Comments
7th Urbanization and Poverty Reduction Research Conference| Jan. 30, 2023

SESSION 1: CLIMATE-INDUCED MIGRATION

Esha Zaveri
Senior Economist, Water Global Practice

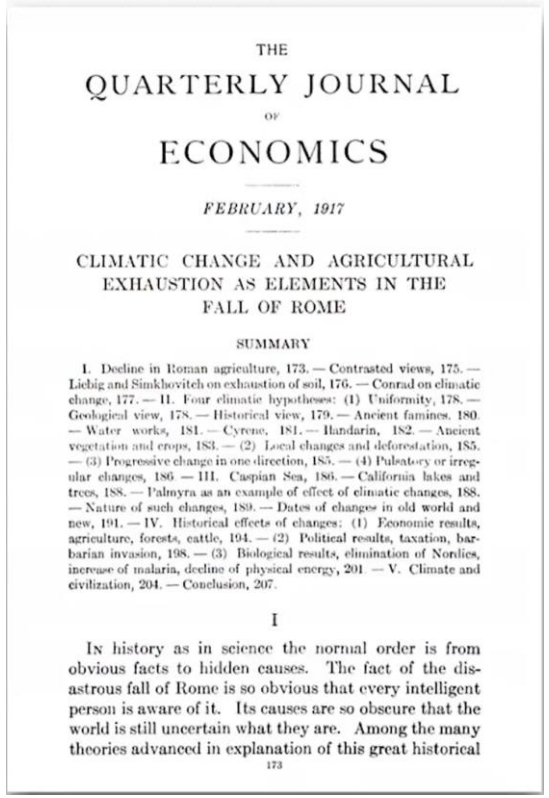
Key knowledge gaps in the adaptation space

- Spatial distribution of risk and uncertainty, how to manage global aggregate risk?
- Causes of inequality and role of income in ability to adapt?
- What will happen with migration? Conflict?

Both papers pushing the frontier

Paper 1: **New method to estimate climate damages:**

- Measure effect of climate change on *within* country spatial distribution of population to assign weights to different climate moments (many..) + Combine with macro growth model.
- A grounded look at the fundamentals, estimates the benefits of adaptation (mobility), granular projections



THE
QUARTERLY JOURNAL
OF
ECONOMICS

FEBRUARY, 1917

CLIMATIC CHANGE AND AGRICULTURAL EXHAUSTION AS ELEMENTS IN THE FALL OF ROME

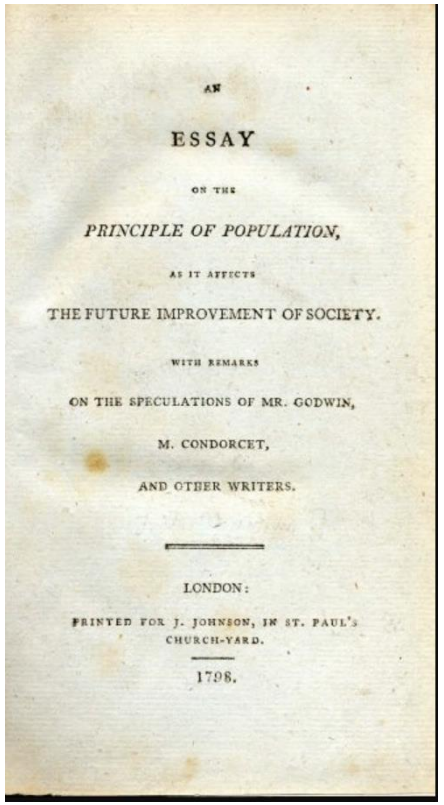
SUMMARY

I. Decline in Roman agriculture, 173. — Contrasted views, 175. — Liebig and Simkhovitch on exhaustion of soil, 176. — Conrad on climatic change, 177. — II. Four climatic hypotheses: (1) Uniformity, 178. — Geological view, 178. — Historical view, 179. — Ancient famines, 180. — Water works, 181. — Cyrene, 181. — Bandarin, 182. — Ancient vegetation and crops, 183. — (2) Local changes and deforestation, 185. — (3) Progressive change in one direction, 185. — (4) Pulsatory or irregular changes, 186. — III. Caspian Sea, 186. — California lakes and trees, 188. — Palmyra as an example of effect of climatic changes, 188. — Nature of such changes, 189. — Dates of changes in old world and new, 191. — IV. Historical effects of changes: (1) Economic results, agriculture, forests, cattle, 194. — (2) Political results, taxation, barbarian invasion, 198. — (3) Biological results, elimination of Nordics, increase of malaria, decline of physical energy, 201. — V. Climate and civilization, 204. — Conclusion, 207.

I

In history as in science the normal order is from obvious facts to hidden causes. The fact of the disastrous fall of Rome is so obvious that every intelligent person is aware of it. Its causes are so obscure that the world is still uncertain what they are. Among the many theories advanced in explanation of this great historical

173



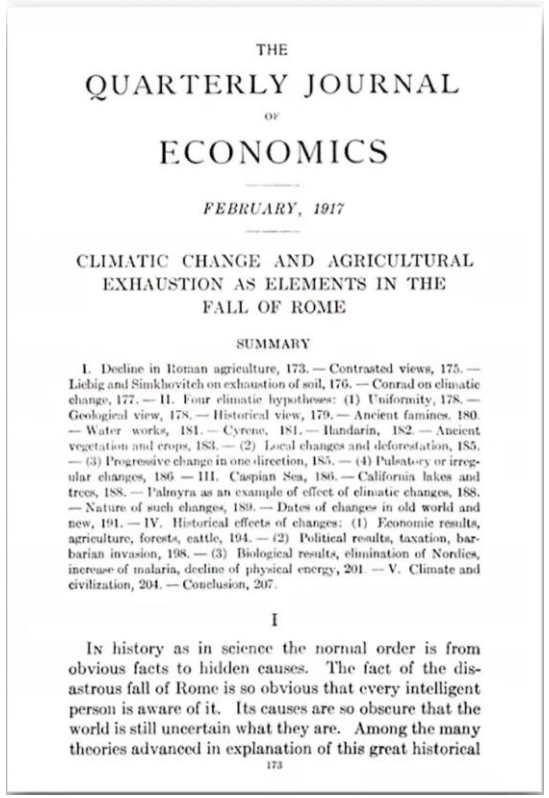
AN
ESSAY
ON THE
PRINCIPLE OF POPULATION,
AS IT AFFECTS
THE FUTURE IMPROVEMENT OF SOCIETY.
WITH REMARKS
ON THE SPECULATIONS OF MR. GODWIN,
M. CONDORCET,
AND OTHER WRITERS.

LONDON:
PRINTED FOR J. JOHNSON, IN ST. PAUL'S CHURCH-YARD.
1798.

Both papers pushing the frontier

Paper 1: **New method to estimate climate damages:**

- Measure effect of climate change on *within* country spatial distribution of population to assign weights to different climate moments (many..) + Combine with macro growth model.
- A grounded look at the fundamentals, estimates the benefits of adaptation (mobility), granular projections



THE
QUARTERLY JOURNAL
OF
ECONOMICS

FEBRUARY, 1917

CLIMATIC CHANGE AND AGRICULTURAL EXHAUSTION AS ELEMENTS IN THE FALL OF ROME

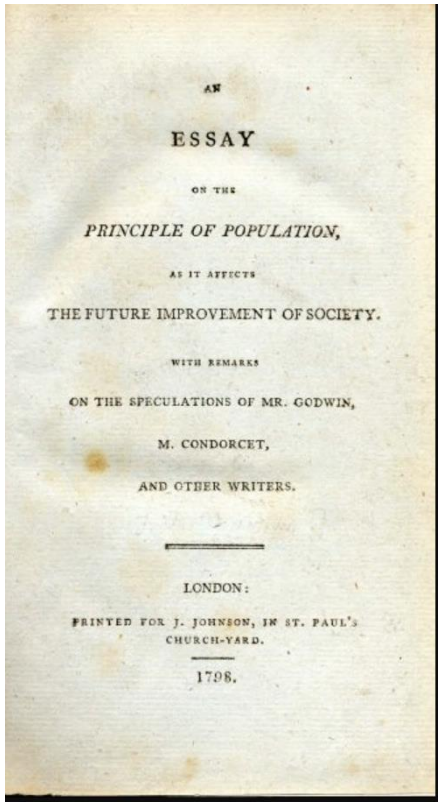
SUMMARY

I. Decline in Roman agriculture, 173. — Contrasted views, 175. — Liebig and Simkhovitch on exhaustion of soil, 176. — Conrad on climatic change, 177. — II. Four climatic hypotheses: (1) Uniformity, 178. — Geological view, 178. — Historical view, 179. — Ancient famines. 180. — Water works, 181. — Cyrene, 181. — Bandarin, 182. — Ancient vegetation and crops, 183. — (2) Local changes and deforestation, 185. — (3) Progressive change in one direction, 185. — (4) Pulsatory or irregular changes, 186. — III. Caspian Sea, 186. — California lakes and trees, 188. — Palmyra as an example of effect of climatic changes, 188. — Nature of such changes, 189. — Dates of changes in old world and new, 191. — IV. Historical effects of changes: (1) Economic results, agriculture, forests, cattle, 194. — (2) Political results, taxation, barbarian invasion, 198. — (3) Biological results, elimination of Nordics, increase of malaria, decline of physical energy, 201. — V. Climate and civilization, 204. — Conclusion, 207.

I

In history as in science the normal order is from obvious facts to hidden causes. The fact of the disastrous fall of Rome is so obvious that every intelligent person is aware of it. Its causes are so obscure that the world is still uncertain what they are. Among the many theories advanced in explanation of this great historical

173



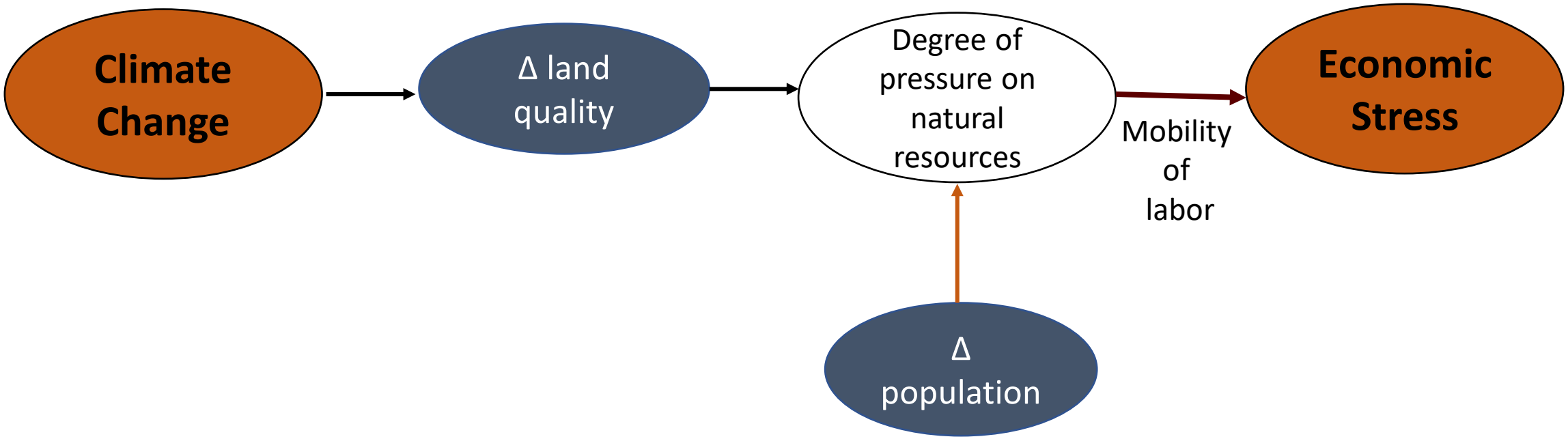
AN
ESSAY
ON THE
PRINCIPLE OF POPULATION,
AS IT AFFECTS
THE FUTURE IMPROVEMENT OF SOCIETY.
WITH REMARKS
ON THE SPECULATIONS OF MR. GODWIN,
M. CONDORCET,
AND OTHER WRITERS.

LONDON:
PRINTED FOR J. JOHNSON, IN ST. PAUL'S CHURCH-YARD.
1798.

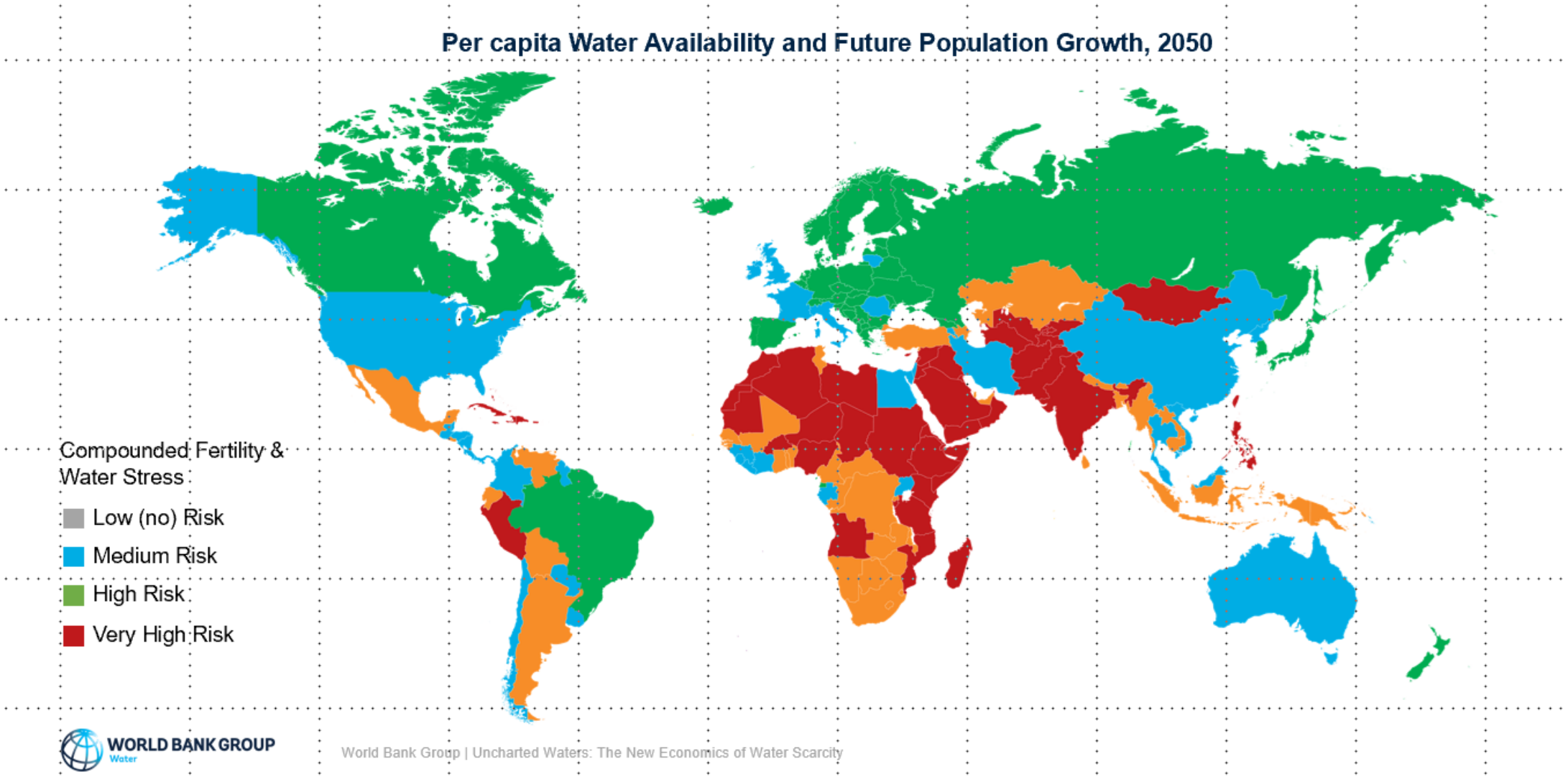
Paper 2: How much do people's information about climate matter for adaptation?

- Elicit beliefs after providing forecasts on climate change, damages in oder to study adaptation (mobility) decisions
- Move away from perfect information assumption

Paper 1: **New method to estimate climate damages:**

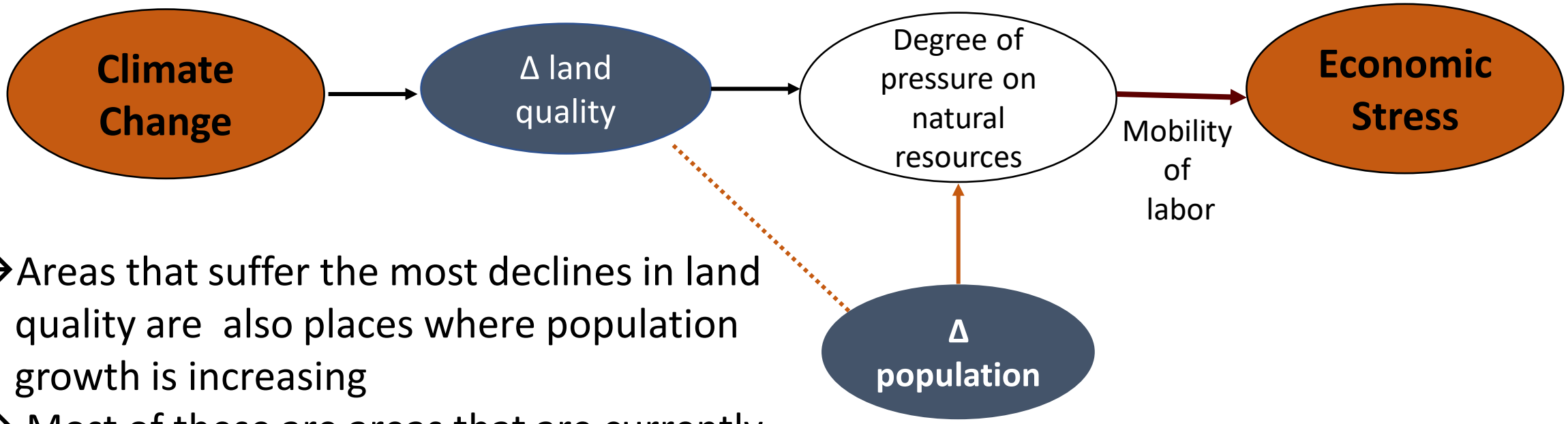


Paper 1: **New method to estimate climate damages:**



Source: Damania et al., 2017. Uncharted Waters: The New Economics of Water Scarcity and Variability, World Bank

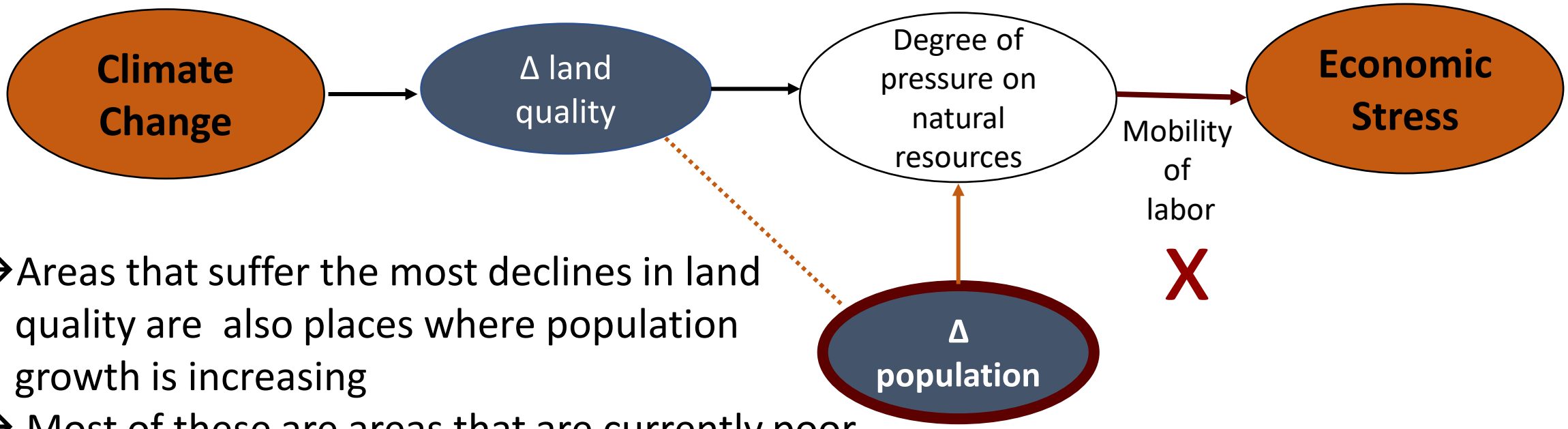
Paper 1: **New method to estimate climate damages:**



→Areas that suffer the most declines in land quality are also places where population growth is increasing

→ Most of these are areas that are currently poor

Paper 1: **New method to estimate climate damages:**



→Areas that suffer the most declines in land quality are also places where population growth is increasing

→ Most of these are areas that are currently poor

→Biggest driver of economic damages is population growth

→labor mobility makes little difference in the damage estimates

Paper 1: **New method to estimate climate damages:**

- How uncertain are these population projections?
- Many non-linearities and threshold effects (sea level rise or shift in ecosystem services)–makes estimating future losses hard.
  - Use historical and natural climate model experiments from CMIP6 to estimate how much anthropogenic CC has already affected the economy? (Ortiz-Bobea, et al., 2021; Callahan and Mankin, 2022)

Paper 2: **How much does people's information about climate matter for adaptation?**

- **Some of the first evidence on beliefs and impacts.**
  - People seem to be pessimistic, expect to adapt in-place
  - Less intention to move with information

Paper 2: **How much does people's information about climate matter for adaptation?**

- Tantalizing questions at the end! Curious about heterogeneity in exposure since, for example, socially disadvantaged groups may be exposed more and respond differently

Paper 2: **How much does people's information about climate matter for adaptation?**

Why adaptation through migration isn't considered? Channels of misallocation to understand policy responses

- Sorting due to constraints faced – land or credit?
- Different attitudes to risk– immobility as a choice?
- Migration seen as a failure to adapt?

Paper 2: **How much does people's information about climate matter for adaptation?**

Climate moments considered:

- substantial regional variations driven by the country's topology e.g. groundwater depletion in NW drought prone areas but salinity in the southern coastal areas...
- Also, groundwater change is a long-term change and is also impacted by climate and anthropogenic factors..
- Making a distinction between slow onset versus sudden onset?
  - different types of shocks lead to different types of responses.

Conclusion

- An optimal strategy would need to balance both short-run and long-run trade-offs.

- Complement strategies that reduce climate risks and impacts with those that broaden opportunities and build the long-term resilience of communities. e.g. education as a portable asset

- Better understanding of the spatial distribution of risk and impacts can help to target appropriate policies