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Using a migration systems approach to understand the link between climate change and urbanisation in Malawi

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ABSTRACT

Most scholarship on rural–urban migration in Sub-Saharan Africa demonstrates that migrants tend to move in a "circular" fashion and only spend short periods of time in cities before returning home to rural villages. However, some scholars working on the impacts of climate change on migration suggest that deteriorating environmental conditions may undermine rural livelihoods and lead people to move to cities for longer periods of time. If this is true, then climate change threatens to accelerate urbanisation and lead to renewed stress on urban infrastructure. The purpose of this paper is to explore these positions and we do so by collecting survey [n = 241], in-depth interview [n = 75] and focus group [n = 123 participants] data from rural and urban Malawi. Two key results stand out as significant. The first is that migrants in Malawi's capital city tend to stay in the urban environment for longer periods of time than conventional understandings of migration would predict. The second key result is that climate change may actually lead, in the case of Malawi, to reverse (i.e urban–rural) migration. This is because many of the people in Malawi's cities depend on products produced in rural environments (e.g. food and fuelwood). If climate change undermines rural livelihoods, then many urban residents will find the basis of their livelihoods removed and will likely respond by moving back to rural villages. Overall, our results, therefore, suggest that in at least one case the effect of climate change on migration may not be to increase migration towards cities but to stimulate an exodus from cities and back to the rural countryside.

1. Introduction

As the world's climate changes, the livelihoods of farming communities, who are directly dependent on natural resources, will be affected. One possible consequence is accelerated rural–urban migration (Barrios, Bertinelli, & Strobl, 2006; Devereux, 1999), which is a concern to policy makers in less developed countries (LDCs). This is because rapid urbanisation already presents challenges for housing, transport, and social infrastructure such as health and education facilities (Alirol, Getaz, Stoll, Chappuis, & Loutan, 2011; Cohen, 2006; Tacoli, 2009). Despite this, there is little empirical evidence to support the idea that climate change will induce urban migration (Lilleør & Van Den Broeck, 2011). Although the impact of climate change on migration patterns is hotly debated, the debate remains largely theoretical. Consequently, much is unknown about the impact of climate change on urbanisation.

Understanding the impact of rural–urban migration on urbanisation is complicated by the idea that most migrants in Sub-Saharan Africa (SSA) move back and forth between a sending and receiving area as they attempt to access distant resources that are not linked to the local economy (Potts, 2010), thus protecting a family from agricultural shocks and stresses (Massey, Arango, & Hugo, 1993). Given that these "circular migrants" return to their rural households, it is assumed that urbanisation does not occur as migrants do not stay in the city permanently (Potts, 2010). However, in predominantly rural countries where climate change threatens rural opportunities, urban areas may be seen to offer a better life (Barrios et al., 2006; Parnell & Walawege, 2011; Warner, 2010). This may lead to an overall reallocation of labour from rural to urban areas in the form of more permanent migration patterns (Barrios et al., 2006; Collier, Conway, & Venables, 2008).

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To tease these issues apart, this paper examines how climate change may affect rural–urban migration and urbanisation in Malawi, Southern Africa. We begin by reviewing the global literature on climate and migration before focusing on Malawi. We follow this by presenting the 'migration system' (Mabogunje, 1970) that provides a theoretical framework for our research before outlining our data collection methods. We then present data that examine our three research questions:

(i) Who are Malawi's migrants?
(ii) How are sending and receiving areas linked?
(iii) How long do migrants stay in town and at what point do they become permanent?

For each of our research questions, we also consider how climate change may affect our findings. Finally, we conclude the paper with a discussion on the impact of climate change on Malawi's migration system.

2. Climate, environment and migration

The link between migration, environment and climate is complex. This is partly because migration decisions are made against a backdrop of political, social, cultural, economic and environmental issues (Black, Arnell, Adger, Thomas, & Geddes, 2013). This means that different populations (and different communities within a population) are likely to respond to a single environmental pressure in different ways. This complexity is reflected in the empirical literature from across the globe. For example, Barrios et al. (2006) report that a combination of rainfall change and policy reform in post-colonial Africa led to urbanisation. Conversely, using the same method specifically in Burkina Faso, Henry, Schoumaker, and Beauchemin (2004) found no such relationship. They did, however, find that men were more likely to leave their village for a new rural area following poor rainfall, whereas women were less likely to leave at this time. Feng, Oppenheimer, and Schlenker (2012) report a relationship between climate-driven reduced crop yield in the US Corn Belt and youth migration to urban areas. However, Gray and Mueller (2012) find that, in Bangladesh, household level crop failure does not result in migration due to loss of assets needed to migrate, as well as the requirement for increased labour during crisis.

Despite this complexity, one common theme emerges; that migration in response to environmental stresses and shocks follows pre-established labour migration networks (Findley, 1994; Mortreux & Barnett, 2009). However, severe and prolonged ecological change may begin to create new migration patterns, for example a shift from dry-season migration to wet-season migration amongst poorer farmers (Rademacher-Schulz, Afifi, Warner, Rosenfeld, & Milan, 2012), or very short distance movements by the most vulnerable (Wrathall & Suckall, 2014). Whether or not environmental change will affect the flow of migrants to urban areas is very likely to depend on the country context.

3. Case study: Malawi

3.1. Climate, environment and migration in Malawi

Given the context specific nature of migration decision-making we respond to a suggestion from Black et al. (2008) to conduct research that explores how climate change may affect current migration patterns using locally-specific case studies. We do this in Malawi, a small landlocked country in Southern Africa bordered by Mozambique, Tanzania and Zimbabwe (Fig. 1).

We focus on Malawi for three reasons (1) the country is home to a large rural population that directly depends on farming for food and income (ref); (2) climate change and variability threaten rural livelihoods by causing a decline in agricultural productivity as well as increasing the frequency of extreme events; and, (3) given the absence of alternative rural livelihood options outside of agriculture, it is certainly possible that climate associated changes may prompt rural dwellers to move to the country's rapidly expanding urban areas (Schensul et al., 2013) where workers earn over two thirds of the median earning of their rural counterparts (NSO, 2014). However, there is currently little evidence to suggest this is the case. We expand on these points below.

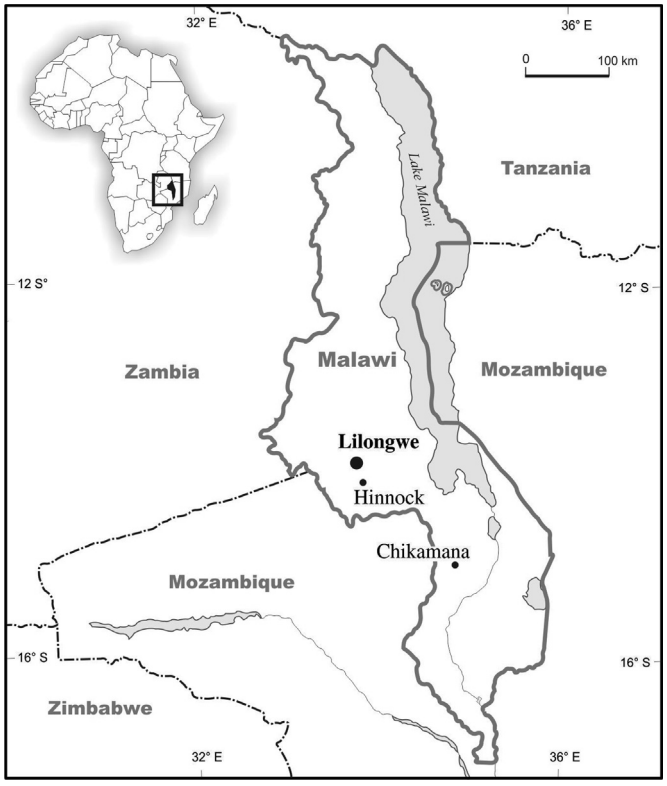

Fig. 1. Map of the study sites.

First, of the country's 13 million citizens, 81.2% are rural farmers (NSO, 2008) of whom 97% rely on maize for food and income (Bezu, Kassie, Shiferaw, & Ricker-Gilbert, 2014). Maize productivity is low and most families operate below subsistence with significant impacts on well-being (Denning et al., 2009; GoM, 2006). Second, well-being is likely to be further affected by climate change and variability as a result of both declining crop yields and increased frequency of extreme events. Exactly how Malawi's climate will change over the next decades is not fully understood partly because of a poor understanding of the complex interactions between the drivers of the African climate and partly due to a lack of local weather data (Conway, 2009). Data that do exist, show temperatures have increased by 0.9 °C between 1960 and 2006, with projections suggesting an increase of up to 5 °C by the 2090s (Mcsweeney, New, Lizcano, & Lu, 2010). Changes in rainfall patterns are harder to establish due to variability (Vincent et al., 2014), but observations suggest there has been no change in onset, duration or amount of rain (Simelton et al., 2013). However, models consistently project a decrease in dry season rainfall and an increase in wet season rainfall, mostly as a result of heavy rainfall events (Mcsweeney et al., 2010). Overall, climate change and variability is likely to have significant implications for rural livelihoods and well-being. For example, regional estimates suggest maize yields will fall