

POLITICAL PARTICIPATION,
AGRICULTURE, AND LITERACY:
Communal Versus Provincial Voting Patterns in Chile

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The military coup that put an end to the government of Salvador Allende terminated a socialist experiment that drew considerable world attention. It also marked the demise of one of the most durable liberal democracies. Deviating sharply from the prevalent Third World pattern of political instability, Chile was able to establish a viable constitutional system by the middle of the nineteenth century. In the twentieth century, the dominant feature of Chilean politics became its political system composed of strong party organizations spanning the ideological spectrum. This was unique in Latin America. Though parties have been banned by the ruling military junta, and the parties of the left have been subject to violent repression, there is little doubt that Chilean party politics will continue to draw the attention of political analysts. The study of the evolution of political patterns in a Third World country, which are strikingly similar to those of France and Italy, should contribute to our understanding of phenomena such as political participation, the historicity of party alternatives, and the social bases of party politics in polarized societies.¹ Furthermore, a thorough understanding of the Chilean party system before the coup will help to clarify the conditions that led to the breakdown, and, more importantly, the prospects for party politics in the future.²

The absence of reliable and periodic public opinion surveys of political attitudes means that most of the work on the social bases of electoral participation and party politics in Chile will have to rely on aggregate data.³ And, in fact, Chile is a good place to make use of aggregate statistics because electoral units have, for the most part, coincided with census units. In recent years, several studies have drawn on ecological data to study participation, the extension of the party system, political radicalism, and the social bases of party politics.⁴ Though much more work needs to be done in those areas, the striking gap in the literature consists of the dearth of studies using electoral and

census data over time. In fact, the only diachronic analysis that has been attempted is Steven Sinding's pioneering article "The Evolution of Chilean Voting Patterns: A Reexamination of Some Old Assumptions."⁵

The paucity of diachronic studies for the Chilean case is not surprising. Though excellent statistics are available, they are not compiled in a single source nor are they readily accessible. The only place that has a complete collection of electoral materials from 1925 on is the Dirección del Registro Electoral. For earlier electoral data and for census material the researcher has to turn to the Instituto Nacional de Estadística, where the data has to be copied by hand from materials that are often unpublished. The statistics that Sinding used for his study took several people working several weeks to collect, and they are reported only for Chile's twenty-five provinces. Only after a major effort of data collection has it been possible to compile electoral statistics for most elections from 1912 to 1973 and for census material by commune, the lowest administrative unit.⁶

The purpose of this research note consists of replicating Sinding's analysis based on provincial data with the newly available communal data.⁷ The goal is not to present a finished analysis of electoral trends over time, but to examine whether the findings available on the basis of provincial data hold up when scrutinized with the lower unit of analysis. There is strong reason to believe that a province constitutes too large a unit for aggregate analysis that seeks to suggest hypotheses about the behavior of individuals. The potential for committing an "ecological fallacy" is much greater with such large subdivisions.⁸ Communes, by contrast, are more likely to be homogeneous internally, with a resulting greater heterogeneity across units. For example: The *province* of Santiago only has 18.4 percent of its population in agricultural activity; yet 14 of the 38 *comunes* in the province had more than 53 percent of their population in agricultural pursuits (the national average for communes) and 7 communes (18 percent of the total) had more than 75 percent of their population engaged in farming. If we are interested in the relationship between agricultural activity and political variables, such as participation or conservative vote, it would be better to utilize the commune as the unit of analysis. Several scholars have shown that the effect of grouping cases into fewer and larger units is to increase the value of correlation coefficients. This is the case because of an increase in the homogeneity between larger-scale units.⁹ As Blalock notes, the higher correlations "may merely mean that, as a result of the grouping operation, we have controlled out the effects of other variables."¹⁰ This suggests that, particularly when working with territorial units, it is more

likely that individual correlations will be approximated when using the smallest possible subdivision.¹¹

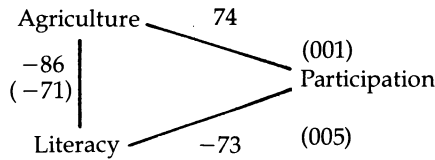
THE SINDING FINDINGS

In examining the relationship over time between participation and literacy, Sinding observed a highly negative relationship between those two variables.¹² Thus, in the 1920 presidential election, the correlation between literacy and participation was $-.63$. In 1960 the same correlation was $-.73$. These surprising findings led him to examine some of the correlates of literacy and participation. He found that agricultural occupation was negatively correlated with literacy, but highly correlated with participation. Urbanization was negatively associated with participation, though positively related to literacy. On the basis of these results he suggested the hypothesis that the economically marginal rural Chilean was more likely to vote than his urban counterpart. He further speculated that this might have been due to the greater absence of "alienation" in the countryside.¹³ Though Sinding was careful to note that his analysis of provincial units should not be applied to individuals, he used his findings to suggest explanations about individual behavior. Does an analysis using communal units suggest a similar hypothesis about individual behavior?

Simple correlations among various socioeconomic variables were quite comparable when using either communal or provincial data.¹⁴ However, as table 1 shows, the high negative correlation between literacy and participation, obtained with provincial data, is sharply reduced when communal data is employed. For all three types of elections, both in the early and the more recent periods, the correlations between the two variables become insignificant at the communal level. At the same time, as table 2 shows, the correlations between agriculture and participation also change significantly when one shifts to the smaller territorial unit. With communal data, participation is positively associated with urbanization and only weakly associated with agriculture.

In attempting to summarize his findings, Sinding turned to partial correlations and noted that agriculture had a positive effect on participation independent of the level of literacy. At the communal level the relationship between agriculture and literacy is also highly negative. But, as the following figure shows, with communal data the partial correlations between agriculture and participation as well as between literacy and participation are negligible. (Communal correlations are in parentheses, provincial ones are not.) In sum, the associations discovered at the provincial level cease to be significant when the smaller

territorial unit is employed. The hypothesis that rural Chileans participate more than urban Chileans is no longer as plausible.



THE UTILITY OF REGIONAL ANALYSIS

So far our replication of Sinding’s findings has employed the total universe of Chilean communes. However, as Eduardo Cruz-Coke suggested in his study of Chilean electoral geography almost thirty years ago, Chile is a complex country with differing characteristics in the contrasting regions of its long and narrow territory.¹⁵ The arid mining regions of the north have different political traditions from the rich agricultural sections of the central valley. It seems advisable to move beyond the use of statistics for the nation as a whole and analyze the correlates of participation in selected areas of the country. The use of communal statistics as opposed to provincial ones makes such an analysis possible. Table 3 confirms the utility of regional analysis for the Chilean case. Though there is a negligible association between participation and agriculture when all communes are considered, those two variables are in fact *associated*, though in differing ways, in contrasting regions. Thus in the Santiago and the Aconcagua-Valparaiso regions, the correlation between agriculture and participation is positive, whereas in the other regions it is negative. The reverse occurs with urbanization and literacy variables. The correlation between right-wing vote and participation varies more across region and by election. What is clear is that the conclusions derived from provincial level data do not hold. Sinding noted that the provinces with higher levels of agriculture tended to have higher levels of participation. Analysis by communes shows that agricultural areas such as O’Higgins-Ñuble and Valdivia-Chiloe had negative associations between agriculture and participation. It is only in the more heavily urban sectors of Santiago and Valparaiso that agriculture correlated positively with participation. In the region with the third largest city in the country, Concepción, participation was negatively associated, but at a very weak level, with agriculture.

Regional analysis points to the possibility of refining Sinding’s findings about the relationship between participation and agricultural

activity. As table 4 shows, the correlation between these two variables is different in those communities with high agricultural activity as opposed to those with low agricultural activity. Urbanization is positively associated with participation in communes high in agriculture, and negatively associated with those low in agriculture. The positive association Sinding found between agriculture and participation is true only in communes where agriculture is a minority occupational activity.

Examination of partial correlation coefficients helps to clarify further these relationships. As noted earlier for all communes the relation between agriculture and participation was .01. Controlling for urbanization the relation does increase somewhat to .12. However, in communes with high agricultural activity, controlling for urbanization results in an increase in the negative correlation between participation and agriculture, from $-.14$ to $-.33$. A totally opposite phenomenon can be observed in the low agriculture communes, where agriculture and participation are positively associated (.32). Controlling for urbanization does not alter the relationship. On the other hand, in this same group (low agriculture), controlling for agriculture does change the relationship between participation and urbanization from $-.12$ to .14. A similar control does not appreciably affect those same two variables in the high agriculture communes. (The simple correlation between urbanization of .29 becomes a partial correlation of .27). These findings suggest the *hypothesis* that in predominantly rural areas it is in fact urbanization that is related more strongly to participation, whereas in predominantly urban areas participation is more clearly associated with agricultural activity.

This note has pointed to the perils of utilizing provincial data in the study of Chilean electoral behavior and the utility of regional analysis in a highly diverse country. The hypothesis of strong participation among rural voters does not seem to be as tenable when communal data is used. Though further study must be undertaken to arrive at a more definitive conclusion, the results of communal study suggest that it is likely that in predominantly rural areas the urban citizens have greater propensity for participation, whereas in urban areas it is the rural citizen who participates more. The clue may be more in the *comparative participatory patterns of urban populations in different contexts* than in the rural population itself. In any event, the communal findings reveal much weaker overall results and show that considerably more work needs to be done in this area.¹⁶

Note: In the tables that follow, simple correlations are given without decimal points.

TABLE 1 *Contrasts in the Relations between Literacy and Participation when using Provincial (N = 25) and Communal (N = 286) Data for 1920 and 1960*

	Presidential		Congressional		Municipal	
	Provincial	Communal	Provincial	Communal	Provincial	Communal
1920	-63	13	-75	02	-46	21
1960	-73	14	-60	-04	-55	-01

Source: Provincial data from Sinding, "The Evolution of Chilean Voting Patterns," p. 781.

TABLE 2 *Contrasts in the Relationship between Urbanization, Agricultural Occupation, and Participation when using Provincial (N = 25) and Communal (N = 286) Data*

Year	Urbanization					
	Presidential		Parliamentary		Municipal	
	Prov.	Comm.	Prov.	Comm.	Prov.	Comm.
1920	-33	19	-33	18	-12	23
1940	-35	27	-34	38	-36	16
1952	-54	00	-57	41	-56	35
1960	-65	18	-46	00	-39	04

	Agriculture					
	Presidential		Parliamentary		Municipal	
	Prov.	Comm.	Prov.	Comm.	Prov.	Comm.
1920	63	-12 ^a	52	05 ^b	19	-21 ^a
1940		17		25		09
1952	66	10	65	10	62	16
1960	74	-14	50	04	43	00

Source: Provincial data from Sinding "The Evolution of Chilean Voting Patterns," p. 783.

^aDepartmental data (N = 78).

^bTotal rural population, rather than population active in agriculture.

TABLE 3 *Correlations between Participation and Agriculture, Urbanization, Literacy, and Right Vote^a for Chilean Communes by Region, by All Communes, and by All Provinces for a Municipal and a Congressional Election*

	<i>Reg. I Tarapaca Coquimbo</i>	<i>Reg. II Aconcagua Valparaiso</i>	<i>Reg. III Santiago</i>	<i>Reg. IV O'Higgins Ñuble</i>	<i>Reg. V Concepción Aranco</i>
Agriculture					
Municipal	-18	15	56	-21	-17
Congressional	-23	15	56	-25	-07
Urbanization					
Municipal	22	-18	-50	28	15
Congressional	25	-18	-50	32	08
Literacy					
Municipal	25	-21	-45	27	-01
Congressional	25	-20	-44	24	-09
Right Vote					
Municipal	-01	-01	29	-27	-62
Congressional	-07	-02	32	-27	-50
	<i>Reg. VI Bio-Bio Cautin</i>	<i>Reg. VII Valdivia Clulse</i>	<i>Reg. VIII Aysen Magallenes</i>	<i>Total Communes</i>	<i>Total Provinces</i>
Agriculture					
Municipal	-35	-45	-68	01	43
Congressional	-42	-54	-59	04	50
Urbanization					
Municipal	48	45	86	04	-39
Congressional	50	63	79	01	-46
Literacy					
Municipal	-04	30	61	-01	-55
Congressional	07	55	60	-04	-60
Right Vote					
Municipal	02	26	15	06	18 ^b
Congressional	07	-20	-45	10	15 ^b

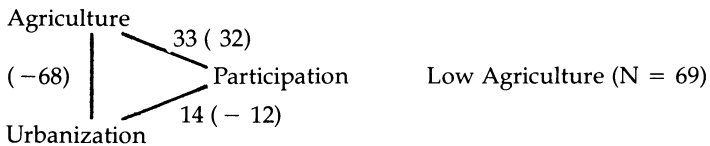
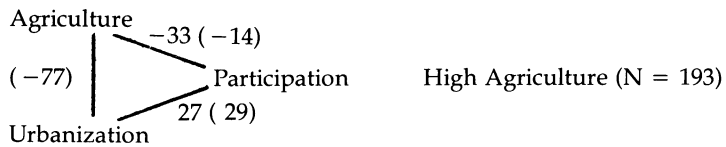
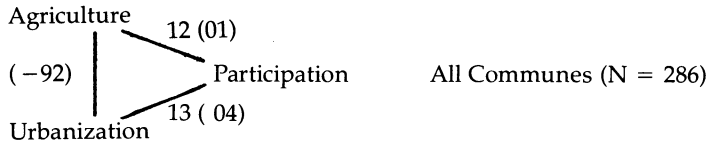
^aLiberals and Conservatives

^bConservative vote only

TABLE 4 Correlations between Participation, Agriculture, Urbanization, and Registration in All Communes and in Communes with High and Low Rates of Agricultural Activity in a Congressional and Municipal Election

	Agriculture		Urbanization		Registration	
	Municipal	Congressional	Municipal	Congressional	Municipal	Congressional
All Communes	01	04	04	01	93	95
High Agriculture	-14	-17	29	33	73	82
Low Agriculture	32	32	-12	-11	73	70

TABLE 5 Simple and Partial Correlations between Participation and Agriculture for All Communes and High Agriculture and Low Agriculture Communes for the Municipal Election of 1960*



*Simple correlations are in parentheses.

Note: High agriculture communes are those in the more than 60 percent of the active population in agriculture. Low agriculture communes have less than 30 percent in agricultural activities. The average for all communes is 53 percent.

NOTES

1. On electoral participation and the historicity of party alternatives, see the essays by Stein Rokkan in his *Citizens, Elections, Parties* (New York: David McKay Co., Inc., 1970). On the social bases of party politics in France and Italy, see Mattei Dogan's "Political Cleavage and Social Stratification in France and Italy," in Seymour M. Lipset and Stein Rokkan, eds., *Party Systems and Voter Alignments* (New York: The Free Press, 1967), pp. 129–98. For Italy, see also Sidney Tarrow, "Economic Development and the Transformation of the Italian Party System," *Comparative Politics* 1, no. 2 (January 1969):161–83.
2. For a fascinating example of the use of material from the Spanish Republic period and from Italy to speculate about the post-Franco party system, see Juan Linz "The Party System of Spain: Past and Future," in Lipset and Rokkan, eds., *Party Systems*, pp. 197–282.
3. The only surveys available are the periodic surveys of Eduardo Hamuy, which are not based on national samples. With the exception of political surveys in the late 1950s, Hamuy's data is not available. Among the more limited and specialized surveys that have contributed greatly to our understanding of party politics is the one conducted by Alejandro Portes in marginal communities of Santiago. For a summary of his work, see his "Urbanization and Politics in Latin America," *Social Science Quarterly* 52 (December 1971):697–720. An excellent secondary analysis of survey material is James Prothro and Patricio Chaparro's "Public Opinion and the Movement of the Chilean Government to the Left, 1952–1970," in Arturo Valenzuela and J. Samuel Valenzuela, eds., *Chile: Politics and Society* (New Brunswick: Transaction Books, 1975), pp. 67–114.
4. See Rafael López Pintor, *Algunos aspectos de la participación política en Chile* (Santiago: Instituto de Administración, 1969); Arturo Valenzuela, "The Scope of the Chilean Party System," *Comparative Politics* 4 (January 1972):179–99; Gláucio Ary Dillon Soares and Robert L. Hamblin, "Socio-Economic Variables and Voting for the Radical Left: Chile: 1952," *American Political Science Review* 61 (December 1967): 1053–65; Robert Ayres, "Electoral Constraints and the Chilean Way to Socialism," in Valenzuela and Valenzuela, eds., *Chile: Politics and Society*, pp. 30–66.
5. *The Journal of Politics* 34 (August 1972): 774–96.
6. Included in the data bank arranged in several SPSS files are all elections—municipal, congressional and presidential—from 1912 to 1921 and from 1938 to 1973. In addition, the files contain data from the 1920, 1940, 1952, 1960 and 1970 population censuses; the 1960 and 1970 housing censuses; the 1930, 1955, and 1965 agricultural censuses; and other information such as municipal budgets and data on Campesino Federations. The author wishes to acknowledge the Duke University Research Council, The American Philosophical Society, and the Social Science Research Council, whose support contributed to the completion of the data bank over a four-year period.
7. Sinding is not the only one to rely exclusively on provincial data. Soares and Hamblin's "Socio-Economic Variables," and Robert Ayres's "Electoral constraints" also use provincial units.
8. For a discussion of the "ecological fallacy," see Erwin K. Scheuch, "Cross-National Comparisons Using Aggregate Data: Some Substantive and Methodological Problems," in Richard L. Merritt and Stein Rokkan, eds., *Comparing Nations* (New Haven: Yale University Press, 1966), pp. 131–68. See also W. Phillips Shively, "Ecological Inference: The Use of Aggregate Data to Study Individuals," *American Political Science Review* 63 (December 1969): 1183–96, and the classic piece by W. S. Robinson, "Ecological Correlations and the Behavior of Individuals," *American Sociological Review* 15 (June 1950): 351–57.
9. See Scheuch, "Cross-National Comparison," p. 150.
10. Hubert M. Blalock, Jr., *Causal Inferences in Non-experimental Research* (Chapel Hill: The University of North Carolina Press, 1964), p. 114.
11. Otis D. Duncan and Beverly Davis make that point in "An Alternative to Ecological

- Correlation," *American Sociological Review* 18 (1958): 666, cited in Scheuch, "Cross National Comparison," p. 152. As Scheuch notes, whether or not smaller subdivisions do approximate individual correlations depends on whether the reduction in the size of the unit does in fact lead to increasing control over the variability of individual units. See Scheuch, "Cross National Comparisons," p. 153.
12. Sinding, "The Evolution of Chilean Voting Patterns," pp. 780–81.
 13. *Ibid.*, p. 787.
 14. The relation between urbanization and occupation using provincial data was $-.96$, $.48$, $.77$, and $.93$ with agriculture, mining, construction and industry, and services, respectively. The same correlations with communal data are $-.92$, $.32$, $.70$, and $.85$. With the exception of the mining figures, provincial and communal units produce similar statistics.
 15. See Ricardo Cruz-Coke, *Geografía electoral de Chile* (Santiago: Editorial del Pacífico, S.A., 1952), chap. 2.
 16. Work still to be done includes a systematic examination of scattergrams for all correlations and the use of multiple regression analysis. Though preliminary perusal of scattergrams suggests that the linear assumption is valid and that there is no substantial difference between provincial and communal findings on this score, a much more thorough study is required to dispel the possibility that some of the relations might be curvilinear. Likewise, multiple regression analysis should clarify further the strength of the independent variables and provide a clearer test of both the Sinding hypothesis and the alternative explanation suggested here.