

# Climate anomalies and migration between Chinese provinces: 1987-2015

M.G. Ercolani\*<sup>1</sup> M. R. Barassi<sup>1</sup> M.J. Herrerias<sup>1</sup> Z. Jin<sup>2</sup>

<sup>1</sup>*University of Birmingham, Department of Economics*

<sup>2</sup>*University of Nottingham, School of Economics*

## EXECUTIVE SUMMARY

Since the mid-1980s China has experienced a substantial increase in internal migration between provinces. Though it is commonly accepted that this has been driven mainly by (planned) socio-economic factors, climatic factors might also have had a part to play. Assessing these simultaneous effects matters, from an energy-planning perspective, because migrating populations and a changing climate create changing energy needs.

The research challenge for us is to evaluate to what extent this migration is, simultaneously, driven by climatic factors and changing socio-economic factors. We solve this research challenge by using real world data to model migration rates between 30 Chinese provinces as a function of the climate and various socio-economic influences, including energy consumption.

Uniquely in the literature, we model climate change as a function of three measures: temperature, precipitation and sunshine anomalies. We use the latest accepted statistical techniques so that our results are comparable to other research in the literature.

Our results suggest that climatic increases in temperature and precipitation are significant in pushing migration away from provinces. However, increased sunshine discourages this migration if climatic changes in temperature and precipitation are accounted for. This increased sunshine might provide an additional energy source for those who choose not to migrate. Finally, provincial differences in per capita energy consumption are also drivers of migration, as are differences in Gross Regional Product, with greater production attracting more migrants.

**Key words:** migration, climate change, energy consumption, Chinese provinces

**\*Corresponding author:** Marco G. Ercolani, Department of Economics, Birmingham Business School, University of Birmingham, Edgbaston, Birmingham, B15 2TT, United Kingdom. Email: [m.g.ercolani@bham.ac.uk](mailto:m.g.ercolani@bham.ac.uk)

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