

INEQUALITY AND INSURGENCY:
A STATISTICAL STUDY OF SOUTH VIETNAM

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Tocqueville referred to the behavior of the French peasantry during the Revolution as a wonder of history. The centers of revolution, he noted, were the very districts in which social reform and progress had been most visible, whereas resistance to the revolution sprang up in areas where the old order had been most completely retained. "It might therefore be said that the French found their position insupportable just where it had become better."¹ Yet if we are to judge from the frequency of like historical events, his observation should have come as no surprise.² Indeed, it has been suggested that such behavior is more than unexceptional, it is normal and expected:

"There is some indication that by the twentieth century one can risk the generalization: the more prosperous the peasants, the more discontented."³

Actually, Tocqueville was well aware of the blandness of his finding. His expression of surprise and wonderment was a concession to the prevailing view. It was probably believed in his time, and is

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¹Alexis de Tocqueville, L'Ancien Régime, translated by M. W. Patterson, Oxford, 1947, pp. 185-186.

²The pervasiveness of medieval rebellions conducted by better-to-do peasants is alone sufficient to destroy the novelty of Tocqueville's finding. See G. G. Coulton, Medieval Village, Manor and Monastery, New York, 1960, especially chapters 11, 24, 25.

³Crane Brinton, The Anatomy of Revolution, New York, 1965, p. 60.

certainly widely held now, that economic privation and inequality are principal causes of internal conflict and political instability. Peasants rebel because they have less than others, and the less they have the more likely they are to rebel. It is perhaps no exaggeration to say that this assumption forms an important part of the implicit theoretical foundation upon which United States policy toward the underdeveloped world is constructed.¹ There is no doubt, moreover, that this prevailing position has some evidential support. In fact, recent cross-national studies reveal significant positive correlations between measures of internal group violence and political instability, on the one hand, and the inequality of land tenure and lack of "modernity" (an index including literacy, urbanization, GNP per capita, and so forth), on the other.²

Thus, there would appear to be two contrary theories of rebellion, each with some basis in fact: in one, peasants revolt when they are poor; in the other, when they are better off. Determining which of these opposing views is correct, or more properly, under what circumstances each is correct, is not within the scope of this paper. Instead, we will concentrate on their application to one particular and vital situation--Vietnam.

That one of these theories is being applied in Vietnam to the exclusion of the other is indisputable. The attention given by the Allies to economic development and reform in the midst of a major war is unprecedented. Secretary McNamara's dictum, "Security means development...without development there can be no security,"³ seems to be

¹An explicit statement of this position is given in Secretary of Defense Robert McNamara's address before the American Society of Newspaper Editors in Montreal, published in the New York Times, May 19, 1966.

²Bruce M. Russett, "Inequality and Instability: The Relation of Land Tenure to Politics," World Politics, Vol. XVI, April 1964, pp. 442-454; I. K. and R. L. Feierabend, "Aggressive Behaviors Within Politics, 1948-1962: A Cross-National Study," Journal of Conflict Resolution, September 1966, pp. 249-271. The latter study suggests (pp. 256-257), but does not find, that the most traditional and least developed nations may be significantly more stable than the transitional or developing nations.

³McNamara, op. cit.

the order of the day. The success of the Viet Cong is attributed to their ability to attract the poorer landless peasants, presumably from areas of high tenancy and unequal distribution of land. According to this view, the great appeal of the VC rests on their promise of land to the tiller.¹ If this view is correct, we should expect to find that the VC have been most successful, other things being equal, in provinces where few peasants own their own land, the distribution of landholdings is unequal, and land redistribution has not been carried out.

A statistical analysis of factors affecting government control in South Vietnam reveals, however, that these are precisely the areas of greatest security.² The observed relationship is between greater inequality and greater government control--not the reverse. Whether measured in terms of ownership of land, sizes of farms, or lack of redistribution of large estates, inequality of land tenure seems to contribute to greater security.

In terms of human behavior, how is one to explain these findings? Part of the explanation may lie in the frequently mentioned docility and low aspirations of poorer peasants. Evidence of this is found throughout history and contemporarily in the underdeveloped world.³ Another part may lie in the enhanced power of the landlord in "feudal" areas. The relationship between landlord and tenant is not merely economic; it is social and political as well. The landlord can

¹This point of view is attributed to Ambassador Lodge by Richard Critchfield in a Washington Star article entered approvingly into the Congressional Record, February 17, 1966 by Senator Jacob Javits. It is also affirmed by George Mc T. Kahin in a Memorandum published in the Congressional Record, April 13, 1967.

²This study is based upon the author's Land Tenure and Rebellion: A Statistical Analysis of Factors Affecting Government Control in South Vietnam, RM-5181 (Abridged), The RAND Corporation, Santa Monica, June 1967.

³Some recent observations on peasants in India may be found in F. G. Bailey, Politics and Social Change--Orissa in 1959, Berkeley, 1963, p. 88; and Kusum Nair, Blossoms in the Dust, London, 1961, pp. 192-193. A more extensive discussion of this matter and others relating to the interpretation of the statistical results can be found in Mitchell, op. cit., pp. 22-30.

exercise considerable authority over his tenants. In return for favors that he is able to provide, such as security of tenure and provision of credit, he may obtain service in the government forces, intelligence regarding rebel activities, and so forth. We should also expect to find poor peasants supporting the existing order merely from the habit of obeying their superiors. During the English Civil War a leading Puritan apologist depicted the authoritarian relationship between lord and peasant, and the consequent divisions of society:

A very great part of the knights and gentlemen of England...adhered to the King.... And most of the tenants of these gentlemen, and also most of the poorest of the people, whom the others called the rabble, did follow the gentry and were for the King.¹

Freeholders and tradesmen are the strength of religion and civility in the land; and gentlemen and beggars and servile tenants are the strength of iniquity.²

An interpretation of the Vietnamese experience along these lines does not seem to be implausible or inconsistent with the facts. There are, of course, alternative views and certainly a careful study on the scene would be required to decide upon the proper interpretation.

The main thesis of this paper is that inequality of land distribution in Vietnam is positively associated with government control.

METHOD

The degree of security or government control within South Vietnam varies considerably from province to province. The question we are concerned with is: How do we account for this variation in control? Why does one province have relatively more secure hamlets than another? To answer these questions we need some kind of model or framework upon which to base a statistical analysis.

¹Richard Baxter, Autobiography, Everyman edition, p. 34, cited in Christopher Hill, The English Revolution 1640, London, 1959, p. 13.

²Reliquiae Baxterianae, I, p. 89, cited in ibid., p. 13.

We conceive of GVN control as depending upon a small number of important factors and a large number of minor influences. The latter, since they are of negligible individual importance and are difficult to measure, are considered here collectively and regarded as merely introducing a random error into the relationship between control and the important factors.¹ Formally, we are working with an equation relating a control variable to a number of explanatory variables and a random variable. For simplicity the equation is assumed to be linear; that is, it may be written in the form:

$$C = b_0 + b_1X_1 + b_2X_2 + \dots + b_nX_n + e, \quad (1)$$

where C, control, depends upon n explanatory variables, X_1 through X_n , and e represents the random error. The effect upon control of any particular variable, say X_1 , is measured by its coefficient, in this case b_1 . When X_1 changes by one unit, C will change by b_1 units (rising or falling depending on the sign of b_1), if all other variables are held constant. Thus, differences in the value of C among provinces are attributable to differences in the values of the X's among provinces (and of lesser interest, in the values of e).

Because there is a random error involved in Eq. (1) inferences about the equation are statistical or probabilistic in nature. The purpose of the statistical analysis that follows is to estimate the true values of the b's and test hypotheses about them for the set of potentially interesting variables. The test of greatest importance is whether a particular coefficient is significantly different from zero; for if it is not, we may assume that it is in fact zero and may remove the corresponding variable from the equation. If a test indicates that a coefficient is unlikely to be zero, we are led to include the corresponding variable in the equation and examine the direction and magnitude of its effect upon control. Efficient statistical methods are available for both estimation and hypothesis testing--linear multiple regression and the well-known t-test, respectively.

¹This is standard practice in econometric work. See, for example, E. Malinvaud, Statistical Methods of Econometrics, Chicago, 1966, pp. 55-56. Numerous works describe and analyze the model to be presented here, but Malinvaud's treatment is among the most complete.

Both methods, especially the former, are based upon fairly weak assumptions and are not highly sensitive to deviations from these assumptions.¹

Several points should be stressed in any application of these methods. First, since estimation and hypothesis-testing with regard to a particular variable depend upon the set of variables included in the equation, the absence of especially important variables can be critical. This may occur if some important variables are measured poorly, or cannot be measured at all. Second, if we are to interpret the coefficients as measuring the effect of the X's on C, then the X's must themselves be determined independently of C. When this is the case, the X's are referred to as exogenous or independent variables. Third, we must emphasize again that a coefficient measures the effect of a particular X with all other variables unchanged. Thus, there is a ceteris paribus condition built into the analysis. If one wishes to know the effect of changing several variables simultaneously, one has only to add their separate effects. This latter property is a consequence of the linearity of the model.

DEFINITIONS

The total number of variables considered in this study is rather large and so a detailed discussion can be given only for those variables that turned out to be important. These include measures of control, the inequality of land distribution, changes in this inequality, mobility, and population density. Other variables will be discussed briefly.

Each year since 1963 the Los Angeles Times has published detailed maps showing the extent of GVN and VC control in South Vietnam. These maps are, according to the Times, based upon maps obtained from (unspecified) United States Government sources. The Times was kind enough to provide the author with reproduction proofs of the published maps. From the 1965 map² the author classified each village as either

¹Malinvaud, op. cit., pp. 172-195, 250-273.

²The Los Angeles Times, December 26, 1965, Opinion Section, p. 1.

GVN controlled, VC controlled, or contested. Assuming all hamlets in a village have the same status as the village, the percentage of hamlets under GVN control was calculated for each province.

This admittedly crude procedure is subject to several types of error. Even if the original U.S. government maps are accurate, the author's estimates will contain some degree of random error. The original maps were, however, probably subject to a considerable degree of error. To the extent that these errors are also random, this merely blurs any existing relationships with other variables. To the extent that there is a systematic overstatement of area under control there will be no effect on the estimated direction (positive or negative) of the relationship between control and other variables. The only serious bias to be concerned about is the possibility of measurement error being systematically related to the exogenous variables. There are, to our knowledge, no strong reasons to believe that such a situation obtains

Two measures of the inequality of land distribution are the coefficient of variation of the distribution of land holdings by size, and the percentage of land that is owner-operated. The coefficient of variation is the standard deviation of the distribution divided by the mean. In the case in which all land holdings are of equal size the measure is zero, that is, there is no inequality. If land holdings exist in very different sizes, the measure is large and is particularly sensitive to very large land holdings.¹ The percentage of owner-operated land reflects the extent that individual peasants work their own land, and is inversely related to the degree of tenancy. If all peasants worked the land of large landowners the measure would be zero (assuming that large landowners do not work any land), whereas if each peasant works only land that he owns the measure is 100.

¹A land holding is merely a farm -- ownership is not necessarily implied. Thus, one variable measures only inequality in ownership whereas the other also reflects inequality in the sizes of tenant holdings. Alternative measures of inequality were considered but were found to be less significant statistically and to provide no additional explanation of control.

Data in the Report on the Agricultural Census of Vietnam, 1960-61¹ enable us to calculate such numbers for each of 27 provinces. The remaining provinces of Vietnam are primarily in the highlands where there is little privately owned land, the native Montagnards practicing shifting agriculture.

If we are to interpret land tenure as affecting control, rather than vice-versa, the land tenure variables must be truly exogenous. This means that control must in no significant way affect the distribution of land as measured by our statistics. Changes in the distribution of land after the Agricultural Census of September 1960 present no problems. These changes might be due in part to VC land redistribution in VC controlled areas. Our concern is not with the characteristics of an area after VC control but before it. The de facto distribution of land after 1960 is not relevant for the purposes of the statistical analysis (although it is certainly important from many other points of view).

The appropriate question is, how much of a role did the VC, and earlier the Viet Minh, play in the determination of the data in the 1960 Census? Is the pattern of inequality observed in 1960 due in large part to the pre-1960 operations of these forces? The timing and manner in which the Census was carried out shed some light on these questions. First, the Census was taken in September 1960, a time when VC influence was much less than it is now. Second, about 21 percent of the hamlets originally included in the sample were inaccessible because of security conditions.² These hamlets were replaced by hamlets from a supplementary list which presumably were accessible. It is thus likely that the data collected reflects predominantly GVN controlled areas. Third, if a situation arose in which a peasant claimed land that had been redistributed by the VC and at the same time the land was claimed legally by some wealthy

¹Agricultural Economics and Statistics, Department of Rural Affairs, Republic of Vietnam. Strictly speaking this was not a census but rather a sample of about 10 percent of the hamlets.

²Agricultural Census, p. 17-18.

landlord, it is doubtful that the census takers (GVN employees) would have recorded the land as being owned by the peasant. For these reasons it seems improbable that the inequality variables we have computed reflect substantial VC or Viet Minh redistribution.

There are some additional data relevant to this question. Gittinger, comparing some 1934 data quoted by Peautonnier with 1957 data collected for the purposes of the Diem land reform program, notes a general tendency toward greater concentration.¹ He cites only two provinces, Cholon and Rach Gia, both of which were characterized by large landholders (over 100 hectares) acquiring an additional 10 percent of the total riceland between 1934 and 1957. The Viet Minh exercised a fair degree of influence in Rach Gia; Cholon was controlled by the French.

We have also made some casual comparisons of the percentage of land owned by large landowners in 1929 and that given in the 1957 figures. The 1929 Census is summarized in Yves Henry's Economic Agricole de L'Indochine.² Unfortunately, the provinces of 1929 are not comparable in most cases with those of 1957, nor are the measurements of land owned by large landowners comparable. Nevertheless, a crude comparison reveals no obvious tendency for Viet Minh controlled areas³ to decline in concentration, or increase to a lesser degree in concentration, than French controlled areas.

Two additional measures of land tenure arrangements arise in attempting to measure the extent of land redistribution. Unfortunately, no data are available on the amount of land actually redistributed in each province under the land reform program (Ordinance 57). It was originally intended that all land in excess of 100 hectares

¹J. Price Gittinger, Studies in Land Tenure in Vietnam, Division of Agriculture and Natural Resources, U.S. Operations Mission to Vietnam, December 1959, pp. 59-60; G. Peautonnier, "Contribution a l'etude des conditions de l'exploitation de la riziere en Cochinchine," L'Information d'Indochine Economique et Financiere, December 1946.

²Hanoi, 1932.

³The areas of Viet Minh control were determined from a map facing page 200 of Vo Nguyen Giap's People's War People's Army, U.S. Government Printing Office, 1962.

owned by any individual would be sold to the government, which in turn would sell it to its cultivators on reasonably favorable terms.¹ For each stage in the redistribution process there is a potential set of numbers: first, there is the total amount subject to transfer; secondly, there is the part of this actually expropriated by the GVN; and thirdly, there is the part of the expropriated land actually redistributed to the cultivators. We do have data on the amount of land subject to transfer in each province.² We also know that little of this land actually escaped expropriation.³ The first set of numbers should therefore be highly correlated with the second.

The transition from the second to the third set, however, is more difficult. The amount of land actually redistributed is probably between one-third to two-thirds of the amount subject to transfer.⁴ It appears, however, that little or no formerly French-owned land has been redistributed. It was decided instead that this land was to be converted into state farms.⁵ Fortunately, the data on land subject to transfer distinguish between French and Vietnamese land and we can therefore treat them separately in the analysis. Of the Vietnamese-owned land at least half was probably redistributed. In Ba Xuyen a minimum of 45.6 percent of land subject to transfer and

¹The details of this program may be found in many places, among which are: Gittinger, op. cit.; Wolf Ladejinsky, "Agrarian Reform in the Republic of Vietnam" in Problems of Freedom: Vietnam since Independence, W. Fischel (ed.); Robert Scigliano, South Vietnam: Nation Under Stress, Boston, 1963.

²Vietnamese Agricultural Statistics, Division of Agriculture and Natural Resources, United States Operations Mission to Saigon, Saigon, March 1959, p. 47

³See W. Ladejinsky, op. cit. A recent USIS publication, Land Tenure in South Vietnam, indicates that in Ba Xuyen, which contains almost 30 percent of all land subject to transfer, about 84 percent had been expropriated by 1963.

⁴The two-thirds figure is attributed to Diem by Scigliano, op. cit., p. 123. The one-third figure appears in Robert Shaplen's The Lost Revolution, New York, 1963. In personal communications Wolf Ladejinsky has given a one-third and John Donnell a one-half estimate.

⁵From a personal communication with W. Ladejinsky.

51.9 percent of the expropriated land was redistributed.¹ A mimeographed report dated March 1966 suggests that 57.4 percent of the Vietnamese land was redistributed.² The Vietnamese land subject to transfer is thus composed of two main parts: a component that includes expropriated but not redistributed land, and a component including only redistributed land. The French land subject to transfer consists entirely of expropriated land that has not been transferred to the peasants. Any difference in the effects of these two variables should therefore be due at least in part to the impact of redistribution.³

Each of these four measures of land tenure conditions -- the percentage of owner-operated land, the coefficient of variation of the distribution of holdings, and the percentages of both French and Vietnamese land subject to transfer -- reflects a certain type of equality or inequality. When most peasants are landless and work the lands of others, the owner-operated land variable reflects this inequality. It is quite possible, however, that each of the landless peasants leases a farm of approximately equal size and this contributes toward equality of the distribution of holdings as reflected by the coefficient of variation. There is nothing improper in this. Each measure takes account of a certain type of inequality and it is possible within certain limits for land tenure arrangements in a province to be equal in one dimension but not in another. Similarly, the same high degree of tenancy is consistent with a moderate number of fairly large landowners and a small number of very large landowners. In the past the latter case would have been reflected in the presence of large Vietnamese and French estates. Since the expropriation of these estates

¹USIS, op. cit.

²John L. Cooper, Land Reform in the Republic of Vietnam, Agency for International Development, March 1966 (mimeo), p. 3.

³There are presumably ways in which these large Vietnamese and French estates differ other than the degree of redistribution carried out. However, a study of the limited historical literature on their development reveals no other important aspect in which they differ that might have some subsequent effect on control. But this could be due to the paucity of information rather than the absence of important differences. For the earlier history see D. G. E. Hall, A History of

by the government, the French land subject to transfer now reflects the presence of a single owner, the Government of Vietnam. The Vietnamese land subject to transfer now indicates in part a reduction in inequality through the break-up of large estates. Although there are certain limits to the independence of these measures,¹ a fairly wide variety of conditions is possible. In fact, the various dimensions of inequality are not very highly correlated across the provinces of South Vietnam. Needless to add, the effect on control of each type of inequality may also be quite different.

In order to measure the average degree of accessibility within a province, variables were constructed that measured road density, ruggedness of terrain, and degree of cross-country mobility. Road density was measured by the miles of road per square miles of province. Several alternative classifications of roads were tried (all-weather, dry-weather, narrow, wide). Ruggedness of terrain was measured by the percentage of area of the province that fell into the categories mountainous, hilly, or flat. Cross-country mobility, the ease with which troops and troop-carrying vehicles can move across land, was measured by the percentage of area of a province characterized by swamps and marshes, forests, and so forth. Of all these variables only one showed significant explanatory power. This is the measure of cross-country mobility defined by the percentage of land area that is composed of plains and hills without dense forest. This excludes land containing swamps, marshes, paddy fields, dense forests, and mountains. When referring henceforth to "mobility" it is this measure that we have in mind.

Our final significant variable, population density, is merely population per square kilometer as given in the 1964 Annual Statistical

South-East Asia, New York, 1955, pp. 654-656; J. Buttinger, The Smaller Dragon: A Political History of Vietnam, New York, 1958, pp. 431-432; R. W. Lindholm, "An Economic Development Oriented Land Reform Program for Vietnam," in W. Froelich (ed.), Land Tenure, Industrialization and Social Stability: Experience and Prospects in Asia, Milwaukee, 1961, pp. 183-186; C. Robequain, The Economic Development of French Indo-China, London, 1944, pp. 83-85, 181-194.

¹One could not have, for example, a province with 70 percent government-owned land and 50 percent owner-operated land.

Bulletin of the United States Operations Mission to Vietnam.¹ The populations of Saigon, Danang, and Hue were excluded from these statistics.

Among the variables found to be statistically unimportant are rice production per capita and ethnic composition. Rice production per capita (1964-65) and ethnic composition, which refers to the percentage of population who are Montagnards, were obtained from the U.S.O.M. Statistical Bulletin.²

"Dummy" variables representing the existence of different regions within South Vietnam -- Mekong delta, central lowlands, and so forth -- were also found to be insignificant.

Table 1 gives the observed values of each significant variable for 26 provinces.

FINDINGS

When multiple regression is applied to the variables just defined and insignificant variables³ are removed the following regression equation is obtained:

$$\begin{aligned} C = & 6.47 - .36 OOL + 28.3 CV - 1.36 VL \\ & (.46) \quad (-2.35) \quad (4.81) \quad (-4.13) \\ & + .89 FL - .37 M + .09 PD, \\ & (2.50) \quad (-3.09) \quad (3.38) \end{aligned} \tag{2}$$
$$R^2 = .68,$$

¹P. 4.

²Pp. 81 and 3, respectively.

³A variable is called significant here if its coefficient has a t-statistic of 2.1 or larger; otherwise, it is insignificant. The level of significance of a t-statistic is the probability that a value of t so large (in absolute size) could have been obtained by chance when in fact the coefficient of the particular variable is zero. A t-value of 2.1 indicates significance at the 5 percent level; that is, in only one case in twenty would one find a coefficient so large when the true coefficient is zero. Higher t-values imply greater significance. For example, if t is 2.8, the level of significance is 1 percent and when t is 3.9 the level of significance is one-tenth of 1 percent. These statements are of course dependent upon the approximate validity of certain assumptions about the random errors. See Malinvaud, op. cit., pp. 172-208, 250-263.

Table 1
GVN CONTROL, LAND TENURE, MOBILITY, AND POPULATION
DENSITY DATA FOR 26 VIETNAMESE PROVINCES

No.	Province ^a	GVN Control (1965) Based on Los Angeles Times Map (in percent)	Owner-operated Land (as a percent of all land)	Coefficient Variation of the Distribution of Land Holdings By Size	Vietnamese Land Subject to transfer (as a percent of all land)	French Land Subject to transfer (as a percent of all land)	Area of Mobility (in percent)	Population Density (per square kilometer)
1	An Giang	75	31	1.80	15.6	11.4	0	214
2	An Xuyen	27	54	1.30	18.8	18.0	15	38
3	Ba Xuyen	24	24	1.85	36.6	25.2	45	118
4	Bien Hoa	31	36	1.75	4.9	2.3	0	116
5	Binh Dinh	9	66	1.05	0.0	0.0	10	84
6	Binh Duong	18	63	1.72	0.3	1.1	25	146
7	Binh Thuan	32	54	1.79	2.2	2.9	85	57
8	Dinh Tuong	31	28	1.30	12.6	4.7	60	423
9	Khanh Hoa	43	39	1.62	0.0	0.3	20	46
10	Kien Giang	22	37	1.85	29.7	26.3	0	66
11	Kien Hoa	24	49	1.02	6.8	1.7	10	257
12	Kien Phong	42	36	1.94	20.6	15.0	50	105
13	Kien Tuong	45	52	1.40	13.4	33.9	10	17
14	Long An	32	42	1.31	9.1	1.8	0	274
15	Long Khan	25	6	1.50	0.0	0.0	15	41
16	Ninh Thuan	76	40	2.42	0.0	23.3	0	39
17	Phong Dinh	28	20	1.29	44.8	28.9	0	244
18	Phuoc Tuy	52	44	2.46	1.2	1.2	50	67
19	Phu Yen	13	72	1.29	0.0	1.8	40	62
20	Quang Nam	18	60	.96	0.0	0.0	25	88
21	Quang Ngai	18	77	.90	0.0	0.0	0	88
22	Quang Tri	12	36	.98	0.0	0.0	15	57
23	Tay Ninh	22	58	1.88	4.5	0.4	0	58
24	Thua Thien	33	27	1.49	17.8	4.2	15	91
25	Vinh Binh	19	30	1.25	13.4	4.2	0	183
26	Vinh Long	64	32	1.46	13.4	4.2	0	290

Note:

^aGia Dinh, the rather small province that surrounds Saigon, was excluded from the table on the grounds that it is a unique situation being dominated by the center of government. Provinces included in the table correspond to the 1960 province boundaries and with the exception of population density measurements of all variables correspond to these boundaries. The population density figures are based on 1964 figures and correspond to 1964 provinces. It is doubtful, however, that the appropriate figures differ sufficiently from those employed to significantly affect the use of this variable.

where:

- C is the percentage of secure hamlets as calculated from Los Angeles Times Map (1965)
- OOL is the percentage of all land that is owner-operated
- CV is the coefficient of variation of the distribution of land holdings by size
- VL is the percentage of land subject to transfer that was formerly Vietnamese owned
- FL is the percentage of land subject to transfer that was formerly French owned
- PD is population density
- M is the percentage of area of good mobility
- \bar{R}^2 is the coefficient of determination adjusted for degrees of freedom (an estimate of the proportion of the variance of control explained by the independent variables)¹

The value in parentheses under each coefficient is the corresponding t-statistic.

If our interpretations of what the land tenure variables measure are correct then the information contained in their coefficients can be easily summarized: greater inequality means greater control. Moving across provinces and holding other variables constant, we find that as the percentage of owner-operated land rises, control decreases; as the coefficient of variation increases, control increases. An increase in Vietnamese land subject to transfer implies less control, whereas an increase in French land subject to transfer implies more control.² If it is primarily redistribution that distinguishes the two types of land, then it is quite possible that redistribution has

¹The regression also has the property that it has the highest \bar{R}^2 of any regression examined. It can be shown that a correctly specified regression has a higher \bar{R}^2 on the average than any other regression. Thus, the regression equation (2) is more likely to be the "true" relationship than any of the alternatives. See H. Theil, Economic Forecasts and Policy, Amsterdam, 1961, pp. 211-214.

²This is supported by a statement in the Cooper report that "a larger proportion of the former French holdings are in the secure areas than Ordinance No. 57 lands [Vietnamese lands subject to transfer] or state owned lands." Cooper, op. cit., p. 6.

had a negative impact on control. At the least the view that redistribution has had a positive effect is sharply contradicted.¹

To illustrate these results we have presented scatter diagrams illustrating the partial relationship between control and each of the land tenure variables. These diagrams were constructed by assuming that the regression equation (2) was the "true" relationship and then holding all explanatory variables at their mean values, except for the particular explanatory variable under consideration. Thus, Fig. 1 shows the actual values of the percentage of owner-operated land plotted against the values of control that would have been observed if all other explanatory variables had been constant at their mean values.² (The numbers adjacent to the points refer to the provinces given in Table 1.) The slopes of the lines in these diagrams are equal to the coefficient of the explanatory variables and the extent to which points cluster around this line is a reflection of the t-value.

The large positive deviations of An Giang (1) and Vinh Long (26) may be due at least in part to the influence of religion, a factor that we have been unable to measure in our study. An Giang is a Hoa-Hao stronghold, as is the northwestern part of Vinh Long. The Hoa-Hao are known to be a militantly anti-Communist sect. To determine whether explicit consideration of religious composition would have seriously affected the statistical results we ran another regression, excluding all provinces with substantial religious minorities (catholics, Hoa-Hao, Cao Dai). The provinces excluded were An Giang, Vinh Long, Tay Ninh, Kien Hoa, Phong Dinh, Vinh Binh, and Kien Giang. We found no important differences between the regression excluding these

¹It should be stressed again that the presence of other factors distinguishing French and Vietnamese land could imply a re-interpretation of this finding. At this time we are not aware of what these factors might be. Due to this uncertainty, however, our interpretation of the coefficients of the French and Vietnamese land variables should not be held with a high degree of confidence.

²That is, in Fig. 1 the control variable, C', is given by $C' = 6.5 - .36 OOL + 28.3 \bar{UV} - 1.36 \bar{VL} + .89 \bar{FL} - .36 \bar{M} + .09 \bar{PD} + e$, where the bars indicate mean values and e is the estimated value of the residual. Figures 2 through 4 were constructed in a similar manner.

[Cont'd]

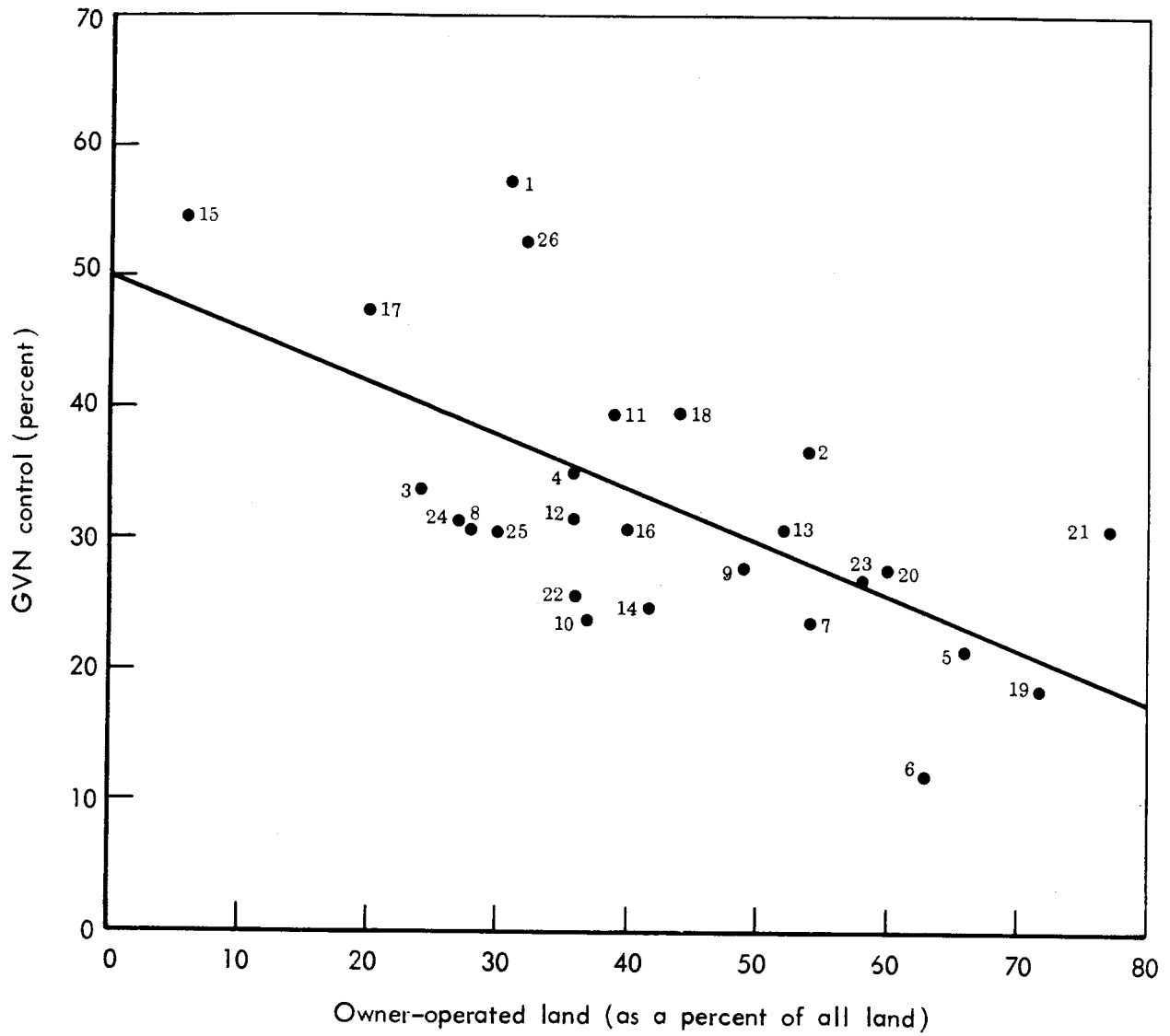


Fig.1—GVN control and owner-operated land (26 provinces)

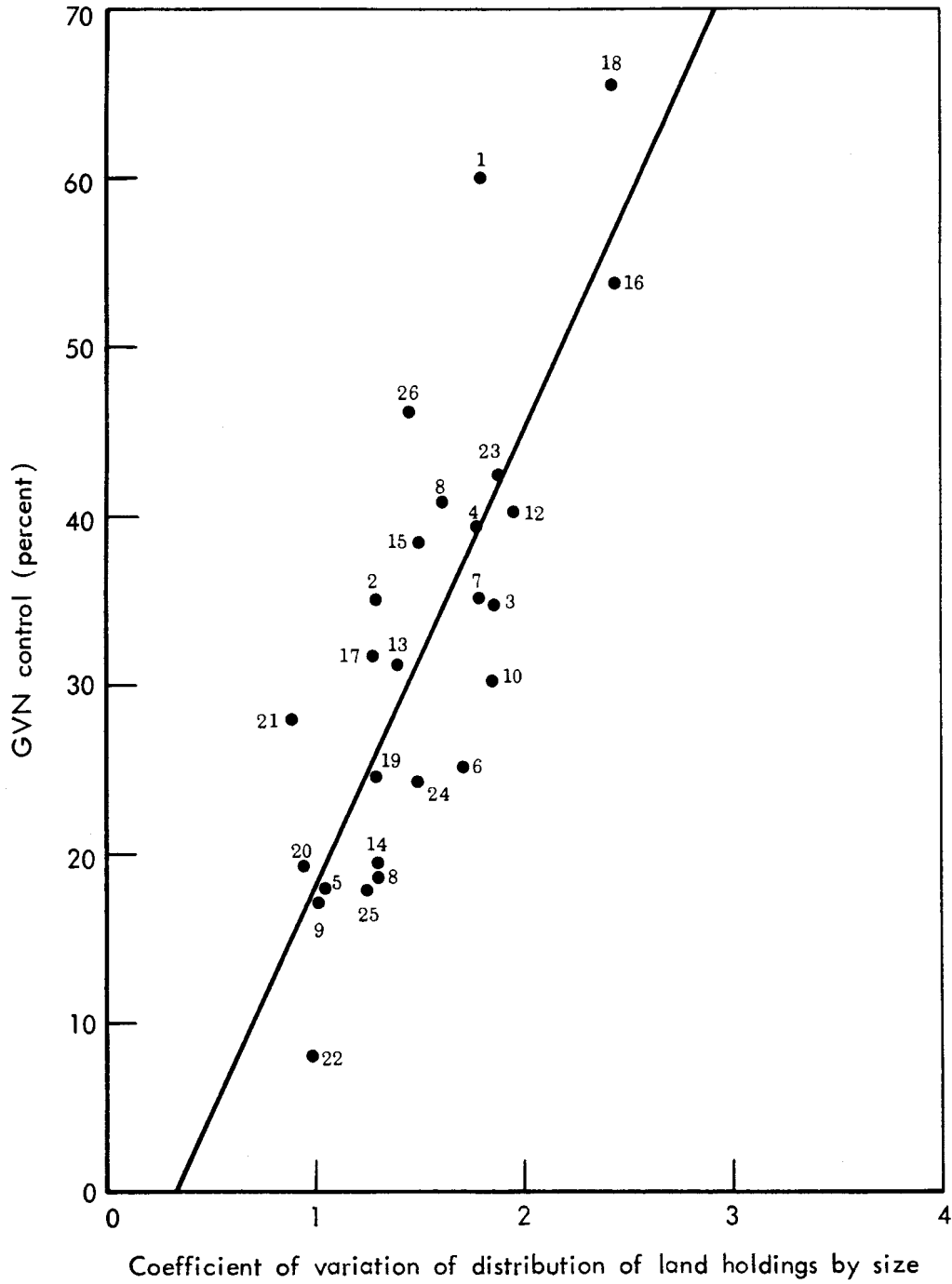


Fig.2—GVN control and the inequality of land distribution (26 provinces)

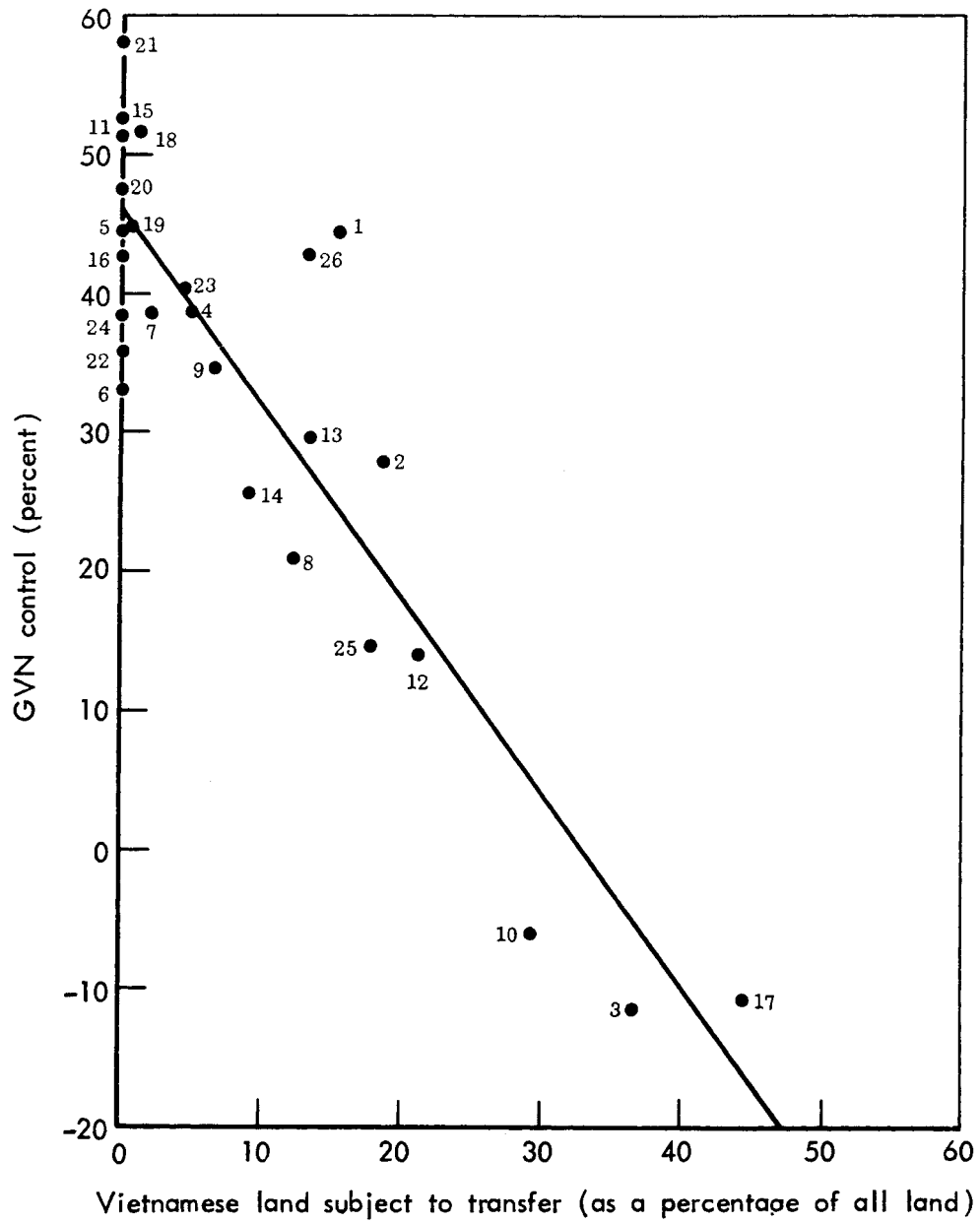


Fig.3—GVN control and Vietnamese land subject to transfer (26 provinces)

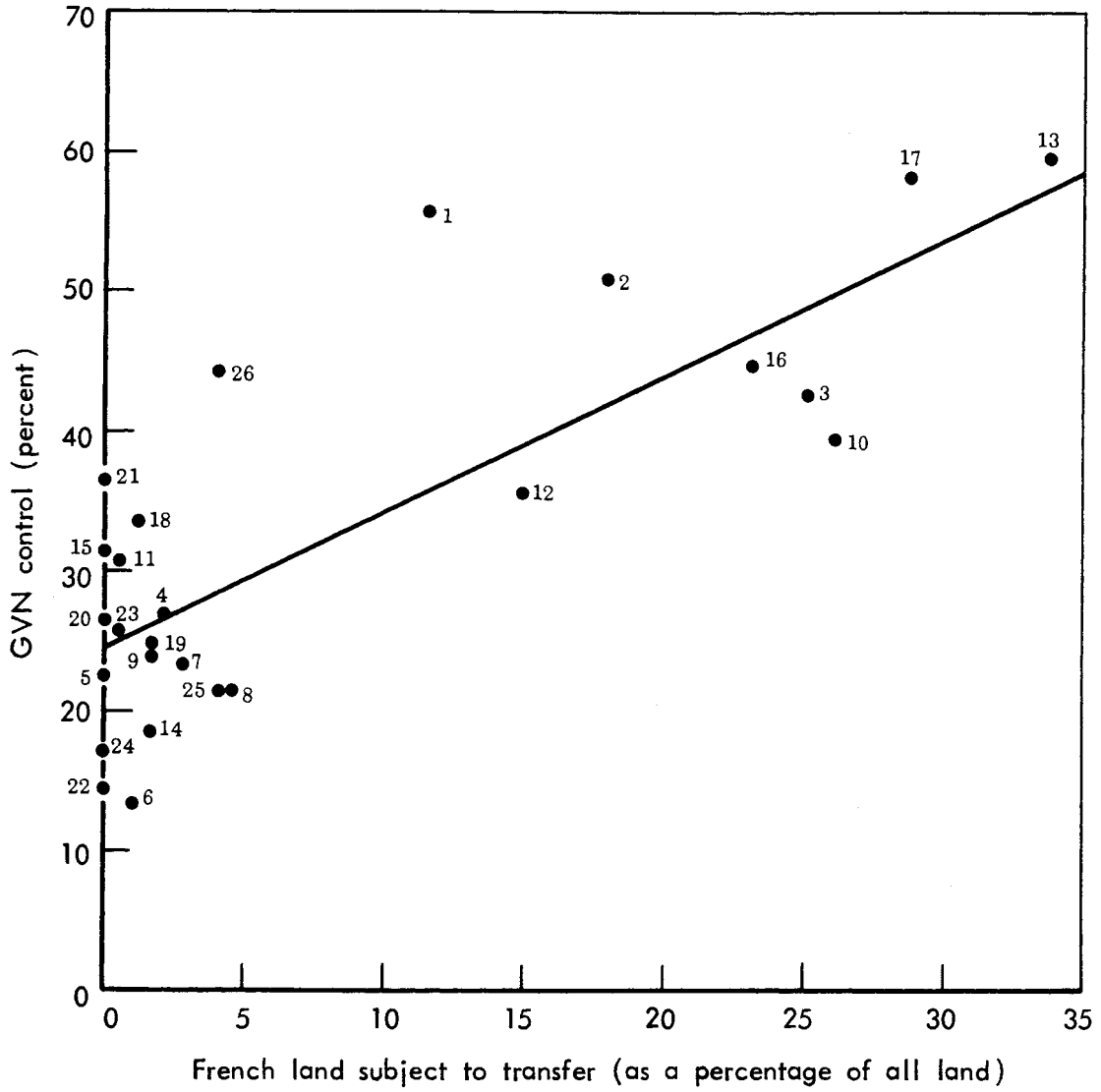


Fig.4—GVN control and French landholdings (26 provinces)

provinces and the one that includes them. Although religion may be a factor determining control it appears unlikely that its exclusion from the analysis distorts the effects of other variables.

The coefficient of population density is positive. It would seem to be easier for a conventional army and police force to protect a more compact population, or a population residing near large towns, than one that is dispersed.

The coefficient of the mobility variable is puzzling. It seems to say that good mobility reduces GVN control. Although other measures of mobility and terrain were not significant, the signs tended to have similar implications. One possible interpretation is that poor mobility reduces external social contacts, preserves the traditional institutions of society, and thus contributes positively to control. Operating against this interpretation is the fact that the cross-country mobility variable does not take into account the possibility of transportation via canals and waterways which are of great importance in the rice-producing areas of the Mekong Delta. Since this argument is of doubtful validity there are grounds for ignoring this variable and regarding its coefficient as a fluke. When mobility is excluded, however, all other results remain essentially the same.

The six independent variables account for 68 percent of the variation in control. The average absolute deviation of predicted control from actual control is 7 percentage points. Most of this explanation is due to the land tenure variables. The four land tenure variables alone would account for approximately 37 percent of the variation in control. Together, mobility and population density explain nothing. One of the interesting statistical features of this study is that for only one exogenous variable, CV, is the simple correlation with

As pointed out above there are limits to the extent to which one can choose arbitrary values for the independent variables. One consequence of this is the negative predicted values of control in Fig. 3. The values of the independent variables that give rise to this phenomenon could almost never have been observed. They imply too high a value of owner-operated land given the land occupied by large French and Vietnamese estates. There is also the possibility of large deviations from linearity of the control equation as one approaches extreme values.

control statistically significant. It is only when the variables are employed jointly, and in particular when the land tenure variables are employed jointly, that we are able to substantially account for interprovincial differences in control. It is therefore likely that simple bivariate approaches to the problem would have been relatively unsuccessful.

CONCLUDING REMARKS

As we suggested at the outset, these findings are hardly novel. Consider, for example, the salient features of the counterrevolutionary areas in the west of France. In comparison with the revolutionary areas we find fewer peasants owning their own land, a higher degree of absenteeism among landlords, greater ownership of land by the nobility, poorer accessibility, and greater religiosity.¹ This corresponds quite closely to the Vietnamese situation, especially if we can take the Hoa-Hao to be more religious than others, and make allowances for the absence of a nobility in Vietnam.

In this and other historical precedents the behavioral interpretation is similar. There exists in the unequal areas a powerful landlord class exercising firm control over a conservative peasantry which has thoroughly rationalized the inevitability of the existing situation. It is not these peasants who revolt, but those who "have gained enough to give them an appetite for more."²

To apply this interpretation to Vietnam is to conjecture, to hypothesize that the divisions of Vietnamese society are similar to those of a number of historical cases, and that these divisions can be explained in similar terms. The principal conclusion of this paper is, however, factual. We have attempted to discover the dominant characteristics of the secure province in South Vietnam, and despite the

¹ Charles Tilly, The Vendee, Cambridge, 1964, passim.

² Coulton, op. cit., p. 130.

sparseness and poor quality of the data we feel that this has to a certain extent been accomplished. From the point of view of government control the ideal province in South Vietnam would be one in which few peasants operate their own land, the distribution of land holdings is unequal, no land redistribution has taken place, large French landholdings existed in the past, population density is high, and the terrain is such that accessibility is poor.

