

Environmental Migration

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Question and Theory

- Do environmental changes increase emigration rates?
- Theoretically ambiguous:
 - Disadvantageous changes increase push factors making migration more desirable
 - However...
 - May migrate internally
 - Changes may decrease resources available to finance migration
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Theory, cont.

- Relationship between environmental change and migration may be direct or indirect
 - –through effects on income
 - –through effects on conflict
- Future research will address the potential pathways

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Measuring Environmental Changes: Precipitation and Temperature

- **Data for average yearly temperature and precipitation**
- Calculate changes from one five year period to the next (average t-6 through t-10)-(average t-1 through t-5)
- Separately code variables for increases and decreases in precipitation or temperature

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Key variables

- **Dependent variable: emigration rate from country X in year t based on migration to OECD countries**
- Independent variables:
 - Precipitation and temperature
 - Positive shock: value of average annual precipitation in year t
 - Negative shock: value of average annual temperature in year t
 - Controls: civil war, democracy, income, income-squared, growth rate, lagged (five year) emigration, year fixed effects

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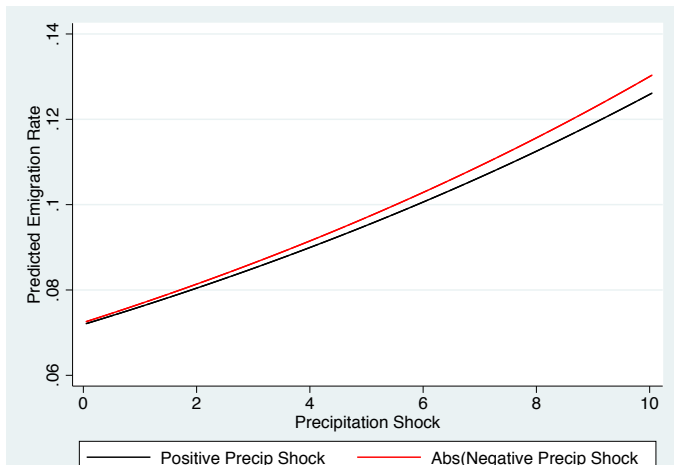
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Results

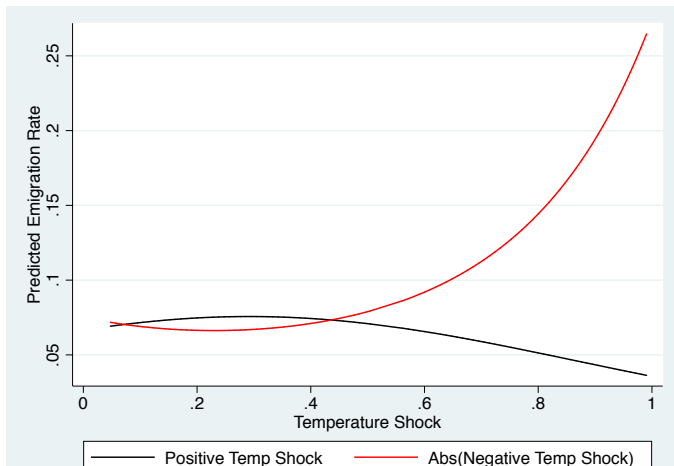
	Model 1	Model 2
Negative Precipitation Shock	0.059*	
Positive Precipitation Shock	0.056**	
Negative Temperature Shock		1.314**
Negative Temperature Shock Squared		-1.608
Positive Temperature Shock		0.662*
Positive Temperature Shock Squared		-1.149**

Marginal Effects of Precipitation Changes on Emigration Rates



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Marginal Effects of Temperature Changes on Emigration Rates



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Does Starting Precipitation Level Matter?

	Model 3	Model 4
Negative Precipitation Shock	0.084**	
Dry (bottom 25%)	-0.009	
Negative Shock*Dry	-0.218**	
Positive Precipitation Shock		-0.009
Wet (top 25%)		0.186*
Positive Shock*Wet		0.016
N	2909	2909
Countries	176	176

Does Starting Temperature Level Matter?

	Model 5	Model 6
Positive Temperature Shock	0.128	
Hot (top 25%)	-0.123	
Positive Shock*Hot	1.164**	
Negative Temperature Shock		-0.657
Cold (bottom 25%)		0.023
Negative Shock*Cold		1.315**
N	2907	2907
Countries	176	176

Conclusion

- Beginning of a project: could go in many directions. Particularly interested in examining how environmental migrants are similar/dissimilar to those who migrate for other reasons
- Some interesting relationships:
 - Changes in temperature and precipitation do seem to be correlated with emigration rates
 - Not necessarily in the same way
 - Consistent with increased push factors and decreased ability to migrate
- Future phases will try to better understand these relationships and take in new directions

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Main Results

	Model 1	Model 2
Negative Precipitation Shock	0.059*	
Positive Precipitation Shock	0.056**	
Negative Temperature Shock		1.314**
Negative Temperature Shock Squared		-1.608
Positive Temperature Shock		0.662*
Positive Temperature Shock Squared		-1.149**
Civil War	-0.070	-0.073
Democracy	0.082***	0.083***
Income	0.877***	0.875***
Income squared	-0.051***	-0.051***
Income growth	0.002	0.002
Emigration (lagged 5)	0.695***	0.699***
Fixed Effects	year	year
Observations	2909	2907