

# Climate Change and Human Migration: Can we Estimate Future Flows?

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Climate change has become widely accepted as a challenge that humans will face in the not-too-distant future. As well as the large volume of research investigating future scenarios, much current research focuses on the likely impacts and the adaptations necessary for human populations to withstand them. One such adaptation strategy is migration.

## The importance of the circumstance

Estimates of the number of people likely to be forced to migrate as a result of climate change range from 200 million to 1 billion worldwide by 2050. Many such estimates are based on how many people in a location will be affected by climate change, assuming they will all respond in the same way. This ignores that a decision made by an individual to relocate is a personal choice formed from a unique combination of circumstances. Moreover, migration theory suggests that people do not tend to move as a result of one single 'push' factor, but react instead to a combination of many. The unique combination of circumstances people face (economic, social, environmental, etc.) will affect how they respond to external change.

For example, research in Burkina Faso shows that the onset of drought results in decreased international migration owing to people's inability to invest in expensive migration during times of hardship. By contrast, research in El Salvador reveals that international migration there increases during drought periods. This contrast can be partly attributed to the different context and circumstances of Burkinabé and Salvadoran communities reflecting differences in disposable income and ease of international travel.

## Understanding how people decide

We must better understand the factors influencing migration if we want more accurate estimates of how many people are likely to migrate in response to future climate change. This can be done by looking at the decision-making process of migrants and identifying key factors that contribute to migration in

the face of climate change. These factors can include an individual's attitude towards migration, the influence of what others think, and their perceived ability to migrate.

## Modelling the future

Once these factors are identified, we can investigate how different people affected by different circumstances decide whether or not to migrate when affected by climate change. This information can be used in computer simulations where the impact of 'rules of behaviour' upon different individuals results in different decisions. Within an agent-based simulation for example, people interact with both their environment and each other, resulting in previously unexpected outcomes due to changing circumstances. The accuracy of this approach depends on the quality of the information used to construct the rules that govern individual decision-making; the information on people's decisions that are used to inform the computer modelling need to reflect those of the community they are intended to simulate. However, this model has the potential of estimating future migration flows much more accurately than top-down methods commonly used.



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