The Circular Migration of Smallholders in Kenya[1]

Arne Bigsten, Göteborg University

We analyse migration from farm households in Kenya, and argue that many migration decisions should be regarded, not as individual decisions but rather as household decisions, in which, within the constraints given, the household decides to allocate its labour force among activities in such a way as to maximize household utility. The resulting migration tends to be circular. We use a probit model which incorporates this feature, and also takes into account contacts and information, as well as indivisibilities.

Our empirical analysis suggests that the pull of high urban wages is much more important for migration decisions than the push of land scarcity. A buoyant local non-agricultural economy does not seem to restrict migration. We have also found that networks of personal contacts are highly significant determinants of migration. One important policy implication is that rural development, desirable though it is on other grounds, is unlikely to have the effect of stemming the flow of migration.

1. The Nature of Smallholder Migration

1.1 Introduction

Migration has been a salient feature of the life of smallholders in East Africa for a long time. In spite of attempts to stabilize the modern sector labour force, the majority of workers have retained ties with the rural areas as shown, for example, by the extent of remittances and

home visits.[2] The transition from circular to permanent migration is slow, and circular migration remains a central part of the way of life of smallholders in East Africa. The purpose of this paper is to try to explain circular migration in Kenya within the framework of a household model of labour allocation, since we believe this to be a more appropriate model for this decision than the traditional, individually-orientated model.[3] We confine our present analysis to migration from smallholder farms, while that of other groups, for example pastoralists, is not discussed.[4]

In this section we review the relevant literature and identify the factors which seem to influence the migration decision, and then in Section 2 we spell out the theoretical framework. Section 3 provides the econometric specification, while Section 4 describes the data and gives variable definitions. The results are presented in Section 5, and we state our conclusions in Section 6.

1.2 Individual or Family Decision

Migration takes place for a variety of reasons, and the decision process may differ with the types of migration. Table 1 shows the reasons for migration given in the smallholder survey used in our analysis (see Bevan et al., 1989, for a detailed presentation). The table shows the reasons why family members now live elsewhere: employment is the major cause of male migration, while marriage is the dominant reason for female migration. Of course, the latter will not be regarded as circular migration in our analysis.

Migration analyses in the Harris-Todaro tradition assume that the individual is the relevant optimizing agent. This may be the relevant perspective in the case of permanent migration, in which someone

---

[2] Nelson (1976, p. 273) describes a study which compared men who came from a rural district situated some 200 miles from Nairobi, but who lived in the capital at the time of the study, with a sample matched for age, education, and family status, who lived in the home district at that time. The study showed that the average number of years of urban experience among the two groups was not significantly different.

[3] See, for example, the discussion in Stark (1991).

[4] Migration in Africa is also discussed in, for example, Elkan (1959, 1967, 1980); Godfrey (1974); Gugler (1969); Knight and Sabot (1979); Lwoga (1985); Thadani (1985).

leaves the household for good. For example, when a daughter leaves the household to get married, it may make sense to think in terms of individual optimization.

Table 1:
Reasons for Migration Among Smallholder Households

Reason	Central Province		Nyanza Province	
	Male	Female	Male	Female
To look for job	39	12	60	27
Take up job offer	25	11	27	4
Marriage	7	59	4	72
Other or N/S	19	19	10	19

Source: The data derives from the smallholder survey conducted by Bevan *et al.* (1989). The category 'Other' includes, for example, land shortage.

Often, however, it is more reasonable to treat the entire family, or the head of the family, as the relevant decision-making agent (see de Jong and Gardner, 1981; Stichter, 1985; Stark, 1991). This is especially true when the migrant is expected to return to the household, as in temporary or circular migration. In this case the labour supply of a household is divided between farm and city in such a way as to most benefit the whole family. While some member of the family is in town earning money, others are at home cultivating the land and protecting family interests there. The rural base is kept as a permanent safe haven (see Elkan, 1976).

Nelson (1976) argues that this system survives because of a cohesive family structure, where the migrant cares altruistically about the welfare of other family members. Rempel and Lobdell (1978, p. 336), on the other hand, argue that the preservation of strong urban-rural links primarily reflects the self-interest of the migrant. 'The migrant transfers resources to the rural based family because he wants to safeguard his right to the land, or because he wants to retain the option of returning to the rural area should he lose his job or fall ill.'

But regardless of whether altruism or self-interest is the most important underlying factor, the migrant has an interest in the level of well-being of the family, which suggests that an individual would not migrate if to do so would increase his personal utility at the expense of overall family utility.

When the migrant establishes himself more permanently in town, contacts with his rural family may gradually decline, and he may eventually embark on a course of action which is different from that originally planned. However, this does not affect the analysis of the original migration decision.

Thus, when it comes to decisions about circular migration, we will assume that the family is the relevant decision making unit. With regard to persons who intend to leave the household for good, it may be sensible to think of their decision in terms of individual optimization, but this kind of migration is not discussed in this paper.

1.3 Contacts and Information

In the Harris-Todaro model (Harris and Todaro, 1970), migration is speculative: people migrate to town to look for jobs; then, in each period of residence, they take part in a job lottery in which they could not participate if they did not reside there. This view of the job search process is too simplistic. Our data shows that, in Kenya, a substantial fraction of migrants already have a job lined up at the time of migration. In a study of the Abaluhya in western Kenya, Patterson (1984) shows that the majority had at some time worked in the cash economy, and that this was the result of a strong kinship network that kept members informed about employment opportunities and helped in securing employment. Collier and Lal (1986) make the same observation in their study of Kenya, and Banerjee (1984, 1986), find in India that half of those migrating to Delhi had a job lined up before migrating. A large proportion planned to work in the free-entry sectors, and tended to stay there. Banerjee also found that information and expectations about urban jobs were very much influenced by urban-based contacts. Thus, only some people in the rural areas came to know about job opportunities, which tended to limit migration. Stark (1991, p. 26) also notes that heavy reliance upon 'network and kinship' capital is a prominent characteristic of migration behaviour patterns.

There are many studies which show that the Sjaastad (1962) economic model of migration has empirical validity, in that migration

is influenced by economic differentials. However, it is often the wage variable that is found significant, while the employment rate variable is not in the Harris-Todaro type studies (e.g. Fields, 1982; Rogers and Williamson, 1982; Schultz, 1982; see also Yap, 1976a, 1976b; Mohan, 1980). But Milne and Wilson (1991) argue that the Harris-Todaro model has never really fitted Kenyan data.[5] In particular, the urban-rural wage differential would imply a far higher level of urban unemployment than has actually existed, which suggests that the Harris-Todaro view of how job search is usually accomplished is questionable. Rather than participating in a job lottery, migrants tend to rely on their network of contacts to get access to jobs.

Previous and present migration from the family or the village generates information as well as a social network, which also facilitates job search. The network may help the migrant financially, as well as helping to secure a job through contacts with employers. Such destination-specific capital is vitally important for the success of job search. Temporary migration facilitates the transmission of information about urban jobs back to the rural areas and makes rural-based urban job search through urban contacts possible. There should thus be a positive relationship between migration rates and the number of kin in town.

Social networks are generally important where there are low incomes, uncertainty about future earnings, and imperfections in insurance and capital markets; all these factors characterize the East African smallholder economy.

The location of the village plus its (or the family's) economic and communication network also influences migration. If it is integrated into an urban network and is highly commercialized and monetized, one would expect information flows to be better and migration larger.

1.4 Household Characteristics and Entry Barriers

Normally, one would expect the extent of migration from a rural household to be such that the marginal return in the rural area would be equalized to the urban wage. However, one reason why this

---

[5] According to data in the labour force surveys of 1986 (Kenya, 1988) and 1988/89 (Kenya, 1991), this still seems to be the case.

equalization may fail to take place is the existence of barriers to entry into urban employment.

It seems reasonable to postulate that the degree of access to urban employment is higher for households with certain member characteristics. It has been established in many studies that some categories of people are more mobile than others (Rempel and House, 1978; Todaro, 1976, 1980; Wasow, 1981; Yap, 1977; Kenya, 1988, 1991); for instance, the typical migrant in East Africa is young and well-educated. Therefore, household structure should play a role in the determination of migration: the higher the fraction of the labour force which belongs to the highly mobile category, the more migration one would expect.

Another reason for the failure of a household to equate marginal returns in rural and urban activities may be due to indivisibilities, which are more acute the smaller the size of the household labour force. For example, with only one working member in the rural household, it is virtually impossible to have any migration, if the family does not wish to abandon farm production altogether. This may hinder a household from taking advantage of opportunities, particularly in town, although its labour force has the appropriate characteristics. Scope for diversification to reduce risk should also increase with the size of the labour force.

The basic assumption about migration is that it is caused by lack of resources, or rather, that it takes place only if it leads to increased welfare for the family. One would, for example, expect migration to be high if the household has very little agricultural land in relation to its labour force. However, it is also possible that many families have a chance of increasing their income through migration, but lack the resources needed to finance it. Thus, given that capital markets are imperfect, it may well be that rural income is a resource for migration, rather than an opportunity cost (Banerjee and Kanbur, 1981).

Thus, there are a number of barriers to migration which should be taken into account when one analyses the migration behaviour of households.

1.5 A Summing Up

We have discussed several factors which need to be considered when analysing the migration decision: a) factors associated with the area of origin; b) factors associated with the area of destination; c) intervening obstacles; and d) personal and household characteristics. But we have

argued that it is not only these factors *per se*, but also the perception or knowledge of them by the decision-making agents, that needs to be taken into account. One should therefore also include e) information and contacts, as relevant factors.

2. Theory of Circular Smallholder Migration[6]

Our analysis will be confined to circular migration, in which the migrant does not leave the household permanently. Circular migration may be seen as an optimization problem, in which the household allocates its labour resources across activities so as to maximize a family utility function.[7] We assume that the household may allocate its labour between work on the *shamba* (Swahili for farm) or in other local economic activities, which do not require migration, and at locations which requires migration.[8] The budget constraint is total family income.

The assumption that the family derives utility from consumption as a unit allows us to disregard any problems relating to the intra-family distribution of income, but there are also a number of factors which may be put forward in further justification of this simplification. The consumption of 'public goods', such as housing, constitutes a fairly large proportion of household consumption. It can also be assumed that, for most smallholder families, most private goods consumption fulfils a basic need, such as food, which would tend to be distributed fairly equally within the household: one would not let any member of the family starve. Other consumption is normally limited, so it is not unreasonable to assume that consumption in the household is fairly even.

---

[6] See Bigsten (1988) for a detailed outline of the theory.

[7] Of course, to treat the family as a homogenous entity is a simplification. As proposed by Stark (1991, p. 5), a way forward might be to conceive of the family as 'a coalition, a group of players committed by choice to act as one unit *vis-à-vis* the rest of the world', while there may still be room for bargaining among members about the distribution of costs and benefits.

[8] The setting we analyse typically lacks smoothly functioning credit and insurance markets. Migration may thus be part of a strategy of risk reduction through income diversification. The risk argument is discussed in, for example, Connell *et al.* (1976); Guilet (1981); Harbison (1981); Katz and Stark (1986); Patterson (1984); Standing (1981); Stark and Bloom (1985); Stark and Levhari (1982); Wood (1981).

We assume that the marginal productivity of labour in *shamba* work declines as more labour is used on the land. We make the simplifying assumption that there is no wage differentiation in the rural labour market, and thus that the rural wage is constant across labour force members. Marginal income in town depends on the expected marginal wage, urban costs of living, and costs associated with migration. We assume that the family sends members to the city according to their expected income ranking, but that they are equally productive on the farm.

If we thus specify a household utility function and maximize it subject to the budget and time constraints of the household, and assume that positive hours are worked in all three activities, the family in equilibrium will get the same real marginal net return in urban employment, rural non-*shamba* employment, and *shamba* work. In reality, the optimization process is not this smooth. There are also information and contacts as well as indivisibility problems to take into account. These may hinder the realization of the migration outcome, which would have been optimal if these factors were disregarded. Therefore, these factors will also be brought into the analysis below. We restrict our analysis to the issue of whether there is migration, and do not analyse the number of hours worked, since the data on hours worked is rather imprecise.

3. Econometric Specification

What are the factors that determine hours worked in urban employment, H_u? First of all, if there is little agricultural land in relation to the size of the household labour force (*LANDP*), we would expect migration to be high. The higher the rural, non-*shamba* income level (*WR*) is, the lower one would expect H_u to be. This income level is assumed to be determined by the state of the local non-*shamba* economy rather than by the individual characteristics of household members. The higher the potential urban income of the household, the larger H_u should be. Since we are only concerned with the question of whether there is migration or not, it is *WHIGH*, the income of the household member with the highest potential urban income, which is the most relevant measure of expected urban income of the household. We also need to take into account migration frictions, which are assumed to be less the larger the share of younger labour force members (15–30 years old) in the household labour force (*YR*). We also

assume that there may be indivisibility problems, which are negatively related to the size of the household labour force (*FORCE*). Finally, we need to introduce some proxy variable indicating the extent of urban information and contacts of the household. We measure this by the fraction of households in the cluster which have a migrant away at the time of the interview (*COPY*). We finally add an error term ε.

Thus, we formulate our function for H_u as follows:

(1)
$$H_u = \alpha_0 + \alpha_1 LANDP + \alpha_2 WR + \alpha_3 WHIGH + \alpha_4 YR + \alpha_5 FORCE + \alpha_6 COPY + \varepsilon$$

If we assume that ε is a normally distributed random variable, this specifies a standard probit equation. However, as shown by Burger and Gunning (1991) and Burger (1994), the variable *COPY* cannot be treated as exogenous, since the migration decisions of the other households in the cluster would be explained by the same model. Since we have access to cross-sectional data only, we have a case of simultaneous copying: the decisions of the neighbours and the household in question are governed by the same variables. To eliminate the simultaneity bias that this creates, we set up an iterative procedure to solve the probit equation. First, we estimate without *COPY*. Then, *COPY* is added to the probit and the expected probabilities are calculated again, now taking into account the effect of *COPY* on the probability. This procedure is then repeated until the process converges and the coefficient for *COPY* no longer changes.

4. The Data and Definitions of Variables

4.1 Introduction

The data used in this study is derived from a smallholder survey done in Kenya in 1982 (see Bevan *et al.*, 1989). The survey was restricted to Central and Nyanza provinces only. The number of households included in the analysis is 763, after 20 of the original 783 were dropped. Those dropped were households in which no work was reported among the members of the labour force, or which had no labour force as defined in this study.

Smallholder families can choose to supplement the income from their own *shamba*, either with other local income, or with income

requiring migration. We call the three income types *shamba* income, local income, and urban income, although some 'local income' may actually be earned in an urban area, and some 'urban income' may come from some rural activity requiring migration. Thus, families with one or more migrant members may be either smallholder families that have already diversified into rural non-*shamba* activities, or families without any local income that have diversified directly to urban activities. Both cases are common in our sample, as shown in Table 2. A household is considered to be engaged in local or urban activity if some member of the household labour force reports positive hours worked in the activity in question.

Table 2:
Distribution of Smallholder Households by Type of Activity Supplementing Shamba *Income*

Work Categories	Percentage of Cases
No local and no urban	36
No local, but urban	24
Local, but no urban	25
Local and urban	14

4.2 Variable Definitions

The household that we analyse is the extended household, defined as those family members that live on the *shamba* (the resident household) plus those who live away from the *shamba* but retain strong links with the resident household. The latter may include husbands or wives of the head of household, plus sons and daughters who are still students, or who remit money to the resident household and are expected to return when they either lose their job or have saved enough. Married daughters are excluded.

We are only concerned with the time allocation of those who are in the labour force, which we define as those between the ages of 15 and 60, minus those who are at school, disabled, or reported in the interview as 'not in the labour force'.

Time allocation: We calculate how the labour force of the household has spent its time during the survey year. We divide the available time into leisure and the three types of work. The first category of work is 'shamba work', that is, all work on the land which the household farms itself. The second category is local work off the *shamba*, which includes off-farm wage employment, work in own business, work on other peoples *shambas*, and other local wage employment. The third type of work is what we call 'urban work', but in this category we really include all work to which one must migrate. This category includes work done by people now on the *shamba*, but who were away during some period of the last year, plus the work of members of the extended household who are presently away.

Wages: We cannot observe the wages for those not working off the *shamba*. We must therefore impute wages, and to get the best possible comparability we use the imputed wages for everyone, including those who work for wages. We derive an earnings function based on data about those working:

(2) $$\ln W = f(AGE, AGE2, E1, E2, SEX)$$

where W is annual income, AGE is age, $AGE2$ is age squared, $E1$ is years of primary education, $E2$ is years of post-primary education, and SEX is a dummy variable for sex (female=1).

Since we have to base our estimate of $WHIGH$ on a non-random group, that is on those who are employed, OLS would generate biased estimates for age, education, and gender variables, which in turn would produce incorrect predicted values for $WHIGH$. Therefore, the Heckman sample selection approach is used to obtain the parameter estimates used to generate $WHIGH$. The estimated equation is reported in Table 3.

All the estimated parameters are significant, and thus form a good basis for the estimation of imputed wage for all members of the household labour force. To obtain $WHIGH$ we then rank the household labour force members from highest to lowest potential wage. Since we are here only analysing whether a household has anybody at all working as a migrant, it seems most appropriate to look at the highest potential income in the family (WHIGH) (see

Stark, 1991, p. 11), as we assume that this individual would most likely be the first to leave (assuming they are equally productive on the farm).

Table 3:
Earnings Function (ln W)

	Estimate	Standard Error
Intercept	−12.34	−12.34
AGE	0.61	0.61
AGE2	−0.0075	0.0036
E1	0.44	0.18
E2	0.48	0.20
SEX	−1.60	0.77
Lambda	5.20	2.23

n=2451, Log likelihood = −951.68

Shamba income potential: Smallholders earn income on their farms from crop production for subsistence and for the market, plus livestock production. Since we cannot use the endogenous variable of *shamba* income in the estimation, we use a derived proxy for the income potential of the household on the *shamba*: we use availability of agricultural land per labour force member (LANDP), that is, agricultural land, whether used or unused, divided by the size of the household labour force.

Local income potential: Households can earn off-farm income without migration. This is income earned by household members residing on the farm from wage employment, work on other people's *shambas* or on estates, and from own businesses. Since this is also an endogenous variable that cannot be used in the estimation, we use a derived proxy for it as well. We would have preferred to use the average hourly wage off the *shamba* within different clusters, which is assumed to be the relevant local labour market. Unfortunately, we could not compute the hourly wage for all clusters, so instead of dropping a few of the clusters, we chose an alternative proxy, which

is average household local income divided by the size of the household's labour force. This variable is called *WR*.

Urban contacts of the cluster: We assume that the decision to let some household member migrate is influenced by how well the household is informed about urban employment opportunities, and by how much it can be helped in securing the jobs which actually turn up. The better its network of contacts, the more likely it is that the household decides to let someone migrate. As a proxy for these contacts, we use the proportion of households in the cluster (excepting the household in question) which has a migrant away working at present. The variable measuring the average expected probability of the other households in the cluster to contain a migrant is denoted *COPY*. The implications of this choice for estimation are explained in Section 3.

Household composition: We saw in Section 1 that the most mobile potential migrants are young and educated. To account for this we tried various measures, for example, average education or literacy in the household labour force, but they all proved to be insignificant. However, this is what one might expect, since education gives one a chance of earning a higher income, and this is already expressed in our income variable. Treating these variables separately therefore adds very little. However, to account for the fact that the young are more mobile than other categories, we introduce a variable called (YR), which measures the fraction of the labour force between 15 and 30 years of age.

Size of labour force: We also argued above that one would expect it to be harder for a household with few members in the labour force to allow some members to migrate, which is an indivisibility problem. Thus, we define a variable which simply measures the size of the household labour force $(FORCE)$.

5. Estimation Results

This study is confined to circular smallholder migration in Kenya, which means that we look only at the migration of members of the extended household. The dependent variable here *MIG* has a value of 1 when $H_u > 0$, that is, when at least one member of the extended household has had some work which required migration during the

last twelve months, otherwise it is zero. We tried a range of variables[9] and the following function was finally chosen:

(3) $MIG = f(\text{Constant}, LANDP, WR, WHIGH, YR, FORCE, COPY)$

We report the results of the estimation for Central province and for Nyanza province and for the total sample separately (Table 4).

Table 4:
Probit of Migration in Kenya, Central, and Nyanza

Variable	Total Coeff	St Error	Central Province Coeff	St Error	Nyanza Province Coeff	St Error
Constant	–1.95	0.20	–2.09	0.36	–1.67	0.42
LANDP	0.0082	0.0174	0.053	0.042	0.007	0.021
WR	0.000098	0.000091	0.000055	0.000104	–0.00037	0.00038
WHIGH	1.94E–14	8.74E–15	6.09E–15	1.15E–14	13.2E–14	1.56E–14
YR	–0.10	0.18	–0.50	0.28	0.15	0.29
FORCE	0.21	0.03	0.41	0.06	0.11	0.05
COPY	1.79	0.43	1.56	0.56	2.35	0.67
	n = 763		n = 327		n = 436	

Log likelihood = –372   Log likelihood = –173   Log likelihood = –143

[9] We tried to use distance to the nearest main urban centre (Nairobi in Central province and Kisumu in Nyanza province) as a measure of distance friction, but the estimated coefficient was insignificant. The main problem here may be that the variable only measures distance to one destination. Also in Central province migration significantly increases with distance, which may be due to the fact that people living in Kiambu can take advantage of the Nairobi labour market without migrating. Thus, although distance may be a deterrent to migration in Kenya, it is not clear that it is a major obstacle. That people do migrate over long distances has of course been established in the literature reviewed in Section 1.

The model performs fairly well. Estimates made separately for sets of households with and without local non-*shamba* activity gave approximately the same results, which suggests that the estimated function is fairly stable across different groups in Kenya.

The results for the included variables are somewhat mixed. We expected the coefficient for LANDP to be negative, but none of the estimated coefficients is significant. Thus the income potential of agriculture does not seem to have such a strong effect on the migration choice, although we might have had more significant results if we had had a better estimate of the real economic potential of the *shamba*.

The variable measuring local economic potential (*WR*) is also insignificant in both the Kenyan and the regional regressions. It thus does not seem to be the case that household members are deterred from migration by the level of economic activity near home. The choice to migrate seems to be little influenced by the state of the local economy. It would thus seem that rural development *per se* will not stem the migration flow.

What influences migration strongly for Kenya as a whole and for Nyanza, though, is the potential income the household members could earn in the wage labour market. It seems to be the case that pull factors dominate over push factors in the migration decisions in Kenya.

The variable for youngsters is weakly significant for both Nyanza and Central provinces, but with the wrong signs for Central. Most of the effect of being young and productive is probably picked up in the wage function.

The variable measuring the size of the labour force of the household is strongly significant and positive in all formulations, which suggests that the indivisibility problem is a serious constraint on migration. A small household seems to find it difficult to take jobs which require migration.

The variable measuring the extent to which other households in the cluster have migrated (*COPY*) is highly significant in all formulations, which supports the view that the network of contacts is important, This supports the view that migration is a calculated activity, where the social network plays a crucial role in disseminating information and allocating job openings.

6. Conclusions

We have argued that many migration decisions should be regarded as household decisions, rather than individual ones. Within given constraints, the household allocates its labour force among activities in such a way as to maximize household utility.

A strong positive influence on migration is the size of the household's labour force: with a large labour force it is easier for the household to involve itself in some migration activity. We have also found that a network of contacts is a highly significant determinant of migration. Our results suggest that migration is less speculative than normally assumed: migrants act in conjunction with other family members or relatives, and the probability of migration increases if the household is well connected to the urban economy. This is particularly relevant in the case of Kenya, where urban-rural relationships are strong, and information flows are extensive.

Our empirical analysis suggests that the pull of high wages is much more important for migration decisions than the push of land scarcity. A buoyant local non-*shamba* economy does not seem to restrict migration. If the government is anxious to reduce the flow of urban migrants, rural development — however desirable for other reasons — will not help.

Appendix Table:
Variable Means and Standard Deviations

	Mean	Standard Dev.
LANDP	2.01	3.25
WR	959.48	477.50
WHIGH	2.52	6.80
YR	0.45	0.32
FORCE	3.21	2.00

References

Banerjee, B. (1984) 'Information Flow, Expectations, and Job Search', *Journal of Development Economics*, 15 (1).

– (1986) *Rural to Urban Migration and the Urban Labour Market,* Himalaya Publishing House, Bombay.

Banerjee, B. and S.M. Kanbur (1981) 'On the Specification and Estimation of Macro Rural-Urban Migration Functions with an Application to Indian Data', *Oxford Bulletin of Economics and Statistics,* 43 (1).

Bevan, D.L., P. Collier, J.W. Gunning with A. Bigsten and P. Horsnell (1989) *Peasants and Governments,* Oxford: Clarendon Press.

Bigsten, A. (1988) 'A Note on the Modelling of Circular Smallholder Migration', *Economics Letters,* 28.

Burger, K. (1994) *Farm Households, Cash Income and Food Production: the Case of Kenyan Smallholdings,* Amsterdam: VU University Press.

Burger, K. and J.W. Gunning (1991) 'Gender Issues in Agriculture: Evidence from Kenya, Tanzania, and Côte d'Ivoire', in S. Appleton, D.L. Bevan, K. Burger, P. Collier, J.W. Gunning, L. Haddad and J. Hoddinott (eds) *Public Services and Household Allocation in Africa: Does Gender Matter?* Washington DC: Women in Development Division, World Bank.

Collier, P. and D. Lal (1986) *Labour and Poverty in Kenya 1900–1980,* Oxford: Clarendon Press.

Connell, J., B. Dasgupta, R. Laishley and M. Lipton (1976) *Migration from Rural Areas: the Evidence from Village Studies,* Delhi: Oxford University Press.

de Jong, G.F. and R.W. Gardner (1981) *Migration Decision Making: Multidisciplinary Approaches to Micro Level Studies in Developed and Developing Countries,* New York: Pergamon Press.

Elkan, W. (1959) 'Migrant Labour in Africa: an Economist's Approach', *American Economic Review,* 49 (2).

– (1967) 'Circular Migration and the Growth of Towns in East Africa', *International Labour Review,* 96 (6).

– (1976) Is a Proletariat Emerging in Nairobi?', *Economic Development and Cultural Change,* 24 (4).

– (1980) 'Labour Migration from Botswana, Lesotho, and Swaziland', *Economic Development and Cultural Change,* 28 (3).

Fields, G.S. (1982) 'Place to Place Migration in Colombia', *Economic Development and Cultural Change,* 30 (1).

Godfrey, E.M. (1974) 'Economic Variables and Rural-Urban Migration: Some Thought on the Harris-Todaro Hypothesis', *Journal of Development Studies,* 10 (1).

Gugler, J. (1969) 'On the Theory of Rural-Urban Migration: the Case of Sub-Saharan Africa', in J.A. Jackson (ed.) *Migration*, Cambridge: Cambridge University Press.

Guilet, D. (1981) 'Surplus Extraction, Risk Management and Economic Change among Peruvian Peasants', *Journal of Development Studies*, 18 (1).

Harbison, S.F. (1981) 'Family Structure and Family Strategy in Migration Decision Making', in G.F. de Jong and R.W. Gardner (eds) *Migration Decision Making: Multidisciplinary Approaches to Micro Level Studies in Developed and Developing Countries*, New York: Pergamon Press.

Harris, J.R. and M.P. Todaro (1970) 'Migration, Unemployment, and Development: a Two-Sector Analysis', *American Economic Review*, 70 (1).

Katz, E. and O. Stark (1986) 'Labour Migration and Risk Aversion in Less Developed Countries', *Journal of Labour Economics*, 4 (1).

Kenya, Republic of (1988) *Urban Labour Force Survey 1986*, Central Bureau of Statistics, Nairobi.

– (1991) *Rural Labour Force Survey 1988/89*, Central Bureau of Statistics, Nairobi.

Knight, J.B. and R.H. Sabot (1982) 'From Migrants to Proletarians: Employment, Experience, Mobility, and Wages in Tanzania', *Oxford Bulletin of Economics and Statistics*, 44 (3).

Low, A. (1986) *Agricultural Development in Southern Africa: Farm Household Economics and the Food Crisis*, London: James Currey.

Lwoga, C. (1985) 'Seasonal Labour Migration in Tanzania: the Case of Ludewa District', in G. Standing (ed.) *Labour Circulation and the Labour Process*, London: Croom Helm.

Maddala, G.S. (1983) *Limited-dependent and Quantitative Variables in Econometrics*, Cambridge: Cambridge University Press.

Milne, W.J. and L.S. Wilson (1991) 'A Labour Turnover Model of Unemployment in Kenya', Technical Paper No 91–06, Ministry of Planning and National Development, Nairobi.

Mohan, R. (1980) 'The People of Bogota: Who They Are, What They Earn, Where They Live', World Bank SWP No 390, Washington DC: World Bank.

Nelson, J.M. (1976) 'Sojourners versus New Urbanites: Causes and Consequences of Temporary versus Permanent Cityward Migration

in Developing Countries', *Economic Development and Cultural Change*, 24 (4).

Patterson, D.B. (1984) 'Kinship, Land and Community: the Moral Foundations of the Abaluhya of East Bunyore (Kenya)', Ph.D. thesis, University of Washington.

Rempel, H. and R. Lobdell (1989) 'The Role of Urban-to-Rural Remittances in Rural Development', *Journal of Development Studies*, 14 (3).

Rempel, H. and W. House (1978) *The Kenya Employment Problem: an Analysis of the Modern Sector Labour Market*, Nairobi: Oxford University Press.

Rogers, A. and J.G. Williamson (1982) 'Migration, Urbanization, and Third World Development: an Overview', *Economic Development and Cultural Change*, 30 (3).

Sabot, R.H. (1979) *Economic Development and Urban Migration: Tanzania 1900–1971*, Oxford: Oxford University Press

Schultz, T.P. (1982) 'Lifetime Migration within Educational Strata in Venezuela: Estimates of a Logistic Model', *Economic Development and Cultural Change*, 30 (3).

Sjaastad, L. (1962) 'The Costs and Returns of Human Migration', *Journal of Political Economy*, 70 (5).

Standing, G. (1981) 'Migration and Modes of Exploitation: Social Origins of Immobility and Mobility', *Journal of Population Studies*, 8 (2).

– (ed.) (1985) *Labour Circulation and the Labour Process*, Croom Helm, London.

Stark, O. (1991) *The Migration of Labor*, Oxford and Cambridge MA: Basil Blackwell.

Stark, O. and D.E. Bloom (1985) 'The New Economics of Labour Migration', *American Economic Review*, 75 (3).

Stark, O. and O. Levhari (1982) 'On Migration and Risks in LDCs', *Economic Development and Cultural Change*, 31 (1).

Stichter, S. (1985) *Migrant Labourers*, Cambridge: Cambridge University Press.

Thadani, V. (1985) 'Social Relations and Geographic Mobility: Male and Female Migration in Kenya', in G. Standing (ed.) *Labour Circulation and the Labour Process*, London: Croom Helm.

Todaro, M.P. (1976) *Internal Migration in Developing Countries: a Review of Theory, Evidence, Methodology, and Research Practices*, Geneva.

- (1980) 'Internal Migration in Developing Countries: a Survey', in R.A. Easterlin (ed.) *Population and Economic Change in Developing Countries*, Chicago: University of Chicago Press
Wasow, B. (1981) 'The Working Age Sex Ratio and Job Search Migration in Kenya', *Journal of Developing Areas*, 15 (3).
Wood, C.H. (1981) 'Structural Change and Household Strategies: a Conceptual Framework for the Study of Rural Migration', *Human Organization*, 40 (4).
Yap, L. (1976a) 'Internal Migration and Economic Development in Brazil', *Quarterly Journal of Economics*, 90 (1).
- (1976b) 'Rural Urban Migration and Urban Underemployment in Brazil', *Journal of Development Economics*, 3 (3).
- (1977) 'The Attraction of Cities: a Review of Migration Literature', *Journal of Development Economics*, 4 (3).