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9. ABSTRACT

The focus of the Rural Employment Study is the rural labor market; that is the determination of the allocation and remuneration of human resources (i.e., labor and associated human capital). Particular emphasis is being given to demand factors which affect the utilization of human resources in rural areas in both agricultural and rural nonfarm activities (Figure 1). Intensive micro level studies will be undertaken over a 12-month period in several countries to determine the effect of alternative agricultural production systems and technologies on the demand for labor. In the rural nonfarm sector, similar micro-level studies are planned to analyze the effect on labor utilization of (a) the demand for the output of the nonfarm sector, (b) the choice of technique and (c) supply of factors of production particularly skills and entrepreneurship.

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HUMAN RESOURCES IN RURAL DEVELOPMENT:
SOME THEORETICAL ISSUES*

by

Derek Byerlee

The traditional approach to development and an approach still widely practiced by planners, emphasizes growth of GNP as the overriding goal and assumes that physical capital is the limiting factor. With increasing unemployment and inequitable income distribution in many LDC's, there has been a shift in emphasis toward employment or human resource oriented strategies of development both because (a) unemployment constitutes a waste of resources that LDC's can ill afford^{1/} and (b) increasing employment by increasing returns to labor is one way of reducing income disparities.

Much of the concern about unemployment has focused on the unemployment of predominantly young school-leavers in urban areas many of whom have migrated from rural areas. In the light of the dim prospects for increasing employment in urban areas and the theoretical analyses of Harris-Todaro and others, emphasis has shifted toward "rural development," as a means of reducing rural-urban migration and alleviating urban unemployment. To be more explicit we define the terms "rural development" as presently used, to include three characteristics which distinguish it from traditional approaches. First, rural development is evaluated in terms of a number of people oriented goals--income, income distribution, education, health, etc. Second, rural

*Notes prepared for A/D/C Conference on Human Resource Investments in Rural Development. Vanderbilt University, May 18-19, 1973.

^{1/}In addition, because on-the-job training is an important source of human resource investments, total human resource investment may be less and even "depreciate" as a result of unemployment.

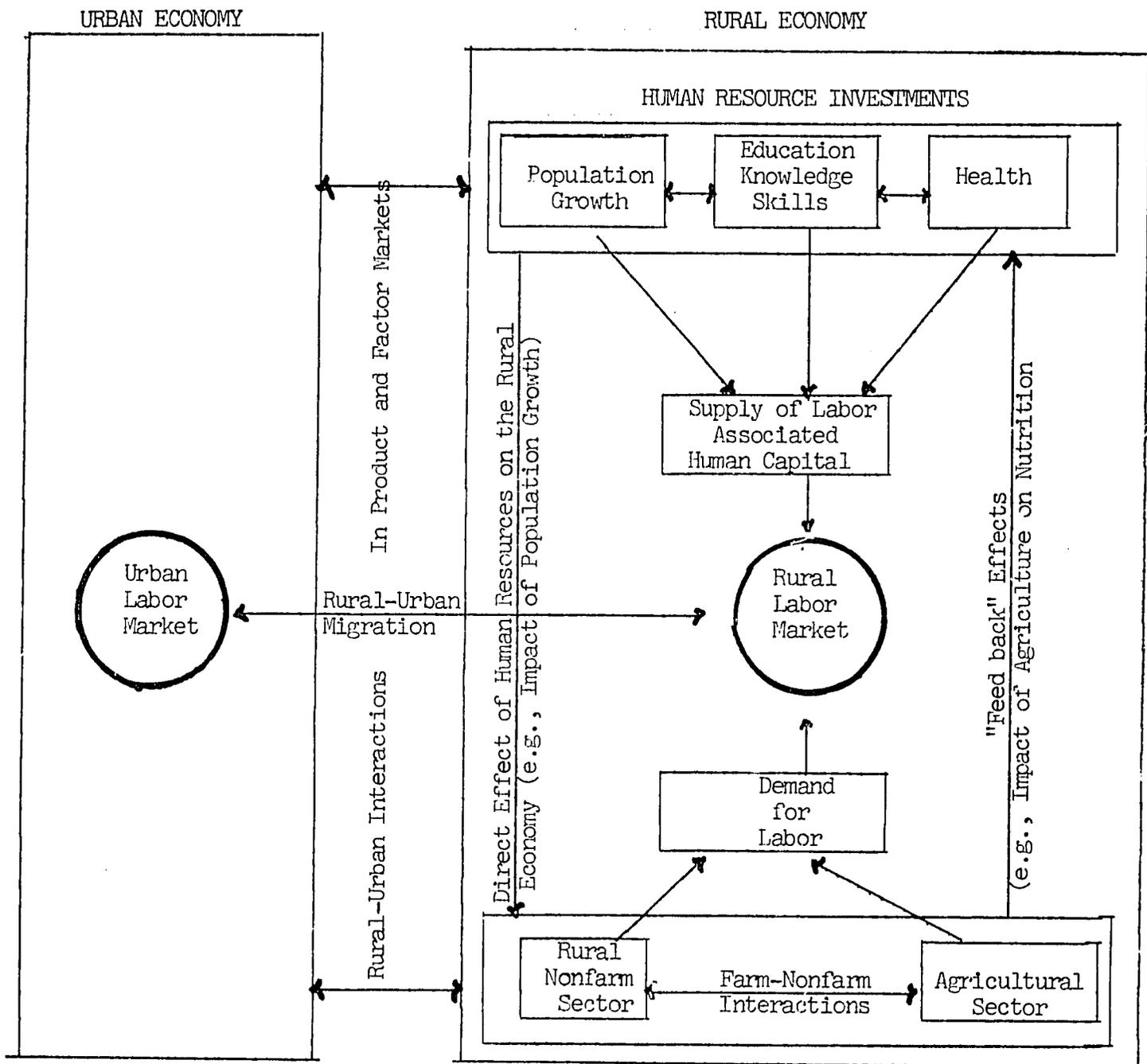


Figure 1. A Framework for Analysing Human Resource Investments in Rural Development.

Source: Adapted from Derek Byerlee and Carl K. Eicher, Rural Employment, Migration and Economic Development. African Rural Employment Paper No. 1, Michigan State University, September 1972.

development considers all economic activities in rural areas rather than just the agricultural sector. It includes household activities (e.g., house construction, food processing) and nonhousehold activities such as trading and small-scale industries and creation of physical infrastructure. Third, rural development recognizes that human resource investments are an integral part of the development process.

The conceptual basis of the African Rural Employment Project at Michigan State University encompasses these dimensions of rural development with particular emphasis on rural labor utilization. (See Appendix A for a brief description of the project.) This framework provides a convenient basis for organizing our discussion of theoretical issues in the role of human resource investments in rural development (see Figure 1).

The Demand for Human Resources

The focus of the Rural Employment Study is the rural labor market; that is the determination of the allocation and remuneration of human resources (i.e., labor and associated human capital). Particular emphasis is being given to demand factors which affect the utilization of human resources in rural areas in both agricultural and rural nonfarm activities (Figure 1). Intensive micro level studies will be undertaken over a 12-month period in several countries to determine the effect of alternative agricultural production systems and technologies on the demand for labor.^{1/} In the rural nonfarm sector, similar micro-level studies are planned to analyze the effect on labor utilization of (a) the demand for the output of the nonfarm sector, (b) the choice of technique and (c) supply of factors of production particularly skills and entrepreneurship.

^{1/}For a discussion of the methodologies and problems of micro-level research in rural areas, see Spencer [1972] and Norman [1973].

These detailed studies will enable us to move from a static to a more dynamic analysis of the rural economy. For example, particular interest centers on the potential for employment in the rural nonfarm sector and its relationship to agricultural development strategies. It is hypothesized that policies which increase the income of small farmers will have a favorable effect on the demand for labor intensive consumer goods produced in rural small-scale industries.^{1/} The micro-level studies will also provide a basis for evaluating the impact of national policies such as factor pricing policies on labor utilization in rural areas.

Rural-Urban Migration

A major component of the Rural Employment Study is research on rural to urban migration as the link between rural and urban labor markets and an important policy issue in most African countries. The rural-urban migration research is based on the concept of migration as a human resource investment where the returns to the migration investment are central to the migration decision.^{2/} A unique feature of the research will be integration of the research on migration with the micro-level research on agriculture and the rural nonfarm sector, in order to provide data on rural incomes, etc. collected over a 12-month period.^{3/} In addition, the migration research will be oriented to policy analysis. In particular, since private returns to education in rural and urban areas are known to be a critical variable in the migration decision, considerable attention must be given to the impact of rural educational policies.

^{1/}The potential importance of the rural nonfarm sector in rural developments is discussed by Liedholm [1973].

^{2/}See Byerlee [1972] for a discussion of theory and methodology for research on rural-urban migration.

^{3/}The steps in constructing such integrated micro-level research for policy analysis are outlined for the case of Nigeria in Appendix B.

The Supply of and Investments in Human Resources

The research planned by the African Rural Employment Study will provide improved theory and methodology for analysing human resource utilization from the demand side. Only in such cases as the analysis of skill restraints on small-scale industries, and of migration, will human resource investments be explicitly considered. In a more dynamic analysis of the rural labor market, evaluation of human resource investments (i.e., population growth, education, knowledge, skills and health of the labor force) would complete the supply side of the labor market as in Figure 1.

At least three general approaches have value in evaluating human resource investments.

(1) If the output of human resource "industries" can be specified in physical terms (e.g., literacy rate, successful medical treatments), methodologies are available to allocate resources efficiently to produce these outputs. However, such an approach, except through a rigid manpower requirements analysis, is not particularly useful in relating human resource investments to the labor market.

(2) The private returns to human resource investments can be computed—particularly for formal education. Such an approach has value in analyzing the impact of alternative education policies on rural to urban migration. In fact any policy which increases the private returns to education in rural areas (e.g., through orientation of curriculums toward rural vocations) is likely to be one of the most effective means of reducing out-migration. Furthermore the private returns approach provides an indicator of the impact of human resource investment on income distribution.

(3) In evaluating the impact of human resource investments on income, the measurement of social returns in a human capital framework is relevant.

There are, of course, conceptual problems in measuring the cost and benefits of human resource investments particularly when there are complementarities between these investments which give rise to externalities (e.g., where improved nutrition is associated with education).

Given that rural development involves a multiple of objectives, each of these approaches has potential value. The private returns approach is useful in analyzing migration and income distribution. The physical output approach recognizes that human resource investments are in themselves an objective of rural development while the social returns focuses on the traditional approach to allocating investments (human and physical) efficiently to maximize income. A combination of these approaches (and perhaps others) may be most useful in evaluating human resource investments and particularly the trade-offs between the various objectives of rural development (e.g., trade-offs between human resource investment and income which at some point, must exist).

Toward Dynamic Analysis of the Rural Economy

Returning to Figure 1, we note that the above discussion has focused on the supply of and demand for human resources as they interact in the rural labor market. A more dynamic analysis of the rural "system" would consider other direct linkages between human resource development and the agricultural-rural nonfarm economies. Thus, population growth rates in addition to increasing the labor force have a direct impact on the agricultural sector through the demand for food.

On the other hand, there are various "feedback" affects of the agricultural and rural nonfarm economies on human resource investments. Agricultural production and processing activities influence nutrition, health, etc. through (a) the types of subsistence crops grown, which to

some extent reflect scarcity of resources; (b) the market price of food; and (c) the income of rural people. Likewise the demand for education is determined in large part by the private returns to education^{1/} and the income of rural households. In addition, there is now some evidence that income distribution may be one variable influencing population growth rates.

Finally rural development is only one aspect of economic development and a dynamic analysis should relate the rural and urban sectors through product and factor markets. Rural-urban migration is clearly one important interaction but the price of food, the demand for urban goods by the rural sector, etc. all influence the development of the urban sector.

Within this "systems" approach we can view rural development as made up of interacting subsystems or sectors, specified here as (a) the agricultural sector, (b) the rural nonfarm sector and (c) the human resources production sector. We can analyze each of these subsystems independently, but in a truly dynamic analysis, the interactions between the various subsystems are of prime importance. Here our theories are less well developed, particularly in integrating human resources industries and conventional economic sectors such as agriculture. Nonetheless, scarce resources still have to be allocated and policies evaluated with respect to the various objectives of rural development. Systems simulation techniques offer an appropriate method for analyzing interactions and feedback effects between sectors, but much micro-level research is required to provide basic structural and behavioral relationships for such an approach to be operationally useful.^{2/}

^{1/} For example, in Tanzania primary school attendance recently dropped by 12 percent in response to increasing unemployment of school-leavers.

^{2/} An example of this approach is Nigerian Simulation model although with the exception of nutrition there was a notable lack of emphasis on human resources in this model. See T. J. Manetsch, et. al. A Generalized Simulation Approach to Agricultural Sector Analysis, Department of Agricultural Economics, Michigan State University, 1971.

As in the analysis of the demand for human resources, intensive micro-level research over an extended period (e.g., enumeration of rural households regularly for a 12-month period) may be necessary to analyze human resources investments and integrate human resource industries into the broader context of rural development for policy analysis. In this respect there are likely to be many complementarities from integrating micro-level research on human resource investments with micro-level research on agricultural production, the rural nonfarm economy and migration.^{1/}

^{1/} For example, studies of nutrition could be conducted in conjunction with agricultural production and rural household consumption studies.

APPENDIX A

THE AFRICAN RURAL EMPLOYMENT STUDY

The African Rural Employment Study was initiated in 1971 by a network of scholars in order to further comparative analysis of the development process in selected African countries with emphasis on rural employment problems. The research program is jointly designed by scholars in African countries, Michigan State University, other universities in North America and Europe who desire to pursue research on employment problems in selected African nations. Research emphasis is being directed to Sierra Leone, Nigeria and Ethiopia. In addition, individual scholars in other countries, such as Ghana, Zaire, Tanzania and Kenya are carrying out research on rural employment problems and are members of the network.

The research program emphasizes joint and individual studies of rural employment such as the demand for labor in alternative production systems and in the rural nonfarm sector, the migration process as a link between rural and urban labor markets and the impact of macro policies on labor absorption in agriculture. Attention will be directed to developing policy models to trace the consequences of alternative strategies of agricultural development on farm output, employment, income distribution and migration and to incorporating the employment objective into project, sub-sector and sectoral analysis in developing countries.

The study maintains close links with similar networks of scholars in Latin America (ECIEL) and Asia (CAMS) and with organizations such as the FAO, ILO, and the World Bank, who are engaged in research on employment problems.

APPENDIX B

INTEGRATED MICRO-LEVEL RESEARCH ON RURAL LABOR UTILIZATION: THE EXAMPLE OF NIGERIA*

The research on Nigeria will focus on the Middle Belt food producing region separating the tree crop zone of the South from the savannah zone of the North. During 1973 and 1974 the research effort will be concentrated in Kwara State with a population of about 2.5 million people. During 1973 approximately 300 firm-households in 14 villages are being surveyed, primarily to provide data on agricultural production. During 1974 more indepth studies will be carried out in three special areas of interest, (a) labor utilization in agriculture, (b) the rural nonfarm sector and (c) rural-urban migration. In each case data will be collected at weekly intervals over one crop year of 12 months by enumerators stationed in the villages. Furthermore, as far as possible the same sample will be used to provide data on all three components of the research (i.e., agricultural production, rural nonfarm sector and out-migration).

(1) Agricultural Production

The aim of the agricultural production studies is to obtain detailed profiles of income, labor utilization and productivity for farms under various production systems, technologies, farm sizes, etc. This will provide information on the utilization and underutilization of factors of production, particularly labor and the substitution between factors of production (i.e., land, labor and capital). Finally the impact of a) policies to promote technological, biological and mechanical change and b) macro-economic policies such as taxes will be evaluated with respect to income, income distribution and employment.

Data will be collected on inputs, particularly labor inputs, outputs, prices, etc. in small and large farms. Particular attention will be given to the allocation of labor time by farmers to nonfarm activities, both within the household and off-farm. This will enable a measure of the opportunity cost of nonfarm labor and of the impact on farm labor supply as agricultural activities become more profitable. Finally, information will be obtained on the decision making behavior of farmers particularly with respect to the security motive.

(2) Research on the Rural Nonfarm Sector

Two types of studies will make up the research on the rural nonfarm sector; a) consumption studies and b) small-scale industry studies.

*Adapted from Rural Employment in Tropical Africa: A Network Approach Plan of Work for FY 74, AID Research Contract csd/3625, Michigan State University, 1972. The Nigerian research team includes Drs. S. O. Olayide, S. Essang, O. Ogufowora, F. S. Idachaba from the Department of Agricultural Economics, University of Ibadan and Drs. D. Eyerlee and C. Liedholm, Michigan State University.

The consumption studies will be designed to measure the income elasticity of demand for the outputs of the rural nonfarm sector. Detailed enumeration of rural households will be undertaken over a one-year period to determine the consumption of locally produced goods and imported goods (i.e., goods from urban areas or abroad) by income class. The studies will be stratified to analyse possible variations in income elasticities with household income to enable testing of the hypothesis that lower income households tend to consume locally produced labor intensive goods.

The small-scale industry studies are designed to provide information on inputs and outputs of various types of small-scale industries found in rural areas (e.g., tailoring, retailing, carpentry, etc.). As in the agricultural production studies there is particular interest in the choice of technique in these industries and the extent to which it is affected by factor pricing policies. Also possible supply constraints on the expansion of these industries such as credit and development of entrepreneurship, will be examined.

3. Research on Rural to Urban Migration

Research on rural to urban migration will be conducted in both rural and urban areas. In rural areas in conjunction with the agricultural production studies, data will be collected on rural incomes stratified by age, sex and education. In addition names of people who have migrated to urban areas will be obtained to enable "tracer" studies. In urban areas, both in and out of Kwara State, migrants from Kwara State including those identified in the "tracer studies", will be interviewed over a period of three to six months to obtain data on hours worked, income, occupations, etc. again stratified by age, sex and education.

Finally, information flows and remittances of income between urban and rural areas will be obtained. On the basis of improved theoretical and empirical knowledge of migration some quantitative estimates will be made on the impact of various policies such as agricultural taxes and urban minimum wages on off-farm migration.

4. Integration and Aggregation of Results

The micro-level research will serve as a basis for constructing a policy-oriented model for aggregating the micro-level research and exploring the implications of farm-nonfarm linkages, rural-urban linkages and interregional linkages for rural employment and development. It is planned to begin with the use of Liedholm's [1972] analytical framework and linear programming techniques to explore the production possibilities for the various types of agricultural and nonagricultural output for given factor endowments.

Later, a more dynamic model will be developed to move in stages from this comparative static analysis to dynamic analysis where the effects of population growth, demand changes and technological change can be explored.

APPENDIX C

AFRICAN RURAL EMPLOYMENT STUDY

Rural Employment Paper Series

- AREP No. 1 Byerlee, Derek and Eicher, Carl K., Rural Employment, Migration and Economic Development: Theoretical Issues and Empirical Evidence from Africa, September 1972.
- AREP No. 2 Byerlee, Derek, Research on Migration in Africa: Past, Present and Future, September 1972.
- AREP No. 3 Spencer, Dunstan S. C., Micro-Level Farm Management and Production Economics Research Among Traditional African Farmers: Lessons From Sierra Leone, September, 1972.
- AREP No. 4 Norman, D. W., Economic Analysis of Agricultural Production and Labour Utilisation Among the Hausa in the North of Nigeria, January 1973.
- AREP No. 5 Liedholm, Carl, Research on Employment in the Rural Nonfarm Sector in Africa, April 1973.
- AREP No. 6 Gemmill, Gordon and Eicher, Carl K., A Framework for Research on the Economics of Farm Mechanization in Developing Countries, April 1973.
- AREP No. 7 Idachaba, Francis Sulemanu, The Effects of Taxes and Subsidies on Land and Labour Utilisation in Nigerian Agriculture, April 1973.
- AREP No. 8 Norman, D. W., Methodology and Problems of Farm Management Investigations: Experiences from Northern Nigeria, April 1973.
- AREP No. 9 Tollens, Eric, An Analysis of Research on Agricultural Economics, Rural Development and Unemployment in the Republic of Zaire, June 1973 [Forthcoming in French and English].