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9. ABSTRACT

This bulletin reports the findings regarding rural banks and credit cooperatives and integrates them into the broader macrosocial accounting framework. Thus, the larger purpose of this bulletin is to communicate a new approach to country-specific macrosocial accounting. In addition to a general description and the specific examples of what is called "institutional tracking" of rural banks and credit cooperatives, the bulletin includes a generalized account of the method, a methodological appendix on technical procedures, and a data appendix that reports the values of all the variables for the subuniverse,of municipalities used in this study. The bulletin contains, therefore, all the materials needed to transplant this approach to the country that supplied the data, in this case the Philippines. Although general professional training is necessary in order to assimilate the contents of this bulletin, we believe that it can serve as the vehicle for transferring this particular research approach.

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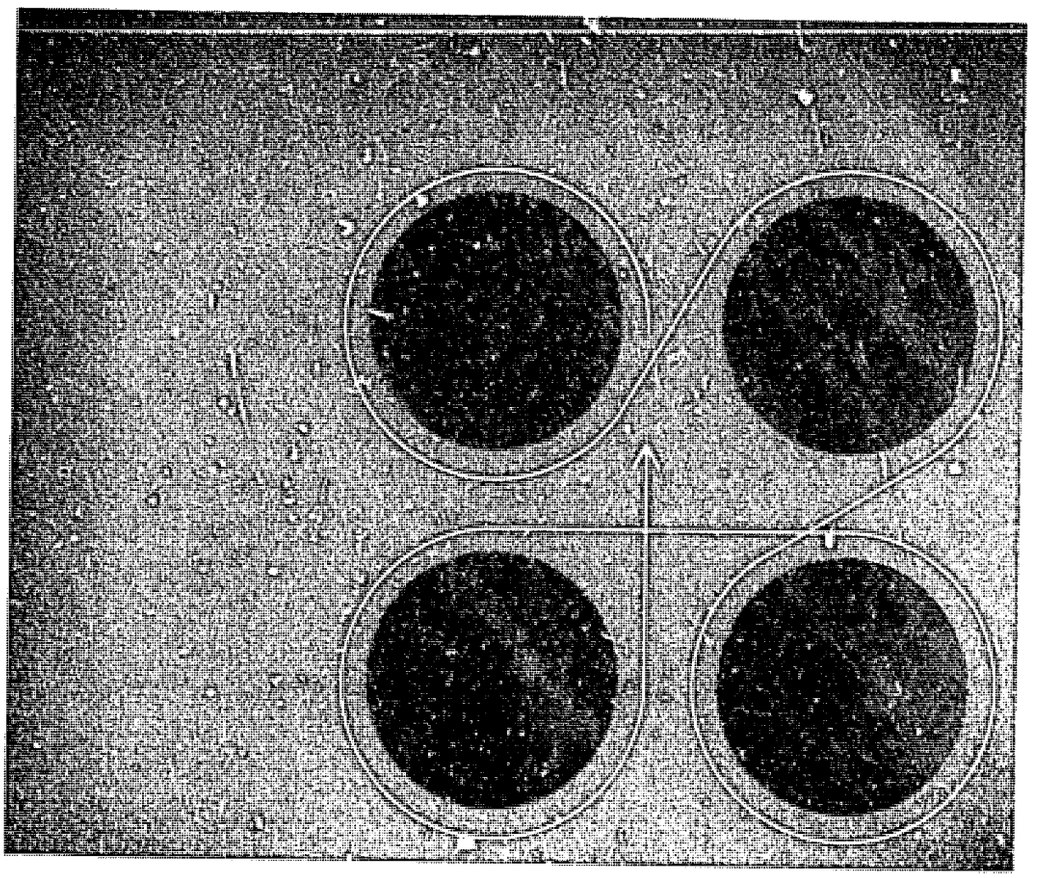

Macrosocial Accounting for Municipalities in the Philippines: Rural Banks and Credit Cooperatives

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July 1973

Preface

This is the first report to appear in monograph form of a project entitled "Macrosocial Accounting Systems for Developing Countries" financed by the National Science Foundation (GS 28991X1) and, for this analysis of Philippines data, by the Cornell Philippines Project. On the basis of this support, Gerald Wheelock was able to continue at Cornell for most of a postdoctoral year, reworking materials from his thesis and adding to the analysis.

This bulletin reports the findings regarding rural banks and credit cooperatives and integrates them into the broader macrosocial accounting framework. Thus, the larger purpose of this bulletin is to communicate a new approach to country-specific macrosocial accounting. In addition to a general description and the specific examples of what is called "institutional tracking" of rural banks and credit cooperatives, the bulletin includes a generalized account of the method, a methodological appendix on technical procedures, and a data appendix that reports the values of all the variables for the subuniverse of municipalities used in this study. The bulletin contains, therefore, all the materials needed to transplant this approach to the country that supplied the data, in this case the Philippines. Although general professional training is necessary in order to assimilate the contents of this bulletin, we believe that it can serve as the vehicle for transferring this particular research approach.

The project is also building files and analyzing data for certain other countries: Chile, Taiwan, and Uganda. Even more intensive work is focused on Puerto Rico and the islands of the Caribbean. The ultimate goal is to show that a workable, inexpensive, and efficient system for keeping track of the characteristics and changes in intermediate social systems is possible. The motivating assumption of this project is that knowledge of the organizational characteristics of a country's large social units is lacking even though it is especially valuable. More specifically, macrosocial accounting is dedicated to the proposition that a nation's capacity to keep track of its successes and failures in development is the next best thing to having a precise knowledge of how to develop the country.

The many people who helped with the doctoral research on which this bulletin draws are acknowledged in Wheelock's thesis, but for this particular production we are indebted to Jo Ann Hickey, Carol Anne Spadolini and Carol Whitmore for their high-level typing and computer assistance.

Macrosocial Accounting for Municipalities in the Philippines: Rural Banks and Credit Cooperatives

Gerald C. Wheelock* and Frank W. Young†

Introduction

Institutions are the building blocks of communities. They may be highly organized and be housed in buildings like libraries, or they may be simply new patterns of solving problems as in the case of grandparents helping working mothers with children. In all cases the essence of these institutional patterns is a stabilized set of behaviors and beliefs that are publicly recognized and approved. Such patterned social activity may be oriented to problem solution, but in some cases, as in religious institutions, this is not obviously so. Whatever the purpose of the institution, however, it is always social, that is, it involves group activity. Not only do institutional patterns organize the otherwise uncoordinated individual efforts, but they facilitate specialization of these efforts. Because of institutions, some people can become expert in handling money, while others concentrate on farming or making bricks. Thus, the institutions of a community reflect the social division of labor.

Everywhere in the world institutions are being created; they spread, and then reach the limits of their distributions. There is a tendency for institutions to spread to neighboring communities, making an overall pattern that looks like the ripples of water, but highly specialized institutions do not follow this rule. Instead they show a tendency to jump from one large city to another. Finally, there are some institutions, such as radical political organizations or new forms of rural cooperation, that show quite irregular distributions and are not easily predicted. It would be extremely useful to governments, planners, and to people in communities to be able to predict the patterns of institutional spread. Then communities could get ready for particular institutions, and in some cases, the rate of spread could be hastened. Or, if a community did not want a particular institutional innovation, it could at least know what are the consequences of its rejection. But comprehensive understanding of institutional distributions is still in the future. For the present, it would be an advance simply to be able to keep

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track of institutional spread. That is a principal purpose of this monograph. A method of "institutional tracking" will be presented that makes it possible to follow the spread of an institution over time and to measure the characteristics of communities that accept or reject it.

The 2 institutions that were studied are rural banks and credit cooperatives. The rural banks loan money to farmers who can put up land as collateral; the credit cooperatives loan money to their members on the basis of growing crops. Both institutions open up credit for small farmers and provide an alternative to the high interest rates of private lenders, but in other respects, these 2 institutions contrast. They are organized differently and have different clienteles as will be detailed below.

This contrast between the 2 types of rural credit institutions examined here may have more general significance. It suggests that some institutions are "town-fillers" in the sense that they serve clear-cut community needs in a specialized way whereas others are "town-builders". The latter are more generalized institutions and have to make a place for themselves in communities in contrast to the ready accommodation given conventionally specialized institutions. Because the town-building institutions must change the community social structure in order to exist, they mobilize community energies and release organizational possibilities in the community.

In addition to describing a new approach to institutional tracking and following out the consequences of the distinction between town-filling and town-building institutions, there is a third theme that runs through this monograph. It deals with the utility of structural measures for understanding institutional distributions. A structural measure is one that refers to the characteristics of the community as a whole community. The presence or absence of, say, the city-manager form of government is an example of a simple structural measure. Other forms combine many institutional patterns. In contrast it is possible to measure communities by aggregating the characteristics of individuals or farmers, which is done typically with census data. Although there is nothing intrinsically wrong with aggregated measures, they can be used to measure structural dimensions only with difficulty, and precise measurement of these dimensions is essential.

Structural measures allow one to characterize the whole social organization of a community, and thus facilitate interpretations of what institutions will "fit". For example, some communities are more "complex" than others, and it is reasonable to predict that only complex communities can assimilate highly specialized institutions such as a fire station or the office of a stockbroker. A knowledge of the structural properties of a community provides a clearer picture of the context in which institutions must operate.

Characteristics of Macrosocial Accounting

Institutional tracking is a special application of a more general approach which has been called macrosocial accounting. Since one of the purposes of this monograph is to introduce this new research style, a brief description

of macrosocial accounting is in order. In general terms, macrosocial accounting is the measurement, monitoring, and explanation of dimensions and trends of large social units over time. Concretely, macrosocial accounting systems consist of decks of punched cards or computer tape organized by system level (municipality, district, and so forth) and time period to which the data apply. These data function in relation to a computer and to the investigators who manipulate the data. The macrosocial accounting office is linked, in turn, to data sources on the one hand and users of the analyses on the other. In more detail, the principal features of macrosocial accounting are the following:

Macrosocial accounting uses intermediate social systems as its units of analysis and is country specific. Intermediate or subnational units include cities and towns, municipalities and other district units, and specialized systems, such as large bureaucracies, plantations, or irrigation districts. Although the approach can also be applied to nations or families, these units introduce special problems. Rather, the emphasis is on the subnational units of a given country; cross-national comparisons are not a primary concern.

In practice macrosocial accounting systems are initiated on the basis of a particular system level. In the Philippines the best choice is the 1400 or so municipalities because these units represent functioning social systems and there is much information available on them. Also, there are enough of them, even when subuniverses are selected, to permit modern statistical analysis. In the present study the subuniverse is the 286 municipalities (out of 417) that have a minimum of 1000 hectares in lowland rice production during the main cropping season and that are located in the 15 (out of a total of 66) provinces which were designated first priority by the Rice and Corn Productivity Coordinating Council. In other words, the subuniverse consists of the major rice-producing areas of the Philippines. The names of these municipalities and their province locations are listed in the Data Appendix.

Macrosocial accounting emphasizes structural rather than aggregate measures. Although most accounting systems will probably begin work on the basis of standard census data, they must move on as rapidly as possible to structural measures – group-level measures – as previously defined. In addition to the likelihood that these structural dimensions are more powerful predictors of institutional changes and patterns, their use simplifies the analysis of intermediate social structures and permits the investigator to cut costs considerably. These points will become clear in the subsequent sections, but one other feature is illustrated by the Data Appendix. The values of all the principal variables used in this analysis are listed there and offer the possibility of further use. Since the structural measures used in this analysis are quite abstract, dealing with the degree of complexity and flexibility and so forth of the municipalities, they are of general interest to other investigators. Thus, this body of information can be reanalyzed from different perspectives, or other investigators can add additional variables to those listed here.

Macrosocial accounting uses preprocessed rather than raw data. From what has

been said above about structural measures, it is apparent that the punches in the computer cards stand for scores of known and validated dimensions of social organization; the cards are not simply used to store raw data. Moreover, each structural dimension is backed up by an analysis of its characteristics and major correlates so that a prospective user knows exactly with what he is dealing. In some cases, the raw data that went into the construction of these indexes are stored, but the emphasis in macrosocial accounting is on the variables that have been worked up and tested rather than on amassing raw data, a process that becomes expensive and may not be used. Thus, a macrosocial accounting system expands only as research is done; it is not a matter of finding new data and storing it. It is a "variable bank", not a data bank.

The use of macrosocial accounting systems is not confined to the office where the data are stored. It can easily be decentralized by transferring part or all of the measures to a particular user. This means that the individual user can have all the benefits of "big" research, without the attendant organizational problems. The accumulated knowledge stored on the computer tape reflects the work of many teams, and depending upon the range of variables that have been devised and analyzed, it reflects progress on many different kinds of problems. Although macrosocial accounting is oriented toward the analysis of social organization, it is perfectly possible to include measures of agricultural productivity, time series on various types of pollution indicators, and even the characteristics of individual members of communities if survey data are available.

Macrosocial accounting makes use of unconventional data sources. The emphasis on structural measures leads to a search for attributes of social institutions. It is amazing how much of this type of information exists, but is rarely used. For example, the medical society usually keeps a list of all its members and their specialities so that a measure of the complexity of medical services could be worked up. Similarly, the government usually has a record of the kinds of banks, hotels, and other institutions that exist, and these records can be used to construct measures. In the Philippines there are atlases for all the municipalities in the country, and an inventory of the principal institutions in each of these has been initiated. Finally, particular agencies, such as those in charge of the rural banks and agricultural credit institutions, keep records of the branches that they supervise.

The search for "unconventional" social accounting data contained in this and other reports rapidly leads to the use of the "macrosurvey", which is a questionnaire administered to one or a few informants for the purpose of gathering information about the institution that each represents or knows. This is in fact the way central offices collect their own information although they usually send out the questionnaire by mail. But if the information is difficult to secure, it is often possible to run a survey of informants in municipalities. For example, in the course of collecting the data on the credit cooperatives reported in this monograph, Wheelock (1972) did a field survey of 50 of the 70 active units. The information gathered by this macrosurvey is not contained in this monograph, but it

enlarges our knowledge of the way the credit cooperatives actually operate.

Two other distinct types of data are contained in a single source. Newspapers include factual reports of on-going events such as riots, ritual events, or organizational change. Such reports are similar to the generalized community or travel summaries written by anthropologists and can be called "ethnographic reports". These reports typically contain the attributes needed for the construction of structural measures and can be compared with the unconventional social accounting data mentioned, which is simply a more organized version. However, ethnographic reports typically cover the more transient and dramatic events in contrast with the bureaucratic lists and are therefore important in obtaining broad coverage of the social life of a country.

Newspapers contain another type of data which may be called "text-communications" because they are transcripts of representatives speaking for a given organization or community. The column written by the editor of the newspaper or the speeches of political representatives are text-communications. These are not factual accounts of events as in the ethnographic reports. Rather, they are the direct expressions of people who are speaking for a particular social unit. If such text-communications are subjected to content analysis, it is often possible to construct extremely subtle and current measures of organization. To make one of these measures requires statements from each of the units, often an impossibility for municipalities, but if one is interested in political parties over time or the characteristics of religious organizations as expressed by their hymns, then the technique is applicable.

A fifth type of unconventional data that can be used readily in macrosocial accounting is aerial photography. The buildings and other artifacts that are visible in aerial photographs can be coded and combined in the same way as other institutional attributes. For example, in a study of New York State communities (Young and MacCannell, 1967), it was found that the number of "wings" in the most complex building in a town was a fairly accurate measure of the overall structural complexity of the town. Maps can also be used in this way since they often contain symbols for the principal institutions of a community, but in general they lack the detail contained in aerial photographs.

Aerial photographs give systematic coverage of the artifacts and other characteristics of the surface of the earth and represent a source of extremely high quality data. However, their potential use in macrosocial accounting systems may be in relation to interdisciplinary work. Aerial photographs yield information on agriculture, land use, and geological characteristics as well as potential indicators of social organization. Thus, the photographs can be used as a common point of reference for interdisciplinary teams.

Macrosocial accounting leads to routinized causal analysis. Since most of the data used for macrosocial accounting is in documentary form, it is often available at different points in time, and time series can be constructed. A knowledge of time sequence facilitates the analysis of the causes of social change since information is available on the events that lead up to a given

change. Techniques of multivariate analysis can now be applied even if only 2 points in time are available, and there are useful modifications of these, which will be illustrated in this bulletin.

If strong explanations of social change are discovered, prediction of future events is facilitated, but meanwhile the time series contained in macrosocial accounting systems can be used in a more descriptive way to suggest future trends. If the pattern of change over, say, 3 decades is known, it is often possible to make a reasonable guess as to the trend for the next decade. This type of extrapolation is already being done, more or less validly, for population and economic changes, and it may now be possible for broad social patterns.

Uses of Macrosocial Accounting

Macrosocial accounting systems can, of course, be used to test theoretical hypotheses. A number of such hypotheses have been formulated in the context of this work (Young, 1966; Young, 1970). But propositions from a variety of frameworks, so long as they deal with dimensions of social structure, can be tested. However, the present emphasis is on the more practical uses of macrosocial accounting. First, a comparative and longitudinal perspective on social dimensions of the intermediate units of a country is a valuable aid to decision-making by administrators. Such information supplements the administrative memory. Furthermore, structural concepts have a capacity for compressing broad areas of otherwise disparate institutional patterns. Thus, for example, an administrator can readily see how the complexity of the public utilities is part of a larger pattern that extends to the economic sectors and even to the level of complexity of the religious institutions. And, yet, this compression of attributes is still comprehensible to the layman. After all, the measures are constructed from the very attributes of institutions with which he is familiar.

A second general use of macrosocial accounting systems is as a general monitoring device for the pattern of social change for intermediate units in a country. In contrast to the static comparisons mentioned, the monitoring function concentrates on changes in a particular variable or pattern. For example, one may be interested in the trends in community growth and decline. Or another pattern, such as the fluctuations of political tensions, may be under examination. A related question, once a particular variable has been selected, concerns its correlates. Monitoring still involves comparisons in space and time, but it takes a narrower purview. Institutional tracking is simply a special case of monitoring, in that it concentrates on changes in particular institutions, such as rural banks and credit cooperatives. The high level of abstraction implied in such terms as "growth and decline" is given up in favor of a concrete knowledge of an institution.

A third application lies in the area of evaluation. If changes in institutions and other organizational patterns are being followed over time, then various yardsticks of progress can be applied to their operation and to the communities that contain them. One can ask whether the cities and towns

have increased their complexity in the last decade. Alternatively data should be available to assess whether average incomes or the distribution of income has changed according to some standard. Macrosocial accounting encourages routine evaluation, in contrast to the hurry-up calls for evaluation that are typical of most programs. Additionally, it is nonreactive, in the sense that knowing they are being evaluated will probably not cause program administrators to change their behavior. Since the evaluation is done by remote means and according to standards of which they are not likely to be aware, they will not be in a position to react to the evaluation.

A fourth practical use may not seem so at first hearing. Even when it is understood, it is likely to be rejected by most administrators. Macrosocial accounting can reveal latent secrets. There are many facts about the social organization of a country that are not known, but when they become known, various administrators or segments of the population wish that the facts had been kept secret. For example, the extreme maldistribution of incomes in many countries is often a latent secret. Similarly, the highly centralized control of provinces or municipalities on the part of politicians may be something of a latent secret, although very likely the people living in the municipalities are all too aware of it. But if measurements of this control were made on all municipalities and published, it is likely that the facts would not be welcomed in some quarters. However, latent secrets are not always distasteful, even to special groups. Macrosocial accounting is capable of revealing unknown organizational strength in particular municipalities. Once revealed and communicated, it may be the basis for new and unexpected developmental efforts. The basic assumption in this emphasis is that social organization is a valuable resource and the more we know about it, the better off we are.

Dimensions of Structural Context

The selection of variables for use in macrosocial accounting work involves a dilemma. The investigator is tempted to use the measures that are readily available in the census or other similar reports. It is possible, for example, to obtain information on the total municipal revenues, the number of registered voters, the proportion of the population which has attended high school, and the number that have radios. The difficulty with these measures is that they are not part of any conceptual framework. Sometimes they can be interpreted in terms of one or more concepts, but it is always a rough approximation. The alternative strategy is to start from a set of abstract concepts that one believes are applicable to the problem, and then to look for appropriate indicators. All is well if the requisite information can be found, but if it is not available, one is forced to use less relevant indicators, and may very well end up with a set of ad hoc measures not greatly different from those that were initially rejected as lacking a conceptual basis.

The solution proposed in macrosocial accounting is to begin with concepts and to use unconventional, but feasible, indicators. Enough work

has now been done so that defensible scales and indicators can be constructed. These concepts and their direct measures are then used as a basis for selecting and clustering the readily available indicators. In this way, macrosocial accounting attempts to have the best of both the conceptual and empirical worlds.

There are, however, 2 types of indicators that stand apart from either the conceptual or the empirical polarization. These are policy criteria and regional typologies. For example, if the government decides to put credit cooperatives in municipalities that have a high proportion of tenant farmers, then one is well advised to use that proportion as a predictor. One must choose a readily available indicator, but the selection is guided by known or inferred policy considerations. Thus, another dichotomy is suggested: theoretically derived indicators versus policy criteria. But these are not mutually exclusive. It often happens that the policy criteria can be interpreted in terms of one or more concepts or, in the course of analysis, such an interpretation becomes possible. The resolution of this problem currently being used in macrosocial accounting is to list all the definite or probable policy criteria and to use them in the course of analysis. As the interpretation proceeds, many of these criteria can be put into a broader theoretical context.

The other type of variable that stands apart is regional delineation. Countries can often be divided into 2 or more regions in a way that greatly increases the predictive power of the variables operating within particular regions. Such typologies are never conceptually based because a region is by definition not a concept, but it is often possible in the course of analysis to give a more abstract characterization of what it is about the region that is making the difference. That is often a special task of analysis in itself. On the other hand, a regional typology is not an ad hoc empirical indicator of the usual type. Often the regions of a country are well known and can be recognized in government publications. But whatever else they are, they are not simple indicators. At the least they represent whole clusters of indicators, and at most they are structural contexts in which municipal organization functions.

Sometimes regionalization is built into government policy, but because such distinctions prompt reactions on the part of those regions that may seem not to be favored, policy is often silent on the point. Nonetheless, regions are treated differently, and policy may take account of regional differences in this way. For all these reasons, the different ways of delineating regions for the Philippines are considered separate from structural or policy variables.

Basic Structural Dimensions

The most widely used structural dimension goes by various names: institutional accumulation, structural differentiation, or institutional complexity. For Philippine municipalities, each of which has a central market town and a hinterland with barrios or villages, a simple count of all the retail and other services in the market town is often an adequate index

Table 1. **Scalogram of institutional complexity for 286 municipalities grouped by scale type and scale score**

Score	Post office (threshold) N = 283	Church N = 262	High school N = 172	Commercial recreation N = 105	College N = 52	Hotel N = 33	Number of municipalities in each scale type N = 286
6 . . .	1	1	1	1	1	1	21
5 . .	1	1	1	1	1	0	21 (1)†
5 . . .	1	1	1	1	0	1	4
4 . . .	1	1	1	1	0	0	31
4 . . .	1	1	1	0	1	0	10
4 . . .	1	1	0	1	0	1	3
4 . . .	1	1	1	0	0	1	2
4 . .	1	0	1	1	0	1	1
3 . . .	1	1	1	0	0	0	79 (6)
3 . . .	1	1	0	1	0	0	23
3 . . .	1	0	1	1	0	0	1
3 . . .	1	1	0	0	0	1	2
2 . . .	1	1	0	0	0	0	66 (6)
2 . . .	1	0	1	0	0	0	2
1 . . .	1	0	0	0	0	0	17 (3)
0 . .	0	(3)	0	0	0	0	3

† Numbers in parentheses note number of municipalities having missing data instead of zeros.
Note: See Wheelock (1972) for the bibliography of data sources and commentary on the techniques involved in this and other tables.

of complexity. The same result is usually obtained by counting all the institutions in the town, or all those of a single sector, such as the retail stores or the health services, or, third, by counting all the instances of a particular type, such as all the grocery stores or pharmacies. The counting approach is vulnerable to the criticism that more than one dimension has been inadvertently measured so the technique of Guttman scaling has often been applied (see Methodology Appendix: Guttman scaling). Table 1 shows a "scalogram" for 6 institutions that reflect organizational complexity in Philippine municipalities. The 1s and 0s that stand for the presence or absence of a particular institution are arranged in the cumulative pattern that is shown, and the degree to which this pattern is perfectly represented is measured by the coefficient of scalability given at the foot of table 2, which lists the items and the number of scale errors. Thus, the 286 towns can be ordered on a 1 to 6 scale.

Table 2. **Scale of institutional complexity**

Institution	Scale errors Goodenough count	Proportion of sample discriminated*
Hotel	12	.11
College	14	.18
Commercial recreation: dance hall, cinema and/or bowling alley	36	.37
High school	30	.60
Church	4	.91
Post office	–	.99
	96	

Coefficient of scalability, (Menzel 1953) = .73 (uses Goodenough technique for counting errors and omitting the threshold item).
Coefficient of reproducibility = .93
*Assuming institutions are not present in towns with missing data (table 1).

Table 2 shows that for the fourth item 3 different kinds of commercial recreation are combined. Here the assumption is made that these particular establishments are more or less alternatives and should be handled as a cluster. This procedure is often necessary in the study of developing countries where particular kinds of establishments have not been specialized and stabilized.

Another point relevant to the construction of these scales is that many institutions that have branches in the town are nonetheless determined by the provincial or regional structure. Because of this they usually do not fit the locally based scale. For example, in the present case, the public utilities formed a separate scale beginning with the presence of a post office or telegraph station and then moving on to more-specialized activities as follows: bus connections (including jeepneys, taxis, trucks, and boats) discriminated 93.4 percent; electricity, 45 percent; piped water, 30 percent; and long-distance telephone offices, 10.3 percent. One item, fire-fighting units, did not fit either the local or the regional scale. It may be that the reporting of fire-fighting equipment is unreliable in this case. The scalogram for this public utility scale is similar to that already shown for institutional complexity and need not be reproduced. The presence or absence of all the component items is given in the Data Appendix.

The theoretical interpretation that is proposed for this and the many similar scales that have been constructed (Young and Young, 1962; Young and Fujimoto, 1965; Fujimoto, 1965; Durston, 1970) assumes a community-wide division of labor. The various institutions or institutionalized patterns reflect the degree of specialization of roles and outlooks available in the community, and this diversity in turn reflects the variety of problems with which the community can deal by means of its specialized personnel. It also reflects the variety of opportunities and options available to the

members of the community. The different institutions are the sources of jobs, or, alternatively. services. One can even make a more abstract interpretation and say that the scale of institutional complexity is measuring the diversity of the community's symbolic world. This interpretation implies that communities have more or less complex outlooks on their environment and upon themselves and that such complexity makes a difference regardless of the actual content of their beliefs, actions, or values. Such an interpretation has the advantage that it is cross-culturally applicable, but, of course, it runs the risk of being so abstract that it ceases to have practical value.

A second important structural dimension is *organizational flexibility*. Much of the meaning of this concept is conveyed by the less precise term, pluralism, and in its negative form, organizational flexibility is often labeled rigidity. Ruth Young and Jose Moreno (1965) have introduced this concept in their study of the 48 continental states of the United States. For Young and Moreno a flexible social structure implies that classes and institutions are highly intercommunicative and have reasonably permeable boundaries. Politically, many ideas can compete for a hearing and a decision can be made among them in a peaceful manner. Economically, a flexible structure is organized to gather new information and make innovative, as well as efficient, use of it. Overall, an integrating organization maintains a free flow of information from top to bottom. In contrast, the rigid social structure treats new information as a threat, and individual mobility is restricted by religion, ethnicity, and a centralized political power system. Young and Moreno measured the concept in the context of the American states with a scale consisting of items such as: white primary election, Jim Crow laws, school segregation, discrimination in the National Guard, and so forth. For the Philippine municipalities such a scale was not possible. Instead, the presence of a second church and (or) civic organization in a municipality was taken to reflect organizational flexibility. What this means concretely is that a church other than the established Catholic church had appeared. Alternatively, one of the voluntary organizations such as Lions, Rotary, Kiwanis, Junior Chamber of Commerce, Masons, or Knights of Columbus had been organized. The rationale of this index is that the appearance of a second organizational focus in the community means that the rigid religious and class lines had been loosened and that open debate and consideration of innovations were more likely. Of the 286 municipalities, 95 are rated as flexible by this index. The rest are categorized as inflexible (or rigid) in their overall social structure.

A third structural dimension has acquired several labels: linkage, centrality, or articulation. It conceptualizes the market town's access to the larger symbolic structure of the region. In this study, it is measured by a simple and straightforward count of all the first-class roads crossing municipal boundaries. This index stresses the geographical aspect of articulation, but the concept implies more than that because other indexes could be devised that get at a municipality's political relationship to the province or region.

Policy Criteria

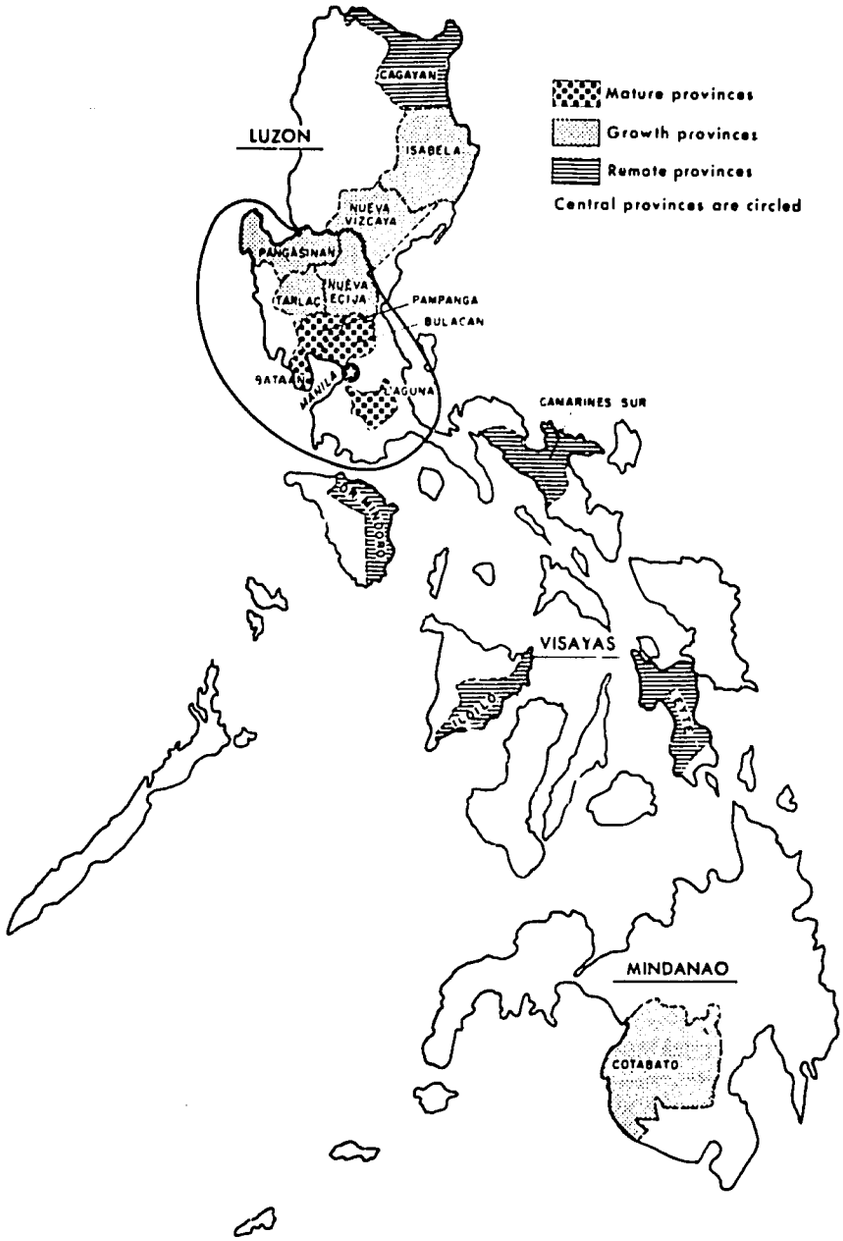
In contrast to the structural dimensions, which are claimed to be relevant to almost any problem of institutional change, the policy criteria vary with the problem. However, the following list covers all of those that seemed relevant to the study of rural banks and credit cooperatives. The first of these criteria is the number of hectares in wet-rice production. This figure ranges from 1,000 to 15,000 hectares planted for the first crop. An alternative measure is the number of people who live on rice farms. Such criteria are relevant to estimating which municipalities will have the largest credit needs, particularly during the main season. A second and related criterion is the percent of land that is irrigated during the main season. Since irrigated land permits wider use of high-yielding varieties and modern inputs, this measure reflects the intensity of cultivation. But it also bears on the degree of risk that rice production entails. Clearly, the lands that are well irrigated involve lower risk as compared with those that depend on rainfall. The irrigated areas are likely to have access to private sources of credit. The government can be expected, therefore, to support credit sources in the high-risk areas.

A third criterion that is often invoked in agricultural policies is the proportion of farms operated by owners or leaseholders. The obverse of this measure of freeholder status is the proportion of farms operated by share tenants. Thus, the government's policies could concentrate on municipalities with a high proportion of share tenants or freeholders.

All of these variables may operate as straight predictors, regardless of their inclusion in governmental policy. For example, the proportion of landlords in a municipality may predict the presence of a rural bank because the rural banks require real estate collateral which only the landlords can produce. If that turns out to be the case and there is no obvious policy interpretation, then it is important to ask what conceptual variable may be reflected by the index in question.

Regional Typologies

The third class of variables that routinely enters into the analysis of the distribution of an institution is some typology of regions. In this study 2 typologies were used. The first is a dichotomy of the provinces in central Luzon versus the rest, those in the north beyond the mountain range that cuts across the province of Nueva Vizcaya and the provinces in the south that are separated from the central zone by water or the neck of a peninsula (see map 1). This is the familiar center-periphery regional delineation, and it distinguishes those provinces that are directly influenced by the capital city Manila from those that are beyond its easy reach, at least with present levels of transportation. In countries that do not have a single dominant capital city, this center-periphery regional delineation takes on a more complex form, because then it is necessary to delineate the hinterlands of all the major cities. Even so, the major cities in most countries tend to form a hierarchy oriented to one or more dominant or "federal" cities.



Map 1. Regional typologies for the 15 priority provinces of rice and corn self-sufficiency program of the Philippines: trichotomy of agricultural regions and dichotomy of central versus peripheral provinces.

In contrast to the center–periphery delineation, it is often useful, particularly in less-developed countries, to divide the country into the agriculturally relevant regions. For the Philippines the problem of regionalization boiled down to dividing the 15 high-priority provinces that the government's Rice and Corn Self-sufficient Program had already selected. These were trichotomized, as shown in map 1. First, there are 4 *mature* provinces adjacent to Manila that have little or no "surplus" rice production (surplus defined as twice the estimated per capita consumption of 3.5 cavans) and that tend to have a double-cropping pattern for rice. When these criteria are viewed in terms of production potential, proximity to Manila is a positive factor, but the other 2 are negative. Thus, as shown in table 3, the 4 mature provinces have summary scores of 1 as compared with the scores of 2 or 3 found for the 6 *growth* provinces. In contrast the 5 *remote* provinces score 0 (one exception) because they have a double cropping pattern and no surplus palay and are remote from Manila.

The growth provinces are so labeled because they have a high potential for moving from the existing agriculture pattern to an increasingly commercialized and technically sophisticated one. The very limited amount of double cropping to date, plus the region's comparative advantage in rice production, indicates potential for increased productivity and efficiency. As it stands the 6 growth provinces claim 55–60 percent of all palay production and substantially more of the high-priority provinces' surpluses. Moreover, they are located close enough to central markets to capitalize on their dominant position in the rice market.

The 4 mature provinces are close to the market and already have a high proportion of irrigation and double cropping, but they produce little more rice than is needed for local urban populations. Therefore, their potential for growth is limited.

The remote provinces have somewhat better water resources, and their rice-cropping pattern is distributed more evenly over the year. Even so, most of these remote provinces produce rice primarily for local or regional markets. Despite their more favorable climate they do not produce a surplus of rice as defined.

In sum, with production spread throughout the year, agriculture is more diversified in both the mature and remote provinces than it is in the drier and more specialized rice plains of the growth provinces. At the same time rice markets of both mature and remote provinces are more localized. In the mature provinces farmers are closer to a large consumer market and can interact more directly with it whereas rice farmers in the remote provinces consume more of their products directly. All of these attributes can be expected to influence the demand for agricultural credit and the likelihood that the government will support it. In general, there is less need for government-supported credit in the mature provinces because private sources are already available, whereas in the remote provinces there is less demand for it. It is the growth provinces with 45 percent of the population on rice farms (1960) and with a highly seasonal crop pattern that are likely to need public-supported credit sources.

Table 3. **Summary of the derivation of agricultural region typology**

Region and province	Seasonality† of cropping pattern	Surplus‡ rice	Distance§ from Manila	Total
I. Mature provinces				
Luzon				
Bataan	0	0	1	1
Bulacan	0	0	1	1
Laguna	0	0	1	1
Pampanga	0	0	1	1
II. Growth provinces				
Luzon				
Isabela	1	1	1	3
Nueva Ecija	1	1	1	3
Nueva Vizcaya	0	1	1	2
Pangasinan	1	0	1	2
Tarlac	1	1	1	3
Mindanao				
Cotabato, North	1	1	0	2
III. Remote provinces				
Luzon				
Cagayan	0	0	0	0
Camarines Sur	0	0	0	0
Mindoro				
Mindoro, Oriental	1	0	0	1
Visayas				
Iloilo	0	0	0	0
Leyte	0	0	0	0

† *Seasonality:* A province is here defined as having a single-season cropping pattern if the area devoted to second-crop palay (unhusked rice) is no more than 15% of the area planted to first-crop palay.

‡ *Surplus:* Provinces with a "per capita production of palay" greater than twice the estimated per capita consumption of 3.5 cavans are coded as "surplus rice" provinces.

§ *Distance:* Provinces most accessible to Manila markets and public agencies are found in the central and north central parts of Luzon. Two remote provinces on Luzon and all provinces on other islands are classed as being distant from Manila (map 1).

Factor Analysis of the Independent Variables

The previous sections have mentioned a number of structural dimensions, a range of policy criteria, and have alluded to a large number of indicators available in the census and in similar reports. How can all of these be compactly organized? For technical reasons it is virtually impossible to use them all separately, but even if it were possible, it would be unwise because many are redundant. For example, the total population of municipalities typically correlates highly with the scale of institutional

Table 4. **Varimax factor matrix of municipal characteristics (N = 286)**

Indexes	Factors and factor loadings					Commun-alities
	I	II	III	IV	V	h^2
Total municipal revenues	*.791*	.066	−.007	.049	−.045	.634
Total population	*.793*	*.409*	−.158	−.110	.072	.838
Registered voters – 1957	*.838*	.208	−.016	−.201	.002	.787
Percentage high school graduates	*.638*	−.210	.258	*.325*	−.281	.702
Percentage dwelling units with radios	*.611*	−.217	.260	−.078	*−.409*	.661
No. of permanent schoolrooms	*.755*	.155	.118	−.143	−.113	.641
Public utilities scale	*.786*	−.019	.067	−.035	−.168	.652
Organizational complexity scale	*.757*	.111	.128	.260	−.067	.673
Area planted to rice – all crops	.100	*.953*	−.060	.087	.085	.936
Total rice production	.093	*.949*	.224	.090	−.006	.967
Rice farm population	.127	*.863*	−.211	.059	.079	.816
Area planted to rice – main crop	.082	*.920*	.101	.086	.032	.871
All-farm rice surplus est.	.078	*.903*	*.312*	.091	−.026	.927
Rice yield/hectare	.013	.156	*.733*	.132	−.255	.644
Percentage farms operated by owners or lease holders	−.110	−.042	*−.627*	*.347*	−.000	.527
Percentage population Iglesia ni Kristo	−.005	.202	*.563*	*.314*	−.230	.509
Percentage paddy irrigated first crop	.117	−.041	*.720*	.011	−.052	.536
Percentage population Roman Catholics	.235	−.194	.076	*−.674*	−.057	.556
Two or more churches and/or civic organizations	.148	.098	.086	*.778*	−.005	.644
Percentage barrios on all-weather roads	.081	−.022	*.439*	−.096	*−.594*	.561
Paved roads into municipality	.256	.061	.095	−.009	*−.883*	.858
Kilometers paved roads/1000 developed hectares	.086	−.155	.101	.053	*−.887*	.831
Factor contributions (%)	21.49	21.36	10.86	7.27	10.72	71.70

complexity and is best interpreted as an alternate measure of complexity. Similarly, places with institutional complexity tend to have a high proportion of high school graduates and access to mass media, such as radios and newspapers. These are well-known correlates of structural complexity. It is important to show that they form a cluster, and such a demonstration then justifies the use of a single measure of complexity. The same is true for the other basic dimensions.

A technique that has been successfully used in the solution of this data-reduction problem is factor analysis. Table 4 shows the results of a rotated factor analysis for a total of 22 variables. The procedure, which amounts

to a correlational analysis of the intercorrelations of the variables, has clustered them around 5 independent factors. The varimax rotation (see Methodological Appendix: Factor Analysis) used here reveals only the significant clusters (factors) that are independent of one another. The factor loadings shown in table 4, the largest of which are italicized, are zero-order correlations of the variables in the list with each of the derived factors. The table also shows for each variable the "communalities," which are equivalent to the sum of the squares of the factor loadings (R^2) of the 5 independent factors. The communality index provides an estimate of the adequacy of the 5 factors in accounting for the variance in each variable.

Most of the variables in this analysis have a "simple structure" in that 1 factor accounts for most of their variance. For example, factor I accounts for 62.2 percent ($.791^2$) of the variance in the total municipal revenues whereas all 5 factors account for only 63.4 percent. The structure of some of the variables is more complex. The percent of barrios on all-weather roads is probably accounted for by 2 factors, III and V. Even so the sum of squares of the factor loadings accounts for only 56 percent of the variance. It is assumed either that a sixth factor underlies the variable or that considerable measurement error is involved.

The "factor contribution" shown at the foot of table 4 is the percent of the variance present in the system of 22 variables, accounted for by each factor. Factor I accounts for 21.5 percent of the variance; factor IV accounts for only 7.27 percent. Only factors that summarize more than a proportional share of the variance present in a single variable (4.55 percent of all variance in the set of 22) were retained in the analysis.

The 5 factors can be labeled as follows:

I General Development,
II Volume of Rice Production,
III Intensity of Rice Production,
IV Organizational Flexibility, and
V Articulation.

The first factor validates the complexity scale in that other well-known indicators of development, such as total municipal revenues, total population, the number of registered voters, and the number of permanent schoolrooms, fall into the same cluster. Measures of the quality of development, such as the percentage of high school graduates, the proportion of dwelling units with radios, and the public utility scale, are all included in this moderately intercorrelated set of variables. The 28 correlations range from .24 to .89. All but 3 are equal to or greater than .41. Factor loadings for the 8 variables range from .61 to .84.

Similarly, the technique clarifies and validates the other clusters. The second factor, volume of rice production, is reflected in the 5 tightly clustered factor loadings for area planted to rice, total rice production, rice farm population, and farm surpluses.

Intensity of rice production, factor III, is based on high factor loadings for the percentage of paddy irrigated (first crop) land and rice yield per

hectare. Additionally, however, 2 social variables appear. The inverse of the proportion of farms operated by owners or leaseholders and the percentage of the population belonging to the expanding indigenous religious sect Iglesia ni Kristo also fall into this factor. Such a clustering suggests that the sect has thrived among shareholder tenants (Carroll, 1969) in highly capitalized, highly intensive rice-producing regions. The interpretation of factor III as the intensity or heavy capitalization of the rice industry is reinforced by its moderate correlation (.44) with the percentage of barrios on all-weather roads.

Of the 22 variables, only 2 load heavily on factor IV, organizational flexibility. These are the existence of 2 or more churches and (or) civic organizations and, inversely, the percentage of the population which is Roman Catholic. However, moderate correlations with 3 other variables reinforce the interpretation of factor IV as an index of organizational flexibility. These 3 are: the percentage of high school graduates (.32), the percentage of farms operated by freeholders (.35), and the percentage of population belonging to the Iglesia ni Kristo (.31).

Factor V is labeled articulation because it deals with the relationship to the larger system. The variables that load most heavily on this factor are the number of first-class roads leading into the municipality (−.88) and the kilometers of paved roads per 1000 developed hectares (−.89). Two other articulation variables, although more complex in their factor structure, are moderately correlated. They are the percentage of barrios on all-weather roads (−.59) and the percentage of dwelling units with radios (−.41). (Note: When the sign of all the loadings is minus, it can be ignored. For a single negative loading among many positive loadings, it is useful to rephrase the variable in question.)

Although the statistical basis of factor analysis is difficult and the technique is extremely tedious without computers, it does provide a feasible method of grouping the kinds of variables typically used in macrostructural analysis. In this case the interpretation of the factor matrix is quite straightforward because the analysis produced 5 factors that aligned with the independent structural and policy criteria thought to be most important. Difficulties in interpretation arise when the factors do not align with the criterion variables. Thus, although the technique cannot be used blindly, it is helpful in this phase of macrosocial accounting In the present case it sets the stage for the ensuing analysis using regression.

Comparison of Rural Banks and Credit Cooperatives

In 1952 the Philippine Congress authorized 2 extensive rural credit networks, the private rural banks with central bank financing and the Farmers Marketing Cooperative Associations (FACOMAs) funded by the Agricultural Credit and Cooperative Financing Administration. In many ways these 2 institutional networks were similar. Both institutions were limited to 1 per municipality. They were designed to rationalize and reduce the cost of agricultural credit, which had been dominated up to that time by

usurious money lenders. Both were designed to help the small farmer, particularly the rice farmer, and for that reason, both were authorized to make production loans secured only by the growing crop.

Nonetheless there were many differences, and it is necessary to contrast these if the rural credit system is to be fully understood. Although the rural banks could make crop-secured production loans, they tended not to. Between 1956 and 1969, according to the annual report on the rural banking system put out by the Central Bank of the Philippines, the proportion of all such credit devoted to such loans ranged from 4 to 7 percent, but showed no relative increase over time. During the same period, loans secured by real estate increased steadily from 62 to 80 percent. Thus, although the FACOMAs are limited by law to growing crop loans, this type of loan is only a minor part of the financial activities of the rural banks. Although the banks are serving small farmers (50 hectares or less), these farmers are still landowners. They tend not to serve lease tenant farmers who of course have no real estate collateral. When the banks do make crop-secured production loans, they are likely to make them to tenants of landlords with whom the bank has dealings. In a sense, then, the landlord helps the bank to insure the loan by his capacity to supervise the tenant's work.

Alternatively, the bank sends out professional staff to advise on proper farm management. However, there is indication that the rural banks are reaching the limit of their ability to supervise production loans. Technical service of this type is expensive, and it is likely to be inefficient if conducted on the basis of occasional visits. It is not surprising, therefore, to read in the 1969 annual report the following recommendation regarding rural banks:

> (they) should be authorized to collect a reasonable technical assistance fee from each farmer obtaining a loan under supervised credit so that these rural banks could either employ their own farm credit techniques or increase the allowances of farm management technicians of government agencies rendering assistance to such farmers under supervised credit. (Central Bank of the Philippines, 1969:34)

The rural banks could finance a supervisory network by this means, but they run the risk that the tenant farmers who borrow under this program may not like the kind of supervision, especially if they have little control over it and must pay for it directly. The FACOMAs absorb some of these costs themselves, and although the supervision is probably less professional, it may well be more flexible and comprehensive.

The fact that the FACOMAs do not make real estate loans does not mean that they are uninterested in getting their money back or that nothing is lost if the farmer defaults on his loan. Since the FACOMA is an organization that is supervised by an elected board of directors, what may be lost is the credit cooperative itself. And if the credit cooperative fails, the tenant farmers would have to return to their dependence on money-lending landlords. This relationship may be increasingly difficult to maintain with the destruction of the many traditional patterns in peas-

ant areas. Thus, in a fundamental sense, the credit cooperative itself is the collateral for the loan. The organization, which, after all, consists of the farmers who are borrowing the money, must be interested in the success of each member. In order to insure that success, the credit cooperative may hire staff to help the farmers with their problems, but more important is the help they give one another. It is not simply a matter of making sure that the right amount of money is loaned and that it is repaid at the proper time. Rather, the farmer must be assisted in all aspects of farming, from the purchase of production inputs to marketing, and for this reason the credit cooperatives take on multiple functions and are a much more generalized organization than the agricultural section of the rural banks.

The rural banks and credit cooperatives differ with respect to their pattern of institutional growth. The rural banks have grown steadily. In 1959 there were 135; and in 1968, 411. The FACOMAs got off to a strong start, with 509 units in 1959, but faltered by the early 1960s after they had exhausted their capital in loans that were not repaid. However, beginning in 1966, the Agricultural Credit Administration that was in charge of the FACOMAs initiated a program of revitalization, and the number of FACOMAs increased to 250 by 1968. Although it is likely that the demands for credit brought about by the "green revolution" stimulated the revitalization movement, the FACOMAs serve an important function in the agricultural credit picture and probably would have made a comeback anyway. Their initial organization under the Magsaysay administration was loose and subject to corruption and mismanagement so an initial decline was almost necessary in order to shake out the nonviable units. In contrast, the rural banks were usually run by families and were more closely supervised so that their growth has been quite steady and constitutes an appropriate response to the increasing number of small farmers who do have land to use as collateral.

A third difference between the rural banks and the credit cooperatives shows up in the amounts of money loaned over the period 1954–1969. In general, the pattern of loans follows that of the growth in numbers of the 2 institutions; the amount of money loaned by the rural banks was initially small, but it increased steadily by 1969 as compared with the initially large disbursements by the credit cooperatives followed by 8 years of relative inactivity. At the outset, the credit cooperatives carried most of the burden of agricultural credit. They granted a yearly average of 37.4 million pesos in short-term agricultural loans from 1954 to 1957, which amounted to 83 percent of all such credit granted during the 4-year period. However, after 1958, agricultural credit dispensed by the rural banks superceded that of the rural cooperatives. The rural bank loans increased dramatically so that in the 4-year period 1966–69 the credit cooperatives loaned only 9 percent of the total money available for agricultural credit from the 2 programs combined.

The interesting aspect of the comparison between the amounts of money loaned by the rural banks and by the credit cooperatives is not, however, the disparity of the total amounts. If the comparison is limited to crop-

secured loans, then the amount of money loaned by the 2 institutions is quite similar, at least since 1960. Both institutions loaned slightly more than 6 million pesos in 1962 and increased the amount to 29.1 and 28.1 million in 1969 for rural banks and cooperative credit, respectively (Wheelock, 1972:15).

In sum, both the rural banks and the agricultural credit cooperatives are attempts to create nationally supported institutions for administering credit to smaller farmers. They constitute the rationalization of the money market and the elimination of the traditional high interest rates of the money lenders as well as the traditional controls of the landlords. This rationalization is taking place just in time to support the rising aspirations of small farmers and the new demands for credit prompted by the green revolution.

The rural banks and credit cooperatives were designed to complement each other, and in this respect they are similar to many institutional pairs that serve different population segments. The churches as compared with the sects, the commercial farm in contrast to the collective farm in some countries, and the 4-year college versus the community college are examples. Such institutional complementarity adapts to different economic or social classes, and it is the well-organized community or nation that has a wide enough range to serve all population segments. But these contrastive pairs do not always represent social stratification at work. The innovative phases of most institutions show the same broad distribution and generalized institutional form that lower class institutions do. Indeed, some of these institutional innovations actually begin in the middle or upper classes, and only reach the lower classes later on. The free-school movement in the United States seems to be following the "middle-class first" pattern, as are the communes, but both of these institutional innovations may ultimately find a place among disadvantaged population segments.

Although it is probably a true generalization that the initial stages of any institution are characterized by a lack of organizational definition and by a partially unpredictable distribution, due to its adaptation to local circumstances and the trial-and-error process of finding the structural context most suitable for it, such instability and amorphousness are always a matter of degree. Some institutions, the rural banks apparently among them, are relatively specialized at the outset. The general institutional form is known from private banks. Although the emphasis on small land-owning farmers represents a departure from the usual banking practices, it is nonetheless an incremental departure. In contrast, the credit cooperatives introduced a, to a large degree, radically new principle. For a financial institution to loan money to poor farmers with no collateral other than the growing crop is certainly a different way of doing things, but the analysis of the 2 institutions suggests that the credit cooperatives were doing more than introducing a new banking custom. In using the institution and its organizational resources as collateral, it effectively set up a new relationship with the tenant farmers. To avoid having the credit cooperative fail, the farmers had to accept supervision; technical assistance had to be quite

comprehensive for such relatively unskilled farmers, and loyalty to the institution had to be created. Although the rural banks did some of this, they did not have to build a loyal and organized clientele in the same way. The farmers that they served were relatively well educated and could obtain technical assistance by themselves. Also, the use of land as collateral involved the real estate market as an indirect kind of supervision. Such coordination of specialized institutions is efficient, but it cannot succeed without a broad institutional base that supplies the requisite organizational network.

On the basis of the foregoing analysis, the credit cooperatives, insofar as they were successful, must be considered more innovative than the rural banks. The credit cooperatives had to build their own internal organizational strength and, in addition, make a niche for the credit cooperative in the community institutional structure. Although the credit cooperative made fewer demands on the organizational network of the community than the rural banks did, it nonetheless made some demands, the principal one being simply a place in the structure. The organizational problems of the rural banks were simple by comparison, so much so that the difference should not be viewed as a matter of degree but as a contrast of 2 different organizational principles.

The rural banks can be considered a "town-filling" institution in contrast to the "town-building" credit cooperatives. These terms derive ultimately from economic history and were originally applied to individuals. Johnson (1970:213) suggests that some men used their entrepreneurial skills to found a town in the sense of establishing a business or other institution that generated many others. In contrast, some entrepreneurs are town fillers because they simply man the many retail establishments and similar ancillary institutions stimulated by the town founder. Clearly, the present use of these terms is different and shifts the emphasis from individuals to the organizational attributes of the institutions themselves. This shift of emphasis is in line with macrostructural theory, but it would be necessary in any event. Information is almost always lacking on the characteristics of the individuals who initiate institutions, and in many cases it is quite problematical whether a particular person or even a group started an institution. Although people are always involved, their contributions are often quite chaotic at first, and it is only as the institution takes form that it can be classified as a filler or a builder institution. But the fundamental reason for concentrating on organization is the basic theoretical assumption that organizations, not men, make the difference. A man may have the mentality of a town-filler, but if he happens to innovate in a certain way and if the community context is receptive, he may find himself with a town-building institution. The truth is that communities are not usually built by a single innovative institution. If they are lucky enough to start with a strong institution, its town-building impulses must be reinforced and broadened at a later date by other innovative institutions. Neither organizations nor the men who make them have inexhaustible capacity for stimulating their environment.

Regression Analysis of the Determinants of Rural Bank Distribution

What are the factors that determine where the rural banks will be located? Do they go to places where there is a rich and powerful family that is interested in managing them? Or are they placed systematically around the country so as to provide equal access to the farmers? Or, alternatively, do they gravitate to the areas where the farmers have sufficient collateral to qualify for loans? There are an infinite number of such hypotheses. Many of them are overly particularistic, and for others the relevant data are not available at this time. What this study attempts to do is to examine a number of structural determinants, some of which subsume the particular criteria mentioned above, that have proved valuable in previous research of this type. Additionally, it will consider the relevance of certain policy criteria as already described.

In the case of rural banks, the guiding hypothesis is quite simple. The rural banks will locate in the towns that have high levels of institutional complexity. Complex municipality centers will already have the institutions needed to support a specialized agency such as the rural bank, and indeed, the families interested in managing a rural bank are most likely to be found in such towns. It is even likely that land-owning farmers will be found more frequently living in and near the larger municipal centers.

A second prediction can reasonably be made regarding the regional articulation of the towns that acquire rural banks. One would expect them to have better road connections. On the other hand, no prediction is made with respect to the dimension of structural flexibility. Rural banks are not the kind of generalized institution that is likely to be determined by that factor. Similarly, no predictions can be made for the policy criteria that did not figure strongly in the rural banks program.

Table 5 shows 4 separate regression analyses using the same set of predictors, all measured for 1960. The dependent variable, presence or absence of a rural bank in the municipality, is assessed for 1960, 1964, 1967, and 1969. The overall aim is to find the determinants that operate at the 4 slices of time and then to make inferences from this information regarding the total process. Lack of data for the independent variables at 4 points in time precludes any more complex time-series analysis. Seven variables are listed, but some of these operate in combination. The first variable is the number of first-class roads, which is the measure of regional articulation. The second is the familiar institutional complexity as measured by the Guttman scale. However, the simple scale value is not adequate for the rather complex pattern of rural bank location under study. There are 2 problems. The variable must be specified with respect to region, inasmuch as the distribution of rural banks is quite different in the central and in the peripheral provinces. In the central provinces, they are widely distributed, even in the small towns, but appear only in the more differentiated places outside the central region. In addition to this regional contrast, the

Tabl: 5. **Multiple regression analyses of rural bank location at 4 points during the 1960 decade. (Numbers are values of the unstandardized regression coefficients, and T-values are in parentheses. N = 286)**

Variable	1960		1964		1967		1969	
Number of first-class roads	.023	(1.99)**	.0603	(4.56)	.041	(3.32)	.024	(1.80)*
Institutional complexity²	.0168	(7.19)	.0232	(6.90)	.029	(9.22)	.026	(7.86)
Institutional complexity in central region towns	Not significant		.0918	(2.04)*	.236	(5.59)	.275	(6.17)
Institutional complexity in central region towns²	Not significant		−.0173	(−1.72)*	−.049	(−5.27)	−.056	(−5.60)
Rice farm population	.0000098	(2.87)	.0000128	(3.40)	.000017	(4.96)	.000014	(3.87)
Percentage operators, owner or leasehold	−.00354	(−3.86)	−.00499	(−4.44)	−.0046	(−4.34)	−.0047	(−4.24)
Percentage operators, owner or leasehold, in the mature region	.00336	(2.71)	.0056	(3.81)	.0085	(6.15)	.0063	(4.27)
Intercept	.019	(0.26)	.049	(0.59)	.017	(0.22)	.208	(2.54)
R^2	.283		.451		.539		.461	
F-test (7,278)	18.97		32.66		46.43		33.93	
N for rural banks	54		111		146		174	

** The variables retained in the above analyses, with 3 exceptions, have regression coefficients that are significant at the .01 level. The exceptions (*) are significant at the .05 level. T-values in parentheses can be taken as a crude reflection of the relative strength of the variables.

distribution of rural banks in both the central and peripheral regions tends to be curvilinear. To handle this situation, it is necessary to use the scale score in combination with the squared value. Normally, this would result in 2 pairs of variables, 1 for the central region towns as appears in table 5 and another for all provinces, which actually operates as a predictor for the peripheral region, since the center has been specified. However, the simple scale score for the peripheral regions turned out to be nonsignificant so it was omitted from the table. The result is a triad of variables: institutional complexity squared (relevant to the peripheral towns), institutional complexity for the central region towns, and institutional complexity for the central region towns squared. With these it is possible to make inferences as to the effect of region and to predict for the curvilinear distribution. Further details are given in the Methodology Appendix under the appropriate headings.

The last 3 variables in the list are policy criteria. The number of people living on farms growing rice is used here in place of the number of hectares in rice farms because it is more sensitive to the prediction of rural banks than the area measure. A second policy criterion is percentage of farm owners or leaseholders (freeholders). It is included since land ownership is relevant to the farmer's ability to obtain loans from the rural banks. Additionally, the proportion of freeholders in the mature region (the 4 provinces close to Manila) is listed because this regional boundary sharpens the prediction. In the Philippines as a whole, the landlords and their tenants most often obtain credit from the rural banks, but in the mature region, the landlords in heavily tenanted towns, because of better opportunities elsewhere, tend to stop investing in agriculture, leaving it to the tenants or smaller freeholders. Thus, the 2 variables together reveal this differential use of the rural banks by region.

For each time period the unstandardized regression coefficient and its T-value is shown. The unstandardized partial regression coefficient is used instead of the more conventional standardized partial regression coefficient because interpreting the latter becomes problematic for polynomials and regionally specified variables. However, the interpretation of the unstandardized coefficients is quite straightforward. The figure .023 found for the number of first-class roads means, for example, that every additional first-class road predicts a .023 increase in the probability of a rural bank. However, as a guideline, the T-value must be statistically significant before such a prediction is taken seriously. A T-value of at least 1.65 with 278 degrees of freedom $(286-7-1)$ is needed to reject the hypothesis of no difference at the .05 level of significance.

For 1960 the result is as follows: roads predict for all provinces as does institutional complexity squared (given that the central region specification does not operate in 1960). Thus, the banks are locating only in the larger places in 1960 and have not yet saturated the central area. In addition, rice farm population and percentage of freeholders (negatively outside and positively inside the mature region) predict. Thus, the banks are locating in the rice areas (as expected), but in the mature region the freeholders

are using them more heavily in contrast to the rest of the provinces where the banks finance the share tenants.

In 1964 the prediction pattern changes sharply. The banks are still being placed in the large centers, as reflected in the significant roads and differentiation (squared) variables, but in the central provinces the intermediate market towns are being emphasized. The positive-negative combination of the 2 differentiation coefficients reveals a rapidly peaking curvilinear relationship which means that the towns with intermediate complexity are acquiring rural banks. The operation of the policy criteria remains the same. The banks still go to the municipalities with a large rice-farming population, and as before, the municipalities with high proportions of landlords and tenants are favored outside the mature region. The proportion of freeholders in the mature region can be interpreted to mean that the larger farmers in the mature regions have shifted their investments out of farming, where the profits are not so large anymore, leaving agriculture to the smaller farmers.

This pattern continues for 1967 and 1969. The pattern described for 1964 was stabilized. The variables predict 54 percent of the variance for 1967, which is a marked improvement over the 45 percent predicted for 1964 and the 28 percent for 1960. However, in 1969 the proportion of variance explained falls off to 46 percent. The drop suggests that the set of 1960 predicting factors is weakening and that some other pattern will emerge or that the optimum prediction time lag between structure and rural banks has been exceeded.

Multiple Regression Analysis of Determinants of the Distribution of Credit Cooperatives

As was true of the rural banks, the presence or absence of a FACOMA in a municipality must be predicted. But in this case the dependent variable is more complicated because the nature of the FACOMA changes at the several points of time for which analysis is possible. In the 1950s, for example, the government encouraged a rapid proliferation of FACOMAs. This period may be labeled the *registration phase* and resulted in 185 FACOMAs in the 286 municipalities under study. In order for a FACOMA to be registered, a municipality had to organize a cooperative with a minimum of 200 members. In the same general time period, but occurring after registration for any particular unit, the cooperatives were selectively equipped with warehousing, rice milling and other marketing facilities. However, only 117 FACOMAs mobilized the counterpart capital required to obtain these "fixed-facility loans". Considering the primary importance of storage to the FACOMAs, it is probable that these loans were used for warehouse construction, but the dependent variable may be labeled the *facility loan phase.* A third phase was initiated around 1963, when the newly organized Agricultural Credit Administration focused on a program of FACOMA consolidation and revitalization. By the peak of the priority

rice program in 1967, 123 FACOMAs throughout the country had been reorganized, 70 of which fall into the study sample. Thus, the problem is to predict the proportion of the 286 municipalities under study that registered, received a facility loan, and were later reorganized. As was true in the analysis of the rural banks, we are dealing with successive cross-sectional analyses, but in this case the sequential process can be followed more precisely. The fact that a municipality had participated in 1 phase of the FACOMA program becomes a determinant of whether it will participate in the second and subsequent phase. Thus, the dependent variable for phase 1 becomes an independent variable for phase 2 and so on until phase 3.

As before, the analysis is pursued in terms of a set of structural variables and another set of policy criteria. Similarly, the different regions of the country are used to refine the analysis and to throw light on implicit policy, but in this case the 3 agricultural regions are brought into play. An understanding of the spread of the rural banks required a control on the center-periphery regions, but the relevant regions for the prediction of FACOMAs is the trichotomy: mature, growth, and remote provinces. Proximity to Manila is still imbedded in this typology, but it is much more directly based on characteristics of agriculture and the factors that influence rice production.

The importance of the trichotomy of regions in understanding the FACOMAs is illustrated in figure 1. In the first phase of FACOMA development, a high proportion of municipalities in all 3 regions registered. However, the mature provinces, after a strong start, have progressively reduced their use of government-backed marketing and credit support so that the proportion of FACOMAs in these provinces eventually falls below that found even in the remote region. In contrast, the proportion of FACOMAs holds up much more strongly in the growth provinces. Overall, the sharp reduction of FACOMAs from the heyday of the registration phase to the later more stable third phase is graphically shown.

The regression analysis of the distribution of FACOMAs uses essentially the same set of predictors that appeared in the analysis of the rural banks, but the expectation as to how they will operate is different. The emphasis in the prediction of rural banks was on differentiation and its variations. But the FACOMAs are a different kind of institution, one that is not specialized in conventional ways and is, therefore, likely to have a distribution different from that of rural banks. Moreover, it must make a place for itself in the social organization of most municipalities. Thus, we may well expect that different determinants will operate for the different phases. The complexity of the market towns should still figure, because the FACOMAs, particularly in their later stages, are complex institutions requiring a fairly broad institutional base. Even in the registration period, a certain level of institutional development is needed before a municipality can make the fairly simple arrangements for registration.

Structural flexibility, a variable which did not figure in the prediction of rural banks, should operate much more strongly in this analysis. Only

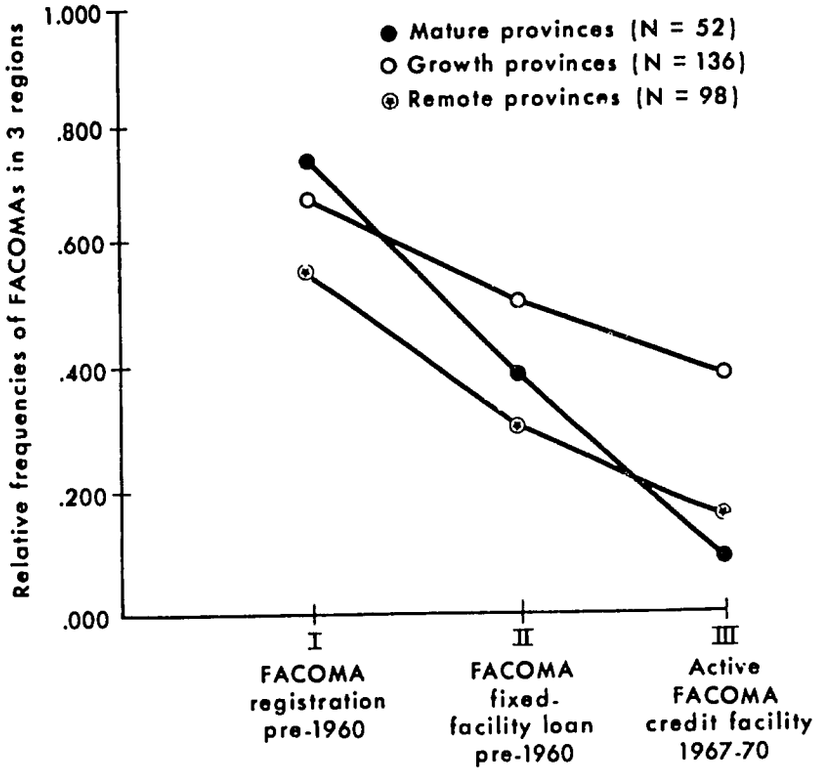


Figure 1. Relative frequencies of FACOMA development phases in the 3 agricultural regions.

the more flexible municipalities will be able to accommodate these quite unconventional credit cooperatives. The articulation of the communities should also help to predict the FACOMAs, but the specification of the form of the variable is difficult. It may be that both municipalities that are remote and well connected by roads will have a FACOMA. But an exact prediction in this case seems impossible. Finally, the policy criteria should figure more strongly in the case of FACOMAs inasmuch as the program was much more political than that for the rural banks.

Table 6 shows 3 separate analyses, first for the registration phase, second for the facility loans, and third for facility loans when growth region is controlled. That is, the 3 regions are dichotomized into municipal location in the growth region versus the mature or remote regions. The other variables are familiar. As before, the variables may be squared. The list of policy criteria is slightly different from that used for the rural banks.

Turning first to the prediction of FACOMA registration in table 6, we find that all 3 policy variables and 2 of the 3 structural measures contribute

Table 6. **Multiple regression analyses of FACOMA registration and fixed-facility loans (Numbers are values of the unstandardized regression coefficients, and T-values are in parentheses. N = 286)**

	Registration 1950s	Facility loans 1950s	Facility loans 1950s adjusted for growth region
Intercept	−.047 (−0.34)	.104 (1.29)	.113 (1.74)
Area in rice production (hectares)	.00004 (3.79)**	.000024 (2.48)	–
Land tenure (percentage freeholders)	−.0029 (−2.49)	−.0021 (−1.98)*	−.0026 (−2.46)
Irrigation (percentage)	.0022 (2.84)	–	–
Institutional complexity (0-7)	.302 (4.97)	–	–
Institutional complexity squared (0-49)	−.031 (−4.04)	–	–
Roads (0-8)	–	−.077 (−2.41)	−.079 (−2.52)
Roads squared (0-64)	–	.015 (2.65)	.015 (2.65)
Organizational flexibility (0-1)	.127 (2.26)*	–	–
Growth region (0-1)	Not included	Not included	.136 (3.02)
FACOMA registration (0-1)	Not included	.58 (11.55)	.61 (12.42)
R^2	.26	.42	.42
F-test (5,280)	16.22 (6,279)	39.97	40.97

** The variables retained in the above analyses, with 2 exceptions, have regression coefficients which are significant at the .01 level. The exceptions (*) are significant at the .025 level. T-values (in parentheses) crudely reflect the relative strength of the variables.

independently to the prediction of FACOMA registration in the 1950s. The greater the area in rice production, the smaller the proportion of freeholders, the greater the percentage of land under irrigation, the higher the level of institutional complexity (up to a point): these factors, plus the presence of a positive level of flexibility, all predict FACOMA registration. The number of roads leading out of a municipality does not.

The quadratic form (X_4 and X_4^2) of the institutional complexity variable is a significant predictor. In combination, these 2 terms indicate that FACOMAs are likely to appear when some minimal level of institutional complexity has been reached (in this case, step 3, which is a high school); however, a higher level has little additional effect. The proportion of variance explained by all of these predictors is 26 percent, which is not a high proportion. What is suggested is that in the registration phase of the FACOMA program many particularistic factors – political, perhaps – were operative. Alternatively, other general predictors exist which are not in our list. An argument in favor of the first interpretation is that the

regional variable is not a significant predictor in the registration phase and is therefore not even included. The later focus on the growth region has not yet appeared, and more generally, the program has not "shaken down." Prediction is not possible with a limited set of variables.

The second analysis presented in table 6 shows the contribution of the policy and structural variables and, additionally, previous registration to the prediction of fixed-facility loans. In this analysis 4 variables show up as significant contributors to a much larger proportion of variance explained (.42). The contribution of previous FACOMA registration was to be expected. The very strong relationship that 1950 registration shows simply reflects the continuity of the program and summarizes numerous particularistic causes of registration. Including FACOMA registration makes it easier to identify the other variables that predict the shift from the first to the second phase FACOMA development.

Neither institutional complexity nor organizational flexibility predict the facility loan phase of the program. Only the curvilinear (U) representation of the number of roads operates, a finding which indicates that the isolated towns, as well as those connected by roads, are likely to be favored with a loan for warehouses. In this phase of FACOMA development it may be that the policy makers felt that the intermediately articulated towns would have access to the more central places and that therefore the isolated places should be helped. Also, it is more likely that the counterpart capital could be raised in those isolated places where the utility of a warehouse was obvious. Such capital is likely to be forthcoming from landlords who, according to the land tenure variable, are in high proportions. What is suggested, then, is that the original intent of the program, which was to aid the landless farmers, was subverted in its second phase. The landlords may have used the warehouses for the common good, but it is doubtful whether the share tenants played a strong role in the isolated areas.

One other policy criterion figures in the prediction of facility loans. They are more likely to go to municipalities that have many hectares in rice production. On the other hand, the proportion of land that is irrigated is not a predictor.

The third regression analysis shown in table 6 repeats many of the patterns already found for facility loans, but refines them by introducing the regional control. This dichotomy makes difference: municipalities located in the 6 growth provinces are significantly more likely to receive facility loans than those in the remote or mature provinces. Four of the 5 factors that appeared in the previous analysis, when growth region was not controlled, still operate. The area in rice production has dropped out, presumably because it is subsumed by the growth region variable. The values of the other variables hold constant, however, indicating that the effects of tenancy and accessibility are similar both within and outside the growth region. These findings are even more strongly supported when the 136 municipalities in the growth region are analyzed separately. Although these results are not shown, they may be summarized by saying that FACOMA registration, land tenure, and roads account for 56 percent of the variance

Table 7. **Multiple regression analyses of the incidence of active FACOMA credit facilities, 1967-70 (Numbers are values of the unstandardized regression coefficients, and T-values are in parentheses. N=286)**

	Active credit facility		Active credit facility 1967-70 adjusted for growth region	
Intercept	−.170	(−3.14)	−.235	(−4.25)
Area in rice production (hectares)	–		–	
Land tenure (percentage freeholders)	–		–	
Irrigation (percentage)	.0075	(3.52)**	.0069	(3.30)
Irrigation squared (percentage)	−.000078	(−3.33)	−.000073	(−3.17)
Institutional complexity (0-7)	.052	(3.76)	.067	(5.09)
Roads (0-8)	−.072	(−2.61)	−.072	(−2.64)
Roads squared (0-64)	.0097	(2.01)*	.0085	(1.81)*
Organizational flexibility (0-1)	.158	(3.61)	–	
Growth region (0-1)	Not included		.185	(4.75)
FACOMA registration (0-1)	–		–	
FACOMA facility loan (0-1)	.43	(10.49)	.43	(10.51)
R^2	.43		.45	
F-test (7,278)	30.34		32.63	

** The variables retained in the above analyses, with 2 exceptions, have regression coefficients which are significant at the .01 level. The exceptions (*) are significant at the .05 level. T-values (in parentheses) crudely reflect the relative strength of the variables.

in the growth region municipalities as compared with 42 percent explained for all municipalities in the study.

Table 7 shows 2 analyses of the third phase of the program, the presence or absence of a revitalized FACOMA. The first column shows that although the simple scale value of institutional complexity is a significant predictor, the number of roads takes a curvilinear form. The interpretation previously given for the relationship to fixed-facility loans very likely holds for this third stage. Both the very remote and the highly articulated municipalities benefit. However, the stronger negative coefficient for the roads implies that the emphasis in reactivation is on the less accessible areas. The situation in these isolated areas seems to be different from the second phase, however, because the land tenure measure is not operating, so no inference about the role of landlords versus their share tenants is appropriate.

The new element in the prediction of the third phase of the FACOMA program is the strength of the organizational flexibility variable. In other words, these revitalized places are quite likely to appear in towns that have a more pluralistic organization. It will be recalled that organizational

flexibility was considered positive if some organization other than the dominant Catholic Church had appeared. It now seems that such a countervailing organizational base is a significant determinant of revitalized credit cooperatives. The other structural factors, as well as the policy criterion of a high proportion of land under irrigation, still hold, but organizational flexibility is particularly strong in this analysis. Having had a facility loan is the only variable that is very much stronger, but that prior phase is not a true independent variable.

The fact that the percentage of land under irrigation predicts in an inverted U form deserves comment. In combination, the quadratic form of the variable indicates that it is the moderately well irrigated municipalities that are likely to have revitalized FACOMAs. The FACOMAs have thus survived in the areas that have enough irrigation to require substantial credit, but still not enough to attract sufficient private capital. The well-irrigated and therefore low-risk areas probably use private capital almost exclusively, as do the unirrigated areas, although the latter use less credit and must borrow at higher rates. What is suggested here is that government-supported credit is directed to and is sought by those municipalities that do not fit the more conventional institutionalization of credit.

The second column in table 7 shows the prediction of revitalized cooperatives when the presence or absence of the growth region is introduced. Although the growth region adjustment does not greatly change the strength of most of the variables operating in the sample, it does have the effect of eliminating organizational flexibility as a significant predictor. What is suggested here is that organizational flexibility is, in large part, a property of the growth region. This does not mean that organizational flexibility has ceased to exist, but on the contrary, it implies that the growth region is strongly characterized by its "progressive" social organization, in addition to its agriculturally relevant properties.

Looking at all the regression results together and attempting to visualize the process over time, we obtain a picture of a program that started in a relatively unexamined, "scatter-shot" way in the 1950s and has been transformed to a more selective and stabilized distribution in the late 1960s. The FACOMAs have been increasingly concentrated in the growth region where the generally pluralistic organization of the municipalities provides an accommodative context. Also, in these provinces there is a need for government-supported credit as indicated by the region's extreme seasonal cropping pattern. Institutional complexity, moderate levels of irrigation, and limited access influence FACOMA location independently of the regional context. In contrast with the rural banks, the distribution is not predicted by 1 main variable.

General Features of Institutional Tracking

It is customary in the last section of a scientific paper to state the conclusions and to discuss their implications. But one of the implications of this work so supersedes the substantive discussions that we have decided to use the methodological framework of institutional tracking that has

emerged from this research as an outline for discussing the substantive conclusions and the problems of this research on rural banks and credit cooperatives. The reason for this somewhat unorthodox format is that the methodological (and it includes a theoretical basis) framework may well be the most important thing to come out of this work. An understanding of the approach will allow other investigators to analyze the distributions of other institutional innovations, and we are anxious that they should be able to do so. Normally one relies on a somewhat sketchy description of "method" in the body of the report to communicate the approach, but that practice assumes a laboratory tradition in the background. There is no such tradition in this case. In order to encourage its development, we have attempted to codify the basic steps in institutional tracking as follows:

Choose a complementary pair (or set) of institutions. An investigation of a pair of institutions such as rural banks and credit cooperatives provides a basis for internal comparisons that strengthen one's understanding of both institutions. Indeed, it may even be useful, if feasible, to work with a whole set of institutional patterns. For example, if one were interested in assisting working mothers, then one should study, in addition to the conventional day-care solution, such patterns as paying mothers a salary for taking care of their children, providing money for the support of grandparents or other relatives to help care for the children, communes or other group living arrangements, rearrangements of the work situation, and so forth. Although one must be sure to find at least 1 conventionally specialized pattern, and 1 generalized "community-building" institution, such a pair is almost certain to turn up.

The selected institutions must have had some time to develop and spread; otherwise, no record of their distribution and, more important, no distribution will exist for study. The very early stages of institutional diffusion can be studied by this method only as part of a total set that will give a perspective on the probable development of the "new shoot". Some type of record of the characteristics and distribution of the institution is required unless one is prepared to mount a large and long-term field project. Even so, there will be plenty of field work involved in tracking down the records.

Determine the appropriate subnational unit of analysis and its requisite sample. In tracking the distribution of the rural banks and the credit cooperatives it was obvious that the municipality was the appropriate unit of analysis. These institutions were designed to function as part of the organization of the municipal centers, and data for constructing measures of municipal structure were available. In general, one chooses the smallest political unit that still circumscribes the operation of the institutions, but in some cases, such as when information on the best unit is unavailable, it may be necessary to move to the next largest system. The research will accordingly be less precise, and in those countries where the number of larger (county or provincial) units is small, the statistical analysis will be restricted.

The size of the sample is heavily determined by resources. If the number of appropriate subnational units is relatively small and the project is being

organized for long-term work, then the total universe can be studied. In this analysis, study of the 1400 or more Philippine municipalities was impossible and would have been inefficient because the institutions to be studied were largely designed for rice-growing areas and thus simply did not appear in many provinces. As noted before, the universe of provinces was determined by the fact that the government had selected 15 as high-priority rice-growing areas. However, that still left 417 municipalities, so this subuniverse was further reduced by eliminating those with less than 1000 hectares of paddy.

The nature of the institution under study also bears on the choice of subuniverse or sample. Clearly, it makes no sense to study municipalities that have no chance of having a given institution locate there. Since the appropriate delimitation of the sample is not always clear at the outset, it may be necessary to use conventional sampling techniques. They can be applied mechanically, but as with all such procedures, that is possible only with a loss of information. On the other hand, one can only select the appropriate subuniverse if there is considerable information on its characteristics, so a dilemma is posed. The solution is for the investigator to do enough exploratory work so that he has a working knowledge of the institutional distribution and its characteristics.

Build a measure for each of the structural dimensions to be used in the analysis. The 3 structural dimensions used in this analysis — complexity, flexibility and articulation — are not the only ones available, but they are a fair representation of current practice. The claim is that they are all-purpose variables in the sense that they are likely to predict one or more aspects of institutional change, and in combination they capture most of what is sociologically important in the organization of the subnational unit, in this case, the municipality. These are strong claims, of course, and remain to be validated. Moreover, it must be conceded that the "best set" of structural dimensions, in the sense of deriving from a common set of assumptions and giving strong predictions, has yet to be found. Also, there is considerable variation in their measurement. While Guttman scales or counts of institutions constitute a relatively standardized measure of institutional complexity, the number of roads that crossed each municipal boundary used in this report to measure articulation is just one of many measures and poses technical problems in countries where the large cities are on the seacoast.

Select as broad a range of policy criteria as possible. One criterion that is so obvious that it is often overlooked pertains to the number of institutions to be located in each subnational unit. In the present case, only 1 rural bank or credit cooperative could be placed in a municipality, but if one were studying the location of the government-backed "rural communities" in Puerto Rico, then the number can range from 0 to about 12, although almost all municipalities received at least 1 new rural community. This policy criterion is important for the subsequent research because, if the institutional placement is limited to 1, the institution will almost certainly be located in the principal market town, and one must be prepared to

study its characteristics. If, on the other hand, a number of institutional units are possible, they will probably be located outside the market town, and one must analyze the broader municipal context. Additionally, variation in the number of institutions available for study affects the form of the dependent variable. Although regression analysis can be done as in the present study on the simple presence or absence of an institution, it is preferable to have the greater precision afforded by a count.

A second type of policy criteria involves entrance or continuation requirements. If an institution can be placed in a municipality only if it meets a certain requirement, such as having a certain proportion of poor people or of a given type of crop, then one must know that criterion at the outset and include it in the analysis. The same can be said of continuation criteria, such as requirements that support will cease if membership falls below a certain level. Although such entrance and continuation criteria may not be enforced in all cases, and they typically change with different phases of the program, it would be foolhardy to ignore them unless analysis showed that they were simply not operating.

The policy criteria most frequently seen are the characteristics of municipal (or other intermediate unit) structure. These are rarely enforced as strictly as the entrance criteria, and may not even apply in the initial "scatter-shot" phases of some programs. The government may wish to be vague about the application of some criteria so as not to provoke political protest. But context criteria do affect the prediction of institutional location, as is shown by the importance of such measures as the proportion of families on rice farms, the number of hectares of land under irrigation, the proportion of freeholders in the municipality, and so forth used in this analysis. Similarly, regional emphases can operate as context criteria. One other variety of context criteria can often be revealed only by the analysis of curvilinear trends. If the government chooses to emphasize both the very large and the very small municipal centers or, conversely, the intermediate sized towns, then special transformations and statistical precision will be required to reveal this "double-barreled" policy. The policy is easy enough to state, and such multicategory policies must be quite frequent in complex situations. It is only the statistical analysis that is difficult, particularly when the government has never explicitly stated its several categories.

Not all policy criteria are laid down by the government. Nationwide or regionally specific pressure groups may, in effect, legislate policy. In India, according to a paper by Hari Sharma (1972), the land reform policy was subverted by the large landowners by the simple tactic of dividing the land up among relatives and other closely related people. Then, adding insult upon injury, the original landowner turned around and requested compensation from the government for his loss of lands. Similarly, the analysis of the fixed-facility phase of the FACOMAs supported the interpretation that, at least in the isolated areas, it was the landowners who benefited from the warehouses, not the small farmers and tenants for whom the program was designed.

Delineate appropriate regional typologies. The 2 typologies of regions used in

this study may be the generic types relevant to all studies. The dichotomy between the provinces in central Luzon versus all others reflects the shaping power of the hierarchy of cities in any nation. In less-developed countries, a simple dichotomy between center and periphery may be sufficient, but as provincial cities develop, subregions around them will be necessary and will affect predictions.

It is likely that most agriculturally based regional typologies will be at least partially influenced by the urban hierarchy. Furthermore, their relevance may fade as a country develops its industry. But for less-developed countries with agricultural institutions, an agriculturally based regional typology seems a necessary component in the institutional-tracking format.

Collect additional data on the institution by a field survey. If one wants to know the internal workings of an institution or is interested in estimating its efficiency in delivering services to individual users, then a field survey is usually necessary. Rarely are available data detailed enough to answer such questions. If the questions concern institutional attributes, then a macrosurvey — a questionnaire administered to a single representative informant in each institution — may be sufficient. If the questions concern the client population, then a sample survey will be necessary.

The research on which this bulletin is based included a macrosurvey of 50 of the 70 revitalized FACOMAs. The 20 FACOMAs lying outside of central Luzon had to be skipped. These data have been analyzed, but were omitted because they would greatly enlarge the scope of this bulletin. However, a comprehensive institutional-tracking report would normally include them.

Compress the indicators into a limited number of dimensions. This step is one of the most problematic phases of institutional tracking. Its inclusion here is based on the assumption that almost all institutional-tracking studies will have many redundant (i.e. interchangeable) indicators, and, secondly, that these can be reduced to a much smaller number without loss of information. The second part of the assumption implicitly avers that the structural dimensions will subsume many of the indicators and that other "covering" dimensions can be formulated in the course of the analysis. In other words the institutional-tracking approach assumes that sociological reality is much simpler than the complex multivariate studies, which sometimes appear in the journals, would suggest. Although a regression analysis using 5 or 6 variables and their transformations is still multivariate, it is quite a different multivariate world than a study that uses 20 or more ungrouped variables.

Clearly, one's approach to clustering rests on the kind of theory that is being used, and it is probably fair to say that studies that do not attempt to compress and cluster their indicators are not using theory. But an atheoretical approach is potentially disastrous in macrosocial accounting that makes use of high-speed computers. The analysis that does not compress its indicators is usually glutted with results, and to decide among them without conceptual guidelines is impossible. What is worse, the completely empirical analysis, such as is often done with step-wise regression,

actually masks important results. A theoretically important predictor may turn up as a nonsignificant independent variable simply because, for a particular index of the independent variable, another measure superseded it on purely statistical grounds. Population often seems to depress differentiation in this type of analysis even though a deeper study will show that population and institutional complexity are more reasonably interpreted as components of a single cluster.

However, the most appropriate technique of clustering indicators has not been settled on yet. Factor analysis is the conventional choice and often serves the purpose well, but it is easily distorted by minor artifacts of the data and requires considerable experience to be able to reach a stable interpretation.

Use an analysis format that is as close to a causal analysis as the data will permit. The basic criteria for establishing causality are (a) an invariant association between conceptually and operationally distinct variables classed as "cause" and "effect", (b) the demonstration that the causes precede, either in the temporal or the conceptual sense, the effects; and (c) the demonstration that other variables, representing counterhypotheses, do not hold.

Regression analyses of the type used in the analysis of the distribution of rural banks and credit cooperatives go a long way in meeting these 3 criteria although they are not perfect by any means. For example, the analysis of the rural banks used measures of the independent variable for 1960, predicting the presence or absence of rural banks for 1960, 1964, 1967, and for 1969. Thus, the temporal priority of the presumed causal factors is partly established. That presence of the rural banks could have caused a change in the independent variables, which represent comprehensive forces, is unlikely, but it would have been preferable to have measures of the independent variable for all 4 points of time. As it stands, the direction of causality cannot be finally decided, nor is the length of the time lag clear. The stronger results that show up for 1967 may represent the time lag required for the variables to have their effects, but they also may reflect shifts in policy over time. The interpretation given the results implied a 7-year lag. It was suggested that the program took that long to "shake down" and to find its most appropriate contexts.

On the point of controlling for alternate explanations, the regression analyses did not include variables that represented truly different frames of reference. Had it been possible, a determinant of diffusion, such as the relationship between the population of Manila and the population of the target municipality, divided by the distance between them, might have been included. Alternatively, a more explicit treatment of economic factors, as that implied in central-place theory, could have been included. But these alternatives will have to wait for better data and further analysis. Meanwhile, the format does show the contrast between the predictive power of the structural variables and that of the policy criteria. Inasmuch as the structural measures are on trial, it can be claimed that the results justified the hopes for these measures. This is so, even though the policy criteria were not eliminated in the course of analysis.

The regression analysis of the credit cooperative introduced a refinement in that the attributes of earlier phases of the program, specifically registration and facility loans, were included among the independent variables in predicting the subsequent phases. Although such inclusion narrowed the scope of operation of the other independent variables, because earlier phases of the credit cooperative structure were strong predictors of later phases and left less variance to be explained, it had the effect of specifying the influence of the independent variables that did predict even more sharply.

Hypotheses should be generated on the basis of the relationship between the structural context and the structural properties of the institutions. In other words, the investigator should examine his institutions and classify them into types relevant to the structural dimensions of the municipalities. If an institution is like the rural banks and has a relatively conventional form, perhaps following a known model, and if it relies on organizational specialization and the work of specialists and seems to require a broad institutional base for survival, then it is probably a town-filling institution and is more strongly predicted by complexity, which is a dimension of structural context that summarizes the degree of specialization available in the community. On the other hand, if the institution is a town-builder, that is, if its survival depends on generating loyalty on the part of a previously unorganized clientele, if its operations are generalized and it relies more on internal mutual assistance than on the availability of specialized services, and if it is so different that it must make a niche for itself in the community structure, then it is best predicted by the flexibility dimension, although level of complexity may also be relevant. A similar analysis may be made of an institution's relationship to the central government. Is it an organization that realizes central government purposes? If so, then it is likely to be predicted by a high degree of articulation, or, in addition, a very low degree. If the government is intent on reaching the whole countryside, it will establish branches of the institution not only in the central places that are well connected by highway to the capital, but also in isolated areas.

Clearly, the type of conceptualization being proposed here is not the conventional form of hypothesis testing although that model lies in the background. Rather, the approach requires the investigator to examine the empirical attributes of the institution under study and to interpret these in terms of one or more structural concepts. The task may be simple, as in the case of rural banks and other conventionally specialized institutions, or it may involve a "conceptual decomposition" of the institution into a number of variables. After all, sociological reality is not going to be completely tidy even if the theory is true. This is particularly the case with innovative institutions that are still finding a stable form. The prediction of certain types or phases of institutions may only be possible by a combination of structural variables.

As the analysis proceeds and the role of policy criteria and region becomes clear, an attempt should be made to interpret even these factors

in terms of the more abstract structural dimensions. Success with these measures simplifies the interpretation, but it is an important exercise for testing the capacity of the structural dimensions to account for this type of sociological phenomenon. In particular, the regional specification must always be given a more conceptual basis.

The assessment of the results of analysis has 3 parts. In the first place, one is immediately interested in whether the predictions were borne out. Do the structural variables predict the distribution of the institution under study? A second type of interpretation can be made even if the structural variables are not predictive. Their role in explaining the distribution of the institution can be compared with that of the policy and regional variables. A third type of interpretation, assuming a fairly strong design, is the characterization of the overall process of change.

As an illustration of the 3-part interpretation format, it will be recalled that the rural banks, which were judged to be a conventionally specialized institution, were strongly predicted by the institutional-complexity variable although it had to be transformed in order to make it more sensitive in the upper levels. The number of roads crossing municipal boundaries was also a predictor, but this result simply reinforced the finding for institutional complexity. Clearly the rural banks were being placed in the large readily accessible towns. The organizational-flexibility dimension did not figure in any way in the prediction of rural banks. Neither were the policy criteria particularly strong although, of course, the orientation of the municipality toward rice farming was significant.

What emerged most strongly in the analysis of rural bank distribution was the overall process, especially the differential response by region and economic class. The working of this process was revealed by the regional specification for institutional complexity and for land tenure. They showed that as the program developed, the rural banks were increasingly placed in the intermediate (rather than largest) market towns in central Luzon. Additionally, in the 4 provinces in central Luzon that are closest to Manila, the freeholders became the main clientele of the rural banks, in contrast to the large landowners (and indirectly their share tenants) outside the central region.

The same 3-part interpretation scheme can be applied to the results of the regression analysis of credit cooperatives. The structural variables did predict their distribution. Organizational flexibility and institutional complexity were not operative in the facility loan phase of the program, but their strength returned in the prediction of the revitalized FACOMAs. The hiatus in the operation of the structural variables only reinforced the suspicion that the location of the warehouses in the second phase was determined by a number of particularistic factors.

With respect to the relative strength of the structural versus the policy variables, the latter seem more relevant to the prediction of credit cooperatives than to that of rural banks, but they nonetheless do not supersede the structural factors. Indeed, the growth region introduced in the analysis of

the facility loan phase subsumed 1 policy criteria, the area in rice production. But, as if to balance its role, that same variable subsumed the flexibility dimension in the prediction of the revitalized FACOMAs.

With respect to overall process, the several regressions make it possible to paint an interesting picture just as they did for the rural bank development. The initial, scatter-shot phase of the rural credit cooperatives, which is predicted to some degree by a wide range of structural and policy criteria, gives way to the facility loan phase which is predicted by landlordism, location in the growth region, and municipality articulation, either isolated or central. The third phase sees the return of the structural context measures as strong predictors, and suggests that the revitalized FACOMAs are becoming integrated into their respective communities.

Proposals to shift policy should be made cautiously. To the degree that the picture of agricultural credit institution development drawn above is plausible, it tempts one to ask questions such as: Why not curtail the distribution of rural banks in the provinces outside of central Luzon if the financial needs of the freeholders are not served there? Why not attempt to create the conditions, such as organizational flexibility, that seem to make it possible for the credit cooperatives to thrive? Alternatively, if the credit cooperatives have now found their niche, is it not possible to shortcut the wasteful first phase of programs like rural cooperatives and protect those parts of the program that are vulnerable to take-over by vested interests?

Such interventionist impulses, typically backed by liberal sentiments favoring the poor and the dispossessed, should not be muted in countries where public morality may consist of little more than public rhetoric. On the other hand, they do not take account of the social complexities that are revealed by macrostructural analysis, nor obviously, do they acknowledge the primitive state of the art of macrosocial accounting. For example, one might reply with another set of questions: Is it not possible that rural bank service to landlords in the peripheral provinces is the only way to maintain adequate rice production, necessary to sustain the economic position of the country? In regard to the credit cooperatives, is it not possible that the first phase of that program, which may indeed smack of "pork barrel" tactics, may nonetheless be necessary for "softening up" public opinion in favor of the cooperatives? Similarly, is a certain degree of "pay-off" to vested interests not required for the survival of the total program? The last question prompts the further observation that the 3-phase sequence taken by the cooperative movement in the Philippines is remarkably similar to that followed by the Community Action Programs sponsored by the United States government's "War on Poverty". After an initial burst of enthusiasm, the programs were put under the control of the governors of the state and sometimes of the local community officials, and there is no doubt that the middle classes benefited from funds that were meant for the poor. However, the program survives, and although it has not been tracked the way the Philippine cooperatives have, it is likely that it has found an organizational niche for itself.

The acquiescence to structural forces implied in the rebuttal question is, however, equally untenable. Letting "nature take its course" can often mean support of a malignant status quo. Somewhere between the interventionist's activism and the passivity of the extreme structuralist lies a position that may be called "structural explication", which is the attempt to reveal not only the regularities and constraints of social forces, but also the options, the strategic points of leverage, which are almost always contained in the social process. After all, even a general understanding of the probable sequence of institutional change can be a great asset to the administrator. If all town-building programs initiated by the central government do in fact follow a dialectic of broadcast sowing, restrictive planting, and, finally, selective seeding, then the administrator can at least anticipate the transitions. More generally, analytic knowledge of a program that builds in a comparative and longitudinal perspective is an invaluable aid to administrative decision-making. It can make tacit policy decisions explicit and sets the stage for reformulating those principles that are out of date. Indeed, macrosocial accounting could even be applied to the study of deviant cases. The municipalities that, according to the prediction variables, ought to have a FACOMA, but do not, would be examined with a view to locating one there. Very likely there are good reasons, perhaps particularistic, why no FACOMA exists, but a few new sites could turn up.

To go beyond this conservative use of macrosocial accounting and attempt to find community contexts that would be especially receptive to this or that institutional innovation or to propose ways to speed up a process is probably beyond the capacities of this approach at the present time. Many more examples of institutional tracking must be produced, and the structural context needs more comprehensive analysis and measurement. Most of all, the work of macrosocial accounting must be moved to the country that is being studied because only in that way can experts be trained to the highest levels and the social analysts linked, in turn, to the program administrators.

Methodology Appendix

Guttman scales

Scalogram analysis, commonly referred to as Guttman scaling, provides a procedure for ordering units of analysis on a particular kind of scale, that is, one which is *cumulative* or *unidimensional*. The procedure permits the evaluation of a set of attributes, believed to tap a single dimension, to determine whether they meet the cumulative requirement. For example, if one municipality is to be ranked as more institutionally complex than another, it must have *all* the institutions found in the less complex towns plus additional ones. Towns will rarely fit a perfect scale on a given set of items. Further evaluation of the goodness of fit to the perfect scale is necessary. Several methods of evaluation exist, all of which provide vir-

tually equivalent results. The Goodenough coefficient of reproducibility is used here. It is discussed in Edwards (1957), chapter 7. The coefficient of scalability based on the work of Herbert Menzel (1953) is also used. These coefficients are computed by (or in the case of the Cornell Technique, can be derived from the results of) the Guttman Scale program in the *Statistical Package for the Social Sciences* (Nie et al., 1970).

Factor analysis

Validation of the indexes of the basic structural dimensions and policy criteria is an important task either when the researcher is abstracting beyond the content of a given measure or when he is in doubt as to the quality of the data. Both concerns are a part of most social research. Factor analysis is useful for both purposes.

The factor analytic procedure used here is a principal components analysis followed by a varimax rotation. If the preselected structural and policy criterion variables load heavily on separate factors and if the factors correspond to the theoretical constructs, they can be taken as reasonably valid measures of independent dimensions.

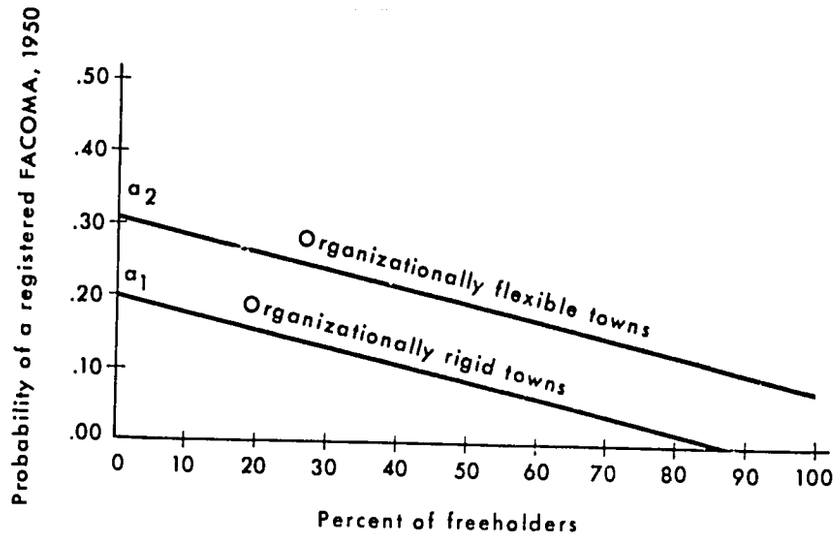
Two alternative principal component procedures are generally used. They are discussed in Nie, et al. (1970), chapter 17, under the labels PA1 and PA2. This research uses PA1, the first option. Unlike PA2, PA1 uses the original correlation matrix without iteration on subsequent matrices. Thus, it retains a maximum amount of the variances contained in the original variables. Although either one should give similar results, the additional information retained by PA1 usually proves helpful in interpreting the results of the subsequent orthogonal rotations.

Varimax rotation is used because of its interpretability. By design it simplifies the factor structure of each variable (loadings near 1 on a single factor and near 0 on all others) and thus facilitates interpretation.

H. H. Harman's *Modern Factor Analysis* (1967) is the basic text for factor analysis. The SPSS Manual (Nie et al., 1970) provides a less technical discussion.

Ordinary least squares regression applied to dichotomous dependent variables

All dependent variables (Ys) in this study are dichotomous, that is, a "1" indicates the presence of a rural bank or alternatively a FACOMA at a specified point in time and a "0," its absence in any given municipality. The predictive capacity of the independent structural and policy variables (Xs) can be assessed by ordinary least squares (OLS) regression analysis. "If we run a multiple regression of such a dependent variable Y on several explanatory variables X, then we may interpret the calculated value of Y, for any given X, as an estimate of the conditional probability of Y, given X." For discussion, see Johnston (1972, pp. 182–186). Extensive application of this approach at the Social Systems Research Institute of the University of Wisconsin is documented in Orcutt, Greenberger, Korkel, and Rivlin (1961).



Appendix figure 1. Including organizational flexibility as a dummy variable (equals 1 if trait is present, 0 if otherwise) has the effect of shifting the intercept (a_1 to a_2) for the other variables, e.g. percentage of freeholders, without changing their slope (partial regression coefficient).

While more elegant, precise, and expensive, but less available, estimation procedures have been developed (See Goldberger, 1964, pp. 249–250.), implications for policy and theory resulting from the alternate analysis procedure will deviate rarely from the OLS solution.

Dummy variables

Dummy variables (in this research, the dichotomous independent variables) can be used to represent various factors in a linear equation. For example, region (=1 if in growth region; =0 otherwise) and flexibility (=1 if flexible; =0 otherwise) are in dummy form. They are interpreted as shifts (but not changes of slope) in the linear effects of the cardinal variables included in the analysis. The unstandardized partial regression coefficients for organizational flexibility (in predicting FACOMA registration in the 1950s) can be interpreted as the difference between the predicted probabilities Y of the flexible towns and the predicted probabilities appropriate for the remaining areas (Appendix fig. 1). Johnston (1972:176–207) includes a readable section on dummy variables in his second edition.

Quadratic representation of an independent variable

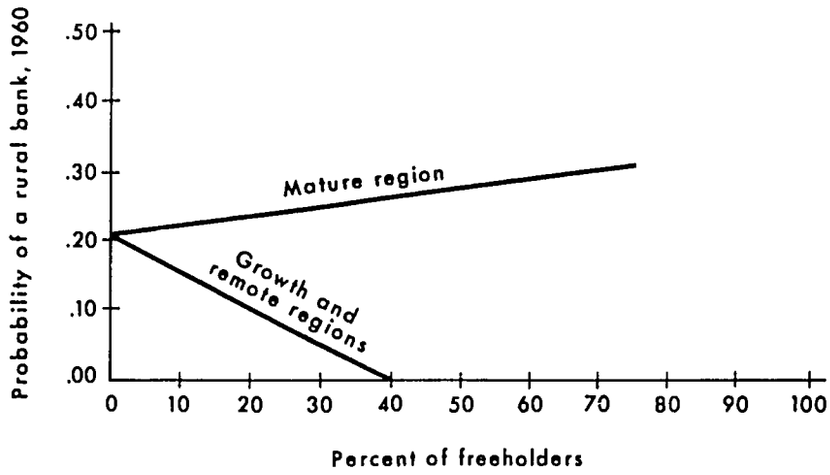
Estimation equations including simple polynomials of an independent variable X (e.g., the quadratic X and X^2 or even the cubic X, X^2, and X^3 form) may be in order if the expected relationship is other than linear.

The curve may take a U or inverted U shape or some variant of these. Such curves appear more frequently when the dependent variable is dichotomous. For instance, independent variables such as institutional complexity can be hypothesized to contain a threshold above which the occurrence of a rural bank or a FACOMA is disproportionately greater. Alternatively, as was the case with rural banks in the central provinces, nearly all towns with high values on the complexity scale may have the institution. The boundedness (e.g. the 0-1 character) of the dependent variable reduces or even eliminates the additional predictive power of the upper values on the scale. The quadratic representations (X and X^2) of such variables in the regression equation permit prediction of the probabilities of Y for any value of X. Plotting a series of such points will reveal the thresholds, the leveling-off points, and even the down-turns, as was the case with the relationship of irrigation and FACOMAs. Appendix figure 3 in a later section illustrates such a fit.

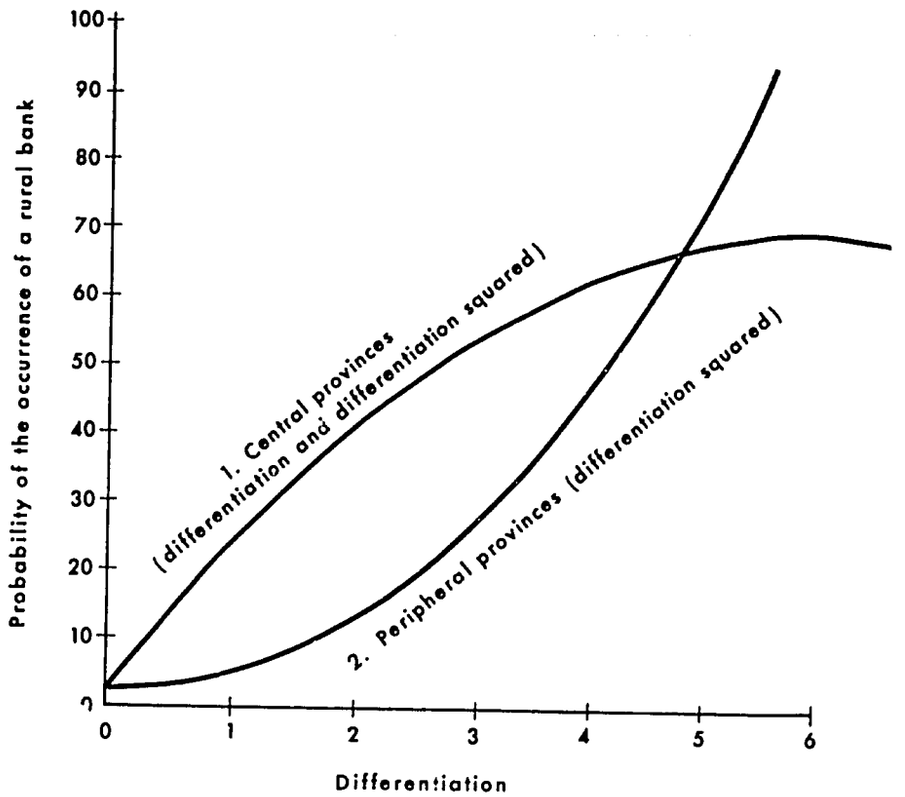
For a more general treatment of polynomials see Johnston (1972:54–55). More extensive discussion and illustration of polynomial regression is found in Ezekiel and Fox (1959).

Regional specification

Some quantitative variables may predict differently in different regional contexts. The slope coefficients may be steep and positive in one region, but neutral or negative in another. Land tenure does this in the rural bank analysis. As discussed in the text, rural bank location has a steep negative slope when regressed on percentage of freeholders in towns of the growth and remote provinces. The slope is slightly positive for the mature region in all time periods. (Appendix fig. 2).



Appendix figure 2. Regional specification of slope coefficients for rural bank location regressed on percentage of freeholders adjusted for differentiation, roads, and rice farm population.



Appendix figure 3. Rural bank probabilities (1967) in towns of (1) central Luzon and (2) peripheral provinces, given the level of differentiation and simultaneously adjusted for land tenure, roads, and rice farm population.

Combined regional specification and quadratic transformation

A more complex regional specification is necessary for differentiation. Rural banks are nearly ubiquitous in the towns of medium and high complexity of the central provinces. In the peripheral provinces it is only the very complex towns that have banks.

Thus, curvilinear relationships between differentiation and rural bank location are expected. In the central provinces the plot shows a rapidly rising probability curve leveling off above a complexity score of 3 (post office, church, and high school). The quadratic representation (X and X^2) of complexity for the central towns should provide a good fit. On the other hand, since only highly complex towns have rural banks in the peripheral provinces, a simple exponential representation of complexity (X^2) should be the best predictor for these. Appendix figure 3 shows a plot of the rural bank probabilities as predicted by the level of differentiation when the rest of the variables (table 5) are held constant.

Ben-David and Tomek's "Allowing for Slope and Intercept Changes in Regression Analysis" (1965) is a useful aid in mastering these regression techniques. Also Cohen's "Multiple Regression as a General Data-Analytic System" (1968) is an important aid in opening the mind to the flexibility of multiple regression. Finally the social scientist who is still inhibited due to the ordinal nature of his variables should read Labovitz, "The Assignment of Numbers to Rank Order Categories" (1970) and Bohrnstedt and Carter's "Robustness in Regression Analysis" (1971). The ECON regression program with "Description of Input and Output" by Iwan and Tomek (1971) provides an efficient and flexible tool for the kind of analysis problem discussed in this appendix.

Data Appendix

List of variables used

Variable name	*Column location on data print-outs*
Municipality identification number (see page following)	ID
Municipal revenue – 1965-1966 average	1
Total population – 1960	2
Registered voters – 1957	3
Percentage high school graduates – 1960	4
Percentage dwelling units with radios – 1960	5
Number of permanent schoolrooms – 1965 (99 = missing data)	6
Public utilities scale – 1959	7
Organizational complexity scale – 1959	8
Area planted to rice (hectares, all crops) 1960	9
Total rice production (10,000 lb. unhusked) 1960	10
Rice farm population – 1960	11
Area planted to rice (hectares, main crop) 1960	12
All-farm rice surplus (estimate) 1960	13
Rice yield (cwt. hectare, unhusked) 1960	14
Percentage farms operated by owners or leaseholders – 1960	15
Percentage population Iglesia ni Kristo – 1960	16
Percentage rice land irrigated (first crop) 1960	17
Percentage population Roman Catholic – 1960	18
Two or more churches and/or civic organizations – 1959 (1 = yes; 0 = no; 9 = missing data)	19
Percentage barrios on all-weather roads – 1965	20
Paved roads into municipality – 1965	21
Kilometers paved roads/1000 developed hectares – 1965	22
FACOMA with active credit facility – 1967-70 continuous (1 = yes; 0 = no)	23
Registered FACOMAS – 1952-60 (1 = yes; 0 = no)	24
Growth region (1 = yes; 0 = no)	25
Remote region (1 = yes; 0 = no)	26
FACOMA with fixed-facility loan of 20,000 pesos or more – 1952-60 (1 = yes; 0 = no)	27
Year of establishment of rural bank	28
Post office (1 = yes; 0 = no)	29

Church (1 = yes; 0 = no) 30
High school (1 = yes; 0 = no) 31
Commercial recreation – theater, bowling, dancing 32
(1 = yes; 0 = no)
Civic organization (1 = yes; 0 = no) 33
Bank (1 = yes; 0 = no) 34
Resource mobilization (1 = yes; 0 = no) 35
College (1 = yes; 0 = no) 36
Hotel (1 = yes; 0 = no) 37
Bus connection or motorized transport (1 = yes; 0 = no). 38
Electric lights (1 = yes; 0 = no) 39
Water faucet (1 = yes; 0 = no) 40
Long distance telephone office (1 = yes; 0 = no) 41

See Wheelock (1972) for the bibliography of data sources.

List of 286 Municipalities Studied

Code Number	Municipality
Bataan Province	
101	Abucay
103	Balanga
104	Dinalupihan
105	Hermosa
Bulacan Province	
151	Angat
152	Balagtas
153	Baliwag
155	Bocaue
157	Bustos
158	Calumpit
159	Guiguinto
160	Hagonoy
161	Malolos
162	Marilao
163	Meycawayan
164	Norsagaray
166	Pandi
168	Plaridel
169	Pulilan
170	San Ildefonso
171	San Jose del Monte
172	San Miguel
173	San Rafael
174	Sta. Maria
175	Valenzuela (Polo)
Cagayan Province	
201	Abulug
202	Alcala
204	Amulung
206	Baggao
207	Ballesteros
208	Buguey
210	Camalaniugan
211	Claveria
212	Enrile
213	Faire
214	Gattaran
215	Gonzaga
217	Lal-lo
219	Lasam
220	Pamplona
222	Piat
224	Sanchez-Mira
228	Solana
229	Tuao
Camarines Sur Province	
251	Baao
253	Bato
255	Busi
256	Bula
258	Calabanga
265	Goa
266	Iriga
268	Libmanan
271	Milaor
272	Minalabac
273	Nabua

Code Number	Municipality
274	Ocampo
276	Pamplona
278	Pili
281	San Fernando
282	San Jose
298	Naga City – Canaman

North Cotabato Province

301	Ampatuan
303	Buluan
304	Carmen
348	Cotabato City
306	Datu Piang
307	Dinaig
308	Isulan
309	Kabacan
311	Kidapawan – Makilala
312	Lebak
319	Midsayap
320	M'Lang
321	Nuling
323	Palimbang
325	Pigcawayan
326	Pikit
328	Sultan sa Barongis
329	Tacurong
331	Tumbao
332	Upi

Iloilo Province

351	Ajuy
352	Alimadian
353	Anilao
355	Balasan
356	Banate
357	Barotac Nuevo
358	Barotac Viejo
360	Buenavista
361	Cabatuan
362	Calinog
363	Carles
365	Dingle
366	Dueñas
367	Dumangas
369	Guimbal
370	Igbaras
398	Iloilo City
371	Janiuay
372	Jordan
374	Lambunao
375	Leganes
376	Lemery
377	Leon
378	Maasin
379	Miagao
380	New Lucena
381	Nueva Valencia
382	Oton
383	Passi
384	Pavia
385	Pototan
386	San Dionisio
387	San Enrique
388	San Joaquin
389	San Miguel
390	Sta. Barbara
391	Sara
392	Tigbauan
393	Tubungan
394	Zarroga

Isabela Province

401	Alicia
434	Angondonan
402	Aurora
406	Cabatuan
407	Cawayan
408	Cordon
409	Echague
410	Gamu
411	Ilagan
413	Luna
414	Magsaysay
415	Mallig
416	Naguilian
422	Roxas
426	San Manuel (Callang)
427	San Mateo
429	Santiago
431	Sto. Tomas
432	Tumauini

Laguna Province

453	Biñan
454	Cabuyao
455	Calamba
456	Calauan
498	San Pablo City
476	Sta. Cruz
478	Sta. Rosa
480	Victoria

Code Number	Municipality
Leyte Province	
501	Abuyog
502	Alangalang
506	Barugo
508	Baybay
517	Dagami
519	Hilongos
526	Kananga
533	Matagob
548	Ormoc City
543	San Miguel
544	Sta. Fe
545	Tabango
547	Tanuan
Mindoro Oriental Province	
562	Bansud
563	Bongabong
564	Calapan
566	Mansalay
567	Naujan
568	Pinanalayan
569	Pola
571	Roxas
575	Victoria
Nueva Ecija Province	
601	Aliaga
602	Bongabong
648	Cabanatuan City
603	Cabiao
604	Carranglan
605	Cuyapo
606	Gabaldon
607	Gapan
608	Gen. Mamerto Natividad
609	Gen. Tinio (Papaya)
610	Guimba
611	Jaen
612	Laur
613	Licab
614	Llanera
615	Lupao
616	Muñoz
617	Nampicuan
618	Pantabangan
619	Peñaranda
620	Quezon
621	Rizal
622	San Antonio
623	San Isidro
624	San Jose
625	San Leonardo
626	Sta. Rosa
627	Sto. Domingo
628	Talavera
629	Talugtog
630	Zaragosa
Nueva Vizcaya Province	
653	Aritao
654	Bagabag
655	Bambang
656	Bayambang
657	Diffun
659	Dupax
666	Solano
667	Villa Verde
Pampanga Province	
701	Apalit
702	Arayat
703	Bacolor
704	Candaba
706	Floridablanca
707	Guagua
708	Lubao
709	Mabalacat
710	Macabebe
711	Magalang
712	Masantol
713	Mexico
714	Minalin
716	San Fernando
717	San Luis
718	San Simon
719	Sta. Ana
720	Sta. Rita
721	Sto. Tomas
Pangasinan Province	
751	Agno
752	Aguilar
753	Alaminos
754	Alcala
755	Anda
756	Asingan
757	Balungao
758	Bani
760	Bautista
761	Bayambang

Code Number	Municipality
762	Binalonan
764	Bolinao
765	Bugallon
766	Burgos
767	Calasiao
768	Dasol
769	Infanta
771	Lingayen
772	Mabini
773	Malasiqui
774	Manaoag
775	Mangaldan
776	Mangatarem
778	Natividad
779	Pozorrubio
780	Rosales
799	San Carlos City
781	San Fabian
782	San Jacinto
783	San Manuel
784	San Nicolas
785	San Quintin
786	Sta. Barbara
787	Sta. Maria
789	Sison
790	Sual
791	Tayug
792	Umingan
793	Urbiztondo
794	Urdaneta
795	Villasis
Tarlac Province	
801	Anao
802	Bamban
803	Camiling
804	Capas
805	Concepcion
806	Gerona
807	La Paz
808	Mayantoc
809	Moncada
810	Paniqui
811	Pura
812	Ramos
813	San Clemente
814	San Manuel
816	Sta. Ignacia
817	Tarlac
818	Victoria

References Cited

Ben-David, Shaul and Tomek, William G.

1965. Allowing for slope and intercept changes in regression analysis. Cornell Univ., Ithaca, N. Y. Dept. of Agr. Econ. Res. Bul. 179.

Bohrnstedt, George W. and Carter, T. Michael

1971. Robustness in regression analysis. *In* Sociological methodology (Herbert L. Costner, ed.). Jossey-Bass, San Francisco.

Carroll, John J.

1969. The Philippines: the church in an unfinished society. Inst. of Social Order, Manila.

Central Bank of the Philippines

1969. List of Operating Rural Banks. Mimeographed.

Cohen, Jacob

1968. Multiple regression as a general data-analytic system. Psych. Bul. 70:426–443.

Durston, John W.

1970. Institutional differentiation in Guatemalan communities. Econ. Dvlpmt. and Cult. Change 18 (July):598-616.

Edwards, Allen L.

1957. Techniques of attitude scale construction. Appleton-Century-Crofts, Inc., New York.

Ezekiel, Mordecai and Fox, Karl A.

1959. Methods of correlation and regression analysis. John Wiley & Sons, Inc., New York

Fujimoto, Isao

1965. The process of community differentiation: an insight into development. Philippine Soc. Rev. 13 (Oct.):199-210.

Goldberger, A. S.

1964. Econometric theory. John Wiley & Sons, Inc., New York.

Harman, H. H.

1967. Modern factor analysis. University of Chicago Press, Chicago.

Iwan, Elizabeth B. and Tomek, William G.

1971. ECON regression program: description of input and output. Dept. of Agr. Econ., Cornell Univ., Ithaca, N. Y.

Johnson, E. A. J.

1970. The organization of space in developing countries. Harvard University Press, Cambridge.

Johnston, J.

1972. Econometric methods. McGraw-Hill Book Co., New York.

Labovitz, Stanley

1970. The assignment of numbers to rank order categories. Amer. Soc. Rev. 35 (June):515-524.

Menzel, Herbert

1953. A new coefficient for scalogram analysis. Pub. Opinion Quart. 17 (Sept.):268-280.

Nie, Normal H., et al.

1970. Statistical package for the social sciences. McGraw-Hill Book Co., New York.

Orcutt, Guy H.; Greenberger, Martin; Korkel, John; and Rivlin, Alice M.

1961. Microanalysis of socioeconomic systems: a simulation study. Harper and Row, New York.

Sharma, Hari P.

1972. Green revolution in India: a prelude to a red one? *In* Imperialism and revolutions in South Asia, edited by Kathleen Gough and Hari Sharma. Monthly Rev. Press, New York.

Wheelock, Gerald Calvin

1972. Structural determinants of the distribution of a rural credit institution in the Philippines, 1952-1970. Thesis for degree of Ph.D., Cornell Univ., Ithaca, N. Y. Microfilmed.

Young, Frank W.

1966. A proposal for cooperative cross-cultural research on intervillage systems. Human Organization 25 (Spring):45-50.

1970. Reactive subsystems. Amer. Soc. Rev. 35 (April):297-307.

Young, Frank W. and MacCannell, E. Dean

1967. Structural differentiation of communities: an aerial photographic study. Rur. Soc. 32 (Sept.):334-345.

Young, Frank W. and Young, Ruth C.

1962. The sequence and direction of community growth: a cross-cultural generalization. Rur. Soc. 27 (Dec.):374-386.

Young, Frank W. and Fujimoto, Isao

1965. Social differentiation in Latin American communities. Econ. Dvlpmt. and Cult. Change 13 (Apr.):344-352.

Young, Ruth C. and Moreno, Jose A.

1965. Economic development and social rigidity: a comparative study of the forty-eight states. Econ. Dvlpmt. and Cult. Change 13 (July):439-452.

Values of Variables

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
101	53511	12900	4091	2.81	14.29	5	3	3	2033	719	3518	1456	59244	35.36	58.66
103	174712	18143	8244	8.36	19.77	12	4	6	2614	1023	3982	1601	88449	39.16	50.51
104	294907	21249	6318	3.99	11.43	8	3	3	3774	1040	6746	2009	42905	27.57	56.16
105	228060	12550	3412	3.38	9.09	7	3	2	2374	847	4825	1528	67319	29.47	21.22
151	71776	15051	6647	4.57	14.65	7	2	1	2748	721	9211	2608	39343	26.26	50.36
152	134668	10280	4620	7.30	37.89	9	3	3	1154	374	2985	1005	27038	32.48	46.47
153	1000000	37409	13806	8.71	19.41	21	4	5	5445	2452	8372	3538	215968	38.05	7.51
155	149243	22417	9839	8.13	41.53	9	5	6	1236	553	4189	1224	40686	44.77	17.35
157	79518	13412	4550	4.97	11.61	7	2	2	1994	545	6135	1917	33122	27.37	22.35
158	115356	27662	10636	6.61	16.02	15	5	5	3250	1223	6783	1927	98608	40.11	9.04
159	126463	10629	4339	6.19	28.31	6	3	2	1638	522	4577	1394	36279	31.92	37.90
160	476139	46861	16951	6.21	15.32	20	4	6	2690	1083	5691	2357	84350	40.28	20.37
161	510817	48968	19213	10.77	34.50	35	5	6	2371	1076	7688	2219	80789	45.42	33.40
162	133506	9206	3642	8.61	33.96	3	5	3	1751	449	4025	1160	30873	35.94	68.32
163	479360	32234	10603	9.88	42.16	19	4	5	1341	362	3754	1017	23109	34.82	81.31
164	746726	12202	5296	5.06	13.81	7	3	3	1722	502	6311	1427	28191	29.19	53.73
166	51769	10283	3677	3.50	10.77	1	2	1	2378	792	7028	2266	54631	33.31	38.81
168	168526	18714	8430	6.11	18.32	11	4	4	3643	1262	7177	2076	98722	34.66	1.38
169	81216	20436	6861	5.97	14.52	0	2	3	2926	1253	3444	1068	95838	42.85	68.57
170	93007	26140	7618	4.04	7.78	2	2	3	7359	2116	16516	5894	153252	28.76	57.83
171	148724	9329	2794	2.71	18.38	5	3	4	2078	756	5395	1285	57781	30.38	64.56
172	237935	43195	13635	4.22	11.76	14	4	5	7846	3187	21282	8034	244221	32.36	26.52
173	175326	19772	6574	3.81	12.78	11	2	3	4826	1299	12366	4456	36549	26.92	56.71
174	137682	26341	10679	5.20	29.37	21	4	5	3619	1363	13339	3568	47951	37.68	30.52
175	1126536	41473	11415	11.31	43.24	23	4	3	1570	540	6643	1569	39343	34.45	67.61
201	72984	14458	3392	4.23	3.56	4	2	3	3726	1156	9523	1957	82316	31.03	64.72
202	62535	17723	4026	3.53	1.53	8	2	3	3241	684	9536	2842	35108	22.52	71.13
204	70714	18415	3658	2.22	0.74	7	2	3	3216	713	8376	3047	42039	22.18	49.55
206	82011	21597	3075	2.47	1.48	13	2	3	5120	1536	15224	4959	97328	29.41	72.32
207	95595	16111	4153	6.04	3.84	6	3	5	4808	1212	9113	2187	89331	25.21	81.60
208	63347	20475	5359	3.48	1.41	4	2	3	4847	1415	11878	4736	99998	29.20	71.17
210	71430	11436	3425	5.83	2.86	4	3	4	2724	982	6002	1514	77259	33.60	76.37
211	120733	17025	4193	5.81	2.20	9	4	4	4533	2090	9133	2391	177058	46.11	89.71
212	64594	16095	3332	2.70	1.20	4	3	4	1584	519	4324	1834	35599	27.59	71.31
213	49903	13981	2661	2.61	1.05	5	3	4	2671	674	7685	2006	40503	25.23	67.08
214	92673	20837	4255	4.04	3.03	15	2	3	6867	2648	13956	5931	216306	[illegible]	54.55
215	65582	12519	2666	2.96	0.95	5	2	3	2465	496	5947	1473	25311	[illegible]	93.31
217	57647	15834	3672	3.83	2.22	6	2	4	3335	1277	8959	1581	96432	38.31	78.39
219	53339	14677	3046	3.27	1.23	0	2	3	4374	1400	9781	1048	105779	32.01	65.76
220	41053	10326	2471	4.14	2.07	6	2	3	2299	481	6161	1122	26612	20.95	59.35
222	45232	11099	2341	3.37	2.28	5	2	3	2339	552	3453	1751	43130	23.60	50.14
224	72919	12315	3218	6.30	4.10	6	2	3	2924	706	7472	1507	43781	24.15	96.76
228	97320	27631	5042	2.37	0.87	14	2	4	7058	2655	10111	6535	230171	37.62	54.59
229	97442	23257	4024	2.11	2.19	10	3	3	3836	1053	6914	3216	81461	27.45	38.74
251	70997	22724	5560	3.16	4.94	7	3	4	3674	826	4393	1428	47637	22.48	65.21
253	60770	21078	3756	3.16	2.43	5	2	3	2665	558	3375	1556	24772	20.95	58.34
255	121356	37786	7272	3.06	2.65	12	2	3	4935	1050	8131	2378	75616	21.27	83.20
256	74624	24257	4108	1.90	1.89	1	2	2	5696	1523	18055	3256	49147	26.74	67.33
258	108541	28467	7925	4.11	6.42	15	2	2	3483	746	7655	1374	51895	22.59	44.39
265	95135	24663	5032	3.62	3.41	8	3	4	2779	834	3770	1104	69542	30.02	49.29
266	340470	75439	11758	8.57	8.22	14	4	6	4563	1029	11015	1421	64368	22.55	65.58
268	298691	52517	10075	2.80	3.38	12	4	5	13452	2863	22685	6020	206983	27.39	50.96
271	27683	8551	2131	2.86	4.61	2	3	2	1754	531	5121	1514	35227	30.30	62.36
272	58345	19654	4784	2.15	1.30	4	2	1	4593	1242	10735	2410	96709	27.05	41.33
273	166413	66657	8709	6.90	5.93	8	4	4	4964	1431	17154	3768	83361	28.82	70.41
274	43502	14572	3261	2.25	2.02	2	2	2	5619	2035	10189	2711	172140	31.50	49.37
276	49331	13328	3018	1.67	1.75	1	2	1	3117	540	7322	1547	32457	18.63	39.60

Values of Variables

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
278	122919	22934	4200	4.57	4.23	6	3	4	6195	1398	12985	3069	94358	22.56	32.19
281	40326	14435	2556	1.93	1.92	4	2	2	2382	660	4184	1439	51399	27.72	74.49
282	46747	16704	4204	3.87	2.80	5	3	3	3542	1309	6500	1775	108249	36.98	50.53
298	1553914	55506	12471	16.06	23.35	12	5	7	3273	1030	4997	2495	85534	31.47	43.79
301	208748	21214	0	1.99	1.67	0	0	0	10841	2891	16360	6488	231919	26.67	97.39
303	149131	73261	9643	1.61	0.90	10	3	2	27742	7366	57430	15972	535620	26.55	48.09
304	156556	25768	2494	1.95	1.08	4	1	3	8508	2645	13791	2626	216231	31.08	89.42
306	171445	36464	10213	0.88	1.22	4	2	4	12334	4215	22335	9437	343373	34.17	84.21
307	171445	44164	13063	0.74	1.06	1	3	2	12800	3651	17498	7706	302519	28.52	34.61
308	202557	21431	3979	2.93	1.54	4	1	3	6824	3809	18669	4046	315577	55.82	86.34
309	141322	21043	4719	7.52	2.52	3	4	4	9005	1924	17033	1354	132868	24.04	35.39
311	513336	61675	11236	3.17	3.40	24	4	7	4324	1172	10590	2426	79815	27.11	65.15
312	120793	22173	4388	2.85	3.69	0	2	2	4804	890	11231	1996	50459	18.54	58.22
319	351442	46169	10131	4.98	4.31	11	3	7	13999	2128	11802	5179	171530	19.35	61.63
320	209544	42085	7273	3.46	1.50	6	2	5	12902	3302	24611	3755	226562	25.59	65.08
321	169917	30614	4718	1.53	1.00	0	2	3	7635	2192	9373	3431	184328	28.71	85.59
323	69906	19128	0	2.03	4.72	0	0	0	2833	710	4927	1462	53801	25.07	93.20
325	119013	22412	6701	3.77	4.12	5	3	3	5793	1102	13134	1938	64244	19.02	54.50
326	219417	34150	8666	2.35	2.72	4	3	3	8120	1529	14355	1383	130632	18.83	83.46
328	153397	40347	0	2.04	1.37	5	0	0	16216	4380	29067	13788	336326	27.01	84.32
329	377477	27695	5576	5.17	4.18	5	2	5	10018	1619	14926	8048	95681	16.16	54.12
331	35242	13012	2040	0.97	0.51	0	1	1	4950	946	9436	4942	61597	19.11	92.70
332	136332	27616	3195	2.28	2.38	3	3	3	5228	1257	11093	1408	86908	24.05	71.33
348	1727251	37499	8715	14.38	24.99	21	4	7	5215	1060	1954	2668	99530	20.37	94.20
351	80743	18655	6117	3.24	2.58	9	4	3	2594	628	5381	2233	45112	24.24	39.65
352	82257	18121	5215	3.43	4.00	8	3	3	3007	552	10322	1199	19100	18.36	62.43
353	58634	10153	3257	3.31	2.42	6	2	2	1766	358	4709	1114	19414	20.32	43.47
355	58366	10967	2993	3.74	3.28	8	2	1	1923	337	4905	1783	21620	20.17	24.72
356	65255	11993	3414	3.85	3.52	9	2	2	1971	525	3937	1461	38900	26.65	31.39
357	1038343	23164	7625	5.49	6.21	12	2	2	3209	615	7736	2156	34432	19.16	25.35
358	227607	26051	5197	3.22	2.96	10	3	3	5922	1328	11509	4535	92599	22.43	45.48
360	88869	22587	6332	3.02	4.76	1	2	2	2897	533	7372	1752	25938	18.42	57.35
361	98033	26397	8037	4.61	3.18	14	4	3	3327	1441	15447	3421	97387	27.06	43.42
362	153679	29913	6144	3.43	2.06	14	2	3	9884	2337	20369	3826	163474	23.64	43.18
363	60616	20006	5054	1.84	2.33	11	2	1	1329	264	4436	1597	10902	14.44	51.13
365	98778	19748	6243	5.97	4.69	12	4	2	3382	978	9590	2443	64285	31.74	31.34
366	87034	19004	5991	5.86	2.17	2	2	3	4482	1252	10508	2710	88425	27.93	42.73
367	152528	30127	8486	5.65	5.11	13	3	4	4559	1577	10350	3615	122567	34.60	37.30
369	57625	13487	5303	5.24	5.25	5	3	2	1192	224	4120	1173	8005	18.81	58.28
370	63731	17537	5957	2.73	1.89	3	2	3	2584	430	13383	2547	-2778	16.64	62.06
371	263537	46946	14964	4.79	3.45	12	3	4	11015	2832	24647	4422	136955	25.71	48.04
372	98121	20575	5495	1.83	2.68	0	2	2	7067	1054	10352	2385	47125	14.92	50.49
374	126468	31504	8506	4.28	2.07	15	3	3	10413	2227	20172	3315	152107	21.38	43.05
375	91840	9244	3115	5.31	5.65	7	2	2	1401	400	2708	1377	30516	28.61	43.75
376	41205	8017	2620	2.24	1.71	4	2	2	3066	636	5485	2399	44463	29.76	33.36
377	159490	25099	7607	4.17	2.49	13	2	3	2890	447	11637	1950	4954	15.48	78.33
378	66572	21510	4806	4.20	1.88	7	3	3	4871	1103	17280	1496	49440	22.64	57.12
379	143431	32117	11143	3.54	3.45	19	3	2	3323	628	17681	3225	929	16.01	51.63
380	59111	9684	3316	5.39	3.09	5	2	2	2004	477	4781	1517	30998	23.81	47.08
381	48443	14398	4074	2.38	2.40	13	3	2	3080	376	8561	1120	7700	12.22	73.00
382	132032	27246	8590	5.12	5.10	5	2	3	4714	1864	11609	4469	145769	39.54	73.09
383	285292	26945	7347	3.36	3.87	11	2	3	6960	1401	15112	3956	87295	21.36	27.97
384	54751	11258	3446	5.25	4.55	1	3	2	1569	594	3749	1334	46359	37.91	59.39
385	220789	37231	12508	6.66	5.70	20	4	4	5705	2539	15739	4574	198656	44.50	31.14
386	42626	12690	3847	2.16	2.44	8	3	2	2508	552	5580	2047	45347	26.00	21.46
387	39242	11109	2962	2.29	0.66	6	3	2	2570	483	7338	1911	22653	18.80	13.70
388	90187	24655	6892	2.63	1.60	7	3	3	3264	459	14554	2770	-5064	14.03	64.43

Values of Variables

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
389	47533	10014	3269	5.57	4.98	2	2	1	1433	628	4719	1145	46307	34.27	55.51
390	123214	23458	7676	7.50	4.81	11	4	2	3668	1246	9398	3387	91714	33.97	60.05
391	100311	17437	4536	3.91	3.80	8	3	4	5274	1092	9519	4388	75889	20.70	16.51
392	119430	22804	7216	3.89	2.38	8	2	3	2392	664	8741	2343	38258	27.76	61.55
393	45877	11863	3809	2.02	2.29	4	3	2	2279	297	8491	1963	17	13.04	90.49
394	56722	9666	2763	5.00	4.20	4	2	2	2638	992	3343	1674	87570	37.63	17.50
398	9598848	151266	50696	2.51	24.13	99	5	6	3908	1695	5784	2733	149302	43.38	68.57
401	100356	14281	3479	4.85	3.09	11	2	4	4227	2055	10564	7606	168618	24.98	37.29
402	60245	13797	7699	3.95	4.48	7	2	4	2002	608	3366	1675	49040	30.38	51.59
406	190902	11121	3785	6.10	5.00	6	3	4	3298	1220	5362	3139	103249	36.99	51.27
407	164077	25744	2365	5.22	4.12	11	3	6	8366	1827	11292	6361	143204	21.78	65.56
408	42124	9397	5731	5.36	2.32	7	2	4	2986	1181	6929	2835	93908	39.57	54.56
409	123075	28919	3968	4.73	2.86	13	2	6	8437	2136	15557	6380	159161	25.31	67.07
410	58555	18762	8340	3.99	2.30	4	2	3	6339	1949	12532	6093	151137	30.76	61.72
411	392299	48251	3893	6.02	4.40	6	4	6	4726	1290	9036	4067	97392	27.29	42.34
413	19947	5209	0	4.08	4.50	2	2	3	1316	448	2507	1237	36113	34.10	60.32
414	42125	10742	3590	2.75	1.32	7	0	0	4681	1815	7535	4094	155193	38.78	57.68
415	35943	8837	2503	3.77	1.94	6	2	3	4663	1518	7208	4511	126587	32.55	41.16
416	49377	13454	979	3.99	2.94	0	2	4	2178	538	5580	1567	34345	24.73	84.93
422	100046	17959	2210	4.31	3.71	10	2	4	7090	2668	13117	7069	220895	37.63	55.38
426	34132	6525	5854	2.94	2.61	1	0	0	3558	1470	5513	3463	127741	41.32	48.48
427	117216	24402	2088	5.02	4.57	11	3	3	11588	4411	17963	10569	378231	38.06	45.11
429	259567	39440	2256	7.21	5.29	17	3	7	12951	3940	21210	11377	319769	30.42	53.30
431	32603	11460	4762	2.19	0.14	0	2	2	1274	563	3403	1263	43054	44.24	60.50
432	72418	16606	0	4.35	2.42	8	2	4	2433	683	4519	2302	53001	28.28	68.68
434	78173	19600	4662	4.46	1.25	6	2	2	4187	949	8293	2171	65861	27.66	70.44
453	497766	33309	9575	8.08	16.89	46	4	5	2624	897	2671	1964	80600	34.21	48.22
454	137120	20618	6645	3.36	15.75	15	4	5	2232	802	4374	1445	64912	35.94	38.34
455	765332	57715	17719	8.10	25.21	8	5	6	5096	1830	6615	1596	159859	35.91	30.54
456	82279	13168	3900	2.96	11.35	99	4	2	2923	1215	3541	1305	109116	41.57	22.61
476	376574	32850	9853	7.51	25.65	36	4	7	2169	790	3627	1376	65660	36.44	62.16
478	259837	26583	8483	5.51	22.48	18	4	6	2431	938	3788	1713	77600	37.37	31.63
480	32935	8922	2483	4.56	5.51	7	3	3	1112	455	3121	1012	34612	40.94	31.42
498	1940903	70680	22311	8.40	24.59	44	5	7	2891	864	2464	1089	77839	29.90	46.36
501	150544	37709	11593	2.70	4.66	7	2	3	5711	1032	9404	3801	70380	18.08	78.90
502	120999	22448	5311	2.73	3.82	5	2	2	2877	546	5745	2272	34555	19.00	39.33
506	83565	20787	5771	3.17	2.89	7	2	3	1285	238	2294	1052	15848	18.58	65.32
508	260583	51799	12223	4.03	6.67	15	4	7	3718	987	6440	1886	76162	26.54	66.29
517	83986	19777	5515	3.05	4.88	4	3	2	2026	556	2938	1296	45385	27.47	66.30
519	105987	27472	7135	2.23	4.15	9	2	4	2072	471	5044	1156	29455	22.73	53.78
526	58553	18318	3544	1.28	2.04	6	3	3	2741	653	5182	1400	47194	23.83	9.64
533	31157	9226	1577	0.99	1.73	2	1	1	2544	666	5078	1088	48905	26.20	37.92
543	31844	9917	2888	2.42	1.67	4	2	1	1419	197	2652	1380	10431	13.89	53.39
544	24733	7979	2588	2.00	2.00	3	2	2	2391	289	3078	2175	18218	12.12	57.76
545	63661	22999	3607	1.55	2.87	4	2	2	2314	500	2386	1001	41744	21.64	10.16
547	111476	23421	7867	4.74	5.14	10	3	4	1472	255	4358	1067	10274	17.34	71.77
548	1051518	62764	15461	3.85	8.41	0	4	7	8851	1935	11192	4283	154370	21.86	43.48
562	40882	10935	0	2.04	2.23	3	0	0	1997	744	4278	1327	59480	37.28	41.54
563	94093	22018	7125	2.79	3.61	9	3	3	4693	1180	9870	1583	83547	25.16	56.73
564	253108	33060	11289	8.20	13.07	19	4	7	6249	1944	10622	4770	157283	31.11	38.95
566	50272	14669	1614	1.43	0.85	4	3	2	2499	675	7940	1126	39753	27.02	55.18
567	208504	31476	9712	4.15	5.22	12	4	3	10656	2979	17177	8595	237816	27.95	47.72
568	170141	39240	10726	3.27	5.96	9	4	5	6624	1539	14803	5040	102183	23.24	58.37
569	51026	21884	5842	3.01	7.97	4	2	2	3507	792	7562	1019	52769	22.59	50.94
571	62587	16940	3465	3.84	2.81	6	2	3	2785	939	8888	1669	62857	33.73	39.92
575	51948	11662	3128	4.12	5.01	5	3	4	3035	683	5635	1147	48588	22.50	60.79
601	60679	18759	5641	3.34	4.81	13	2	3	6126	2514	13932	6053	203050	41.04	15.92

Values of Variables

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
602	104048	20854	5939	3.73	6.36	9	3	3	3357	1569	7766	3349	129774	40.69	24.32
603	102977	21561	6663	3.10	8.24	15	2	5	5284	2127	10971	4921	174359	40.26	17.59
604	47179	10100	2381	3.36	5.10	4	2	2	3587	1333	6187	3091	116709	38.56	46.21
605	204549	30634	9351	5.83	6.95	1	3	5	4207	2936	14605	7781	222313	35.41	19.24
606	48771	9907	3149	3.01	3.48	6	1	1	1512	567	4158	1165	42225	37.55	62.31
607	277723	32514	10957	5.75	12.77	14	4	4	7486	3093	13327	5957	260561	41.31	12.50
608	69550	9539	2702	2.75	4.52	6	1	2	5386	2049	3166	5353	176324	38.04	34.42
609	51693	14925	4448	4.76	11.51	8	3	4	3536	1021	9158	2899	73584	24.98	57.55
610	160000	38148	9018	5.77	8.63	7	3	6	8690	3411	17332	8482	251491	39.25	15.35
611	94125	20438	5690	3.65	6.44	14	2	2	4044	3069	11204	3310	267731	38.15	21.65
612	61735	11165	3131	3.84	4.98	7	2	3	3043	1186	7453	2540	92548	38.48	34.83
613	73063	9371	2966	5.07	4.02	6	2	2	3148	1283	6413	3145	105649	40.69	15.33
614	71579	3873	2801	2.87	6.95	7	2	2	5864	1995	7972	5858	171656	34.03	35.73
615	99891	15482	4183	4.20	3.96	3	2	2	4945	1879	11433	4938	147972	38.01	32.78
616	255192	27627	9559	8.61	9.38	23	4	5	12752	4329	25082	12553	395208	37.87	14.36
617	38868	6084	1955	5.99	8.87	3	2	2	2215	782	4687	2215	61854	35.33	4.18
618	45187	8169	2290	3.13	5.71	5	1	2	1647	731	4314	1729	58016	39.58	72.34
619	49336	10768	4174	6.70	15.14	7	3	4	3634	1777	8474	3592	148118	48.92	63.35
620	50090	10953	3234	3.62	6.75	9	3	3	3789	1586	9102	3760	130329	41.88	7.94
621	102353	19447	6476	5.66	3.53	12	3	4	6173	2573	11778	5729	216160	41.69	32.66
622	125256	25668	7578	2.76	8.14	7	3	3	7336	2290	12940	6483	174752	31.27	28.39
623	83422	16514	5693	5.11	13.85	12	3	3	3912	1541	5701	2688	134193	39.40	26.04
624	367887	38078	11408	8.39	11.57	23	4	6	7338	3550	17235	7111	294757	49.38	20.79
625	134395	13635	6094	4.29	12.46	9	3	2	2340	939	7136	2174	68941	40.13	42.50
626	77130	15989	3985	4.68	10.14	9	2	3	3972	1417	9273	3966	139267	35.68	17.21
627	74199	16983	5132	5.67	8.98	9	4	4	5867	2134	11783	5872	172165	36.25	26.55
628	158974	28603	8464	4.47	4.97	14	3	4	7957	3416	16394	7793	294293	42.93	15.92
629	42905	8808	2142	3.99	4.02	5	2	2	4090	1533	8105	3958	124980	37.49	46.29
630	81552	15191	4985	3.93	5.82	9	2	4	4631	1717	9243	4621	139352	37.07	21.78
648	1517989	69580	17612	9.71	19.11	38	5	7	10935	4236	21666	10700	347829	38.74	26.04
653	52297	11209	3368	5.60	8.44	8	2	4	3909	1738	7754	2120	143688	41.70	53.21
654	77340	13805	3914	6.22	2.52	9	2	4	2471	1028	7631	2180	76137	41.62	70.52
655	103432	15592	4424	6.16	3.97	4	3	3	3734	1848	9064	2099	153100	48.84	64.02
656	101153	17499	5065	13.12	5.88	9	3	7	3275	2035	5408	1760	189587	63.66	62.68
657	61672	9106	1968	2.39	0.89	3	1	2	2783	814	7125	1761	56471	29.25	79.38
659	67419	10993	2574	5.59	3.09	8	2	3	3279	1634	7757	2149	141310	51.37	61.30
666	149230	22523	6051	8.69	6.64	6	3	5	5309	2630	11750	3491	221922	49.54	51.71
667	29503	7120	0	4.01	1.37	3	1	2	1611	719	3785	1280	58567	44.57	63.48
701	176484	25408	6955	5.09	10.66	0	3	4	3767	1353	7759	2785	108217	35.93	16.50
702	126863	32976	6732	3.45	7.71	19	4	4	5757	2124	13397	5732	165559	36.90	21.46
703	179753	29634	7181	7.85	11.59	17	3	3	3371	1174	6585	1601	94406	34.84	57.70
704	137244	28811	7682	3.15	7.48	10	2	4	8671	3268	14251	7638	276924	37.68	-2.23
706	350557	28655	6715	9.28	21.27	99	4	7	2316	681	5145	1419	50153	29.43	30.33
707	398954	40126	13324	9.09	18.39	22	5	6	2434	766	3874	1562	63053	31.47	38.70
708	210658	44129	11722	4.85	8.13	26	3	4	5982	2237	13188	4041	177612	37.40	19.38
709	166232	31752	7041	8.10	25.44	10	4	4	3186	917	4710	2096	75220	28.78	12.34
710	123837	27888	10066	6.61	15.28	20	4	3	4144	1293	4911	2271	111189	30.97	30.84
711	94684	18626	4846	3.69	7.50	11	3	4	4026	1850	6964	3751	160660	45.95	3.45
712	129113	24159	7363	6.27	12.34	17	3	5	5806	1708	7103	2903	145973	29.42	25.15
713	96059	29449	6677	2.65	7.25	18	2	3	4812	1679	11377	4718	128094	34.89	6.54
714	68948	16223	4654	5.17	12.03	10	3	3	2621	935	3540	2020	78132	34.53	18.16
716	1154382	56861	14902	9.62	25.46	21	5	6	1226	320	1768	1214	25383	26.15	8.74
717	55861	14873	3733	3.23	5.47	10	2	1	3839	1465	6846	2959	122545	38.16	25.38
718	39245	13549	3680	4.03	8.13	7	2	1	3157	1034	6041	2535	92271	32.75	8.42
719	50344	14121	4061	4.36	4.17	9	2	3	2636	982	6268	2636	76262	37.25	17.92
720	56169	15492	4539	6.42	13.53	9	3	3	1903	890	4772	1693	63374	42.07	80.98
721	63972	12297	3437	5.71	18.13	7	3	2	1427	551	2674	1427	45920	38.66	22.78

Values of Variables

ID	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
751	50148	13424	4453	5.71	2.92	6	2	3	1946	516	7430	1916	25656	26.54	69.34
752	40384	14125	4459	3.09	3.93	2	2	1	1760	538	6470	1614	31208	30.59	60.36
753	175797	30250	9298	5.01	5.16	12	4	7	6421	1719	18394	6190	107609	26.78	80.37
754	92204	20297	6269	6.47	7.80	14	4	4	2384	478	6590	2121	24414	20.06	36.34
755	48091	14580	4303	3.09	3.32	6	2	3	2514	875	10069	1429	52321	34.83	82.68
756	124313	26453	8922	7.06	5.32	17	2	3	5145	1846	19355	4027	116910	35.88	59.09
757	53190	13184	3830	5.74	3.21	1	2	3	2448	860	7807	2247	58732	35.15	42.44
758	83530	23758	6816	4.19	3.31	14	4	3	2555	783	17063	3808	18618	30.66	66.56
760	51315	12375	4363	5.55	4.76	3	3	2	2355	472	6999	2033	22802	23.01	31.39
761	240545	47498	11933	5.77	4.56	31	4	5	4322	993	17932	3817	36618	22.99	36.32
762	149329	25651	7975	7.38	8.52	12	3	6	1678	561	8857	1535	25163	33.45	55.51
764	38575	26005	7647	3.07	4.08	9	3	3	3595	637	13523	2127	13404	16.89	83.08
765	87546	24698	6131	4.12	3.98	10	2	3	2358	902	10204	2306	5[illegible]749	38.27	26.77
766	43347	10030	3952	5.27	3.56	6	2	3	1943	522	7297	1394	26678	26.87	54.50
767	75258	29330	8579	6.39	15.72	16	4	3	1109	378	7714	1083	10489	34.16	49.55
768	57036	11043	3940	5.71	3.79	7	2	3	1340	344	4013	1220	20449	25.74	67.39
769	27978	7582	3131	4.74	3.19	5	2	3	1123	321	3223	1058	20862	28.62	78.39
771	178425	45321	12398	11.17	14.48	12	5	6	1893	278	10985	1893	-10635	14.69	61.31
772	40321	10548	3603	4.77	2.11	0	2	4	1923	444	6521	1638	21624	23.11	60.50
773	203042	50730	13442	3.61	4.25	3	4	3	5947	1511	24860	4659	64128	25.41	51.34
774	164836	41164	13446	6.26	7.34	23	3	4	2993	935	13619	2625	45896	31.26	46.38
775	131728	31422	11078	7.77	9.55	4	4	2	1392	366	7143	1183	11599	26.29	72.41
776	143157	2[illegible]931	8648	6.27	4.88	0	2	4	5521	1592	14544	5296	108316	28.83	57.40
778	30908	[illegible]490	3934	5.84	1.95	1	2	3	1380	466	5378	1325	27873	33.83	55.87
779	145290	[illegible]523	7948	5.56	6.28	6	3	3	2610	605	13765	2057	22916	23.21	43.91
780	174088	24347	6559	6.31	8.79	14	3	5	3350	755	12023	3204	33474	22.55	21.36
781	113752	297[illegible]	7220	6.18	5.10	5	4	4	2258	508	10360	1594	14560	22.50	56.77
782	53815	13384	4143	5.83	7.98	9	2	3	1171	305	5621	1079	10874	26.08	59.72
783	78548	20959	6183	5.21	3.13	7	3	3	4699	1544	11637	2734	123702	34.99	38.07
784	74859	19080	6472	8.49	3.98	14	3	3	2664	1161	13555	2422	79250	43.61	71.82
785	76838	16444	4608	5.81	4.36	11	2	3	3619	1302	13185	3526	94020	35.99	27.83
786	73563	24005	7358	4.56	5.40	14	2	3	2025	752	3803	1651	44447	37.16	19.25
787	76678	14230	4132	5.58	6.57	10	2	2	2080	896	8656	2240	59383	33.46	40.53
789	69210	16298	4481	5.35	3.51	1	2	3	1959	493	8832	1363	18477	25.21	59.65
790	40912	9412	2559	4.28	4.94	3	2	2	1972	432	5968	1636	19363	20.41	68.35
791	151915	20755	6840	9.44	10.44	4	2	6	2691	1037	8709	2530	73282	38.55	34.41
792	139274	30664	7307	5.05	5.11	1	2	3	8483	2530	20396	7920	191685	31.01	29.40
793	74699	19594	5718	4.55	4.43	3	2	1	1618	212	9349	1458	-7979	13.12	51.53
794	645900	44744	12863	6.99	8.56	27	3	4	3987	1693	14302	3324	112751	42.57	43.51
795	171029	27037	7061	7.03	7.38	9	3	4	3807	1353	16286	3394	78356	35.55	57.25
799	426967	73900	20916	5.[illegible]	4.98	43	5	4	4335	641	24593	3790	-21955	14.89	71.73
801	45324	5068	1451	[illegible]	7.60	2	2	2	1545	325	3637	1541	19792	21.04	17.48
802	99936	13527	4174	4.69	13.98	4	4	3	2259	783	3742	1056	64903	34.54	35.24
803	356106	40536	10728	8.16	9.49	8	3	6	6462	2524	19490	5157	184236	39.06	50.34
804	227373	26617	5838	2.90	6.40	11	4	2	10269	3142	13585	5895	266399	30.54	10.77
805	305790	45084	11343	3.04	8.40	16	3	5	16925	7421	22408	14667	663883	45.18	10.91
806	287019	32429	8013	5.85	4.15	20	5	2	5832	2045	16520	6467	146754	29.94	64.11
807	139079	21843	6568	3.69	6.50	15	3	2	7962	2722	13648	5753	224502	34.19	41.34
808	101137	10228	2611	5.34	5.15	7	2	3	3804	1443	8230	3691	115543	37.94	77.50
809	258674	23496	6304	5.97	7.00	13	5	3	5927	1069	11551	5304	56479	18.03	36.45
810	466133	35[illegible]15	8273	6.44	8.19	17	5	5	5359	1344	15174	4640	81131	24.90	43.17
811	35638	10227	3560	5.49	4.92	6	2	2	2010	695	5908	1756	48931	34.63	49.24
812	67618	7531	2159	4.23	4.12	4	2	2	1726	640	4744	1714	47447	37.10	24.13
813	51363	5337	1911	8.00	6.93	2	3	2	1295	443	3622	1279	31721	34.28	71.31
814	133504	3956	2690	5.05	5.33	6	3	2	2103	450	6436	2094	22304	21.40	17.54
816	139792	15512	4325	5.98	3.61	8	2	3	4127	1200	11395	4047	90131	29.08	47.43
817	866882	99285	20812	6.89	16.62	42	5	7	13373	4332	24424	10871	547794	32.39	31.67
818	171598	26555	8073	6.19	8.50	13	3	4	3576	2166	13980	5134	147765	38.86	43.34

Values of Variables

ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
101	2.75	29	95.28	0	63	2	1.310	0	0	0	0	0	67	1	1	0	1	0	0	0	0	0	1	1	0	0
103	2.20	83	88.55	1	47	3	1.751	0	1	0	0	0	56	1	1	1	1	1	0	1	0	1	1	1	1	0
104	3.02	73	94.59	0	88	3	4.954	0	1	0	0	0	62	1	1	0	1	0	0	0	0	0	1	1	0	0
105	3.90	68	95.28	0	39	2	1.039	0	1	0	0	0	69	1	1	0	0	0	0	0	0	0	1	1	0	0
151	3.36	0	94.87	0	62	7	0.627	0	0	0	0	0	66	.	9	9	9	9	0	9	9	9	1	9	9	9
152	1.42	79	97.25	1	75	8	11.829	0	1	0	0	1	62	.	1	0	1	0	0	0	0	0	1	1	0	0
153	1.99	97	97.05	0	50	3	0.000	0	1	0	0	1	56	1	1	1	1	1	1	1	0	0	1	1	0	0
155	0.46	31	96.54	0	63	5	3.369	0	0	0	0	0	55	1	1	1	1	0	1	1	1	0	1	1	1	1
157	1.03	17	98.14	0	57	2	3.337	0	1	0	0	0	62	1	1	0	0	0	0	0	0	0	1	0	0	0
158	1.22	95	85.27	0	61	3	2.906	0	1	0	0	0	62	1	1	1	1	0	0	0	1	0	1	1	1	1
159	1.48	93	84.72	0	57	6	5.793	0	0	0	0	0	64	1	1	0	0	0	0	0	0	0	1	1	0	0
160	0.40	99	98.44	1	64	1	0.775	0	0	0	0	0	59	1	1	1	1	1	1	1	1	0	1	1	1	0
161	0.79	73	96.27	0	78	5	3.564	0	1	0	0	1	59	1	1	1	1	1	1	1	1	0	1	1	1	1
162	2.10	17	97.07	0	86	5	3.213	0	1	0	0	0	62	1	1	0	0	0	1	1	0	0	1	1	1	1
163	3.57	0	91.70	1	26	3	7.871	0	0	0	0	0	57	1	1	1	1	1	1	1	1	0	1	1	0	1
164	3.35	0	90.28	0	58	3	0.627	0	1	0	0	1	66	1	0	1	1	0	0	0	0	0	1	0	0	1
166	0.08	15	97.27	0	50	0	0.217	0	0	0	0	0	67	1	0	0	0	0	0	0	0	0	1	0	0	0
168	1.54	99	93.52	0	94	4	2.552	0	1	0	0	1	60	1	1	1	0	0	0	0	1	0	1	1	1	0
169	0.55	5	99.19	0	99	3	3.114	0	1	0	0	1	61	1	1	1	0	0	0	0	0	0	1	0	0	0
170	3.11	13	96.05	0	38	2	0.811	0	1	0	0	1	62	1	1	0	1	0	0	0	0	0	1	1	0	0
171	1.91	1	84.75	0	99	2	0.640	0	0	0	0	0	65	1	1	1	1	0	0	0	0	0	1	0	0	0
172	2.72	26	95.91	0	68	2	1.684	0	1	0	0	1	62	1	1	1	1	1	0	1	0	0	1	1	1	0
173	3.31	9	95.46	0	62	3	2.305	0	1	0	0	1	67	1	1	0	1	0	0	0	0	0	1	0	0	0
174	1.76	0	95.62	0	97	2	1.774	0	1	0	0	1	60	1	1	1	1	1	0	1	0	0	1	1	1	0
175	1.42	0	94.87	0	67	7	3.458	0	1	0	0	1	55	1	1	0	0	1	1	1	0	0	1	1	1	0
201	1.56	0	88.38	1	38	3	0.875	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
202	0.73	0	93.98	0	50	0	0.000	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
204	0.41	0	94.77	0	70	2	0.402	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
206	0.10	12	93.67	0	39	0	0.000	1	1	0	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
207	1.43	3	43.75	1	78	4	7.705	0	1	0	1	1	62	1	1	1	1	0	0	0	1	0	1	1	0	0
208	1.43	4	86.74	1	35	2	1.765	0	1	0	1	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
210	0.51	0	97.23	1	58	3	3.626	0	1	0	1	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0
211	1.22	96	76.22	1	36	3	3.128	0	1	0	1	1	0	1	1	1	1	0	0	0	1	0	1	1	0	1
212	0.47	0	90.06	0	80	2	1.924	0	1	0	1	1	0	1	1	1	0	0	0	0	1	0	1	0	1	0
213	0.20	0	97.96	0	32	2	2.333	0	1	0	1	1	55	1	1	1	0	0	1	1	0	0	1	0	0	1
214	0.30	1	88.58	1	53	2	1.162	0	1	0	1	1	0	1	1	0	1	0	0	0	0	0	1	0	0	0
215	4.47	69	83.30	0	96	2	1.797	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
217	0.75	1	92.28	1	21	2	0.682	1	1	0	1	1	59	1	1	1	0	0	1	1	0	0	1	0	0	0
219	3.51	0	80.28	0	56	2	3.051	0	1	0	1	1	0	1	1	0	0	0	1	1	0	0	1	0	0	0
220	0.60	21	47.48	0	52	2	2.495	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
222	0.42	0	96.99	0	50	5	3.616	0	0	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
224	1.11	79	22.09	1	54	2	2.487	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
228	0.10	10	94.64	0	44	2	1.206	0	1	0	1	0	55	1	1	1	0	0	0	0	1	0	1	0	0	0
229	0.31	4	98.07	0	46	4	1.937	0	1	0	1	1	0	1	1	1	0	0	0	0	0	0	1	1	0	0
251	0.25	41	98.39	1	52	3	2.526	0	0	0	1	0	0	1	1	1	1	0	0	0	0	0	1	1	0	0
253	0.09	13	99.30	0	27	2	0.905	0	0	0	1	0	0	1	1	1	0	0	0	0	0	1	1	0	0	0
255	0.05	45	99.09	0	43	1	1.199	0	0	0	1	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
256	0.00	20	97.35	0	32	2	1.026	0	1	0	1	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
258	0.21	72	98.70	0	67	4	2.585	0	0	0	1	0	51	1	1	9	9	9	0	9	9	9	1	9	9	9
265	0.17	84	95.48	0	11	2	0.130	0	0	0	1	0	60	1	1	1	1	0	0	0	0	0	1	1	1	0
266	0.17	38	98.79	1	73	3	1.456	0	0	0	1	0	56	1	1	1	1	1	1	1	1	1	1	1	1	0
268	0.59	51	97.92	0	9	1	0.199	1	1	0	1	1	61	1	1	1	1	0	0	0	1	0	1	1	1	0
271	0.17	64	99.74	0	39	2	0.950	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0
272	0.55	73	98.34	0	8	0	0.000	0	1	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0
273	0.08	12	99.61	0	74	2	1.475	0	1	0	1	0	63	1	1	1	0	1	0	0	0	0	1	1	1	0
274	0.26	67	97.22	0	72	3	2.481	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
276	0.20	16	99.70	0	30	3	2.470	1	1	0	1	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0

Values of Variables

ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
278	0.27	74	97.32	0	83	5	2.538	0	1	0	1	1	64	1	1	1	1	0	0	0	0	0	1	1	0	0
281	0.00	27	99.79	0	24	2	3.355	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
282	0.03	61	97.66	0	61	3	2.788	0	1	0	1	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0
298	0.54	39	97.50	1	72	4	3.803	1	1	0	1	0	57	1	1	1	1	1	1	1	1	1	1	1	1	1
301	1.57	4	41.54	0	21	2	0.618	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
303	0.76	33	23.02	1	10	2	0.423	0	1	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0
304	0.37	0	30.37	1	0	0	0.000	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0
306	1.41	14	6.35	0	25	4	0.771	0	0	1	0	0	0	1	1	1	1	1	0	0	0	1	1	0	0	0
307	0.02	61	5.77	0	63	0	0.000	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0
308	1.04	41	63.40	0	19	3	0.702	0	0	1	0	0	58	0	1	1	9	9	0	9	9	9	9	9	9	9
309	1.97	5	44.73	1	17	3	0.991	0	1	1	0	0	67	1	1	1	1	0	0	0	0	1	1	1	1	1
311	0.65	23	70.51	1	0	0	0.000	1	1	1	0	1	59	1	1	1	1	1	1	1	1	1	1	1	1	0
312	0.42	39	47.29	0	0	0	0.000	0	0	1	0	0	0	1	1	9	9	9	0	0	9	9	9	9	9	9
319	0.91	29	70.90	1	0	0	0.000	1	1	1	0	1	64	1	1	1	1	1	0	1	1	1	1	1	0	0
320	0.86	14	80.38	1	0	0	0.000	0	1	1	0	0	67	1	1	1	1	0	0	0	1	0	1	0	0	0
321	0.27	3	15.68	0	29	3	1.263	0	0	1	0	0	0	1	1	1	9	9	0	9	9	9	1	9	9	9
323	0.21	36	28.24	0	0	0	0.000	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
325	1.71	24	65.38	0	11	2	1.707	0	0	1	0	0	0	1	1	1	0	0	0	0	0	1	1	0	0	0
326	0.81	5	31.66	1	30	3	0.846	0	0	1	0	0	0	1	1	0	1	0	0	0	0	1	0	0	0	0
328	2.14	8	39.66	0	20	0	0.000	0	0	1	0	0	67	0	0	0	0	0	0	0	0	0	1	0	0	0
329	2.32	47	79.87	1	33	4	1.892	1	1	1	0	1	58	1	1	1	1	1	1	1	0	1	1	0	0	0
331	0.00	1	2.30	0	0	0	0.000	0	0	1	0	0	0	1	9	9	9	9	0	9	9	9	9	9	9	9
332	0.20	17	20.13	1	29	0	0.000	1	1	1	0	1	0	1	1	1	0	0	0	0	0	0	0	1	0	0
348	0.52	48	59.42	1	22	2	0.000	0	1	1	0	0	61	1	1	1	1	1	0	1	1	1	1	1	0	0
351	0.27	22	42.63	1	51	2	0.710	0	1	0	0	0	0	1	1	1	0	0	0	0	0	1	1	1	1	0
352	0.02	8	97.46	1	0	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
353	0.90	3	96.17	0	0	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
355	0.60	51	61.35	0	81	0	0.000	0	1	0	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0
356	0.00	0	61.40	0	47	0	0.000	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
357	0.00	20	99.28	0	14	0	0.000	0	1	0	0	0	64	1	1	0	0	0	0	0	0	0	1	0	0	0
358	0.20	23	93.31	1	61	0	0.000	1	1	0	0	1	69	1	1	1	0	0	0	0	0	0	1	0	1	0
360	0.05	2	45.08	1	53	1	0.612	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
361	0.05	0	98.59	0	0	0	0.000	0	1	0	0	1	67	1	1	1	0	0	0	0	0	0	1	1	1	0
362	0.13	8	86.77	0	32	0	0.000	0	1	0	0	0	66	1	1	1	9	9	0	9	9	9	1	9	9	9
363	0.19	0	94.68	0	0	0	0.000	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
365	0.00	14	98.69	0	15	0	0.000	1	1	0	0	1	0	1	1	0	0	0	0	0	0	0	1	1	1	0
366	0.03	0	92.96	0	2	0	0.000	0	0	0	0	0	68	1	1	1	0	0	0	0	0	0	1	0	0	0
367	0.29	51	54.43	1	17	0	0.000	1	1	0	0	1	66	1	1	1	1	0	0	0	0	0	1	1	0	0
369	0.06	0	98.78	0	18	0	0.000	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	1	1	0	0
370	0.00	22	98.27	0	0	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
371	0.12	0	97.46	0	15	0	0.000	1	1	0	0	1	56	1	1	1	0	0	1	1	0	0	1	1	0	0
372	0.45	0	86.20	0	61	0	0.000	0	0	0	0	0	0	1	1	9	9	9	0	9	9	9	1	9	9	9
374	0.06	0	95.31	1	35	0	0.000	1	1	0	0	1	0	1	1	1	0	0	0	0	0	0	1	1	0	0
375	0.18	94	98.34	1	22	2	1.764	0	1	0	0	0	68	1	1	0	0	0	0	0	0	0	1	0	0	0
376	0.56	12	74.69	1	9	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
377	0.08	5	91.70	0	0	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
378	0.03	0	99.32	0	29	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	1	0
379	0.06	36	98.79	0	29	0	0.000	0	0	0	0	0	69	1	1	0	0	0	0	0	0	0	1	0	0	0
380	0.00	18	99.98	0	0	0	0.000	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	1	0	1	0
381	0.15	0	71.23	0	59	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
382	0.24	50	97.92	0	22	0	0.000	1	1	0	0	0	66	1	1	1	0	0	0	0	0	0	1	0	0	0
383	0.03	0	97.65	0	18	0	0.000	0	1	0	0	1	62	1	1	1	9	9	0	9	9	9	1	9	9	9
384	0.18	69	97.23	0	36	1	1.626	0	1	0	0	1	63	1	1	0	0	0	0	0	0	0	1	0	1	0
385	0.09	48	97.84	0	25	2	0.735	0	1	0	0	0	58	1	1	1	0	0	1	1	0	0	1	1	1	0
386	1.11	10	95.53	0	15	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0
387	0.00	0	99.04	0	18	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0
388	0.00	7	98.31	0	8	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	1	0

Values of Variables

ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
389	0.02	45	99.07	0	43	0	0.000	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
390	0.01	11	99.59	0	0	0	0.000	1	1	0	0	1	60	1	1	0	0	0	0	0	0	0	1	1	1	0
391	0.48	1	72.73	1	26	0	0.000	1	1	0	0	1	63	1	1	1	0	0	0	0	1	0	1	0	1	0
392	0.01	0	99.58	1	24	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
393	0.00	10	92.70	0	0	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	1	0	0
394	0.23	46	99.30	0	63	0	0.000	0	0	0	0	0	64	1	1	0	0	0	0	0	0	0	1	0	0	0
398	0.64	82	89.91	0	98	99	0.000	1	1	0	0	1	53	1	1	1	1	1	1	1	1	1	1	1	1	1
401	4.45	22	73.83	0	40	0	0.000	1	1	1	0	1	0	1	1	1	1	0	0	0	0	0	1	0	0	0
402	2.30	0	80.49	0	52	3	2.084	1	1	1	0	1	0	1	1	1	1	0	0	0	0	0	1	0	0	0
406	5.59	56	58.43	1	40	3	1.820	1	1	1	0	1	62	1	1	0	1	1	0	1	0	0	1	1	0	0
407	0.81	0	92.86	1	16	3	0.700	0	1	1	0	1	65	1	1	1	1	0	0	0	1	1	1	1	0	0
408	6.24	70	50.18	1	38	0	0.000	1	1	1	0	1	69	1	1	1	1	0	0	0	0	0	1	0	0	0
409	2.42	33	86.57	1	21	3	0.327	1	1	1	0	1	67	1	1	1	1	1	0	1	1	0	1	0	0	0
410	2.12	0	53.00	0	33	0	0.000	1	1	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
411	0.30	0	91.93	1	29	2	0.865	1	1	1	0	1	59	1	1	1	1	1	1	1	1	1	1	1	1	0
413	0.57	18	52.94	1	14	2	1.401	0	1	1	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
414	1.01	72	48.11	0	0	0	0.000	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
415	3.93	2	59.43	1	36	0	0.000	0	1	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
416	3.72	3	70.70	1	20	0	0.000	0	1	1	0	0	0	1	1	1	1	0	0	0	0	0	1	0	0	0
422	2.42	9	73.80	1	33	0	0.000	1	1	1	0	1	69	1	1	1	1	0	0	0	0	0	1	0	0	0
426	3.47	23	66.46	0	25	2	0.759	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
427	3.37	64	52.79	1	32	0	0.000	1	1	1	0	1	62	1	1	0	1	0	0	0	0	0	1	0	1	0
429	5.03	51	78.12	1	36	0	0.000	1	1	1	0	1	53	1	1	1	1	1	1	1	1	1	1	1	0	0
431	0.63	0	6.96	0	0	0	0.000	0	0	1	0	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0
432	0.78	3	92.97	1	38	0	0.000	1	1	1	0	1	0	1	1	1	0	1	0	1	0	0	1	0	0	0
434	1.76	10	83.66	0	0	2	0.000	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
453	1.38	89	95.62	0	46	4	2.696	0	0	0	0	0	55	1	1	1	1	1	0	1	1	1	1	1	1	1
454	0.94	50	98.[illegible]0	0	68	3	2.271	0	0	0	0	0	61	1	1	1	1	1	0	1	0	0	1	1	1	0
455	1.60	96	95.10	0	68	3	0.000	0	1	0	0	0	53	1	1	1	1	0	1	1	1	1	1	1	1	1
456	1.19	99	97.60	0	75	3	1.966	0	1	0	0	1	60	1	1	9	9	9	0	9	9	9	1	1	1	9
476	3.48	68	34.57	1	42	2	3.158	1	1	0	0	1	53	1	1	1	1	0	1	1	1	1	1	1	1	0
478	1.97	99	80.05	1	99	3	2.400	1	1	0	0	1	63	1	1	1	1	0	1	1	1	0	1	1	1	0
480	0.75	63	99.04	1	62	2	3.579	0	1	0	0	0	67	1	1	0	1	0	0	0	0	0	1	1	0	0
498	1.85	77	88.31	0	80	5	3.059	0	0	0	0	0	57	1	1	1	1	1	1	1	1	1	1	1	1	1
501	0.14	23	96.93	1	17	0	0.000	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
502	0.00	7	99.70	0	62	0	0.000	0	1	0	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
506	0.06	5	99.61	0	38	0	0.000	0	1	0	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
508	0.50	58	93.88	0	82	0	0.000	0	0	0	0	0	62	1	1	1	1	1	0	1	1	1	1	1	1	0
517	0.03	35	99.69	0	39	0	0.000	0	1	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	1	0
519	0.00	46	99.90	0	31	0	0.000	0	0	0	0	0	0	1	1	1	0	1	0	1	0	0	1	0	0	0
526	0.01	39	97.99	1	43	0	0.000	0	0	0	0	0	0	1	1	1	0	0	0	0	0	0	1	1	0	0
533	0.08	3	97.46	0	42	0	0.000	0	0	0	0	0	69	0	1	0	0	0	0	0	0	0	0	0	0	0
543	0.00	0	99.04	0	50	2	0.643	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0
544	0.93	8	99.06	0	58	1	0.788	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
545	0.43	22	99.02	0	0	0	0.000	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0
547	0.09	1	99.78	0	48	4	1.558	0	0	0	0	0	0	1	1	0	1	1	1	1	0	0	1	0	1	0
548	0.96	55	98.30	0	53	0	0.000	0	0	0	0	0	62	1	1	1	1	1	0	1	1	1	1	1	1	0
562	2.70	53	88.33	0	67	2	1.027	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
563	3.54	73	84.52	0	63	2	0.696	0	1	0	1	0	0	1	0	1	1	0	0	0	0	1	1	1	0	0
564	1.75	9	94.09	1	75	4	2.329	0	1	0	1	0	63	1	1	1	1	1	0	1	1	1	1	1	1	0
566	1.00	25	64.16	0	44	0	0.000	0	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0
567	2.95	8	93.17	1	67	2	0.647	0	1	0	1	0	66	1	1	1	0	0	0	0	0	0	1	1	1	0
568	1.84	12	96.82	0	89	2	0.000	0	1	0	1	0	67	1	1	1	1	0	0	0	1	0	1	1	1	0
569	1.52	5	95.53	0	23	2	0.668	0	0	0	1	0	0	1	1	9	9	9	0	9	9	9	1	9	9	9
571	1.03	74	74.37	0	57	0	0.000	0	1	0	1	0	68	1	1	1	0	0	0	0	0	0	0	0	0	0
575	2.61	3	83.31	1	65	2	1.039	0	0	0	1	0	67	1	1	1	1	0	0	0	0	0	1	0	1	0
601	1.47	32	86.77	0	86	2	1.683	1	1	1	0	1	63	1	1	1	0	0	0	0	0	0	1	0	0	0

Values of Variables

ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
602	5.79	81	87.29	0	94	4	4.719	1	1	1	0	1	61	1	1	0	1	0	0	0	0	0	1	1	0	0
603	1.33	84	97.28	0	69	2	0.785	1	1	1	0	1	58	1	1	1	1	0	1	1	0	0	1	0	0	0
604	2.32	88	80.36	1	74	2	2.554	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
605	2.63	14	60.96	1	51	2	0.957	0	1	1	0	1	57	1	1	1	1	0	1	1	0	0	1	1	0	0
606	3.26	50	82.26	0	87	1	1.408	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
607	2.60	87	96.26	0	76	6	2.683	0	1	1	0	1	61	1	1	1	1	0	0	0	0	0	1	1	1	0
608	4.71	95	75.47	1	65	0	0.000	0	0	1	0	0	66	1	1	0	0	0	0	0	0	0	0	0	0	0
609	2.72	0	76.46	1	99	1	0.387	0	1	1	0	1	63	1	1	1	1	0	0	0	0	0	1	1	0	0
610	3.75	33	66.32	1	0	0	0.000	1	1	1	0	1	59	1	1	1	1	1	1	1	1	0	1	1	0	0
611	1.67	2	96.60	0	76	5	2.176	0	1	1	0	1	62	1	1	0	0	0	0	0	0	0	1	0	0	0
612	2.02	49	85.75	0	58	3	1.161	1	1	1	0	1	66	1	1	1	0	0	0	0	0	0	1	0	0	0
613	2.06	2	94.57	1	88	1	1.017	1	1	1	0	1	65	1	1	0	0	0	0	0	0	0	1	0	0	0
614	1.57	54	60.08	1	74	2	1.047	0	0	1	0	0	64	1	1	0	0	0	0	0	0	0	1	0	0	0
615	1.90	65	58.74	1	78	0	0.142	0	1	1	0	1	63	1	1	0	0	0	0	0	0	0	1	0	0	0
616	3.53	51	89.91	1	90	3	1.494	1	1	1	0	1	56	1	1	1	1	1	1	1	0	0	1	1	1	0
617	0.95	69	31.65	1	31	1	0.191	0	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
618	1.37	38	77.58	0	50	0	0.000	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
619	0.76	3	93.85	0	53	3	0.596	1	1	1	0	1	68	1	1	1	1	0	0	0	0	0	1	1	0	0
620	3.30	45	94.73	1	92	2	1.740	1	1	1	0	1	68	1	1	1	0	0	0	0	0	0	1	1	0	0
621	3.65	57	48.75	1	76	1	0.356	1	1	1	0	1	59	1	1	0	1	0	1	1	0	0	1	1	0	0
622	4.44	2	89.18	1	88	0	0.000	0	1	1	0	1	64	1	1	1	0	0	0	0	0	0	1	1	0	0
623	4.40	94	94.98	0	99	6	4.314	0	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	1	0	0
624	3.35	70	76.08	1	79	3	1.792	1	1	1	0	1	56	1	1	1	1	1	1	1	1	1	1	1	1	0
625	1.88	22	94.51	0	91	4	7.013	0	1	1	0	1	61	1	1	0	9	9	0	9	9	9	1	1	9	9
626	2.16	3	91.18	1	92	7	1.615	1	1	1	0	1	63	1	1	0	0	1	0	1	0	0	1	0	0	0
627	2.64	31	58.06	0	86	4	1.834	1	1	1	0	1	0	1	1	1	0	1	0	1	0	0	1	1	1	0
628	3.88	80	93.44	0	88	4	1.165	0	1	1	0	1	57	1	1	1	0	0	1	1	0	0	1	1	0	0
629	2.29	2	70.52	0	65	0	0.000	0	0	1	0	0	66	1	1	0	0	0	0	0	0	0	0	0	0	0
630	3.77	26	43.27	1	95	4	1.639	1	1	1	0	1	64	1	1	1	1	0	0	0	0	0	1	0	0	0
648	4.64	40	89.18	1	69	5	2.508	1	1	1	0	0	59	1	1	1	1	1	1	1	1	1	1	1	1	1
653	5.74	99	86.31	1	72	2	5.422	0	1	1	0	1	62	1	1	1	0	0	0	0	1	0	1	0	0	0
654	3.18	56	69.98	1	86	3	4.153	0	1	1	0	1	68	1	1	1	0	1	0	1	0	0	1	0	0	0
655	4.09	90	47.73	1	70	2	2.477	1	1	1	0	1	69	1	1	1	0	0	0	0	0	0	0	1	0	0
656	2.24	92	87.20	1	60	4	2.824	0	1	1	0	0	61	1	1	1	1	1	1	1	1	1	1	1	0	0
657	1.31	46	47.85	0	39	2	0.000	0	1	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
659	7.28	97	71.94	0	85	3	2.810	1	1	1	0	1	0	1	1	0	1	0	0	0	0	1	1	0	0	0
666	4.54	93	68.21	1	33	3	3.119	1	1	1	0	1	70	1	1	1	1	1	0	1	0	1	1	1	0	0
667	3.77	79	57.75	0	80	1	1.269	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
701	4.08	91	94.75	0	75	3	2.037	0	1	0	0	0	57	1	1	1	9	9	1	1	9	9	1	9	9	1
702	5.06	34	87.93	1	69	2	1.096	0	1	0	0	0	60	1	1	1	1	0	0	0	0	0	1	1	1	0
703	3.62	64	93.39	0	57	2	2.159	0	1	0	0	0	63	1	1	1	9	9	0	9	9	9	1	9	9	1
704	1.45	69	97.33	1	21	2	0.366	0	1	0	0	1	57	1	1	0	1	0	1	1	0	0	1	0	0	0
706	3.09	32	85.25	0	54	0	0.635	1	1	0	0	0	64	1	1	1	1	0	1	1	1	1	1	1	0	1
707	2.16	67	72.82	1	84	6	6.036	1	1	0	0	0	54	1	1	1	1	1	1	1	1	0	1	1	1	1
708	4.02	20	91.08	0	37	2	1.532	0	1	0	0	0	65	1	1	1	0	1	0	1	0	0	1	1	0	0
709	1.61	61	94.12	0	66	3	0.773	0	0	0	0	0	64	1	1	1	0	1	0	1	1	0	1	1	0	1
710	0.44	97	97.98	0	35	2	1.183	0	1	0	0	0	64	1	1	0	1	0	0	0	0	0	1	1	1	0
711	1.46	53	97.27	1	43	1	0.638	0	1	0	0	0	55	1	1	1	0	0	1	1	1	0	1	1	0	0
712	0.84	99	98.94	0	50	1	0.165	0	1	0	0	0	59	1	1	1	1	0	0	0	1	0	1	1	0	0
713	1.72	14	94.60	0	49	4	1.818	0	1	0	0	0	62	1	1	1	0	0	0	0	0	0	1	0	0	0
714	0.06	86	99.58	0	65	3	2.503	0	1	0	0	1	66	1	1	0	0	0	0	0	0	0	1	1	0	0
716	2.01	42	95.89	1	53	5	3.222	0	1	0	0	0	59	1	1	1	1	1	1	1	1	0	1	1	1	1
717	3.73	82	93.46	0	43	0	0.898	0	1	0	0	1	0	1	9	9	9	9	0	9	9	9	1	9	9	9
718	1.29	64	97.35	0	63	2	1.284	0	1	0	0	1	0	1	9	0	0	0	0	0	0	0	1	0	0	0
719	2.60	30	97.21	0	44	2	2.770	0	1	0	0	1	66	1	1	1	0	0	0	0	0	0	1	0	0	0
720	1.00	69	98.56	0	64	2	3.347	0	1	0	0	1	63	1	1	1	0	0	0	0	0	0	1	1	0	0
721	2.84	44	94.75	0	88	3	3.813	0	0	0	0	0	61	1	1	0	0	0	0	0	0	0	1	1	0	0

Values of Variables

ID	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41
751	0.61	0	85.20	1	31	2	1.296	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
752	0.45	74	96.87	0	21	0	0.000	0	0	1	0	0	69	1	9	0	0	0	0	0	0	0	1	0	0	0
753	1.11	6	94.38	1	27	0	0.000	1	1	1	0	1	56	1	1	1	1	0	1	1	1	1	1	1	1	0
754	2.31	0	63.67	1	60	0	0.000	0	1	1	0	1	0	1	1	1	1	0	0	0	0	0	1	1	1	0
755	0.60	0	19.77	1	0	0	0.000	0	0	1	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
756	2.84	71	85.78	1	56	4	3.619	0	1	1	0	0	67	1	1	1	0	0	0	0	1	0	1	0	0	0
757	3.86	64	32.47	1	50	2	1.047	0	1	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
758	1.49	0	49.66	0	21	3	1.333	0	1	1	0	0	58	1	1	0	0	0	1	1	0	0	1	1	1	0
760	2.44	13	82.28	1	0	0	0.000	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	1
761	1.42	1	93.47	0	0	0	0.000	0	1	1	0	1	57	1	1	1	1	1	1	1	0	0	1	0	1	1
762	1.13	48	79.77	1	45	7	11.197	1	1	1	0	1	66	1	1	1	1	1	0	1	1	0	1	1	0	0
764	1.24	0	83.76	0	21	0	0.000	0	0	1	0	0	65	1	1	0	1	0	0	0	0	0	1	1	0	0
765	1.63	48	95.53	0	57	3	1.166	0	1	1	0	1	65	1	1	1	0	0	0	0	0	0	1	0	0	0
766	1.07	0	96.69	0	23	2	0.891	0	0	1	0	0	60	1	1	1	0	0	0	0	0	0	1	1	0	0
767	0.54	0	97.65	0	50	2	1.830	1	1	1	0	1	65	1	1	1	0	0	0	0	0	0	1	1	0	1
768	1.35	0	65.96	1	40	3	3.575	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
769	0.59	43	91.57	0	23	2	3.839	0	0	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
771	1.51	0	88.10	0	30	0	0.000	0	0	1	0	0	55	1	1	1	1	0	1	1	1	0	1	1	1	1
772	2.74	1	92.41	0	13	0	0.125	0	0	1	0	0	67	1	1	1	1	0	0	0	0	0	1	0	0	0
773	1.88	20	85.05	1	38	0	0.000	1	1	1	0	1	64	1	1	0	1	0	0	0	0	0	1	1	0	1
774	0.70	51	94.61	0	51	7	4.101	1	1	1	0	1	54	1	1	1	0	0	1	1	0	0	1	1	0	0
775	1.07	6	95.92	1	37	7	5.265	0	0	1	0	0	63	1	1	0	0	0	0	0	0	0	1	1	0	1
776	1.93	93	88.73	1	55	2	0.449	0	1	1	0	0	63	1	1	1	0	0	0	0	0	0	1	0	0	0
778	3.08	92	70.69	1	41	0	0.000	0	1	1	0	0	69	1	1	1	0	0	0	0	0	0	1	0	0	0
779	1.35	78	92.49	0	42	3	2.753	0	0	1	0	0	65	1	1	1	0	0	0	0	0	0	1	1	0	0
780	4.64	45	40.54	1	66	2	2.019	1	1	1	0	1	62	1	1	0	1	1	0	1	0	1	1	1	0	0
781	2.57	51	89.15	0	52	0	0.000	0	0	1	0	0	69	1	1	1	0	0	0	0	1	0	1	1	0	1
782	2.27	13	93.83	0	38	4	3.532	0	0	1	0	0	69	1	1	1	0	0	0	0	0	0	1	0	0	0
783	3.04	99	83.25	1	39	1	1.212	0	1	1	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	0
784	4.09	57	77.60	1	41	0	0.000	1	1	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
785	4.08	86	65.27	1	52	2	1.435	1	1	1	0	0	65	1	1	0	1	0	0	0	0	0	1	0	0	0
786	0.65	25	95.27	0	21	2	1.717	1	1	1	0	1	69	1	1	1	0	0	0	0	0	0	1	0	0	0
787	1.47	92	83.94	0	41	0	0.000	1	1	1	0	1	0	1	1	0	0	0	0	0	0	0	1	0	0	0
789	3.87	76	76.10	0	13	3	1.392	0	1	1	0	0	69	1	1	0	1	0	0	0	0	0	1	0	0	0
790	1.35	66	94.99	0	21	2	2.732	0	1	1	0	0	69	1	1	0	0	0	0	0	0	0	1	0	0	0
791	2.11	89	74.29	1	75	5	3.898	1	1	1	0	1	53	1	1	1	1	0	1	1	1	0	1	0	0	0
792	1.16	54	66.16	1	0	0	0.000	1	1	1	0	1	0	1	1	1	0	0	0	0	0	0	1	0	0	0
793	1.44	0	92.46	0	41	2	1.920	0	0	1	0	0	0	1	9	0	0	0	0	0	0	0	1	0	0	0
794	1.84	74	85.43	0	57	4	2.450	0	1	1	0	0	59	1	1	0	1	0	1	1	0	0	1	1	0	0
795	2.34	25	74.69	1	48	2	0.859	1	1	1	0	1	66	1	1	1	0	0	0	0	1	0	1	1	0	0
799	0.54	0	96.50	0	49	1	0.399	0	1	1	0	0	53	1	1	1	0	0	1	1	0	0	1	1	1	1
801	0.80	0	32.79	0	80	2	1.744	0	0	1	0	0	69	1	1	0	0	0	0	0	0	0	1	0	0	1
802	4.95	65	87.61	0	67	2	2.141	0	0	1	0	0	68	1	1	1	0	0	0	0	0	0	1	1	0	1
803	2.53	70	75.89	0	66	5	2.271	1	1	1	0	1	56	1	1	1	1	1	1	1	1	0	1	1	0	0
804	7.20	52	89.14	0	52	4	3.695	1	1	1	0	1	63	1	1	0	0	0	0	0	0	0	1	1	0	1
805	2.63	82	93.53	0	57	4	1.635	0	1	1	0	1	55	1	1	1	1	1	1	1	0	0	1	1	0	0
806	2.73	4	79.17	1	73	6	2.054	0	0	1	0	0	62	1	1	0	0	0	0	0	0	0	1	1	1	1
807	4.68	30	58.70	1	77	4	0.805	0	1	1	0	1	63	1	1	0	0	0	0	0	0	0	1	1	0	0
808	2.32	78	24.82	1	40	1	1.811	1	1	1	0	0	0	1	1	1	0	0	0	0	0	0	1	0	0	0
809	2.70	2	75.40	1	75	3	2.217	0	1	1	0	0	64	1	1	0	1	0	0	0	0	0	1	1	1	1
810	3.11	0	80.08	1	43	5	2.549	0	1	1	0	0	62	1	1	1	1	0	0	0	1	0	1	1	1	1
811	0.93	1	76.89	1	93	4	3.472	0	0	1	0	0	64	1	1	0	0	0	0	0	0	0	1	0	0	0
812	2.93	25	53.25	1	42	3	2.692	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0
813	0.91	98	21.54	0	64	2	1.130	1	1	1	0	1	0	1	0	1	0	0	0	0	0	0	1	1	0	0
814	0.96	0	30.44	1	85	2	4.406	0	0	1	0	0	69	1	1	0	0	0	0	0	0	0	1	0	0	1
816	2.64	19	33.30	1	50	4	2.401	1	1	1	0	1	63	1	1	1	0	0	0	0	0	0	1	0	0	0
817	5.19	31	87.65	1	64	6	2.108	1	1	1	0	1	55	1	1	1	1	1	0	1	1	1	1	1	1	1
818	1.54	0	53.31	0	88	5	3.104	0	1	1	0	0	61	1	1	1	0	0	1	1	0	0	1	1	0	0