

# Supply Chains as a Golden Straitjacket for Currency Manipulation

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# Motivation

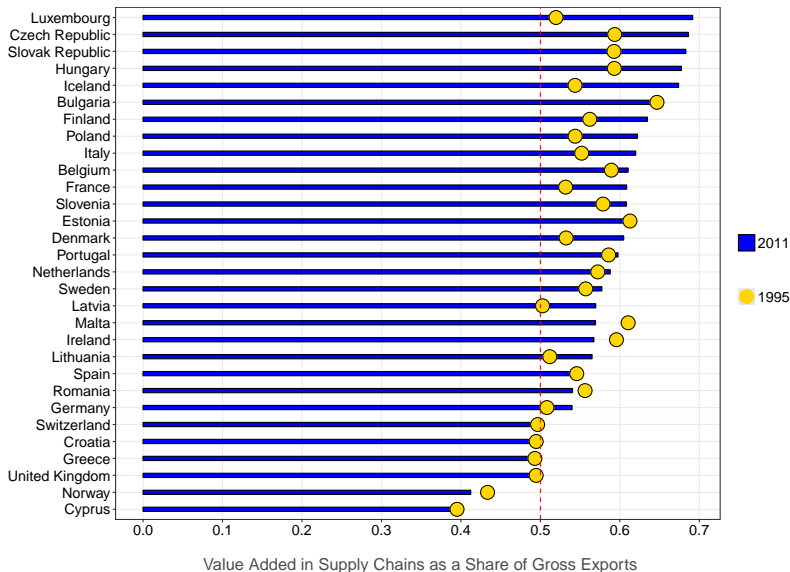
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  - ▶ **Leigh, Lian, Poplawski-Ribeiro, Tsyrennikov (2015)**: *some* evidence of a weakened relationship between exchange rates and trade

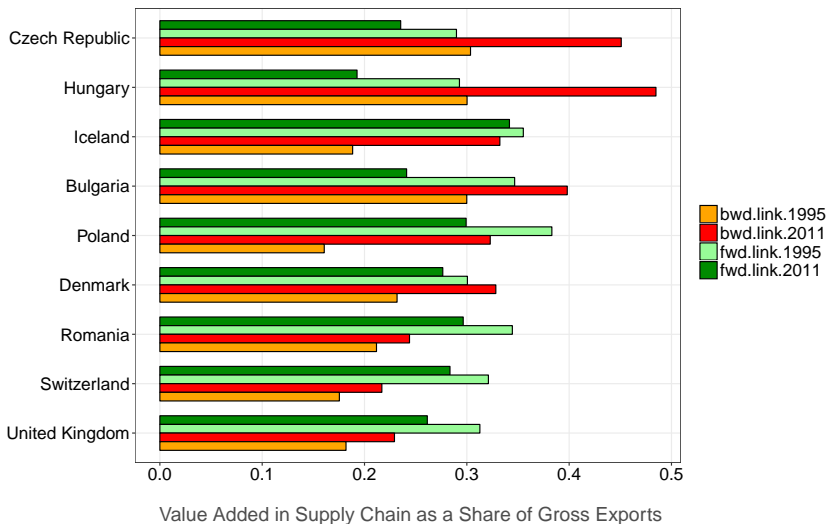
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2. Increasing participation in **global supply chains**
  - ▶ Average growth in supply chains, 1995-2011: **39%→52%**
3. Increasing concern over so-called **currency manipulators**
  - ▶ PIIE: China, Denmark, Hong Kong, Korea, Malaysia, Singapore, Switzerland, Taiwan

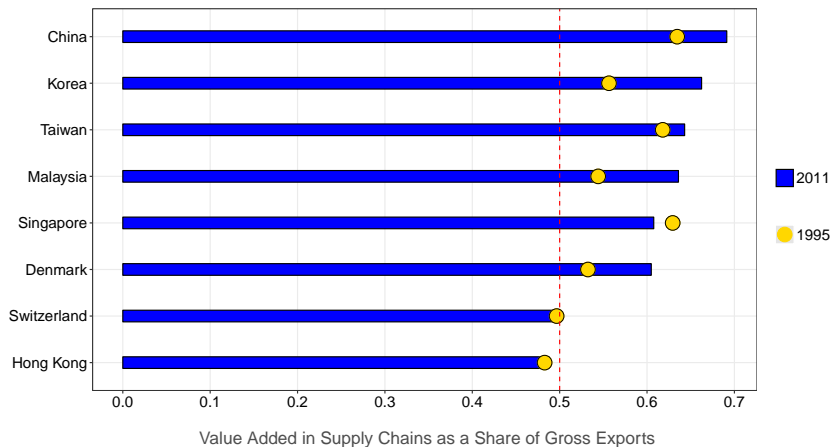
# Participation in Supply Chains, Europe: 1995–2011



# Participation in Backward Linkages, Europe: 1995–2011

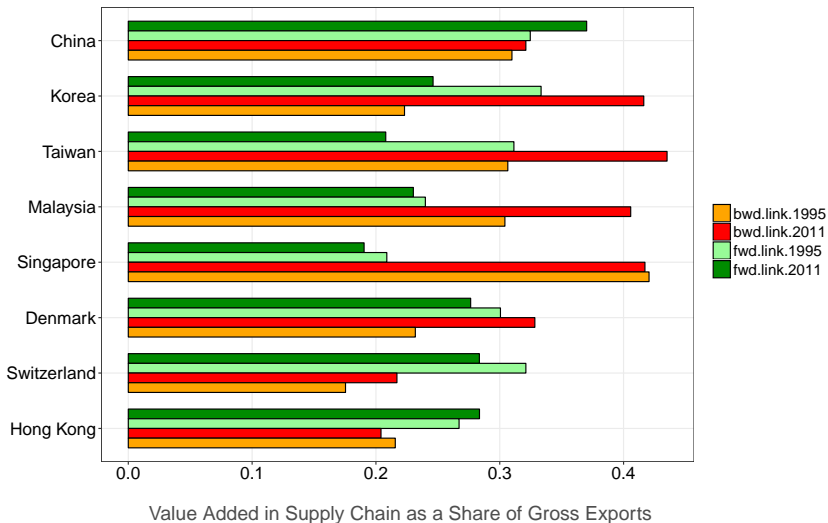


# Participation in Supply Chains, Manipulators: 1995–2011



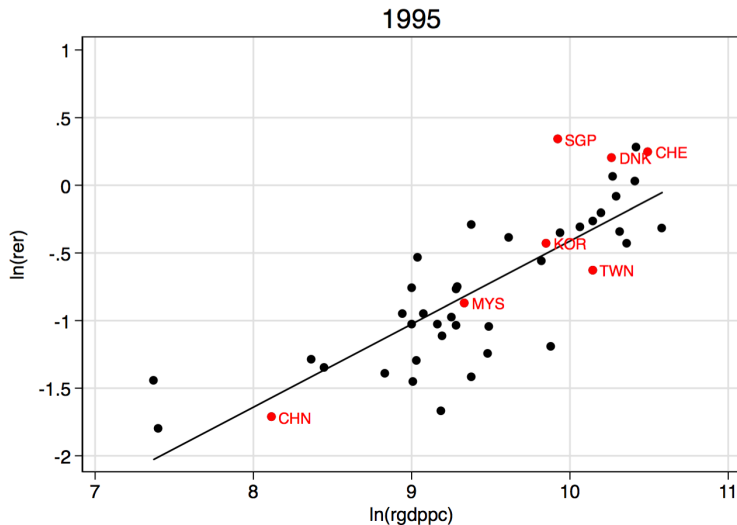


# Increasing Participation in Backward Linkages, Manipulators: 1995–2011



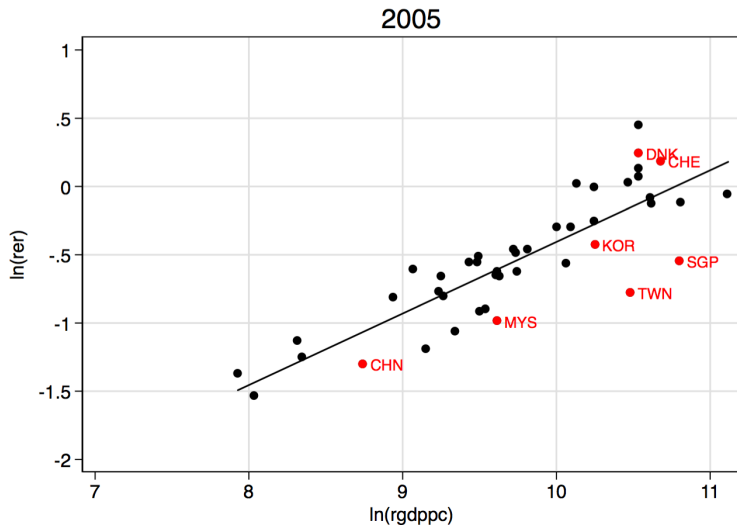
# Currency Manipulation Estimate

## Balassa-Samuelson Effect



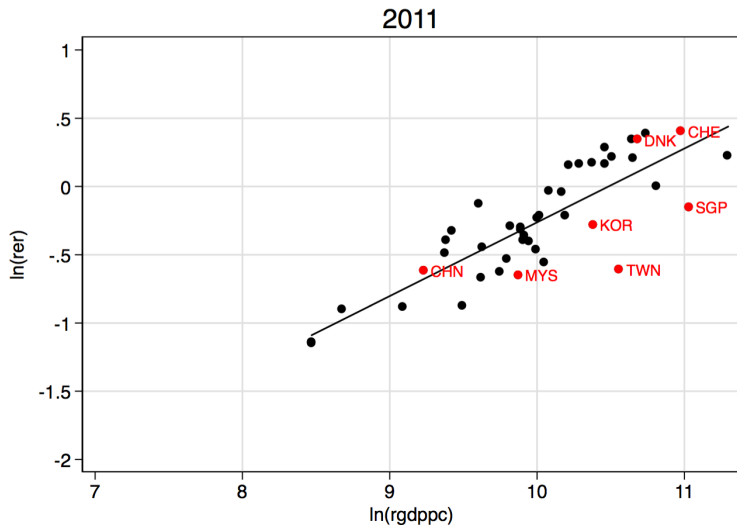
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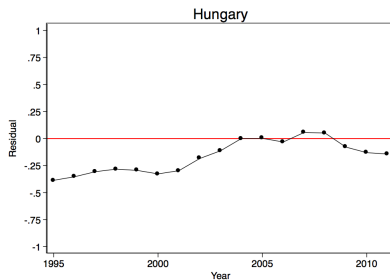
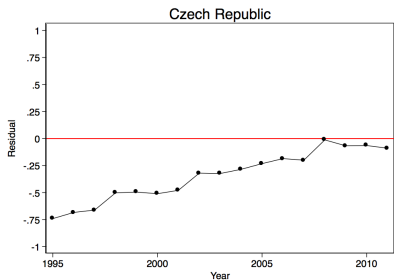
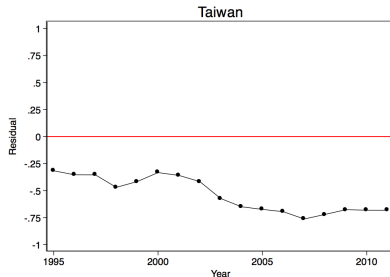
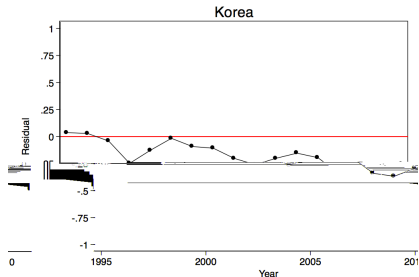


# Currency Manipulation Estimate

## Balassa-Samuelson Effect



# Currency Manipulation Estimate, Selected Time-Series



# Theoretical Predictions

Based on distributional effects of currency movements *a la* Frieden (2014)

## Model Specification

$$\text{xr.resid}_{i,t} \leftarrow \alpha + \beta_1 \text{supply.chain}_{i,t} \times \frac{\text{exp}}{\text{gdp}}_{i,t} + \beta' \mathbf{X} + \text{F.E.} + \epsilon_{i,t}$$

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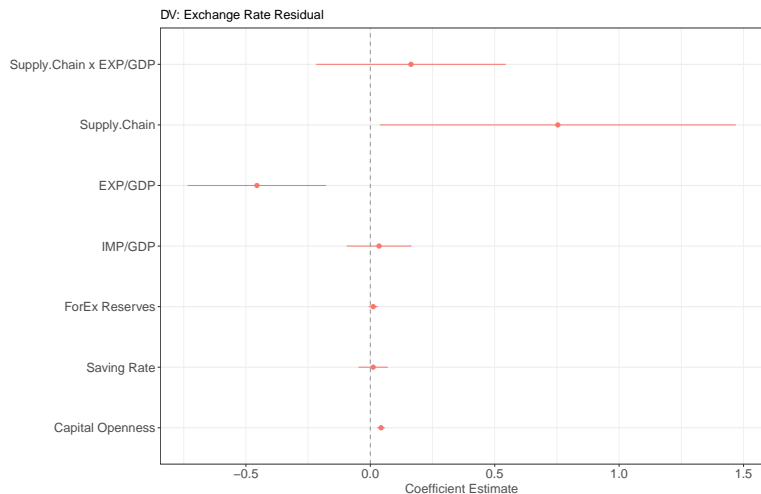
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1. Exporting countries:  
undervalued/depreciated (-)
2. Exporting countries reliant on supply chains:  
closer to “market-determined” rate (+)
3. Exporting countries reliant on backward linkages:  
closer to “market-determined” rate (+)
4. Exporting countries reliant on forward linkages:  
undervalued/depreciated (-)

# Empirical Results (Model 1)

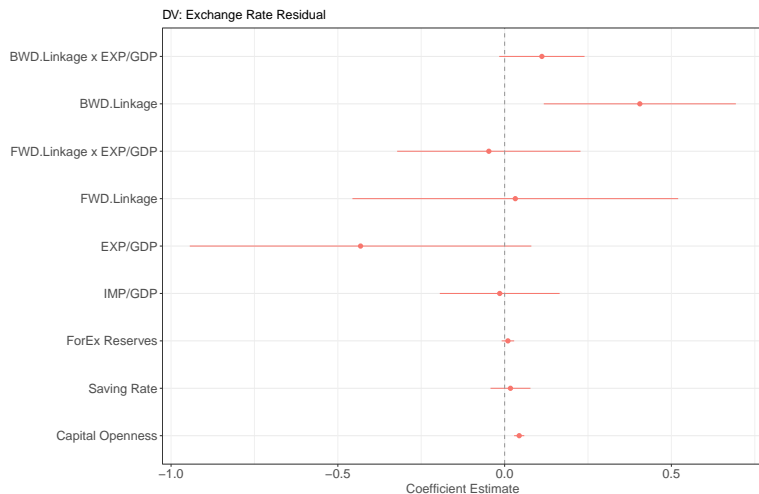
IV of Interest: Supply.Chain  $\times$  EXP/GDP



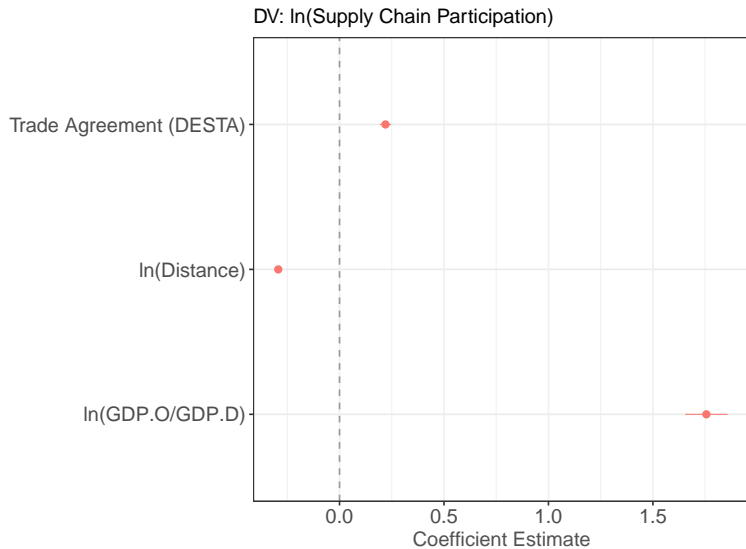


# Empirical Results (Model 2)

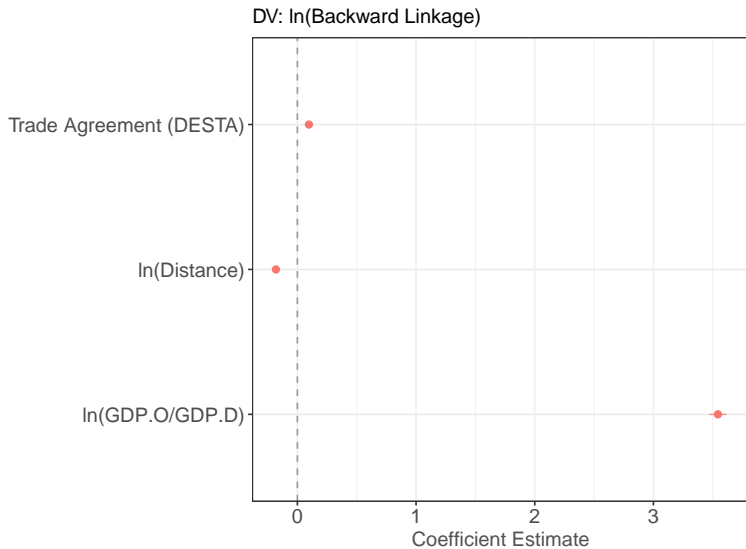
IVs of Interest:  $BWD.Linkage \times EXP/GDP$  and  $FWD.Linkage \times EXP/GDP$



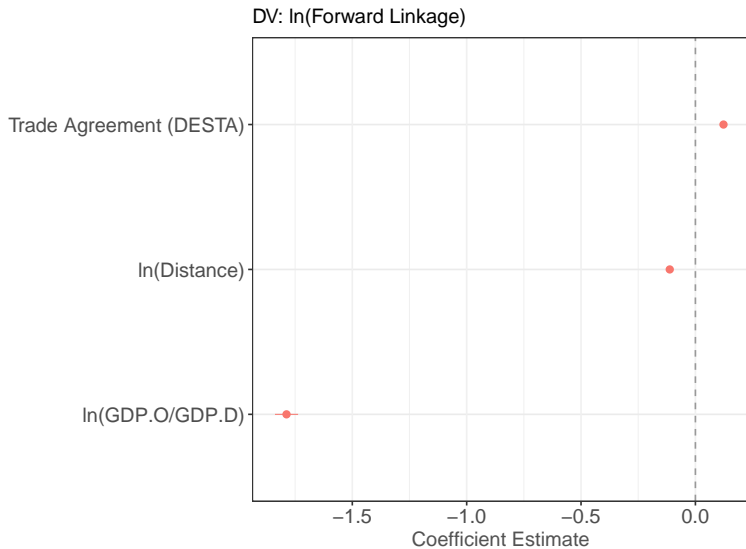
# Predictors of Supply Chain Integration



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# Conclusions

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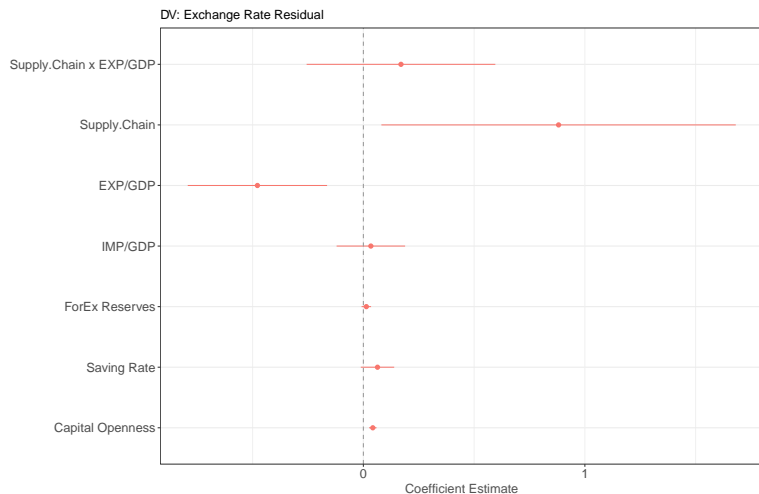
# Conclusions

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**Thank You!**

# Appendix 1:

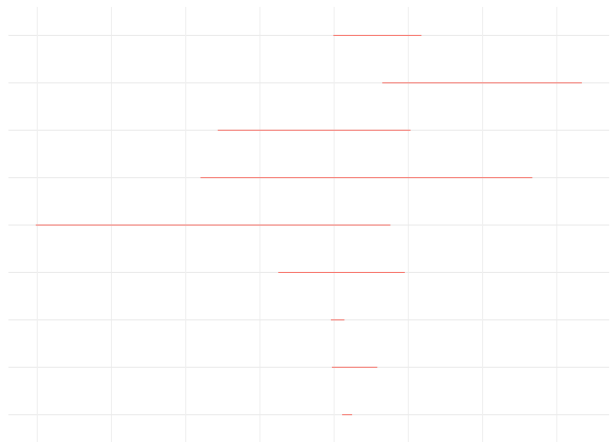
## Model 1, Without Eurozone Countries





# Appendix 2:

## Model 2, Without Eurozone Countries



## Appendix 3: NAFTA

Figure: Participation in Supply Chains, NAFTA: 1995-2011

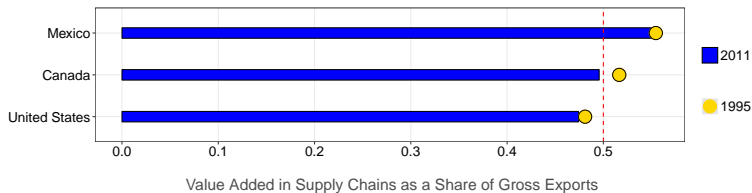
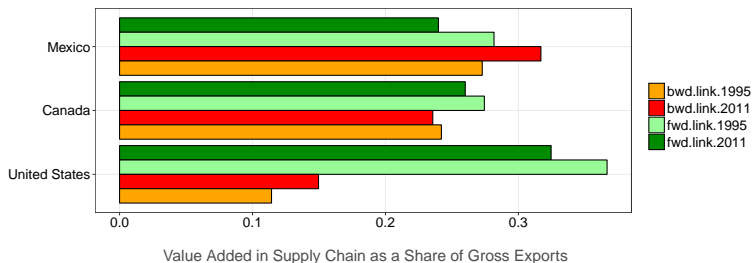
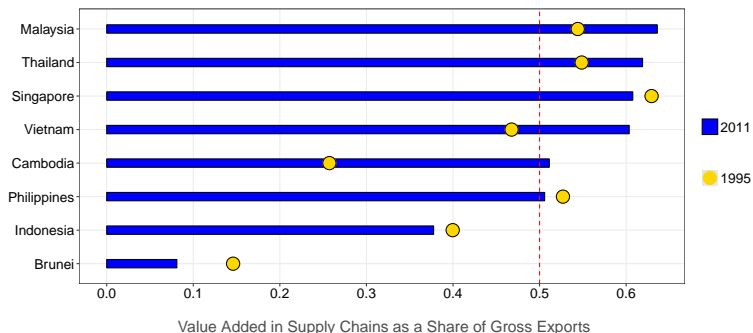


Figure: Backward/Forward Linkages, NAFTA: 1995-2011



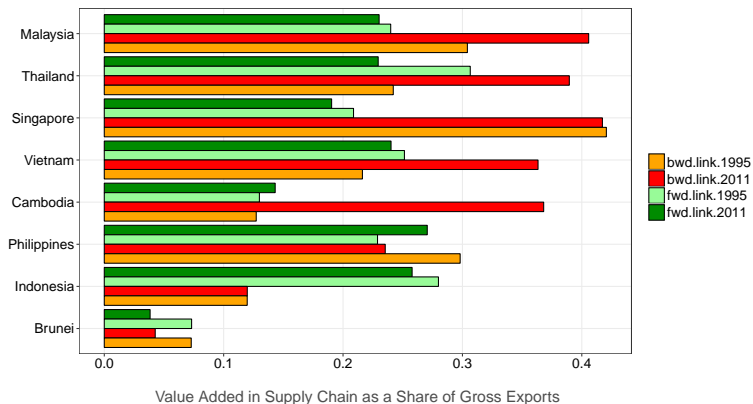
# Appendix 4a: ASEAN

Figure: Participation in Supply Chains, ASEAN: 1995-2011



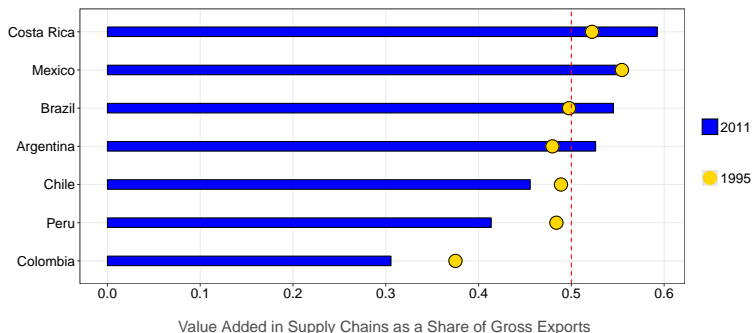
# Appendix 4b: ASEAN

Figure: Backward/Forward Linkages, ASEAN: 1995-2011



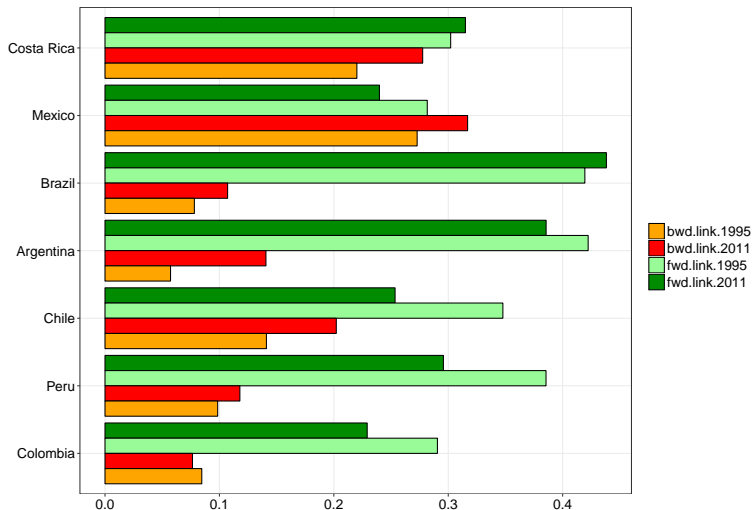
# Appendix 5a: Latin America

Figure: Participation in Supply Chains, Latin America: 1995-2011



## Appendix 5b: Latin America

Figure: Backward/Forward Linkages, Latin America: 1995-2011



Value Added in Supply Chain as a Share of Gross Exports

Figure: Participation in Supply Chains, Asia: 1995-2011

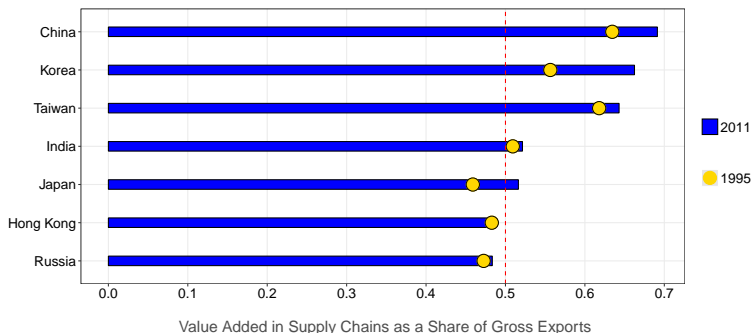


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