of the work force, as Hage and Blau, *et al.*, have suggested.[26] The organizations with more professionalized staffs probably exhibit less formalization.

These findings suggest that size may be rather irrelevant as a factor in determining organizational structure. Blau, *et al.*, have indicated that structural differentiation is a *consequence* of expanding size.[27] Our study suggests that it is relatively rare that the two factors are even associated and thus the temporal sequence or causality (expanding size produces greater differentiation) posited by Blau and colleagues is open to question. In those cases where size and complexity are associated, the sequence may well be the reverse. If a decision is made to enlarge the number of functions or activities carried out in an organization, it then becomes necessary to add more members to staff the new functional areas. Clearly, what are needed are longitudinal studies which examine the preconditions of staff increase as well as the structural consequences of such increases.

While size and organizational structure are not closely related, size is an important variable in other kinds of analyses. The individual in a large organization might feel "lost" in the great numbers of people. Organizational size also is an important variable in inter-organizational relations since size and organizational power are probably positively related. Similarly, larger organizations probably have more financial resources. Thus, organizational size should not be dismissed as a variable but should rather be utilized where it is likely to have more predictive significance than it has for complexity and formalization.

[26] See Hage, *op. cit.*, p. 300, and Peter M. Blau, Wolf V. Heydebrand, and Robert E. Stauffer, "The Structure of Small Bureaucracies," *American Sociological Review,* 31 (April, 1966), p. 184.

[27] *Ibid.*, p. 185.

STRATIFICATION AND RISK-TAKING: A THEORY TESTED ON AGRICULTURAL INNOVATION *

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The relationship between wealth and adoption of agricultural innovations is usually reported to be positive. A theory which predicts that wealth has a negative relationship to adoption in some cases is developed and is modified to predict that the relationship will have curvilinear and negative parts at different points in the wealth-rank continuum. Hypotheses derived from the theory are tested with data from seven studies of agricultural innovation. The "middle class" (second from the top wealth quartile) is found to be more conservative than would be predicted if the relationship were positive and linear, and the relationship is found to differ in earlier and later stages of the the adoption process. The theory is stated in general terms and is potentially applicable to any situation involving stratification and risk-taking.

IT is usually asserted that rich farmers adopt new farming practices more readily than do poor ones.[1] The question of the linearity or nonlinearity of the relationship is normally left open, but in the absence of detailed data to the contrary, the most common assumption is that the relationship is approximately linear—the wealthier the

* Much of the work on this paper was done during the tenure of a Postdoctoral Foreign Area Fellowship in Latin American Studies. My own data on Zinacantan were gathered during the summer of 1965 under a grant from the Morrison Fund of Stanford University. Previous work on Zinacantan was done under the Havard Chiapas Project (Evon Z. Vogt, Director) which is sponsored by NIMH Grant MH-2100, and under NIMH Predoctoral Fellowship MPH-17,719. For comments and criticism during the course of preparation of the paper I am indebted to Michael Burton, George Collier, Paul Kay, A. Kimball Romney, Stuart Plattner, Paul Young, and especially to my wife, Francesca Cancian.

[1] Everett M. Rogers, *Diffusion of Innovations,* New York: The Free Press of Glencoe, 1962, pp. 175–176.

farmer, the more likely he is to adopt an innovation. In this paper I will try to show that: (1) the relationship between wealth and innovation is more complex than is usually assumed; (2) insofar as adoption depends on willingness to take economic risks, the relation between the variables is negative rather than positive; and (3) empirical studies will show the relation to be curvilinear rather than linear.

A theory which predicts an inverse relationship between wealth and early adoption will be presented, and then modified to take account of: a. factors that counteract the relationship predicted by the theory; and b. factors that tend to make the relationship curvilinear.[2] Data from seven studies done by various investigators will be used to test hypotheses derived from the original and modified theories. These data are both scanty and inconclusive, but they seem substantial enough to justify presentation of what follows.

THEORY

Risk, Resources and Innovation. The common finding that "earlier adopters have a more favorable financial position than later adopters" [3] suggests that wealth provides the inclination to innovate. Though the association between wealth and early adoption is almost always found in empirical studies,[4] the "causal" relationship that is suggested seems to me to be contrary to common first principles. Crudely stated, the argument might go as follows: the better your financial position, the more you have to lose and the less you have to gain from taking chances; therefore, insofar as adopting an innovation is risky, the richer you are, the less likely you are to adopt.

This view, and the assumptions on which it is based, may be generalized and stated in a simple "theory" of stratification and risk-taking:

Propositions:

In all societies, individuals (or classes of individuals) will be ranked from high to low in direct relation to their possession of any resource valued in the society.

Individuals in all societies would rather be high than low on any such ranking.

Definitions:

Risk is a characteristic of situations of exchange in which the rate of return on investment of resources is uncertain; the greater the uncertainty, the greater the risk.

For individuals of different ranks, *equal risk* is represented by investment of an equal proportion of the total resources of each individual under conditions of equal uncertainty.[5]

Conditions:

1. All risks (uncertain investments of resources) are perfectly divisible.
2. Knowledge is equally spread over all ranks.
3. The risk necessary to maintain present rank is equal, as a proportion of total resources, for individuals of all ranks.
4. No individual can suffer total loss of resources from loss on a single risk.
5. No individual has so many more resources than the next lower relevant individual, or category of individuals, that he is completely protected from loss of rank.

These conditions often will not be met in natural situations. The implications of their not being met are the focus of the discussion in the sections on modification of the theory.

Given the foregoing propositions, definitions and conditions, it follows that *individuals of higher rank will risk less than individuals of lower rank.*

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[2] The analysis I will make does not suggest that wealth (farm size and income) will always be a bad predictor of the tendency to adopt new farm practices. Wealth may often be associated with other predictors of early adoption like simply ability to afford the innovation, specialization, mental ability and access to the best scientific information, and thus may remain a good gross predictor of the tendency to adopt innovations.

[3] Rogers, *op. cit.*, p. 175.

[4] Frederick C. Fliegel, "A Multiple Correlation Analysis of Factors Associated with Adoption of Farm Practices," *Rural Sociology,* 21 (September-December, 1956), pp. 284–292, found no significant relationship between size of operation and adoption in a multiple correlation analysis in which some major correlates of adoption were controlled.

[5] It may be more appropriate to say that equal risk is represented by investment of an equal proportion of the resources that separate each individual from the next lower category in the stratification hierarchy under conditions of equal uncertainty. However, the statement in the text avoids complications of measurement and is, therefore, used at this early stage of development of the theory.

Despite this relatively formal statement, this assertion does not pretend to be a highly formalized theory in the sense that the general hypothesis about rank and risk-taking is derivable from the initial propositions. The general hypothesis is, rather, an interpretation of the second proposition based on the idea that insofar as an individual holds high rank, he will act to conserve it, and insofar as an individual holds low rank, he will act to improve it. The conditions "protect" this interpretation from some of the more obvious situations which would make it empirically false. While the general hypothesis, together with the two major modifications which follow, moves in the direction of theory in the more formal sense, this paper is intended as an exploration of the complexities involved rather than as a final statement of such a theory. Emphasis has been given to this first of the three elements of the approach because it is the key to the difference between the overall interpretation and more usual ones.

The "theory" has been stated in very general terms and is meant to apply to any area in which people are ranked by possession of a resource, and in which change in rank is related to risk of that resource. While the discussion from this point on often will be stated in terms of agriculture, I hope that the observations and hypotheses will have applicability in other domains, and that parallel modifications and parallel hypotheses might eventually be developed for those domains. Hopefully, generalization might move in the direction of resources other than economic ones, for example, social position and power; and, while it is not provided for in this statement, observations about the individual as the actor might be generalizable to firms and other supra-individual actors.

In the application of the theory to agriculture, it is assumed that wealth is the valued resource and that early adoption of a new agricultural practice is a risk, for the results it will produce are uncertain. Thus, the theory predicts that *the inclination of a farmer to innovate decreases as his wealth increases.* This inverse relationship between wealth and early adoption of innovations will be called the "inhibiting effect" of wealth (see the I curve, Figure 1).

Modification of the Theory: the Facilitating Effect. If the conditions stated above are met, the relationship of wealth and adoption of agricultural innovations will be linear and negative. However, in most natural situations (including agriculture) it is highly unlikely that conditions 1 and 2 will be met.

It is also highly unlikely that agricultural innovations are perfectly divisible (Condition 1) so that every farmer can afford to adopt in proportion to his wealth. (Moreover, in the data that are available to test the theory, it is impossible to make subtle measures of proportions.) In this situation, the best assumption is that the richer the farmer, the more likely he is to have the economic ability to invest in a given (randomly chosen) innovation. Over the long run, or for a number of innovations in an index of innovations, economic ability should have a positive and linear relation to early adoption. Other factors, like the absolute cost of obtaining information about innovations, and the impracticality of certain innovations (like a tractor) on small farms may be seen as restraining the poorer or smaller farmer in a similar manner.

It is also improbable that knowledge will be spread equally over all wealth ranks (Condition 2) in any agricultural community. More probably, the richer a farmer is,

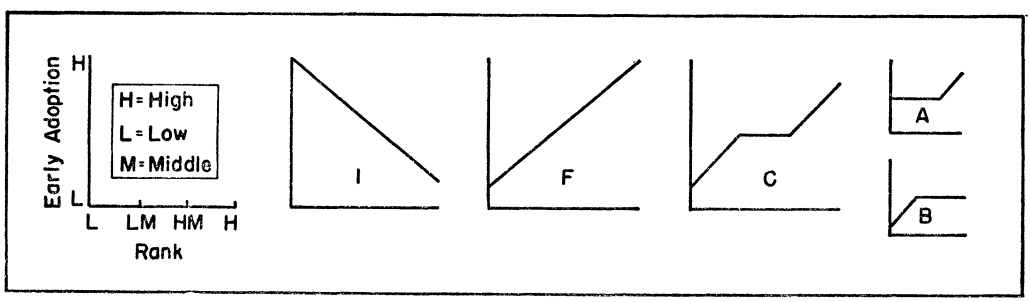

FIGURE 1.

the more information he will have. Information would reduce the risk of adopting an innovation, and thus tend to increase the observed adoption rate of wealthier farmers.

The positive relationship between wealth and early adoption predictable on the basis of these two factors will be called the "facilitating effect" of wealth in the discussion below. (See the F curve, Figure 1.) Thus, in a situation where divisibility of innovations is imperfect and knowledge is unevenly spread across ranks, wealth may be seen as having a facilitating effect on adoption of innovations, as well as the inhibiting effect predicted by the original theory.

Modification of the Theory: the Curvilinear Effect. The inhibiting and facilitating effects of wealth discussed above are seen as linear, but, as was noted in the introduction, the overall theory of the relationship of wealth and adoption of agricultural innovations will predict a curvilinear relation between the variables. The arguments in support of this "curvilinear effect" of wealth are many and complex, and they may be formulated in a number of ways. I have taken the liberty of stating the hypothesis that there will be a curvilinear effect (see the C curve, Figure 1) before laying the groundwork for its justification.

The C curve requires that at least four wealth ranks be specified, i.e., that the continuum from poor to rich be divided into at least four parts. These will be labeled: Low (L), Low Middle (LM), High Middle (HM) and High (H). The curvilinear effect is essentially an hypothesis of "middle class conservatism" (in which the middle class is represented by the High Middle rank in Figure 1); though, as can be seen in the C curve, it might also be described as a deviation of the highest and lowest ranks from the "normal" position represented by the two middle ranks. Despite the currency of the notion of middle class conservatism, the arguments for the existence of a phenomenon like that described by the C curve do not include any that are systematically developed.

In his chapter on "Status, Conformity and Innovation," [6] George Homans makes some arguments about social stratification that suggest general principles applicable to the relation of wealth and adoption of agricultural innovations. Homans usually divides the social continuum into three parts (high, middle and low). He argues that highs are innovative because they can afford it or because they need to maintain their distinctiveness, while lows are innovative because they are not highly rewarded by the group for any of their behavior. Thus they find the costs of nonconformity to be more consistent with their expectations than do the middles, who are accustomed to rewards for conventional behavior. This produces a "U-shaped" curve. However, Homans finds a different interpretation necessary to handle the results of an experiment in which lows and very lows (four classes in all) were involved. For this experiment, in which the very lows were conformist in their publically expressed opinions, Homans accepts the interpretation made by the original investigators: "In the extreme case . . . where acceptance is so low that actual rejection is presumably an imminent possibility, anxiety about rejection is especially high, and the result seems to be a pattern of guarded public behavior." [7]

In both arguments, "middle class conservatism" is explained by focusing attention on the other "classes" and giving reasons for their non-conservatism or ultra-conservatism. And, in both cases, essentially separate arguments are presented (though similar variables are considered) for each end of the continuum. While it would be desirable to make a single argument for the curvilinear effect, it seems impossible to do so, at least at present. Rather, the curvilinear effect must be seen as a combination of two tendencies, one (the "A" effect represented by the A curve in Figure 1) which makes the highest group more innovative than otherwise expected, and the other (the "B" effect represented by the B curve in Figure 1) which makes the lowest group less innovative than expected. The middle classes get their distinction by standing still.

The arguments for the curvilinear effect may be grouped into two pairs, each including an argument for the "A" effect and an

[6] George Casper Homans, *Social Behavior: Its Elementary Forms*, New York: Harcourt, Brace & World, Inc., 1961, pp. 336–358.

[7] *Ibid.*, p. 346, quoting J. E. Dittes and H. H. Kelley.

argument for the "B" effect.[8] The first pair implies that the inclination to *risk* of the High and Low ranks is *opposite* to that predicted by the original theory. The second pair implies that the motivation for adopting or not adopting is not economic, but is, rather, a reflection of non-involvement in economic competition. That is, it implies that the risk involved in innovation is not relevant to the behavior of the High and Low ranks.

1A. The rich realize that their distinctiveness is based on leadership in economic techniques and take calculated risks in order to maintain this distinctiveness. If this argument is correct, Condition 3 of the original theory does not hold for the High rank.

1B. The poor are so poor that any risk threatens total economic extinction and, therefore, they are unusually conservative. If this argument is correct, Condition 4 of the original theory does not hold for the Low rank.

2A. The rich are secure in their high position and take flyers because they have little to lose by doing so. If this argument is correct, Condition 5 of the original theory does not hold for the High rank.

2B. The poor refuse to compete in the economic sphere because past failures have made it seem an inefficient way to seek rewards. This statement may be taken as a parallel to Homans' argument (with a three-class division) that lower class people will be non-conformists (innovative) because their attachment to the group and its rules is low. In reference to a social group, this means that they will do unusual things and that these things will be encoded on the social dimension and will make them non-conformists or innovators. However, in a situation of agricultural innovation, where the relevant resource (wealth) is more strictly defined than it can be in a social group, parallel behavior may take them out of the agricultural domain altogether. Given his low economic success in the past, an individual in the lowest class has low attachment to the economic system and may "innovate" by spending his few resources outside the sphere of production. This statement simply attempts to explain the folk observation that poor people waste their money on foolish things. Since they do not attempt to compete in the economic sphere, the poor will be especially low innovators. If this argument is correct, the second proposition of the theory itself is not true for the Low rank.

None of the arguments offered above constitutes a satisfactory theory explaining the curvilinear effect. However, since this is a working paper, and since none of the arguments is clearly superior, I have presented them all. An attempt to evaluate them in terms of alternative predictions derivable from them will be made below.

HYPOTHESES

We may assume that when a new practice has been adopted by a substantial proportion of a population, knowledge about it will spread, and, consequently, the risk involved in adoption will be lowered.[9] At this point, the practice is no longer an innovation, and inclination to risk is no longer a major element in the decision to adopt. Thus, the adoption process may be seen as having at least two stages: Stage 1 in which inclination to risk is important; and Stage 2 in which inclination to risk is substantially less important. The overall theory, since it is heavily dependent on arguments about inclination to risk, is principally applicable to Stage 1 of the adoption process. First, hypotheses concerning Stage 1 will be formulated, then hypotheses that can be developed

[8] When the modifications of the original theory were first developed for the Zinacantan case (see below) a third pair of arguments was used. The empirical situation on which this was based is described below. The arguments were: A. the world of agricultural populations is such that the top rank (the Highs) runs a different kind of operation because of the requirements of size. Distinctive pressures on large operations lead to innovations. B. the poor run such small operations that the possible gain from innovation, when measured in absolute rather than relative terms, is so small that innovation is uneconomical or at least unattractive. These arguments seem to apply to the Zinacantan situation, and they may be applicable to others.

[9] That is, risk based on incomplete knowledge of what is known by technicians about the innovation will be lowered. Risk due to lack of total technical control, climate and similar factors may remain constant, as it does for even very old agricultural techniques.

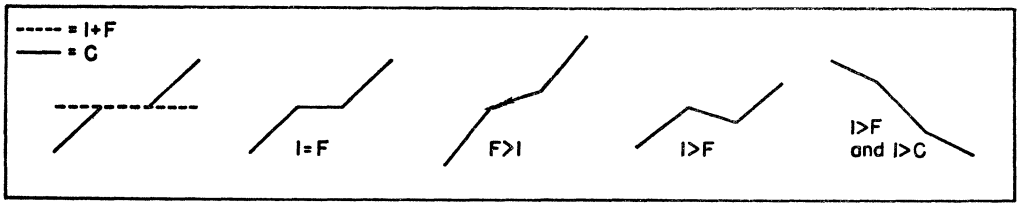

FIGURE 2.

on the basis of the predictable change from Stage 1 to Stage 2 of the adoption process will be presented.

Predictions from the Overall Theory. Insofar as the inhibiting, facilitating and curvilinear effects represent an adequate overall theory of the relation of wealth and early adoption, any curve representing an empirical case of this relation must be recognizable as a combination of the I, F and C curves.

Since curves I and F negate each other, the inhibiting effect and the facilitating effect will never be evident in the same descriptive curve, though they may well be present in the same empirical situation. Any empirical curve must be either a C curve (when I and F exactly negate each other) or a combination of I or F with C (see Figure 2).

In the absence of any knowledge about the dominance of either the inhibiting effect or the facilitating effect, the distinctive features contributed by the curvilinear effect are the only characteristics of an empirical curve predictable from the overall theory. Whatever the other conditions, if there is a curvilinear effect (see Figure 3a):

Hypothesis 1: Individuals of High Middle rank will innovate less than would be predicted by an assumption of linearity from low rank to High rank.
Hypothesis 2: Individuals of Low Middle rank will innovate more than would be predicted by an assumption of linearity from Low rank to High rank.

These hypotheses frame the predictions based on the curvilinear effect in their strongest form. While this strong statement is desirable, it may be unrealistic for predictions to crudely analyzed comparative data. In the discussion of the basis for predicting the curvilinear effect, two separate sets of arguments were made: one for the especially high innovativeness of the High rank (the "A" effect), and one for the especially low innovativeness of the Low rank (the "B" effect). Unless these arguments apply with equal strength (making the C curve "symmetrical"), the hypotheses stated above might be rejected (see Figure 3).

A weaker hypothesis which retains the prediction about the relative conservatism of the "middle class" (the High Middle rank) may be formulated. To retain the prediction and eliminate the possibility that the pattern will be obscured by an "asymmetrical" curve, Hypothesis 1 may be restated as (see Figure 3b):

Hypothesis 3: Individuals of High Middle rank will innovate less than would be predicted by an assumption of linearity from Low Middle rank to High rank.

In parallel fashion, the prediction that the Low Middle rank will innovate more than would be expected may be protected from an "asymmetrical" curve by restating Hypothesis 2 as (see Figure 3c):

Hypothesis 4: Individuals of Low Middle

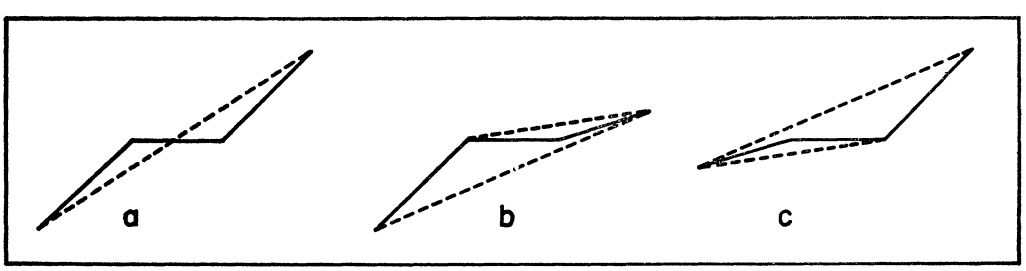

FIGURE 3.

rank will innovate more than would be predicted by an assumption of linearity from Low rank to High Middle rank.

While this hypothesis makes a prediction about the Low Middle rank, its confirmation depends heavily on the phenomenon of central interest, the conservatism of the High Middle rank.

The overall theory produces no prediction concerning the dominance of the inhibiting effect or the facilitating effect. If neither of these effects were dominant over the other, the curvilinear effect would dominate the curve and produce a roughly positive relationship between wealth and adoption, thus explaining the commonly reported result showing such a relationship. However, when the wealth continuum is divided into four parts, as it is in this study, the curvilinear effect predicts no difference between the Low Middle rank and the High Middle rank. Thus, dominance of either the inhibiting or the facilitating effect in an empirical situation should show up in the relationship of these ranks. If the inhibiting effect is dominant, the Low Middle rank should innovate more than the High Middle rank. If the facilitating effect is dominant, the High Middle rank should innovate more than the Low Middle rank. Since dominance of the facilitating effect would confirm the common finding, a hypothesis may be stated:

Hypothesis 5: Individuals of High Middle rank will innovate more than individuals of Low Middle rank.

Since the theory developed in this paper gives no reason to expect otherwise, *the prediction is that Hypothesis 5 will not be confirmed.*

If Hypothesis 5 is not confirmed, three explanations are possible. (1) Both the inhibiting and the facilitating effects are operative, and are of roughly equal influence. (2) Neither the inhibiting nor the facilitating effect is operative, and the curvilinear effect is completely responsible for the relationship of wealth to adoption. In either of these two situations, the commonly reported finding represented by dominance of the facilitating effect would be suspect. (3) Dominance of the inhibiting effect is such that the hypothesis that individuals of Low Middle rank will innovate more than individuals of High Middle rank would be confirmed. This would be startling, for it would be a direct contradiction of established findings.

Predictable Stages in the Adoption Process: The Inhibiting Effect. In Stage 2 of the adoption process, more is known about the new practice, and the risk involved in adoption is lower than it is in Stage 1. Thus, a decrease in the influence of the inhibiting effect should be evident in Stage 2. Since the inhibiting effect affects adoption more the higher the rank, its attenuation in Stage 2 should mean that a higher rank will have a greater increase in adoption rate from Stage 1 to Stage 2 than any corresponding lower rank. However, because of the indeterminate influence of the curvilinear effect, this prediction cannot be applied to comparison of all pairs of ranks. It must be limited to comparisons of the High Middle rank with the Low Middle rank.[10]

Hypothesis 6: The adoption rate of the High Middle rank in Stage 2 minus its adoption rate in Stage 1 will be greater than the adoption rate of the Low Middle rank in Stage 2 minus its adoption rate in Stage 1.

The Curvilinear Effect. In the first part of the paper, two sets of arguments are made for the curvilinear effect. One set is based on attribution to the High and Low ranks of idiosyncratic *economic* motives for risking or not risking. The other set involves noneconomic motivation for economic behavior. If the former set is correct, then the curvilinear effect should lessen in Stage 2, for the risk is lower. If the latter set is correct, the curvilinear effect should not lessen in

[10] For comparisons of the High rank with the lower ranks (H-HM, H-LM, H-L) the curvilinear effect may produce dominance of the High rank over the lower rank in Stage 1. If the curvilinear effect lessens in Stage 2, the lower rank may increase more than the High rank because the gain to the lower rank from the lessening of the inhibiting effect may be more than the gain to the High rank from the lessening of the inhibiting effect minus the loss to the High rank from the lessening of the curvilinear effect. A similar argument applies to comparisons of the Low rank with higher ranks (HM-L, LM-L). The middle ranks remain uneffected by the indeterminancy of the curvilinear effect and, therefore, are useful for testing the hypothesis about the relative strengths of the inhibiting and facilitating effects.

Stage 2.[11] Thus we have a way of evaluating the relative worth of the two sets of arguments.

In the discussion preceding the presentation of Hypothesis 6, it was observed that both the inhibiting and the curvilinear effects may be expected to change from Stage 1 to Stage 2 of the adoption process. Thus, any test of change in the curvilinear effect must control change that is due to attenuation of the inhibiting effect. To do this, expected values for the High and Low ranks may be calculated by extrapolation of the line defined by the Low Middle and High Middle ranks which are not influenced by the curvilinear effect (See curve at left in Figure 2). If the curvilinear effect lessens in Stage 2, then deviation of the Low and High ranks from the expected values defined in terms of the line from Low Middle to High Middle rank should be less. Separate predictions for the lessening of the "A" effect (High rank) and "B" effect (Low rank) components of the curvilinear effect may be framed as follows.

Hypothesis 7: The positive deviation of the High rank from the expected, defined by the line from Low Middle rank to High Middle rank, will be less in Stage 2 than in Stage 1.
Hypothesis 8: The negative deviation of the Low rank from the expected defined by the line from Low Middle to High Middle rank, will be less in Stage 2 than in Stage 1.

DATA AND TESTS

The Data. Data from seven studies will be used to test the hypotheses developed above. One case is my own study of Zinacantan, Mexico, which will be described in more detail. Data for four other cases were kindly provided by scholars[12] whose publications did not include the detail needed to test the hypotheses. The final two cases came from a publication and an M.A. thesis. Table 1 lists the location of the populations studied and sample sizes.[13] Table 2 lists the

[11] While the implications of argument 2B for change or lack of change from Stage 1 to Stage 2 present no problem, the implications of Argument 2A are not so clear. Argument 2A is that the rich are secure in their high position and take flyers because they have little to lose by doing so. This argument is ambiguous at best, and it may be that the attractiveness of new agricultural techniques as "flyers" is lower in Stage 2 than in Stage 1. If this is true, argument 2A could be used to predict a reduction in the adoption rate of the High rank, thus making arguments 1A and 2A indistinguishable. For the purposes of this paper, I assume that new agricultural techniques do not lose their attractiveness as "flyers" so quickly. Thus, as implied in the text, arguments 1A and 2A lead to different predictions about change or lack of change in the adoption rate of the High rank from Stage 1 to Stage 2.

[12] The data from the following studies were supplied by the authors: Dean, Aurbach and Marsh, Fliegel, Lindstrom and Marsh and Coleman (see note to Table 1 for complete references). I am grateful for permission to use it here. For cooperation in obtaining the data, I am especially thankful to A. Lee Coleman, C. Milton Coughenour, Alfred Dean, Frederick C. Fliegel, David E. Lindstrom, C. Paul Marsh and Joel Smith. I am also indebted to Orlando Fals Borda, E. A. Wilkening and a number of others who were generous in their help with searches that did not produce usable data.

Acknowledgment is also due: The W. K. Kellogg Foundation, the North Carolina AES and the Cooperative Extension Service, North Carolina State College (Dean, Aurbach and Marsh, *op. cit.*, 1958); and the Department of Agricultural Economics AES, University of Illinois, the Food and Agriculture Organization, the International Christian University, Tokyo, Japan, and the Ministry of Agriculture, Government of Japan (Lindstrom, *op. cit.*, 1958).

In order to test the hypotheses, the wealth variable had to be divided into at least four ranks. With four exceptions, every available study that permitted such division is used here. The exceptions are: 1. Neal C. Gross, *op. cit.*, based on the same data as Bryce Ryan and Neal Gross, "Acceptance and Diffusion of Hybrid Corn Seed in Two Iowa Communities," *Ames, Iowa Agricultural Experiment Station Research Bulletin 372,* 1950, was substituted for the latter because Gross' table with net income as the wealth variable permitted a much better division into quartiles than did the Ryan and Gross table with acres operated as the wealth variable; 2. Two samples provided by E. A. Wilkening were rejected because the division into four ranks yielded extremely unequal margins (7 and 9% for the Low rank); and, 3. Data provided by Fals Borda from Paul J. Deutschmann and Orlando Fals Borda, *La Comunicacion de las Ideas entre los Campesinos Colombianos* (with an English version), Bogota, Facultad de Sociologia, Universidad Nacional de Colombia, 1962, was rejected because the sample was very small (N=70).

[13] The Fliegel and Wilkening samples are the same as the ones used for their published reports. This is also true for the Gross and Lindstrom samples (with minor exceptions of eight and one cases, respectively). The Dean *et al.* sample was reduced by more than 70 cases because I eliminated farmers with less than ten acres of corn; and the Marsh and Coleman sample was reduced by more than 100 cases because I eliminated all but owners and part-owners who grew tobacco as their principal farming activity.

TABLE 1. STUDIES OF AGRICULTURAL INNOVATION

Study	Location of Sample	Sample Size
1. Cancian [a]	Mexico	93
2. Dean *et al.* [b]	North Carolina	423
3. Fliegel [c]	Wisconsin	173
4. Gross [d]	Iowa	251
5. Lindstrom [e]	Japan	91
6. Marsh & Coleman [f]	Kentucky	252
7. Wilkening [g]	North Carolina	341

[a] Cancian, unpublished; for related publications see footnote 14.

[b] Alfred Dean, Herbert A. Aurbach and C. Paul Marsh, "Some Factors Related to Rationality in Decision Making Among Farm Operators," *Rural Sociology,* 23 (June, 1958), pp. 121–135.

[c] Frederick C. Fliegel, "Farm Income and the Adoption of Farm Practices," *Rural Sociology,* 22 (June, 1957), pp. 159–162.

[d] Neal C. Gross, *The Diffusion of a Culture Trait in Two Iowa Townships,* Ames, Unpublished M.A. Thesis, Iowa State College, 1942.

[e] David E. Lindstrom, "Diffusion of Agricultural and Home Economics Practices in a Japanese Rural Community," *Rural Sociology,* 23 (June, 1958), pp. 171–183.

[f] C. Paul Marsh and A. Lee Coleman, "The Relation of Farmer Characteristics to the Adoption of Recommended Farm Practices," *Rural Sociology,* 20 (September-December, 1955), pp. 289–296.

[g] Eugene A. Wilkening, "Acceptance of Improved Farm Practices in Three Coastal Plain Counties," *North Carolina Agricultural Experiment Station Bulletin 98,* 1952.

measures used for the resource rank or wealth variable, and the measures used for the adoption rate variable.

Two types of measures of adoption rate are used. Gross, Marsh and Coleman, and I use a single practice and date of first use. The other studies are synchronic and use indices of the number of recommended practices in use at the time of the study. The index reported in the synchronic studies is, of course, a very good approximation of a measure of time of adoption, since the farmer who has adopted more innovations has, by definition, adopted those that distinguish him from his fellows at an earlier date.

The Zinacantan Study. The theory was originally developed during work on Zinacantan. Background on the other studies is included in the publications listed in the note to Table 1. Zinacantan is a community of 7,650 (1960 census) Tzotzil-speaking, Maya Indians. It lies on both sides of the Pan-American Highway just to the west of San Cristobal de Las Casas, the market city for most of the 150,000 Indians who live in the highlands of Chiapas, Mexico.[14]

The sample (N=93) includes all married males, 27 years old and older, who are independent corn farmers and live in the hamlet of Apas. Amount of corn seeded on rented lands in the low, hot country near Zinacantan is used as the measure of the wealth variable.

Sale of corn (surplus over family needs) to receiving centers recently established by a government-created agency was used as the adoption variable. In the 1962 seed season (harvest and sale in late 1962 or early 1963), a number of people in the sample began selling to the receiving centers, and by the 1964 seed season 48 of the 93 farmers in the sample were selling at least part of their crop there.

At the beginning, there were a number of uncertainties involved in selling to the receiving centers: (1) Almost all Indians are illiterate, most do not speak Spanish, and sale involved bureaucratic procedures which irked even educated non-Indian farmers; (2) the receiving centers offer a standard price, buy in large quantities, and impose quality controls enforced by discounts on inferior grades, while corn is traditionally sold directly to the consumer in the San Cristobal market at a bargained price, in small quantities by volume measures. Also working against sale to the receiving centers was the fact that to a Zinacanteco family, a full corn bin is a symbol of security that has not yet been replaced by a full pocket book or bank account. The gains for those willing to endure the uncertainties were:

[14] Researchers associated with the Havard Chiapas Project have been studying Zinacantan since 1958 (see especially: Evon Z. Vogt (ed) *Los Zinacantecos: Un Pueblo Tzotzil de los Altos de Chiapas.* Mexico City, Colección de Antropología Social, Instituto Nacional Indigenista, 1966, and the bibliography in Frank Cancian, *Economics and Prestige in a Maya Community: the Religious Cargo System in Zinacantan.* Stanford, California: Stanford University Press, 1965. Cancian (*Ibid.*) includes a chapter on corn farming, which is the principal occupation of Zinacantecos, and Frank Cancian, "Efectos de los Programas Económicos del Gobierno Mexicano en las Tierras Altas Mayas de Zinacantan", *Estudios de Cultura Maya,* 5 (1965), pp. 281–297, describes trends in Zinacanteco corn farming practices.

TABLE 2. MEASURES OF WEALTH AND ADOPTION RATE BY STUDY

Study	Wealth	Adoption Rate
1. Cancian	Corn (maize) seeded	Year of first sale to receiving center
2. Dean *et al.*	Acres in crops and improved pasture	Corn practice score (an index)
3. Fliegel	Net farm income	20 recommended practices (an index)
4. Gross	Net income	Year of first use of hybrid corn seed
5. Lindstrom	Farm size	4 recommended practices (an index)
6. Marsh & Coleman	Acreage operated	Year of first use of bluestone lime
7. Wilkening	Acres of cropland operated	Improved farm practices (an index)

(1) the receiving centers' price was, in fact, higher than the mean market price; (2) large quantities could be sold at the convenience of the producer and at a stable price; and (3) transportation costs to the receiving centers were considerably lower than those to the highlands where, traditionally, the corn is held in the producer's home until the peak of market prices or until the producer needs cash.

In Zinacantan, the curvilinear effect may be associated with three distinct styles of operation. The High rank of Zinacanteco corn farmers (those who seed four or more hectares—ten or more acres—of land and expect crops of four or more tons of corn) must depend heavily on the work of others and must pay wages that will attract a continual supply of workers. They must also have resources in corn and money with which to make the advance payments that some workers demand to work regularly during peak seasons. Recently, there has been a shortage of workers, and wages have been pushed up, giving large operators especially strong reasons to look for new sources of profit. A man alone (with the help of unmarried sons or occasional hired workers) may at most grow enough corn to attain High Middle rank (about three hectares). The farmer of Low Middle rank (about two hectares) also may depend almost exclusively on family labor. Both middle ranks can normally expect to feed their families and have surplus to sell for cash. The smallest producers in Zinacantan (the Low rank), for various reasons, seed so little that care of the fields is not a full-time job for a single adult man even in the peak seasons. Their crop is barely adequate for maintaining a typical household, and they must depend on wage work or on other sources for cash. In sum, the top rank of Zinacanteco farmers have a distinctive style of operation which demands attention to profit-making innovation. The two middle ranks, since they depend on their own labor, are not pressured to accept innovations by their productive technique itself. The lowest rank consists of individuals who are subsistence rather than commercial corn farmers. Because of these facts, it seems appropriate to anticipate the curvilinear effect discussed above in Zinacantan.

Treatment of the Data. To arrive at comparable data for the seven studies, the following procedure was used. For each study, the distribution along the wealth variable was halved and then the halves were halved, yielding approximations to quartiles which represent the four wealth ranks needed to test the hypotheses. For the adoption rate variable, the best possible approximation to the earliest quartile of adoptors was distinguished from the rest, and then the same was done for the second from the earliest quartile. The remainder of the population was not subdivided. The highest quartile on the adoption variable is used to test Hypotheses 1–5 (about Stage 1 of the adoption process), and the second highest quartile is used to represent Stage 2 of the adoption process in testing Hypotheses 6–8. When calculating the rate of adoption for Stage 2, the individuals who had already adopted in Stage 1 were eliminated. That is, the adoption rate for Stage 2 represents the individuals who adopted in Stage 2 *over* the individuals who did not adopt in Stage 1.

The raw (numerical) data are given in Table 3. As can be seen from this tabulation, discontinuities in the original data often made it impossible to get very good approximations to quartiles. Nevertheless, in the tests of hypotheses, these figures are treated as adequate measures of quartiles.

TABLE 3. CROSS-CLASSIFICATION OF STAGE OF ADOPTION BY STATUS, FOR SEVEN STUDIES

Study and Stage of Adoption	Status				
	Low	Low-Middle	High-Middle	High	Total
Cancian:					
Phase 1	4	7	4	14	29
Phase 2	0	4	8	7	19
Remainder	16	16	9	4	45
Total	20	27	21	25	93
Dean, *et al.:*					
Phase 1	15	36	28	34	113
Phase 2	8	20	24	23	75
Remainder	75	56	43	51	235
Total	98	112	105	108	423
Fliegel:					
Phase 1	5	11	6	17	39
Phase 2	4	11	16	15	46
Remainder	28	34	14	12	88
Total	37	56	36	44	173
Gross:					
Phase 1	15	32	24	20	91
Phase 2	50	51	29	12	142
Remainder	9	3	3	3	18
Total	74	86	56	35	251
Lindstrom:					
Phase 1	4	6	5	7	22
Phase 2	8	10	11	7	36
Remainder	11	7	7	8	33
Total	23	23	23	22	91
Marsh & Coleman:					
Phase 1	9	12	16	35	72
Phase 2	9	10	15	20	54
Remainder	17	57	29	23	126
Total	35	79	60	78	252
Wilkening:					
Phase 1	4	10	14	32	60
Phase 2	7	16	11	17	51
Remainder	49	95	51	35	230
Total	60	121	76	84	341

The distortions this assumption may have introduced are discussed in the section on results.

For each wealth rank, the percentage of its members adopting in Stage 1 and in Stage 2 was calculated (as described above for Stage 2). Since the stages themselves are not perfect quartiles, the sum of the percent-

TABLE 4. ADOPTION RATES BY STATUS AND STUDY

Study	Stage 1				Stage 2			
	Low	Low-Middle	High-Middle	High	Low	Low-Middle	High-Middle	High
1. Cancian	17	21	16	46	0	15	36	49
2. Dean *et al.*	14	30	26	30	10	27	32	32
3. Fliegel	16	22	19	43	8	17	37	39
4. Gross	13	23	27	36	24	27	26	23
5. Lindstrom	18	27	23	33	20	28	29	22
6. Marsh & Coleman	23	13	24	40	27	11	26	36
7. Wilkening	10	11	25	54	17	18	23	42

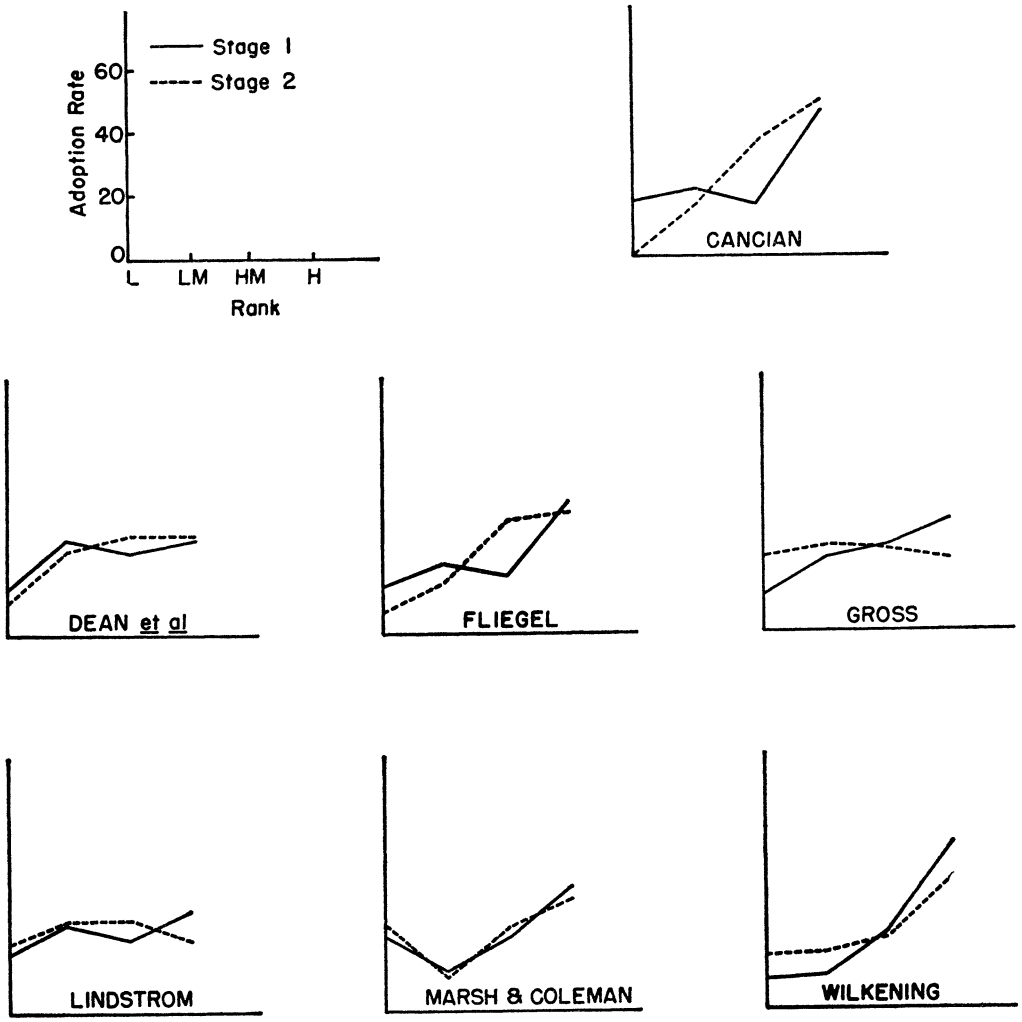

FIGURE 4.

ages of adoption across all four ranks in a single stage was not equal for all the studies. To make these figures easily comparable, they were converted to a standard base (100). These "standardized" figures are presented in Table 4, and are used to draw the illustrative curves in Figure 4 and to test the hypotheses.

Testing the Hypotheses. Conversion of the hypotheses into quantitative form is straightforward. For Hypothesis 1 (individuals of High Middle rank will innovate less than would be predicted by an assumption of linearity from Low rank to High rank.), for example, High Middle rank is calculated by assuming that the High Middle rank should be two thirds of the way from the Low rank to the High rank. Thus the hypothesis is:

Hypotheses 1: $HM < [\frac{2}{3}(H-L)] + L$

Quantitative statements for the other hypotheses are given below.[15]

[15] Hypotheses 2–8 (subscripts indicate Stages):

2. $LM > \frac{H-L}{3} + L$
3. $HM < \frac{H-LM}{2} + LM$
4. $LM > \frac{HM-L}{2} + L$
5. $HM > LM$
6. $HM_2 - HM_1 > LM_2 - LM_1$
7. $H_2 - [HM + (HM-LM)]_2 < (\text{same})_1$
8. $L_2 - [LM - (HM-LM)]_2 > (\text{same})_1$

TABLE 5. CONFIRMATION OF HYPOTHESES BY STUDY

Study	Hypothesis 1	2	3	4	5	6	7	8
1. Cancian	X	O	X	X	O	X	X	X
2. Dean *et al.*	O	X	X	X	O	X	X	X
3. Fliegel	X	O	X	X	O	X	X	X
4. Gross	X	X	X	X	X	O	X	X
5. Lindstrom	X	X	X	X	O	X	X	X
6. Marsh & Coleman	X	O	X	O	X	X	X	X
7. Wilkening	X	O	X	O	X	O	X	O
Number Confirming	6	3	7	5	3*	5	7	6
Probability	.06	.77	.01	.23	.77*	.23	.01	.06

* Not confirmed as predicted.
X=Confirms prediction.
O=Does not confirm prediction.

Table 5 presents the results of the tests of the various hypotheses.[16] Given the small size of samples (especially in the studies done outside the United States), no statistical test of significance is offered for the difference between ranks of a single study. Rather, support for the hypotheses is claimed in terms of the statistical significance of the number of cases in which the distribution is in the predicted direction. The probability reported at the bottom of Table 5 is based on a binomial test with $p=q=\frac{1}{2}$.

RESULTS

Summary and Discussion: The Curvilinear Effect. The curvilinear effect has two parts. The first, which is represented by the hypothesis of "middle class conservatism" (the "A" effect), is clearly supported by the results summarized in Table 5, Hypotheses 1 and 3. Even with the small sample used in this study, the relative conservatism of the High Middle rank (or the exceptional innovativeness of the High Rank) has sound support. In the upper part of the stratification continuum, the relationship between wealth and innovation (i.e., between rank and risk-taking) is curvilinear, not linear.

The "B" effect component of the curvilinear effect, which concerns the relatively high innovativeness of the Low Middle rank, or the exceptional conservatism of the Low rank, seems to have ambiguous empirical status at best (Table 5, Hypotheses 2 and 4). However, even though the present study is limited to seven cases, deviant case analysis produces impressive results which suggest that the "B" effect component of the curvilinear effect should not be abandoned. Two of the seven studies (Marsh and Coleman,[17] and Wilkening[18]) include two of the four cases of non-support for Hypotheses 2 and the only two cases of non-support for Hypothesis 4. It is notable that these two studies have the only Low ranks, which include less than 21 percent of the distribution on the wealth variable (14 percent and 18 percent, respectively). The idea that the small percentage of the distribution included in the Low rank in these studies is responsible for their deviance is supported by a significant rank order correlation between percentage of the distribution included in the Low rank and magnitude of support for

[16] Another attempt was made to test the original theory. A type of tenure classification (owner, part-owner, tenant) is common in the literature. If size of operation is controlled, then farmers who rent all the land they farm are "poorest" and should adopt innovations (risk) the most, part-owners are an intermediate type, and farmers who own all the land they farm should be the least inclined to risk. It is difficult to find data on adoption rate and tenure status that permits control for size of operation. That in James H. Copp, "Personal and Social Factors Associated with the Adoption of Recommended Farm Practices Among Cattlemen," *Manhattan, Kansas Agricultural Experiment Station Technical Bulletin 83,* 1956, seems to support the hypothesis; that in the material from Dean *et al.* is ambiguous, but, in any case, support it might be interpreted to give is weak. No other cases I could find permitted a test of the hypothesis.

[17] Marsh and Coleman, *op. cit.*

[18] Wilkening, *op. cit.*

Hypothesis 2 (Spearman Rank Order Correlation Coefficient, $r_s=.821$, $P<.05$). The same calculation for Hypothesis 4 yields $r_s=.595$, not significant; but removing the case with the largest Phase 1 (Gross, 36 percent) yields $r_s=.887$ and $r_s=.925$ (both significant at better than the .05 level) for the two hypotheses. Since an extremely large Phase 1 is as likely to introduce distortion as is an extremely small Low rank, this last manipulation seems reasonable.

These facts suggest that the lack of confirmation for Hypotheses 2 and 4 should be taken as anything but definitive. In addition, of course, they suggest that the quartile division, which was arbitrarily selected for its simplicity, may have some empirical significance.

While the empirical importance of the curvilinear effect has abundant support in the tests of the hypotheses, and further support in the analysis of deviant cases, its theoretical status remains far from satisfactory because two distinct and inconsistent arguments for the effect were made during the development of the modified theory. Hypotheses 7 and 8, which are strongly confirmed (Table 5), embody predictions which permit evaluation of these arguments. The results support the idea that the distinctive behavior of the High and Low ranks which is confirmed by the tests of Hypotheses 1–4 stems from inclination to risk that is opposite to that predicted by the original theory. That is, arguments 1A and 1B are supported, while arguments 2A and 2B, which saw the distinctive behavior of the High and Low ranks coming from non-economic motivation for economic behavior, are not supported.

Thus, Condition 3 of the original theory (the risk necessary to maintain present rank is equal, as a proportion of total resources, for individuals of all ranks) apparently does not hold for the High rank. Rather, the highest ranking individuals feel the need to risk out of proportion to their rank in order to maintain that rank, or simply *do* risk out of proportion to their rank in the process of maintaining it, or are the highest ranking individuals because they have been and continue to be innovators. Exactly how this propostion should be stated in an eventual formal statement of the theory of the curvilinear effect is beyond the scope of this paper.

Condition 4 of the original theory (no individual can suffer total loss of resources from loss on a single risk) apparently does not hold for the Low rank. Rather, if this conceptualization has any merit at all, it seems that the lowest ranking individuals are threatened by something qualitatively different from simple loss of relative rank if they lose on an attempt to profit by innovation. That is, they are threatened by situations they define as economic extinction rather than simple loss of rank. As in the case of the high rank, the findings of this study do not permit greater precision in this argument.

The Inhibiting Effect (Original Theory). The results of the tests of the curvilinear effect discussed above clearly indicate that the original theory is not adequate in itself for predictions regarding natural empirical situations involving the entire rank continuum, if only because the stringent conditions on which the predictions are based are not commonly found in these situations. However, the moderate support for the predictions based on the inhibiting effect (Hypotheses 5 and 6) indicates that the inhibiting effect (and the original theory in turn) cannot be ignored if predictions about natural situations are to be made as accurate as possible.

The fact that the inhibiting effect is, in four of seven cases, empirically dominant in the middle ranks where the curvilinear effect predicts no difference (Hypothesis 5), is more useful as evidence against the dominance of the facilitating effect than it is as evidence for the dominance of the inhibiting effect. However, the three cases of dominance of the facilitating effect are Marsh and Coleman, and Wilkening, which were mentioned above for the small proportion of the distribution in the Low rank, and Gross, which is distinguished by the very small proportion of its distribution which falls into the High rank (14 percent). If the curvilinear effect were strong, this shift of individuals from the extreme ranks into the middle ranks would tend to mask the inhibiting effect. This idea is supported by a correlation between the size of the sum of the percentages in the extreme ranks and the

size of support for Hypothesis 5 (r_s=.904, P<.01). Thus, there is hope that the inhibiting effect might show itself completely dominant in Stage 1 in a more carefully controlled sample.

Five of the seven cases confirm Hypothesis 6, which predicts that the inhibiting effect will lessen in Stage 2. This weak support would leave the status of this hypothesis in virtually complete ambiguity were it not for the fact that the cases that do not support it have stages that deviate radically from the standard quartile size. The sum of Stage 1 and Stage 2 in one of them (Wilkening: Stage 1, 18 percent; Stage 2, 15 percent) is less than Stage 1 in the other (Gross: Stage 1, 36 percent; Stage 2, 57 percent). A combined index of the deviation of ranks and stages from standard quartile size [19] is inversely correlated with support for the hypothesis (r_s=.827, P<.05). Thus there is reason to believe that Hypothesis 6 would receive stronger support from a larger and more carefully controlled sample.

The Facilitating Effect. Given the lack of confirmation of Hypothesis 5, it is clear that the facilitating effect does not dominate the empirical curve in Stage 1. However, as can be seen by inspection of the curves in Figure 4, the facilitating effect is dominant in six of seven cases in Stage 2, the single exception being Gross. This increase in its importance in the later stage of the adoption process is predicted by the overall theory.

In this paper the obvious importance of the facilitating effect as a modification of the original theory is simply affirmed. No attempt is made to add to what is already known about it—except, of course, that the demonstrated importance of the curvilinear and inhibiting effects reduces the importance the facilitating effect has appeared to have. That is, insofar as the facilitating effect represents the theoretical basis for the commonly reported positive, and presumably linear, relation between wealth and adoption of agricultural innovations, the present study suggests drastic modification of its status.

Conclusions: The Overall Theory. On the whole, the predictions derived from the overall theory have been confirmed. The relation of wealth and adoption of new agricultural practices clearly has both curvilinear and negative aspects. On the other hand, the overall theory itself is a conglomeration of three effects derived in different ways from first principles on different levels of generality. Further testing on agriculture and other domains may result in substantial changes in the overall theory.[20]

The Original Theory. The support for the applicability of the original theory in the middle ranks is, it seems to me, impressive enough to warrant further research. Direct tests may be possible in laboratory situations. If other tests in natural situations require the extensive modifications that were necessary in the application to agriculture, the original theory may be, in the long run, more valuable as a statement of conditions that must be attended to than as a basis for direct predictions about natural situations. Its ultimate status will, of course, also depend on its applicability to situations where the relevant resource is social position or some other "non-material" thing valued by individuals living as members of a society.

Middle Class Conservatism. The common observation that the middle class is conservative is strongly supported. However, as can be seen by inspection of the curves in Figure 4, the middle class (High Middle rank) makes a dramatic comeback in Stage 2 of the adoption process. For the most part, the High Middle rank adopts at a greater rate in Stage 2 than would be expected on the basis of the facilitating effect alone. It is apparent, then, that the middle class is not incorrigibly conservative. Rather, it seems to be conservative only when the risk is

[19] The combined index was constructed by: 1. summing the deviation from 25% of each of the ranks; 2. rank ordering the cases in terms of this; 3. summing the deviance from 25% of the two stages; 4. rank ordering the cases in terms of this; 5. summing the two rank orders (2. and 4. above); 6. rank ordering the sums in 5.

[20] Paul Kay has suggested that the findings could be explained in terms of a model including only two effects: 1. the facilitating effect, and 2. the inhibiting effect limited to the middle ranks. While this is true, and while it would be a much more parsimonius solution to the problems of conceptualization and theory, I do not feel that it takes advantage of as much previous theoretical work as does the use of three effects. In the long run, however, it may prove to be the way to eliminate the cumbersome curvilinear effect.

high. As soon as risk is lower, it moves to take whatever advantages are offered by the then not quite new ideas or practices.

Wealth and Adoption of Agricultural Innovations. The results suggest that while wealth may remain a very rough predictor of tendency to adopt new agricultural practices, its influence on adoption operates through a complex of intervening variables that are sometimes at cross purposes. Moreover, in the early stages of the introduction of a new practice, the results show that inclination to risk, which appears to be inversely related to wealth (for the middle ranks at least), may be as important a component in the decision to adopt as knowledge and wealth itself. This suggests that theories of risk-taking may be more important than theories of information diffusion for the study of the earliest stages of the process of adoption of new agricultural practices.

ISSUES IN THE ECOLOGICAL STUDY OF DELINQUENCY *

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Starting with Lander, in 1954, several studies have debated whether delinquency is fundamentally more related to census tract variables indicative of socioeconomic status or to those indicative of anomie. All of these studies misused such multivariate procedures as partial correlation, multiple regression and factor analysis. In addition, these studies and others of a similar nature have been affected by serious artifacts stemming from the accepted practice of using indexes with mixed cutting-points, some of which are much more sensitive to the tails of their distributions than others. When all of these errors are taken into account, it turns out that the association between delinquency and socioeconomic status is quite unambiguously very strong.

EVER since its appearance in 1954, Lander's *Towards an Understanding of Juvenile Delinquency* has drawn much attention.[1] The major thesis of Lander's study, based upon multivariate analyses of ecological data, was that juvenile delinquency rates over a four-year period in the city of Baltimore were related in only a superficial sense to census tract variables indicative of socioeconomic status. Lander claimed to show that, in actuality, the juvenile delinquency rates in question were not related to socioeconomic status at all, but rather to the variables: percentage of homes owner-occupied, and percentage nonwhite. Since these latter variables seemed to him to be more identifiable with degrees of social integration than with degrees of socioeconomic status, Lander was led to conclude that his data favored an "anomie theory" explanation of delinquency rather than one based upon some kind of economic determinism.

Both types of theory have a long tradition in sociology, and both have their special adherents. It was only natural that the overall reaction to Lander's study be one of ambivalence. On the one hand, the study appeared to support the existence of the more elusive and therefore more glamorous variable, anomie. On the other hand, it denied a relation with the most concrete and most solidly established of all sociological variables, namely, socioeconomic status. This denial ran coun-

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[1] Bernard Lander, *Towards an Understanding of Juvenile Delinquency,* New York: Columbia University Press, 1954.