

# Re-analysing the Links among Aggregate Spending, National Income and the Trade Balance

A PowerPoint Presentation for a Contributed Paper  
presented by Dr Greg Connolly, Research Associate, CLMR  
to the 2018 Australian Conference of Economists,  
QT Hotel, Acton, ACT,  
11-13 July 2018

# Outline

- \* Background – research by Makin and Ratnasiri (2017)
- \* Methods
- \* Application to many countries
- \* Alternative Estimates
- \* Conclusions

# Makin and Ratnasiri (2017)

- \* “DOES AGGREGATE SPENDING DETERMINE GDP OR THE TRADE BALANCE?”
- \* 2017 ACE Contributed Paper
- \* Econometric analysis, quarterly data from Mar Q 2000 to June Q 2017
- \* Seven “external deficit prone” countries: Australia, Ireland, Italy, New Zealand, Spain, UK and USA

# Makin and Ratnasiri – Findings and Conclusion

- \* Key finding: an increase in aggregate demand leads to a one-for-one reduction in the international trade balance
- \* Key conclusion: “fiscal stimulus in the form of increased government spending fully dissipates in the trade deficit with no lasting effect on national income and employment”.

# Makin and Ratnasiri – Methods (1)

Starting point: key national accounting identity:

$$C + I + G + SB + ALDV + SD + (X - M) = Y \quad (1)$$

Approximation:

$$C + I + G + (X - M) = Y \quad (2)$$

$$\text{Omitted Items (OI)} = SB + ALDV + SD \quad (3)$$

Approximation can be rearranged as:

$$(C + I + G) - Y = (M - X) \quad (4)$$

$$\text{or } A - Y = NM \quad (5)$$

# Makin and Ratnasiri – Methods (2)

Dividing both sides of (5) by Y and rearranging gives:

$$NM/Y = -1 + A/Y \text{ or } NMR = -1 + ADR \quad (6)$$

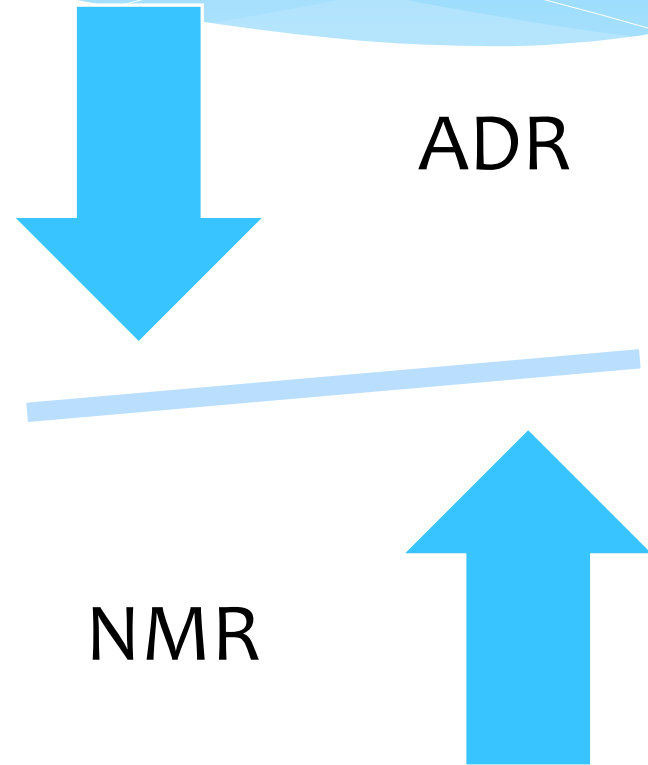
Estimation Equation:

$$NMR_t = \beta_0 + \beta_1 * ADR_t + \beta_2 * (ADR_t * TO_t) + \beta_3 * Ex_t + e_t \quad (7)$$

Estimation methods: Simple OLS, Panel Estimation, and Robustness checks.

# Problem with Makin and Ratnasiri Methods

- \* If the Omitted Items are small, a fall in the Aggregate Demand Ratio (eg. random shock) will automatically be associated with a rise in the Net Imports Ratio
- \* Not estimating a causal relationship, likely to bias estimates of the true relationship
- \* Instead, estimating an approximation to the key national accounts identity



# Omitted Items Ratio

- \*  $OIR = OI/Y$
- \* Useful in analysing Makin and Ratnasiri's results.



# Alternative Methods

\* Two simple alternatives not subject to this bias:

$$Y_t = \alpha_0 + \alpha_1 * A_t + e_{\alpha t} \quad (11)$$

And

$$BGS_t = \gamma_0 + \gamma_1 * A_t + e_{\gamma t} \quad (12)$$

These will be applied to 7 “external deficit prone” countries, plus further robustness checks for Australia.

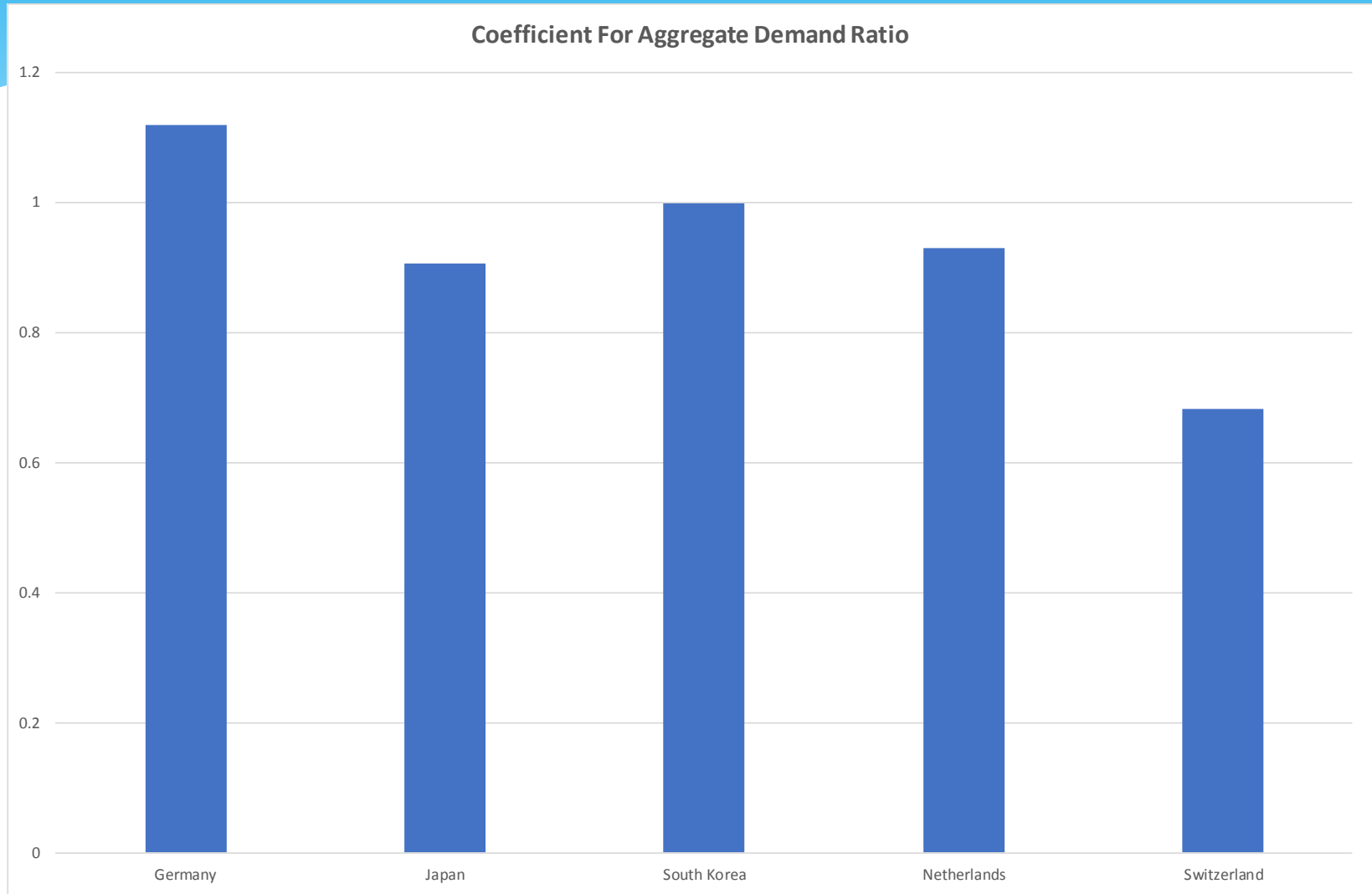
# Empirical Results:

## Application of Makin and Ratnasiri Methods to Many Countries

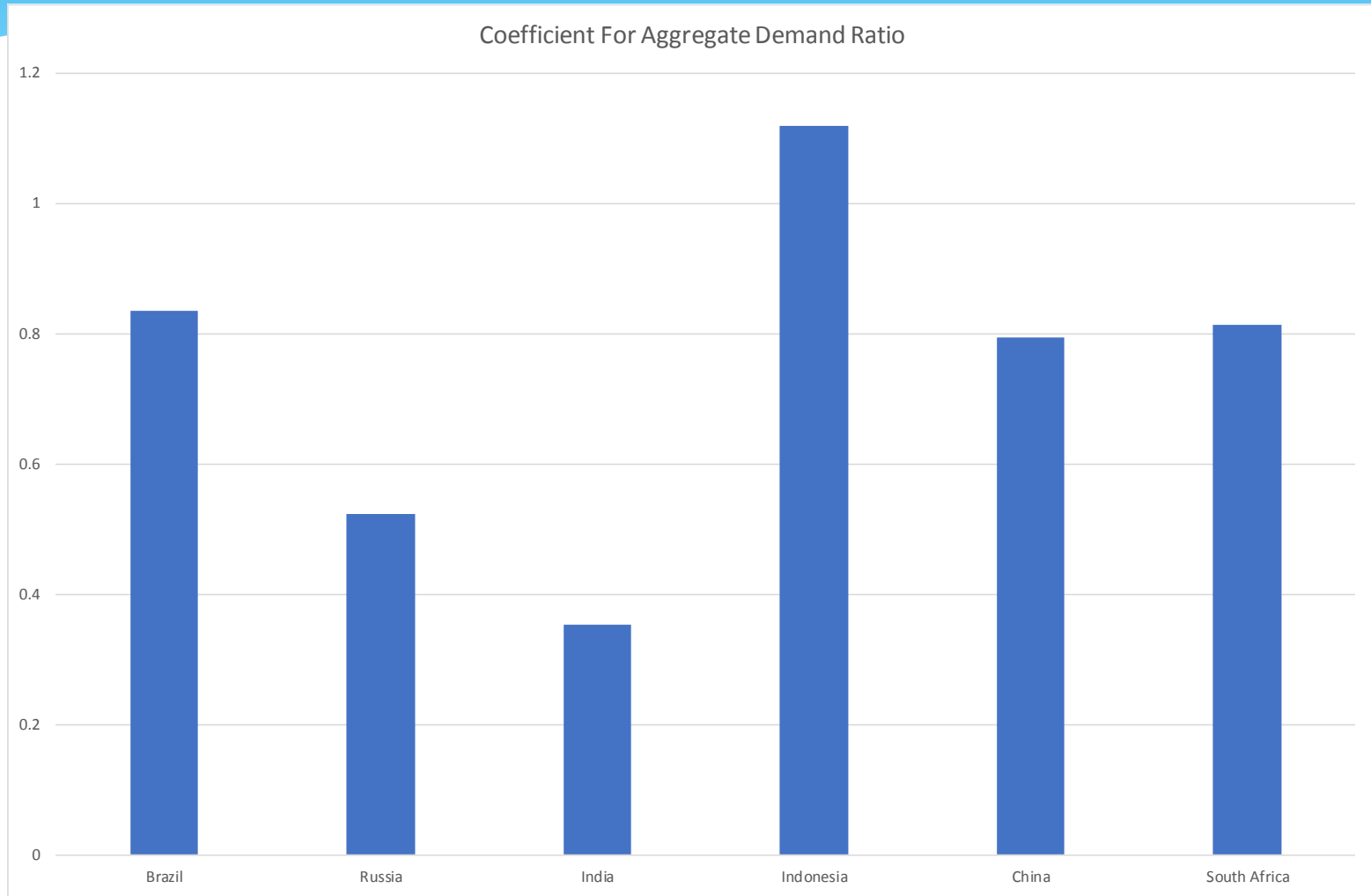
# “External Deficit Prone” Countries

	Australia	UK	NZ
Coefficient on Aggregate Demand Ratio	0.973	0.407	0.648
Mean of Omitted Items Ratio (% of GDP)	0.10	0.37	0.54
Correlation Coefficient between Net Imports Ratio and Omitted Items Ratio	+0.202	+0.311	+0.087

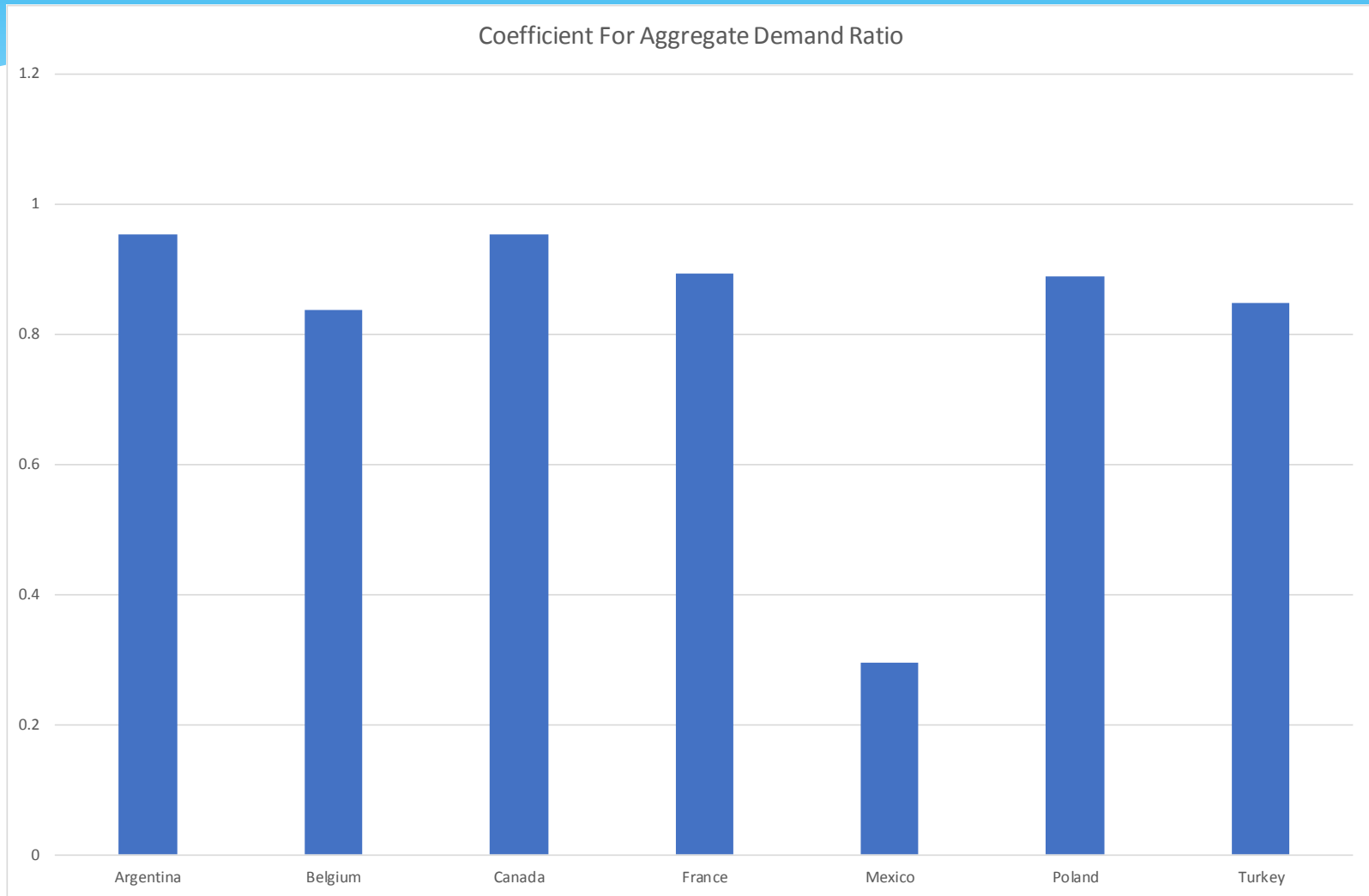
# Trade Surplus Countries



# BRIICS Countries



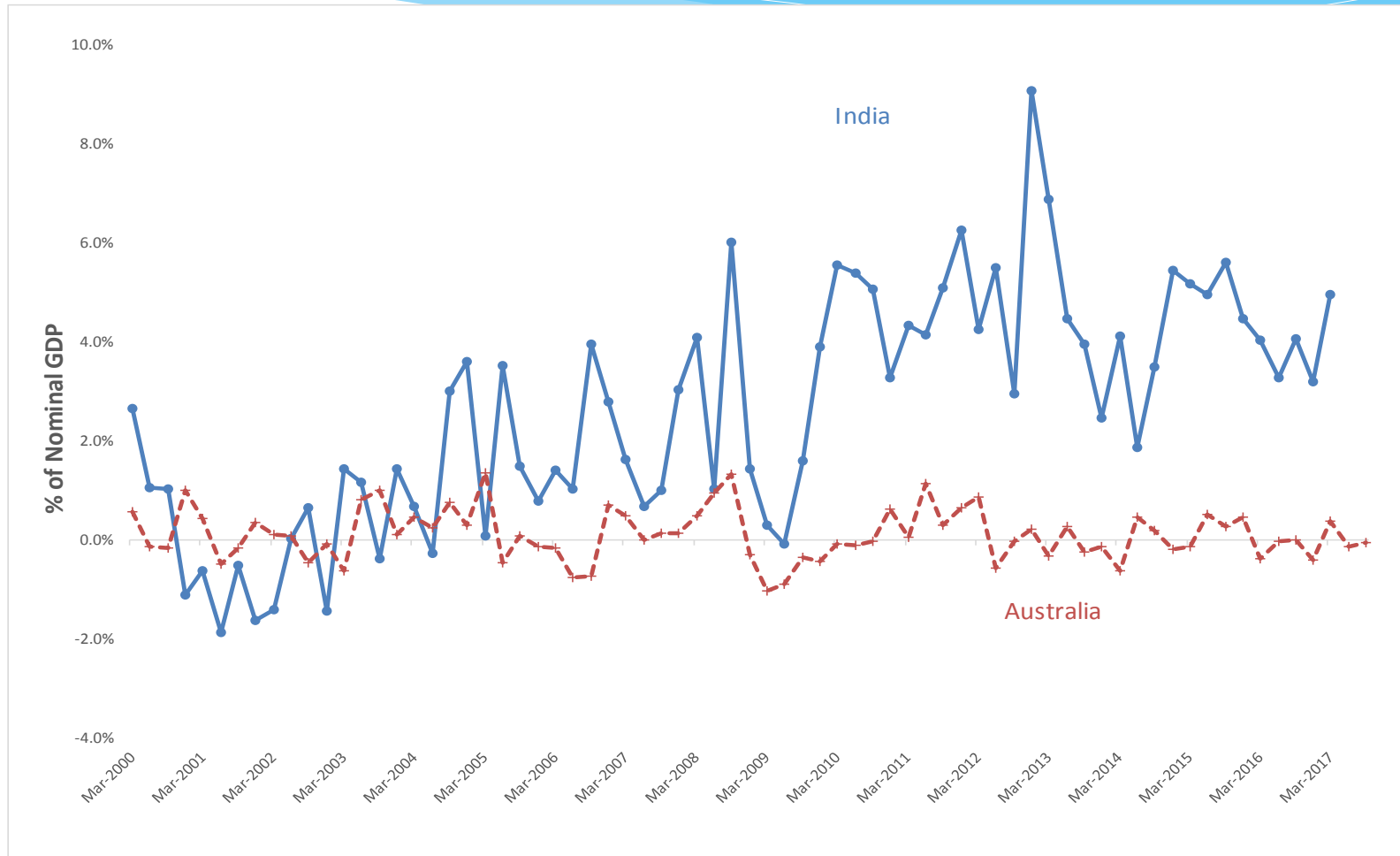
# Other Selected Countries



# Some Anomalies

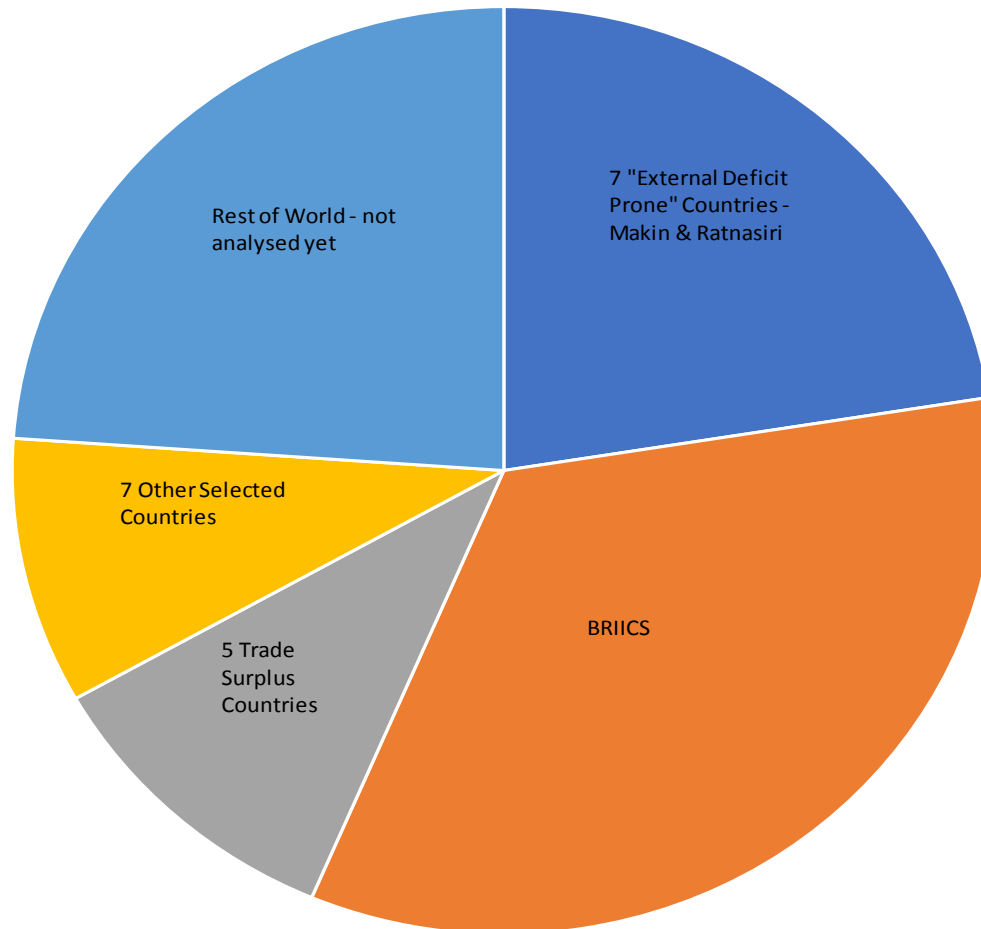
- \* Germany shows up as being susceptible to  $>100\%$  leakage of aggregate demand into net imports, but has one of the largest and most persistent trade surpluses in the world.
- \* Mexico shows up as being one of least susceptible to leakage of aggregate demand into net imports, but has a large and persistent trade deficit.

# Reason for Low ADR Coefficient for Some Countries – Omitted Items Ratio





# Countries Analysed (% of 2016 World GDP)



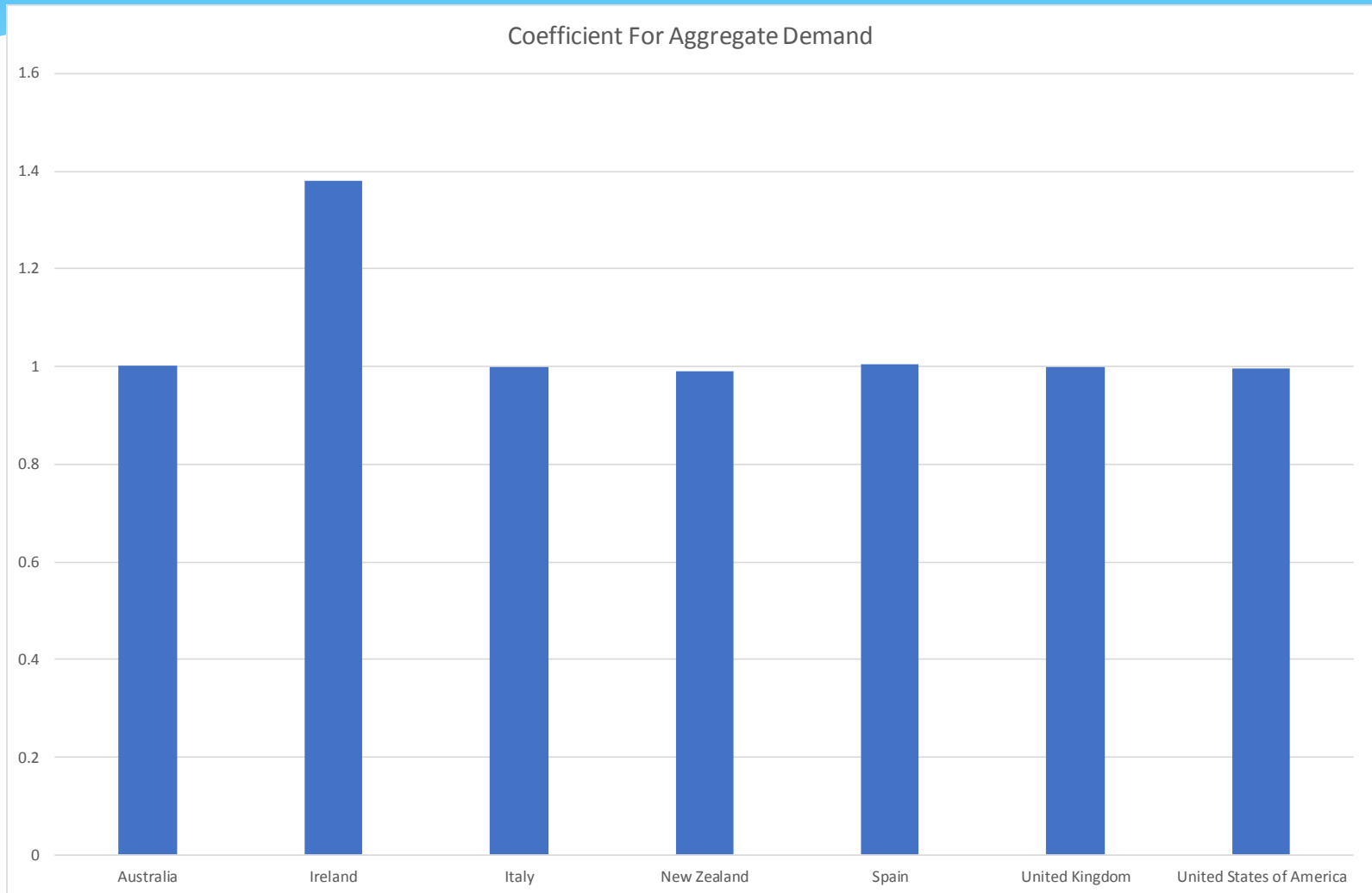
# Two Unanswerable Questions

- \* How could the world have grown as quickly as it has if aggregate demand leaks almost fully into net imports in most countries?
- \* From where are all the missing imports coming?

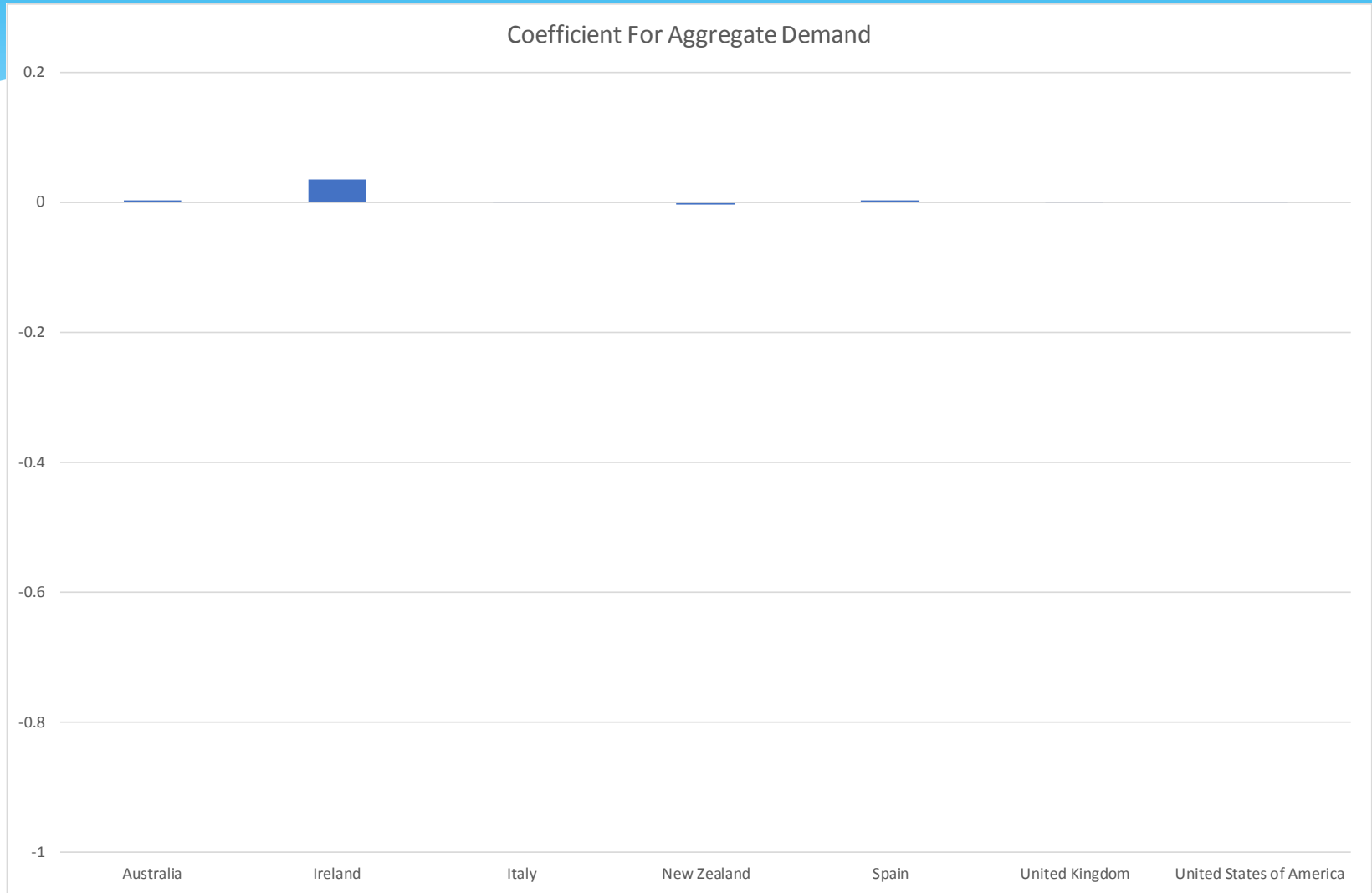
# Empirical Results:

Application of Alternative Methods to  
7 “External Deficit Prone” Countries

# GDP as Dependent Variable



# Trade Balance as Dependent Variable



# Robustness Check for Australia

\* Real terms, longer sample, extra explanatory variable:

$$RBGS_t = 47,250 - 0.00367 * RAD_t - 76.8 * REX_{t-1}$$

$$(1210)**** \quad (0.000210)**** \quad (2.56)****$$

Adjusted  $R^2 = 91.53\%$ ,  $F = 1012***$

Coefficient on Aggregate Demand is negative and significant, but still very close to zero.

# Conclusions

- \* Results from the methods of Makin and Ratnasiri (2017) should not be interpreted as representing a causal relationship between aggregate demand and the trade balance.
- \* They are merely an estimate of an approximation to a re-arranged form of the basic national accounting identity.
- \* When applied to a wide range of countries, they lead to anomalies and questions that can't sensibly be answered.
- \* My suggestion is not to use them.

# Conclusions (continued)

- \* Two simple alternative specifications have been proposed that aren't as biased.
- \* When applied to 7 “External Deficit Prone” countries, they give similar results for each alternative specification.
- \* An increase in Aggregate Demand flows through almost fully into GDP with very little leakage into a reduction in the trade balance.
- \* A slightly more sophisticated specification gave similar results for Australia as the simple specifications.



# Conclusions (continued)

- \* Results were slightly different for Ireland, which might reflect particular Irish policies and Ireland's small size.

# Conclusions (continued)

- \* Since results were completely different from Makin and Ratnasiri, implications are also very different.
- \* More justification for using fiscal stimulus during a recession, especially if action is co-ordinated across countries.
- \* Also, more justification for sensible, cost-effective government spending that increases productive capacity, such as on effective labour market programs, early childhood education for vulnerable groups, education and training in areas of skill shortages and necessary public infrastructure.