

POVERTY, SHORT TERM INCOME GOAL AND SOIL MANAGEMENT PRACTICES: EVIDENCES FROM OGUN STATE, NIGERIA.

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ABSTRACT

In this paper, poverty is defined as a condition in which an economic entity does not have enough resources at its disposal to meet its short-term consumption needs. That is a low-resource status. By implication, the economic agent cannot afford to save part of its present stock of resources to meet future consumption needs. Adequate maintenance of natural, capital, or human resources by giving up of a part of present production becomes very difficult. The long-term sustainability of the soil as a natural resource may therefore be in jeopardy due to poverty and low-resource status of most farmers in Nigeria. The study was directed at low-resource food crop farmers in Ogun State of Nigeria. The author assumed that (i) a strong desire for short term income gains in preference to longer term income benefits, and (ii) the desire to minimise direct costs of investment in a soil management practice are two indirect indicators of poverty among low resource food-crop farmers. Based on this assumption, the author proceeded to test the strength of association between the prevalence of soil conservation practices among small food crop farmers in Ogun state and the two indirect indicators of poverty mentioned above. The results of the study showed that most of the commonly practised or prevalent soil management practices are those which involve the lowest amounts of direct monetary investment. It also revealed that those practices which possess the highest potentials for short-term income generation were more commonly practised among the farmers. However the former relationship was stronger and more statistically convincing than the latter. The study therefore concluded that: although food crop farmers in Ogun State were found to be currently more engaged in soil management practices which offer the possibility of lower unit cost of direct investment as well as possess greater ability to generate quick and sizeable short-term returns on investment; the possibility of minimum direct cost of investment in a soil conservation practice was found to be a more important consideration in choosing the soil management practice to actually engage in than the potential for generating short term income benefits for the farmer. Finally, it can be said that the poverty status of the farmers might have played a significant role in the determination of the management practices in which they are currently engaged. This according to the results of the study is biased in favour of short-term soil management practices to the neglect of the longer-term objectives of soil conservation. The paper recommends among other things, that government and non-governmental organisations should be made by policy to bear part of the cost of soil conservation, through the provision of appropriate subsidies to the food crop farmers. This means an appropriate subsidy programme needs to be built up within the framework of a well-articulated soil conservation policy, which as at now, does not exist in Nigeria.

INTRODUCTION

One of the greatest challenges to agricultural research and policy in the Nigeria of today is the question of how to effectively balance the quest for increased food production of agricultural land and the ecological balance of the production systems. Olayide et al (1977) noted that over the years, Nigerian soils have been under the threat of massive depletion due to the increasing occurrence of improper farming and cultivation practices, which expose the soil to harsh weather conditions.

While increasing population pressure and urbanisation have resulted in decreasing arable land - farmer ratio; growing demand for food, reduced governmental expenditure on food importation, and the increasing cost of acquisition of new farmlands seem to be putting increasing pressures on the present stock of cultivated farmland. The direct effect of this increased pressure on cultivated land in Nigeria is an increasing state of soil depletion, destruction and loss.

According to NEST (1991), Soil erosion and depletion has been a long standing problem in Nigeria. Serious sheet erosion has been reported for all the ecological zones of the Nigerian Savanna, while over 1,200 large erosion gullies have been identified in the forest zones. Olayide and Falusi (1975) stated that in many parts of Nigeria, the top soil is being increasingly ruined by soil erosion. According to the authors, scattered information exist that in many parts of the forest zone, soil erosion has washed away between 1/4 and 3/4 of the top soil with consequent fertility depletion; resulting in a situation that yield on most Nigerian farms were below 10-20 per cent of the potential levels under proper farm management. This gradual depletion of the soil and the consequent decline in land productivity may assume

dangerous proportions if measures are not put into place to ensure the entrenchment of suitable and effective soil management practices on our food crop farms.

In this paper, poverty is defined as a condition in which an economic entity does not have enough resources at its disposal to meet its short-term consumption needs. By implication, the economic agent cannot afford to save part of its present stock of resources to meet future consumption needs. Adequate maintenance of capital resources by giving up of a part of present production becomes very difficult. The poor will more often than not eat deep into his stock of capital resources, not because of the lack of knowledge on the importance of replenishing and sustaining the capital resources, but because his present level of income inflow is far below his basic consumption needs. The long term sustainability of soil productivity which is partly capital intensive may therefore be in jeopardy due to poverty and low-resource status of most farmers.

The statement by Sheng (1989) strongly supports the hypothesis that: "as a result of the poverty of the farmers, the objective of short term private benefits from their farm production activities has far out-weighted the objective of longer term private or social gains from their present production activities. This in turn may have resulted in the farmer's preference for soil management practices that will generate shorter-term private benefits over those that will trade-off short term gains for longer term sustainability goals. Aromolaran (1998b) in his study with the same set of farmers used for this analysis concluded that the preference pattern of farmers among various soil conservation practices was strongly associated with the ability of the practices to satisfy their short-term income goals. He also found out, that practices that required lower unit

monetary investment were preferred more by the farmers to those that required more. He therefore concluded that the kind of conservation practices preferred/desired by these group of low resource farmers is strongly associated with their poverty level.

This paper is a further attempt to analyse this hypothesised relationship by Sheng (1989). This is to be achieved by testing the relationship between: "the actual practise of a conservation practice by farmers" (in contrast with the "degree of farmers preference for a practice", which was used in Aromolaran, 1998b) and the two poverty-related attributes of the practices (potential for shorter-term private benefits and the unit cost of investment in practice) examined in Aromolaran (1998b).

In more specific terms, this paper attempts to explain the possible relationship between the farmer's actual soil management practices and poverty; as well as explore the implications of their current set of management/conservation practices for the national objective of sustainable soil productivity.

In order to achieve this objective, the study tested two hypotheses namely:

- The Degree of prevalence of a practice among the farmers (DPREV) is strongly associated with the perceived ability of the practice to generate short-term income gains from land use (PAGSI). That is the most common practices among the farmers are those that offer the prospects of short-term income goals.
- The Degree of prevalence for a practice (DPREV) is strongly associated with the level of direct cost engaging in the practice per hectare per annum (LDCEP). That is the most commonly practised

management/conservation practices are in those which the farmers incur the least expense per hectare of land per annum for engaging in them.

METHODOLOGY

Sample Size and Data Collection

The study was carried out in Ogun State, Nigeria. The major source of information was primary data collected through a sampling survey procedure. A total of 400 food crops farmers were sampled 120 each from Ilaro and Abeokuta zones; and 80 each from Ijebu-Ode and Ikenne zones.

Ogun state was divided into four agricultural zones along the lines adopted by the Ogun State Agricultural Development Programme. The four zones are Ilaro/Yewa zone, Abeokuta zone, Ijebu-Ode zone and Ikenne zone, with farm family population of 90,000, 80,000, 40,000 and 37,000 respectively as at 1995 (OGADEP, 1995). Three blocks were randomly selected from each zone and three cells were selected randomly from each block. Thus a total of 36 OGADEP cells were covered in the survey.

The farmers were personally interviewed by experienced research assistants through the aid of well structured interview schedules. A lot of additional information was gathered through discussions with field extension agents, officials of non-governmental and governmental agencies.

This study was actually targeted at poor farmers. Field evidence showed that the farmers studied were low-resource farmers who could be counted as poor. Even though their major occupation was food crop farming, their average farm size was as small as 2.53 hectares scattered on between 2 and 3 separate locations. 84% of the farmers did not have access to credit from any form of formal credit. The few who did were only able to obtain an

Average of 6,512 naira in two years. In addition the study found out that a very large majority of the study farmers were technically aware of the soil management practices analysed in this paper with the exception of ridging along the slope and alley cropping. (see Aromolaran 1998a and Aromolaran 1998b). As a result, the relatively low level of practise of one soil management practice over the other may not be due to low level of awareness.

Measurement of Variables

The procedure adopted for the measurement of the major variables analysed in this paper are as follows:

DPREV: this variable is ordinal in character and was derived through the assignment of ordinal ranks to the figures representing the percentage of farmers that were actually engaged in a particular conservation practice as at the period of data collection as presented in Table 1. The variable DPREV thus assumes the values 1 – 12 in this study as shown in Table 2.

LDCEP: this variable is also ordinal in character and was derived through the assignment of ordinal ranks to the figures representing the cost implications of engaging in each conservation practice per hectare for a year in naira. (see Table1). The soil management practice with the lowest cost figure received the highest rank value which is 1 (bush fallowing and minimum tillage). Green manuring received the lowest rank of 12 since its implicit cost of implementation in the study area is judged to be highest among the set of current practices. Thus Table 2 show a LDCEP range of values between 1 and 10.

PAGSI: ordinal ranks were used to measure this variable directly from the field. The collective subjective opinion of the farmers on the potentials of each conservation practice to generate short-

term private income benefits was used to assign ordinal rank values. Thus the rank-value 1 was assigned to the practice which in the view of the farmers is able to yield or generate higher levels of short-term income. The/PAGSI assumed values 1 – 9 in this study.

Data Analysis

The spearman's rank correlation analytic technique was used to test the two stated hypotheses. The ordinal rank values for variable DPREV and LDCEP were derived from Table1. The ordinal rank values for PAGSI were derived from the information collected from the field (see Aromolaran, 1998a). The rankings are presented Table 2.

RESULTS AND DISCUSSION

The results showed that the use of inorganic fertilizer and minimum tillage are the two most prevalent soil management practices by food crop farmers in the state, followed by bush fallowing and zero tillage. Table 1 shows that 64 per cent, 61 per cent, 51 per cent and 35 per cent of the farmers are currently engaged in the above listed practices respectively.

Table 2 presents the ordinal rank scores which the farmers assigned to the various soil management practices under each of the three variables whose degree of association are to be tested statistically. The first rank-column states the ranking of each conservation practice according to the prevalence of the practice as measured by the percentage of farmers currently practising the technique. The second rank-column state the ranking of the practices according to how low the per hectare per annum cost of investment required to engage in the practice is. The third column gives the indication of the farmers relative ranking of the conservation practices according to how quickly investments in

them will yield income benefits to them. The results show that minimum & zero tillage were regarded by the farmers as the soil management practices which are least burdensome in terms of direct cost of investment. This according to them is followed by the use of chemical fertilizer, bush fallowing and plant residue management. On the other hand chemical fertilizer use is considered by the farmers to possess the highest prospect of short-term income gains from practice. This is followed by manuring, plant residue management, and mulching.

Table 3 presents the spearman's rank correlation results of the two relationships (DPREV versus PAGSI and DPREV versus LDCEP) that were subjected to statistical test in order to confirm or disprove the hypothesised relationship between poverty level of farmers and their "actual practise" of particular soil conservation practices

The result of the first test showed that a significant association exists between DPREV and PAGSI at 5% α level, but rejected at 1% α -level. Aromolaran (1998b) reported a statistically more reliable relationship between DPREF and PAGSI for the same sample of farmers. The hypothesis of strong association was accepted at 1% α -level. The implication of this is that preference pattern is more strongly/reliably associated with potential for generation of short-term income benefits than actual practice. That is, even though short-term income consideration is very strongly associated with the degree of farmers' preference for one management practice over others, the strength of the relationship weakens when it comes to actual practice. What seem to be of greater consideration in actual practice is the minimisation of unit cost of investment (LCDEP). This statement is supported by the result of the second test which shows that a significant association exist between DPREV and LDCEP at 1% α -level. That is, the degree of prevalence of

actual practice of one management practice over others is strongly associated with the size of unit cost of direct investment in the practice. Thus, farmers actually engage more in those practices that require lower direct cost of investment per hectare per annum. Whereas in Aromolaran (1998b), the hypothesis of association between DPREF and LCDEP was rejected at 1% α -level, even though it was accepted at 5% level.

If it is presumed that the strong desire for short-term income gains in preference to longer term income benefits, as well as the desire to minimise direct costs of investment in a venture are consequences of poverty or low resource status. Then it can be inferred, from the results of this study, that the farmers' choice of which management practice to engage in is strongly influenced by their poverty level.

It is important to note that most of the soil management practices that have high potentials for generating short term income benefits were usually those concerned more with short-term soil fertility maintenance rather than long term soil productivity sustenance

Thus the farmers seem to be more concerned with short-term soil fertility maintenance than long term soil productivity sustenance.

CONCLUSION

Policy Implication And Recommendation

This paper wishes to make the following vital conclusions.

1. Food crop farmers in Ogun State were found to be currently engaged more in soil management practices that offer the possibility of lower unit cost of direct investment.

2. Food crop farmers in Ogun State were found to be currently engaged more in soil management practices that possess greater ability to generate quick and sizeable short-term returns on investment.
3. However the possibility of minimum direct cost of investment in a soil conservation practice was found to be a more important consideration in choosing the soil management practice to actually engage in than the potential for generating short term income benefits for the farmer
4. Food crop farmers in Ogun State were found to be currently engaged more in soil management practices which border on short term soil fertility maintenance more than those that border on longer term conservation of the soil.
5. When the results of this investigation is compared with that reported in Aromolaran (1998b), it can be concluded that "degree of preference" is more strongly/reliably associated with "potential for generation of short-term income benefits" than "actual practice". That is, even though short-term income consideration is very strongly associated with the degree of farmers' preference for one management practice over others, the strength of the relationship weakens when it comes to actual practice. What seem to be of greater consideration for a farmer to "actually practise" a technique is the minimisation of unit cost of investment (LCDEP).
6. Finally, it can be said that the poverty status of the farmers might have played a significant role in the determination of the management practices in which they are currently engaged. This

according to the results of the study is biased in favour of short-term soil management practices to the neglect of the longer-term objectives of soil conservation.

Policy Implication

Thus the general state of poverty of our food crop farmers presents a great threat to the national goal of conserving our agricultural soils. Our farmers have found themselves helplessly eating away the nations stock of soil resources without putting adequate measures in place to sustain the productive abilities of these soils. With the worsening state of poverty in Nigeria, a comprehensive soil conservation policy has to be urgently put into place if the nations soil resources are to be adequately conserved for sustainable food production.

Recommendations

The policy should aim at developing soil conservation plans for each agro-ecological zone in the country. These plans should be such as will not require too much direct investment or short term income loss by the farmers. In short, the plans must be such as will help to achieve the societal goal of long term productivity sustenance while not denying the farmers the use of their incomes to meet short term consumption needs. This will require appropriate normative studies to be conducted to determine the type of conservation-friendly farming system to be operated by the food-crop farmers in each agro-ecological zone of Nigeria. The recommended system should be evaluated with a view to ensuring its practicability among the low-resource farmers.

ACKNOWLEDGEMENT

The author acknowledges the sponsors of the study from which the content of this paper was derived. That is the WINROCK International through the African Rural Social Science Research Network (ARSSRN). The author is particularly grateful to members of the Technical Committee of ARSSRN particularly Professors J.K. Olayemi and Anthony Ikpi.

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