normative, and an organizational behavioral element. The empirical element is social structure, or social class. Structural conditions for the development of an economic cleavage did exist, as outlined above, during the whole 20th century in the industrialized regions of the country. The normative element is constituted by "the set of values and beliefs that provides a sense of identity and role to the empirical element and reflects the self-awareness of the social group(s) involved" (Bartolini 2000: 17). This "set of values and beliefs" would be labor ideology, (socialist/communist ideology), and its function was to create a common subjective experience of workers' location in the objective socioeconomic hierarchy, in other words class-consciousness. Sulmont argues that class-consciousness in Peru by the late 1970s was "mainly a union phenomenon that not yet had been translated into a political identity and into a solid political organization" (Sulmont 1980: 179). The third element is the "set of individual interactions, institutions, and organizations, such as political parties, that develop, as part of the cleavage" (Bartolini 2000: 17). Labor organizations and political parties developed as part of the cleavage, as outlined above, and existed since the 1920s. However, Sulmont argues, referring to the communist parties, that "the relation between union and party, between spontaneous actions and organized resistance, was characterized by bureaucracy and conflicts, which weakened the political parties' programmatic platforms and paved way for individual protagonism in well-known *caudillo* style and internal divisions" (Sulmont 1980: 179). In addition, Sulmont explains the left's incapacity to centralize the efforts to organize the popular sectors referring to the great diversity within these classes and the absence of an axis around which the unification would vertebrate (Sulmont 1980: 178). Sulmont does not comment specifically on the character of the linkage between unions and APRA, consequently, this element will not be discussed. Bartolini's first and second elements, social structure and ideology, were maybe more intriguing aspects of APRA support than the case of the communists. In the case of the latter, it appears that the combination of union action and social structure explain the largest part of the votes. In the case of APRA, it seems that a third variable had important effect. APRA's *verzuiling* strategy, especially in the northern regions, may have

constructed a relatively solid social democratic political identity among its constituencies. Thus, APRA did not depend only on the unions as vehicles for political socialization; in addition, the party had woven a web of professional associations, educational and health services and so on. Thus, the relation between party and unions was not as decisive as in the case of the communists because APRA possessed a broad range of vectors for its political identity construction.

Only tentative conclusions can be drawn due to the lack of data and scarcity of sources. In the industrialized regions, objective structural conditions for cleavage formation existed, but ideologization of workers and organizational channels that linked workers and political parties were generally poorly developed. Cleavage-based communist support was mainly, as Sulmont argues, a union phenomenon. However, APRA had apparently to a larger extent succeeded in developing ties between the party and its labor constituencies through the *verzuiling* process. However, more data and further analyses are required in order to decide whether workers' support to APRA was cleavage based or anchored in other sociocultural mechanisms.

The results of the quantitative analyses will add further insight into the nature of labor's left vote in 1980.

5.3 National averages

EzI estimates of workers' overall left vote in the 1980 election, including APRA, do not confirm hypothesis H1. The national average of workers' votes to the left parties was approximately at the same level as the national average, not above. However, the result is different when APRA votes are kept out of the analysis. The national average of industry workers' votes to communist parties was almost 23 %, presenting a narrow distribution of the votes, whereas the national average of all other occupational classes was approximately 14 %, with median and mode values considerably lower. In other words, nearly one quarter of the workers voted for the communists. On the other side, slightly above one quarter of industry workers' votes were given to APRA. *EzI* estimates give a national average of 27 %, the same as the national average in the election. For beta W, the median was somewhat lower and mode values were much lower than beta B. Thus, the distribution of non-worker

APRA votes was broader. As already commented above, this points to the characterization of APRA as a *catch-all* party with a broad support base, including about 50 % worker votes and 50 % support from other classes. On the other hand, more than 60 % of the votes to the communist parties came from the industry workers. Support to the communist parties was thus to a larger extent class based. The confirmation of H1 depends thus on the inclusion of APRA. H1 is confirmed if only the communist parties are considered.

Hypothesis H2 states that the support for left parties is higher in communes with high proportions of industry workers. The expectation is that industrialization leads to concentrations of waged labor, and the concentration of individuals who share objective socioeconomic conditions and subjective class-consciousness facilitate the intervening action of labor unions and left parties. As seen in the scatter plots in fig. 4.7-4.9, overall left support show no correlation between the proportion of industry workers and the proportion left votes. In the case of APRA, the *EzI* estimates present a weak negative correlation between proportion industry workers and proportion APRA votes. In other words, the support for APRA tends to decline in communes with large proportions of workers. In the case of the communist parties, the regression line shows a weak positive correlation between proportion workers and proportion votes to the communist parties. The proportion of votes to the left parties increases slightly with higher proportions of industry workers per commune. However, in the three scatter plots, the confidence interval is quite large for all communes, which imply a cautious interpretation. The conclusion - with caution due to the statistical uncertainty - is that H2 is strengthened only in the case of communist parties.

5.4 Sub-national clustering of radical and moderate workers

Analysis of sub-national variation identifies spatial clustering of both communist and APRA support among industry workers. The value of *Moran's I* for the communist parties indicates a positive, but weak global spatial autocorrelation. *Moran's I* for APRA indicates a somewhat stronger global autocorrelation than for communist votes. In the case of communist supporting workers, there are six *high-high* clusters. The largest clusters, A, C, and D, are located in important mining enclaves in

the deprived peripheries in the Andean highlands. In these regions, communist led and radical unaffiliated but communist supporting labor unions were active. The identification of the mining regions as radical areas is also in accordance with the findings of Soares/Hamblin and Petras/Zeitlin. Thus, clusters A, C, and D confirm H3. Cluster B is located in eastern parts of Cusco, in a region characterized by mining centers of minor importance. Available data does not provide information about the size of these centers, nor whether labor unions were active here. Due to the lack of precise data, the question of whether cluster C strengthens H3 remains uncontested. The minor clusters E (Chancay) and F (Piura) are both non-mining industrial regions and located in the coast. The CGTP was active in the petroleum industry in the north, a factor that may contribute to the explanation of high communist support in the Piura region. However, there are *high-high* clusters in communes relatively far away from the petroleum industry the coastal Talara region. Recall also Planas' comment on the regional support base of the *Partido Socialista del Perú* (PSP); the party had its main constituency in Piura and did not present electoral lists in 15 *departamentos* (page 29 above). Whether labor's support to PSP was due to social structure, organizational factors, the personality of its leaders, or a combination of all, is not possible to decide with available data. Available data does not provide information as to explain the existence of communist support in these regions. In conclusion, it seems reasonable that the existence of clusters A, C, and D confirms H3.

On the other side, one large *low-low* cluster in the LISA map of communist support is located in La Libertad, in "the solid north". This brings the discussion over to APRA supporting regions. The *low-low* cluster in the communist map coincides with one of the largest *high-high* cluster in the map of APRA support. Large part of Cluster I is located in the relatively affluent coastal agro-industrial regions in La Libertad and Lambayeque, which strengthens Lafferty's theory. However, one part of cluster I includes Cajamarca, and there is a large cluster in Amazonas and San Martin, all three *departamentos* without significant industry and with relatively low levels of prosperity. The presence of these clusters is not explained by Lafferty's theory. In conclusion, the existence of cluster I confirms H4.

5.5 Conclusion

Deficient historical qualititative data in order to describe more broadly and with depth and precision the process of interaction between social structure, workers, unions, and political parties, and the statistical uncertainty in the ecological estimates, permit only tentative conclusions. However, some tendencies seem clear. First, social structure had a larger impact on communist support than on APRA support. The impact of social structure on the former was in addition somewhat higher in communes were there was large concentrations of workers. Social structure had no effect on APRA support, and the support was somewhat lower in communes with high proportions of workers. It appears that Lipset and Rokkan's cleavage theory is strengthened if only the communists are considered. Second, workers' support to the communists was especially strong in the Andean mining enclaves weak in the large modern industrialized communities in the northern coastal regions, with the exceptions already mentioned. Conversely, industry workers' support for the social democrats was strong in the modern industrialized communities in the northern coastal regions, and weak in the mining regions in the Andean highlands. These findings strengthen Lafferty's theory. However, Sulmont and Sartori point to alternative explanations of the observed patterns. If those communes where communist votes outweighed APRA votes are identified as those regions in which the communists were the first to establish the "apparatus mass party", then communist support may "coincide systematically with the occupancy of an organizational void, rather than with objective conditions of deprivation" (Sartori 1990: 168-169). "In that case, what we really are observing, via class behavior, is the impact of an organizational variable, the influence of party and trade union control". Class conditions are then only a "facilitating condition" and the class receives its identity from the party (op.cit. 169). This coincides with Sulmont's argument: workers experience of class identity was the result of active labor unions, and the incipient consciousness of class was not translated into a general political and ideological consciousness and solid political organization (Sulmont 1980: 178). Now, Sulmont and Sartori's arguments do not necessarily weaken Lafferty's basic structural explanation. The fact that the communists were able to influence the mining unions in the first place and that APRA retained influence in the unions in the "Solid north"

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despite communist takeover of large union sectors in the 1970s imply that there were some conditions present in these two broad regions that opened up for workers acceptance of the different ideologies.

Differences in the organizational nature of APRA versus the communist parties, i.e. the former's *verzuiling*, may also contribute to the explanation of the large clusters of social democrat support in the non-industrial regions in the northern *sierra* and Amazon regions. However, available data does not provide information in order to discuss this further. The existence of APRA supporting workers in the large regions in northern Peru, and high levels of communist support outside large mining regions remain unexplained. Available data does not permit testing the implications of Knutsen's theory. Among the possibly existing crossing cleavages that may have had effect on labor's voting is the religious cleavage perhaps the most important. Labor ideology may have been incompatible with workers' religious convictions, especially in smaller, peripheral communes where the Catholic Church had strong influence. However, communist support was high in many small rural communes, as in Ayacucho and Huancavelica. The existence of patron-client relations, mainly in minor, rural regions, may further contribute to the explanation of observed patterns. The economic cleavage may also have been "badly translated" by the unions and the left parties (cf. Sulmont's argument above on the relationship between union and party).

Further research on the process of cleavage formation in Peru is imperative, including a precise description and explanation of the *process* of interaction between labor, unions, and parties; the availability of more reliable *statistics*; and a specific *model* construction in order to test hypotheses.

6. Conclusion

The main purposes of this thesis has been to measure the effect of social structure on a) industry workers' party choice, and b) to identify regions where high proportions of workers voted for respectively the social democrats and the communists in the 1980 presidential election in Peru.

The effect of social structure on party choice has been measured by the extent to which workers' support to the left parties was above the national average. The conclusions depend on the classification of APRA: average worker support to the overall left was the same as the national average, about 44 %. In other words, there was no effect of social structure. However, if APRA is excluded and only the communist parties are considered, the estimates show that workers' level of support was above the national average. Approximately 23 % of all industry workers voted for the communists, and the level of support increased slightly in communes with high proportions of workers. In the case of APRA, the level of support declined slightly in communes with higher proportions of workers. Labor's support to the communists was strongest in the poor mining regions in the Andean highlands, while APRA strongholds were concentrated in the north, especially in the agro-industrial regions.

The clusters of communist support are explained by a combination of the effects of social structure and pro-communist labor unions' political socialization of the workers. APRA clusters are explained by a combination of social structure, the presence of social democratic unions, and the party's *verzuiling* strategy. Although the party choice of large sectors of industry workers was anchored in the economic conflict between owners and workers, the relationship between workers, unions, and political parties had not been consolidated into an economic cleavage.

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