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PROPENSITY TO INVEST IN AGRICULTURE: OBSERVATIONS FROM A  
DEVELOPING COUNTRY, THE PHILIPPINES

By

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In this day and age of "development-itis", experts from different academic disciplines have painstakingly arrived at a myriad of explanations for unequal development or failure to develop at a higher rate and faster pace than what so-called developing countries are currently experiencing. Such explanations which are almost as numerous as there are experts, range from low N achievement motivation, to barriers posed by structural features of the community, to growth stage theories, and recently, highly mathematical economic models which sometimes acknowledge non-economic forces with a blissful ceteris paribus. However, it is increasingly becoming quite fashionable to be "interdisciplinary" such that it is not uncommon to find economists who are thinking like anthropologists especially after their first blush of experience in an underdeveloped economy; agricultural technologists who find themselves expounding on farmers' attitudes and values after their initial excitement over a new rice variety meets with initial objections; and sociologists and anthropologists who think more and more like economists and agronomists after their pessimistic predictions of resistance are belied by farmers' positive response to a combination of economic and technological forces.

One particular situation where all these different views seem to have relevance and sometimes come to a convergence is when attempting to explain propensity to invest in agriculture. In a developing country where sub-

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sistence agriculture has been the target of much development effort, either real, promised or planned in order to modernize traditional agriculture, propensity to invest in agriculture is very intimately tied up with propensity to adopt improved agricultural technology although the two propensities are not synonymous. This paper is an attempt to examine why people invest, do not invest or are reluctant to invest in agriculture. Because no systematic empirical study was conducted specifically for the purpose of this paper, data presented here were obtained from on-going research projects, observations from the field and analyses available from published materials. Although much of the information is about the Philippines, observations from other countries have been included where such were available and pertinent. Because of the very nature of "investment", the paper must, of necessity, deal with the economic and then proceeded to examine the setting within which economic factors operate.

#### A. Response to Economic Incentives

Conditions of poverty in agriculture have frequently been attributed to the absence of economic motivation among farmers in underdeveloped countries. Typical of such explanations are that workers in tropical or near tropical countries where needs for shelter and clothing are easily supplied tend to have backward sloping supply curves-the higher the wages, the less labor they supply.<sup>1/</sup> Another argument says that peasants everywhere tend to produce more rather than less when the price begins to fall.<sup>2/</sup>

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<sup>1/</sup> J. D. Black, Introduction to Economics for Agriculture, New York: Macmillan, 1953, p. 536 (Cited in U. A. Aziz, "The Development and Utilization of Labour Resources in Southeast Asia," in Nationalism and Progress in Free Asia, ed. P. W. Thayer, Baltimore: Johns Hopkins Press, 1956, p. 199).

<sup>2/</sup> P. L. Yates, Commodity Control, London: Jonathan Cape, 1943, p. 115 (Cited in U. Aziz, op. cit.).

Institutional factors such as communal working habits, spending patterns, and family ties have also been cited as depressants to farm investment and motivation for higher income. It has been said that Filipino consumption habits are determined by social pressure from neighbors and that a reduction of expenses for social events, baptismal parties, fiestas, etc. in favor of investment leading to farm improvements is nearly unthinkable. It has been further stated that because of the pressure of an obligation felt by a person to help relatives who have less than he has, any sort of excess is soon transferred to a needy relative. Furthermore, sharing among family members is not conducive to maximizing farm incomes and this concept is regarded as an explanation why many farm operators work hard until they reach a certain minimum income and beyond that, the opportunity to earn more is no longer a strong motivating factor.<sup>3/</sup>

On the other hand, W. O. Jones, in his Economic Man in Africa, presents a number of accounts of the behavior of Africans in actual market situations, which demonstrate that economic man is no stranger to tropical Africa and which strongly suggest that given full opportunity to pursue his personal objectives, he can be relied on as a powerful agent to move African economies to greater productivity and wealth. In another of his works, Jones also tried to show that Africans have not at all been reluctant to adopt new methods of production when they saw clear economic advantage in doing so. It is not his intention, however, to argue that economic motivation is as dominant in the societies of Africa as in those of the western world. All that he said is that the economic drive is present in

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<sup>3/</sup> H. von Oppenfeld, "Some Internal Causes of Rural Poverty in the Philippines," Malayan Economic Review, Vol. 4, No. 1, April 1959, pp. 42-47.

a great many Africans who are well able to order their affairs to serve it. <sup>4/</sup>

Firth, speaking of peasant societies, says that "in the micro-economic sphere, peasants are well aware of the possibilities of rational economic actions and make strong endeavours to better half their economic position. In their own traditional economy, they watch margins most carefully and switch their productive efforts accordingly. In conditions of development, they have shown themselves very apt to take advantage of the benefits to be obtained from new crops such as rubber or cocoa, and it has been often the operators in the Western market or an alien government who have attempted to restrict their production. In the macro-economic field, they have not shown the same perspective, primarily, because of lack of an understanding of how large-scale commodity markets work and the existence of external competitors with differential advantages."<sup>5/</sup>

Related to all these issues is the price response question which precipitates discussion whenever price policies are being contemplated. T. W. Schultz is of the opinion that total food output in underdeveloped countries responds positively to increases in farm prices of food. However, R. O. Olson who opposed Schultz' view believes there is convincing evidence that price response of Indian cultivators is not only very low but there is a negative supply response by way of income effect. For the vast majority of farmers the marketable surplus is very small and the response to a price rise may well be to retain more for consumption. <sup>6/</sup>

Recently a number of authors have explored the relationship between agricultural price and supply in India, Pakistan, Indonesia, and the

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<sup>4/</sup> William O. Jones, "Economic Man in Africa," Food Research Institute Studies, Vol. 1, No. 2, May 1960, p. 108.

<sup>5/</sup> Raymond Firth, "The Influence of Social Structure Upon Peasant Economies," Paper presented at the Seminar on Subsistence and Peasant Economics, East-West Center, Honolulu, Hawaii, February 28-March 6, 1965.

<sup>6/</sup> T. W. Schultz, "Value of U.S. Farm Surpluses to Underdeveloped Countries," Journal of Farm Economics, Vol. 42, No. 5, December 1960, pp. 1019-1030.

Philippines.<sup>7/</sup> Their results indicate that farmers in these areas do respond positively to price change both in the case of subsistence crops such as corn, rice, and wheat and in the case of commercial crops such as cotton, sugarcane, jute and tobacco. The supply elasticity data reported by Mangahas, Recto and Rutten indicates that:

"Philippine rice and corn farmers are reasonably responsive to changes in the price of rice and corn relative to each other and to other commodities even in the short run. This implies that changes in relative prices are effective in determining the allocation of land among the several agricultural commodities. It seems quite clear, for example, that the declining price of rice relative to corn during the period prior to 1959-60 was associated with the more rapid increase in the hectarage devoted to both rice and corn and the rise in commercial crop area is clearly related to the rapid increase in the price of sugar and copra relative to rice and corn.

It also indicates that price support, subsidy, or import programs undertaken with other objectives, to reduce prices to consumers, for example, are rather rapidly reflected in shifts in production. The analysis of marketing margins indicates that price changes at one level of the marketing system are typically reflected rather rapidly, and with little changes in the marketing margin at other levels.

While prices of rice and corn in the Philippines have apparently been fairly efficient in their resource allocation function, there is

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<sup>7/</sup> Raj Krishna, "Farm Supply Response in India-Pakistan: A Case Study of the Punjab Region," Economic Journal 73:291 (September 1963), 477-487; Walter P. Falcon, "Factor Response to Price in a Subsistence Economy: The Case of West Pakistan," American Economic Review, 54:3 (May 1964), 580-591; Syed Mushtaq Hussain, "A Note on Farmer Response to Price in East Pakistan," The Pakistan Development Review, 4:1 (Spring 1964), 93-106; Mubyarto, The Elasticity of the Marketable Surplus of Rice in Indonesia: A Study in Java-Madura, Ph.D. Thesis, Iowa State University, 1965; and Mahar Mangahas, Aida E. Recto, and V. W. Rutten, Market Relationships for Rice and Corn in the Philippines, Paper presented at the First World Congress of the Econometric Society, Rome, Italy, September 9-14, 1965.)

little evidence to indicate that price changes represent an effective device for influencing aggregate agricultural output. In spite of micro-economic evidence that prices represent an important incentive for the purchase of yield-increasing technical inputs (fertilizer, insecticides, etc.) no measurable yield response to price was obtained. Thus while a 10 per cent rise in the price of rice will result in at least a 5 per cent rise in the marketable surplus of rice, most of the increase in output is a result of shifting land from other crops to rice or bringing new land into production. This implies a much less optimistic role for price as a development tool than if price changes induced yield as well as hectareage changes."<sup>8/</sup>

At the small, individual farmer level, a study of 57 rice farmers in one village which was conducted after the passage of the bill for the price support program of the Philippine government, revealed that 29 or only one-half of them have heard about price support, 27 planned to increase their yield in order to increase income. When asked, in what ways they plan to increase yield, 19 respondents mentioned adopting modern rice growing practices, 2 said increasing hectareage and 7 planned to do both.<sup>9/</sup> Perhaps this type of a response to price is not widespread enough to be reflected at the aggregate level analysis. It is therefore important to consider the possible barriers to yield response to price.

In the case of tobacco, the government price support program pushed the Philippines' tobacco production from three million

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<sup>3/</sup> Ibid.

<sup>9/</sup> Conrado M. Dimaano and Alice M. de Guzman, "Coralan Rice Farmers' Response to a Change in Cropping Pattern: A Case Study," In progress, Social Research Division, College of Agriculture, University of the Philippines, College, Laguna, Philippines.

kilos in 1954 when the program started to 30.4 million kilos in 1962 and a doubling of hectarage devoted to tobacco during the same period from 48,200 in 1954 to 100,470 hectares in 1962. This was not just a case of increase in hectarage and production but also a change from native to Virginia tobacco. However, the yield response although positive was not as dramatic as the meteoric rise in hectarage brought under tobacco cultivation. It should also be noted that in 1963, the hectarage dropped from 100,470 to 97,000 to 95,520 in 1964 and to 76,080 in 1965.<sup>10/</sup> A news item on April 2, 1966 which says that the President is discussing with American tobacco executives "ways of disposing some 110 million kilos of local Virginia tobacco stocked in government bodegas" gives us a clue as to the possible explanation for the rapid decline in tobacco hectarage.

Chauhan reports on how peasants in an Indian village adopted tobacco as a cash crop and learned the new method of cultivation during World War II in spite of an increase in food prices. Ten years later, 2 increments in taxation were withstood well by the villagers but the third increase in 1955 had the sudden effect of throwing most of the small-scale cultivators off the margin of cultivation. The number of

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<sup>10/</sup> A. Castillo, "Problems of the Virginia Tobacco Industry," Philippine Economic Review, Vol. 9, pp. 8-9.

<sup>11/</sup> The Manila Times, April 2, 1966, p. 14-A.

growers decreased from 48 to 20 within the year and production fell from 64,000 to 36,000 pounds, a decrease of nearly 60 per cent in number of cultivators and 45 per cent in production within one year following as a consequence of increasing the tax rate nearly three-fold. In the next two years, the number of growers fell to 6. This episode demonstrates how villagers could take to a paying commercial crop in addition to their subsistence food crops even though no extension agency was<sup>12/</sup> at work.

The Cuban crisis and the resulting withdrawal of the United States sugar quota from Mr. Castro in favor of the Philippines has resulted in the increase of sugar hectarage from 232,230 in 1961 to 343,910 in 1965<sup>13/</sup> and the shift of some rice areas to sugarcane. Fidel Castro was therefore hailed as the "Patron Saint of the Philippine Sugar Industry".

Besides the unexpected bonanza from the breakdown in United States-Cuban relations, a recent report indicates how the situation in the international market affects local incentives to produce coffee. The Coffee Growers' Association and the Coffee Roasters' Association are lined up against each other in their

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 12/ Bry Raj Chauhan, "Rice and Decline of a Cash Crop in an Indian Village," Journal of Farm Economics, Vol. 42, No. 3, August 1960, pp. 663-666.

13/ Philippine Agricultural Statistics, Vol. 1, DANR Crop and Livestock Survey Series (Cited in Mahar K. Mangahas, The Response of Philippine Rice Farmers to Price, M.S. Thesis, Department of Economics, University of the Philippines, 1965).

annual battle over the importation of Arabica coffee beans. The opposition to the importation arises from the fact that the world price of Arabica coffee is very much lower than the price of the same variety in the Philippines and therefore its entry into the country would depress the local price. For their part, the Growers' pledged to do their best in producing the amount, the varieties and the quality of coffee beans for the country's domestic and export needs.<sup>14/</sup> Although the pledge remains to be fulfilled, the planned importation and threatened decrease in local prices have already produced disturbances and insecurities among coffee growers. This will undoubtedly have its repercussions on decisions to grow more or less of the product.

A more intriguing case of response to economic forces is cited by Coller in his study of Barrio Gacao, a community which he categorized as a peasant society whose economic system and techniques of land use have only been partially affected by the forces of modern commerce. The author describes how rice in Barrio Gacao which was an almost entirely subsistence crop in the 19th century gave way to abaca (Manila hemp) and copra when the United States government acquired sovereignty over the Philippines and the demands of the American market soon greatly stimulated interest in export crops. Barrio people minimized

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<sup>14/</sup> The Manila Times, April 2, 1966, page 7-B.

rice and planted large amounts of abaca particularly in areas where the land, rainfall and temperature were ideal for this crop. Their involvement in the cash economy through their export crops made them subject to the fluctuations of the world market. The "Great Depression" in the U.S. during the 1930's was keenly felt by the farmers that they through sheer dismay and utter disappointment destroyed their abaca and coconut plants and substituted them with rice and corn. According to informants, people of the barrio had sought another source of cash income during this period by growing sugarcane only to abandon it almost entirely during World War II when they had to revert to subsistence farming for sheer survival. The area planted to rice increased and has remained fairly high since then.

Although the foregoing account indicates that residents of Barrio Gacao are not particularly committed to the idea that rice is the best crop to grow, Collier says that it is difficult to find many alternatives for the use of the marshy area. Taro which is one possible crop and is well-known in the community has a very low market value at present, and the farmers would be unwilling to revert to a strict subsistence economy, particularly one based on this crop.

Collier also observed among some families in Gacao the encouragement of children to sell the rice obtained by their gleaning during harvest time. This money was the exclusive

possession of the child to spend for his or her own needs. One implication he draws from this observation is the pervasiveness of a cash economy's influence on the village. He also interprets the fact that children are thus trained to sell rice, the basic food crop of the village, as some rough index of the degree to which this basic crop has become a commercial venture. In fact, he had the impression that some rice farmers in Gacao now plant rice only for selling. Then after receiving the money, they buy cheaper foods such as camote and yam for their own consumption. Further information about the degree to which rice has become a cash crop is revealed by the fact that all of the 67 rice farmers in the barrio indicated selling rice at one time or another during the year. It is also interesting that three-fourth of the people sell their rice in the town proper where the prices paid are higher. Furthermore, crop patterns fluctuated considerably from year to year and farmers' reasons for the change ranged from boredom to ideas that perhaps a different crop would give them better results. All these observations show how the traditional subsistence economy has been eroded by farmers' experience in participating in a cash economy.

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15/ Richard W. Collier, Barrio Gacao: A Study of Village Ecology and the Schistosomiasis Problem, Community Development Research Council, University of the Philippines, Study Series No. 9, Quezon City, Philippines, 1960, pp. 32-51.

## B. A Search for Further Explanations

While instances previously cited provide evidences of "economic man" even in so-called underdeveloped agricultural economics, these very instances also illustrated that response to economic forces is far from maximum and therefore suggest that other variables, perhaps non-economic, affect man's propensity to invest in agriculture. One of the most significant findings with respect to "economic man" is that while farmers' behavior is sensitive to price changes, the response exhibited has been in terms of shifts in crops and hectarage but yield response to price remains to be measurably demonstrated.

Against the backdrop of these observations, the following factors and their effects on agricultural investment behavior will be analyzed. These factors which may be supportive, inhibitory or interactive as far as the economic motive is concerned include opportunities offered by the physical environment as it is enhanced or limited by technology tenure systems, attitudes toward investment, indebtedness, and risk, and commitment to certain community and kinship norms.

### 1. Production Behavior: A Human Response to Technology and Physical Factors in the Environment

An assumption frequently made in underdeveloped countries is that improved technology is available and therefore the solution to underproduction lies in getting this technology

accepted and practiced. But quite often modern technology has been developed within the context of modern, man-modified physical environment and therefore the farmer who is faced with a "looking-to-the-sky-field" can not have maximum use for modern technology. For example, in rice areas where there is flooding during the rainy season and drought during the dry season, now rice varieties, fertilizer, straight row planting and other cultural practices will not produce expected yield results relative to inputs. As one farmer explained why his rice yield is as high, and sometimes higher than that of his neighbor who uses fertilizer: "My field is located below his field and therefore when it floods, the fertilizer from his field drains into mine." Under such circumstances, perhaps it is not surprising that farmers in the area have a tendency to leave the growth of rice plants to the forces of nature and for them to seek off farm jobs while awaiting their harvest.

Considering the lag in development of major infrastructure such as irrigation and drainage facilities, will it be possible to develop "transitional" technology which will be an improvement over the traditional and yet can survive rather adverse conditions while waiting for the physical environment to be modernized? Perhaps the technological problems of a developing country are quite different from those of a developed one. For the former, one has to

identify the "best" technology for the less than ideal physical environment at least for the transition period. Otherwise, how does one move from traditional to modern agriculture without climbing over the "transitional hump" which is so critical in getting us where we want to go? It is perhaps at this stage of development where the demand for creativity in technology and extension methodology is greatest but right now, it is the stage which receives least attention because we are preoccupied with "blue sky" thinking on modernity. It has often been argued that there is no pay off on efforts to develop such kind of technology which is roughly equivalent to "thinking small" in development. But sometimes "thinking big" is "thinking remote" in the face of urgent problems confronting the farmer today, tomorrow, and next week.

This concept of transitional technology may be illustrated in the rice variety which does not yield as high as the ultramodern one when grown with optimum "pampering" but performs better under more unfavorable conditions and somewhat harsher treatment. In this connection, Tanaka concludes that there is a reasonable chance to improve the present yields in tropical Asia if farmers adopt ordinary management and use one of the good available local varieties. Such is possible through adequate and efficient extension services maintenance of a stable and economic price for

rice, keeping prices of essential agricultural commodities such as fertilizers, insecticides, etc. stable and within the reach of the farmer and by adequate water control.<sup>16/</sup> This conclusion simply underscores prospects for a transitional technology for use during the transitional period.

Another example of such technology is the garden tractor which is increasingly being used in the Philippines although in the past, efforts to replace work animals with large farm tractors have not been successful partly because of high initial cost and maintenance and high degree of skill required in the operation of the machine. A case study of tractor- and carabao cultivated lowland rice farms revealed that some farmers gave up carabaos for garden tractors costing ₱1,900 each for the following reasons: very short average useful life of the carabao (4 to 5 years); relatively high cost of the carabaos ranging from ₱400 to ₱500; need to effect timely land preparation within the short season; and death of many carabaos due to chemical poisoning.<sup>17/</sup> The latter incidents are also a by-product of uninformed or misinformed use of modern technology such as insecticides and herbicides. A

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<sup>16/</sup> Akira Tanaka, Potentialities in and Approaches to the Improvement of Rice Production in Tropical Asia, Paper presented in the Saturday Seminar, The International Rice Research Institute, College, Laguna, October 23, 1965.

<sup>17/</sup> B. N. de los Reyes, et al., "A Case Study of the Tractor-and-Carabao Cultivated Lowland Rice Farms in Laguna, Crop Year 1962-63," The Philippine Agriculturist, Vol. 49, No. 2, July 1965, pp. 75-94.

salesman added that another reason for farmers' decision to invest in the garden tractor is the rampant cattle and carabao rustling in certain provinces. Furthermore, the owner of a tractor could do custom work for other farmers and earn additional income. The local mechanics have also lost no time in devising spare parts for the relatively simple machines in order to prolong the life of the garden tractor perhaps almost as indefinitely as the life of American army jeeps which Filipinos have converted to passenger "jeepneys".

In case where the local applicability of certain improved farm practices has been demonstrated, sometimes willingness and enthusiasm to invest is dampened by the unavailability of such things as seeds and fertilizers.<sup>18/</sup> In farmers' meetings or classes where the comparative merits of old and new methods of doing things are presented it is amazing how farmers respond to the data before them until they come to two inevitable questions: How much does it cost? Where does one obtain such seeds, etc.? It is also evident that unless farmers have actually experienced effective results from additional inputs or changes in cultural practices, such inputs are regarded much more as

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<sup>18/</sup> H. von Oppenfeld, et al., The Pilot Study in Farm Development. College of Agriculture, University of the Philippines, College, Laguna, 1964, p. 46.

just plain "additional cost" rather than as investment with expectations of obtaining profitable returns. One also gets the impression that among farmers regardless of size, there is a tendency not to put in too much capital if they think they can produce without it.

Hsieh's and Lu's study of Farm Level Implementation of Agricultural Development Programs reports that more than 90 per cent of the farmers interviewed had never planted certified seeds from government agencies. Most of them claimed lack of supply, lack of knowledge on how or where to obtain them, and uncertainty as to whether certified seeds would perform better than the old varieties under their local farm situations. High price and practice of landlord providing the seeds were other reasons given.<sup>19/</sup>

Sometimes investment in "stop-loss" technology is more urgently needed than "increase yield" inputs as revealed in "if only" statements made by farmers. "We would have harvested more if only the rats did not destroy our crops." .... if only we had enough water ..... if only our crops were not attacked by pests and diseases. A similar type of technology is what might be labelled as "prolong life" or "delay marketing" technology, the absence or weakness of which plagues the onion and garlic growers. As one experi-

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<sup>19/</sup> S. C. Hsieh and H. Y. Lu, Farm Level Implementation of Agricultural Development Programs, College of Agriculture, University of the Philippines, College, Laguna, Philippines, 1966.

enced onion grower laments, "Onion growing is only for those who can afford to risk money, time, and effort in its cultivation. Your success in this enterprise does not end in a bountiful crop. No indeed! The perennial problem of the average Filipino farmer - marketing, stares you in the face and cuts short whatever feeling of elation the successful harvest may have brought you at first. At harvest time it seems as if everybody has some onions to sell."<sup>20/</sup> The "prolong-life" technology would therefore help postpone marketing at some future date when onions are no longer everywhere. A Pilot Study in Farm Development reported that measures to enable storage of garlic for future sale at higher prices were easily accepted. The importance of such measures is illustrated in the case of one farmer whose garlic stock would have netted him P500 at the time of harvest but saving it for next planting gave him P2,000.<sup>21/</sup>

Incidentally, extension workers have noted a tendency among onion and garlic growers to "hoard" agricultural information on techniques for storing and preserving garlic and onion perhaps as a protective defence against the insecure market.

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<sup>20/</sup> R. A. Ilagan, "A World from an Experienced Grower," Onion Industry: Philippines, Nogracoma, Central Cooperative Exchange, August 1956, p. 48.

<sup>21/</sup> H. von Oppenfeld, et al., op. cit.

Quite often, farmers' apparent "uneconomic" behavior in persisting to grow a low-yielding crop represents a "here and now" adjustment to environment. Gervacio, in a farm management study of corn farming in Negros Oriental points out that although corn farmers perhaps realize that the yield of their corn is very low, they insist on growing it because corn serves as an excellent crop for cultivation in regions experiencing periodic droughts. It also serves as a principal pioneering crop and furnishes an immediate return when interplanted with the main crop before it reaches commercial production.<sup>22/</sup>

A comprehensive analysis of the inhibitory effects of environment on the response to modern agricultural technology is provided in a study done by Ruttan, Soothiparn, and Venegas. Their data showed that both the yield increases of the last decade and the yield differences among major rice-producing regions in the Philippines and Thailand primarily reflect variations in the environmental factors under which rice is grown rather than differences from variety planted or cultural practices. The authors conclude that: After the effect of the environmental factors are taken into account, there is little yield increase or yield differential left to be explained by such factors as new

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<sup>22/</sup> Emmanuel T. Gervacio, "Farm Management Study of Negros Oriental: Livelihood of Corn Farmers," Silliman Journal, Vol. 6, Oct. - Dec. 1959, No. 4, p. 289.

varieties, better cultural practices or more intensive use of technical inputs such as fertilizer and insecticides or by economic and social differences among regions and between Thailand and the Philippines.

One major implication drawn by the authors is that the factors which permit a province or region to increase its yields to the levels currently being achieved in the higher yielding areas of each country are primarily outside the control of the individual farmer in the major rice-producing areas such as Central Luzon or Central Thailand. The modifications in the environment necessary to achieve effective water control (irrigation and drainage) and effective pest control will have to come primarily from public or semi-public agencies capable of organizing resources in a manner not available to the individual tenant or farm owner. A second major implication is that the same limitation on environmental control which prevent farmers from achieving the yield potentials inherent in existing varieties will represent an equally severe limitation on achievement of the yield potentials inherent in the new varieties which are being designed to be ever more sensitive to effective environmental control, technical inputs, and management than existing varieties.<sup>23/</sup>

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<sup>23/</sup> V. W. Ruttan, A. Soothipan, and E. C. Venegas, Changes in Rice Production, Area and Yield in the Philippines and Thailand, Paper presented at the Annual Meeting of the Thailand Agricultural Economic Society, Bangkok, Thailand, July 10-12, 1965.

2. Interaction Between Technology Profitability,  
Adoption and Tenure Arrangements

Polson and Pal in their analysis of Social Change in the Dumaguete Trade Area 1951-1958 reports that while in 1951, 31 per cent of the farmers used chemical fertilizer, seven years later only 15 per cent used it. This decrease is attributed to two factors: (1) some farmers who used fertilizers did not increase their harvest; a few believed that their crops were adversely affected by it; (2) some farmers have become primarily coconut growers and many still believe that coconut trees do not need to be fertilized because they have many long roots. The authors consider these reasons as a reflection of basic lack of knowledge in the use and advantages of chemical fertilizer. It is significant to point out that those who used chemical fertilizer had higher agency contact scores but that 76 per cent of the households had no contacts whatsoever with the six different change agencies operating in the area.<sup>24/</sup> In the adoption of an innovation like commercial fertilizer, knowledge is very crucial because of differential response to fertilizer and the need for highly localized tests. For example, Oppenfeld reports that in one field, 60 kg. nitrogen and

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<sup>24/</sup> Robert A. Polson and Agaton P. Pal, Social Change in the Dumaguete Trade Area -- Philippines 1951-1958, Cornell International Agricultural Development Mimeograph 4 Cornell University, Ithaca, New York, Department of Rural Sociology.

45 kg. potassium gave the best yield but in another field, 30 kg. nitrogen gave the best yield. In an earlier report, response to nitrogen was significant in only 65 per cent of a larger number of replicated tests on lowland rice. Most rice varieties in current use lack the stiff-strawed characteristics and with their predisposition to lodge, fertilizers may actually reduce rather than increase yield.<sup>25/</sup>

In addition to technical feasibility, Ruttan and Moomaw recommend economic analysis of experimental results in order to help the researcher decide which results should be made available to extension workers and others involved in transmitting new technology directly to farmers. Even after rather thorough screening by researchers, the extension worker frequently will need to conduct a third economic screening to determine whether the new technology or practice should be recommended and to what extent, in the particular area where he works. In their analysis, the authors have looked into the implications of tenure arrangements for whenever the tenant or the landlord bears the full cost of the input and shares the increase in output, the incentive to adopt the new technology is affected. They point out that the incentive may be either positive or negative depending on the type of innovation involved.

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<sup>25/</sup> H. von Oppenfeld, et al., op. cit.

Their result indicate that "in the case of herbicides, the share tenure situation (a) imposes no disadvantage over the owner-operator situation when the tenant pays the cost of the herbicides, and (b) actually acts to encourage adoption of the innovation when the landlord shares the cost of the herbicides. This is because the herbicide innovation is primarily a cost-reducing rather than an output-increasing innovation. The tenant receives the entire gain resulting from the saving in labor. Moreover, there is no disincentive resulting from sharing the increased output." <sup>26/</sup>

In another analysis designed to show the implications of share tenure in the application of fertilizer, their results showed that in contrast to an increase in return of P29.42/ha. in the owner-operator situation, there was an increase of only P13.25 when the landlord shares the cost of the fertilizer and a decrease in return of P4.71 when the tenant pays all the costs. Thus, even when the landlord shares part of the cost of an input-increasing innovation, the share tenant's incentive is reduced. When the landlord does not share in the increased cost this completely eliminates the tenant's incentive to increase the rate of application. <sup>27/</sup>

<sup>26/</sup> V. W. Ruttan and J. C. Moomaw, "Partial Budgeting of Costs and Returns Using Experimental Data from Herbicide and Fertilizer Experiments," The Philippine Agriculturist, Vol. 48, Nov.-Dec. 1964, No. 6-7, pp. 249-268.

<sup>27/</sup> Ibid.

However, from data presented in a recent study of Tenure and Productivity of Philippine Rice Producing Farms <sup>28/</sup>

V. W. Ruttan says that the first step in achieving greater precision in predicting the productivity implications of changes in land tenure arrangements is to reject the assumption that there is any single optimum land tenure system. He suggests that share tenancy may not act as a barrier to the use of labor saving inputs particularly in an economy with a strong non-farm labor market or in the vicinity of a rapidly growing urban-industrial sector. He also found that (a) share tenure farms tended to achieve higher levels of productivity and to use higher levels of purchased inputs than owner-operated or lease tenure farms in the smaller size ranges, (b) productivity differences between tenure classes were smaller in a barrio characterized by high off-farm employment opportunity than in a barrio with few farm employment opportunities.

The findings in this study are quite intriguing because in a farming area where non-farm employment opportunities are available, traditionally speaking, one would expect farming to be carried on as a matter of course with not much concern and effort for higher production since yield is ordinarily set aside for consumption while the off-farm

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V. W. Ruttan, Tenure and Productivity of Philippine Rice Producing Farms (Typescript), The International Rice Research Institute, College, Laguna, Philippines, August 16, 1965.

employment provides the rest of the income needed to sustain a given level of living. But perhaps this is a recurring interpretation called target demand which may not be the explanation at all for this behavior. A clue to a possible alternative explanation for this phenomenon may be noted in the interbarrio differences in productivity. Both share and lease tenure farms in Barrio Santol exhibited higher productivity and greater use of purchased inputs relative to Barrio Balatong B. Although the two barrios appear relatively homogeneous with respect to soil and irrigation, the latter barrio appears to be a more traditional community characterized by poorer roads, fewer radios, less contact outside the community through extension workers and non-farm employment, more traditional attitude toward authority, lower level of education, an older-age distribution, and a consumption rather than production value-orientation. Kuttan hypothesizes that the greater use of purchased inputs by farmers in Barrio Santol is a joint consequence of more effective communication leading to greater contact with extension agencies and better functioning of factor and product markets. The availability of substantial off-farm employment may, result in greater incentive to adopt labor saving technology by share tenants.<sup>29/</sup> In other words, given a certain farm production potential, off-farm employment opportunities, and werewithal (agricultural information, technology and cash) to purchase inputs farmers would tend to maximize use of both farm and non-farm

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<sup>29/</sup> Ibid.

opportunities. As a matter of fact, earnings from the latter could be used to purchase farm inputs or to serve as cushions "in case of crop failure". But perhaps what is more crucial than the presence of non-farm income is the greater exposure of Barrio Santol to modernizing forces including agricultural information and technology which probably stimulates more productive use of the available money. But this is a challenging hypothesis rather than a concluding evidence hence the need for further investigation to substantiate the hypothesis.

On further evidences regarding the relation between farm size and adoption of innovations, de Guzman and Quiton found that farmers cultivating 1.5 hectares or less adopted more innovations than those who had bigger farms.<sup>30/</sup> The explanation advanced by the extension workers for this observation is that the small area, enabled the farmer and his family to perform all the additional operations involved incident to the new practice without hiring extra labor. Furthermore, if additional inputs are needed to carry out the practice, a smaller farm also requires less inputs than a large one and the farmer can more easily afford to purchase these inputs.<sup>31/</sup> It is possible that this explanation holds only for the duration of the "trying out" period when effectiveness of

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<sup>30/</sup> A.I. de Guzman and V.A. Quiton, The Rice School as a Means of Introducing Improved Farm Practices in Barrio Paagahan, College of Agriculture, University of the Philippines, 1965.

<sup>31/</sup> G.T. Castillo, Toward Understanding the Filipino Farmer, Paper presented at a seminar, International Rice Research Institute, College, Laguna, Philippines, May 6, 1965.

the innovation remains to be proven and therefore desire to borrow money to meet additional costs incident to adoption is minimal.

Equally intriguing is the reported desire of rice share tenants in a village covered by a 5-year Pilot Study of a Cooperative Approach to Rural Development<sup>32/</sup> to apply for a leasehold tenure after having experienced high yield as a result of change in cropping pattern, in rice variety and cultural practices used in growing rice. Because the cost of the lease will be based on the average yield for the preceding three seasons, the extension worker even noticed a tendency to underreport their yield in connection with an ongoing case study of the project. Apparently, their experience in growing a good crop using modern practices with the guidance of a crop technician has made them realize the potentialities of their farm and has also given them more self-confidence to carry on without having to share additional yield and without sharing the risks with the landlord either. Earlier, the reluctance to bear the risks alone has contributed to some share tenants' reluctance to shift to leasehold.

### 3. Attitudes Toward Investment, Risk, and Indebtedness

In any kind of investment, some degree of risk is involved and sometimes investments call for a certain degree of indebtedness to meet capital requirements needed for the enterprise. In

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<sup>32/</sup> The three agencies cooperating in this project are the Commission on Agricultural Productivity, the Presidential Assistant on Community Development, and the Farm and Home Development Office of the College of Agriculture, University of the Philippines. The observation was reported by Conrado M. Dimaano, the crop technician working in that particular village.

this section of the paper, data on attitudes toward investment, risk, and indebtedness will be presented in order to gain insights as to how such attitudes relate to propensity to invest in agriculture.

a. Landlords' attitudes

Preliminary analysis of data obtained from a study of rice and coconut landlords in the Philippines<sup>33/</sup> shows a difference between landlords who manage their own farms and those who have overseers, farm managers or caretakers, in their perception as to whether increased investment in their farm is necessary to bring about increase in output. Table 1 shows that the "managing" landlords (88 per cent) recognize this need much more than the "non-managing" ones (67 per cent). Among those who feel the need for increased investment, 81 per cent said they are willing to put in more money for the purpose but again the difference between managing and non-managing landlords shows up with the former indicating greater willingness to make the increased investment, table 2.

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<sup>33/</sup> A "Study on the Role of Landlords in Agricultural Development" conducted by the Department of Agricultural Economics at the College of Agriculture, University of the Philippines under the leadership of A. L. Weisblat, P. R. Sandoval and E. Bernal.

Table 1. Rice Landlords' Perception of the Need for Increased Investment in their Farms

	Managing	Landlords Non- Managing Per cent	Total
Feels the need for increased investment	88	67	80
Does not feel the need for increased investment	12	33	20
	<hr/>	<hr/>	<hr/>
	100	100	100
Total N	67	45	112

When asked why they were unwilling to invest more money in their farm even if they recognize that increased investment would be necessary to bring about increase in output, 17 rice landlords gave the following reasons:

	<u>Frequency</u>
1. Not interested, plans to sell	5
2. Discouraged by the land reform program	4
3. Land is already under leasehold	3
4. Tenants are lazy	2
5. Fertilizer is expensive	1
6. No money	1
7. Low returns from the land	1
Total .....	<hr/> 17

Table 2. Willingness to Put in More Money for the Purpose

	Managing	Landlords Non- Managing Per Cent	Total
Willing	90	63	81
Not willing	10	37	19
	<hr/>	<hr/>	<hr/>
	100	100	100
Total N	59	30	89

Since this study was conducted after the passage of the Land Reform Bill, this is reflected in the responses of the landlords. The extent to which this unwillingness to invest more money in their farms has actually affected output in areas declared as Land Reform Districts has not been ascertained but one can hazard a guess of some negative effects especially because of credit, administrative and other difficulties encountered by the Land Reform Program. The more positive outlook of the managing landlords is understandable because they are in a better position to see "where their money is going", so to speak, than those who hardly see, let alone know what is happening in their farms.

Tables 3 and 4 show that even among coconut landlords, those who manage their own farms show a more favorable attitude toward increased investment in their farms than those who are not involved in management. When asked why they were unwilling to put in more money in their coconut

Table 3. Coconut Landlords' Perception of the Need For Increased Investment in Their Farms

	Managing	Landlords Non- Managing Per Cent	Total
Feels the need for increased investment	95	75	90
Does not feel the need for increased investment	5	25	10
	<hr/>	<hr/>	<hr/>
	100	100	100
Total N	42	16	58

Table 4. Willingness to Put in More Money for the Purpose

	Managing	Landlords Non- Managing Per Cent	Total
Willing	73	58	73
Not willing	22	42	27
	<hr/>	<hr/>	<hr/>
	100	100	100
Total N.	40	12	52

farms, the following reasons were indicated:

	<u>Frequency</u>
1. Old age	4
2. Tenant is not good	2
3. No money	2
4. Fertilizer is expensive	1
5. Does not trust new research findings due to sad experience with fertilizer	1
6. Wants tenant to shoulder half of the expense	1
7. No time to visit the farm	1
8. Very low returns from the farm	1
	<hr/>
T o t a l	13

Because coconut farms are not included in the Land Reform Program, disinterest in investment for that reason did not enter into the picture but old age, reluctance to spend due to lack of faith in fertilizer and in the tenants, and unwillingness to borrow money for the

purpose served as the deterrents. Except for old age, the reasons cited imply an unwillingness to take a risk lest the investment would not pay off. Among the rice landlords, negative attitude toward further investment seems to be more of an expression of disgust about the Land Reform Program rather than a real unwillingness to take the risk.

For those who indicated positive response to need for additional investment and willingness to put in the money for such a purpose, they were asked as to how the proposed expenses will be financed. Seventy per cent mentioned savings, 8 per cent will borrow only if their savings are not sufficient, and only 10 per cent categorically stated that they will borrow. The rest do not know where their money will come from. These findings may be interpreted as unwillingness to assume debts or possession of substantial savings which can be tapped to take care of the additional capital required to increase the farm output.

An inquiry on investment preferences if they had a choice shows that slightly more of the landlords preferred non-farm over farm investment but a comparison of the rice and coconut landlords showed the latter's greater preference for farm than non-farm investments, table 5.

Table 5. Rice and Coconut Landlords' Investment Preferences

	Rice	Coconut Per Cent	Total
Farm	30	57	39
Non-Farm	50	28	43
Both	15	8	12
None	5	7	6
	100	100	100
Total N	110	60	170

Considering the reasons given for preferring farm to non-farm investments, table 6, coconut landlords' greater willingness to put in more money in their farm for increased output, tables 1 and 3, and their greater preference for farm investments can be regarded as a higher value for security, less propensity to take risks than the rice farmers. The feeling of security provided by the coconut farm is evident in responses which elaborated on the fact that one is certain to get a harvest every two months or even every 45 days whether he likes it or not. For this reason, coconut is often referred to as the "lazy man's crop".

Table 6. Landlords' Reasons for Investment Preferences

Reasons	N
<b>a. <u>Farm Investment</u></b>	
1. Farm investment is a secure investment with stable although small income	48
2. Greater familiarity with farming rather than business operations	10
3. Love for farming	4
4. Land gives good returns	4
5. High profit from cattle ranching	1
6. With modern techniques in farming, farm investment is more profitable	1
Total	68
<b>b. <u>Non-farm Investment</u></b>	
1. Higher and quicker returns from investment in business	43
2. Land reform law discouraged further investment in land	6
3. Tenancy problems	10
4. High cost of farming inputs including land	3
5. Business is easier to manage	2
6. Not interested in farming	2
7. In business, one does not share the profit with others	1
Total	67
<b>c. <u>Farm and Non-farm Investment</u></b>	
1. Farm investment offers steady although small income. Business investment offers greater profit but also greater risk	16
2. With the land reform program, business investment is better, without the land reform program, farm investment is better	1
3. Returns from business and farming are the same	3
4. Seasonal character of farming leaves time for non-farm investment	1
Total	21

The security orientation is markedly evident in the preference for farm investment, table 6. Only 6 out of 68 or 9 per cent of those who chose farm investment indicated the profitability of farming as a reason for their choice. This desire for security is dramatized in such responses as: "Fire, flood, and thieves may come, they may destroy or take away the fruit but the land will still be there." From the reasons cited for preferring business over farm investments, the land reform program and tenancy problems also exert influence but the major consideration is the desire for higher and quicker returns from capital invested in business. These respondents seem to have the greatest propensity to assume risks in the interest of bigger profits. The preference for both farm and non-farm investment has a flavor of wanting to have the advantages of both types--the steady though small income from farming and the greater profit although greater risk from business. At least one respondent however indicated a desire to maximize use of the opportunities presented by the fact that farming has a seasonal character and therefore there is time for non-farm enterprises.

These three types of investment preferences; farm, non-farm, and both, are roughly equivalent to Kagan and Wallach's concepts of "desire for certainty", the "all or

none" principle <sup>34/</sup> and the "middle of the road" <sup>35/</sup> approach which attempts to combine the "greater certainty of a small prize and the uncertainty of a large one." <sup>36/</sup>

b. Tenant farmers' attitudes toward investment and indebtedness

It has often been claimed that lack of capital is the key factor which inhibits farmers from making the necessary investments in their farms. This is obviously an oversimplification of the agricultural problem. In a study of 8 villages <sup>37/</sup> where most of the respondents were tenant farmers, they were asked as to their concept of a progressive farmer. Forty-two per cent said he is one who gets harvest or good income from farming but 24 per cent said that absence of debts is the ballmark of a progressive farmer. Apparently there is still the stigma attached to borrowing as expressed in the saying "I don't mind being poor as long as I am free from indebtedness".

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<sup>34/</sup> Nathan Kagan and Michael A. Wallach, Risk Taking: A Study in Cognition and Personality, Holt, Rinehart, and Winston, N.Y., 1964, pp. 151 and 198.

<sup>35/</sup> This writer coined this particular phrase.

<sup>36/</sup> N. Kagan and M. Wallach, op. cit.

<sup>37/</sup> A study of Social and Political Factors in Barrio Development conducted under the leadership of O. F. Sison, G. T. Castillo and G. D. Feliciano, College of Agriculture, University of the Philippines.

Among the factors cited which respondents think could improve farming, only 2 out of 685 farmers mentioned availability of capital but about 24 per cent think adoption of recommended farm practices would do it.

An indication of the propensity to invest in farming at the wish or hypothetical level is revealed in their response to what they would do with the money if they had saved P200 and P1,000 respectively. The responses to the P200 savings which are directly relevant to farming are: buy farming implements and materials, 11 per cent and buy land, 2 per cent. There was an amazing increase in the proportion (39 per cent) who would buy land with the "P1,000 savings"; buy animals, 16 per cent; buy farm implements and materials, 6 per cent. It is obvious therefore that if a large amount of money were available, land would be a priority investment and purchase of animals would be only secondary.

An examination of actual indebtedness incurred by these farm households during the time of the survey shows that 30 per cent did not borrow for that year. Among those who borrowed, 41 per cent used their loans for subsistence, 22 per cent for hired farm labor expenses, 8 percent to purchase animals for farm use and 1 per cent bought farm tools and materials. In other words, a total of 31 per cent of those who borrowed used their

loans for farm labor and other inputs. It was also observed that only the small loans were for subsistence purposes and the bigger amounts borrowed were for farm investment, house construction and purchase of farm and home lot. A negligible number (5) borrowed for the wedding of their children and two, for the fiesta .

The data on sources of credit are worthwhile noting because they indicate that credit is available just within the villages and their vicinity. Thirty-four per cent of the loans were obtained from relatives; from friends and neighbors, 18 per cent; landlords, 10 per cent; private money lenders, businessmen and storeowners, 21 per cent; and only 12 per cent from credit institutions such as the Rural Bank, the FACOMA, Philippine National Bank, etc. But what is encouraging in the light of well documented usurious rates of interests is the fact that more than half of these loans were obtained at no interest. On the basis of these very ad hoc data on credit practices, unavailability of capital does not seem to be the crucial limiting factor to farm investment even at the tenant farmer level. As a matter of fact, where production potentials are limited or where technical know-how is lacking in the farmer, availability of credit can sometimes prove disastrous. Oppenfeld, et. al., point out in their pilot study that farmer cooperators were able to increase

their incomes, adopt new practices, and set up new projects or enterprises without credit. Only those who became proficient in the new practices and enterprises showed more profits with the aid of credit later. Those who made use of credit without having had improved managerial ability failed. The authors also point out how credit and savings invested in poultry and swine enterprises flopped because of lack of technical know-how.<sup>38/</sup>

Further support for this point of view is provided by data from an ongoing study of the effects of a change in cropping pattern on the adoption of recommended practices in rice growing. The analysis showed a marked positive relationship between willingness to borrow money for farm investment and adoption score.<sup>39/</sup> These findings underscore Myren's point that the essential factor needed by farmers in order to reduce risk and uncertainty is "adequate information about the new inputs which are proposed. This includes potential adaptability to the farmers's own land and climate and a vast number of details about the techniques to use with the new crop or practice."<sup>40/</sup>

<sup>38/</sup> H. von Oppenfeld, et al., op. cit.

<sup>39/</sup> C. Dimaano and A. H. de Guzman, op. cit.

<sup>40/</sup> Delbert T. Myren, "The Role of Information in Farm Decisions Under Conditions of High Risk and Uncertainty," from the Proceedings of the First Inter-American Research Symposium on the Role of Communications in Agricultural Development, Mexico City, Mexico, Oct. 5-13, 1964, pp. 94-100.

In the case of the farmers involved in the change in cropping pattern, they have the advantage of technical advice from a competent crop technician who was providing them detailed guidance how to grow rice the "progressive" way in addition to lessons obtained from a rice school conducted in the village by rice specialists.

#### 4. Commitment to Certain Community and Kinship Norms

Among the many items in Philippine culture, the *fiesta* has often been regarded as one of the cardinal barriers to economic development. Firth, however, thinks that the deleterious economic effects of ceremonial and ritual institutions have often been exaggerated - although he says that by setting standards of consumption at certain periods of a person's life, they do on occasion tempt him to an engagement of his resources which leads not to further productivity but to the incurrment of debt." <sup>41/</sup> In the Philippines where barrio fiestas have been referred to as "senseless celebrations," "costly affairs that result in the perennial poverty of most of our people", "stage shows with plenty of eats", "opium of the poor", "disease against which our farmer folks have been warned at various times by all kind of doctors", interviews with 475 respondents in 5 barrios showed a general

41/ Raymond Firth, op. cit.

willingness among 8 out of 10 farmers to cut down on fiesta expenses and to spend their money instead on other worthwhile activities such as field days, games, stage shows, farm improvements, repair of the school building, chapel and roads. Majority of the farmers reported willingness to hold a barrio fiesta every other year so that they could attend to these other activities. The field day as envisioned by six out of 10 farmers, would consist of demonstrations of innovations for farmers and homemakers; games showing off the physical prowess of farmers and entertainment features such as native songs and dances. <sup>42/</sup>

This expressed willingness of farmers to reallocate **their** fiesta expenses for more "worthwhile" activities is an encouraging sign if profitable investment alternatives could be presented to them; otherwise villagers will not regard fiesta expense as a competitor for scarce material resources which could otherwise be put to productive use.

To have an idea about the actual expense involved in the fiesta which is often regarded, at least theoretically, as a drain on what would otherwise be a productive farm investment, data on cash and kind expenses for the fiesta celebrated

<sup>42/</sup> Cited by Gloria D. Feliciano in her paper Sociological Consideration in Communicating Change to Filipino Farmers in Five Barrios of the Land Reform Pilot Area in Bulacan, A paper presented at the Annual Convention, Philippine Sociological Society, Manila, May 12-15, 1966.

in 5 Philippine villages are presented on tables 7 and 8.<sup>43/</sup> Although 8 villages were studied only 5 celebrated their fiesta, an indication that a community as a community can agree not to hold a fiesta, a decision which can be equivalent to a decision not to spend. This phenomenon and the observation made on table 7 that three villages spent more for the fiesta than the other two appear to support by way of negative and positive evidences, Duesenberry's demonstration effect whereby one person's consumption demand depends upon the consumption behavior of others, especially the behavior of close associates.<sup>44/</sup> However, data on table 7 also show that the demonstration effect is not in absolute operation, for in spite of relatively high expenses in three barrios, about one-third of the households within these barrios did not spend anything for the fiesta. In other words, some people do not seem to feel any pressure to conform. It should also be pointed out that those who spent "irrational" sums of money for the one-day feast tended to have higher income than the average household. In the

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<sup>43/</sup> Data were obtained from the research project on "Social and Political Factors in Barrio Development" conducted under the leadership of O. F. Sison, G. T. Castillo and G. D. Feliciano, College of Agriculture, University of the Philippines.

<sup>44/</sup> J. S. Duesenberry, Income, Savings and the Theory of Consumer Behavior, The Harvard University Press, Cambridge, 1952 (Cited in Rufus B. Hughes, Jr., "Demonstration Effects on Production," Journal of Farm Economics, Vol. 40, No. 3, August 1960, pp. 659-663.

Table 7. Cash Expenses for the Fiesta (1962)  
(5 Philippine Villages)

	<u>Cambuja</u> Per Cent	<u>Coralan</u> Per Cent	<u>Manguna</u> Per Cent	<u>Paagahan</u> Per Cent	<u>San Antonio</u> Per Cent	<u>Total</u> Per Cent
No expense	23	49	33	23	38	33
P5 and below	55	28	9	19	--	24
P6 - P20	14	8	14	5	17	10
P21 -P40	3	6	19	13	13	10
P41 -- P60	1	5	10	15	12	9
P61 - P80	--	3	3	2	2	2
P81 - P100	1	1	2	4	10	3
P101 and above	3	--	10	19	8	9
<u>Total</u>	100	100	100	100	100	100
<u>Total #</u>	71	107	58	129	52	417
Number of households that incurred cash expenses for the fiesta	55	55	38	99	32	279
Total expenses of the above households	P712.95	P987.70	P2028.95	P6584.50	P1833.50	P12,147.60
Average expense per house- hold that incurred cash expense	P12.96	P17.96	P53.39	P66.51	P57.29	P43.54

Table 8. Non-cash Expenditures for the Fiesta (1962)  
(5 Philippine Villages)

	<u>Cambuja</u>	<u>Coralan</u>	<u>Nanguna</u>	<u>Paa- bahan</u>	<u>San Antonio</u>	<u>Total</u>
Total amount of rice consumed in gantas (1 ganta = 3 liters)	28.5	207.0	139.5	360.0	48.5	783.5
Total number of chickens used	61	31	38	63	27	220
Total number of pigs slaughtered	6	11	8	30	9	64
Total number of goats slaughtered		4				4

case of non-cash expenditures for the fiesta, such as use of rice, chickens, pigs, and goats, it is not known whether the cooking of rice and slaughter of animals are regarded as expenditures. It is not unusual for farmers to deliberately raise chickens or pigs for the occasion, hence perhaps the fiesta in this respect serves as an incentive to produce something which otherwise they might not be as inclined to produce. But perhaps the economist would say that this is "positive production incentive for negative consumption purposes".

In trying to relate demonstration effects to propensity to invest in agriculture, Hughes suggests that demonstration effects might also be observed on the production side of economic behavior. The sociologist will probably use reference group theory to explain the same thing: "the income levels of one's close associates may well determine the extent to which he is motivated to undertake the additional toil, risk, and uncertainty associated with earning a high income rather than only a moderate one"<sup>45/</sup>. If we apply this concept to propensity to invest in agriculture, given a kinship group, a neighborhood, or a community where there is high propensity to invest in farming, the individual farmer will be considerably influenced by the production

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<sup>45/</sup> R. B. Hughes, op. cit.

behavior of his close associates. In other words, a closely-knit kinship group, neighborhood or community may have positive or negative influence on propensity to invest in agriculture, depending upon the prevailing norm. Demonstrative effects, so to speak, can be either positive or negative depending upon what is being "demonstrated".

Regarding the interrelationship between kinship systems and economic development, Hoselitz has this to say:

"...it is usually pointed out that traditions of the extended family are impeding the development of attitudes of venturesomeness and willingness to bear risks or to produce innovations which are necessary for an entrepreneurial group to become the spearhead of economic development. It is said that an individual who must share his profits with other members of the extended family will have fewer incentives to take risks will tend to rely more on the aid of others than his own initiative and ingenuity, and will be less eager to search out and pursue new opportunities for profit. It is also said that this individual will work less hard than he would if he were a member of a small nuclear family since any gains from his labor must be shared with others and because others will be expected to share their gains with him. This evaluation of the impact of the extended family on motivations for work and gain is based upon the assumption of a basically individualistic society such as is said to prevail in the West. If we consider on the other hand, that the traditional norms under which many persons in underdeveloped countries have come to regard their demands upon, and their duties toward their extended families, we may perhaps understand that because of the presence of traditional norms different from those of the West, membership in an extended family may not be an impediment to the development of entrepreneurship or willingness to work hard. Traditional norms relating to one's relations with one's kin group make persons in Asian countries interpret their own place vis-a-vis other members of their extended families differently from what would be the way if they held Western traditional norms regarding family relations and quite apart from this difference, it may be argued that the extended family may be a factor positively furthering and supporting the devel-

opment of viable entrepreneurship. For example, in India regular bank credit is almost impossible to obtain for artisan who wishes to expand his operations. But he can rely on his family to help him with funds to expand his enterprise, any loans that he can raise usually also comes from members of his extended kin group. In other words, in this instance, the extended family makes possible the expansion of a small inefficient artisan's shop into a small and sometimes medium-sized, more efficient factory. One could cite similar examples of how family farms which were threatened by dismemberment were saved through the contributions from the members of an extended family and how the extended kin group through its capacity to pool resources was instrumental in fostering economic progress or preventing economic decay." <sup>46/</sup>

In the Philippines, similar observations on the supportive role of the extended family in the individual's efforts to achieve have been made. <sup>47/</sup>

#### Summary

This paper has attempted to identify factors related directly or indirectly to propensity to invest in agriculture. Data and analyses presented from published and unpublished materials reveal that although there are evidences of response to economic incentives,

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<sup>46/</sup> Bert F. Hoselitz, "Tradition and Economic Growth", in Tradition, Values, and Socio-Economic Development, Ralph Braibanti and Joseph J. Spengler (eds.), Duke University Press, North Carolina, 1961, pp.83-113.

<sup>47/</sup> G. T. Castillo, A. M. Weisblat, and F. R. Villareal, The Concepts of Nuclear and Extended Family: An Exploration of Empirical Referents, Social Research Division, College of Agriculture, University of the Philippines, 1966 and G. T. Castillo, "Sociological Factors in Savings and Capital Accumulation in Philippine Agriculture", The Philippine Economic Journal, No. VI, Vol. III, No. 2, Second Semester, 1964, pp. 189-197.

this response is far from maximum and therefore explanation from non-economic sources were examined. The insights obtained are summarized in the form of hypotheses which may be drawn regarding the forces which inhibit or enhance the full realization of economic potentials:

1. Philippine rice, corn, tobacco, and sugarcane farmers respond to price but their response is more in terms of hectareage rather than yield.
2. Lag in the development of the physical environment by way of irrigation and drainage prevents the optimum use and full benefits from modern technology. The need for greater creativity and development of transitional technology is indicated where optimum modernity does not appear to be immediately feasible.
3. Farm input supply inadequacies contribute to slow adoption of modern farm practices. From this and the preceding statements, a more general hypothesis may be formulated: the farmer's investment behavior is affected as much by factors which are primarily outside his individual control.
4. What appears to be uneconomic production behavior is sometimes a here and now "best" adjustment to the physical environment when other alternative are not available or have not been perceived.
5. Drop-outs in the use of recommended practices could be due to unpleasant experience brought about by misapplication of the technology and not due to sheer resistance or conservatism

on the part of the farmers.

6. Tenure arrangements have either positive or negative effects on the economics of adopting practices which have been experimentally proven as technically feasible. The direction of the effect depends upon the type of innovation involved.

7. There is no single optimum land tenure system in terms of productivity implications. In places where there is greater contact with modernizing forces and better functioning of factor and product markets, tenure system bears no relation to productivity.

8. Smaller farmers have greater propensity to adopt new practices during the "trying out" period. But as soon as the effectiveness of the new practice is demonstrated, readiness to borrow money to meet additional costs incident to adoption will increase and higher adoption will be expected for bigger farms.

9. Perception of new inputs as plain additional costs rather than as investment inhibits purchase of such inputs.

10. Land reform creates a disinterest on the part of the landlord<sup>to</sup> invest in his farm. Unless resources are forthcoming from somewhere to replace those that the landlord usually provides, production will be adversely affected.

11. Owner-operators, more than absentee landlords exhibit greater willingness to invest in their farms.

12. Landlords growing perennial crops such as coconut show greater security orientation than those who grow seasonal crops such as rice.

13. Land is still regarded as a secured and indestructible investment.

14. Risk-taking landlords are more likely to prefer non farm to farm investments because of quicker returns to investment in spite of greater risks.

15. Tenant farmers have a high value on staying out of debt but this does not prevent them from borrowing if production potentials and technical know-how are available.

16. Among small farmers, unavailability of capital is not a crucial limited factor to farm investment. As a matter of fact, where production potentials are limited or where technical know-how is lacking, availability of credit can be disastrous. Credit to be effective should be a "later" input.

17. Tenant farmers as individuals or as a community exhibit resistance to the fiesta-expense-tradition but this money "saved" does not necessarily mean increased resource for the farm if investment potentials were not available or if farmers fail to perceive them as such.

18. Demonstration effects on consumption and production may have positive or negative effects depending upon what is being demonstrated.

19. Contrary to what has been considered as a foregone conclusion, the extended family may be a factor positively furthering or supporting the development of viable entrepreneurship and greater propensity to invest in agriculture.

Although some evidences have been cited for each of these hypotheses, they are too ad hoc and inadequate to be conclusive. Further collaborative efforts between the economist, the agricultural technologist and sociologist are therefore necessary for an action -fruitful understanding of the farmer's investment behavior.