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The Methodology For Studying Labour Absorption
In The Derived Savannah Zone Of Nigeria.

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Methodology For Studying Labour Absorption In
The Derived Savannah Zone Of Nigeria.*

By

S. Olajuwon Olayide **

I. INTRODUCTION

A. Preliminary Considerations.

One of the most difficult processes in agricultural economics research is the initiation of an enquiry, especially when sample survey data constitute the only source of information. It is possible to have the most rigorous of the methods of analysis during the later stages of investigation, but the rigour will never retrieve any false or superficial beginning earlier made. It has been usual for many researchers to plunge into a subject matter, send out questionnaires, gather tremendous amount of data, and perform supplementary observational and/or attitudinal as well as demonstration experiments only to wonder at the end what it all amounts to or proves. This is a sad realisation that after years of industry and efforts, the real difficulty and/or problem

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has slipped through the researcher's fingers unsolved. Experiences have also showed instances whereby the success of a given scientific method in one field have led to hasty and uncritical adoption of the method, only to precipitate eventual disillusionment. These experiences are indicative of the initiation of inquiries that have been too hastily conceived and glossed over without any appreciation of the basic problems involved.

These experiences enjoin on all researchers the fact that at the beginning of any socio-economic investigation, the prevalent feeling or "source of genius" needs to be found. This contention emanates from the fact that the basic characteristic of a meticulous researcher is the ingenuity and economy of thought and effort by means of which he achieves his results through finding the key factor in the situation and proceeding directly to the heart of the problem that has baffled and/or eluded other researchers or predecessors.⁽¹⁾ The capacity to find the heart of the problem to which well-known methods can be applied and empirical results presented in meaningfully useful expressions must be considered very crucial in scientific research.⁽²⁾ In other words, what comes out at the beginning constitutes a necessary key to success, due to its effectiveness in the initiation that directs one to the key variables and

designates appropriate methodology. Consequently, what to do at the very beginning of any research undertaking, in order to determine which of the possible methods to employ so as to meaningfully sift the infinite number of variables in solving the problem, should not be glossed over as many textbooks on methodology of socio-economic research have ominously and silently done. In cases where something positive was said in some texts on the lines of thought discussed above, many other authors have unequivocally disagree, a situation which attests the non-existence of a ~~success~~ approach to socio-economic research.

It is, of course, useful to adopt Mill's⁽³⁾ steps to scientific inquiry. The first step is a mental analysis of the complex phenomena into their elements. This analytical operation, involved in observation and/or experiments, results from the fact that the process of ascertaining what natural consequences are invariably connected with associated antecedents, or what phenomena are related to each other as causes and effects -- a sort of process analysis -- If the whole prior state of the "universe" could again recur, it would be followed by the present state. The question then is how to resolve the complex uniformity into the simpler uniformities which compose it and assign to each portion of the vast antecedent, the portion of that consequence

attendant on it. The next step is the actual separation of those elements, before establishing the structures for the operational conduct of the inquiry, a step which is very basic to observation, survey, and experiment. The other steps are the conduct of the inquiry, the analysis and cross-checks of the results, and the presentation of the results with their full implications and limitations as well as applicability.

3. Resume Of The Paper.

The foregoing preliminary considerations show the complexities involved in designing an adequate and usefully meaningful methodology for studying the intricate labour absorption problems in less developed countries (LDCs), such as Nigeria. In this paper an attempt has been made in section II to outline the need for a study of labour absorption problems in the LDCs. In section III the physiography, general structures, special attributes, and specific needs of the Guinea Savannah Zone of Nigeria, which is the study area, have been briefly discussed. This is to establish the basis for the magnitude and complexity involved in accelerating development without basic research.

Section IV examines the types of research envisaged. Here attention is focussed on the main enterprises, the level of integration, the size - scale structure, the extent

of diversification and/or specialisation, the specific (job) operational profiles necessary for determination/projection of job opportunities, and the feasible levels of "agribusiness primary and secondary tri-aggregates"⁽⁴⁾. In section V. the methodology of research is discussed with respect to sampling procedure, research methods, forms of questionnaires, and the administration of the questionnaires. Section VI enumerates the analysis of results designed to outline the patterns and promises of labour absorption. This enumeration takes a look at the analysis of basic profiles, the contributions of situational data, the assessment of structural interrelationships, and the specifications of possible agribusiness dimensions. Section VII contains the summary and conclusions of the paper.

II. Why Study Labour Absorption.

The study of labour absorption possibilities in Nigeria is important for a number of reasons. First is the prominence of the employment problem. Second is the rural-urban imbalance calling for accelerated rural development. Third is the complex maze of rural development problems that call for speedy solution. Fourth is the dearth of information and data due to the absence of rigorous research into the structures of the economy. Each of these factors

will be discussed in some detail.

A. Prominence Of Employment Problem.

With the end of the colonial era, in 1960, Nigeria turned actively to the problems of the poor living standards of its rising population. Attempts to identify the problems of economic growth have led to the astounding discovery that the real problems lay prominently in the field of human resources, including those of employment and unemployment, low levels of capital, and inadequate food supplies. Since the country is essentially agrarian in structure, the overall unemployment/underemployment rate is likely to be in the range of 25 to 30 per cent, bearing in mind the youthful nature of the population.

Although unemployment in Nigeria takes many forms which do not lend themselves to statistical precision by the conventional statistical categories and figures, it must be stressed that the figure of about 30 per cent is likely to be an under-estimate. This is in view of the tragic fact that there is some evidence that the unemployment/under-employment rate is higher the more the rural communities which make up about 80 per cent of the country's population get exposed to education.⁽⁵⁾ This suggests such many possible causes as the structure of education which alienates the residents of the rural communities from the actual jobs

which their simple society can offer, a higher prestige of non-technical occupations and high wastage rates which make more specialized training difficult.

Our old modes of thinking and assessing employment problems in terms of the Keynesian model do not enable us to deal adequately with employment problems in developing countries, such as Nigeria. In other words, the Keynesian economic prescription of increasing aggregate demand for consumption or the demand for investment so as to increase and spread employment, as long as there is any slack in the economy to take up, (6,7) will simply not work out with the complicated structures of agrarian setting in Nigeria. Creation of additional jobs by increasing aggregate demand will mean the new jobs being sited in the modern sector (industry and/or infrastructures) and therefore in the urban areas. This will tend to depress rural communities and accelerate the pace of rural-urban population drift. This situation, combined with relentless population pressures and low levels of rural living creates pressures on the land, due to the influx of people into the cities which are in turn becoming exploded into gigantic accumulations of unemployed/marginal employed labour. This creates an almost insuperable problem of maintenance as well as dwelling places.

Realising that it is the younger elements that are involved in this drift, the rural areas are thereby deprived of those elements capable of spearheading agricultural innovation and improvement in the quality of rural life.

The situation presented above calls for isolating the main reasons for lack of employment opportunities in the country. These are: (8)

- i. The spralling increase in population which is believed to be growing at an annual rate of 3.00 per cent, coupled with the ease with which the technology and sociology of death control has been disseminated in the last decade and a half in Nigeria.
- ii. The traditional structure and conduct of Nigerian agriculture with the characteristic problem of stagnation which magnifies psychological unattractiveness in the quality of rural living.
- iii. The incapacity and/or failure of the urban sector to provide employment in manner that **increases** in proportion to the demand for jobs.
- iv. The consequent absence of structural and/or sectoral change in employment which is itself a function of current technology that makes heavy demands on capital-intensive and labour-saving innovations to the detriment of labour-intensive forms.

B. Need For Rural Development.

The seriousness of the employment problems posed above is magnified by the difficulties of achieving technological break-throughs since these involve (a) the creation of more modern labour-intensive technology, (b) the ability to undertake more autonomous technological research internally through provisions of research facilities, high-level personnel, and of research environment, and (c) adaptation of imported technology to local needs.⁽⁹⁾ This situation places a greater emphasis on agriculture and rural development as the associated shift. In other words, the importance of agriculture and of rural development has become much more clearly recognized than it has been in the past.⁽¹⁰⁾

There is, therefore, the need to attain development objectives of employment opportunities by concentrating on agricultural break-throughs. Such break-throughs, based on new high-yielding hybrid varieties of crops, use of biological innovations such as fertilizers and pesticides etc can be tied to new organisational and package approaches.⁽¹¹⁾ This new emphasis on agriculture and consequently on rural development is a necessity and is indispensable to the provision of job opportunities. The need for rural development calls for detailed study, in each location, the specifications of climate, soil, geographical location etc,

so that any specifically devised new packages of plants, water supply, fertilizer, insecticides will achieve desired results. It is this achievement of desired results that can help to slow down the increasing exodus from the countryside and thus make the problem of urban employment more tractable.

C. Pressing Problems Of Rural Development.

Attempts at economic development through projects-approach have failed simply because the complex structures of the economic landscape and the ensuring problems are not fully comprehended. In this short paper, no attempt is made to undertake a full-dressed discussion of the problems of rural development. Attention is focused on an enumeration of these problems so as to emphasise the magnitude of the research needed. There are four main rural development problems of interest in our research efforts. First is the group of socio-cultural problems involving the psychology, tradition, religion, social mores, and level of exposure to urban attractions of the people. This group of problems has a tendency to condition attitudinal frame of mind to acceptance/rejection of available job opportunities. Second there are economic problems involving resource endowments (land, labour, capital, water, and management), the level of investment, and investment priorities, production

organisation, distribution, marketing functions (such as storage and processing) etc. This group of problems affects size-scale relationships, the structure of supply, level of positive and negative inventories, the level of income, and consequent standard of living.

Third, there is the group of administrative problems of rural development. Such problems encompass the incapacity of rural administration to provide needed infrastructures, the orientation of governmental projects to politically attractive and demonstrable achievements, the experience and knowledge of administrative staff, and the negative correlation between government expenditures and seasonality of rural activities, especially in the field of primary production. These problems have the tendency of ossifying existing structures and making them impervious to change, as well as vilifying all extension education services to rural communities.

Fourth, there are transformation and/or intervention problems of rural development. This group of problems centres around the conducive blend of organisational structure for structural transformation. Here, we are faced with the choice from among individual proprietorship, partnerships, cooperatives, socialised systems, corporate forms, and public enterprise. The structure of the enterprises

involved, and the socio-cultural as well as economic setting tend to determine the extent to which each form of organisation can usefully function in rural development.

D. The Basic Research Needs.

Realising that about 80 per cent of the Nigerian population, (currently estimated at about 56.50 million) live in rural communities, the magnitude of the job opportunities required is overwhelming even when we assume that only about 58 per cent of this (i.e. 32.77 million people) constitutes the effective labour force. This is a gross under-estimation when we take women and children above 14 years of age into consideration.

We also need to recall the fact that structurally our rural communities are predominantly agrarian with small-scale peasant farms supplemented by such other enterprises as local crafts, petty trades, etc. In this predominantly agrarian setting, crops are either largely export-oriented, or produced essentially for domestic consumption, or both. The production schema is typified by such traditional systems as various forms of shifting cultivation, and poor yields, whilst the livestock enterprise is largely left to a scavenging domestication. Under such a setting, the marketing system can hardly be efficient.

The structural transformation of rural communities calls for basic information and/or data for programming

development and associated job opportunities in the transformed rural enterprises. In a situation where more than 90 per cent of people living in rural communities are illiterate in the sense of inability to read and write, written records are just not available. To obtain the information and data required, basic research has to be mounted and this has to be rigorous as well as comprehensive. We have endeavoured to give this basic research the title of "Rural Integrated Enterprise Research in Employment, Food Production and Economic Development." This is to take into account the inter-connecting links between rural enterprises, need for increased food production, and the possibilities for creating more employment opportunities in agriculture and other primary production activities such as livestock, fisheries, and forestry. In other words, our attention shall be focussed on the felt need for a comprehensive study of rural-based enterprises in a given ecological-edaphically delimited food production region of Nigeria.⁽¹²⁾ This is in conformity with efforts to launch an agrarian revolution in the country.

The specific objectives of this research are :

1. To examine the resource supply and demand structure of food production in the Guinea or Derived Savannah Belt of Nigeria by focussing attention

on the essential grain crops (rice and maize) which governments are attempting to promote in this zone.

2. To assess the integrated enterprise combination, inter-cropped and sole-cropping approach to the economics of producing these crops.
3. To diagnose the extent of non-farm employment and income on production activities and on size-scale relationships.
4. To assess the important economic factors influencing labour profiles in, net flow of labour into, and possibilities for increased employment opportunities in food production.
5. To assess the consumption patterns of farm families and the extent to which these affect levels of marketable surplus, size of farm, and off-farm operations.
6. To examine the structure and pattern of simple processing operations which are capable of being developed into cottage industries of the Japanese type as a means of generating more employment opportunities.
7. To study the existing organisational structure of food production and assess the extent to

which it can be modified to stimulate increased commercial-oriented food production.

8. To develop a survey procedure and research questionnaire which can be integrated with and/or incorporated into the current inefficient structures used by F.O.S., so as to facilitate a continuation of an efficient and reliable data-gathering machinery for subsequent plan formulations and revisions in Nigeria's agricultural sector.
9. To use the input-output data obtained from this study as the reliable basis for analysing decisions affecting resource input combinations and ratios in efficient food production policies for this thinly populated food belt.
10. To use the input-output data for deriving investment possibilities in current programmes, modernization, new package programmes, service programmes, organisational problems and employment generation projects that the Federal and States Governments concerned might want to pursue in stimulating increased production, under modern conditions, of essential grains in the zone.

1. To use the research as a basis for implementing the sound graduate programme for students in the Department of Agricultural economics.

III. The Research Area.

The study area is the Guinea or derived savannah zone of Nigeria. This zone, for which the term "Middle Belt" has been used in the literature, covers the northern parts of the Western State, Kwara State, southern parts of the North-Western State, Benue - Plateau State, and southern parts of the North-eastern State. See figure 1.

A. General Physiography.

The "Middle Belt" is hardly definable in topographical terms because the major watersheds cross it from north to south. In addition, there are sharp contrasts between the Plateau at 4,000 feet and the large river troughs of the Niger and Benue. In the south of the belt, the east to west watersheds does nearly conform. Geologically, this belt is very diverse with extensive, variable fluvial deposits, large areas of Cretaceous Sandstones, Shales and limestones and very variable plutonic and volcanic rocks, all of which are also found in other parts of the country. (13)

Vegetationally, the southern half is essentially a Derived Savannah whilst the northern half is obviously

close to the southern limit of the Sudan Savannah. Whilst Church⁽¹⁴⁾ has indicated that this belt is synonymous with the zone of the "Southern savannas" and later identified it more closely with the Southern Guinea Savannas, Buchanan and Pugh⁽¹⁵⁾ have defined it essentially in terms of the Guinea Savannas. With the projected availability of more information from ecological field work, it may be possible to eventually define the Middle Belt in terms of the floristic composition.

Climatic delimitation of the belt suffers also from a lack of reliable data although not as serious as the vegetational delimitation. Climatically, Walker and Brammer⁽¹⁶⁾ and Church⁽¹⁴⁾ stress the importance of the length of the dry season as the most important climatic factor in the area. It has been suggested that the Middle Belt is climatically definable as that area in Nigeria in which, over a period of years, 50.00 per cent or more of all the years have a dry season of FOUR or FIVE months duration. Consequently the dry season of about 140 days duration in the northern half of the belt and about 80 days in the southern half (which are mean figures) makes the belt a distinct region with distinctly unique agricultural problems, as opposed to the inappropriate term of "Transition Belt" which some authors have used in delimiting the

region.

B. Special Production Attributes.

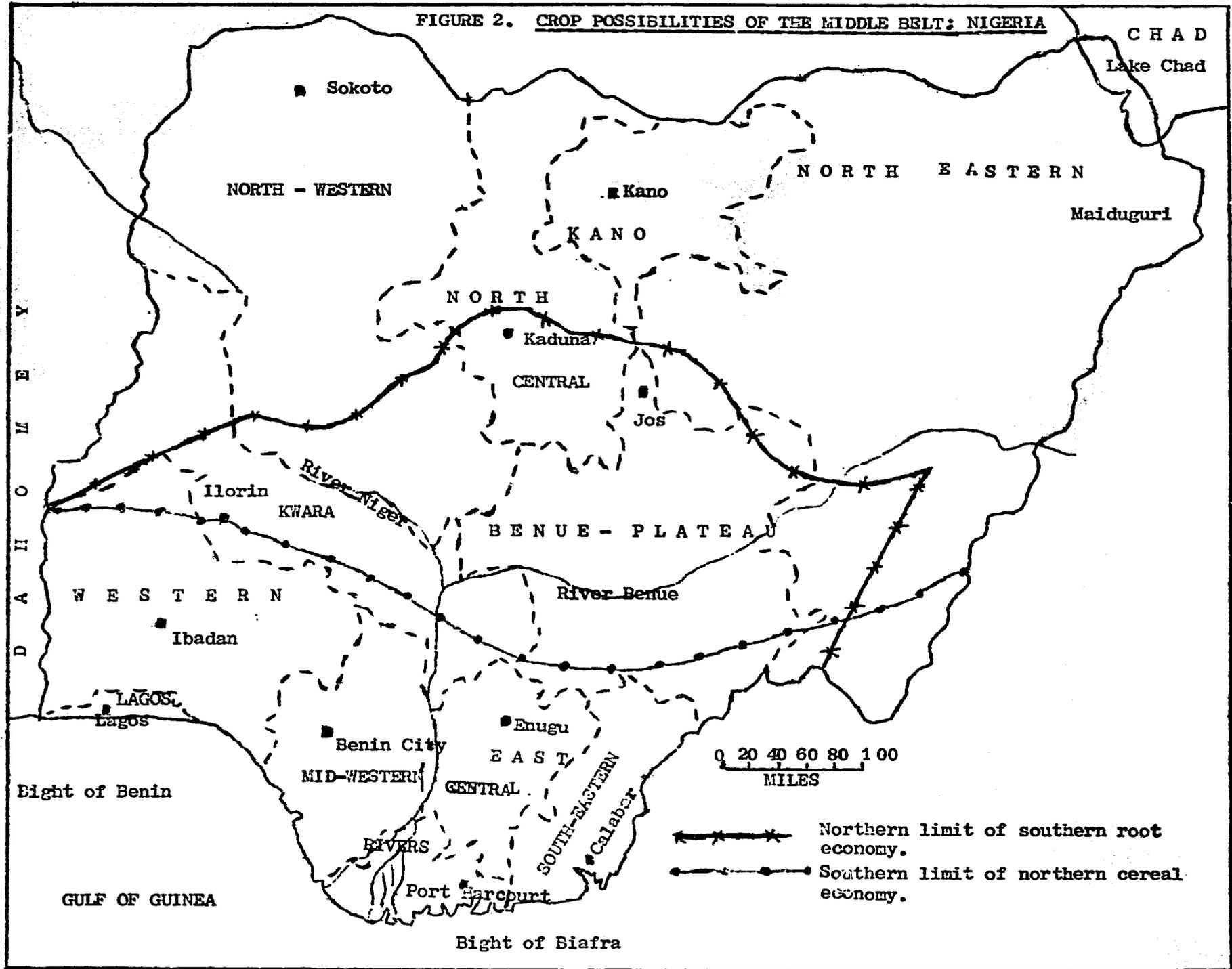
The vegetation zones - Northern Guinea, Southern Guinea, and Derived Savannahs - make up the region called the "Middle Belt. This extensive belt covers an area of 144,000 square miles thus making 40.44 per cent of the 356,000 square mile-area of Nigeria. There has been no detailed and/or reliable pedological map of this belt nor or any other area of the country. The soil map of Nigeria, prepared by FAO on a scale of 1:5,000,000, was based on the soil map of Africa prepared by the former CCTA, although it incorporates more recent field-soils data. Pedologically, the Middle Belt as defined above is made up of largely of ferrasols (finer textured soils with highest potentials due to favourable physical characteristics and resistance to erosion) small lithosols (occurring in association with ferruginous tropical soils of plateau and montane zones with limited potentials) large alluvials including regosols in the Niger and Benue valleys (of very good potential and respond very well to irrigation and often require drainage works), and small areas of Vertisols occurring in depressional areas along the river Benue (its main difficulty being low workability due to physical properties). The Belt thus contains largely arable lands

of highest potential for a variety of crops ranging from grains to root crops and even perennial crops. (See figure 2).⁽¹⁷⁾

In addition to outstanding arable potentialities, the belt has potentials for forestry - Plantations of *Gmelina arborea*, *Eucalyptus* species, *Asadirachta indica*, and *tectona grandis*. The *gmelina* has been found extremely suitable for pulp and paper. A large paper mill has been cited in this belt. With respect to fauna, this belt contains, a wide variety of wildlife whose conservation could form recreational complements of forestry. The belt is capable, under wildlife conservation, of attracting international tourists and earning substantial foreign exchange for the country.⁽¹⁸⁾

The rivers Niger, Benue, Rima, Kaduna, Gongola etc traverse this belt and thus form useful resources for the development of fisheries. The Niger dam at Kainji and other projected dams downstream have been estimated to be capable of providing thousands of tons of fishes when seeded. Pisciculture (fish farming) has taken-off the ground, and has great promise for job opportunities as well as enhanced income.⁽¹⁹⁾ The livestock of the belt is made up of a population of crosses between muturu and zobu cattle which make up between 3 - 4 percent of the country's

FIGURE 2. CROP POSSIBILITIES OF THE MIDDLE BELT: NIGERIA



— x — x — x — Northern limit of southern root economy.
— • — • — • — Southern limit of northern cereal economy.

cattle population. The prevalence of tsetse-fly, causing trypanosomiasis in cattle constitutes a limiting factor to cattle development in this belt. Possibilities for feed-lot finishing, under good pasturage and concentrates exist in this area for beef cattle. Other livestock enterprises in the belt which include goats, sheep, hogs and poultry are yet to be fully commercialised to sufficiently provide ample job opportunities. There is no questioning the existence of resources for embarking on such commercialised operations, especially in the area of livestock rations⁽²⁰⁾

Agro-industrial possibilities offer much promise for increases in job opportunities. Such agro-industries, which may be large-scale as well as cottage-scale, include sugar refinery, flour milling, rice milling, groundnut crushing, cotton ginnery, timber processing, pulp and paper mills, tanneries etc. Small-scale industries capable of increasing rural employment and enhancing increased income when modernized include working of brass and silver ware, tin-smithing, carving, joinery, cabinet-making, calabash-carving, pottery-making, leather-work, hand-weaving (which takes about 34 per cent of the country, mat-making, brick-making, etc. Apart from providing additional income to rural communities, when or more of these small industries are integrated with farming, their development under cottage system will provide increased

export outlets for the cherished outputs of these crafts. (21)

C. Structure Of Land Tenure.

The major ethnic groups in this belt are the Yorubas, the Tivs, the Nupes, the Hausas, and other smaller ethnic groups. In this sparsely populated region, four types of land tenure may be broadly discerned on the basis of the four major ethnic groups. Among the tivs, every adult male must have a right on land on which to make farms for his wives. With a patrilineage system in a socially egalitarian community, land is not a saleable property and rights in land are subject to the chiefs valid authority to create, transfer and forfeiture. (22) Among the Hausa communities, the traditional land tenure system was such that authority over land was exercised by the Sultan and recognised in all Moslem areas of the Northern States of Nigeria. (23) Among the Nupes, the rights to land begin for a youth from the time of accompanying his father-who hitherto has been allocated land by the chief - to the farm. Non - natives of Nupe land can acquire rights in land either by "hiring" or borrowing. Permanent alienation of land by sale was strictly forbidden within the context of traditional Nupe land tenure. (24)

All the three tribes have had their tenural arrangements replaced by rights of occupancy and all lands are owned by the State who can acquire and pay displacement compensation.

Among the Yorubas in the area, the usufructuary rights in land and non-alienability hold. (25)

In this belt, tenural arrangements permit easy use-rights by hiring and/or borrowing since the area is underpopulated, immigrants can find job opportunities in rural-based enterprises. The main bottlenecks centre around the need to solve special problems of rural development peculiar to this region.

D. Specific Needs For Development.

Rural development in this belt is beset by the diversity in natural conditions and this calls for different development measures in different areas. There is no known serious intrinsic poverty of the soil in this area, although there is the need to guard against rapid deterioration in soil fertility. There is the need for information on planned attack at modernization and provision of job opportunities can be based. This lack of information on the structure, conduct, performance and promises of rural based enterprises constitutes a major need for the development of the region.

Another important pre-requisite for rural development of this area is the provision of infrastructural facilities in the form of transport and communication, all-season net work of motorable roads, rural electrification, rural

water supplies, machine servicing stations, supplies depots etc. The vital importance of these facilities cannot be over-emphasised and their provision calls for detailed feasibility studies. (26)

Capital is another important need for rural development in this region. Since private capital investment is very low, the rate of public spending must inevitably rise. In addition the need arises for substantial cut in commodity taxes in order to stimulate increased private investments in rural-based enterprises. It must be stressed in this connection that capital expenditure on rural development is an important feature of federal and state budgeting (27). Expansion of government services which need to be heavily financed must ^{be} undertaken pari passu with provision of capital expenditures for the modernization and expansion of rural-based enterprises required to enhance substantial increases in job opportunities. (28)

Lastly, there is the need for a new structure of organisation for the operation and implementation of rural-based projects for development of the area. In this connection socio-cultural and attitudinal background of the various ethnic groups has to be studied and attuned with such progressive organisational forms as cooperatives, (29) socialised enterprises, corporate business, and public

enterprises, with eventual indigenisation of all operations. (30)

IV. Type Of Research Envisaged.

The problem of providing job opportunities requires basic research into all forms of rural employment/enterprises. The basic study should be capable providing detailed information on the structure, conduct and performance of all rural-based enterprises.

A. Rural Integrated Research.

In the study area discussed earlier, the main enterprises of the rural communities are farming, livestock production, forestry, fishery, whilst supplementary activities include agro-cottage-industries, local crafts and petty-trading, as previously indicated in Section IIIB. Since there is no complete specialisation of operations, the type of basic study needed is the "Rural Integrated Enterprise Research." Involved here is first a complete and comprehensive delineation of all rural occupations/enterprises as well as structuring them into such categories as basic, supplementary, competitive and other enterprises. This will call for near-complete enumeration in the study area. There is the need to evaluate the resources committed to these enterprises with respect to land, labour, capital, water resources and management. Third, there is the need to

assess the job absorbent capacities of the various enterprises at current scale and level of technology as well as possible levels based on changes in organisation, capital structure, scale of operations etc. Fourth, there is the need to assess the socio-cultural, psychological, and attitudinal dispositions of the various communities to the various enterprises. Broken down into component parts, the rural integrated research will concentrate on detailed farm - management, agro-industries, local crafts, employment and labour movement projects. These will be designed to answer such questions are :

1. What are the resource supplies and demand structures of food production and the production of other consumer goods in the study area.
2. What is the structure of enterprise integration and organisation as well as the structure of income.
3. What is extent of farm and non-farm employment and the labour as well as capital profiles of the various enterprises.
4. What are the various levels of consumption patterns of rural families and the extent to which these influence scale-size relationships?

5. What is the existing organisational structure of production and what modifications will be conducive to increased job opportunities and progressive immigration into this sparsely populated zone?

• Specific Job Operational Profiles.

A study of opportunities for job absorption that will answer the questions posed above, requires some concrete and detailed preparation of operational profiles, based on the present structure. Four profiles are of interest in this type of basic study. First is labour profile. The supply of labour has been due to three factors. These are (i) the dominant importance of population expansion complicated by obstacles to migration as well as changes in the degree of participation, (ii) the expansion of education which affects the structure of the labour force even though it also influences the balances in the labour market in other ways, and (iii) the changes in the rate of participation in the active labour force.⁽³¹⁾ Labour profiles based on monthly man-hours of labour required for each enterprise will be drawn up. This will be used to determine the current level and/or failure of labour absorption. The profile will also form the basis for

projections of the magnitudes of labour absorption under assumed size-scale relationships as well as types of organisational structures.

Second is the capital profile or diary which will be drawn up to provide such information as (i) the estimate of the current level of capital (fixed and variable-each month), (ii) the estimates of additional capital required to put each enterprise on an efficient footing, (iii) the possible levels of extra profits derivable from such a change as to give adequate return on additional capital on the assumption that it is loaned, (iv) the time period and the manner in which capital is needed and the corresponding income yielded over the investment period (v) the possibilities of the necessary capital forthcoming at ~~time~~ of need on the assumption of the availability of cooperating credit institutions. Such information will enable us to draw up capital profiles for each enterprise and this will involve plotting in the form of a diary the expenditures and receipts from the various production processes. The cumulative balance of the negative and positive balances arrived at for each month or quarter will reveal the extent of capital requirement and the manner in which capital is needed throughout the production cycle. (32)

On the basis of these profiles, projections at different size - scale relationship, and organisational structures will be made to determine the employment contributions of additional capital. Apart from making possible the formulation of credit plans which offer timely and low-cost short-term credit whereby interest is paid for the period of actual capital usage, capital profile enables us to compare the dairies of various enterprise as a means of working out an efficient combination of enterprises and the attendant job opportunities.

Third is time allocation profile/diary. This involves a complete summarization on monthly or weekly man-hour basis the time devoted/allocated by each surveyed family to basic, supplementary, complementary, competitive and miscellaneous enterprises that form the bundle of activities during the year. This profile will enable us to assess (i) level of employment and/or underemployment, (ii) the productivity of time, (iii) the elasticities of demand for leisure and work, (iv) the travel components of time in length and modes of movement to enterprises and for "work" in productive as well as other miscellaneous enterprises, and (v) the relative division of labour within sampled households and among enterprises undertaken. (33)

Fourth is the income profile. This is a comprehensive schedule of income derived from each enterprise in the

integrated set. This profile enables us to measure the level of success based on current structures as well as estimate what possible increases could be had from changes in techniques, organisations and combination of enterprises. It also enables us to make definitive statements on profitability, attractiveness, and attitudinal dispositions to specific enterprises and their job opportunities. The overall employment profile and the structure of income distribution will constitute the basic schedule of the second project to be supervised by Dr. Essang.

C. Agribusiness Framework:

From the structure of integrated enterprise study and the specific job operational profiles discussed above, information on the relative roles of specialisation of enterprises, diversification of rural enterprises by sampled house-holds will be collated on a near - complete enumeration basis. This set of information is to serve as the basis for assessing the inter-relationships among enterprises and the extent to which missing links could be introduced to ensure an agribusiness framework. This is a necessary complement for the assessment and/or creation of additional job opportunities. It is also an indispensable tool for the provision of infrastructural facilities in rural communities which constitute additional sources for

the creation of job opportunities. Here psychological and attitudinal studies as well as producer panel approach to employment opportunities will enable us to assess the motives for and possible solutions to rural-urban migration.

V. Methodology Of Research.

Having discussed the study area and the type of research envisaged in the last section, the methodology of research equally deserves copious treatment. Here we shall concentrate on the sampling procedure, the research procedure, the forms of questionnaire; and the administration of questionnaire.

A. Sampling Procedure.

The method of data gathering will essentially be through sets of sample surveys. This procedure is the only suitable form due to lack of enterprise records and accounts in the study area. Essentially, the sampling procedure will adopt the completely randomised design format. The choice of this design is to take advantage of its simplicity, the straightforward interpretation of results, allowance for maximum number of degrees of freedom for the error sum of squares, and the non-requirement of more than one participation of sample variate. (34)

It will also be necessary, when considering size-scale relationships as well as psychological and attitudinal motivations to work, to use stratified sampling procedure in order to capture the relative differences. (35,36) The limitation of the usefulness of sample surveys is their general inflexibility resulting from advanced fixation of their design and the difficulty of adjusting it to new situational elements found in the course of investigation. (37) An attempt will be made to supplement survey data with such pieces of information as administrative records, experimental data, individual case studies, feasibility reports, typological field investigations observational information and opinion tests.

B. Research Procedure.

During the months of November and December 1972, field assistants, enumerators and project supervisors will carry out a situational survey of the study area. The surveyed villages will, of necessity, be selected on the principles of stratified sampling procedure, due to a priori knowledge of the concentration of enterprises in the area. About 10 villages will be involved. The situational questionnaire will cover a near - complete enumeration of house-holds in the villages. From this

population a random sample of about 120 house-holds in each village will be selected. Account will be taken of the population of each villages and adjustments for representativeness of the sample sizes will be made. Apart from general information of situational reports, closing valuations and opening valuations of the enterprises undertaken by sampled house holds will be taken late December 1972 and early January 1973.

The full-year study of weekly activities of sample families will be undertaken from January 1973 and will end with another closing valuations of operations. Records of every three months of operations will be collated and analysed in March, June, September and December 1973. Whilst the detailed analysis of 1973 records are being undertaken in the first quarter of 1974, specific case studies of agro-industries, and large-scale forestry, fishery and wildlife as well as farming operations will be undertaken based on inputs, costs, and returns structures as well as size - scale relationships from January - June 1974. Results of these case studies will be compiled and attempts will be made to complete the write-ups of the various reports on or before 30th September 1974. Aggregation of individual reports, project papers and dissertations from the research will be undertaken

in the last quarter of 1974. This will complete phase one study involving Kwara State and Northwestern parts of Western State.

C. Forms And Administration Of Questionnaire.

As indicated in an earlier paper, ⁽¹⁰⁾ the year-long study will concentrate on the followings : (i) direct information on the rural enterprises and their structure of employment, (ii) direct approach of household interviews based on comprehensive record-sheet coded questionnaire administered on weekly basis, (iii) basic information of a situational type categorising enterprises, sizes, number employed, personal information on employees, etc. and (iv) information pertinent to the socio-cultural, psychological, attitudinal and organisational basis for work, motivation and responsiveness to change, and (v) proforma sheets on specific case studies, designed to obtain detailed information since establishment of such enterprises.

The questionnaires will be administered by trained enumerators. Cooperation ^{of} Agricultural Assistants and Field Officers of the State's Ministry of Agriculture and Natural Resources as well as local chiefs and/or village heads will be actively sought and ensured during the administration phase. Close supervision of enumerators by Junior Research Fellows, Graduate Research Assistants

and the Project Supervisors will have to be maintained in order to ensure reliability of the information collected.

VI. Analyses Of Survey Results.

In analysing the results of the survey, account has to be taken of the number of farm-family respondents in each type of enterprise and the number of homogeneous enterprises within each setting. This is to ensure that conclusions drawn could be applied in actual practice. For example when referring to production factors, special emphasis has to be given to the size of each type of enterprise, its actual plan, operational specifications, and financial implications. In this discussion on the analyses of survey results, attention shall be given analyses of basic profiles, enumeration of situational data, analysis of structural interrelationships and micro-macro aggregation of survey data.

A. Analysis of Basic Profiles.

As indicated earlier, the four major profiles of interest relate to labour utilization, capital requirements, time allocation, and income flow. Analysis of these diaries will be based on physical requirements, attendant cost and resulting returns on a month-by-month basis. Simple tools of enterprise budgeting and programming will

be employed for extrapolation and projection of opportunities. Emphasis will have to be given to the fluctuations in the various profiles as well as the levels/magnitudes of such fluctuations. In this respect, it should be noted that the estimation of total available job opportunities in any rural - integrated enterprise will take account of age distribution, sex, rates of population growth, possibilities for immigrant workers, qualifications of workers, aptitudes of labour, and skill.⁽³⁸⁾ In addition the effects of family labour on each rural enterprise have to be carefully estimated from the dairies of the of labour and time allocation.

In considering the capital profile, special emphasis will have to be given to the proportion of each form/type of capital in relation to the total invested capital. This will lead to estimates of the contributions of the various enterprises to the total gross returns and the participation of each production factor in the total output. This approach has to be undertaken because, on these two financial results, (input and output) the amount and significance of profits, returns, employment and incomes can be realistically assessed and projected, based on types and structures of enterprises.⁽³⁹⁾

B. Enumeration Of Situational Data.

The situational data involving precise and comprehensive delineation and categorization of all rural occupations, number of participants, their personal life and operational information, the psychological as well as attitudinal motivations, are designed to provide us with ample information of (i) what people do, (ii) why they are doing it, (iii) number engaged etc. Contingency tables and χ^2 tests will be employed to analyse the data, (40) whilst factor analytic methods and "ridit analysis" will be employed to analyse the psychological and attitudinal information on motivations to work (41). In addition, attempts will be made to include questions of the "producer panel" format as a means of estimating "surrogate" supply functions for output, labour, employment etc, using the tool of multiple regression analysis. (42)

C. Analysis Of Structural Interrelationships.

The most basic and comprehensive analysis of the survey results/data will deal with structural interrelationships among enterprises. Here input-output data will be processed to derive production function studies using multiple regression tool. (43) On the basis of the results, the tool of linear programming will be employed for two purposes. The first is to derive supply functions for

inputs based on the study by Ogunfowora,⁽⁴⁴⁾ The second is to derive feasible and/or profitable combination of enterprises conducive to increases in job opportunities.⁽⁴⁵⁾ The specific case studies of say, sugar refinery, pulp and paper mill, rice milling, cooperative fisheries, lumber industry, etc. in the study area will be analysed by means of econometric models whose results will be simulated on the basis of studies by Naylor⁽⁴⁶⁾ to take account of capital, employment and output over time.

D. Micro - Macro Aggregation Of Data.

The aggregation of micro - macro data is necessary in this type of research for purpose of projections and inferences for the whole universe or region. This aggregation of micro-macro data has to be based on representative or benchmark enterprises which form the unit of analysis in linear programming results of supply and demand discussed above.⁽⁴⁷⁾ The group or zonal supply/demand estimate can be obtained by horizontal summation of the representative or benchmark enterprises. There is no doubt that this procedure is beset by problems of aggregation bias,⁽⁴⁸⁾ sampling errors associated with sampling procedures,⁽⁴⁹⁾ errors of stratification arising from the fact that the benchmark enterprises may not be realistically representative of existing real - world situations in the universe

or zone which they represent,⁽⁵⁰⁾ errors due to recording as well as those arising from respondents, "kept-back" information,⁽⁵¹⁾ and problems of using such micro-macro aggregated data for purposes of projections and development policy.⁽⁵²⁾ The more representative the benchmark enterprises are, the smaller the level of aggregation bias and hence the more dependably reliable the analyses are for inferential, policy, and projection purposes.

Consequently, the micro-macro aggregation of data will require a thorough understanding of the enterprises involved in determining optimum solutions based on linear programming. It will also call for careful classification of the factors employed with respect to structures and patterns of production. Apart from the need for careful consideration of size-scale relationships, aggregation of micro-macro data requires detailed stratification so as to increase accuracy of resulting information and/or observation. Lastly, the purpose for which the benchmark enterprises is geared is the provision of increased job opportunities. This objective calls for detailed costs and returns analyses, and the identification of the direction of adjustments under rapid economic development and increasing rates of population growth. Under this

objective, there is justification for comprehensive, more feasible but less rigorous construction of benchmark enterprises required for zonal aggregation of micro-macro data. (53)

VII. Summary And Conclusion

In this paper an attempt has been made to discuss the Methodology for studying labour absorption in the Derived Savannah Zone of Nigeria. Cognisant of the fact that this is a comprehensive and basic research for which the small-sampled farm management survey previously undertaken provides insufficient guides, (54) attempt has been made to discuss in broad terms the need for labour absorption in the zone, the structural features of the study area and the type of research envisaged. This discussion provides us with some basic information on which the enumeration of the research methodology and the specifications of the analysis of survey results can be meaningfully culled.

No attempt has been made to present questionnaire specimens, neither is it considered necessary to present tables of "dummy" reports envisaged. It is believed that the thoughts outlined here are preliminary gleanings from previous experiences and hence adaptable in modified forms to more rigorous work. The research methodology and

representativeness of the benchmark enterprises for policy purposes that are designed to meet the objective of providing more job opportunities will depend largely on finance for the research. It is my conclusion that no matter how detailed and carefully worked out the methodology of research is, meaningful results for policy and projection purposes will depend largely on adequate funding of research. It is in this connection that I look on research designs for generating employment opportunities as something that must be comprehensive, rigorously undertaken, heavily financed, carefully supervised as well as cross-checked, and the resulting data subjected to rigorous tools of quantitative as well as qualitative analyses available.

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