

MEMORANDUM
RM-5757-ARPA
JANUARY 1969

THE HUK REBELLION IN THE PHILIPPINES:
AN ECONOMETRIC STUDY

Edward J. Mitchell

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PREFACE

This Memorandum attempts to explain the regional pattern of Huk control in the Philippines in terms of certain cultural, economic, and geographical variables. It follows the econometric approach used in the author's RM-5181-ARPA (Abridged), Land Tenure and Rebellion: A Statistical Analysis of Factors Affecting Government Control in South Vietnam, June 1967, also supported by the Advanced Research Projects Agency. Further, it estimates the importance of contiguity and the allocation of coercive resources by the rebels and government.

One contrasting result of these studies is the effect of land tenure on rebellion. In Vietnam, inequality in land tenure favors the government; in the Philippines, it favors the rebels. This and other issues will be examined further by extending this research to other countries and by comparing the different relationships found in each country.

In conducting this research the author has had the cooperation of numerous Filipinos. He would like especially to acknowledge the generosity of General Manuel Yan of the Philippine Constabulary and Luis Taruc, former leader of the Hukbalahap.

SUMMARY

The Huks began as an anti-Japanese guerrilla army in 1942. Composed mainly of socialist and communist elements, they posed a serious military threat to the Philippine Republic after the War. Failing in the struggle to expand their influence, the Huks declined sharply after 1950. In the past six or seven years, however, they have risen again and control a large number of barrios in Central Luzon, especially in the province of Pampanga.

Current data on Huk-dominated barrios is used to construct an econometric model that explains a large part of the regional variation of Huk control in terms of a few economic, cultural, and geographical variables. A key factor in understanding Huk influence is language. A barrio is much more likely to be Huk-controlled if most of its residents speak the Kampampangan dialect. The role of sectionalism, that is, the division between Pampangos on one hand and Tagalogs and Ilokanos on the other, is primary. A major exception to this rule is that a non-Pampangan barrio may be Huk-controlled if it lies near barrios that are Huk-controlled. The mechanism here is the allocation of coercive resources to contiguous areas.

Within the Pampangan-speaking area many barrios are free from Huk control. Huk success also demands a significant proportion of tenant farmers in the population, and indeed it seems likely that the movement is based primarily on Pampango tenant farmers. Where there are few farmers, or where few farmers are tenants, the movement fails even among Pampangos. An additional element is that barrios near mountains or near the Candaba swamp display unusual Huk effectiveness, probably because of the relative efficiency of guerrillas in these kinds of terrains.

In historical perspective the movement is seen as an outgrowth of radical peasant activity in the 1930s. Supporting this view is the fact that 1939 economic conditions account for the present pattern of Huk control better than more recent data. It may be that attitudes became hardened in this early period and persist to this day. The fact

that the movement began among Pampangos is probably mere accident. Historically, Philippine rebellions have been limited by ethnic divisions, and in some instances the Pampangos have been a constraining force.

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I. INTRODUCTION

Shortly after World War II a Communist guerrilla army, the Hukbong Magpalayang Bayan (HMB), or People's Liberation Army, became a serious threat to the new Philippine Republic. The Huks, as they are commonly known, controlled large parts of the sugar cane and rice growing areas of Central Luzon and carried out military and political operations in other parts of the islands. Like their Communist counterparts in Vietnam and Malaya, the Huks began as an anti-Japanese guerrilla army. In fact, Huk originally referred to Hukbalahap, a contraction of a phrase meaning People's Army Against the Japanese. As the military arm of the Communist Party, however, their ambitions always exceeded mere anti-Japanese activities.

After the Japanese defeat, successive Philippine governments wrestled with the problem of eliminating the Huks. Policies of coercion failed because the Philippine Army and Constabulary were not up to the task. Policies of conciliation failed because the demands of the Huks were regarded as unreasonable. By 1949 it became clear that the issues dividing the Huks and the government would have to be settled by force. Following the allegedly fraudulent election of President Quirino in 1949 the Huks gained steadily. By 1950 large unit raids were common and a full-scale attack on Manila was envisioned for 1951. Before that time arrived, however, the tide had begun to turn. Under the new Defense Secretary, Ramon Magsaysay, the Constabulary and Army were reorganized, and by the early 1950s the Huks were on the run, one of the most dramatic events being the surrender of former Huk Supremo Luis Taruc in May 1954.¹

Despite the decimation of Huk units in Northern and Southern Luzon, Panay, and other regions, the movement survived and persists to this day especially in the part of Central Luzon known as Huklandia --

¹A brief history of the Huk movement is contained in the first few chapters of A. Scaff's Philippine Answer to Communism, Stanford, 1955.

the provinces of Bulacan, Nueva Ecija, Pampanga, and Tarlac. Although this region comprises only a small part of the Philippines (see Fig. 1), its size understates its importance. With close proximity to Manila and a leading position in rice production, it has always played a key role in Philippine history.

Huklandia is the only region in which the Huks flourished.¹ During the period 1948-1953 Huk expansionary forces had moved up and down the Sierra Madre cordillera, north to the Cagayan valley and the Ilocos region, south from Laguna to the Bikol provinces, and across the sea to Negros and Panay. The striking feature of this expansion, however, was its failure. Huk outposts were readily smashed, usually with the aid of defectors and informants from the local population.² A resurgence of the Huks over the past six or seven years has also been accompanied by the growth of a significant following outside Huklandia, especially in Southern Luzon. But again it does not appear that the Huks have been able to gain the kind of effective domination achieved in Central Luzon. Of the 181 barrios reported to be under Huk control by the Philippine Constabulary, not one is outside this region.³

Figure 2, based upon data obtained from the Constabulary, shows the location of barrios supporting the HMB in 1968. What are the peculiar features of these dissident barrios? Why should the Huks succeed there but not elsewhere? An operational theory of the Huk rebellion should be able to tell what special characteristics are to be found. For example, some have argued that the desire for land on the part of the peasantry is a prime motivating force in the rebellion. We should expect to find then that barrios in which few farmers own their own land tend, other things being equal, to support the Huks.

¹N. Valeriano and C. Bohannon, Counter guerrilla Operations: The Philippine Experience, Praeger, New York, 1962, p. 33.

²W. J. Pomeroy, The Forest, International Publishers, New York, 1963, esp. pp. 38-43, 156, 166-168; Valeriano and Bohannon, p. 32. See also V. Lieberman, "Why the Hukbalahap Movement Failed," Solidarity, October-December 1966, pp. 22-30.

³A barrio usually contains 1000-2000 people; a municipality is generally composed of 15-40 barrios.

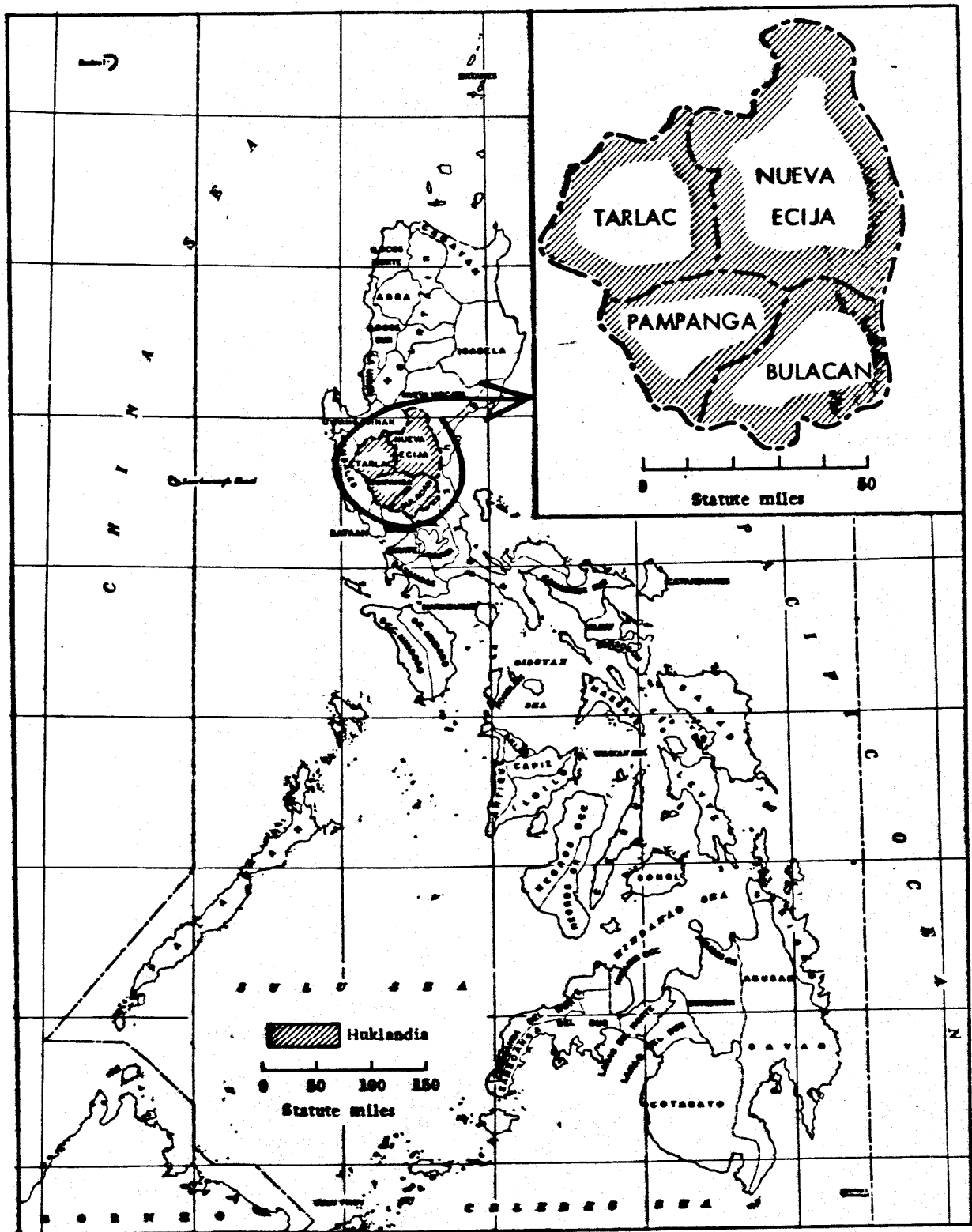


Fig. 1—Map of the Phillippines

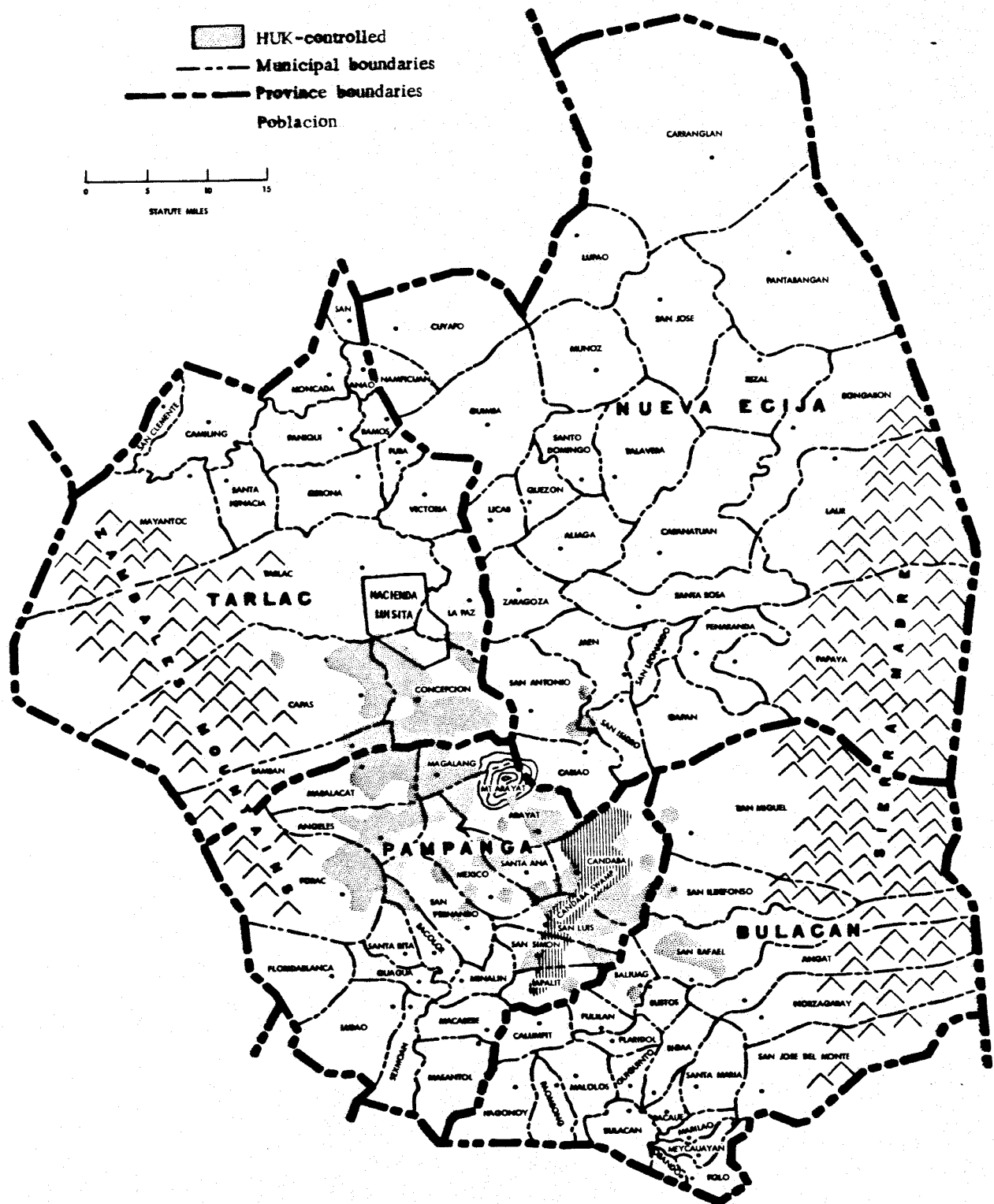


Fig. 2—Huklandia

To carry out tests of this and other theories requires an explicit framework or model. Application of the econometric approach will show that the successes and failures of the Huk movement can be explained well by a few cultural, economic, and geographical variables.

II. A MODEL OF REBELLION

For some time economists have represented the economic system by a set of equations -- behavioral, institutional, technological, and definitional. The variables in these equations are those in which the economist is interested -- prices, wages, employment -- plus those non-economic variables that must be taken into account -- family size, weather, technological conditions. A representative equation in an economic system would be the demand equation, relating the quantity of a good purchased to its price, the prices of other goods, income, family size, age, and so forth. Each decision made by "economic man" can be represented by a behavioral equation. The equation enables us to determine what an individual or group will choose to do, given the objective costs and benefits associated with the various choices and given the tastes or attitudes of those making the choices. In the demand equation the price of the good is an objective cost; the age of the consumer is a variable characterizing the consumer himself and therefore his likely tastes and attitudes.

There is no reason why the political system cannot be thought of in the same way. Whether a village is government- or rebel-controlled is a consequence of decisions made by people, individually or collectively, in that village. Their decision will be a function of the objective costs and benefits attached to alternative choices, and of the basic attitudes of these people toward the rebels and toward the existing order. There is then an equation relating the degree of government or rebel control in an area to the "prices" of various actions in the area, and to those characteristics that determine the basic attitudes of the population.

The characteristics of the population might be represented in the equation by variables such as language, religion, occupation, and literacy. Determined over long periods of history they are usually not affected by the events of the rebellion (with the significant exception of its outcome). They may be regarded therefore as determined for the most part outside the rebellion model. On the other

hand, the costs and benefits associated with different peasant actions are very much under the influence of government and rebel policy. It is obviously desirable for each side to attach high rewards and severe penalties to favorable and hostile acts. But the business of setting these prices is itself costly. Possessing limited resources, neither side can afford to reward good behavior and punish misbehavior each time they occur. Instead a strategy must be worked out by which resources flow to those places that yield the greatest returns for a given cost.

The cost of influencing peasant behavior in a community seems to depend heavily on the friendliness or hostility of the surrounding area. To determine one's allies and enemies requires communication with the village. To reward allies and punish enemies requires access by military and political personnel. The movement of messages and men is obviously more expensive when they must pass through enemy areas. The rational allocation of resources thus compels each side to concentrate on contiguous areas.

As a consequence, the pattern of incentives in any community depends upon the control situation of its neighbors. There are, of course, additional factors. Guerrillas are thought to be relatively more efficient in areas of low mobility such as mountains and swamps. Thus, villages located near mountains may face exceptional pressure from the rebel side. But this topographical factor is exogenous and may simply be added to the list of exogenous variables. The principal endogenous influence on incentive patterns is contiguity. We may therefore replace the prices in the control equation with an index of Huk control in neighboring areas. The control equation may then be written formally:¹

¹The pattern of incentives obviously depends upon the control situation within the community itself. In other words, HC_j appears on the right hand side of the equation as well as the left. Equation (1) must therefore be regarded as derived from an original equation, the HC_j on the right hand side having been "solved out." The parameters of equation (1) will as a consequence be somewhat larger than those of the original equation.

$$HC_j = F (HCN_j ; X_{1j}, X_{2j}, \dots, X_{nj}; e_j), j = 1, 2, \dots, J. \quad (1)$$

HC is a variable measuring the degree of Huk control (or rebel support). The subscript j indicates the municipality; in all there are J. HCN is an index of Huk control in neighboring municipalities. X_1 through X_n are n exogenous variables; e is a random error representing ignored minor variables.

For simplicity, HCN is assumed to be an ordinary weighted average of Huk control in bordering municipalities:

$$HCN_j = \sum_{m=1}^J a_{jm} HC_m, \quad (2)$$

$$\sum_{m=1}^J a_{jm} \leq 1, j = 1, 2, \dots, J. \quad (2a)$$

In the statistical work that follows the weights were chosen in proportion to the length of the border between the municipality and each neighboring municipality.¹ If the total border of municipality A is 20 miles and municipalities A and B share a border of two miles, then $a_{AB} = .10$. (Note that in general $a_{AB} \neq a_{BA}$).

If the general function F in equation (1) can be approximated by a linear function,

$$HC_j = k \left(\sum_{m=1}^J a_{jm} HC_m \right) + \sum_{i=1}^n b_i X_{ij} + e_j, j = 1, 2, \dots, J. \quad (3)$$

If all the variables on the right hand side of equation (3) were exogenous, the parameters (k and b) could be estimated by running a

¹Since this study is confined to a particular geographical area, municipalities on the edges of that area will have borders with external municipalities that are not represented in the summation of (2a); hence, the inequality. This is a reasonable way of handling the weights since external municipalities have no critical barriers for primarily exogenous reasons and therefore make no contribution to HCN. The alternative would be to force the weights to add to one by scaling them up, resulting in a somewhat lower estimate of k.

simple multiple regression. But obviously HCN is not exogenous. It is a linear combination of HCs and these values are determined within the model, that is, they are endogenous. According to equation (3), to know Huk control in one municipality we must know Huk control in neighboring municipalities. But if A is a neighbor of B, B is a neighbor of A. Thus, to know control in A we must know control in B, and to know control in B we must know control in A. Control in all municipalities must therefore be determined simultaneously by the J equations, one for each municipality.

There is considerable econometric literature on the estimation of parameters in simultaneous equation systems.¹ One of the elementary points is that ordinary least squares or multiple regression generally leads to biased and inconsistent estimates when there are two or more endogenous variables in an equation.² However, the sophisticated methods devised to yield consistent estimates are not applicable (without modification) to this special case. As it turns out, consistent estimates can be obtained by a very simple procedure.

Consider the J equations (3) in matrix notation:

$$\underline{HC} = k\underline{AHC} + \underline{Xb} + \underline{e}, \quad (4)$$

where $\underline{HC}$ is a J x 1 vector of observations on Huk control; A is a J x J matrix of weights, a typical element being a_{jm} ; X is a J x n matrix of J observations on n exogenous variables; and $\underline{e}$ is a vector of random errors.

Manipulating (4) we have:

$$\begin{aligned} \underline{HC} - k\underline{AHC} &= \underline{Xb} + \underline{e}, \\ \underline{HC} &= (\underline{I} - k\underline{A})^{-1} \underline{Xb} + (\underline{I} - k\underline{A})^{-1} \underline{e}. \end{aligned}$$

¹The best textbook reference is E. Malinvaud, Statistical Methods of Econometrics, North-Holland Publishing Co., Amsterdam, 1966.

²An estimate is unbiased if its expected value equals the true value of the parameter. An estimate is consistent if, as the sample size becomes large, the estimate tends in a stochastic sense to the value of the parameter. See M. G. Kendall and A. Stuart, The Advanced Theory of Statistics, Griffin, London, 1961, Vol. 2, Ch. 17.

Letting $\underline{u} = (I - kA)^{-1} \underline{e}$,

$$HC = (I - kA)^{-1} X \underline{b} + \underline{u}. \quad (5)$$

In this equation system, $\underline{HC}$ is expressed entirely as a function of exogenous variables. Consistent estimates of the parameters can be obtained by applying least squares or the equivalent method of maximum likelihood. Unfortunately, this does not lead to a straightforward linear multiple regression because the equations are not linear in the parameters. To minimize the sum of squares of the residuals, or equivalently to maximize the likelihood function under normality, we choose a wide range of values of k , substitute them into $(I - kA)^{-1}$, and run multiple regressions of HC on the transformed X s. The value of k that minimizes the sum of squares is the least squares and maximum likelihood estimate. The regression coefficients for this value of k then give the estimate of $\underline{b}$.

A better understanding of the equation system (5) can be gained by expanding the matrix $(I - kA)^{-1}$. Under appropriate conditions, $k < 1$ and the inequalities (2a) being sufficient,

$$(I - kA)^{-1} = I + kA + k^2 A^2 + \dots$$

Ignoring the error term,

$$\underline{HC} = X \underline{b} + k AX \underline{b} + k^2 A^2 X \underline{b} + \dots \quad (6)$$

The first term in this series represents the influence of the characteristics of a municipality on Huk control within that municipality. If k were zero this is the only influence that would exist. With k greater than zero neighboring municipalities begin to play a role. In the second term the expression AX represents weighted averages of the characteristics of bordering municipalities. These weighted neighborhood characteristics operate on Huk control in the same manner as the characteristics of the original municipality,

except that they are deflated by k . If k is large the characteristics of the neighbors will be important; if k is small they will not.

The third term represents the effects of characteristics in municipalities bordering on the neighbors of the original municipality. In the expression A^2X the characteristics of these second-order municipalities are weighted according to their indirect influence through the first-order municipalities. Since A^2 is smaller than A and k^2 is less than k these second-order effects will be less than the first-order.¹

Pursuing the higher order terms it is clear that every municipality will affect every other municipality, but that the impact will lessen with the distance between them.²

It should be stressed that the value of k depends not only on the validity of the allocation theory, but also on the extent to which coercion is used. In the absence of coercion k must be zero. On the other hand, with great exercise of threat and intimidation it can reach one, in which case the theory implies almost complete control by one side or the other. The estimate of k obtained at any point in time refers of course only to the use of coercive resources at that point. With changing capabilities either side can effect large shifts in the level of control and accompanying changes in the value of k .

¹Smaller in the sense that the average element of A^2 is smaller than the average element of A . For particular elements this need not be true.

²The analogy of this discussion to input-output systems should be obvious to economists. The matrix A is an input-output matrix with the special condition that each industry must sell to the same industries from which it buys.

III. THE HUK EQUATION

Some barrios of Huklandia are so dominated by the Huks that they are classified as critical by the Philippine Constabulary. The specific criteria are: first, the Huks must exercise considerable authority over local officials; and second, the residents must actively support the Huks through monthly contributions and other assistance. No distinction is made whether this support is obtained voluntarily or by force, and in practice this would probably be impossible to ascertain. As the model suggests, Huk support will generally depend on both popularity and pressure.

The variable HC (Huk Control) is defined to be the percentage of critical barrios in a municipality in 1967. All references to Huk "control," "support," or like terms refer to this measure. Statistics released by the Constabulary on hard-core membership and mass base indicate a somewhat different and broader dispersion of Huk influence, especially in Southern Luzon. However, these figures are available only on a highly aggregated regional basis and probably represent a less stringent measure of influence. If, as a consequence of weakness in the reporting system, there do exist unreported critical barrios in Southern Luzon, they would in all likelihood not be so numerous as to seriously affect the general argument.

The exogenous variables were constructed from data in the 1939 and 1960 Philippine Censuses of Population and Agriculture. These included economic variables (tenancy, average farm size, gross peasant farm income, value of farm output, farm population); cultural variables (language, religion, education, literacy); demographic variables (population growth, population density); and geographical variables (mountains, swamps). For two reasons it was felt that the 1939 data would be most appropriate. First, to be truly exogenous some of these, particularly the economic variables, should antedate the formation of the Huks in 1942. Second, some potentially important variables can be constructed only from the more comprehensive 1939 Censuses. As it turns out the 1939 variables actually have larger coefficients and greater statistical significance than their counterparts from 1960. (The reason for this will be discussed later in this section.)

In all, 57 Central Luzon municipalities have been included in the study. These range from Malolos in the south to Paniqui in the north. The only reason for limiting the analysis to this area is to reduce the computational work. The 57 municipalities cover all the Huk area, plus the surrounding areas in every direction. There is nothing to be gained from extending the boundaries. As it turns out, the equation arrived at predicts Huk control outside of the sample with great accuracy and inclusion of additional municipalities would only confirm what was already well established.

Estimating the parameters of the model from the reduced form we arrive at the first equation (A) of Table 1. This equation includes only those variables that possess statistical significance by standard statistical criteria. (The data from which this equation is derived are given in Table 2.) Three principal conclusions may be drawn. First, k is large and hence our theory of coercion is well supported.¹ Second, the presence of Pampangos, an ethnic and linguistic minority, is a crucial condition for Huk success. Third, Huk control will be greater where most men are farmers and most farmers are tenants.²

To appreciate the importance of k being as large as .8, consider the case of a municipality surrounded by thoroughly Huk-controlled territory (that is, $HCN = 100$). Let us suppose that this surrounded municipality possesses none of the characteristics favorable to Huk success. There are no Pampangos, few tenant farmers, and so on. According to equation (A), this unreceptive place would find 80 percent of its barrios critical.

Examples as extreme as this do not occur in the data, but there are some illustrative cases. San Rafael in Bulacan has few Pampangos and on the basis of its cultural and economic features should be relatively Huk-free. Yet one in every six barrios is critical. Figure 2 shows

¹It should be mentioned that there are factors other than coercion that would be contained in the contiguity effect. For example, the strong kinship tie among Filipinos would imply sympathy for the cause of relatives in neighboring areas. But the quantitative importance of this and similar qualifications is likely to be small.

²Other RAND researchers engaged at present in similar research (Harvey Averch, Frank Denton) suggest an alternative model involving different variables and implying different conclusions.

Table 1

HUK CONTROL EQUATIONS
(57 Municipalities)

Equation		$\bar{R}^2$ (Reduced Form)	F (Reduced Form)
(A)	$HC = -1.53 + .8 HCN + P \left[\begin{array}{ccccc} 2.28 FMP - 1.69 OWN + .33 SGR + 23.0 MNT + 11.6 SWP \\ (.46) \quad (.26) \quad (.09) \quad (3.5) \quad (4.2) \end{array} \right]$	.86	60.5
(B) [k=0]	$HC = .94 + P \left[\begin{array}{ccccc} 4.47 FMP - 2.10 OWN + .42 SGR + 40.3 MNT + 16.0 SWP \\ (2.60) \quad (.86) \quad (.47) \quad (.16) \quad (6.7) \quad (8.6) \end{array} \right]$	.73	27.8
(C) [P linear]	$HC = 3.00 + .9 HCN - .03 P + 2.15 FMP - .89 OWN + .30 SGR + 14.5 MNT + 16.5 SWP$ (1.19) (.03) (2.15) (.19) (.10) (3.2) (4.4)	.68	17.3
(D) [k=0, P linear]	$HC = -6.13 + .19 P + .88 FMP - .65 OWN + .44 SGR + 20.9 MNT + 18.5 SWP$ (9.70) (.09) (.54) (.29) (.18) (5.4) (10.7)	.50	8.3

Definitions:

- HC = the percentage of barrios in a municipality under Huk control (1967-1968).^b
P = the proportion of the population that speak the Kapampangan dialect (1939).^c
FMP = farmers as a percentage of the population (1939).^c
OWN = owners as a percentage of all farmers (1939).^c
SGR = the percentage of cultivated land planted to sugar cane (1939).^c
MNT = 1 if mountains are in or immediately adjacent to the municipality; 0 if not.
SWP = 1 if a swamp is in or immediately adjacent to the municipality; 0 if not.
HCN = a weighted average of HCs in bordering municipalities.

Notes:

^aThe figures in parentheses are standard errors.

^bThe percentage of variation in HC explained by equation (A) or (C) given HCN is substantially higher than the $\bar{R}^2$ for the reduced form. This latter figure is based only on the explanatory power of the exogenous variables.

^cAll 1939 data were obtained from the 1939 Census of Population or the 1939 Census of Agriculture.

Table 2

DATA ON HUK CONTROL, LANGUAGE, TOPOGRAPHY, AND ECONOMIC CONDITIONS
(57 Philippine municipalities)

Municipality	Province	Percentage of Barrios Huk con- trolled 1968 (HC)	Proportion of Popula- tion able to speak Pampangan Dialect (P)	Farms as Percentage of Popula- tion 1939 (FMP)	Percentage of Farms Operated by Owners 1939 (OWN)	Area Planted to Sugarcane as a Percent of all Culti- vated Land 1939 (SGR)	Dummy Variable-- Contiguous to Mountains (MNT)
Angeles	Pampanga	46.7	.88	2.6	14.6	53.9	1
Apalit	"	7.4	.99	6.7	9.4	11.4	0
Arayat	"	68.4	.98	8.2	12.4	22.8	1
Bacolor	"	29.4	.99	6.2	12.5	33.3	0
Candaba	"	48.1	.92	11.3	4.6	2.5	0
Floridablanca	"	0.0	.91	7.5	21.0	65.3	0
Guagua	"	0.0	.98	3.0	18.8	23.4	0
Lubao	"	2.5	.99	8.4	17.9	35.8	0
Mabalacat	"	73.7	.96	4.9	10.3	58.5	1
Macabebe	"	0.0	.99	4.3	14.0	6.6	0
Magalang	"	80.0	.97	7.8	9.5	49.0	1
Masantol	"	0.0	1.00	6.3	8.0	1.0	0
Mexico	"	25.0	.93	9.8	8.1	36.9	0
Minalin	"	0.0	.99	5.5	4.6	0.9	0
Porac	"	43.5	.95	7.9	8.4	61.6	1
San Fernando	"	11.8	.95	3.4	12.2	46.4	0
San Luis	"	43.8	.96	6.5	11.3	4.8	0
San Simon	"	35.7	.97	10.5	18.5	7.1	0
Santa Ana	"	50.0	.99	8.2	11.5	21.8	0
Santa Rita	"	0.0	1.00	5.7	16.9	35.2	0
Sexmoan	"	0.0	.96	0.0	0.0	0.0	0
Bamban	Tarlac	88.9	.92	6.1	7.1	35.8	1
Capas	"	62.5	.93	9.4	15.4	19.0	1
Concepcion	"	78.6	.94	9.1	6.7	39.1	0
Gerona	"	0.0	.26	12.7	33.3	30.5	0
La Paz	"	9.5	.54	13.4	10.0	20.6	0
Paniqui	"	0.0	.44	12.1	30.8	14.6	0
Pura	"	0.0	.54	12.0	34.3	31.7	0
Ramos	"	0.0	.57	13.2	17.0	27.5	0
Santa Ignacia	"	0.0	.47	15.0	40.5	4.0	0
Tarlac	"	0.0	.81	6.7	23.7	25.3	1
Victoria	"	0.0	.28	14.3	31.3	17.6	0
Aliaga	Nueva Ecija	0.0	.03	23.4	15.6	0.2	0
Cabanatuan	"	0.0	.03	13.0	19.0	0.5	1
Cabiao	"	21.4	.65	11.8	14.3	0.1	0
Gapan	"	0.0	.23	10.3	11.5	0.1	1
Jaen	"	0.0	.05	26.3	11.7	0.5	0
Licab	"	0.0	.10	21.3	19.8	0.7	0
Penaranda	"	0.0	.00	21.5	40.5	0.2	1
Quezon	"	0.0	.02	21.2	23.2	0.3	0
San Antonio	"	20.0	.12	19.8	20.4	0.6	0
San Isidro	"	0.0	.02	17.3	18.5	0.3	0
San Leonardo	"	0.0	.16	20.3	17.7	0.8	0
Santa Rosa	"	0.0	.02	19.3	17.8	0.3	1
Zaragoza	"	0.0	.04	25.7	24.8	0.5	0
Angat	Bulacan	0.0	.00	18.2	43.1	1.2	1
Baliuag	"	16.7	.03	7.7	9.3	0.3	0
Bustos	"	0.0	.00	16.8	16.1	0.7	0
Calumpit	"	0.0	.23	9.0	16.9	20.6	0
Haganoy	"	0.0	.03	3.4	9.0	7.7	0
Malolos	"	0.0	.01	4.8	15.6	0.2	0
Paombong	"	0.0	.00	4.4	7.4	10.5	0
Plaridel	"	0.0	.00	11.0	14.3	0.4	0
Pulilan	"	0.0	.05	12.7	22.7	2.2	0
San Ildefonso	"	9.7	.02	14.9	0.0	0.1	1
San Miguel	"	5.0	.08	11.3	11.8	0.2	1
San Rafael	"	16.7	.01	14.9	42.8	0.3	1

Note: The SWP variable has a value of 1 for the municipalities of Apalit, Candaba, San Luis, and San Simon; for all other municipalities it is 0.

that San Rafael is bordered on the west by a solidly Huk region around the Candaba swamp. To the east the Sierra Madre offers excellent refuge to Huk regulars. To the north and south neighbors San Ildefonso and Baliuag are in similar positions. Thus, for apparently geographical reasons an otherwise peaceful spot finds itself with a serious Huk problem.

Among exogenous variables the proportion of Pampangos in the population dominates. In the absence of Pampangos the impact of other exogenous variables is nil. Apparently the Huks can control non-Pampango areas only through external pressure. In this sense the presence of Pampangos is a necessary but not sufficient condition for Huk success. Outside of Pampanga and the Pampangan-speaking areas of Tarlac, Nueva Ecija, and Bulacan, the equation predicts accurately the absence of any critical barrios.

The predominance of the Pampango variable is due to the particular way that P enters into equation (A). Suppose instead we assumed that the presence of Pampangos is not a necessary condition, but just one among several exogenous factors. What would happen if P entered the equation additively rather than multiplicatively? The answer is given by equation (C). Taken as a whole, this is much poorer than equation (A). Furthermore, the coefficient of P is not even statistically significant! The explanation is that Huk control is confined for the most part to the Pampangan-speaking area; but not all of this area is Huk-controlled. Within the area, and only within the area, the remaining exogenous factors operate.

Strictly speaking, this is the way we must interpret equation (A). Having limited ourselves to only the simplest models, however, the supposed "necessity" of Pampangos is an exaggeration. More complex functional forms would almost certainly show that factors such as tenancy operate among non-Pampangos, but to a much smaller degree. We should expect to find many non-Pampangos freely embracing the HMB, and we do. This does not detract, of course, from the strong general tendency that the equation reveals.

Why would other Philippine ethnic groups fail to join a Pampangan movement? Is there an essential mistrust between Pampangos and their neighbors, the Tagalogs and the Ilokanos? Based on the history of rebellions in Central and Southern Luzon the answer to the latter question appears to be yes. During the first phase of the Philippine Revolution against Spain (1882-1896), the militantly nationalist Katipunan movement was overwhelmingly Tagalog and received little support from the Pampangans.¹ Even after hostilities broke out between the Tagalogs and the Spaniards (August 1896) Pampangans for the most part remained loyal to Spain and many served faithfully on the Spanish side. It was not until the defeat of the Spanish at Manila Bay by the Americans (May 1898) that the Pampangans began to favor the revolution. After joining the Republic in August 1898, Pampanga, although one of the wealthiest provinces, ranked a poor fifteenth in financial contributions.²

A similar lack of Pampangan enthusiasm for a predominantly Tagalog cause was displayed during the Sakdalista episode of the 1930s. The Sakdalista party was a radical agrarian movement in Central and Southern Luzon and ran successful candidates for public office. During the 1934 elections they received a significant percentage of the vote in every province of the region -- except Pampanga.³

Thus, the forsaken Pampangos of the past two decades have been undergoing an experience familiar to Tagalogs. In historical perspective, the Huk phenomenon is seen as a simple turnabout of the usual

¹Pampangans are residents of Pampanga province; Pampangos are people who speak the Kapampangan dialect. Almost all Pampangans are Pampangos, but the reverse is not quite true. In this historical discussion the distinction, although necessary for literal accuracy, is of no great consequence.

²J. A. Larkin, The Evolution of Pampangan Society: A Case Study of Social and Economic Change in the Rural Philippines, Doctoral Dissertation in History, New York University, 1966. There are a number of Filipino historians who dispute the importance of sectionalism in the Revolution. See, for example, T. Kalow, The Philippine Revolution, Manila, 1925. Among American writers it is often referred to as the Tagalog Rebellion.

³Carl H. Landé, Leaders, Factions and Parties: The Structure of Philippine Politics, Yale University Press, New Haven, 1965.

situation, but with this exception: The success of a Tagalog cause is little affected by Pampangan support or the absence of it. Tagalogs outnumber Pampangos by more than 6 to 1. Given the Huk performance with the potential backing of little more than 5 percent of the population, the Tagalog abandonment must rate as a decisive factor of the rebellion.¹

To the north, especially in northern Tarlac, the principal neighbors of the Pampangos are Ilokanos. Here the historical evidence is more limited. However, the impression one obtains is that the cleavage between Ilokano and Pampango is more thorough than between Tagalog and Pampango. The Ilokano is noted for his clannishness and, although willing to follow his own leaders, he is suspicious of strangers. To the Huks' misfortune, he is one of the more extreme examples of Filipino sectionalism.²

Within the Pampangan-speaking region what determines Huk success? Here we must turn to the variables within the brackets of equation (1). Farmers, and especially tenant farmers, seem to be the foundation of the Huk movement. It is well known that the Huks directed their appeals to the landless farmer, and most writers have stressed the land problem as the source of discontent in Central Luzon.³ The statistical evidence supports this emphasis.

It is surprising that land tenure should play so large a role where it varies so little. In the great bulk of the Pampangan-speaking municipalities owners represent only 5 to 18 percent of all farmers. Thus, tenancy (including part-ownership) varies from a high 82 percent to a very high 95 percent. Yet the coefficient of the OWN variable is so large (-1.7) that this represents a difference of 22

¹From private conversations with Luis Taruc I gather that the Huk leadership was unaware of this, although in recent years Taruc has reflected on its importance.

²Marcelo Tangco, "The Christian Peoples of the Philippines," Natural and Applied Science Bulletin, XI, pp. 9-114.

³F. L. Starnes, Magsaysay and the Philippine Peasantry, University of California Press, Berkeley and Los Angeles, 1961; E. Jacoby, Agrarian Unrest in Southeast Asia, Asia Publishing Co., Bombay, 1961.

percentage points in Huk control. One would have thought that by the time tenants and part-owners reached 75 to 80 percent their influence would be so great as to yield diminishing returns to further increments in their number. Apparently not. This suggests that at moderate rates (25-75 percent) tenancy is not a crucial factor contributing to rebellion and becomes so only upon reaching the highest levels.

Unlike tenancy rates, occupational composition does vary widely, both within Pampanga and without. In 1939 there were but 7 small farms in Sexmoan, Pampanga, a municipality of more than 10,000 people; whereas in Jaen, Nueva Ecija, there was one farm for every four persons. Assuming a family size of at least four, the farm population varied practically from 0 to 100 percent. The coefficient of the FMP variable indicates that Huk support among non-farmers (fishermen, merchants, laborers) was weak. Examples are found in Sexmoan, a fishing community, with no critical barrios, and San Fernando, location of the provincial capital, with but 11.8 percent. Candaba, on the other hand, with a farm population of over 50 percent, has 13 of its 27 barrios on the critical list.

To see how tenancy and farm population fail to operate as powerful forces outside the Pampangan-speaking area consider one extreme case. (There are many less dramatic examples.) Nampicuan in Nueva Ecija had 1451 farms in 1939. Four of these were operated by owners. By 1960 the figure had soared to 12. Over these 1451 farms were spread 5023 people, or about 3.5 persons per farm. Surely there were few individuals engaged in anything but agriculture. By 1960 the farm population had declined to 78 percent, still very high. The FMP and OWN variables possess values here more favorable to the Huks than in any municipality included in Table 2. Yet, because only 74 residents spoke Pampangan, and, interestingly enough, almost all the remainder were Ilokanos, there were no critical barrios.

The presence of nearby mountains raises Huk control by about 23 percentage points. This is easily explained by the comparative advantage possessed by guerrillas in poor terrain. In the same way nearby swamps raise Huk control by 11 points.

Turning to the sugar cane variable we must be a bit more speculative. Two interpretations may be advanced. First, there is usually a high proportion of farm laborers and migrant workers on sugar cane estates, and these groups may well be the most radical. (Unfortunately, no explicit variable measuring laborers or migrant workers is available on a municipality basis.) Second, the sugar cane landlord is probably more profit-oriented and businesslike and hence less paternalistic than the traditional Philippine landowner. His tenants would then be regarded as employees with no claims on his time and resources other than their share of the cash value of the crop. Since the traditional acceptance of the landlord's high status is predicated on a far more extensive set of roles than mere owner of the land, tenants may have little respect for their landlord's rights and the institutions that preserve them.

Thus far we've been satisfied with explaining a large part of the variation in Huk control across municipalities in terms of a few systematic factors. It is often rewarding, however, to try to explain some of the deviant cases where actual Huk control differs substantially from that predicted by the equation. In two cases this seems worthwhile.

The municipality of Tarlac has no critical barrios according to the Constabulary. Yet it possesses some ideal attributes from the Huk point of view. Over 80 percent of the population are Pampangos, a fair amount of sugar cane is grown, the Zambales Mountains are nearby, and its neighbors to the south are under great Huk influence. The equation in fact predicts over 21 percent of the barrios as critical. A glance at Figure 2 gives some indication of how this deviation might be accounted for. The Hacienda Luisita appears to act as a blocking force against Huk expansion northward.¹ The Huks are very strong right up to the borders of the Hacienda but control no barrios beyond that. The Hacienda, a 15,000 acre sugar plantation, has had its own private army for many years and apparently has been able to control

¹The configuration representing the Hacienda in Fig. 2 is a gross approximation. For our purposes it is only necessary that its general location be correct.

the local situation. It is interesting to discover that the new owners of the plantation, both of whom are Filipino politicians, have begun a more conciliatory approach to the Huks and have permitted them to organize peasants on the estate. The Constabulary believes that some of the plantation barrios may soon be on the critical list.

To the east of Tarlac in LaPaz the Hacienda seems to serve the same function. From the equation one would predict about 20 percent Huk control compared with an actual 9.5 percent, an error of almost 11 percent. The map shows clearly that the only critical barrios in LaPaz are in the southeast not far from some of the Huk barrios of Concepcion. In the west the Hacienda appears to halt the Huk thrust and all territory to the north of it is fairly secure.

The FMP, OWN, and SGR variables were calculated from 1960 as well as 1939 data. (The MNT and SWP variables have no time dimension, while P could be measured only for 1939.) Besides the a priori grounds for preferring 1939, these variables also turned out to have much larger and more significant coefficients. The 1939 OWN variable had more than twice as large a coefficient and much greater variance than its 1960 counterpart. The 1960 SGR coefficient was not even statistically significant. When 1960 data are used the burden of explanation is transferred to the MTN and SWP variables as well as to the 1960 FMP variable, which in a relative sense seems not to have changed much. Consistent with these findings is the result that a variable measuring changes in tenancy from 1939 to 1960 makes no significant contribution to equation (A).

The relative importance of pre-war conditions may be the consequence of a common political phenomenon. It often happens that during periods of great crisis, such as the Japanese invasion and the initiation of guerrilla activities, attitudes are formed that become hardened over time and inherited by succeeding generations. This view would also account for the persistent location of the movement in Central Luzon, especially Pampanga, despite a changing environment and twenty-six years of ups and downs in Huk fortunes. An almost identical explanation would seem appropriate in South Vietnam, where recent Viet Cong strongholds correlate highly with old Viet Minh areas.

IV. CONCLUSION

From the Huk equation and from other historical evidence the rebellion seems capable of simple interpretation. During the 1930s several radical movements, including Communists and Socialists, existed in Central Luzon. These movements fed mainly on peasant discontent over the distribution of land and tenure conditions. Peasant strikes, sabotage of crops, and violent clashes between socialist unions and landlord-backed organizations were common. The Japanese invasion was the catalyst that forced the issue even further. The choices became those of supporting a Communist guerrilla army or siding with the predominantly collaborationist landlords.

It is natural that the Huks were most successful among tenant farmers (the FMP and OWN variables) and among farm laborers and migrant workers (the SGR variable). Had these been the only forces at work, however, the rebellion would have spread further and more successfully. The major difficulty in Huk expansion seems to have been the inability to break through ethnic and linguistic barriers.

It isn't that Pampangos are inherently more revolutionary than others. Philippine history is cluttered with peasant rebellions among many ethnic groups, and the Pampangos have sometimes looked like conservatives. That the Communists should gain their foothold in the Philippines through them is most likely historical coincidence. For the Philippine government, their relatively small numbers make it a happy coincidence.