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## GROUP G

Chairman: SHERWOOD BERG  
*University of Minnesota,*  
*U.S.A.*

Rapporteur: G. G. HAYES  
*University of Aberdeen,*  
*U.K.*

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### *Capital Formation and Credit in Agriculture*

PEDRO R. SANDOVAL

*Philippines*

#### *Introduction*

PROGRESS and development in agriculture, or in any other sector, could be accelerated by creating favourable conditions in a society which will stimulate economic activities to provide growth in *per capita* output and income. Capital accumulation is one of these conditions and it is considered by some authors as the core of economic development. This condition, to be effective, must usually be linked to technological progress.

Capital formation, which may take many forms, is the accumulation of machines, buildings, communication systems, and other devices that make the productivity of the users higher than what it would be without them. Investment in roads, dams, power developments, and other public facilities that generally increase the productivity of the population may be considered a form of capital formation. It may also take the form of investment in public research and information programmes. Lately, investment in people themselves—in the form of education, training, better health, or improved physical condition—has been recognized as a type of capital formation. Increasing the rate of capital formation should increase the rate of economic growth provided that the need is kept in mind for a proper balance in the society between the different forms of capital formation and consumption.<sup>1</sup>

#### *Sources of Capital Formation*

According to Hathaway, increasing the savings rate of persons in the economy is one way of increasing capital formation. This is difficult, however, in a poor country where almost everyone is near the subsistence level unless its economy can achieve substantial increases in productivity that can be siphoned off. In most of the less-developed areas, capital

<sup>1</sup> D. Hathaway, *Problems of Progress in the Agricultural Economy*, Chicago: Scott Foresman and Co., 1964.

formation comes from outside private investors. This source, however, is hampered by political instability, by nationalistic aspirations, and most of all by the prospects of unappealing profit levels due to the country's low labour productivity and low levels of demand. Another source of capital formation is that form of external assistance to less-developed countries, sometimes called 'foreign aid' by the donor countries.<sup>1</sup>

The real capital resources in agriculture as classified by Buchanan and Ellis are included under three categories: (1) direct capital input in the form of seeds, fertilizers, work animals, farm tools and machinery, etc.; (2) fixed capital installations used directly in agriculture, such as drainage systems, irrigation facilities, storage tanks, buildings, and farm roads; (3) ancillary capital installations serving agriculture along with other economic activities such as electrical power, road and rail transport facilities, and communication systems, which contribute indirectly to agricultural productivity.<sup>2</sup>

In the United States private capital formation in agriculture has been largely financed by the industry itself. The great accumulation of capital, which makes the capital-man ratio in agriculture higher than in the average non-farm industry, has been achieved largely without drawing upon the capital accumulation of the non-farm economy. This is in sharp contrast to some countries where landowners put their earnings into more land, gold, and jewels; living high while their agriculture remains backward and unproductive.<sup>3</sup> This view is shared by Tostlebe who reported that United States farmers have financed increases in farm capital with their own incomes and savings.<sup>4</sup>

Credit has also been found to play a role in increasing farm productivity. Although the volume of new farm capital financed with credit has usually been small as compared to that financed by farmers themselves, such capital has often been substantial in amount and highly important. The amount of new capital that can be financed by borrowing is related to income. The willingness and ability of local lenders to provide capital is substantially affected by the amount and trend of farm income, though it is influenced by the amount of local bank deposits and the financial condition of individual lenders.

Lowering the output of consumption goods in favour of increasing the production of capital goods is another possible source of capital formation in underdeveloped areas. Classical economists strongly stressed this process of capital formation—the accumulation of capital through savings. Furthermore, accumulation of productive real resources internally without resorting to foreign borrowing by less-developed areas can be done by using disguised unemployment or seasonal idleness in agriculture

<sup>1</sup> D. Hathaway, *op. cit.*, pp. 132-6.

<sup>2</sup> N. S. Buchanan, and H. S. Ellis, *Approaches to Economic Development*, New York: Twentieth Century Fund, 1955.

<sup>3</sup> D. Hathaway, *op. cit.*, pp. 6-7, 151.

<sup>4</sup> A. S. Tostlebe, *Capital in Agriculture: Its Formation and Financing Since 1870*. A Study of the National Bureau of Economic Research, Princeton: Princeton University Press, 1957.

wherever this condition exists; by transferring labour and other productive resources from non-productive capital and ceremonial activities to productive capital formation; and by cutting consumption to release factors of production for capital goods.<sup>1</sup>

Under certain conditions in a growing economy starting from a low income level, savings in or from agriculture can be an important source of investment funds for the entire economy.<sup>2</sup> The degree to which savings are extracted from agriculture—through taxes, rents, low prices has an important effect upon agricultural output. In this regard Japan has transferred significant amounts of savings from agriculture into non-agricultural investment and still achieved rapid modernization of agriculture.

### *Some Patterns of Capital Formation and Use of Credit*

In more-developed economies conditions seem to favour capital formation both within and outside of agriculture. When capital formation takes place in the non-agricultural sector, additional capital which is needed by farms in the form of credit is usually made available through financial institutions and various types of arrangements. Thus, credit coupled with technological progress becomes instrumental in improving farming systems to a remarkable degree. It has also been demonstrated that private capital formation in agriculture could be financed largely within the industry itself. Farmers have been able to increase their farm capital with their own incomes and savings. Hence, farm improvements raise productivity which makes it possible for agriculture to contribute its share to economic growth.

Somewhat different conditions may exist in certain small-scale farming economies. Two important factors, according to Warriner,<sup>3</sup> influence their level of living. They are the low level of earnings in agriculture as compared with the earnings in industry, and the policy of agricultural protection. Farm workers are generally underpaid as compared with industrial workers, and farm capital in general earns a lower rate of return than capital invested in industry.

There is a tendency for farmers to increase their size of business by increasing their farming equipment in the form of livestock, machinery, and feeding-stuffs. To a large extent, this capital investment is a substitute for labour, and is not accompanied by an increase in the number of men employed per farm. It will be noted that countries with larger capital investment per unit of labour, and not those with the largest farming units, have higher rural standards of living. It appears that in farming the increase in the productivity of labour occurs without a fundamental change in the size of farming enterprises.

<sup>1</sup> N. S. Buchanan and H. S. Ellis, op. cit., pp. 58–9.

<sup>2</sup> D. Gale Johnson, 'The Role of Agriculture in Economic Development', Marion Clawson (ed.), *Natural Resources and International Development*, Baltimore, Maryland: The John Hopkins Press, 1964.

<sup>3</sup> D. Warriner, *Economics of Peasant Farming*, New York: Barnes & Noble Inc., 1965.

In passing, it seems desirable to look at the characteristics of this type of farming in relation to capital formation and the improvement of farming systems. This farming economy tends to promote better utilization of this existing labour force, to increase output per head, and to increase the volume of savings. It is also able to maintain a more equitable distribution of income. In general, such farms aim chiefly at increasing the capital already invested in the farm, or strive to add to it. To some extent this probably shortens the supply of capital available for investment in the industry or in the large-scale farming equipment.

Meanwhile the savings of small farmers are individually invested, this money may go to buying land, re-roofing the houses, or other purposes. The existence of many small farms, therefore, drives savings into many small channels. As a consequence, there are no reserves for investment in large-scale capital construction which would contribute to increased productivity. There seem to be no evidence of any inherent tendency in this economy to consume too much, but rather to save and to misdirect the saving. Where the credit organization is not developed, there is a greater tendency to hoard. Where there are co-operatives they can mobilize the capital and make savings productive.

#### *Savings and Capital Formation: Philippine Experience<sup>1</sup>*

Agriculture is a basic sector of the Philippine economy. It is one of the important factors that contribute to the nation's economic growth. The amount of capital formed in agriculture is an indicator of agriculture's contribution to national economic growth.

Studies of aggregate savings and capital accumulation in Philippine agriculture indicate that the rate of capital formation was highest in the new, less-densely settled agricultural regions, and lowest (in some cases, negative) in the older, agricultural regions. Comparisons of asset structure and growth-rates between agriculture and other sectors show a somewhat more rapid rate of capital formation in the corporate sector of agriculture than in the other corporate sectors of the economy. The data also indicates that capital intensity in the corporate sector of agriculture is: (a) at least as high as in other corporate sectors, and (b) probably not significantly different from the non-corporate sectors of the Philippine economy.

It is also interesting to note the implications of technological and institutional forces on savings and capital formation. There have been rather striking rates of growth of income, savings, and capital formation which have accompanied the introduction of technological change on small-scale farms. Substantial limitations, however, are imposed on ability to save or to acquire capital by share tenancy relative to other tenure categories. The impact of family and community factors on savings and

<sup>1</sup> This section of the paper draws its materials from papers presented at a seminar on Savings and Capital Accumulation in Philippine Agriculture held at the International Rice Research Institute on 24-5 April 1964. The proceedings were later published in the *Philippine Economic Journal*, vol. iii, 1964.

capital accumulation imply that the level of capital accumulation in the communities studied falls below its potential.

Meanwhile, co-operatives have served to a limited degree as effective institutions for mobilizing local savings for investment in social capital. Although rural commercial credit institutions have been organized, difficulties have been encountered by such institutions in attempting to make short and intermediate term production credit available at a reasonable cost to small borrowers.

A number of important empirical generalizations, or at least working hypotheses, have been evolved concerning savings and capital formation in Philippine agriculture.

1. Savings from income in the agricultural sector, both corporate and non-corporate, tends to exceed investment in agriculture in the Philippines. It appears that the agricultural sector is generating savings for investment in other sectors of the economy. This is the classic function assigned to agriculture in developing economies with a large agricultural sector.

2. Capital accumulation appears to be limited by lack of incentives more than by lack of a potential supply of savings. Traditional consumption patterns and alternative investment opportunities absorb potential savings which might be channelled into investment in agriculture. Where incentives to invest are strong, as in the development of new areas or the adoption of profitable new technology, savings are generated and investments made.

3. Lack of productive investment alternatives in agriculture appears to represent a major factor limiting private investment in Philippine agriculture.

#### *General Comments*

Capital accumulation is often considered as the core of economic development. When linked to technological progress, it could help stimulate activities to provide growth in *per capita* output and income in a society. The sources of capital formation in agriculture include savings within agriculture itself, financing from outside private investors, external assistance, and the lowering of the output of consumption goods in favour of increasing the production of capital goods.

When capital is available it can be channelled to farms in the form of credit. Thus, farm credit, coupled with technological progress, could become instrumental in improving farming systems.

#### GROUP G. REPORT

ATTENTION was first directed to the problem of capital formation in the less-developed countries of the world. A clear distinction was drawn by some speakers between the developed countries and the less-developed countries. In parts of Africa, for example, it was suggested that the root of the problem lay in the fact that local capital formation depended on

agriculture, and that there was very little opportunity for savings to accumulate. A distinction must be made between forced and voluntary savings. However, some concern was expressed at the tendency to regard capital in the developing countries as coming from savings or from foreign loans. In developed countries capital had been generated by way of land improvement, and that the land which had been improved at a low opportunity cost could be used as a basis for further credit. In Uganda, to take an example, some commercial agricultural commodities, such as tea, formed an important part of the peasant agricultural structure. Such specialized products could, in fact, have a surplus for credit formation. In addition some other crops could be used as security for short-term credit.

The group then turned to a discussion of the need to supervise the use to which credit was put. Several speakers expressed concern at the possibility that credit would be diverted away from its planned use into other channels. Would it be possible to build into the system of granting credit a control which would ensure that the credit was correctly used? It was pointed out, however, that this was not always necessary. In a country such as Kenya wheat and maize were the only crops attracting credits. They were not competitive crops and thus did not encourage the diversion of credit from the planned objective to another.

In Thailand decision making was not the sole prerogative of the farmer. His ultimate actions would be determined by discussion within the family group. In consequence it frequently happened that technical recommendations were not strictly followed. For example, the recommended rate of fertilizer application was not employed.

One way by which the planned use of the credit facilities made available to farmers is ensured is by close supervision. Such supervision could take a number of forms. The required resources such as seeds, feeds, fertilizers, etc. might be supplied directly to farmers, but not money. Alternatively, the farmer obtains the resources he requires direct from his merchant, the supplier being paid the cost of these goods by the appropriate credit-granting agency. In this manner the tendency of farmers to divert credit from its planned objective can be avoided. It was pointed out that in a developed country such as Australia long-term credit is available from the banks, but the potential borrower has to contribute a substantial proportion of his total requirements. Before use can be made of any State development plan the potential borrower has to possess some capital of his own. In the credit field there were three basic considerations (1) distribution problems, (2) high interest rates, and (3) shortage of long-term credit. In all probability the basic cause of the limited use of credit was the high interest rate. Possibly government guarantees might have a place. It was generally agreed that the importance of the risk element could not be minimized. The attitude towards credit in a low-farm-income area could be important—Ireland was quoted as an example. In such areas—areas of small farms and poor land—it was difficult to get the concept of the use of credit accepted. Broadly speaking, those farmers who did make use of



credit facilities normally required close supervision to ensure that the credit was correctly used. It was necessary to measure the needs of the farm, but in so doing it was material also to consider the needs of the farm home. An investment in home comforts might in fact pay a higher dividend than a corresponding investment in some sector of the farm business economy. For this reason, if for no other, it was imperative to supervise the use to which credit was put. It is impossible to discuss capital requirements and credit facilities in low-income areas without taking the needs of the family and the home into account.

Regarding the extent to which technical assistance in the use of credit was necessary, it was generally agreed that in many areas additional credit could with care be diverted from the original project to an alternative, and perhaps more rewarding use. Further, not only should the use of such credit facilities be supervised, but technical advice on the correct use of the resources obtained from this credit should also be available, and was highly desirable. Credit without technical aid was seen as undesirable to take only one instance, fertilizer applications might follow a previous pattern rather than be in accordance with current technical advice. It was noted that in certain areas land may have a non-economic value (social, religious, etc.) which does not lend itself to regulation. For real progress it might be better to look to improvements in land management rather than to reform in land tenure. If this were done land could act as a basis for credit, and thus lead to significant technological progress.

The validity of the point of Professor Sandoval's hypotheses (page 284), concerning savings and capital formation in the Philippine economy was questioned. In reply he pointed out that part of the agricultural sector of the economy provided exports, and part provided food crops. He indicated that as far as the export crops are concerned, the income arising from such sales tends not to be reinvested in agriculture. Some of these earnings go to the land owner who might invest in real estate or industry.

Among those taking part in the discussion in addition to the opening speakers were: F. J. Moore *U.S.A.*, R. B. Davidson *Australia*, D. G. Belshaw *Uganda*, C. Chuchart *Thailand*, R. K. Linder *Australia*, J. J. Scully *Ireland*, C. H. Bonte Friedheim *Kenya*, D. E. Welsch *U.S.A.—Thailand*, R. W. M. Johnson *New Zealand*.