

# Climate Change, Migration, and Regional Economic Impacts in the U.S.

## Objective

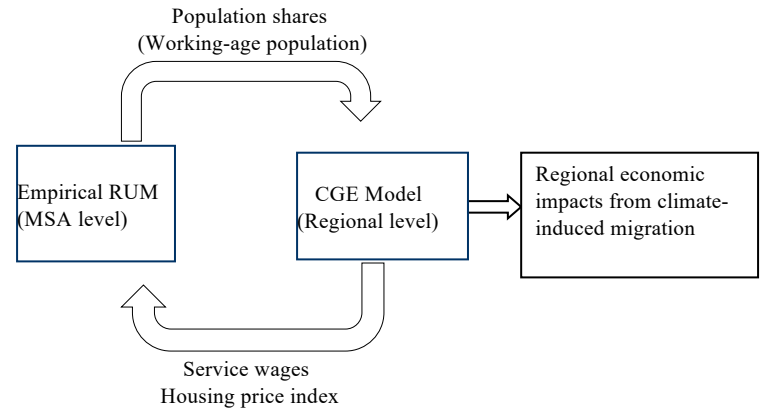
Recent studies predict that climate change will lead to a redistribution of population across the United States, as people choose to locate in regions less susceptible to extreme climate. However, these studies ignore the fact that migration will be dampened by changes in wage rates and housing prices as a result of migration. In this paper, we capture these wage and housing feedbacks.

## Approach

In this study, we apply a novel approach of linking a residential sorting model to an interregional computable general equilibrium model of the United States to capture wage and housing price feedbacks to assess the economic impacts of climate-change-induced migration.

## Impact

With projected changes in climate, we find that population shares in the Northeast region, West region and California gain at the expense of the South and Midwest regions. However, actual migration is dampened by the wage rate response to changes in the labor pool—e.g., regions experiencing out-migration will face upward pressure on wages which will induce population to stay in the region or to move into the region from other regions.



Regions	Census 2010	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Northeast	18.70%	12.48%	15.68%	15.05%	21.37%	16.42%
Midwest	20.77%	14.10%	19.70%	21.33%	21.51%	20.35%
South	39.13%	46.23%	40.36%	41.53%	34.64%	38.18%
West	8.84%	13.72%	9.73%	8.78%	9.17%	10.07%
California	12.56%	13.47%	14.52%	13.31%	13.30%	14.98%
Climate-induced migration	No	No	No	No	Yes	Yes
Endogenous wages	No	No	Yes	Yes	No	Yes
Endogenous housing price	No	No	No	Yes	No	Yes

Note: The Census 2010 column shows population shares obtained from the U.S. Census for the base year 2010 that were incorporated into the CGE model. The Scenario 1 column shows population shares in 2065 from CGE Scenario 1 where population growth is assumed to follow U.S. Census population projections. The Scenario 2 column shows population shares after iterating between the RUM and CGE model to achieve consistency in regional population shares and regional wage rates. The Scenario 3 column shows results from iterating between the RUM and CGE model to achieve consistency between both wage rates and housing prices. The Scenario 4 column presents baseline climate change scenario results based on equation (11), without endogenizing wages and housing prices. The Scenario 5 column shows population shares with endogenous wages and housing prices incorporating climate change-induced migration generated by the RUM.

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