

Spatial and Contextual Analysis of Post-Independence Regional Migration in Ghana

The Power of



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Abstract

Regional migration is a common phenomenon in developing countries, where push-pull factors of migration favor rural-urban flows. The purpose of this study was to produce a spatial and contextual analysis of regional migration in Ghana following its independence from Britain in 1957. Using census data from the Ghana Statistical Survey, the demographic variables of gender, age, and education levels were quantitatively analyzed. This analysis was done to provide insight into Ghana's regional migration dynamic between 1960 and 2010. Multiple linear regression models were developed to explore potential reasons for migration. Results of the analysis demonstrate that people migrate from small towns to urban centers over the 50 year period. Regression analysis illustrated that gender and age are pivotal factors that influence regional migration in Ghana. The study also shows that distance does not discourage migration in Ghana. Results of this study can provide insights that could be beneficial to future regional and national planning.

Methods

Data

- The following datasets were used:
- 1960 Population Census of Ghana (GSS- Ghana Statistical Service)
 - 1970 Population Census of Ghana (GSS)
 - 1984 Population Census of Ghana: Preliminary Report (GSS)
 - 2000 Population and Housing Census Volume 1: Socio-Economic and Demographic Trends Analysis (GSS)
 - 2010 Population and Housing Census: Summary Report of Final Results (GSS)
 - 2010 Population & Housing Census National Analytical Report (GSS)
 - Ghana Shapefile (United Nations Office for the Coordination of Humanitarian Affairs)

Due to the differences in provincial boundaries between the pre 1984 census and the recent ones, population estimates were conducted to harmonize the spatial extents of the previous census boundaries with the subsequent ones. In addition, buffer analysis was done to test whether distance is an attrition factor for migration.

Regression Analysis

Multiple linear regression models were developed to help understand the reasons for internal migration in Ghana since independence from Great Britain. In a regression model, the dependent variable Y is a function of explanatory variables X1, X2, ...Xn. In the models developed in this study net migration is the dependent variable while gender, age, and educational levels served as explanatory variables. Equation 1 illustrates the multiple linear regression models developed in this study.

$$\text{NetMig} = \beta_0 + \beta_1\text{Gen} + \beta_2\text{Age} + \beta_3\text{Edu} + \epsilon \quad (1)$$

where β are model parameters, Gen= gender, Age= age category, Edu= level of education, and ϵ = residuals.

The regression models were all tested for statistical significance at the 95% confidence level ($p < 0.05$).

Data Flow Model

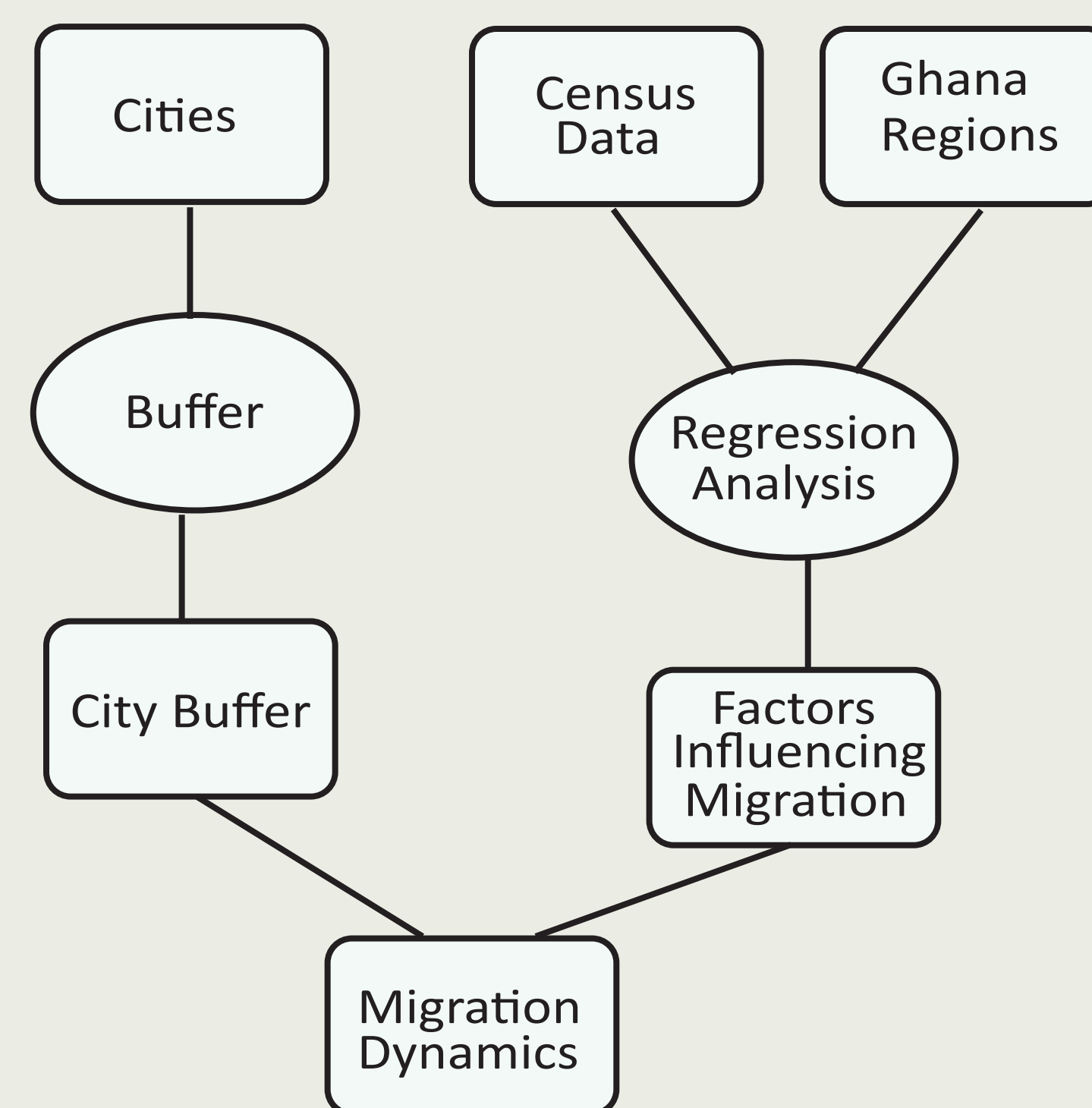


Figure 2. Data flow model of process used throughout study.

Results: Statistics

Table 1. Results of regression analysis for level of education

Explanatory variables	1970	1984	2000	2010
Primary education	n/a	n/a	-S	-NS
Secondary education	n/a	n/a	+NS	+NS
Tertiary education	n/a	n/a	+S	+S
	n/a	n/a	R ² = 0.75	R ² = 0.82

Table 2. Results of regression analysis for age category

Explanatory variables	1970	1984	2000	2010
Age 1-14	+NS	-NS	+S*	-NS
Age 15-24	-NS	+NS	-NS	+NS
Age 25-59	+NS	-NS	+NS	+S*
Age > 60	-NS	-NS	-S**	-S**
	R ² = 0.57	R ² = 0.70	R ² = 0.91	R ² = 0.98

Dependent Variable: Net migration
** indicate statistically significant values

Table 3. Results of regression analysis for gender

Explanatory variables	1970	1984	2000	2010
Males	+NS	+NS	-S**	+NS
Females	-NS	-NS	+S**	-NS
	R ² = 0.36	R ² = 0.11	R ² = 0.81	R ² = 0.36

Background

Migration and resettlement of people across geographic and cultural spaces is not a new phenomenon. Historically, push and pull factors have influenced people moving out of and into new spaces respectively (Lee 1966). Push factors drive people away from a region or area; the latter include but are not limited to unemployment, poor educational facilities, and general lack of opportunities for upward social mobility (Lee 1966). Pull factors on the other hand attract people into an area with hopes for upward social mobility. Internal migration, the movement of people within a country is one form of migration that has been increasingly pronounced in developing countries over recent decades (Todaro 1980). There are four main types of internal migration: rural to urban, urban to rural, rural to rural, and urban to urban. Ghana's internal migration exemplifies the four typologies but most of the migration is skewed towards rural-urban flows (Caldwell 1968, van der Geest 2011). Originally a British colony called the Gold Coast, Ghana became independent on March 6, 1957. It was the first Sub-Saharan African nation to gain independence from European colonization. The few studies that have been conducted on Ghana's internal migration did not examine the phenomenon at a temporal and spatial scale compared to this study. Therefore, this study is relevant and can provide insights that may be beneficial to local and regional planning in Ghana. This study attempts to understand the dynamics of internal migration in Ghana and more importantly, why people migrate the way they did following its independence. Specific objectives of the study include one: to estimate net migration at a provincial scale between 1960-70, 70-84, 84-2000, and 2000-2010. Two: to probe into the factors that accounted for net migration over the aforementioned time periods.

Study Area

Ghana is located on the coast of West-ern Africa along the Gulf of Guinea. The current population is 28.2 million and the capital is Accra (World Factbook, 2017). It is approximately 238,537 km² with low plains and plateaus. It is home to the largest man made body of water, Lake Volta, which is located in the east. The climate is tropical with relatively high humidity and two main seasons, dry and rainy. Temperature varies between 29-36 °C in the rainy season and 27-37 °C in the dry season. The southern part of the country sees the most precipitation in comparison to the north; about 2,000 mm per year compared to 1,000mm (Climate-Ghana, n.d.). Agriculture, forestry, and fishing employ over 50% of the country's workforce.

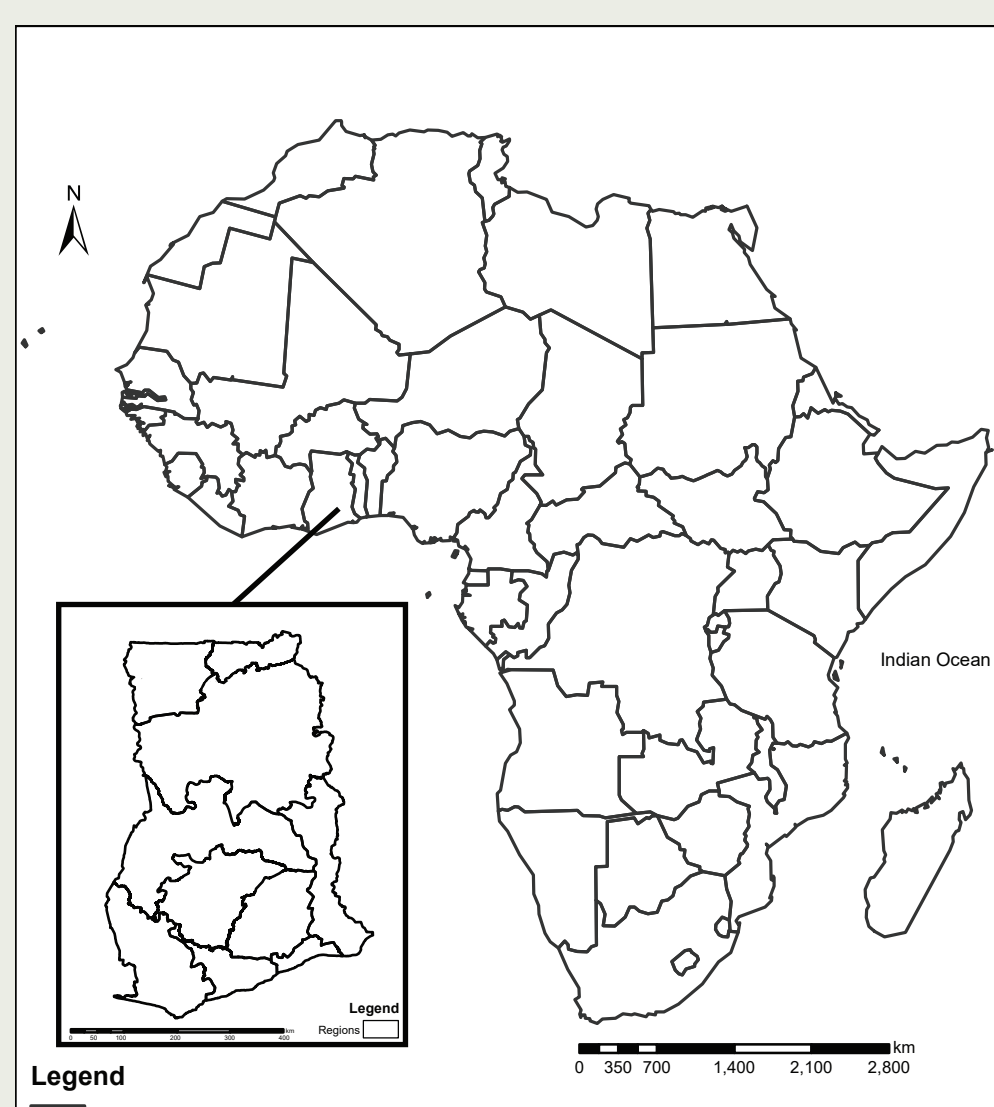


Figure 1. Location of Ghana, the area of interest.

Results: Maps

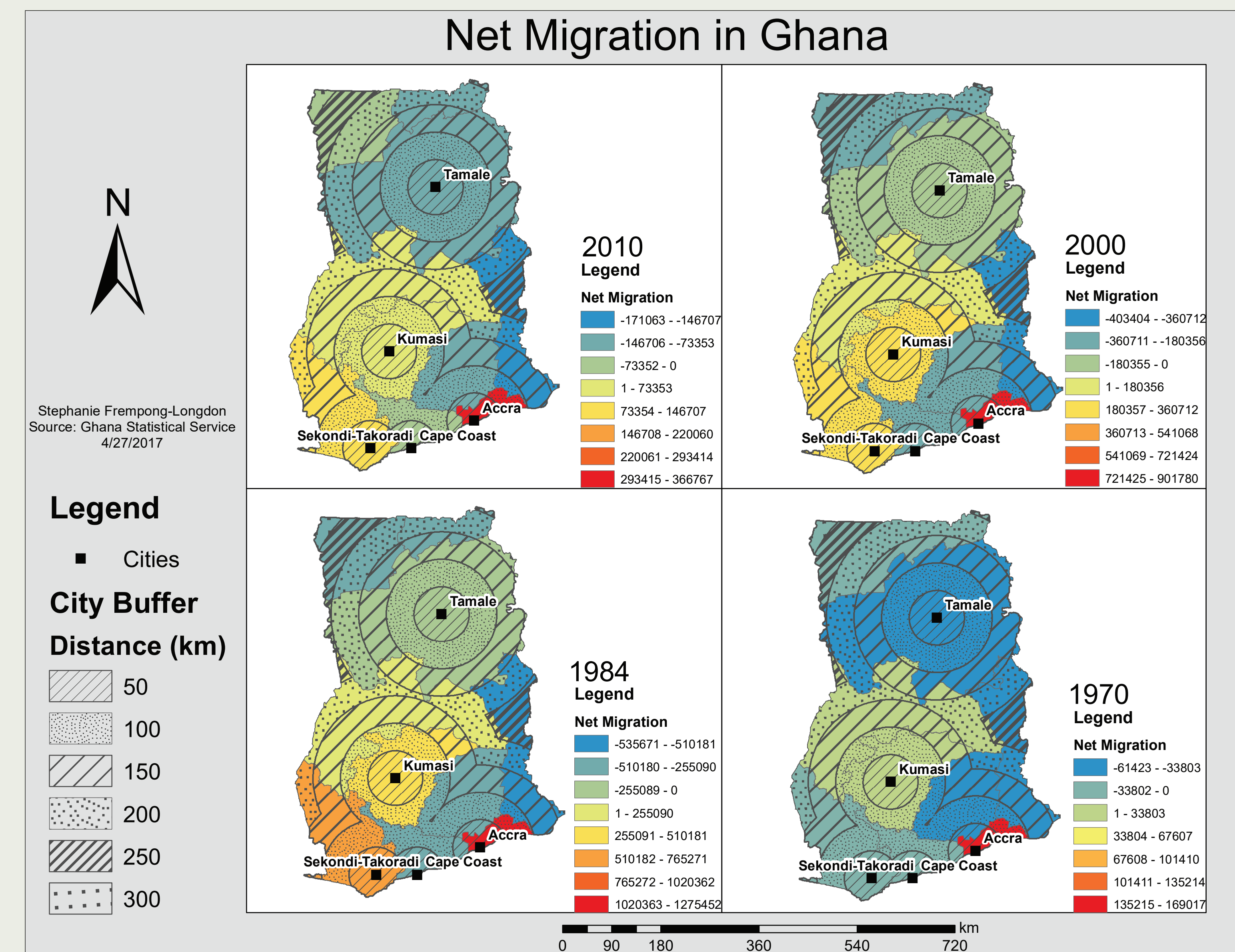


Figure 3. Net migration patterns in Ghana for 1970, 1984, 2000, and 2010. The multiple ring buffer illustrates migration distances from major cities.

Discussion

The maps show that net migration rates are generally lower in the north and along the eastern border of the country, with the exception of Greater Accra, for all four census years. In 1970 migrants were leaving all the regions and migrating into Ashanti, Brong Ahafo, and Greater Accra. 1984, 2000, and 2010 show similar patterns of migration from Eastern, Volta, Central Region, Northern, Upper West, and Upper East regions into Western, Ashanti, and Greater Accra. This can be explained by the three cities located in south where there are numerous job opportunities.

Regression modeling revealed that age, education, and gender help to explain most of the variation in net migration patterns with age and education being the strongest explanatory variables (tables 1-3). Most of the models shows that males are more inclined to emigrate compared to females. This might be attributed to males being the major bread winners in Sub-Saharan Africa and therefore are more proactive in migration. Regression models also demonstrate that the age category 25-59 mostly emigrate to urban centers while those over 60 years tend to follow a reverse migration back to their villages following retirement. Those with tertiary education in 2000 and beyond migrated mostly to urban centers most likely in search of service oriented jobs. Southern Ghana is not only on the coast, but it is also home to three of the largest cities in the country.

J. Caldwell (1968) found that females were generally younger than their husbands and more likely to migrate for job opportunities and return at a younger age. However, this study demonstrated that males are more inclined to migrate. There are more job opportunities in the south forecompared to the north. One factor that this study did not take into consideration that might also explain migration is the environment. In a study done by Kees van der Geest (2011), he found that migration is more likely to happen in areas that are lacking environmental resources. Because of poor agriculture conditions, farmers are drawn to the south where soils are more fertile. This study also shows that distance is not a disincentive to migrate. This can be attributed to desperation of people for improved standard of living.

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