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DATA 440

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### Insight 3: Internal Migration Flows

The study entitled “Modeling Internal Migration Flows in Sub-Saharan Africa Using Census Microdata” conducted by Garcia builds on the concepts we have learned in our class so far to create models that help us understand migration patterns. The researchers utilize census data and some assisting spatial data to model the internal migration flows, identifying some variables that have a strong impact on various aspects of society. Studying migration flows is important because it affects many of these variables, which are in turn important parts of human development; understanding these on a deeper level means that we can make society function better.

The specific factors/variables that were observed in the low-income sub-Saharan countries of the studies are geographic, sociodemographic, economic, climatic, and environmental factors. The gravity model, which is a spatial interaction model, accounts for these factors and in turn models migration patterns in a variety of ways. The gravity model is described to “use population sizes at each location and the distance between them as the push-pull factors. The model can be expanded by adding the previously identified characteristics of the locations that are related to migration, resulting in a series of gravity-type spatial interaction models.” These models seem to be able to help interpret migration patterns by giving us a degree of importance that location characteristics can have toward migration, as opposed to simply

using population to do so. So, effectively the gravity model seems to identify the factors that are important to migration so that we may analyze their effects further. Additionally, it is good to know that this should theoretically give us more insight than using just population. In a migration context, the gravity model especially helps because it looks at how to minimize the costs while simultaneously optimizing the benefits with the above-mentioned factors playing a role. I found the application of these models to be interesting because of how it can integrate so many societal characteristics, thus assuring that we are getting the best possible idea of the migration flows in a country.

As far as results go, I was relatively impressed - particularly for 5-year movements and 15-year movements. According to the results, at its maximum, model 8 could explain 87.4% of migration for South Africa; this is a pretty good result. While in some countries its explanatory power was lower, I think using these GTSIMs are better than nothing. When looking at predictions across time, there was a relatively high correlation between 5-year numbers for the same country with multiple models. Overall, it seems like the gravity models used in this research were helpful in gaining insight about migration patterns, and it taught me a lot about how different factors can have larger or smaller impacts on our analysis.