

# Economic growth and adaptation to climate change

**Green Growth and the New Industrial Revolution**  
**26 March 2015**

Sam Fankhauser  
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# The “macroeconomics” of adaptation

- From adaptation projects...
  - Small, self-contained, bespoke measures
  - Often promoted by environment ministries
- ... to climate-resilient development
  - Climate-risk reflected in development strategies
  - Promoted by economy, finance, planning ministries



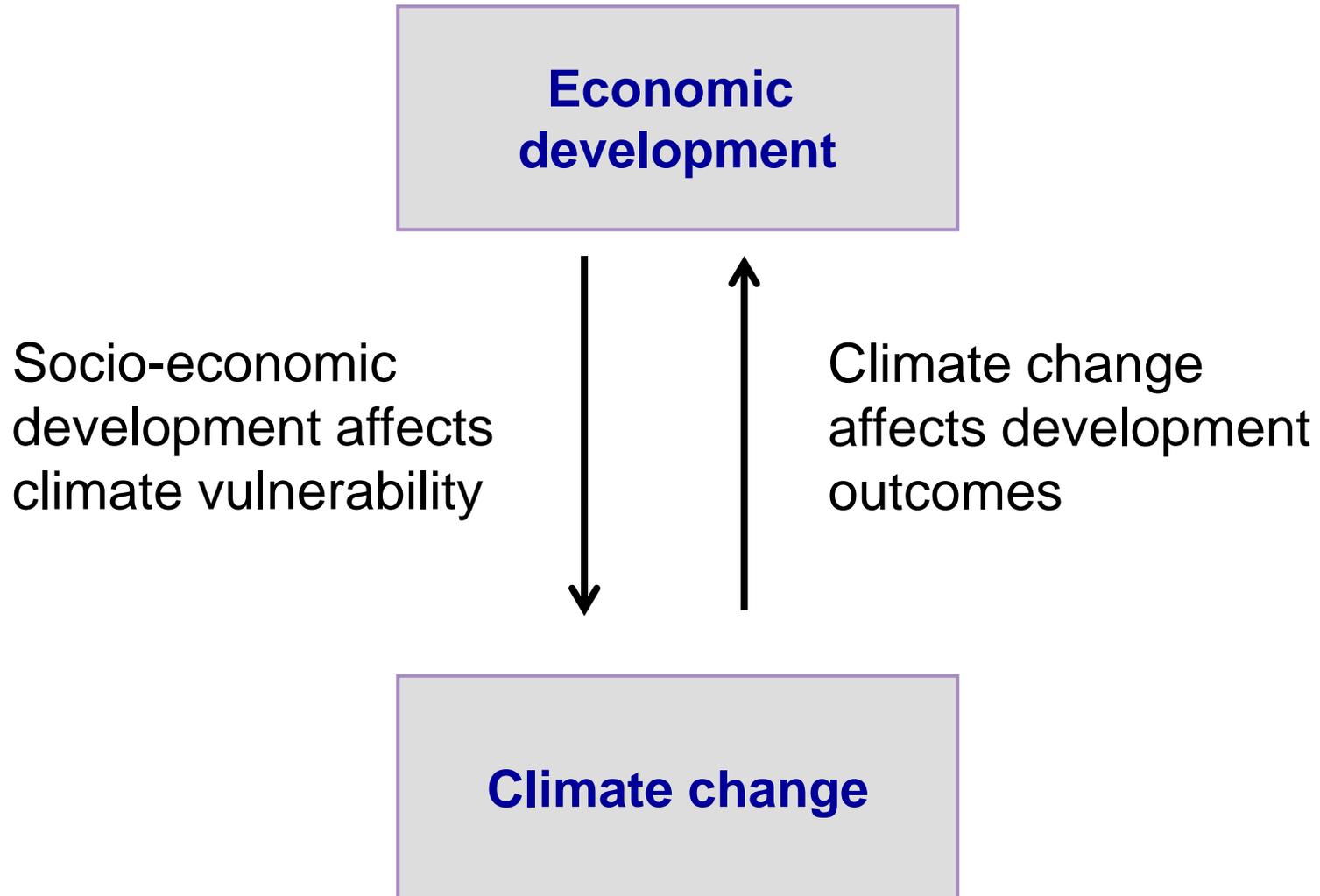
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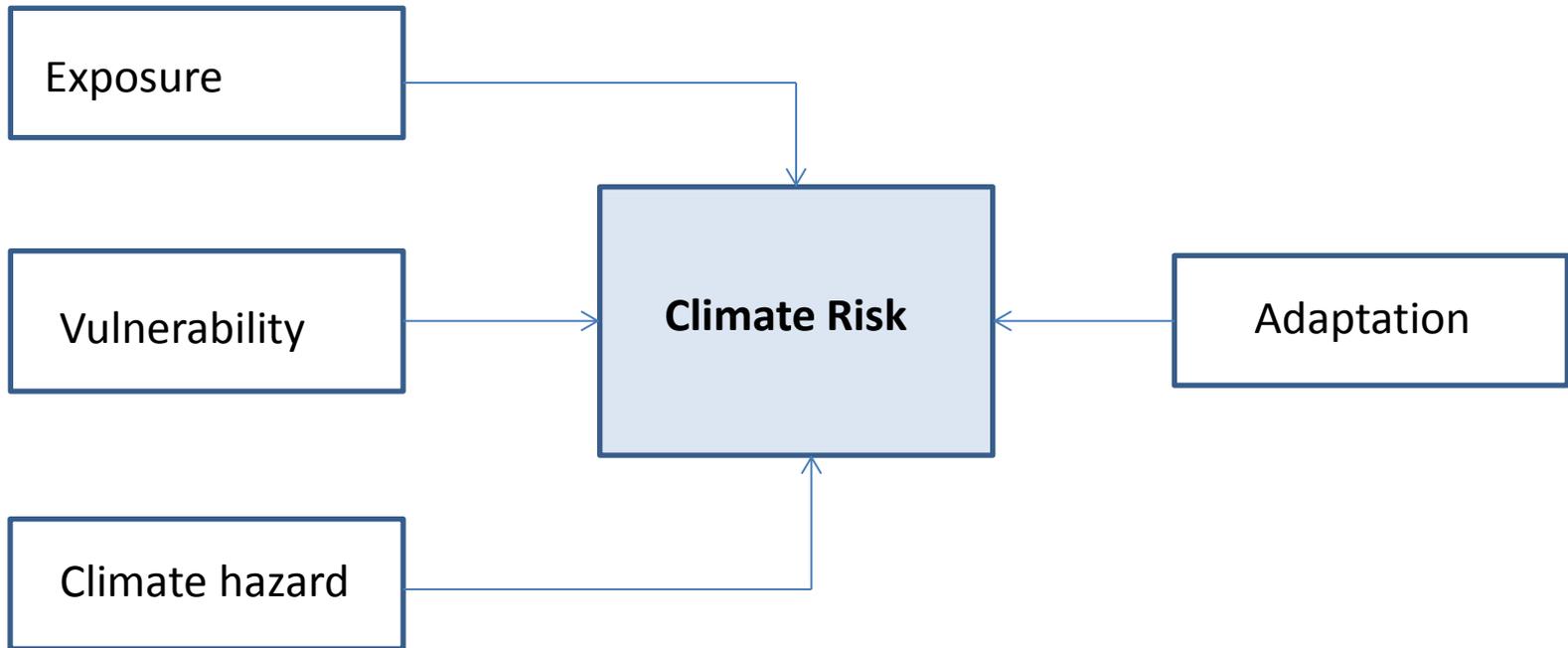
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# The links between climate and development

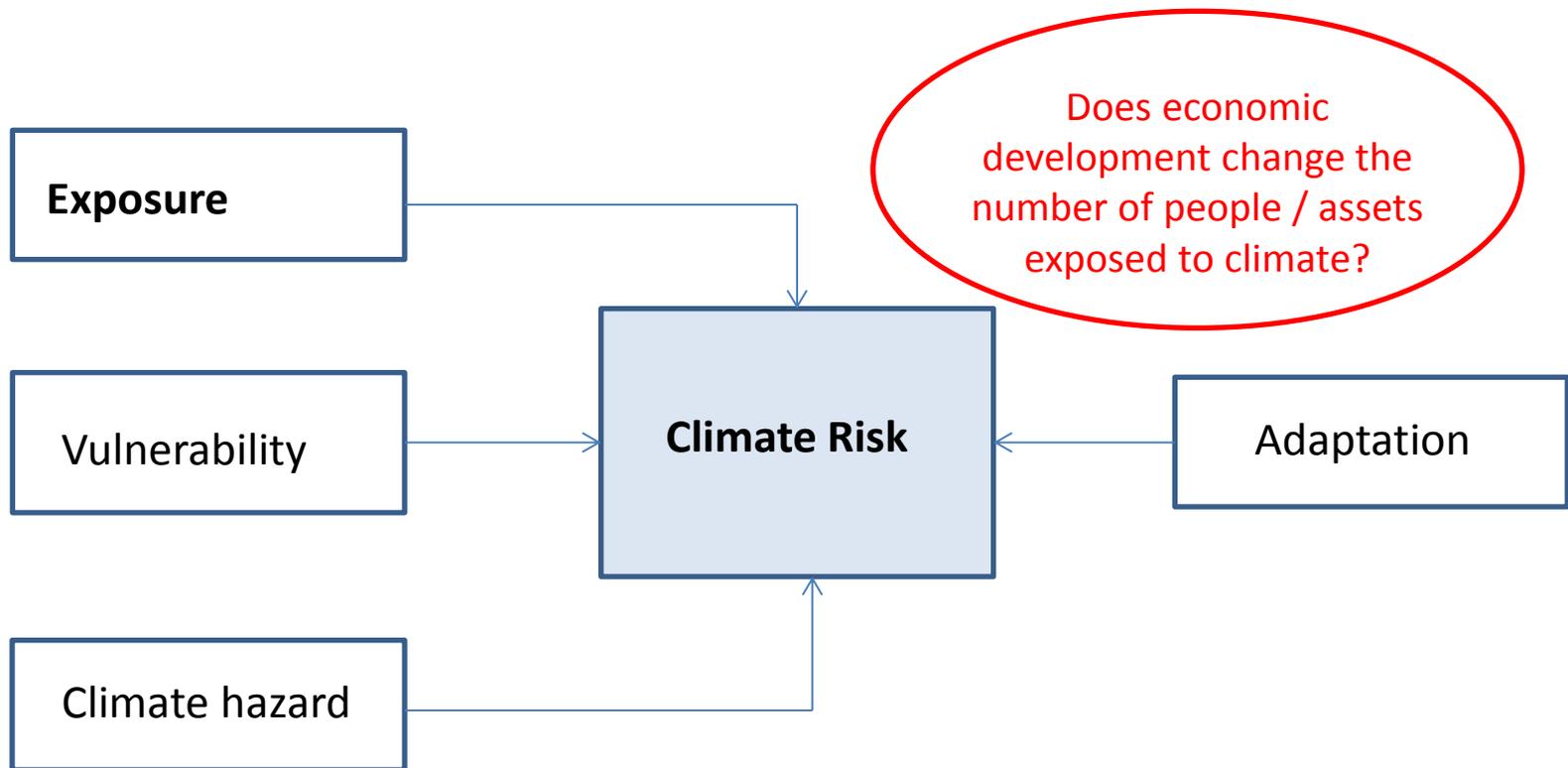


# Some definitions



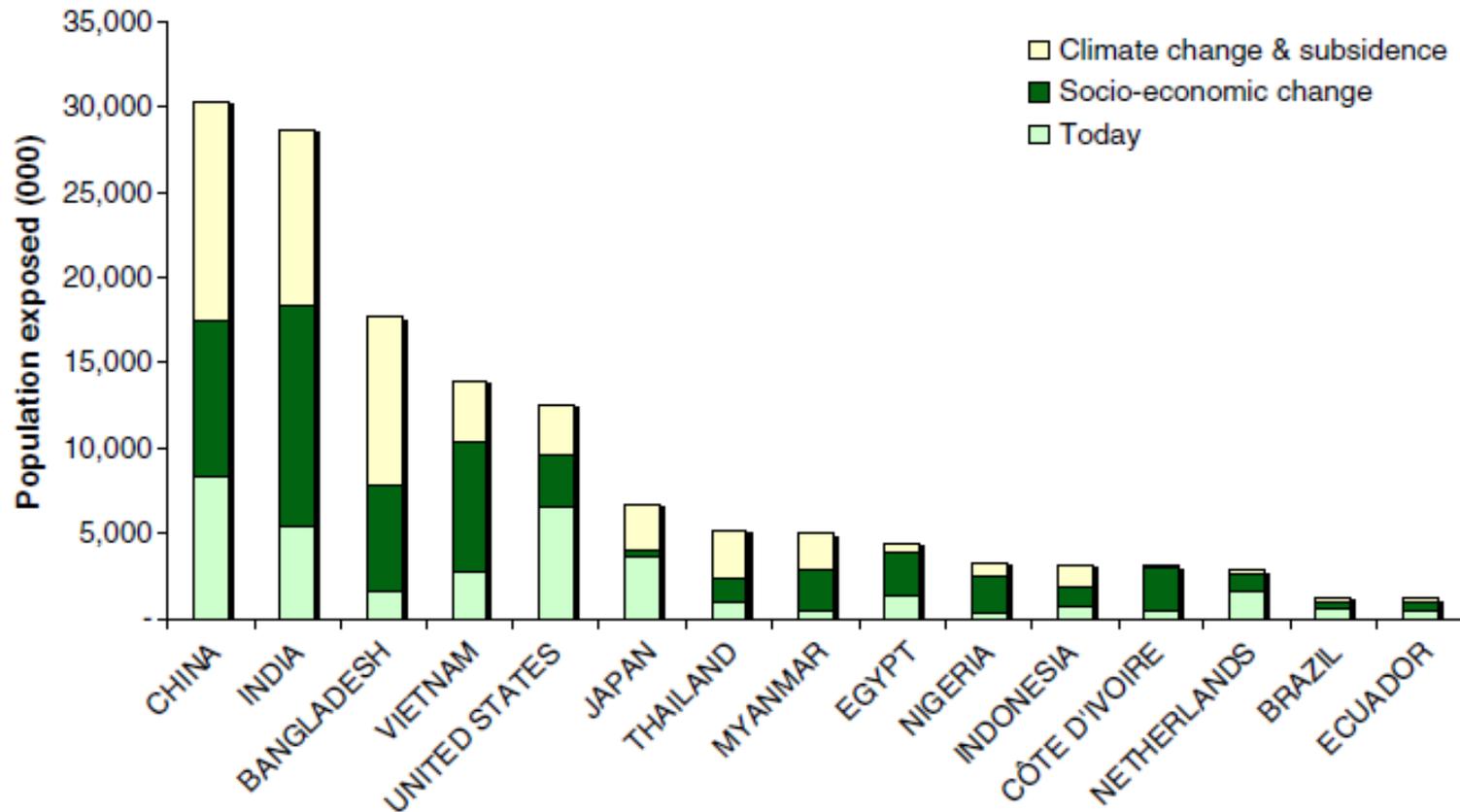
Source: IPCC 2014, Working Group II

# Socio-economic development and exposure



# Economic development and exposure

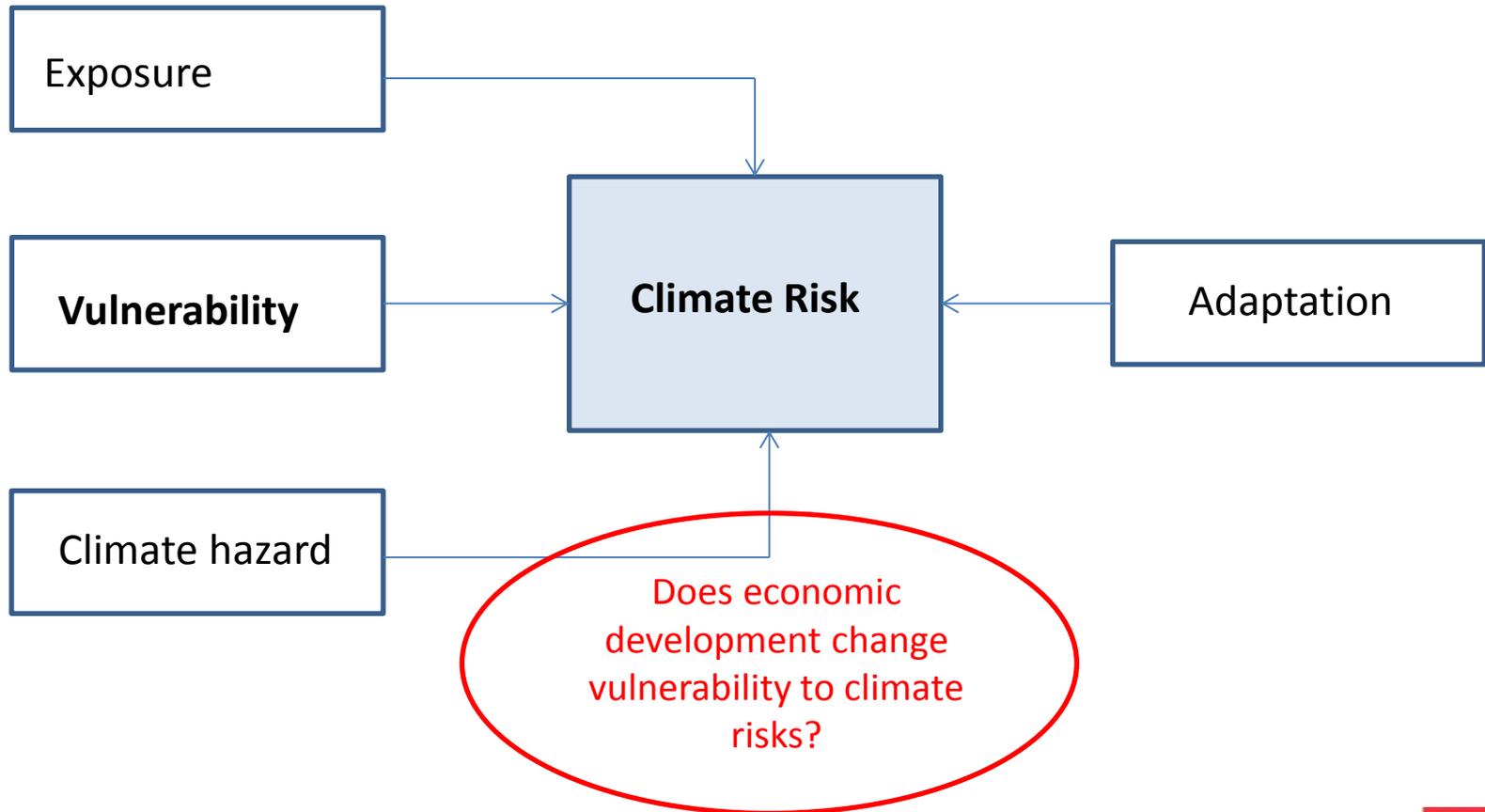
Example: Urbanisation and exposure to coastal flooding



Source: S. Hanson et al, Climatic Change 2011 (data for main cities in 2070s)



# Socio-economic development and vulnerability



# Economic development and vulnerability

Example, rural development may increase or decrease vulnerability



Resource intensive specialisation may increase vulnerability



Economic diversification may reduce vulnerability



# Economic development and vulnerability

Example, the effect of economic integration

theguardian

News Sport Comment Culture Business Money Life & style

News World news Kenya

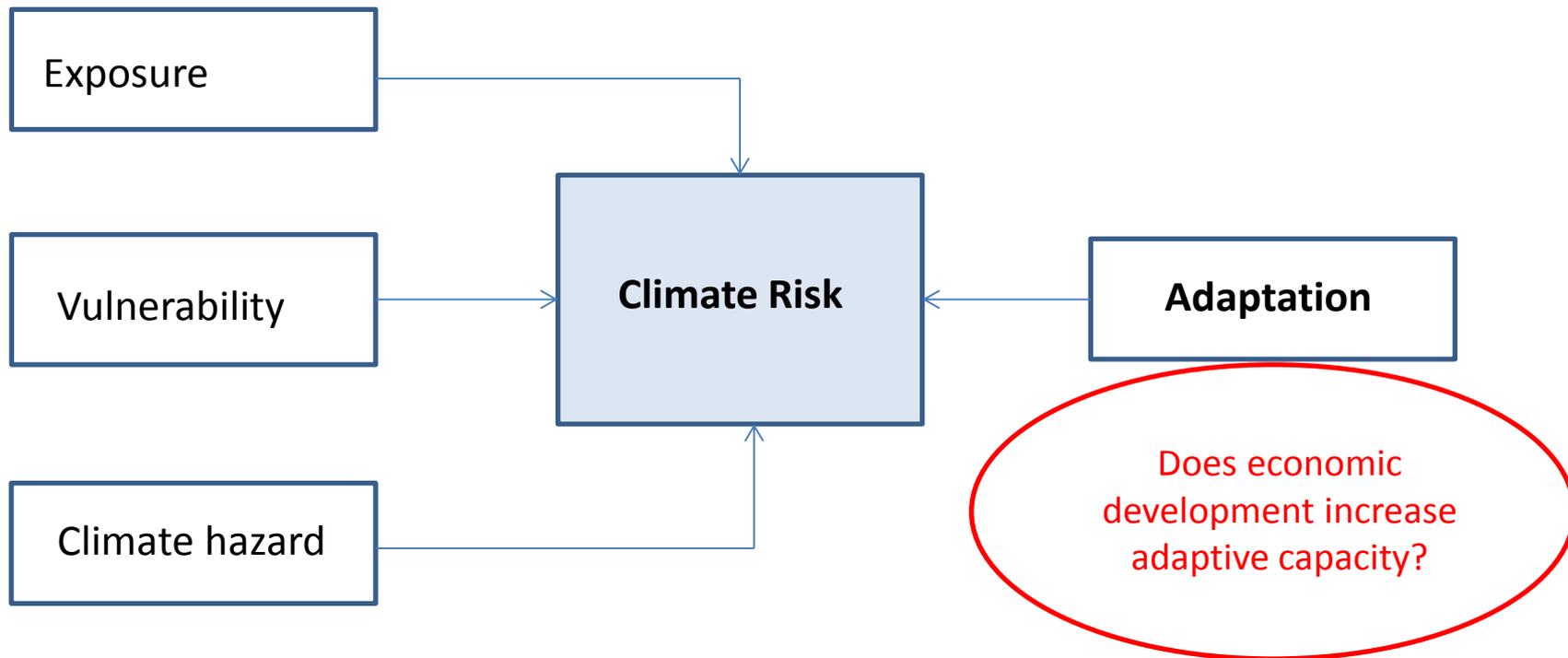
## Iceland volcano: Kenya's farmers losing \$1.3m a day in flights chaos

5,000 workers laid off and tonnes of vegetables and flowers dumped as ash cloud engulfs Europe

Nick Wadhams in Nairobi  
The Guardian, Sunday 18 April 2010 18.42 BST



# Socio-economic development and vulnerability



# Economic development and adaptive capacity

All else equal, adaptation levels increase with income



Disaster recovery in Haiti (2010) ... and Japan (2011)



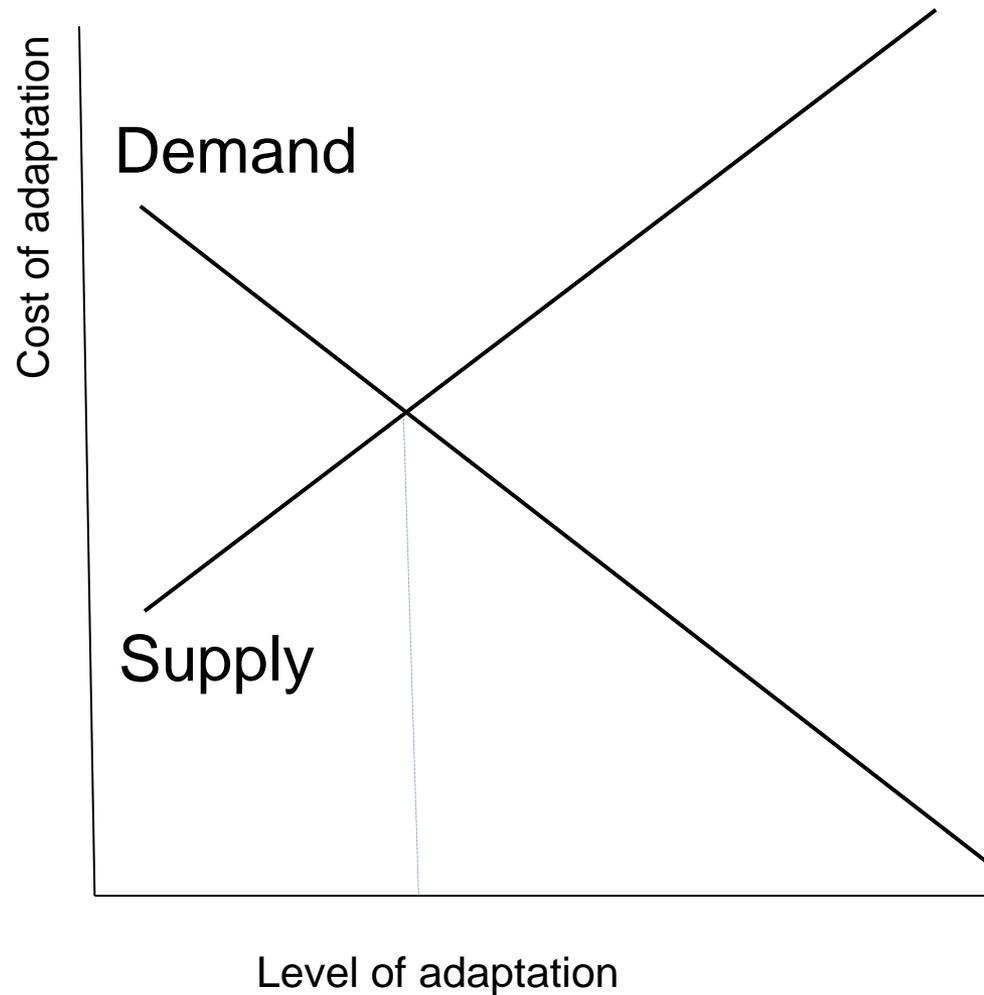
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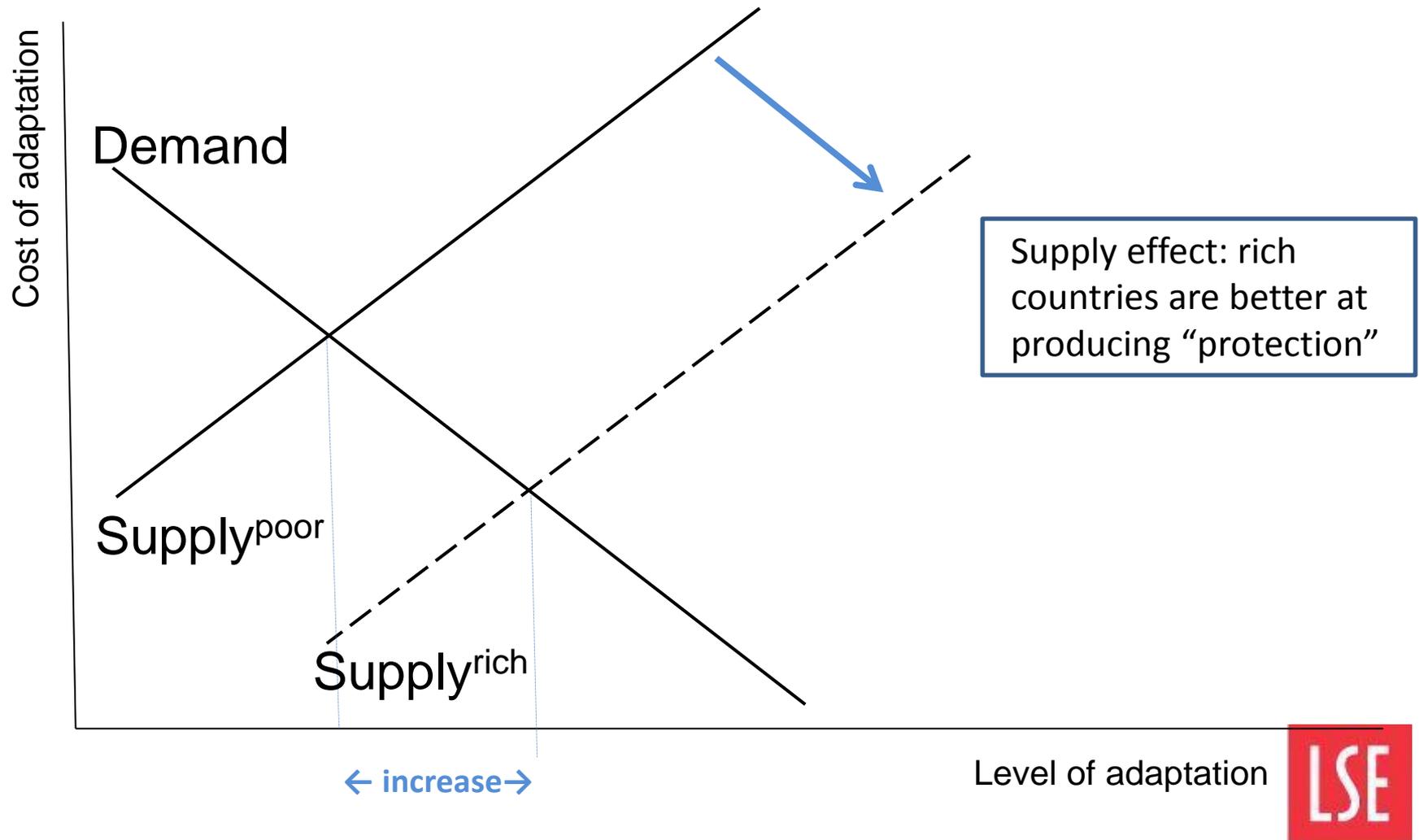
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# Why adaptation increases with income



# Why adaptation increases with income: supply



# Potential sources of a supply-side effect

- Better institutions / public services
  - Emergency services, enforcement of building codes, law and order, etc
- Better skills
  - Risk management procedures
- Access to credit
  - Finance for protection and reconstruction



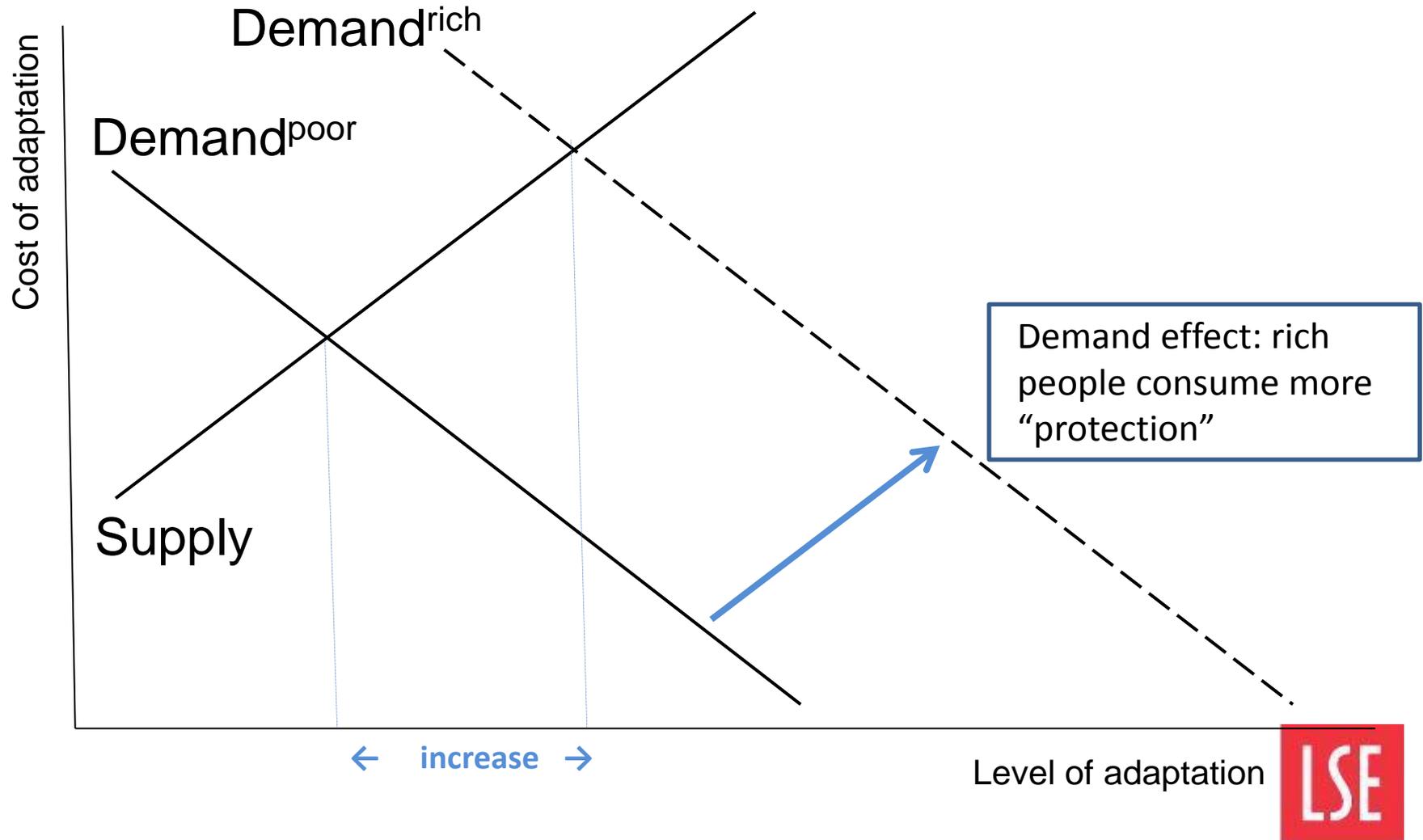
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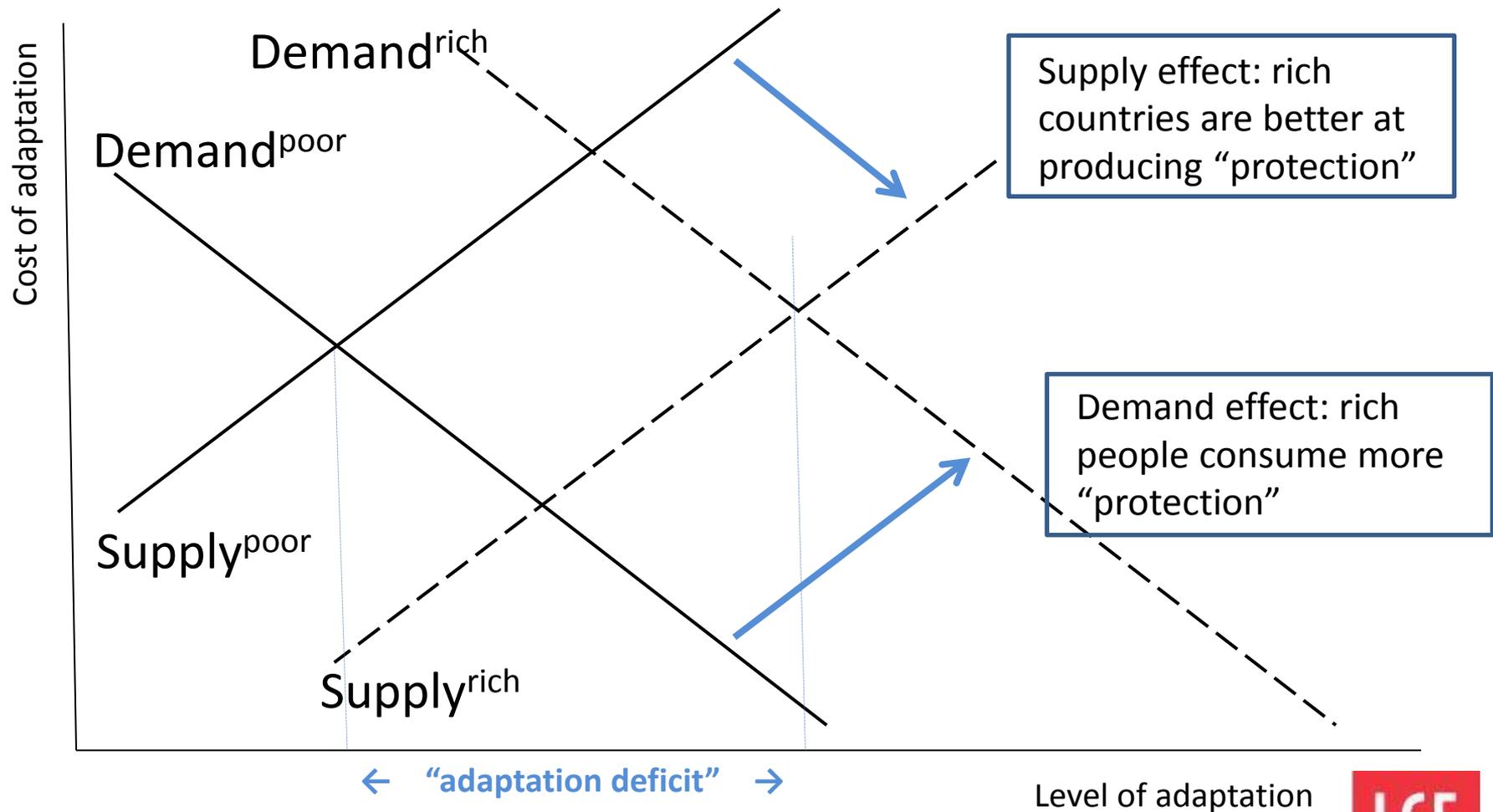
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# Why adaptation increases with income: demand



# Adaptive capacity: result of supply and demand effects



Level of adaptation

# Policy implication: climate-aware development

- A sound infrastructure
  - key to economic growth, but designs have to become “climate proof”; there may be a need for adaptation infrastructure
- High productivity
  - drives private sector-led growth, but must not come at the expense of higher sensitivity to shocks (e.g. from specialisation, development in risky areas)



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# Many growth policies are win-win

- A healthy natural environment
  - key to sustainable development and ecosystem resilience
- Good human capital
  - enhances labour productivity and people's ability to adapt
- Access to credit
  - boosts investment and facilitates recovery after an extreme event
- Resource efficiency (e.g. on water)
  - underpins productivity and reduces sensitivity to shocks



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