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RM-5181-ARPA
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LAND TENURE AND REBELLION:
A STATISTICAL ANALYSIS OF FACTORS
AFFECTING GOVERNMENT CONTROL
IN SOUTH VIETNAM

Edward J. Mitchell

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PREFACE

The work reported here is an outgrowth of the author's interest in the economy of the Viet Cong. It became apparent, in pursuing this interest, that no statistical studies had been made of the relative importance of various exogenous socio-economic factors affecting government control in South Vietnam. The author set about to examine these relationships, arriving at the conclusion that variables measuring the inequality of land tenure arrangements provided a powerful explanation of control. Greater inequality implies greater control. This does not mean, however, that a policy of increasing inequality would increase control, or that a policy of reducing inequality would reduce control. Since these results were derived from an essentially static model, one must be cautious in drawing dynamic inferences. The final outcome of a program of land reform could not be determined from this study alone.

The study was made under RAND's program of research for the Advanced Research Projects Agency. It is planned to conduct empirical work on rural areas of South Vietnam to test the effect of the factors heretofore considered statistically, and others that become apparent, in determining degrees of area control and pacification. It is further planned to apply this statistical approach next to the Huk rebellion in the Philippines.

Many useful comments were made to the author during the course of this research by RAND colleagues. A special debt of gratitude is owed to Charles Wolf, Jr., Evsey Domar, and James Schlesinger for their suggestions and encouragement.
SUMMARY

The purpose of this RAND Memorandum is to determine by statistical analysis those factors that explain the substantial variation in the degree of government control in South Vietnam. A number of variables measuring social, economic, topographic, and ethnic factors were employed in the study. It was discovered that variables measuring the inequality of land tenure arrangements dominated in the explanation of control. Population density and a certain measure of mobility were also significant.

An important characteristic of the findings is the manner in which control and inequality are related. It appears that greater control is associated with greater inequality. A secure province in South Vietnam is one in which few peasants operate their own land, the distribution of land holdings is unequal, no land redistribution has been carried out, large French landholdings have existed in the past, population density is high, and cross-country mobility is low.

Some conjectures are offered regarding the interpretation of these findings. Similar relationships between inequality and loyalty to the existing order seem to have held in certain well-known historical cases. It is suggested that the greater power of landlords and relative docility of peasants in unequal areas may account for this situation.

An alternative hypothesis explaining the statistical results is subjected to examination. It is argued that landlords, through their greater influence with the central government, are able to obtain a larger share of national military resources and therefore to exercise greater control. In its elementary form this hypothesis is tested empirically and rejected. Local factors appear instead to be more important in explaining the relationship between inequality and control.
NOTE ON CLASSIFICATION

This Memorandum is classified CONFIDENTIAL to protect source data on provincial distribution of forces in July 1964 and on Government of Vietnam control in December 1964. The control data were obtained from the MACV-USOM-USIS Provincial Team Report for December 1964, classified CONFIDENTIAL. Pages on which these data appear, or on which text exclusively dependent upon these data appear, are classified CONFIDENTIAL.

It should be noted that control data corresponding closely to data in the Provincial Team Report are available in the open literature (see footnote, page 6). The MACV data, although classified, were used as the preferred primary source on point of authenticity.

This note on classification is included in compliance with provision of the Industrial Security Manual for Safeguarding Classified Information (DoD 5220.22-M), 1 July 1966, Section II, Paragraph 11.
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I. INTRODUCTION

One of the principal objectives of the Government of South Vietnam (GVN) is pacification of the countryside. To date the success of pacification efforts, and hence the extent of government control, has been rather limited and has varied greatly from one province to another. The question that we are concerned with in this Memorandum is: How do we account for this variation in pacification or control? Why does one province contain relatively more secure hamlets than another? Our purpose is to explain these differences in GVN control by statistical analysis and thereby determine the characteristics of a secure province.

As its title suggests, this study focuses to a large degree on land tenure as a determinant of control. This was not the original intention -- it is instead a consequence of the statistical findings. Initially, we considered a fairly large and heterogeneous set of factors that might possibly have some impact on control. A substantial body of data measuring social, economic, ethnic, and topographic aspects of each province was gathered, analyzed, and compared with statistics on GVN control. It soon became apparent that a certain class of variables was dominant in explaining control. Variables measuring inequality of land tenure displayed considerable explanatory power, whereas other variables played a secondary role. Thus, what was conceived as a broader study of the determinants of GVN control became, in effect, a study of the relationship of inequality and insurgency.

Perhaps more significant than the explanatory power of land tenure is the direction of the relationship between inequality and control. From the popular literature and implicitly from United States and GVN policy statements one would get the impression that Viet Cong success is due in large part to their ability to attract poorer, primarily landless peasants. By this view the great appeal the VC possess is the promise of land to the tiller. It seems natural to expect poorer

\[1\] This 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.
peasants to be more land-hungry and therefore more sympathetic to the VC cause. It also follows that programs of land reform designed to improve the condition of these peasants will undercut this VC appeal and enhance GVN influence.\footnote{That South Vietnamese governments have not necessarily subscribed to this view is evidenced by the (at first) considerable resistance and later sluggish implementation of programs of land reform. Apparently, substantial pressures applied by the United States were necessary to induce Diem to carry out such a program. See the discussion given in Robert Scigliano's \textit{South Vietnam: Nation Under Stress}, Boston, 1963, pp. 121-124. A recent pronouncement on reform is contained in the \textit{Declaration of Honolulu}, \textit{Congressional Quarterly}, February 11, 1966, pp. 370-380.} We should expect to observe then, \textit{ceteris paribus}, that the VC have been most successful in areas of greater inequality where few peasants own their own land and where land reform has been ignored. Instead we find that these are the areas of greatest GVN control. The observed relationship is between greater inequality and greater GVN control -- not the reverse.

The task of estimating the relative importance and impact of factors explaining control is not straightforward. We therefore begin with a discussion of methodology, determining precisely what one can hope to estimate under conditions of limited \textit{a priori} knowledge of the subject at hand. Having established what can be done, we define the variables employed in the study and, following this, proceed to the quantitative analysis of the relationship between control and its determining factors. The Memorandum concludes with some conjectures on the interpretation of this relationship.
II. QUANTITATIVE ANALYSIS

METHODOLOGY

Ideally, we would like to estimate the direct impact of each of the factors determining control. Unless liberal assumptions are made regarding how control is determined this cannot be done. To understand why this is so and why we must settle for something less, consider an oversimplified (and probably incorrect) control model. Suppose that the only major factor affecting control is GVN force strength (somehow defined). Formally we may write an equation:

\[ C = G(F,e), \]  

where \( C \) is control, \( F \) is force strength, and \( e \) represents minor random factors. The parameters of this equation would show what effect a rise or fall in \( F \) would have on \( C \).

Now assume that the principal factor determining the allocation of forces is the degree of control. For example, if a province has almost complete control few forces might be sent there, if it has moderate control a certain number would be sent, and so forth. We can then write an equation that determines the allocation of forces:

\[ F = H(C,u), \]  

where \( u \) represents other minor random factors.

If a scatter diagram were to be constructed with \( F \) on one axis and \( C \) on the other, what would the pattern of points represent -- (1), or (2)? The answer is that it could represent any combination of the two equations, depending upon the properties of the random factors. Equations (1) and (2) are said to be unidentified.\(^1\) Nor can any amount of data on \( C \) and \( F \) cause them to be identified. The problem

\(^1\) An elementary discussion of the identification problem is given in Lawrence R. Klein's An Introduction to Econometrics, Englewood Cliffs, 1962, pp. 10-18.
is theoretical -- not empirical. There are two relations so similar to one another that they cannot be distinguished.

When more variables and equations are added, the identification problem becomes more complex. Generally, this problem is solved in economics by recourse to a priori or theoretical information about the equations. For example, in the context of our study, we may know that a particular variable affects control directly, but has no direct effect on force strength. Sufficient information of this kind would enable us to distinguish a "determination of control" equation [like (1)] from an "allocation of forces" equation [like (2)], and from other equations in the model. Unfortunately, this kind of information is rare in the type of study we are undertaking. An examination of the list of variables used in this study will show that it is generally hard to say a priori whether that variable will affect control, or force strength, or neither. Indeed, the statistical results obtained in the study, being for the most part unanticipated, only underscore our ignorance in this area.

Although the situation appears unpromising for estimating a "determination of control" equation, there is an equation that is relevant to this study and that can be estimated. This is a so-called "reduced form" equation. To understand what this equation represents we must first distinguish between two kinds of variables in a control model. The first kind of variable is one that affects control, directly or indirectly (that is, by affecting variables that in turn affect control), and is affected by control, directly or indirectly. Force strength would be an example of such a variable. These variables are called endogenous variables. The second kind of variable is one that, again directly or indirectly, affects control, but is unaffected by control. Examples might be ruggedness of terrain and ethnic composition. These variables are called exogenous variables.

Suppose we have a control model with p variables in all, p-k of which are endogenous (this includes control itself), and k of which are exogenous. In general we may assume that there are p-k equations
relating these variables, just sufficient to determine the value of
the endogenous variables given the values of exogenous variables.
The values of the latter are determined outside the model. We can
then solve for each of the endogenous variables in terms of all the
exogenous variables. Thus, control can be written as a function of
only exogenous variables, and so can force strength. Now these
equations are identified. Each equation contains one endogenous
variable that no other equation contains. They are therefore
distinguishable.

An important aspect of this reduced form equation is that we can-
not derive from it the effect of each exogenous variable on control,
holding all other variables constant -- for we are not holding all
other variables constant, but only other exogenous variables. The
endogenous variables that have been "solved out" to get to the reduced
form are permitted to vary and the measured effect of an exogenous
variable on control includes the effect that this variable may have on
control through the intermediary of an endogenous variable.

A concrete example may help. Suppose it were true that greater
soil fertility resulting in higher per capita income tended to imply
more control by means of the favorable behavior of better-off peasants.
But areas of greater fertility are food surplus areas; as such they
might be more valuable to the GVN than other areas and therefore have
obtained additional troops to assure the export of this surplus to
the cities. We would then have two effects, a direct effect on control,
and an indirect effect through the intermediate endogenous variable,
GVN forces.

The point of this argument is that it is appropriate to estimate
the parameters of an equation relating control to explanatory variables
only if we keep two things in mind: first, the explanatory variables
must be exogenous; and second, the effect of each exogenous variable
must be interpreted as being the sum of direct and indirect effects.
DEFINITIONS OF VARIABLES

Since the number of variables considered is rather large, 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.

The source of data on GVN control is the MACV-USOM-USIS Provincial Team Report for December 1964. This report gives the number of hamlets in a province in each of four categories of control, ranging from pacified to VC controlled. The percentage of hamlets in the first, or most secure, category will be employed as the measure of control. The most significant requirement for a hamlet to be declared in the first category is that the VC infrastructure must have been eliminated. Although this requirement may have been interpreted differently in different provinces, it is only necessary for our purposes that provinces with a high proportion of hamlets in the first category be truly more secure than those with a lower proportion. The absolute figures are not critical. ¹

The choice of percentage of hamlets rather than, say, percentage of population, reflects not only the limitations in the data, but also our concern with measuring control in the countryside. Population controlled would be very much influenced by large towns, most of which are in GVN hands.

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

¹Although these are the primary source data on GVN control, there are numerous alternative sources in the open literature. For example, detailed maps indicating the extent of GVN control have been published in the Los Angeles Times annually since 1963. The use of control figures calculated from the 1965 map (Los Angeles Times, December 26, 1965, Opinion Section, p. 1) yields essentially the same statistical results as those obtained below.
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. Data in the Report on the Agricultural Census of Vietnam, 1960-61\(^2\) 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.

As pointed out above the explanatory 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 would be due in large 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

\(^1\)A 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.

In connection with the measures of land tenure arrangements "land" means that land that is considered in the agricultural census (see below) and is overwhelmingly (92 percent) agricultural land.

Due to the variation in fertility and type of soil, and consequently in the type of agriculture, the coefficient of variation may be affected by considerations that have nothing to do with the distribution of income. The sizes of holdings may vary even when the values are identical. We have partially examined this effect by correlating over provinces measures of the diversification of agriculture with the coefficient of variation of land holdings by size. No relationship between the two is observed.

\(^2\) "Agricultural 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."
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. 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 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. 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 rice land between 1934 and 1957. The Viet Minh exercised a fair degree of influence in Rach Gia; Cholon was controlled by the French.

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1 Agricultural Census, p. 17-18.
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*. 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 areas 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 owned by an individual would be sold to the government, which in turn would sell it to its cultivators on reasonably favorable terms. 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. We also know that little

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1 Hanoi, 1932.
2 The 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.
3 The 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.); R. Scigliano, *op. cit.*
4 *Vietnamese Agricultural Statistics*, Division of Agriculture and Natural Resources, United States Operations Mission to Saigon, Saigon, March 1959, p. 47.
of this land actually escaped expropriation. 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. 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. 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 51.9 percent of the expropriated land was redistributed. A mimeographed report dated March 1966 suggests that 57.4 percent of the Vietnamese land was redistributed. 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.

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1 See 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.

2 The 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.

3 From a personal communication with W. Ladejinsky.

4 USIS, op. cit.


6 There 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
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 -- reflect 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 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.

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

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 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.\(^2\)

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

**EMPIRICAL FINDINGS**

Assuming that the relationship between control and the exogenous variables could be approximated by a linear equation, the parameters

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\(^{1}\)p. 4.

\(^{2}\)Pp. 81 and 3, respectively.
<table>
<thead>
<tr>
<th>No.</th>
<th>Province</th>
<th>GVN Control (1964) Based on Provincial Reports b</th>
<th>Owner-operated Land (as a percent of all land)</th>
<th>Coefficient Variation of the Distribution of Land Holdings By Size</th>
<th>Vietnamese Land Subject to transfer (as a percent of all land)</th>
<th>French Land Subject to transfer (as a percent of all land)</th>
<th>Area of Mobility (in percent)</th>
<th>Population Density (per square kilometer)</th>
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Notes:

1. Gia 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. Its inclusion or exclusion, however, makes little difference to the statistical results.

2. Between the Agricultural Census of 1960 and the collection of the control data of 1964 several new provinces were created in South Vietnam. Since the new provinces were not in each case created out of a single old province and since all our data are available only at the province level, perfect comparability between old and new provinces cannot be attained. In the two cases in which the new province was carved entirely out of a single province a complete adjustment can be made. Chau Doc and the "new" An Giang have been added together to form the "old" An Giang. Go Cong and the "new" Dinh Tuong have been aggregated to form the "old" Dinh Tuong. Three other new provinces -- Chuong Thien, Bac Lieu, and Nhu Nghia -- cannot be allocated so easily. Experiments show, however, that allocating them in various ways to form the "old" 1960 provinces makes little difference in the control statistics. In this table only An Giang and Dinh Tuong have been adjusted.
of this equation were estimated by least squares. Other than the variables given in Table 1 no coefficients were found to be statistically significant.\footnote{By statistically significant we mean a t-value in the neighborhood of two, or larger. Since it is not certain how appropriate the assumptions underlying the usual t-test are in our study, we will not insist on any precise level of statistical significance.} Since there were no strong \textit{a priori} reasons for including the insignificant variables and since they affected the coefficients of the significant variables only slightly, the regressions were re-run with just six independent variables. This resulted in the following equation:

$$
C = 22.9 - .58 \text{ OOL} + 24.6 \text{ CV} - 1.79 \text{ VL} \\
(1.34) \quad (-3.12) \quad (3.45) \quad (-4.49) \\
+ 1.49 \text{ FL} - .40 \text{ M} + .05 \text{ PD} \ , \\
(3.44) \quad (-2.73) \quad (1.73)
$$

\[ R^2 = .66 \ , \]

where:

- \( C \) is the percentage of secure hamlets according to December 1964 provincial reports
- \( \text{OOL} \) is the percentage of all land that is owner-operated
- \( \text{CV} \) is the coefficient of variation of the distribution of land holdings by size
- \( \text{VL} \) is the percentage of land subject to transfer that was formerly Vietnamese owned
- \( \text{FL} \) is the percentage of land subject to transfer that was formerly French owned
- \( \text{PD} \) is population density
- \( \text{M} \) is the percentage of area of good mobility
- \( \overline{R^2} \) is the coefficient of determination adjusted for degrees of freedom\footnote{The regression also has the property that it has the highest \( \overline{R^2} \) of any regression examined. It can be shown that a correctly specified}
The value in parentheses under each coefficient is the corresponding t-statistic. \(^1\)

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 redistribution may well have had a negative impact on control.\(^3\)

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 (3) 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 regression has a higher \(R^2\) on the average than any other regression. Thus, the regression equation (3) 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.

\(^1\)If the usual assumptions were met, a t-value of 2.1 would imply significance at about the .05 level; 2.8, the .01 level; 3.9, the .001 level; and 4.8, the .0001 level.

\(^2\)This 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.

\(^3\)It 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.
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 land redistribution (26 provinces)
Fig. 4—GVN control and French landholdings (26 provinces)
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.\footnote{That is, in Fig. 1 the control variable, $C'$, is given by $C' = 22.9 - .58 \text{ OOL} + 24.6 \text{ CV} - 1.79 \text{ VL} + 1.49 \text{ FL} - .40 \text{ M} + .05 \text{ PD} + e$, 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. 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.} (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 moderately 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 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 66 percent of the variation in control. The average absolute deviation of predicted control from actual control is 9 percentage points. Most of this explanation is due to the land tenure variables. The four land tenure variables alone would account for a majority (52 percent) of the variation in control. Together, mobility and population density explain nothing ($R^2$ is in fact negative). One of the interesting statistical features of this study is that for only one exogenous variable, CV, is the simple correlation with 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.
III. INEQUALITY AND CONTROL

INTERPRETATION OF THE STATISTICAL FINDINGS

In the light of the positive association between inequality and control we can speculate on the behavioral interpretation. There may be historical precedents perhaps suggesting general social forces at work. The number of interpretations consistent with these findings is presumably quite large. What we propose to do here is to offer a few conjectures based on general historical and sociological considerations and a limited second-hand knowledge of Vietnam itself. To be verified these suggestions would, for the most part, require further research in the field.

The search for historical precedents appears fruitful. In not a few cases unequal or "feudal" areas have supported the existing order against attacks of reformers or radicals. During the English Civil War, for example, the principal support for the Crown came from the north and west of England (including almost all of Wales), while the Parliamentarians were strong in most of the east and southeast.

That is, by and large the areas of the country which at this date were the more populous, the economically more advanced were for the Parliament; the economically more backward, the less populous, were for the King.¹

It was the better-off farmers, the yeomen, who fought for Parliament; the poorer peasants were more likely to be with the Royalists.

Similarly, in his classic essay on L'Ancien Régime Tocqueville writes that:

... the parts of France, which were to be the principal centres of this revolution, were precisely those where progress was most visible. A study of the extant archives of the old district of the Ile-de-France will clearly show that it was in the districts bordering on Paris that the "old order" was soonest and most completely reformed. There

the liberty and the fortune of the peasant were already more secure than in any other part of the pays d'élection.

Nowhere on the other hand, was the "old order" more completely retained than along the Loire towards its mouth, in the marshes of Poitou and on the moors of Brittany. But it was just there that the fire of civil war was kindled and kept alight and that the most violent and prolonged opposition was offered to the Revolution; it might therefore be said that the French found their position insupportable, just where it had become better.¹

It is not asserted that this relationship will generally be found. Nevertheless, its occurrence under what appear to be widely different circumstances suggests that some kind of general considerations might prevail. Tocqueville's interpretation of this phenomenon is interesting precisely because it does run in very general terms. He continues:

Such a view is surprising, but all history is full of such wonders. It is not always by going from bad to worse that a society falls into revolution. It happens most often that a people, which has supported without complaint, as if they were not felt, the most oppressive laws, violently throws them off as soon as their weight is lightened. The social order destroyed by a revolution is almost always better than that which immediately preceded it, and experience shows that the most dangerous moment for a bad government is generally that in which it sets about reform. Only great genius can save a prince who undertakes to relieve his subjects after a long oppression. The evil, which was suffered patiently as inevitable, seems unendurable as soon as the idea of escaping from it is conceived. All the abuses then removed seem to throw into greater relief those which remain, so that their feeling is more painful. The evil, it is true, has become less, but sensibility to it has become more acute.²

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²Ibid., pp. 185-186. A recent study of revolutionary and counter-revolutionary areas in the west of France shows a striking resemblance to the empirical findings of this study. In comparison with the revolutionary area, the counter-revolutionary area is characterized by fewer peasants owning their own land, a higher degree of absenteeism among landlords, greater holdings of land by the nobility, poorer accessibility, and greater religiosity. See Charles Tilly, The Vendée, Cambridge, 1964, passim.

³Tocqueville, op. cit., p. 186.
Tocqueville's colorful exposition is suggestive of a somewhat more formal analysis. Let us suppose that disposition toward rebellious activity is a function of discontent and that discontent is a function of the gap between aspiration and condition.\(^1\) Disloyalty or the degree of rebelliousness for any level of condition then depends upon the relationship between aspiration and condition.\(^2\) One view that might be taken is that all peasants aspires to some position well above their present level and that this aspiration level is largely independent of one's present condition. Figure 5 illustrates this case. The 45° line indicates points of equality of aspiration level and condition. The vertical distance between the AA' curve, which gives the aspiration level, and the 45° line determines the intensity of rebellious activity at each possible condition. The result for this case is obviously that poorer peasants are more rebellious.

There is considerable evidence, however, that Fig. 5 does not give the only relationship that can be posited between aspiration and

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\(^1\)Since the inequality variables used in this Memorandum measure the relative position of different classes in rural society and not the absolute position of the peasantry, the use of phrases like "peasant condition" and "poor peasants" must be interpreted in a relative sense if the statistical and the theoretical analyses are to be comparable. It is perhaps this relative measure that is most important in the context of studies of revolution. One might say with Marx: "Our desires and pleasures spring from society; we measure them, therefore, by society and not by the objects that serve their satisfaction. Because they are of a social nature, they are of a relative nature." (Karl Marx and Freidrich Engels, "Wage Labour and Capital," Selected Works in Two Volumes, Moscow: Foreign Languages Publishing House, 1955, Vol. 1, p. 94). We do not wish to suggest that there is no problem here. Although absolute and relative measures of peasant condition are probably positively related they are different things and may have different effects. This is something that is not always brought out in the literature. Unfortunately, we were unable to obtain an adequate measure of absolute incomes of the peasantry by province. The best we could do was to use variable rice production per capita which was statistically insignificant.

\(^2\)A more extensive discussion of a similar aspiration-condition type model may be found in Charles Wolf, Jr., Foreign Aid: Theory and Practice in Southern Asia, Princeton, 1960, Chapter 8. Wolf's model is tested against Indian data in his Chapter 9 and is found to be quite successful in explaining the percentage of votes received by radical parties.
condition. The notion, "the more prosperous the peasants, the more discontented,"\(^1\) is rather commonplace by now. The reason for this apparently lies in the low aspirations of poor peasants due to overwhelming preoccupation with merely making a living. Eric Hoffer explains the lack of rebelliousness on the part of the poorer peasants in this way:

Those who are awed by their surroundings do not think of change, no matter how miserable their condition. When our mode of life is so precarious as to make it patent that we cannot control the circumstances of our existence, we tend to stick to the proven and the familiar. We counteract a deep feeling of insecurity by making of our existence a fixed routine. We hereby acquire the illusion that we have tamed the unpredictable. Fisherfolk, nomads and farmers who have to contend with the willful elements, the creative worker who depends on inspiration, the savage awed by his surroundings -- they all fear change. They face the world as they would an all-powerful jury. The abjectly

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\(^1\)Crane Brinton, *The Anatomy of Revolution*, New York, 1965, p. 60. Also see G. G. Coulton's *Medieval Village, Manor and Monastery*, New York, 1960. Coulton, after studying a number of medieval peasant rebellions, writes about "the familiar axiom that revolt comes not when the oppressed class has most to complain of, but when they have gained enough to give them an appetite for more" (p. 130), and later he adds, "Revolution comes when men have tasted enough to want more" (p. 358).
poor, too, stand in awe of the world around them and are not hospitable to change. It is a dangerous life we live when hunger and cold are at our heels. There is thus a conservatism of the destitute as profound as the conservatism of the privileged, and the former is as much a factor in the perpetuation of a social order as the latter.\(^1\)

Some recent observations on peasant behavior in India confirm this point of view:

> Of their own accord very poor people do not take part in politics, nor is it easy to organize them for political action. They remain interested in the welfare of themselves and their families and will not spare time or energy to work for the collectivity.\(^2\)

Peasant attitudes toward improvement in their living standards follow a similar pattern: "Generally, the lower the level, the more static the aspirations tend to be."\(^3\)

Figure 6 portrays an aspiration level that rises more rapidly than condition when we move above the subsistence level. Here discontent is greater at higher levels of well-being.

Viewing the typical peasant situation from our vantage point, Fig. 5 may seem more plausible. If we put ourselves in the peasant's shoes we would undoubtedly aspire to a much higher position. It is probably this fallacy of projection that accounts for such a widely shared attitude. The peasant does not, however, come from our position to his own; he has always experienced his present condition. It does

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\(^1\) Eric Hoffer, *The True Believer*, New York, 1951, p. 17. This notion of the precariousness of peasant life as a cause of conservatism can be formalized in Neumann-Morgenstern expected utility terms. Following along the lines set down by Friedmann and Savage in their well-known paper, "The Utility Analysis of Choices Involving Risk," *Journal of Political Economy*, August 1948, one can show that the greater loss of utility associated with a given loss of income by poorer peasants will generally mean that they will take fewer chances.


not seem reasonable therefore to expect him to share our aspirations or, for that matter, any of our attitudes.

Even if Fig. 5 or 6 represented a correct picture of the aspiration-condition relationship in a cross-sectional or long-run sense, neither figure would be appropriate for the dynamic or short-run case. In the short run it is likely that aspirations depend not only upon one's present condition but also on recent changes in condition. Individuals moving to the right, improving their condition, may well have aspirations that exceed the aspirations of those accustomed to this higher level. The rate and direction of movement are important. This is particularly the case for downward movement. Here the individual is likely to resist adjusting his aspirations to the new low level of condition and instead may move down curve A'B in Fig. 7. As drawn, the downward movement along A'B indicates an increasing gap between aspirations and condition. Thus, the asymmetry between rise and decline from a customary position could result in increasing discontent from

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1 The phenomenon is analogous to the "ratchet" effect in consumption theory where individuals raise consumption readily when incomes rise, but resist declines in consumption when income has fallen.
any change in position. This is consistent with the notion that social and economic change per se whether upward or downward is generally destabilizing.

Greater inequality means not only that peasants are relatively worse off, but also that the upper classes, the landlords, are either more numerous or better-off. Coincident with this improvement in the economic position of the wealthier classes is a stronger political position. The landlord is often able to exercise considerable authority

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1 James Davies has constructed a theory of revolution largely based on this resistance to downward changes after long periods of improvement. See his "Toward a Theory of Revolution," *American Sociological Review*, February 1962, pp. 5-19.

2 Lawrence Stone in his critique, "Theories of Revolution," *World Politics*, January 1966, cites the work of Sir Arthur Lewis and Mancur Olson to the effect that modernization causes instability in the newly developing countries by shifting the relative importance and status of the various economic classes.

3 Due to a high degree of landlord absenteeism in South Vietnam one could more properly speak of "landlords or their agents."
over his tenants. In return for the favors he is able to provide, such as security of tenure and provision of credit, he may obtain service in the local self-defense forces, information regarding VC activities in the area, and so forth. We should also not be surprised to find poor tenants supporting the existing order merely from the habit of following their superiors. In the somewhat different context of the English Civil War, a leading Puritan apologist gives evidence of the authoritarian relationship between landlord and tenant:

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

And again, from the pen of another partisan contemporary:

[On the Parliamentary side] some gleanings of the gentry, the yeomen, farmers, clothiers, and the whole middle ranke of the people were the only active men. The common people addicted to the King's service have come out of blinde Wales, and other dark corners of the land.³

When this relationship exists land redistribution can be a dangerous policy from the government viewpoint. In Vietnam, the VC's considerable aptitude in political matters makes it not unlikely that the vacuum of authority wrought by redistribution will be filled by the rebels, rather than by the GVN.⁴

⁴The reduction in the presence of authority is judged by some to be the primary destabilizing force inherent in land reform. David Rowe argues that in Taiwan the principal effect of the land reform program was to contribute to instability. This is the case of a program otherwise regarded as being highly successful. See his "Land Tenure and Social Stability in Asia: U.S. Policy Problems," in W. Froelich (ed.),
LANDLORD INFLUENCE AND THE ALLOCATION OF ARMED FORCES

Large landlords, besides having influence in the area in which they reside, would generally be able to exercise some power with the central government in Saigon and in Corps headquarters. This would include the ability to affect the allocation of armed forces in the countryside. One might therefore offer the following hypothesis: In areas of greater inequality landlords are able to obtain more than their share of the national military resources resulting in greater control than in the more equal areas. Thus, it is not direct influence over the local community that promotes security, but influence in Saigon which, through the intermediary of armed forces, results in greater control. In more formal language, an exogenous variable, inequality, affects an endogenous variable, GVN forces, which itself directly affects control.

Fortunately this is a hypothesis that, in its elementary form, can be tested. Data are available on the numbers of various types of forces, both friendly and enemy. We can therefore determine the impact of inequality and all the other exogenous variables on the distribution of forces. If this hypothesis is correct then those forces that can be allocated among the provinces, that is, the ARVN, should tend to be concentrated in areas where inequality if greatest. Local and provincial forces cannot move between provinces and so their number must be largely determined by local factors, such as the ability (financial and administrative) to organize and train troops, the disposition of the population towards the GVN, and so forth.

As pointed out above, it is appropriate and meaningful to regress any endogenous variable on all the exogenous variables, as we did with control. We therefore define the following endogenous variables, all of which are deflated by the population of the province (in thousands) and measured as of July 1964: GVR represents regular ARVN troops; GVI represents local and provincial troops (that is, all troops other

It should be stressed, however, that this is probably a minority viewpoint on land reform. See any of a number of other essays in the Froelich volume.
than ARVN); VCR represents VC regular or main force troops. The regression results are, after removing insignificant variables:

\[
\begin{align*}
\text{GVR} &= -0.27 + 0.096 \text{ OOL, } \quad \bar{R^2} = 0.24, \quad (4) \\
\text{GVI} &= 42.7 - 0.29 \text{ OOL} - 1.07 \text{ VL} + 0.95 \text{ FL} \\
&\quad \quad (5.95) (-2.36) (-3.80) (3.21) \\
&\quad - 4.32 \text{ PD, } \quad \bar{R^2} = 0.56, \quad (5) \\
\text{VCR} &= -1.16 + 0.063 \text{ OOL} + 0.97 \text{ SM, } \quad \bar{R^2} = 0.37, \quad (6) \\
&\quad (-1.16) (3.04) (3.09)
\end{align*}
\]

SM is the percentage of land area characterized by swamps and marshes, and therefore implies very poor mobility or accessibility.

Equation (4) shows that ARVN forces are related only to the owner-operated land -- but positively. ARVN troops tend to be in areas of equality where there are fewer and presumably less powerful landlords. The theory in its simplest form is therefore flatly contradicted.

Equation (5) demonstrates that GVN local and provincial forces tend to be more numerous in areas of inequality. Three of the four land tenure variables have the same sign as in the control equation -- the other variable, CV, shows no statistical significance. Thus, the number of local forces is determined, generally speaking, by the same factors that determine control and in the same way -- the exception is population density which displays a negative coefficient.\(^1\) It is interesting that the strong relationship exhibited by the \(\bar{R^2}\) of 0.56 in equation (5) is not simply due to the correlation between control and GVI -- \(\bar{R^2}\) between these two variables is only 0.09.

The fact that inequality is closely associated with both control and local forces suggests that the mechanism by which inequality affects control operates primarily on the local level. It could be that in unequal areas the authorities are better able to organize and

\(^1\)The negative sign could mean that one does not require so many local forces per person in densely populated areas.
train local forces, and peasants are more likely to participate in self-defense activities including service in regional military units. Securing the area by local resources requires fewer national forces -- hence equation (4). This is quite consistent with and indeed reinforces the conjectures advanced in the previous section.

Equation (6) indicates that VC regulars tend to be located somewhat more in areas of greater equality -- where the ARVN are located -- and in areas of poor mobility.

The absence of an equation (7) is due to the fact that no exogenous variable appears to be statistically related to the number of VC irregulars. This could be due to the fact that the variable is so poorly measured.

It could be argued that the number of ARVN forces does not reflect completely the ability to command national resources. For one thing the unit of observation -- a soldier of a given force type -- is not homogenous and it could be that landlords obtain better soldiers rather than more soldiers. Or it may be that landlords are able to obtain troops at short notice from other locations, thus deterring potential VC incursions. It is also true that local forces are not determined solely by local factors. The ability to obtain funds from Saigon for their support partially affects their number. Nevertheless, in the face of equations (4) and (5) it would seem that the burden of argument is shifted to those who would support the hypothesis.
IV. CONCLUSIONS

The purpose of this study has been to explain the observed variation in control among provinces by statistical analysis. Although the data available for such a study are limited and not of a high order of accuracy, it would appear that we have been at least partially successful. Six variables, four of which measure aspects of land tenure arrangements, explain a majority of the variation in control. In so doing they enable us to characterize in part the secure province. From the point of view of government control the ideal province in South Vietnam is 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 mobility or accessibility is low. Evidence on the distribution of armed forces supports the view that the relationship between inequality and control is due primarily to local factors. It is suggested that the greater power of landlords and relative docility of peasants in the more "feudal" areas accounts for this phenomenon. A precise interpretation of the empirical findings, however, cannot be made without a careful study in the field.