Asian Financial Crisis (1997)
- Growth of the Asian tigers (early 1990s)
- Inflow of foreign capital (dollar denominated debt)
- Overheating economies
- Currency collapse (Thai baht)
- Regional contagion

How vulnerable is the regional Southeast Asian economy to a similar crisis?
RESEARCH OBJECTIVES

 › Describe the properties of the Southeast Asia trade network from 1990 to 2013, with a particular focus on:
    Network robustness
    Network resilience

 › Explore implications on regional economic risk

 › Countries included:
   Australia, Brunei Darussalam, Indonesia, Cambodia, Lao, Myanmar, Malaysia, Philippines, Singapore, Thailand, East Timor, Vietnam

 › Network visualisation & analysis software
   Cytoscape
RESEARCH OBJECTIVES

Network topology → Robustness & resilience → Network vulnerability

Network vulnerability = Regional economic risk
› Trade network = social network
› Nodes = countries
› Edges = trade flows (exports and imports)
   ➲ Trade flows = USD
   ➲ Further breakdown by product code
› Directed network
› Failure = node (country) failure
› Robustness – system will retain its structure & function when exposed to perturbations (Holmgren 2006)
› Resilience – system can adapt and regain stability after perturbations (Holmgren 2006)
› Network performance = average shortest path length (Jeong & Barabasi 2000)
RESULTS

› Southeast Asian trade network topology has changed from 1990 to 2014
  
  - Increasingly connected
  
  - Greater clustering
  
  - Greater robustness
  
  - Greater resilience

› The Southeast Asia trade network has become less vulnerable to regional economic shocks compared to 1997, 2000, 2008
But need to look at degree distribution to determine random vs scale-free properties

- Jeong & Barabasi 2000 > scale free networks more vulnerable to attack (or failure of very specific nodes) due to degree distribution