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How environmental migrants choose their destination in Burkina Faso?

Sabine HENRY[1], Richard BILSBORROW[2]

Context

On 16 June 2002, on the occasion of the World Day to Combat Desertification and Drought, United Nations Secretary-General Kofi Annan stated that “135 million people who depend primarily on land for their livelihood are at risk of being displaced”. The Chairman of the Intergovernmental Panel on Climate Change recently claimed that “in 1998, 25 million people were forced from their homes for environmental reasons” (Pachauri 2002). Because of the growing assumption that the environment is becoming increasingly important in explaining large-scale movements of migrants, some of whom have been described as environmental refugees (Myers and Kent 1995; Ramlogan 1996; Döös 1997; Myers 1997). Migrations driven by rapidly changing environmental factors are likely to be more massive and rapid than migrations driven by slower socio-demographic changes. In Burkina Faso, harsh natural conditions (poor and overexploited land, reduced natural resources and frequent droughts) have caused large population movements for several decades, from the arid Sahelian provinces and the over-crowded Mossi Plateau to more prosperous regions (south-western Burkina Faso and Côte d'Ivoire). In these conditions, a large proportion of Burkinabè migrants have been characterized as "environmental refugees" (Hugo 1996). Precisely, a previous study

1 sabine.henry@umontreal.ca
Département de démographie, Université de Montréal
C.P. 6128 • Succursale Centre-Ville
Montréal • QC H3C 3J7 • Canada
Tele. : 1 / 514 / 343-6111 # 1959
Fax : 1 / 514 / 343-2309

2 richard_bilsborrow@unc.edu
Carolina Population Center, University of North Carolina
123 W. Franklin Street
Chapel Hill, NC 27516-3997
Tele. 1/ 919 / 966-1738
Fax 1 / 919 / 966-6638

showed that the effects of rainfall at the places of origin may differ depending on the destination and the duration of migration. However, the first motive given by males in Burkina Faso remains economic (Henry, Schoumaker et al. 2004).

Characteristics of places of residence are known to play a major role in the migration decision-making process (Gardner 1981; Hugo 1985; Findley 1987; Lucas 1997). Although a large amount of research has been conducted on the factors influencing the decision to leave a region, very few studies have tackled the factors determining the destination of migration (Bilsborrow 1984; Oberai and Bilsborrow 1984). The objective of this study is ***to understand how contextual factors at destination influence the migration decision of environmental migrants, compared to the one of economic migrants.*** This study is the obvious continuation of a first completed study on the influence of the natural environment on migration in Burkina Faso (Henry, Schoumaker et al. 2004). Put simply, we explore the extent to which geographic, economic and environmental characteristics determine the destination choice of migrants. The underlying hypothesis of this study is that the environmental and economic migrants, albeit rather different in their migratory motivations, are nonetheless similar in their choice of destination. These contextual determinants of migrants' choice of destination do not act independently of one another. As mentioned in Adamo (2003), "environmental reasons are generally intertwined with economic ones and in this sense environmental migrants are also economic migrants" (Adamo 2003, p.36). Rudolph (1992) views economic and ecological factors "not as causal, but as delimiting factors which act as parameters within which there still remains a large area of play for other variables" (Rudolph 1992, p.133; cited by Poirier and Piché 1999).

Intuitively, assumptions about pull factors (factors attracting migrants to a destination) can be inferred from what is already known about push factors (factors encouraging migrants to leave a region). These assumptions can broadly be divided in three types: first, those related to the ecological context; second, those related to the local economic context; and third, those related to the level of equipment and infrastructure.

First hypothesis: the favourable natural environment is a pull factor of major importance for migrants.

This is a highly plausible hypothesis in the Burkinabè context, where rain-fed agriculture is the main source of livelihood, and natural resources are insufficient in a large part of the country. Land availability, soil quality and rainfall conditions (quantity and inter-annual variability) are expected to play a significant role in the migrant's choice of destination. In Burkina Faso, rainfall deficit, shortage of land and unfavourable ecological features (such as poor, overexploited land and substantially reduced natural resources) at the place of origin have already been shown to be push factors in Burkina Faso (Mathieu 1998; Henry, Schoumaker et al. 2004). We aim to assess whether the opposite conditions act as pull factors, attracting migrants to more prosperous regions.

Second hypothesis: the economic diversification of villages is an attractive factor for migrants.

The local economic context is known to be a major factor influencing the decision to migrate (Amin 1974). However, whether the diversification of economic activities and modernization of agriculture encourage or deter migration is a controversial question. Some scholars contend that the availability of local work outside the agricultural sector (in services, construction, mining, commerce or manufacturing) retains migrants in rural areas (Haggblade, Hazell et al. 1989; Junming 1997). In contrast, others have found that the presence of such alternative activities stimulates migration by providing individuals and families with the financial means to move (Rhoda 1983; ILO 1998). Results in Burkina Faso appear to support this second viewpoint (Beauchemin, Schoumaker et al. 2003).

Third hypothesis: the level of equipment and infrastructure does not act as a major factor in migrants' destination choice.

Although this hypothesis seems counter-intuitive, it stems from recent results about contextual determinants of migration at origin places. While it is generally assumed that the higher the level of equipment and infrastructure the less likely people are to leave the region, there is no academic or empirical evidence to support this. Public facilities (schools, health centers) and infrastructures (roads, electricity, water infrastructure) have proven to have effects that vary in direction according to the context (Rhoda 1983; Lipton

1988; Lucas 1997). Beauchemin and Schoumaker (2003) have even shown that equipment and infrastructure *increase* the risk of migrating from villages to cities in Burkina Faso.

Data

It is difficult to obtain accurate data in an Africa setting, with scientists making a habit of circumventing the weakness and/or the irregularities of available data. An original aspect of this work is thus to combine exceptional reliable multi-source data to understand accurately how migrants choose their destination by focusing on the characteristics of places.

1. **Individual and household data** are provided by a nationally-representative retrospective (life-history type) survey on migration, conducted in 2000 by the UERD at the University of Ouagadougou, the Demography Department of the University of Montreal and the CERPOD (Poirier, Dabiré et al. 2001). 3,570 households were sampled in eight strata chosen according to geographic, climatic and ethnic criteria and by respecting the province division. The household questionnaire included questions on the individual characteristics of the different members (including emigrants) and on the housing conditions (including environmental and socio-economic variables). Besides, 9,612 life histories were collected. The detailed biographic questionnaire covered family origins, migration histories (date and place of installation, status of residence, land access, purpose of migration, etc.), and also employment, matrimonial and fertility histories.

2. **Community-level data** come from one of the first national-scale retrospective community survey conducted of 600 settlements in early 2002 (Schoumaker, Dabire et al. 2003). The survey was designed to be linked with the individual migration survey. It comprises one third of all the villages cited in the individual survey, i.e. all the villages in which people lived at the time of the survey and a large sample of villages in which they lived in the past. The questionnaire covered a broad range of topics, including land availability, transportation, agriculture, equipment and infrastructure, and employment opportunities. Efforts were made to obtain retrospective information since 1960 from groups of community informants (administrative representatives, village chiefs and other knowledgeable informants).

3. **Other contextual data** are generated using GIS method. Actually, the use of GIS allows us to compute distance variables (distance to the nearest town, to the nearest factory specialized in the processing of cotton for instance, etc.) and to identify the presence of specific areas (such as irrigated perimeters, statutory forest reserves, etc.) by mapping them and by extracting their presence/absence at the level of surveyed villages. In addition, rainfall data covering the 1960-1998 period have already been obtained from the global monthly precipitation data set produced by the Climatic Research Unit at the University of East Anglia (New, Hulme et al. 2000). These data have been interpolated from a network of stations at a spatial resolution of 0.5 degree latitude and longitude, and are now linked to the survey community data.

Method and expected results

All these three sources are used to study, through multi-level event-history models, the role of contextual factors in the migrants' choice of destination. The analyses distinguish different categories of migrants ("environmental migrants" and "economic migrants") in order to test the hypothesis that these migrants have specific behaviours. As suggested above, interactions between economic and environmental variables are tested. The introduction of the characteristics of destination places is made by using random utility models. The assumption of this kind of model is that an individual is able to evaluate the utility associated to each potential destination and to choose the place that maximizes his utility (Gordon and Vickerman 1982; Davies, Greenwood et al. 2001; Knapp, White et al. 2001). In theory, all potential destinations are taken into account and not only those chosen by the migrants, although, researchers typically do not have the possibility to collect information on all potential alternatives (Davies, Greenwood et al. 2001). The list of considered destinations could be compounded by all alternatives chosen by migrants and by a random sample of non-chosen alternatives (McFadden 1978 cited by Thill 1992; Baydar, White et al. 1990; Thill 1992). Sampling techniques allow palliating this lack of data (Knapp, White et al. 2001).

In terms of expected results, the risk to migrate to places with favourable natural environment is expected to be higher than to places with less favourable natural conditions, as well for environmental migrants as for economic migrants. These categories of migrants are also expected to favour places with a diversification of the

economic activities. Finally, the level of equipment and infrastructure is not expected to act as a major factor in migrants' destination choice.

Conclusions

In conclusion, this paper seeks to improve the understanding of the determinants of migration in the context of one of the poorest country in the world, where sustainable development is an issue of special significance. To serve this objective, the paper presents at least two strong points. First, robust and original results are expected through the combination of demographic and geographic approach. It allows us to take into account a wide range of variables, at different levels, in order to apprehend the complexity of the migration determinants. It also allows us to control for both spatial and temporal variability through the use of GIS and event-history analyses. Second, this paper will benefit of exceptional reliable data allowing, for once, to go beyond plausible presumptions and arguments. In the future, we aim at identifying the impact of migrants on the regions in which they settle. In terms of policy implications, the aim of this paper focuses on a central issue concerning sustainable ecosystem conservation in areas of massive in-migration. Without appropriate policy measures, these currently fertile regions could experience irreversible deterioration in the future. Understanding the decision-making process of migrants, and how they affect host areas, makes it possible to predict migration movements, to improve conditions at the destination, and to suggest sustainable agricultural practices in regions of massive in-migration.

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