

Institutions and migrations. Short-term versus long-term moves in rural West Africa

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Abstract. This paper is based on fieldwork done in 1992–93 in the Senegal River valley, a Sahelian region characterised by heavy out-migration for more than thirty years. As a result of this long history of human displacement, migration has now become a local institution of its own. More recently, the introduction of irrigation in an otherwise drought-prone area seems to have reduced the intensity of the phenomenon, but the momentum gathered by the local institution of migration means that the decrease of migration rates is likely to be very slow. The present analysis borrows some of its basic concepts from the new institutional economics and should therefore be seen as an illustration of how this perspective, quite effective in describing the complexity of social exchanges in rural societies, helps explain various determinants of migration. We will show, for example, that the two types of migration observed (short-term and long-term) respond similarly to common structural and family conditions, and appear to differ mainly when individual variables are taken into account. This feature underlines the crucial opposition between, on the one hand, individual determinants and, on the other, structural factors determined by economic or family characteristics.

For demographers working on areas where circulatory movement is intense, simply defining what constitutes migration – in terms of purpose, distance, duration or frequency – involves a number of difficult issues. In particular, the time frame of observed migrations – a dimension crucial to the demographic description of migration practices and their impact on rural and urban population dynamics – appears to be so diverse as to preclude any firm choice of definition. Population movements fall along a time continuum ranging from short absences to permanent change in residence.¹ Even if a broader concept such as population circulation can cover such different practices as pastoral nomadism, seasonal employment or permanent resettlement in cities or foreign countries, it is often of limited use except in a typology of migration forms. It cannot provide a single explanatory framework for, say, refugee, marriage, and economic migration that result from entirely distinct sets of social, economic, political, and cultural factors. When only labour migrations are concerned, it becomes feasible to analyse simultaneously different migration practices and to describe both common and differentiating causal factors. There remain, however, a large number of local characteristics that give migration practices distinctive features peculiar to each context, but these complex migratory institutions have generally been relegated to the status of a ‘black box’.

The recognition of the complex interplay between social structure and human agency in shaping

migration behaviour suggests the use of factors at various levels to account for the effects of personal, family and community characteristics on migration decisions and migration forms. The present article borrows most of its concepts (institution, contract, etc.) from the new institutional economics. It should be seen therefore as an illustration of how these concepts, which cover more carefully the complexity of social exchanges in rural societies, help explain the various determinants of migration. We will show for example how migration has itself become a local institution (a system of norms and rules that regulates social behaviour) in the West African setting studied here. This provides a better way of understanding why the two types of migration may respond similarly to common structural and family conditions, but appear to differ when individual variables are taken into account. Migration represents an elaborate ‘transaction’ between individuals, households and communities rather than the mere outcome of economic imbalance.²

In this article, we use data from a region of Senegal to investigate the similarities and the differences between long-term and short-term migrations. Previous work has tended to focus on the transition from short-term to long-term migrations, as seen from the place of destination. One reason for this may be that the volume of permanent migrations (i.e. short-term moves that have become long-term migrations over time) has a more visible impact on urban growth rates than the

statistically invisible circulation of short-term migrants who shuttle between their home villages and places of temporary residence. And it is indeed important to understand how temporary adjustments through seasonal migrations can lead to permanent migrations that have direct consequences for the urban labour market, urban infrastructure and urbanization processes in general.³ Conversely, in regions with long migratory histories, such as the Senegal River Valley, the sequence can be reversed as short-term migrations may also involve former long-term migrants.

The paper is organized as follows. The first section develops a framework to analyse two migration forms that are very common in rural West Africa: short-term and long-term migration. The second section describes the region studied, the survey from which the data originates and the model used. The last section presents the results and offers several interpretations of the findings in relation to the social fabric of Senegalese rural society. The paper concludes with a synthesis.

I. MIGRATION FORMS AND DETERMINANTS

Migration forms in Africa

Migration, defined here as a lasting change of residence, has now been incorporated within the broader concept of population circulation encompassing the numerous adjustments of population to spatial heterogeneity. A few detailed typologies applying to the West African context have been proposed, such as those developed from field work conducted in Senegal, Burkina Faso and Nigeria (Prothero and Chapman 1985; Oucho and Gold 1993, pp. 256–260). But this diversity of circulatory processes, which covers commuting, circular, seasonal as well as permanent migrations, does not lend itself to a global interpretation. Moreover, the migration history particular to each community or region outlines its capacity to respond to changing internal and external opportunities in a way which is not necessarily comparable to a stage of the ‘migration transition’ (Skeldon 1990, pp. 109–112). This is the reason why the picture of migratory exchanges is often very segmented along ethnic, regional or socio-economic lines, and why the diffusion of migration behaviour proceeds only gradually from one community to another.

The recent history of migrations in West Africa is indicative of a general trend towards the redefinition of migratory processes. Rapid changes during the colonial period stemmed mainly from impulses created by European powers by the

introduction of forced labour or a poll tax. The early period was characterized by a growing number of seasonal moves in the direction of plantation or mining tracts, pioneer fronts and eventually urban centres. Frequent returns allowed migrants to maintain their agricultural activities while taking advantage of opportunities available elsewhere. Furthermore, as land represents one of the most secure assets in rural African societies facing regular economic ups and downs, temporary migration had the advantage of allowing migrants to retain their land rights during their absence. In the region under study, as elsewhere in Senegal, the system of *navétanat* (migration during the rainy season) prevailing before independence had typical features of an old system which privileged short-term migrations.⁴

Seasonal migrations subsequently gave way to more lasting migrations towards West African towns, where labour demand was less irregular than in rural areas (Hart 1987). It was becoming more and more difficult for individuals to combine agricultural activities with employment in the receiving areas, and, as a result, spatial division of labour tended to increase the length of absence from villages and the probability of migration of entire families. In the region examined in this article, migrations at the beginning of the century coincided with the slack season of the agricultural calendar, and migrants used to stay for a few months only in the place of destination such as the Peanut Basin or the coastal towns of Saint-Louis and Dakar. Since Independence, migration patterns have diversified, and even though short-duration moves are still common, a large number of people have permanently settled in urban areas and brought in a part of their family.

Nonetheless, temporary mobility remains an important aspect of migratory movements in West Africa, especially in the drought-affected Sahel. The unprecedented climatic crisis that has struck the Sahel since the early 1970s has boosted out-migrations, most notably short-term moves caused by crop failures and herd reductions. According to Mortimore (1989) who carefully studied the impact of drought in a region of Nigeria, mobility that facilitates economic diversification is one of the few short-term responses (along with hunger) to ecological and economic stress. Owing to its spontaneous and reversible character, circulation between the countryside and the cities remains a very flexible adjustment mechanism for the rural population.⁵

Apart from crisis periods, however, migrations tend to stabilize and become more long-term under

the effect of stagnating agricultural output. Income smoothing, which was previously achieved through agricultural diversification and rural-urban short-term moves, is now accomplished more through spatial risk-spreading among household members. An increasing number of families have developed a complex system of multi-locality residence, which may include both longer migrations for some family members and intense circulation for the rest of the family. By bringing about an increase in the mean number of surviving (male) children and hence of potential migrants, mortality decline has undoubtedly enhanced as well as diversified rural households' productive capacity.

Migration as an institution

These last observations hint at the way migration theory has evolved. The family unit and diversification are now basic concepts of an interpretative grid which previously tended to put too much emphasis on the individual profit motive. This change parallels that of development economics which now gives more weight to risk-spreading strategies among rural households in the developing world.⁶ But one of the most tangible theoretical advances involves the recognition that markets for land, labour, credit and many other commodities are frequently imperfect or simply non-existent in many developing country settings, and that institutions have emerged as their functional substitutes. By co-ordinating most economic transactions in societies where market mechanisms and state intervention remain limited, social institutions – i.e. the system of norms and rules defining rights and obligations – delineate clearly the limits of socio-economic behaviour and act as substitutes for failing or incomplete markets.

In regions of ancient, heavy out-migration such as the Senegal River Valley studied in this paper, migration has to some extent become an institution of its own over the years, with its own processes and norms. In other words, migratory circulation has been gradually incorporated in the social structure, which has converted an uncontrolled phenomenon, capable of weakening the social fabric, into a device for deploying labour geographically. Once migration has been recognized as a suitable strategy, a complex set of rules which aim at co-ordinating the behaviour of sedentary and migrant villagers emerges to define different aspects of migration behaviour. At this point, migration should not be seen any longer as only a demographic response to exogenous constraints (like

population pressure or labour conditions). Migration is also the result of a locally-defined institutional arrangement designed to co-ordinate migratory activities for the purpose of collective welfare. This means that the institution of migration follows its own momentum, somewhat independently of the effects of constraints related to other local institutions.

In saying this, we do not mean to imply that all examples of mobility are socially regulated. Indeed, anthropological investigations have underscored the frequency of migration forms that are locally considered illegitimate.⁷ What we want to stress is rather the fact that most aspects of migration in the context studied follow an elaborate system of norms and practices that includes the selection of aspirants and destinations, the organization of the journey and the first sojourn, the introduction to a migrants' network, the nature and volume of expected remittances, etc. Migrants who try to deviate from common practices run the risk of losing support from their community. While the origin and continuation of migration can be attributed to external factors, such as relatively rural versus urban labour market conditions, migration's functioning has now been fully integrated into the socio-economic structure and appears compatible with the basic orientations of both local farming and value systems. In the long run, this adaptation process indicates that migration itself has become an endogenous institution in many rural societies, i.e. a stable pattern of behaviour. As far as possible, it will be important to bear in mind the difference between individual moves (migrations) which are simply demographic phenomena observed during surveys, and the institution of migration itself which operates at several levels (individual, household, village, etc.).

Individual benefits and collective risks

Traditional economic systems work in a limited space where inherited statutory hierarchies determine the power and economic structure, while solidarity mechanisms bind together the community (through family, caste or village membership). Solidarity, like any co-operative venture, possesses specific built-in risks such as free-riding – participants who benefit more from the system than they contribute to it – but these risks tend to be limited because of the low costs of detecting and punishing such behaviour. In risk-prone environments common in the Sahel, the lineage and the village community represent the two levels of

solidarity network at which the mutual insurance system typical of the 'moral economy' works the most efficiently.⁸

Labour migration appears at first as an appropriate response to the requirement of security characteristic of the peasant economy. By widening employment opportunities to distant regions, most notably urban areas, migration facilitates access to jobs that may be better paid, more stable and not covariant with the vicissitudes of rural production.⁹ Migration benefits are nevertheless very unevenly redistributed in the place of origin. They are first consumed by the migrants themselves, and only a fraction of their earnings are transferred back to the village where claimants are ranked according to social proximity. Migrants' families are usually in a position to capture a sizeable part of the migrants' remittances. Only a small part of the remittances will reach higher-level institutions and benefit directly or indirectly other lineage members, more distant kin, or fellow villagers.¹⁰ The community as a whole may not even benefit indirectly from the migrants' money unless it has set up specific devices such as migrants' associations which might channel remittances toward collective investments.

Though traditional peasant societies often try to discourage large disparities in consumption by promoting altruistic values, distance and duration of absence tend to increase the risk that a migrant will not respect reciprocal obligations. In small, closed communities, individual circumstances and behaviour (such as wealth and effort) are difficult to hide from relatives and fellow villagers. But in the case of migrants who are scattered over different places of destination, their circumstances are often unknown to their relatives. In the absence of powerful monitoring devices, moral hazard is an important problem as migrants might find it easier to conceal or under-report their income and wealth, to cut back their remittances and gradually to sever their links with their community of origin. For families which have seen their manpower reduced through migration, it is crucial to maintain a close relationship with migrants and to keep an eye on their professional trajectories. However, as strong and extensive ties between individuals, their kinship group and their home village are characteristic of traditional society, the migrant enjoys little autonomy outside his¹¹ community, and social institutions will often retain enough power to exert pressure on him even after years of absence. Moreover, since the migrant might have to come home on several occasions (illness, unemployment, marriage etc.), he cannot afford socially and psychologically to break with his family.

The peculiarity of the migrant's position vis-à-vis his household has led social scientists to regard migration as a 'family contract' which determines the commitments of the different parties involved (Stark 1991; Hoddinott 1994; Lambert 1994). In a broadened interpretation that we shall follow here, the migratory contract extends outside the migrants' family to include other potential allies (distant kin, fellow villagers, members of the same ethnic or religious group etc.), even if their reciprocal obligations are unequal. A central principle deriving from this arrangement is that the family (and other claimants) expects to receive a portion of the migrants' earnings, but offers him also a safety net in case of adversity. Moreover, prospective migrants will draw considerable benefits from the existence of structured migration networks which replace incomplete labour or housing markets at the place of destination. It is the function of the local power structures to enforce the contractual rules through norms and various forms of social pressure. When we say that migration has itself become an important institution in the West African semi-arid tropics, we mean that migration considered as an intra-family contract has, over the years, assumed a somewhat standard form and involves a set of mutual obligations between the migrants on one side, and their families and fellow villagers on the other. And since the duration of migration is closely linked with the intensity of exchanges between the migrants and their home villages, seasonal and temporary moves represent an arrangement much more advantageous to the villagers than permanent migrations. What appears at first as a simple demographic dimension of migration turns out to be a crucial component of the migration 'contract'.

Design and hypotheses

Rather than the validation of several explicitly defined theoretical assumptions, this work is intended to be primarily an exploration of the usefulness of certain concepts borrowed from recent economic theory for the analysis of the demographic characteristics of migration. In particular, we want to examine to what extent local institutions facilitate an understanding of the mechanisms shaping two different migration strategies. The emphasis will therefore be on different levels of migration causality and their relationship with the existing social structuration, and we will use an analysis of both individual and collective factors.

Social and economic imperatives are likely to affect individuals in a different manner according to their personal characteristics and to their life cycle position. Whatever the importance of the household as a production unit in the developing world, it is not possible to restrict oneself to the analysis of household variables and to ignore the heterogeneity inherent in individual characteristics.¹² The importance of sex and age inequalities in African societies, where hierarchies are mostly based on gender and seniority, calls for a disaggregation of data down to an individual level.¹³

Comparing short-term and long-term migrations should allow us to contrast the respective influence of their various components.¹⁴ The hypothesis is that short-term migrations, because they are less prejudicial to the long-term demographic equilibrium of the community, will be the least influenced by institutions of social control and the existence of already organized networks. In other words, migration does not become a strongly structured institution as long as its functioning does not weaken the bases of the local society. Personal initiative and circumstances are likely to play a more important role in shaping temporary migrations than social norms and practices. Comparing the determinants of migrations according to their duration should bring to the fore the nature and impact of the processes of institutionalization.

We will try to dissociate clearly the role played by individual characteristics from that of family and other collective characteristics. The idea is that institutions are primarily meant to increase collective security through regulating individual behaviour. More precisely, the institutionalization of migration should help check migratory (or demographic) attrition by regulating departures and encouraging returns. Older traditional institutions (such as social stratification) were established in different settings, often as protective measures against a hostile natural environment. But more recent institutions have developed as responses to the opening up of rural societies and to the new forms of exchange introduced by such developments as monetization, labour migration, and cash cropping. New opportunities, such as those offered by migration, often involve individual agents rather than households, and may thus result in serious risk of opportunistic behaviour. For this reason, the institution of migration, which endeavours to regulate migratory behaviour, needs to operate at the level of the individual, to dissuade migrants from severing their links with their place of origin. And one of the ways of achieving this may be through the local system of honour and prestige.

For social recognition and prestige in traditional societies are founded on highly localized value systems, and a migrant's status will remain extremely dependent on his place of origin. If his anonymous situation in cities can serve to protect him from disgrace in case of economic misfortune, it also prevents him from asserting his status in case of success. This is likely to be one of the mechanisms by which the local community can influence the migrant's behaviour, especially in the context of longer migrations.

This distinction between brief and long migrations will also help to clarify the respective effects of certain self-sustaining mechanisms (Massey et al. 1993). The impact of migratory experiences measured at different levels (individual, family etc.) will thus be tested on the different migration strategies. Migrations of a limited duration may require more personal experience in order to be successful. These migrants must know in advance the job opportunities prevailing in different locations and select their date of departure and their destinations accordingly. Longer absences, on the other hand, allow migrants to explore the labour market and probably identify jobs that are more stable and remunerative. As this quest could prove long, migrants would necessarily need to rely on structured networks in the place of destination for accommodation and assistance during the first part of their stay. In other words, whereas successful temporary migrations require personal knowledge, long-term migrations rely more on family networks and institutional support.

II. THE SETTING AND THE SURVEY DATA

The Middle Valley of Senegal

The region under study, the Senegalese bank of the Middle Valley of the Senegal River, encompasses the administrative district (*département*) of Podor which belongs to the Region of Saint-Louis. The Middle Valley is locally known as the Fuuta Tooro. The region is dominated by the *Haalpulaar* ethnic group (also known as *Toucouleur*). Local society is divided into endogamous status groups ('castes'), among which the *Toorobbe* form the most prominent group in demographic and political terms. Herders (*Peul* or *Fulbe*), most of whom still practice nomadic cattle-rearing, constitute a group apart. Over the years, the importance of the lineage (*lenyol*) as a reference group has declined as elsewhere in rural Africa. Solidarity is currently at its strongest within the household, *foyre* (or

'kitchen' in *puular* language), and to a lesser extent within the compound (*galle*) which is often composed of related *poyye* (plural of *foyre*).¹⁵

The Middle Valley, which was Islamicized long before the rest of the country, is reputed to be very conservative and prides itself on practising the most orthodox form of Islam. Women in *haalpulaar* society play a marginal role outside the domestic sphere. The level of instruction in these rural areas remains extremely low, and more than 90 per cent of the women were reported illiterate at the time of the last census in 1988. Owing to the impact of mortality decline, natural growth is high; the migratory drain has, however, limited regional demographic progression and some areas have actually lost population during the last twenty years.¹⁶

Though situated in an arid region of western Sahel, the Middle Valley has long been a privileged location because of the easy access to the water from the Senegal River. The river's morphology and its annual flood regime have closely determined the settlement pattern of villages along its branches. Since the nineteenth century, French colonization and demographic growth have gradually jeopardized Fuuta Tooro's traditional economy, which was based on recessional agriculture along the river banks, and extensive herding like that practised by the nomadic *Fulbe*. When coastal towns and the so-called Peanut Basin were developing at the turn of the century, the inability of local farming systems to respond to contemporary transformations resulted in large-scale migrations, mainly oriented towards the capital Dakar. Several studies conducted in the sixties described the economic stagnation of the Middle Valley and the resulting migratory exodus.¹⁷ Migration gradually became a central institution in the regional economy, while the various migration costs regularly decreased thanks to network formation, road improvement etc. It can be estimated from the sample presented below that almost two-thirds of the men in the 30–39 age-group worked outside their region of origin for at least six months over the previous twenty years.

During the last twenty-five years, the drought conditions that have come to prevail over the whole Sahel have hastened the decline of rain-fed agriculture and traditional cattle-rearing. Once again, migration towards Dakar and other towns offered a safety valve during the worst years of the crisis. The seemingly irreversible degradation of the agricultural landscape has however come to a halt owing to the inauguration of an ambitious plan for irrigation development along the Senegal River.

This programme is aimed primarily at substituting new intensive agriculture (rice and other irrigated crops such as tomato) for traditional flood-dependent crops (sorghum, millet, maize etc.). Irrigation in the Senegal Valley has prompted a number of questions as to its ecological or economic viability, but it has undoubtedly strengthened the base of a formerly highly vulnerable agricultural sector wherever it has been introduced.¹⁸

Twenty years after the introduction of irrigation, some 15,000 hectares are now irrigated on the Senegalese side of the Middle Valley. Nevertheless the geographical distribution of irrigation is irregular, with most of the differences found between different villages rather than within villages. Since rural stagnation has long been identified as the main cause behind out-migration from the Valley, the ability of 'modern agriculture' to slow down migration may offer a reliable test for the success of land development strategies. For peasant households that have access to irrigated lands, the adoption of the new technology represents a double advantage: an increase in gross income per surface cultivated, and a significant reduction of risks of rainfall and flood uncertainties that characterized traditional agriculture.¹⁹ Though the profitability of irrigation still seems to be rather restricted, the actual success of irrigation schemes may indicate that peasants in this context had little choice but to intensify their production through irrigation.

The data

The data used in this paper came from a multi-round survey conducted in the Senegalese part of the Middle Valley in 1992–93. A sample of almost 900 rural households was selected in the Podor *département* and visited three times by the interviewers. During the first round, basic household and individual data were collected, including socio-economic indicators and migration history. In two subsequent rounds, after a six-month interval, data were collected on economic activities and short-time migrations of all adult members of the sample's households.²⁰ The quality of the data on migratory and economic behaviour turned out to be very satisfactory, largely because the households were surveyed on several occasions.

These three surveys generated a data set involving 3599 persons over 15 years of age belonging to 805 rural households. Retrospective and longitudinal information collected from this sub-sample included migration history from 1972, circulatory behaviour in 1992–93, and detailed data on agricultural and other local economic activities

over two different years. The sample was stratified by ecological zone and village size, and divided into twelve clusters of similar weight (contiguous villages or part thereof); as a result, it was representative not only of the Middle Valley as a whole, but also of its between-village and within-village heterogeneity.

Available individual variables are related mainly to socio-demographic characteristics and to economic activities. Other variables correspond to household characteristics such as land under irrigated cultivation, labour used, herd size, and characteristics of the household head. Using a correspondence analysis to bring together all the dummy and continuous variables describing the household economic orientation, we have been able to construct a single continuous variable that sums up the intensity of irrigation-based agriculture for each household. A few other variables correspond to the compound and village levels.²¹

We should point out that since the survey was taken in sending areas, the information on migrants' working and living conditions in towns²² are necessarily limited to the most reliable type of data that can be obtained from their relatives: place of destination, duration of absence, main occupation etc. For lack of reliable data on the migrants' possibly successful urban adaptation, such as their urban income and living standards, the analysis of migration phenomena will therefore be restricted to *push factors* and *pull (back) factors*, i.e. mechanisms operating in relation to rural areas.

Migrations in the Senegal Valley

Throughout this paper, we shall examine migration behaviour through dichotomous variables distinguishing between movers and non-movers. Two different patterns of labour movements are considered: long-term (often permanent) migration and short-term moves. Tanshumance-related migrations that are common among *Fulbe* herders in the sample have been excluded, for this form of migration depends too closely on the local economy. Similarly, since our focus is on employment-oriented migrations, other population movements such as marriage or school migrations are not covered in the analysis.

Short-term migrations refer only to people who were present during the first round and moved later outside the region (the Podor *département*) for employment reasons. Both second and third survey rounds recorded all the moves with a duration

Table 1. *Destinations of short-term and long-term migrations (percentages)*

	Migrations	
	Short-term	Long-term
Within Saint-Louis region		
Rural areas	5.13	2.23
Saint-Louis	2.99	2.84
Richard-Toll	14.10	6.49
Other regions in Senegal		
Dakar-Pikine	47.86	49.09
Other regions	11.11	13.39
Foreign countries		
Mauritania	10.68	6.90
Other African countries	7.27	15.61
Rest of the world	0.85	3.45
Total	100.00	100.00
Number of migrations	234	493

greater than a week. Because they started after the first survey round, these short-cycle migrations were recent moves of duration less than a year. A sizeable share (35 per cent) of these movements were completed by the time of the third and last survey round.

Long-term migrations will be defined here as migrations lasting over the entire survey period. Only active people absent at each round in 1992–93 were considered as long-term migrants. The duration of migration is therefore greater than a year; incidentally, almost half of these persons were already migrants five years before the survey. People in intermediate situations – such as those absent during the first round and present later – do not fall into a clear-cut category and have therefore been excluded from the analysis.

Though both definitions employed here to describe migration behaviour aim at demarcating distinct phenomena – brief and lasting migrations – there remains some overlap between these categories. As a matter of fact, some of the short-term moves might actually have extended over a longer period after our last survey round and become thereby long-term migrations.²³ The theoretical distinction between migrations according to duration remains however always slightly arbitrary. Table 1 sums up the various destinations for both migration types and will help to underline some of their common or distinctive characteristics.

Short-term moves are logically oriented towards closer destinations; more than 22 per cent of these migrants remained in the same Saint-Louis *région* from which they originated, as against less than 12 per cent for longer migrations. A large number of short-cycle moves were directed towards the locality

of Richard-Toll. There a big company runs sugar plantations and a large factory which provides almost entirely for Senegal's sugar consumption. The company hires many villagers from Fuuta Tooro for short periods, and most migrants return home at the end of the season. The city of Nouakchott and the rest of near-by Mauritania attract also more brief migrations than long ones. Cultural and geographical proximity is the main reason for this situation; Nouakchott is closer to the Middle Valley than Dakar, and a sizeable share of Mauritania's population is of *haalpulaar* extraction. It is worth stressing, however, that migrations directed towards Mauritania used to be much more important than they are today. During the 1989 Mauritania-Senegal crisis, Senegalese migrants were often targeted by local mobs or police and most of them had to be urgently repatriated, which explains why there are still few long-term migrants in Mauritania. At the time of this survey, migrations were gradually resuming.

Dakar operates as a central place in the local migratory system, not only as a permanent direction for the majority of *Haalpulaaren* but also as a transit area for migrants heading to more distant places. Transportation to Dakar is nowadays available frequently and rather cheaply. Owing to both the ancientness and the magnitude of past migrations towards the capital, most of the villagers have relatives staying there (Diop 1965). Dakar appears therefore to be a major attraction for almost every kind of move, whatever the duration. On the other hand, international migrations (excluding those to Mauritania) account for 9 per cent of short-term migrations, against almost 20 per cent for longer-term migrations. Among foreign countries, Côte d'Ivoire has a prominent position and is the most favoured destination of *Haalpulaar* migrants, followed by other West African countries such as Cameroon or Gabon. The number of migrants reported in industrialized countries (France, Italy) is almost negligible in this part of the Senegal Valley.

Modelling migration patterns

Micro-economic analysis of migratory behaviour leads usually to discrete-choice modelling, and the two dependent variables used here (short-term and long-term migrations) are simply dichotomous. Every individual tries to select his or her optimal choice with respect to a set of individual or collective constraints and opportunities. In order to shed light on several levels of causality in migratory

mechanisms, we shall use data at the most disaggregated level, i.e. data for individuals among the sample's adults. As already stressed, the model is not being used to test specific hypotheses, but rather as a comparative tool to contrast the determinants of both forms of migration. This is why we have restricted the independent variables to the most significant variables selected after preliminary analyses. For the same reason, we are not attempting to use a contextual model that postulates complex interactive effects between variables as no such meaningful interaction was apparent in our preliminary statistical examinations.²⁴

Loglinear modelling is used to incorporate both qualitative and quantitative independent variables. The model is a logit model, but probit-based modelling would yield almost identical results.²⁵ In order to get a single comparative model, women and men have been retained in the sample in spite of their rather distinctive migration behaviour. However, the exclusion of women from the analysis would not affect the results as no interaction between sex and other variables was detected.

The probability of being a migrant is represented as:

$$\text{Prob}(\text{migrant}) = P = f(IV, FV, VV).$$

According to the logit model, function f can be also written as:

$$P = f(IV, FV, VV) \\ = 1/[1 + \exp(-a - b \cdot IV - c \cdot FV - d \cdot VV + e)] \\ \text{or } \text{Ln}(P/1 - P) = a + b \cdot IV + c \cdot FV + d \cdot VV + e,$$

where IV , FV and VV are vectors of respectively individual, family and village characteristics; a , b , c and d are regression coefficients, and e is a stochastic error term whose variance is assumed constant across families and villages.

Three different vectors of explanatory variables have been distinguished, according to their respective scale of operation. Family variables refer to the *foyre* ('kitchen') which we have seen is the closest equivalent for the household in the Senegal Valley. This represents in particular the consumption and production unit, though larger-scale units such as the *galle* (compound) may also be of importance in understanding family strategies. The same model will be used for both types of migrations and our discussion will focus on the differential impact of each variable. Long-term migrants have been excluded from the analysis of short-term migrations and this is the reason why sample sizes differ.

Table 2. *Logit models of short-term and long-term migrations*

Independence variables	Short-term migrations: reference category: non-movers (long-term migrants excluded)				Long-term migrations: reference category: non long-term movers			
	Odds ratio	Coefficient	z	p > z	Odds ratio	Coefficient	z	p > z
SEX	0.034	-3.393	-7.468	0.000	0.003	-5.723	-9.358	0.000
AGE	0.903	0.102	-3.527	0.000	0.698	-0.359	-10.606	0.000
AGELOG	*	3.481	2.982	0.003	*	13.451	11.091	0.000
HOF	1.178	0.164	0.451	0.652	0.221	-1.511	-5.611	0.000
HON	1.513	0.414	1.262	0.207	0.529	-0.637	-2.838	0.005
CHILD	1.022	0.022	0.479	0.632	0.834	-0.182	-3.847	0.000
SINGLE	1.637	0.493	1.456	0.145	0.602	-0.507	-2.198	0.028
WRITE	0.504	-0.685	-2.543	0.011	1.382	0.324	1.858	0.063
MADULT	0.8123	-0.207	-0.833	0.405	0.650	-0.431	-1.984	0.047
MADULT2	1.030	0.030	0.785	0.432	1.068	0.066	2.067	0.039
IMIG	1.527	0.423	6.111	0.000		not used		
CMIG	1.081	0.078	0.904	0.366	1.177	0.163	2.508	0.012
VMIG	1.150	0.140	1.642	0.101		not used		
VINFRA	0.710	-0.343	-3.625	0.000	0.680	-0.385	-5.040	0.000
IRRIG	0.572	-0.558	-3.327	0.000	0.521	-0.652	-4.749	0.000
VIRRIG	1.540	0.431	2.620	0.009	1.627	0.487	3.573	0.000
Constant		-10.428	-3.351	0.000		-34.162	-10.818	0.000
n		3106				3485		
χ^2		374.2				941.5		
Pseudo-r ²		0.2597				0.3928		
Log likelihood		-533.3				-727.7		

z = asymptotic t. * Values greater than 10.
See the appendix for the description of the variables.

Results of both logit analyses are presented on Table 2. As can be seen from the chi-square levels and the correlation measurements, the models perform quite satisfactorily.²⁶ However, the quality of the modelling appears noticeably better with long-term migrations than with short-term migrations, even though more variables were used for the latter. Rather than presenting successively both models, we will comment separately on the effect of each group of variables in order to differentiate the determinants of migration according to migration type and operating scale.

A man's business

Indisputably, gender represents one of the most important variables of the model. Labour migration is extremely rare among women of the Fuuta Tooro contrary to what has been observed in more southern regions of Senegal.²⁷ Women's autonomy is severely restricted in *haalpulaar* society, the value system of which is derived to a large extent from the very orthodox form of Islam practised there. Gender determines social prerogatives in this typically patriarchal system, and women play but a subsidiary role in the definition of the household's economic orientations. Their participation in dom-

estic activities is limited to home production: food production on small plots and activities conducted within the compound (child care, crafts, etc.). In the case of irrigation, the attribution of newly-developed lands follows a double principle of gender and seniority, and women rarely end up owning any of the land they cultivate (Woodhouse and Ndiaye 1991, p. 8; Bloch 1993). Their spatial mobility is conditional on their marital status and on whether or not their male guardians (father or husband) have migrated; women almost never migrate alone outside the region and very seldom have a gainful occupation in urban areas.²⁸

The exclusion of women from labour migration appears, however, to be less pronounced in the case of short-term moves, as indicated by the significant difference in regression coefficients. This suggests that the local systems of norms, which is, on the whole, extremely unfavourable to women, makes itself felt on migration in direct proportion to its duration. Further analysis of short-term movements (not reproduced here) shows that non-labour moves are as common for women as for men, particularly among family visits within Senegal. This could be related to some of the insights of the 'new home economics' of the Chicago School: women's labour time – one of the most important ingredients of domestic production

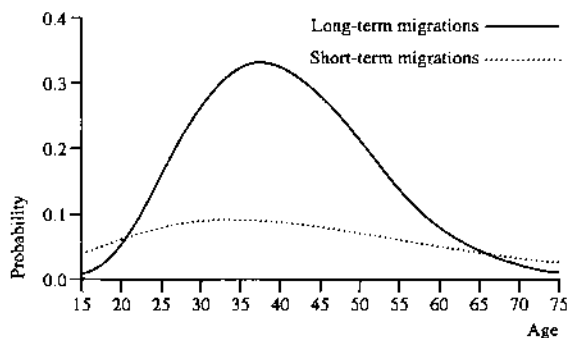


Figure 1. Probability of being a short-term or long-term migrant (rates by age).

– is closely controlled by the social system in order to restrict the amount of women's time allocated to non-domestic activities deemed less profitable (Becker 1991, pp. 37–48). The level of fertility, one of the highest in the country and seemingly unaffected by the recent decline observed in other regions, confirms that reproduction remains the principal function of women within the domestic unit and that labour migration is simply not compatible with family chores.²⁹

The economic explanation in itself is insufficient to explain why independent migrations are discouraged among women in this part of Senegal when they are prevalent in other rural areas. This feature is, rather, an integral part of the institutional arrangements governing migration in the Middle Valley. For social norms that severely restrict women's migrations, together with regional or ethnic exogamy, can also be interpreted as a collective strategy to check migratory attrition. By reducing women's spatial and marital mobility outside the region, the local system of norms also compels most of the (male) migrants to return home at the time of their marriage to find a spouse; the marriage market – and in a broader sense the whole reproduction system – remains one of the few domains in which the community can maintain a strict control on individual behaviour. Once married, migrants often leave wives and children in the village, and regularly remit back home a part of their income.

Life cycle and migration

The age variable has been augmented by the addition of the age logarithm in order to take into account the curvilinear relation between age and propensity to migrate.³⁰ The effect of the age variables has been represented in Figure 1. The procedure followed consists in holding the other

variables to fixed, average values in order to simulate *ceteris paribus* the sole effect of age on the probability of being a migrant.³¹ This means that all other variables – including some lifecycle variables (eg family status) that are closely linked to age – are invariant.

The age distributions shown in Figure 1 represent two clearly distinguishable forms of behaviour. Regarding long-term movements, the curve exemplifies the 'migration cycle' as experienced by individuals. The probability of being a long-term migrant increases very quickly from the age of 15 years to reach a plateau at around 30 per cent among the 35–39 age-group; had we restricted this exercise to men, this proportion would have been even higher at this age. This profile results from the cumulating of positive net migration rate before 40 years and parallels the development of a career outside the village. As a result, the average age of long-term migrants in our sample is higher than that reported by other surveys.³² The fact that migrants who are significantly older in the Middle Valley are still considered members of their original household after years spent away points to the resilience of community institutions. In other settings, long-term migrations lead quickly to family disruptions.

The first departures from the household occur as soon as the children of the household head have finished their schooling and can be discharged from family obligations. It takes several years, and often several different migrations, for a migrant to become established in a city with the assurance of somewhat regular sources of income. The duration of the migration remains one of the few reliable predictors of migrants' income levels, though they tend to reach a ceiling for very long migrations. The fate of the migratory enterprise seems to be settled before the age of 40, when a majority of migrants may contemplate returning to their villages to take family land. At this age, return migrations become more common while new departures for long periods become very rare. For villagers, returning to the village usually coincides with new family responsibilities and the first departures among younger relatives (see below). However, the reversal of the migratory trend is slow and accounts for the curve's asymmetric aspect. Some migrants prolong their stay in urban areas for a very long time while maintaining close links with their villages of origin. Eventually, they might return home after their retirement from paid employment or choose to stay at their place of migration.³³

The relationship between age and mobility is far

independent variables

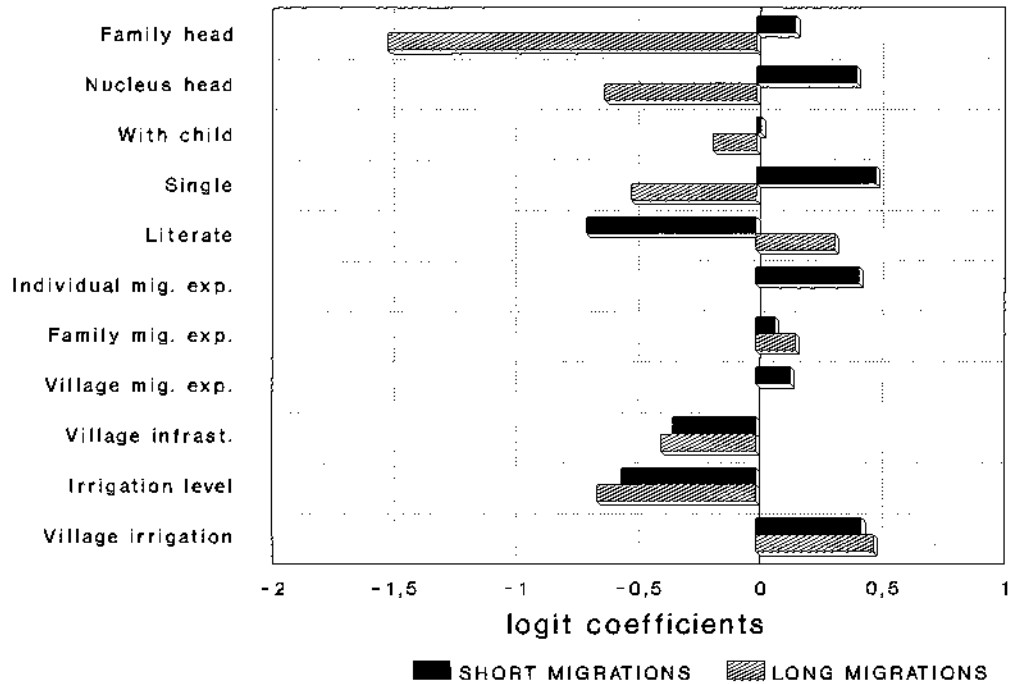


Figure 2. Logit coefficients for short-term and long-term migration modelling.

less pronounced in the case of short-term moves. The coefficients of the logit modelling are significantly lower than those for longer migrations. The main difference between the migration curves shown in Figure 1 can be explained by the fact that short-term moves are more evenly spread among the different age-groups. Another difference, though of lesser importance, is related to the average age of the migrants, which is slightly younger for short-cycle moves. These disparities between migration types probably stem from the heterogeneous nature of short-term moves.

The coefficients for some of the variables (see Table 1) have been plotted in Figure 2 in order to compare the determinants of both patterns of migration. A few coefficients not statistically different from zero appear in Figure 2, as they may be significantly different from the corresponding coefficients of the other equation. Here we are more interested in *contrasting* both migration equations than highlighting their respective components. The first four individual variables – family position and marital status – refer directly to the individual's life cycle whose main phases could be summed up in this manner for the men:³⁴

- < 25 years: single
- 25–30 years: married without children (head of nucleus³⁵)

- 30–40 years: married with young children (head of nucleus)
- 40–65 years: head of household with young children
- 65–75 years: head of household without young children
- 75 years + : widower belonging to the nucleus of one of his children.

The various statuses that punctuate the life cycle are here summarized by dichotomous indicators, but the combination of these variables is often more complex than our age classification suggests. By analysing the coefficients shown in Figure 2, we arrive at one of our major findings, i.e. that family status indicators operate in a reverse fashion on the two different types of migration. Family responsibilities, reflected by household or nucleus headship, are negatively correlated with long-term migration but positively associated, albeit slightly, with short-duration moves. Some of these brief migrations appear to be dictated by the economic difficulties of the family which they help to alleviate; the head of family or nucleus is one of the first persons to seek outside employment in such situations. Longer-duration migrations are, on the other hand, almost incompatible with family responsibilities. The degree of family responsibility is in fact in reverse proportion to the probability of

migrating for more than a year. Household heads who are also heads of their compound are indeed the most 'sedentary' person among village families (variable not reproduced on Table 2). In a similar fashion, the presence of young children in one's nucleus significantly lowers the propensity to be a long-term migrant whereas it has no such effect on short-term movements.

Celibacy is moderately associated with short-term moves, but, for reasons that are not clear, it appears to be less frequent among longer-term migrants. This latter observation indicates that it is probably not marital status per se that discourages long-term migrations (or encourages return migrations), but rather family formation phases as measured by nucleus headship or young children. The number of adult males in the household is the last factor of family composition to play a role in the determination of migration. It acts as an indicator of the 'family supply' of prospective migrants. Whereas this variable appears to be irrelevant to short-term migrations, it tends to bring down the probability of long-term migration in families with fewer than four male adults, as though the marginal return of migration per prospective migrant was decreasing with family size. In the somewhat rare cases of larger-size families, the probability of long-term migration increases. The fact that the marginal rate of migration per additional family member decreases for most of the households offers a partial validation of the theory of migration as a risk-spreading strategy. However, these statistical relationships remain fragile and should be the subject of a more systematic analysis than is within the scope of this paper.³⁶

Our comparison of the two forms of migration illuminates some of the articulations between migratory trajectories and life cycle phases. Most young people from the Middle Valley try a first experience in towns, often after spending some years there for study purposes. For those who manage to find a stable job and decide not to return immediately, material improvements in their living conditions in towns allow them to accumulate the capital which is a prerequisite for their marriage. Marriage occurs in Fuuta Tooro between 25 and 30 years of age. First marriages, which are usually decided by the elders, may take place in the villages during a visit by the migrant. As, more often than not, the wife and the children stay with the in-laws in the family house, pressure gradually builds up to induce the migrants to return home for good and take up their family responsibilities. At the same time, short-term migrations from the villages

remain possible and allow former migrants to maintain an external source of income in case of local adversity. As suggested earlier migratory and family statuses are closely enough interwoven to explain why their respective effects are likely to be felt in both directions. The relationship between long-term migration and family status is at best ambivalent.³⁷ For instance, household headship is both a consequence of previous migration behaviour (such as return migrations) and a cause of subsequent migration behaviour.

These observations confirm the contradictory effects of age on migration choices. For young adults, the length of their stay outside the village determines the extent to which they can improve their economic situation in the place of migration. However, the migrants might suffer from serious identity problems as they may have trouble converting their material achievements into status promotion in a social environment foreign to them. At the same time, the demographic restructuring of a migrant's family – through his marriage and the demise of his elders – strengthens the necessity to return home. As a husband, then a father, and later on a potential household head, the migrant gradually accumulates advantages in terms of local power status in his village of origin. But these advantages remain conditional upon his returning home where the rest of his family – including women and other relatives – lives. As this form of social advancement can materialize only in his own community, this social capital is strictly 'site-specific' and therefore not easily transferable to a different social setting such as the place of migration. By offering such status advantages on the basis of seniority, society uses one of the few ways at its disposal to protect itself against the deleterious effects of permanent migration, namely the risk of demographic erosion and economic decline.

Migrants aged over 30 and who have spent a substantial part of their active life in migration must at this juncture assess the respective benefits of staying away or returning home. Once again, it is important to stress that achieving access to regular jobs and steady sources of income in urban areas may have been a long and tedious process that return migrations may partly or entirely cancel. But migrants who preserve a value system inherited from their community of origin have to come back home regularly. As migrants know only too well, these visits prove to be very costly, as important monetary redistribution towards relatives and other fellow villagers is required as a proof of prosperity, to endorse the migrants' new status. Owing to the

numerous expenses migrants have to incur when they visit their native place, they cannot afford to come back home too often. Returning permanently to his village allow the migrant to 'settle his debts' with the community and assume a different, more stable status thereafter.³⁸

Networks and chain effects

The formation of networks is considered a major feature of the cumulative mechanisms by which migration feeds itself, independently of the conditions that caused it in the first place. In the Senegal Middle Valley, the effects of chain-migrations are quite visible as migrants from a specific village are commonly found to follow the same occupations in the same places; such as selling curd in Dakar, trafficking in diamonds in Central Africa, working in a fish processing unit in Casamance. This is hardly surprising as first-time migrants rely on relatives and fellow villagers to select their destinations, find a job, and find accommodation. At the same time, adjacent villages may exhibit entirely different migration patterns in terms of their intensity, age, labour specialization and places of destination. As noted above, local migration networks that form an integral part of the institution of migration act as substitutes for failing markets in urban areas, such as the labour and housing markets.

Though network effects are social phenomena that are rather difficult to quantify, we have used three variables based on the density of migration as measured by different social scales. These variables account for the chain effect of migration, i.e. the impact of previous migrations on present behaviour, as assessed from our survey data. Three different levels of migratory experience have been selected: the individual, the compound (i.e. the extended family) and the village. These variables, when they can be used, always have a positive effect, though not a significant one in some cases. For short moves, previous individual migration is one of the best predictors of present behaviour. Since the sample includes young migrants who migrate for the first time, it can be surmised that the effect of past migrations is even more strongly felt among older adults. These adults have often accumulated a long migratory experience which functions as 'migratory capital'. Because they know people in different places and are familiar with the job market, access to outside employment is easier for former migrants. However, the fact that other household or compound members are already

migrants does not appear to increase short-term migration rates in a meaningful fashion, though about a third of short-duration migrations are directed towards places where another compound member is residing. Similarly, in villages where the largest number of migrations were recorded over the last ten years, short-term moves were just slightly above average. It appears then that cumulative impact does not operate on short migrations through collective experiences in the way we would expect. Apparently, family or community support does not matter for this form of migration.

For longer migrations, both individual and village migratory experience prove to be unusable as independent variables owing to strong endogeneity.³⁹ On the other hand, family experience as measured by migration density among the other members of the compound turned out to be closely correlated in the probability of being a long-term migrant. Unless a common, unobserved family variable is responsible for this strong intra-family covariance, this relationship suggests that the chain effect is quite significant within the family. And 'family' is precisely defined here as the compound, because preliminary tests of the network effect showed it to be more effective on the compound than on the household. That already-settled migrants induce further migrations from their group of origin by reducing both the costs and uncertainties of new migrations is now a well-identified aspect of migration processes, and the result shown was as expected. In the case of *haalpulaaren*, the network system was described long ago by the sociologist Abdoulaye Bara Diop as the first waves reached Dakar. The system included a specific structure to receive new migrants, namely the *suudu*.⁴⁰ If the family is today probably the main support structure sustaining migration, community-level effects are also at play as most villages have migrants' associations with branches wherever the number of migrants is substantial. These associations help to channel both resources and information between the village and its diaspora. However, the exact role of networks in the history of migration in specific communities should be analysed in a dynamic perspective very different from our cross-sectional approach.⁴¹

The role of infrastructure and irrigation

We have grouped together the examination of four variables of economic nature: level of education,

collective infrastructures, and irrigation at both family and village levels. Education is supposed to be the best single indicator of individual economic potential, especially as few other assets may prove easily convertible outside the Middle Valley. However, this variable is not exactly correlated with the probability of migration as might be expected.⁴² Regarding long-term migration, there is indeed a positive correlation, but the relationship is almost insignificant statistically. This probably results from the fact that a large number of these migrants are illiterate and supply unskilled labour in urban areas. More intriguing is the strong *negative* relationship between literacy and short-term moves, which indicates that educated villagers are more likely to remain in villages where non-manual jobs are almost non-existent. This may be to some extent due to the exclusion of school migrations from our definition, but the phenomenon remains perceptible in all age-groups. The serious economic crisis prevailing in urban areas (and most notably in Dakar) since the 1980s may be the most important factor explaining the low returns of education for short-term migrants.

If the migratory option seems open to everyone, results from our analysis suggest, on the one hand, that uneducated people will be the first to seek employment outside the village for short periods. On the other hand, settling in towns for a longer period will be more frequent among migrants with some schooling. The difference between short-term and long-term migration predictors is once again extremely pronounced and allows us to draw certain conclusions. Returns from education become visible only for long-duration migrants as education serves as a positive signal to potential employers (especially in the public sector) and facilitates access to the few better-paid, or more stable positions. During the first migration years, those who are better-endowed with the appropriate skills are selected from prospective long-term migrants. This occurs even though first-time migrants may be less educated than the rest of the population, as is suggested by short-term migration data presented below.⁴³

The last three variables are crucial to our model as their levels of significance indicate. Not surprisingly, the quality of village infrastructure is negatively linked to migration, both short-term and long-term. Actually, the presence of infrastructure (schools, shops, health centre) is, in the first place, correlated with the locality's size and location, and therefore to the development of non-agricultural activities, i.e. the diversification of its resource base. Some of the better-equipped villages

are situated along almost the only all-season road, and are in a better situation than other villages to offer alternative forms of employment to prospective migrants in the commercial or construction sectors. What needs to be underscored is that villages located along the metalled road have fewer migrants than other villages. Places which are especially remote – in the Ferlo desert or in the middle of the river's branches – exhibit according to our data, a higher intensity of migration. This suggests that migration may have reached a plateau in more accessible villages, whereas it is still intensifying in more isolated communities.

Two variables summarize agro-pastoral activities over the period covered by the survey (1991–93) and have been obtained by correspondence analysis. Positive values correspond to the intensity of irrigation (outputs, labour force etc.), whereas negative values mean the absence of irrigation, which is often associated with traditional agriculture or cattle-rearing. The first variable is the irrigation intensity measured for each household. It is worth stressing that irrigated plots have been allocated within the villages in a somewhat egalitarian manner between the different *pooye* (households), whereas for traditional agriculture, family lands are transmitted (very unequally) according to other social divisions such as the lineage or the fraction thereof (*galle*). This first household variable has then been aggregated at the village level to produce a composite indicator of village irrigation-based development.

These two variables are once again very strong predictors of both types of migration pattern. At a household level, migration rates are negatively correlated with irrigation and the two models' corresponding coefficients are extremely high. This means that irrigation intensity is a major brake upon migration by household members. The scale of agricultural operations, in the case of access to irrigation, directly determines the probability of seeking employment outside the village. Income derived from modernized agriculture appears to be important or regular enough to check the rate of short-term moves as well to favour return migrations among villagers already settled in towns. Intensity of irrigation at the village level plays an inverse role in relation to migration, a feature which may seem surprising at first sight. Indeed, the collective level of irrigation appears to induce migration, rather than to reduce it as is the case for family irrigation. However, it would be erroneous to infer from this observation that villages with less irrigation experience less migration. Actually, the statistical significance of this village variable

depends on the household variable; without the latter, the former plays no role in determining migration. This means that the village effect makes itself felt only when the impact of inter-household irrigation differentials on migration is statistically controlled. Thus, at the same level of irrigation, households from less-developed villages are less likely to send migrants than are those from better-developed villages.⁴⁴

As for the comparison between the two forms of mobility, it is worth noting that, though the last collective variables do operate in the same directions for both short-term and long-term moves, statistical coefficients are systematically greater for long-term moves. Economic constraints, as measured by these variables, would appear slightly less effective in accounting for shorter migrations. Once again, short-term migrations seem to be a more volatile phenomenon, less dependent on strict cost-benefit constraints than on unobserved family or socio-economic determinants, including income short-fall; but as the villagers stay away from the village for longer periods, pressures of various sorts build up, inducing them to return home when the local situation allows it. Apparently, the introduction of irrigation has had a profound impact even on long-duration migrants. It is, however, worth mentioning that irrigated land has very often been allocated in the Middle Valley to non-migrant households and represents therefore a further means by which local communities can check migration.

CONCLUSION

There is today no single framework to account for the variety of migration determinants brought to light by surveys in developing countries. However, such different factors as economic conditions, social status, and community development, once combined, appear to account for a large variety of migrations and may serve as reliable predictors of future behaviour. The goal of this paper has been to offer theoretical observations on the analysis of migration rather than to identify practical implications of specific linkages between demographic and social phenomena. We have tried here to stress the importance of distinguishing the different determination levels – the individual, the family, and the social institution – and to show how contradictory the different rationales at work may prove to be. In the region under study, there is little doubt that individuals and households used to be social units of significantly less importance some

forty years ago when permanent migrations towards Dakar started. Traditional regulations, enforced at the caste or lineage level, had no doubt more impact in shaping social behaviour, and individual migration was rather uncommon. Villagers used to migrate as a group and intra-village status differentiation – such as caste rankings – was reproduced within the migrant community. However, the village, the caste, the lineage and the extended family (*galle*) have gradually seen their influence eroded by urban migration and state intervention in rural areas. The household has now become a more relevant economic unit, all the more so since it has been recognized as such by public authorities in the sharing out of irrigated land. At the same time, because of intra-household inequalities, most notably between different gender or age groups, the model of a ‘unitary household’ appears rather imperfect because it conceals intense negotiations between household members possessing different resources and preferences.

The statistical analyses indicate first that long-term migrations are better modelled than short-term ones. Temporary migration remains a rather volatile phenomenon which involves a more heterogeneous population as is indicated by its composition by sex or age. A number of unobserved factors, that probably relate to climatic or family circumstances and individual preferences, may account for the frequency of short-cycle moves recorded in the Senegal Middle Valley. Our modelling also suggests that the migratory experience in towns, as measured by migration duration, tends to strengthen the effect of almost all socio-economic characteristics – even if other key factors about the migrant’s success in the place of residence also come into play. This indicates that both types of migration respond in the same way to unequal household or community endowments, and migration duration only reinforces the impact of the factors that led to short-term moves in the first place. On the other hand, other variables do not have the same consequences for the two migration forms investigated, and, interestingly enough, the variations observed concern almost systematically individual variables rather than family or village ones. As statistical determinants of short-term migrations, coefficients for sex, age, family or nucleus headship, marital status, and parenthood are all significantly different from the coefficients computed for long-term migrations. In some cases, coefficients even indicate that causality works in a different direction according to the migration type considered.

This should remind us that even though our economic framework has remained formulated in terms of unitary households for reasons of simplicity, the selection process of prospective migrants appears closely tied to the individual characteristics of family members. However, it would be hard to interpret individual as well as collective variables without reference to the social institutions that regulate the functioning of society, especially since migration has a considerable potential impact – positive or negative – on the survival of village communities. Thus, personal status attributes appear in the Senegal Middle Valley as a significant way through which the family and the village, as collective institutions, promote their norms and enforce the ‘migration contract’. Individual variables derive a large part of their meaning from the social and institutional environment that defines the possible patterns of migration behaviour. In the region examined in this paper, most villages would find it difficult to migrate successfully – getting advance money for the trip, being received by a

fellow villager in the place of destination, finding a job, channelling money back home – without proper support from collective institutions. Migration, which represents a crucial ‘demographic transaction’, is deeply embedded in a social context and it would be unrealistic to regard it only as a frictionless move, i.e. as an optimal reallocation of human resources.⁴⁵

It remains to be seen whether, in other settings, migration practices (networks, gift-giving, local status of the migrants) can be similarly analysed as instruments of regulation, rather than simply as local social traits. But, since the penetration of market practices is still very incomplete in most rural areas, our contention is that the institution of migration has developed to protect the interests of households and communities against the disruptive impact of freewheeling long-term migrations. In our view data from migration surveys should be systematically combined with anthropological observations in order to bring to the fore the institutional dimension of migration.

APPENDIX

List of variables^a

Name	Description	Minimum value	Maximum value	Average value
Dependent variables				
LTMIG	Long-term migrant ^b : 1 = absent and active at each survey round	0	1	0.11
STMIG	Short-term migrant ^b : 1 = present at the first round and reported a labour migration of more than a week during 1992–93	0	1	0.06
Independent variables				
Individual				
SEX	0 = male; 1 = female	0	1	0.48
AGE	Age	15	93	37
AGL	Logarithm of age	2.7	4.5	3.5
HOF	1 = head of household (foyre)	0	1	0.22
HON	1 = head of family nucleus (excluding HOF)	0	1	0.11
CHILD	Number of children aged less than 15	0	14	1.8
SINGLE	1 = single (never married)	0	1	0.27
WRITE	1 = reads and writes French	0	1	0.12
IMIG*	Individual migratory experience: number of years of labour migration in 1982–91	–0.38	3.5	0
Household				
MADULT	Number of male adults	0	7	2.6
MADUL2	MADULT squared	0	49	9
IRRIG ^c	Irrigation level (see text)	–1.6	2.9	0
Compound				
CMIG ^c	Migratory experience in the compound: mean of IMIG for other compound members	–0.76	5.5	0
Village				
VIRRIG ^c	Village irrigation level: mean of IRRIG	–1.3	2.0	0
VINFRA ^c	Index of village infrastructures (school, tube-well, mosque, market, shops)			
VMIG ^c	Migratory experience in the village: mean of IMIG	–2.1	1.5	0

^a Sample size = 3485 adults.

^b Migration for employment reasons only, not for education or marriage.

^c Standardized variables (mean = 0; standard deviation = 1).

NOTES

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¹ On definitional matters related to the duration of migration, see Courgeau (1988, pp. 11–16); Skeldon (1990, pp. 16–20); Parnwell (1993, pp. 18–23).

² On transaction cost economics and the role of economic institutions, see for example Williamson (1985), Stiglitz (1989).

³ On the effects of population growth on urban conditions, see for example Montgomery and Brown (1990).

⁴ About *navétanes* in the Gambia or in Senegal see, Swindell (1985); David (1980). For a broader survey of migration in Senegal, see Colvin et al. (1981).

⁵ Mortimore (1989, pp. 116–199). About Mali, see Mazur (1984); Findley (1992); Pedersen (1995).

⁶ See, Ellis (1991). For a presentation of the analysis of peasant institutions and the 'new paradigm' of development economics, see, for example, Bardhan (1989); He (1994); De Janvry et al. (1993).

⁷ See the detailed analysis of the social perception of migration in northern Nigeria by Olofson (1985). Not surprisingly, migration appears especially unacceptable when it leads to the breakdown of traditional links with the home place. On individual migrations in Africa, see Gugler and Flanagan (1978) and Bardem (1993).

⁸ For new interpretations of family and solidarity, see Fafchamps (1992); Pollack (1985). Concerning 'the moral economy' and 'the economy of affection', see Scott (1976); Hyden (1986).

⁹ See Rosenzweig et al. (1988, p. 90). The context described in the latter article is broadly comparable to the region examined here.

¹⁰ Migration may for instance tend to weaken the lineage or the extended family because remittances are channelled mainly towards household members. See Mabogunje (1990).

¹¹ Migrants are mostly males in the context studied.

¹² Several studies stress the impact of household characteristics on migration at the expense of individual variables. See Findley (1987).

¹³ Dasgupta (1993, pp. 305–336) expresses serious reservations about the economic approach limited to the household. See also Ellis (1988, pp. 177–183) and Pollack (1985, pp. 598–603).

¹⁴ The comparison between long-term and short-term migrations is often conducted from the perspective of the destination place. As a result, it cannot distinguish the difference in terms of rural strategies. See for instance Goldstein et al. (1993).

¹⁵ The standard sociological work on *haalpulaar* society remains Wane (1969).

¹⁶ During the last intercensal period (1976–88), the overall growth rate was a low 5.5 per 1000 in the Podor *département*, as against 20.3 per 1000 for the whole Saint-Louis province. See also Guilmoto (1995).

¹⁷ See, Boutillier et al. (1962); Diop (1965). Migration and, later on, intensification through irrigation represent two typical responses of African population to increasing population pressure on land. For a more general viewpoint, see Rosenzweig et al. (1988).

¹⁸ On land development in the Senegal Valley, see Engelhard (1986); Diemer and Van Der Laan (1987); Crousse et al. (1991). For a comparative perspective, see Brown and Nooter (1992).

¹⁹ Park (1992) interprets *haalpulaar* social and economic

institutions specifically as historical responses to an unstable agriculture dependent on irregular rainfall and 'chaotic' floods.

²⁰ The survey has been conducted by the Orstom and the Direction de la Prévision et de la Statistique, Sénégal. Papa Demba Diouf and the author directed the field work. Funds for the project's different phases were provided by the Département M.A.A., Orstom, as well as by the Réseau Démographique, AUFELF/UREF. See Diouf and Guilmoto (1994).

²¹ For a description of the methodology, see Diouf and Guilmoto (1994). For comparative purposes, we are using only a limited number of variables. On correspondence analysis methodology, see Benzécri (1992). Variables are detailed in the first appendix.

²² As urban areas attract the vast majority of the migrants from the Middle Valley, we shall freely use, in this paper, the expressions 'towns' and 'villages' to mean respectively 'places of destination' and 'places of origin'.

²³ Applying a Kaplan–Meier model leads one to estimate that about 20 per cent of short-term moves might actually last more than one year.

²⁴ For a review of migration determinants, see Massey (1990). On multi-level models in demographic analysis, see Anderton (1993). For an example of an interactive multi-level model, see Findley (1987).

²⁵ On lognormal models and their use of for quantitative choices, see Christensen (1990); Train (1986). About migration models, see Maier and Weiss (1991). A synthetic multinomial logit model incorporating simultaneously both migration types was tested, but proved computationally infeasible.

²⁶ The pseudo- r^2 computed here measures the gain in terms of log of likelihood owed to the model. See Demaris (1992, p. 53).

²⁷ In an other rural region of Senegal, more than 80 per cent of women aged under 35 years had reportedly already worked in town (Delaunay, 1994). Elsewhere in Africa, female migrations are both numerous and on the increase. See Oucho and Gould (1993, p. 267).

²⁸ See however Findley and Diallo (1993).

²⁹ On the interrelations between women's migrations and fertility, see Brockerhoff and Eu (1993). On fertility levels in the region under study, see Guilmoto (1995, pp. 90–92).

³⁰ The age logarithm is preferable to squared age in view of the asymmetric distribution of migrations with respect to age (see Fig. 1).

³¹ To examine the effect of a variable V , we first compute the value of μ such as $f(\mu) = m$, where m is the average probability of migration over the sample and f is the regression function. We then compute and graph the function defined by $f(V) = 1/[1 + \exp(-\mu - cV)]$, where V (age variables in this example) is centred on 0.

³² See the data gathered by Oucho and Gould (1993, pp. 268–269). It is also worth noting that our data do not include non-labour migrations such as school and marriage migrations that occur at younger ages. See also Mazur (1984, p. 231).

³³ Migrants who have severed all links with their families or those who left with their entire families do not appear in our survey data. This is one of the limitations of a migration analysis conducted from the place of origin.

³⁴ To summarize the life cycle, we use cross-sectional data from our survey to represent a fictional male generation. This apparently linear transformation illustrates one of the most common life cycles. The intensity of polygyny, divorce and remarriage results in a much wider variety of family histories in our sample.

³⁵ The conjugal 'nucleus' is a subdivision of the household composed of an individual with his or her spouse or dependants (such as unmarried children). More than a third of all households surveyed include at least two different nuclei, usually headed by the household head and his married sons.

³⁶ The relationship between risk and migration as postulated by Stark (1991) is seldom unambiguously demonstrated. See for example Lambert (1994).

³⁷ Analysing surveys conducted in Mali in 1978–79, Mazur (1984, p. 247) draws parallel conclusions: long-term labour migrations are much more determined by the family status of the migrant than are shorter moves. The statistical analysis on which these conclusions rest is however somewhat inadequate.

³⁸ This is but a summary of some of the distinctive features concerning the functioning of local institutions in relation to migration.

³⁹ The definition of both IMIG and VMIG variables is based on migratory events from which LTMIG is also deduced.

⁴⁰ The *suudu*, or group of migrants from the same village, was actually the most frequent form of establishment for unaccompanied migrants in the 1960s. See Diop (1965). Later on, though the *suudu* continued to exist for *Haalpulaar* in foreign countries, the formation of a large diaspora from the Middle Valley in several places of migration led gradually to a contraction of the solidarity unit towards narrower, family-based links. See also Ba (1995); Antoine et al. (1995).

⁴¹ As previously emphasized, each village possesses its own migration history which might prove distinct from that of other neighbouring villages. On migration networks, see D. Massey et al. (1987); Gardner (1995).

⁴² On the positive relationship between migration and education for both internal and international migrations in Africa, see the various survey results collected by Oucho and Gould (1993); Russell et al. 1990, Vol. I, pp. 59–68). However, other surveys have shown that the relationship between education and migration propensity was not always positive. See for example, Bilsborrow et al. (1987, p. 201); Adams (1993, pp. 157–160). These observations contradict some of the basic assumptions on migration and education derived from the theory of human capital.

⁴³ On education as filter, see Stiglitz (1975). Katz et Stark, in the larger context of migration and asymmetric information, provide further reflections. See Stark (1991, pp. 169–185, 194–203). To take account of the time effect, a proper confirmation of the filter mechanism of education over the first migration years would require proportional-hazard modelling.

⁴⁴ The significance of these mechanisms will be examined in a subsequent paper.

⁴⁵ I am intentionally borrowing the terms of neo-institutional economics. See Williamson (1985, pp. 18–19).

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