IMPACT OF URBAN MIGRATION ON RURAL DEVELOPMENT: THEORETICAL CONSIDERATIONS AND EMPIRICAL EVIDENCE FROM SOUTHERN NIGERIA

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I. INTRODUCTION

IN THE LAST two decades, practical considerations have prompted a vast body of research and discussion on rural-urban migration, as associated with the development process in the less developed world. However, the focus of this research and discussion has been mainly on the causes of rural-urban migration while the effects are considered, primarily, in the context of urban industrial development.[1] For example, Lewis [7] formulated a model in which the migration of labor from the subsistence (rural) to the modern (urban) sector is shown to have a positive influence on urban industrial development through its effect on wage rate, growth rate of profit, capital investment, and labor productivity. However, Lewis paid little attention to the repercussions of such out-migration on the rural sector, presumably, because of the underlying assumption regarding the inevitable disappearance of the sector in the course of economic development. The main purpose of the Ranis and Fei model [14] [15] as well is to show the consequences of rural-urban migration on urban industrial development. This model indicates that in the early stages of development in a labor surplus economy with considerable disguised unemployment in agriculture, rural-urban migration of labor has positive consequences on urban industrial development. However, once migration proceeds to a stage at which the marginal product of agricultural labor is positive, continued out-migration from agriculture leads to a fall in agricultural output and a consequent worsening of the

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[1] Several reasons can be suggested for the concentration on urban areas in the discussion of the consequences of rural-urban migration. These include, amongst other factors, greater visibility of the consequences to policy makers resident in urban areas. In the less developed countries, problems of urban unemployment, traffic congestion, housing shortage, and the proliferation of slums dominate newspaper headlines and arrest the attention of policy makers in a dramatic manner. Second, the seriousness of the problems is usually brought home to decision makers by the magnitude of funds diverted from directly productive projects such as agriculture, for the provision of ever expanding social services. Third, rural-urban migration affects urban wage rates through its effect on food supply and food prices.

terms of trade for the urban industrial sector. If the situation is not arrested through productivity increasing innovations in agriculture, the resultant high food prices then lead to wage increases, falling profits, decline in the rate of investment as well as unemployment in urban areas.

Other writers emphasize the consequences of rural-urban migration on the urban labor market [17] [18]; the demand for and supply of urban social services [10]; and the emergence of a low productivity, labor-intensive sector in urban areas [12] [13].

With respect to the impact of rural-urban migration on rural development generally and development in particular, two contradictory conclusions emerge from the discussions in the literature. On the one hand, some writers point to positive consequences in terms of increasing labor scarcity which accompanies migration and resulting productivity and wage increases in the rural areas [11]. Nicholls, for one, stresses the possibility of land consolidation and reduced land values as benefits to rural areas. According to Berg [1], rural-urban migration leads to a better reallocation of labor, especially in countries with regional resource disparities, which raises the efficiency of resource use. Johnson, Whitelaw, and Sabot [5] [6] [16] point to the possibility of regular flows of funds to the rural areas through remittances from urban centers. On the other hand, writers such as Todaro and Harris [17] [18] [3] are of the opinion that a fall in agricultural output is likely to accompany rural-urban migration, given the existence of a positive marginal product of labor in agriculture, especially in the relatively land abundant economies of Africa, Latin America, and a number of South Asian countries. Gulliver [2] concludes, in connection with Ngoni migration in what was formerly Tanganyika, that "the recourse to migration as a source of income saps the effort and the will of men to work more diligently at home in developing the resources of their own field." According to this thesis, there was a depressing effect on the economy. In the United States, Hathaway [4] observes that the out-migration of young workers to urban areas leads to a higher age level of the labor force in the area left behind. He regards this as an important inhibitory factor in the adjustment process largely accounting for low productivity and stagnation in affected rural communities.

It is not surprising that the discussion of effects of rural-urban migration on the rural sector should thus lead to two opposite conclusions, given the differences in assumptions underlying the discussion, as well as differences in the stage of economic growth, resource endowment, population density, and character of economic and social organization of diverse communities/countries. If rural-urban migration takes place in a community characterized by serious diminishing returns due to population pressure and uneconomic land holdings, the consequent reduction in agricultural population can hypothetically reduce the tendency to diminishing returns and so raise the productivity of agricultural labor. Where, on the other hand, the density of agricultural population is low, rural-urban migration can be expected to cause a reduction in agricultural output unless compensating yield-increasing innovations are introduced or the vacuum created by urban

migrants is filled by rural-rural migrants [19]. The degree of a community's dependence on manual labor, especially that provided by males, also influences the extent to which output and income will be affected in the rural areas. In the heavily forested southern parts of Nigeria, where bush clearing and harvesting of export crops is done almost completely by male manual labor, rural-urban migration, as will be shown later, can lead to labor shortage and output reduction. With respect to the effects of income transfers to rural residents, it should be stressed that the benefits of such transfers depend on their size and frequency. In most cases, the size and frequency in turn depend upon the level of urban employment and income, the type of jobs on which the migrants are employed, the cost of living in the urban areas and the degree of migrants' attachment to their rural homes. It is clear, from the foregoing discussion, that no definitive statement can be made on whether rural-urban migration is beneficial or harmful to rural development from a priori discussion. It is, therefore, important that an attempt should be made to present case studies of the problem in different societies with differing stages of development and resource endowment.

II. OBJECTIVES AND METHODOLOGY

The objective of this paper is to present some empirical evidence of the effects of rural-urban migration on rural development in Southern Nigeria.[2] It will be shown that: (1) rural-urban migration leads to increased dependence on hired labor by rural households whose most productive members are "lost" to urban areas; (2) rural-urban migration causes labor shortage on large-scale, export-oriented plantations which, as a consequence, are characterized not only by a high proportion of uncultivated acreage, but also by incomplete harvesting involving loss of output to the economy and that; (3) contrary to the view that rural-urban migration makes possible a net income transfer from the urban to the rural areas and so contributes to rural development, the empirical evidence in the areas studied suggests that rural-urban migration involves a net outflow of capital from rural to urban areas.

A. *Location of the Study and Sources of Data*

The field research on which this paper is based was carried out by the authors in Western Nigeria and the South Eastern State between August 1972 and August 1973. There were two phases. In the first phase, information was obtained from a random sample of one hundred and eighty households in six randomly selected villages in the savannah and forest belts of the Western State. Data were collected on the number of household members who migrated to urban areas in the last ten years, the size of the household, the size of household landholdings, expenditures on various agricultural inputs, gross sales of agricultural products, earnings from other sources, expenditures on the education of the migrants, and remittances received from urban migrants as well as those

[2] For a detailed treatment of the methodological aspects of the first phase of this study, see [9].

sent to urban residents. Members of the rural households resident in urban areas were located with the help of information provided by their rural relatives. These migrants were then interviewed and data obtained on the duration of their stay in urban areas, their age at the time of migration, their occupations, average annual earnings, and the amount and size of remittances sent to rural relatives.

The second phase of the field research involved visits to government and private plantations in the Western and South Eastern states to study their labor absorption problems.[3] During these visits, data were collected by interviewing managers, labor supervisors and using records on plantation size, pattern of crop combination, total number of acres cultivated, total number of acres harvested in 1972, size and pattern of labor used, regular availability of labor supply, and wage rate.

From data collected, the rate of labor shortage was derived as the difference between labor required and actual number of persons employed in 1972 expressed as percentage of labor required. Also computed from the data were the percentage of total cultivable acres not cultivated as well as the percentage of cultivated acres which could not be harvested by 1972 owing to inadequate supply of labor. The loss of output due to incomplete harvesting was then estimated in physical as well as in revenue terms after making allowance for the potential cost of harvesting the unharvested portions.[4]

B. *Data Limitations*

Some of the data used in this study have several limitations. For example, there were discrepancies in the data provided by urban migrants and their rural families with respect to remittances from urban to rural areas and vice versa. Since attempts to reconcile these discrepancies were costly[5] and largely unsuc-

[3] The research is a part of a larger project, African Rural Employment Study of the Department of Agricultural Economics and Extension, University of Ibadan.

[4] The procedure used is as follows: First, the yield per acre of each plantation was multiplied by the total number of unharvested acres to obtain the foregone potential yield in physical units. Using the 1971/72 weighted average producer prices for cocoa, palm oil, and palm kernels and the average world price for Nigerian natural rubber, the amount of potential gross revenue foregone was computed. Second, the additional expenditure which would have been incurred in an effort to complete harvesting was estimated by multiplying the expenditure per acre by the number of unharvested acres. The difference between gross revenue and this additional outlay is the net revenue foregone by the failure to complete harvesting. It is necessary to stress that several assumptions underlie the computational exercise described above as will be made clear in the next subsection of this paper dealing with data limitations. Moreover, the authors are perfectly aware that there may be other and, possibly, more theoretically satisfactory approaches to determining the output loss due to incomplete harvesting. However, the approach described above is adopted because it is often used by plantation managers themselves whenever they try to figure out the need for acreage expansion. Project appraisal studies also use this approach, with appropriate discounting, to determine the profitability of agricultural projects. (See, *Agricultural Development in Nigeria, 1965–1980* [Rome, FAO, 1966], pp. 48–52.)

[5] They entailed many trips to urban areas and the villages.

cessful, the average of the figures given by both parties was usually taken as the measure of remittance. Also, in estimating the transfer of rural capital to urban areas through the education of rural youths who subsequently migrate to urban areas, no attempt was made to allow for the contribution of urban residents to the education of rural relatives. This probably imparts an upward bias to the amount of capital transferred to urban areas through rural education of the migrants. Third, the value of food items sent to urban areas from the villages presented a problem of whether to base such valuation on rural or urban retail prices. Urban prices served as the basis of valuation which undoubtedly biases the amount transferred from the rural areas in an upward direction.

With respect to data on output loss due to incomplete harvesting, the main limitation arises from the assumptions of constant yield and constant per acre expenditures underlying the computations. In addition, because plantation managers and accountants use widely differing methods for depreciation of buildings and machinery, there is a tendency to inflate production cost in some plantations much more than in others. This affects the estimate of the potential additional outlay and, therefore, the estimate of potential net revenue foregone.

III. EMPIRICAL EVIDENCE

A. *Labor Supply for Small-Holder Agriculture*

In view of the influence of population age structure on labor supply, a consideration of the possible effects of rural-urban migration on the age structure of the rural communities studied, provides a point of departure for our analysis of the impact of the phenomenon on the labor situation in small-holder agriculture.

Table I shows clearly the age-selective character of rural-urban migration. It

TABLE I

RATE OF RURAL-URBAN MIGRATION BY AGE OF THE RURAL FAMILY MEMBERS IN SELECTED COMMUNITIES, WESTERN NIGERIA, 1972

Age Bracket (Years)	Migration Rate (%)
0-10	2.3
11-20	85.5
21-30	70.4
31-40	41.0
41-50	0.0
51-60	0.0
60 and over	0.0

Source: Survey data.

can be seen that only 2.3 per cent of the family members in the 0–10 year age bracket had migrated to urban areas at the time of the field work for this study. More significantly, none of those in the 41 year and over age bracket had migrated to urban areas. By contrast, over 85 per cent of those in the 11–20 year age group had migrated. A similar high rate of migration (70.4 per cent) is also true of members in the 21–30 year age group.

What all this means in terms of labor supply for small-holder agricultural production is that rural-urban migration has removed the most productive age group to urban areas those who usually provide the most labor for heavy operations in land preparation, planting, and harvesting. At the same time, by leaving behind virtually all those in the 0–11 and 41 year and over age brackets, rural-urban migration has increased the dependency ratio in rural areas at a time when the families have "lost" their most agriculturally productive members.

In theory, rural families could react to the situation by substituting machines for human labor or by hiring labor to supplement the remaining family hands. In practice, it is not possible to embark on any significant substitution of machines for human labor because, among other factors, the ecological conditions in forest areas impose constraints. In the savannah zone, the substitution of machines is limited by the present uneconomic size of holdings making mechanization rather costly. The only feasible reaction is increased dependence on hired labor supplied mainly by rural-rural migrants [19] [20]. The dependence on hired labor is reinforced by the fact that rural-urban migration, in reducing the size of some families, is accompanied by a corresponding increase in the rural families' land/man ratios which imply larger per head holdings. Moreover, under Western Nigeria tenurial conditions, it is possible for remaining members of a family to cultivate the land belonging to those member of their households now resident in urban areas [8]. The consequence is that rural families with many migrants find themselves with larger holdings than can be cultivated with available family labor. There is, therefore, a tendency for such families to increase their outlay on hired labor.

To estimate the relationship of expenditure on hired labor to the rate of rural-urban migration, a regression model was developed with expenditure on hired labor as the dependent variable Y, and the rate of migration as independent variable X_1. Also included as independent variables were the mean age of the rural family X_2, and the average size of family landholdings X_3. The results of the regression are shown below (estimates of the determinants of expenditure on hired labor in selected communities, Western Nigeria, 1972).

$$Y=4.5144+0.2349X^*_1+0.0975X^*_2+1.8023X^*_3.$$
$$(2.4628)(0.0351) \quad (0.0583) \quad (0.1358)$$
$$R^2=0.7545.$$
$$d^+=1.7514.$$

* Significant at the 0.05 level. Figures in parentheses are standard errors. The wage rate variable was not included because of the problem of estimating the number of man-days in the absence of records. The farmers had difficulty giving data on man-days though no such problem was experienced in stating expenditures on labor.

From the above results, it is evident that a significant relationship exists between the rate of migration (X_1) and expenditure on hired labor. Also, as the coefficient X_3 suggests, expenditure on hired labor is significantly related to the size of rural family landholdings. Moreover, despite the absence of the wage rate variable, R^2 is quite large and indicates that the three independent variables explain much of the variation is the expenditure on hired labor. These results thus substantiate the hypothesis that rural-urban migration, by reducing the rural families' labor supply and increasing the families' land/man ratios, increases their dependence on hired labor.

B. *Labor Shortage in Large-Scale Commercial Agriculture*

The labor supply problem created by rural-urban migration is not confined to small holder farm families. Large-scale export-oriented plantations also face the problem of labor shortage as Table II illustrates.

The data in Table II show that many large-scale, export-oriented, tree crop plantations in Western and South Eastern states suffer from a shortage of between 10 per cent and 41 per cent of the labor required. Indeed, of the twenty-six plantations visited, sixteen reported labor shortages which, in 1972, averaged 17 per cent of total labor requirements.

TABLE II

LABOR SHORTAGE IN SELECTED PLANTATIONS, WESTERN AND SOUTH EASTERN STATES, 1972

Plantation Code No.	Labor Required (Persons)	Labor Employed (Persons)	Labor Shortage	
			(Persons)	% of Labor Required
P_1	1,170	825	345	29
P_2	580	460	120	21
P_3	40	26	14	35
P_4	20	13	7	35
P_5	150	120	30	20
P_6	800	675	125	16
P_7	380	291	89	23
P_8	1,020	942	178	17
P_9	1,980	1.773	203	10
P_{10}	480	400	80	17
P_{11}	430	340	90	24
P_{12}	886	746	140	18
P_{13}	290	195	95	41
P_{14}	633	520	113	18
P_{15}	683	520	163	28
P_{16}	540	437	103	21
P_{17}	583	520	63	11
P_{18}	500	450	50	10

Note: Code number is used to maintain the anonymity required by managers who gave the authors' access to labor and other records in strict confidence.

According to managers, there are several reasons[6] why existing plantations will continue to have labor shortage problems due to rural-urban migration. Among these reasons are the lack of commitment by young men to agriculture and the irresistible attraction of urban life and its amenities, which contrast with the drudgery and monotony of plantation life. These explanations seem quite plausible in view of the fact that, on the average, the wage rates for unskilled labor on these plantations were virtually the same as those in urban areas. Indeed the result of our calculation suggests that if the plantation wage rates were adjusted to take account of fringe benefits[7] enjoyed by plantation workers, they would be higher than prevailing urban wage rates for unskilled labor.

Another important reason why the plantations find it difficult to attract and retain young men is the failure of wage rates and other conditions of service to adequately take account of the educational qualifications of field laborers. Indeed, one of the authors was struck by the observation that a large number of illiterate supervisors and head laborers received far higher remuneration than most young primary six holders. Also, in a move aimed at increased labor productivity, the remunerations of field labor on oil palm plantations tended to reflect the skill and experience of the workers rather than educational qualification. While these conditions can be defended on grounds of the need for increased productivity, they seem humiliating to a standard six certificate holder and largely explain the desertion of these plantations by semi-educated labor.

Whatever motives may underlie rural-urban migration, the resulting labor shortage has important consequences such as incomplete cultivation of plantation land and incomplete harvesting of crops in the cultivated portions as Table III shows.

As Table III indicates, sixteen of the twenty-three mature plantations reported incomplete harvesting ranging from 14 per cent to 43 per cent of total cultivated acres. The highest percentages of incomplete harvesting were reported in old oil-palm plantations with very tall trees in heavily swampy and thickly wooded areas. The economic implication of this incomplete harvesting is shown in Table IV in terms of foregone revenues.

The data in Table IV shows that eight plantations which did not complete harvesting in 1972 could have increased their revenues if they had enough labor for harvesting. This is particularly true of cocoa and rubber plantations (P_9, P_{18}, and P_{20}) which, according to our estimate, would have obtained large net revenues even if they had borrowed the money used at the market rate of 12.5 per cent.

On the other hand, Table IV also indicates that if eight of the plantations

[6] Factors other than rural-urban migration also account for labor shortage on large plantations. (See S. M. Essang, "Labour Shortage in Nigerian Large Scale Agriculture: Its Determinants and Implications," forthcoming.)

[7] These benefits include free quarters, the value of crops raised on side plots, etc. Minimum wage legislation also applies to unionized plantation workers.

TABLE III

UNHARVESTED ACRES AS A PROPORTION OF TOTAL ACRES CULTIVATED IN SELECTED PLANTATIONS, WESTERN AND SOUTH EASTERN STATES, NIGERIA, 1972

Plantation Code No.	No. of Acres Cultivated	No. of Acres Unharvested	
		No.	% of Acres Cultivated
P_1	3,600	684	19
P_2	3.494	913	25
P_3	340	82	18
P_4	140	60	43
P_5	4,196	—	—
P_6	4,307	1,416	33
P_7	2,941	681	33
P_8	6,314	—	—
P_9	11,550	1,550	22
P_{10}	4,293	1,133	26
P_{11}	2,349	591	25
P_{12}	3,594	—	—
P_{13}	6,633	2,352	35
P_{14}	3,171	991	31
P_{15}	4,731	1,571	33
P_{16}	3,781	1,296	31
P_{17}	4,293	—	—
P_{18}	7,280	1,020	14
P_{19}	11,834	3,488	29
P_{20}	8,675	1,796	21
P_{21}	71.5	*	*
P_{22}	1,750	*	*
P_{23}	128	*	*

Note: A dash means that all acres were harvested.
*Three of the plantations were not yet matured for harvesting.

were to complete harvesting the remaining portions, considerable losses would have been incurred. The possibility of such losses is greater in old oil-palm plantations such as Apoje in the West. In such plantations, the observed labor shortage turns out to be a blessing in disguise, since it enables management to reduce losses.

Another observation from Table IV is the relationship between the size of per acre expenditure and the level of potential net revenues. Except for plantation P_{14} and P_{18}, positive net revenues are associated with expenditures per acre not exceeding N42.61.

C. *Inter-Sectoral Transfer of Capital*

Two aspects of inter-sectoral transfer of capital are considered in this section. The first, shown in Table V, is the transfer of capital from rural to urban areas through investment in the education of rural youths who subsequently migrate

TABLE IV

ESTIMATED FOREGONE REVENUES DUE TO UNDERHARVESTING IN SELECTED PLANTATIONS, WESTERN AND SOUTH EASTERN STATES, NIGERIA, 1972

Plantation Code No.	Size of Farm Unharvested	Expenditures per Acre	Potential Expenditures	Potential Gross Revenues	Foregone Potential Net Revenues	
					With No Interest Charges	With Interest Charges
	(Acres)	(N. 00)	(N. 00)	(N. 00)	(N. 00)	(N. 00)
P_1	684	30.61	20,937	34,938	14,001	11,384
P_2	913	30.31	28,130	72,701	44,571	41,055
P_3	82	42.30	3,469	3,014	−455	−888
P_4	60	48.64	2,918	2,214	−704	−1,069
P_6	1,416	104.60	148,114	97,546	−50,568	−69,082
P_7	681	62.47	42,542	34,790	−7,752	−13,070
P_9	2,250	40.50	91,125	219,004	127,879	116,488
P_{10}	1,133	65.64	74,370	49,579	−24,791	−34,087
P_{11}	591	82.34	48,663	27,960	−20,703	−26,786
P_{13}	2,352	71.41	167,932	93,660	−74,272	−95,263
P_{14}	991	82.29	81,549	119,713	38,164	27,970
P_{15}	1,571	40.60	63,783	98,560	3,477	26,984
P_{16}	1,296	42.61	55,222	85,690	30,468	23,564
P_{18}	1,020	55.78	56,896	138,730	81,834	74,722
P_{19}	3,488	65.54	228,603	140,646	−87,957	−116.532
P_{20}	1,796	44.83	80,515	249,755	169,240	159,576

Note: A minus sign means that attempts to complete harvesting would have involved negative revenues.

to urban areas.[8] As is clear from the data in Table V, the people of the communities studied bear a very high burden of educational expenses on behalf of the rural-urban migrants. In villages such as Sinawa and Adegbola where expenditures on education exceed average earnings per head, borrowing and remittances from urban relatives probably account for this situation. Worthy of note is the fact that these expenditures are for school fees, boarding, and clothing and do not include village expenditures on building and maintenance of classrooms.

Remittances to and from rural areas constitute another aspect of the intersectoral transfer of capital.

Table VI shows the magnitude of such transfers in 1971 and 1972. The data in Table VI indicate a net transfer of funds from villages to urban areas. More important, the data indicate that except for the case of Adegbola, rural-urban

[8] There are two reasons why the migration of educated rural youths to urban areas is viewed in this paper as a capital transfer from the rural to the urban sector. First, parents regard educational expenditures as investment in the creation of human capital in just the same way as a cocoa farmer looks upon investment in cocoa trees. Both types of investments are expected to yield a stream of income over time. Second, investment in education, like that in a durable asset, involves sacrifice of current consumption and considerable waiting.

TABLE V

MEAN ANNUAL EDUCATIONAL EXPENDITURES ON MIGRANTS AS PERCENTAGE OF PER CAPITA EARNINGS OF SELECTED VILLAGES, WESTERN NIGERIA, 1972

Villages	Average Annual Earnings/Head in 1972 (N. 00)	Average Annual Rural Educational Expenditure per Migrant	
		(N. 00)	% of Earnings
Araromi	129.00	115.40	89
Sinawa	196.00	217.90	111
Ime-Lisa	183.60	49.80	27
Adegbola	110.00	114.10	104
Maya	162.80	109.50	62
Oso-Ogun	132.60	110.90	84
All the villages	152.30	119.60	79

migration in these communities is not associated with any appreciable transfer of funds from urban centers to rural areas. Several explanations can be suggested for this.

First, most migrants from these villages were, at the time of this study, engaged in low productivity and low paying occupations such as motor repair and tailoring and as clerical assistants in government and private enterprises. As such they could not afford to remit a substantial amount to their villages. Second, since the civil war, the Nigerian economy has experienced sharp increases in the cost of living, especially in the major urban centers,[9] a circumstance which makes life very difficult for low and middle income people. Third, a high proportion of migrants working in government and private enterprises as clerks and technicians spend a sizeable percentage of their earnings on private tuition in an effort to improve their skills and earnings capacity.

IV. SUMMARY AND IMPLICATIONS

The age-selective character of rural-urban migration is seen to have resulted in a rural population marked by a predominance of children and old people who cannot effectively perform farming operations. At the same time, however, migration tends to increase the land/man ratios and hence the farm size of

[9] Between 1969 and 1972, the consumer price indices for Lagos and Ibadan, the main urban centers in which most migrants reside, were as follows:

(1960=100)

Year	Lagos	Ibadan
1969	136	148
1970	154	166
1971	175	203
1972	186	212

Source: *Federal Digest of Statistics, 1972.*

TABLE VI

AVERAGE ANNUAL REMITTANCES PER HEAD TO AND FROM SELECTED VILLAGES, WESTERN NIGERIA, 1971–72

Villages	Remittances		Net Remittances to Villages from Urban Centers
	From Villages to Urban Centers (N. 00)	From Urban Centers to Villages (N. 00)	(N. 00)
Araromi	13.20	—	−13.20
Sinawa	40.00	6.40	−37.60
Ime-Lisa	24.00	3.40	−20.60
Adegbola	16.00	50.50	34.40
Maya	29.40	6.80	−22.60
Oso-Ogun	48.60	10.00	−38.60
All the villages	19.10	8.40	−16.40

the affected families. To cope with the task of agricultural production and take advantage of increased farm size, farm families are compelled to depend considerably on hired labor. This is borne out by the results of a regression analysis which show a positive and significant relationship between the rate of rural-urban migration and expenditure on hired labor.

The findings of the study also indicate that rural-urban migration poses problems of recruitment and retention of labor on large-scale export-oriented plantations in the Western and South Eastern states of Nigeria. Many of these plantations experience a labor shortage which largely explains the existence of a high proportion of uncultivated portions as well as considerable underharvesting of crops in the cultivated portions. In eight of the sixteen plantations characterized by underharvesting, our calculations indicate foregone potential revenues of considerable magnitude.

Contrary to the view of some economists, the data in this paper suggest that rural-urban migration in the communities studied involves a net transfer of funds from rural to urban areas. This is because most migrants, engaged in low earnings jobs found it difficult to send home sizeable amounts of money.

These findings have several implications for rural development in Nigeria. The fact that rural-urban migration creates a population structure characterized by a predominance of children and old people raises an important problem of how to increase agricultural productivity to meet the country's food, export, and raw material requirements. The problem seems complicated by the fact that ecological conditions, farm size, and technology impose limitations on mechanization in many of the forested Southern farms. In theory, it can be suggested that much more liberal credit terms be given to farmers in order to meet rising labor costs. In practice, as the plantation experience suggests, shortage of farm labor can still limit agricultural output even when financing is available.

In our view, the government should pursue several related strategies. First, investments in rural infrastructure should be stepped up to facilitate the development of the non-farm rural sector as a means of stemming the tide of rural-urban

migration and retaining young men in the rural areas. Second, efforts should be made to encourage labor mobility from densely populated to land abundant areas, by removing constraints on labor mobility inherent in existing tenurial arrangements. Third, the development of simple machines, adapted to the ecological conditions of the Southern region should be given priority. This should be a challenge to our engineering schools as well as government and aid donors.

REFERENCES

1. BERG, E. "Major Issues of Wage Policy in Africa," in *Industrial Relations and Economic Development,* ed. A. M. Ross (London, 1966).
2. GULLIVER, P. "Labour Migration in a Rural Economy: A Study of the Ngoni and Ndendeuli of Southern Tanganyika," *East African Studies,* Vol. 6 (1957).
3. HARRIS, J. R., and TODARO, M. P. "Urban Unemployment in East Africa: An Economic Analysis of Policy Alternatives," *East African Economic Review,* Vol. 4, No. 2 (1968).
4. HATHAWAY, D. E. "Migration from Agriculture: The Historical Record and Its Meaning," in *Agriculture in Economic Development,* ed. C. Eicher and L. Witt (New York: McGraw-Hill, 1964).
5. JOHNSON, G. "The Structure of Rural-Urban Migration Models," *Eastern African Economic Review,* Vol. 1, No. 1 (1971).
6. JOHNSON, G., and WHITELAW, W. E. "Rural-Urban Income Transfers in Kenya: An Estimated Remittance Function," mimeographed (Institute of Development Studies, University of Nairobi, 1972).
7. LEWIS, W. A. "Economic Development with Unlimited Supplies of Labour," *Manchester School,* No. 22 (1954).
8. MABAWONKU, A. F. "Adaptation of Land Tenure to a Tree Economy," unpublished (Ile-Ife: Department of Agricultural Economics, University of Ife, 1971).
9. ————. "The Impact of Rural-Urban Migration on the Economy of Selected Rural Communities," unpublished (Department of Agricultural Economics, University of Ibadan, 1973).
10. MABOGUNJE, A. L. "The Economic Implications of the Pattern of Urbanisation in Nigeria," *Nigerian Journal of Economic and Social Studies,* Vol. 7, No. 1 (1965).
11. NICHOLLS, W. H. "The Place of Agriculture in Economic Development," in *Agriculture in Economic Development,* ed. C. Eicher and L. Witt (New York: McGraw-Hill, 1964).
12. OSHIMA, H. T. "Labor Force Explosion and the Labor Intensive Sector in Asian Growth," *Economic Development and Cultural Change,* Vol. 19, No. 1 (1971).
13. ————. "Labour Absorption in East and Southeast Asia: A Summary with Interpretation of Post War Experience," *Malayan Economic Review,* Vol. 16, No. 2 (1973).
14. RANIS, G., and FEI, J. C. H. "A Theory of Economic Development," *American Economic Review,* Vol. 51, No. 4 (1961).
15. ————. "Development and Employment in an Open Dualistic Economy," *Malayan Economic Review,* Vol. 16, No. 2 (1973).
16. SABOT, R. H. "Education, Income Distribution and Rates of Rural-Urban Migration in Tanzania" (Economic Research Bureau, University of Dares-Salaam, 1972).
17. TODARO, M. P. "A Model of Labor Migration and Urban Unemployment in Less Developed Countries," *American Economic Review,* Vol. 59, No. 1 (1969).
18. ————. "Income Expectations, Rural-Urban Migration and Employment in Africa," *International Labour Review,* Vol. 104, No. 5 (1971).
19. UDOH, R. K. "Migrations in Nigeria," *Nigeria Magazine,* No. 103 (1970).
20. ————. "Characteristics of Migrant Tenant Farmers of Nigeria," *Nigerian Geographical Journal,* Vol. 14, No. 2 (1971).