World Academy of Science, Engineering and Technology
International Journal of Economics and Management Engineering
Vol:9, No:05, 2015

Climate Change and Rural-Urban Migration in Brazilian Semiarid Region

Authors : Linda Márcia Mendes Delazeri, Dênis Antônio Da Cunha

Abstract : Over the past few years, the evidence that human activities have altered the concentration of greenhouse gases in the atmosphere have become stronger, indicating that this accumulation is the most likely cause of climate change observed so far. The risks associated with climate change, although uncertain, have the potential to increase social vulnerability, exacerbating existing socioeconomic challenges. Developing countries are potentially the most affected by climate change, since they have less potential to adapt and are those most dependent on agricultural activities, one of the sectors in which the major negative impacts are expected. In Brazil, specifically, it is expected that the localities which form the semiarid region are among the most affected, due to existing irregularity in rainfall and high temperatures, in addition to economic and social factors endemic to the region. Given the strategic limitations to handle the environmental shocks caused by climate change, an alternative adopted in response to these shocks is migration. Understanding the specific features of migration flows, such as duration, destination and composition is essential to understand the impacts of migration on origin and destination locations and to develop appropriate policies. Thus, this study aims to examine whether climatic factors have contributed to rural-urban migration in semiarid municipalities in the recent past and how these migration flows will be affected by future scenarios of climate change. The study was based on microeconomic theory of utility maximization, in which, to decide to leave the countryside and move on to the urban area, the individual seeks to maximize its utility. Analytically, we estimated an econometric model using the modeling of Fixed Effects and the results confirmed the expectation that climate drivers are crucial for the occurrence of the rural-urban migration. Also, other drivers of the migration process, as economic, social and demographic factors were also important. Additionally, predictions about the rural-urban migration motivated by variations in temperature and precipitation in the climate change scenarios RCP 4.5 and 8.5 were made for the periods 2016-2035 and 2046-2065, defined by the Intergovernmental Panel on Climate Change (IPCC). The results indicate that there will be increased rural-urban migration in the semiarid region in both scenarios and in both periods. In general, the results of this study reinforce the need for formulations of public policies to avoid migration for climatic reasons, such as policies that give support to the productive activities generating income in rural areas. By providing greater incentives for family agriculture and expanding sources of credit for the farmer, it will have a better position to face climate adversities and to settle in rural areas. Ultimately, if migration becomes necessary, there must be the adoption of policies that seek an organized and planned development of urban areas, considering migration as an adaptation strategy to adverse climate effects. Thus, policies that act to absorb migrants in urban areas and ensure that they have access to basic services offered to the urban population would contribute to the social costs reduction of climate variability.

Keywords : climate change, migration, rural productivity, semiarid region
Conference Title : ICMAE 2015 : International Conference on Management and Applied Economics
Conference Location : Tokyo, Japan
Conference Dates : May 28-29, 2015