

Discussion of:

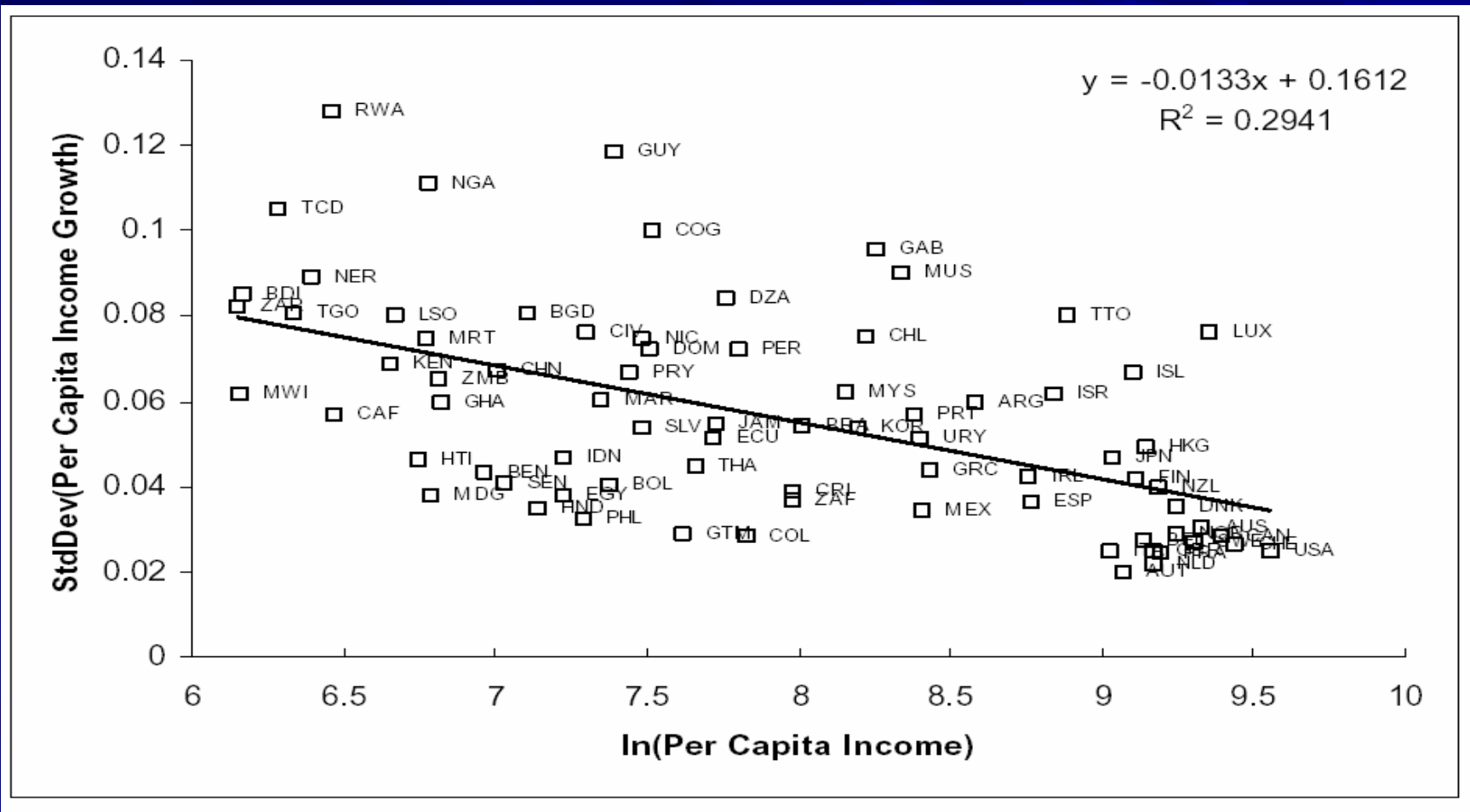
**“When It Rains, It Pours:  
Procyclical Capital Flows and Macroeconomic  
Policies”**

by Graciela L. Kaminsky, Carmen M. Reinhart  
& Carlos A. Végh

**Mark L. J. Wright  
Stanford University**

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# Volatility in Developing Countries



Source: Kraay and Ventura (2002)

# Volatility: A Need for Policy Intervention?

- The volatility in incomes appears to be very costly
- This naturally begs the question: “Is there a role for policy to reduce this volatility and/or its cost?”
- To answer this question, we need to know *why* incomes in developing countries are more volatile.
- Developing country volatility could be caused by one or more of the following, each of which suggests very different policy responses:
  1. Nature of production structure (e.g. commodities)
    - Promote better international capital markets for insurance
  2. Openness and volatility in international capital markets
    - Justification for judicious use of capital controls?
  3. Nature of macroeconomic policy process in these countries
    - Educate policy makers and reform policy making process

# This Paper ...

- Analyzes a database on capital flows and economic policy in 104 countries for 1960-2003
- Presents a number of findings which can discriminate between the previous hypotheses. The authors emphasize:
  1. Capital flows are procyclical in all countries (rich and poor), although least so for low income countries
  2. Government spending *strongly* procyclical in developing countries
  3. Inflation tax strongly “procyclical” (rises in recessions)
  4. Monetary policy procyclical

# ... and concludes

- “the inescapable conclusion is that developing countries – and in particular emerging countries – need to find mechanisms that would enable macro-policies to be conducted in a neutral or stabilizing way” (p.31)
- Begs question: What sort of mechanism?

# My discussion ...

- Briefly review empirical finding and focusing on the fact that:
  - Correlations strongest for middle income countries
  - Inflation tax and government spending negatively correlated
  - Inflation tax correlations weaker for fixed exchange rate regimes
- These observations are consistent with world in which governments:
  - Place a high value on government spending relative to tax capacity; &
  - Respond optimally to financing incentives where main constraint on policy is access to, and cost of, international finance
    - Low income countries have little access to capital markets
    - Middle income countries face fluctuating costs of, and access to, finance
- My conclusion:
  - Relationship between output volatility and policy is a symptom of deeper structural problems
    - High value on  $G$  relative to ability to tax (“debt bias” in policy)
    - Institutional problems that lead to endogenous changes in perceived default risk and cost of funds
  - No “silver bullets” ... just fundamental (and fundamentally difficult) policy reforms

# Defining Cyclicity

■ Look at three measures of *growth* cycles

1. GDP growth above/below median

2. HP and Band Pass filtered data

■ Questions:

– Why no measures of *business* cycles?

■ Harding and Pagan (2001)

■ Tomz and Wright (2004)

– What frequencies examined?

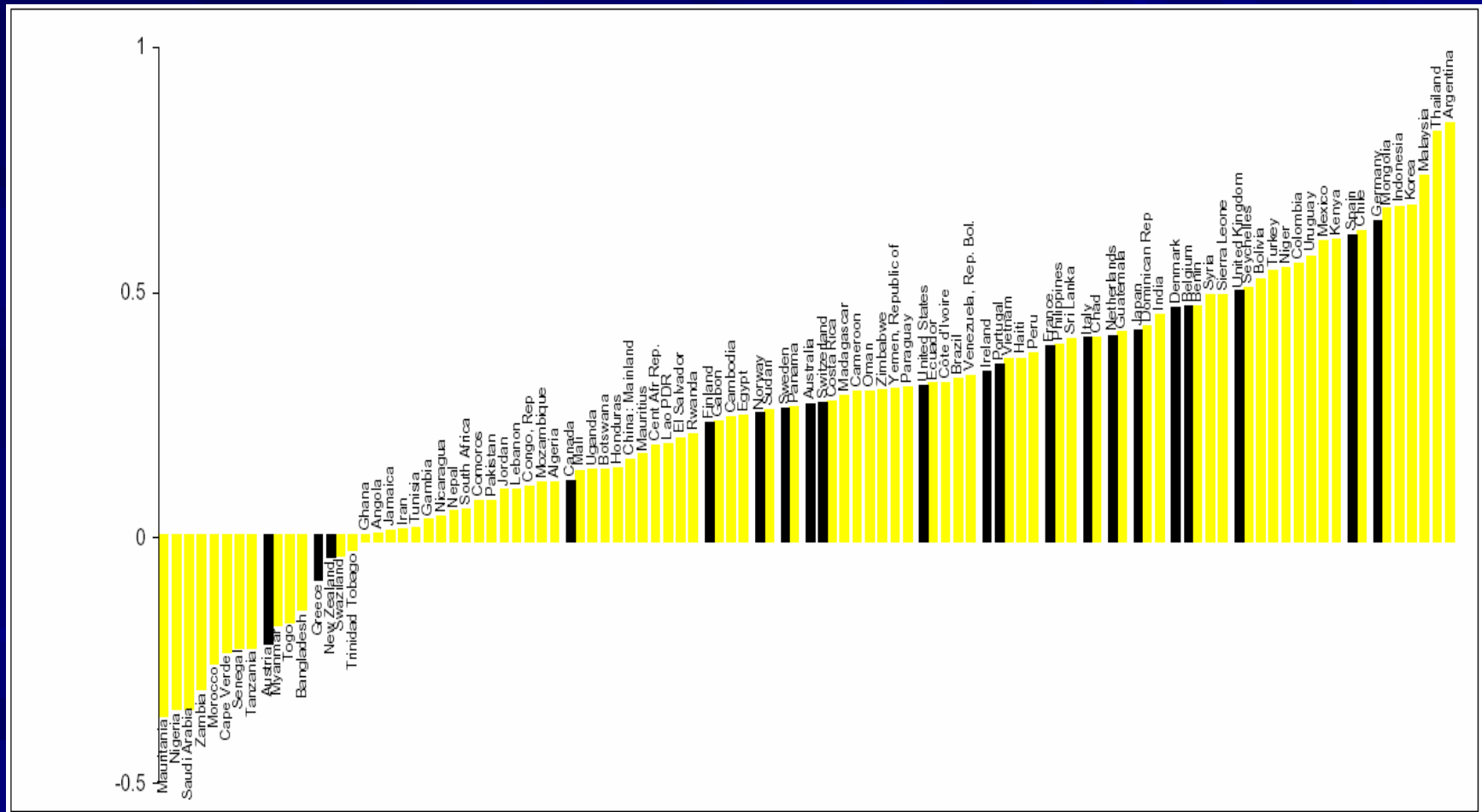
■ Comin & Gertler (2004) argue for medium term cycles

■ Aguiar & Gopinath (2004) argue for low frequency “policy” cycles

■ Annual Data & HP filter: Ravn & Uhlig (2004) advocate  $\lambda=10$ ;  
Dolado et al (1993) employ 400. What do authors use?

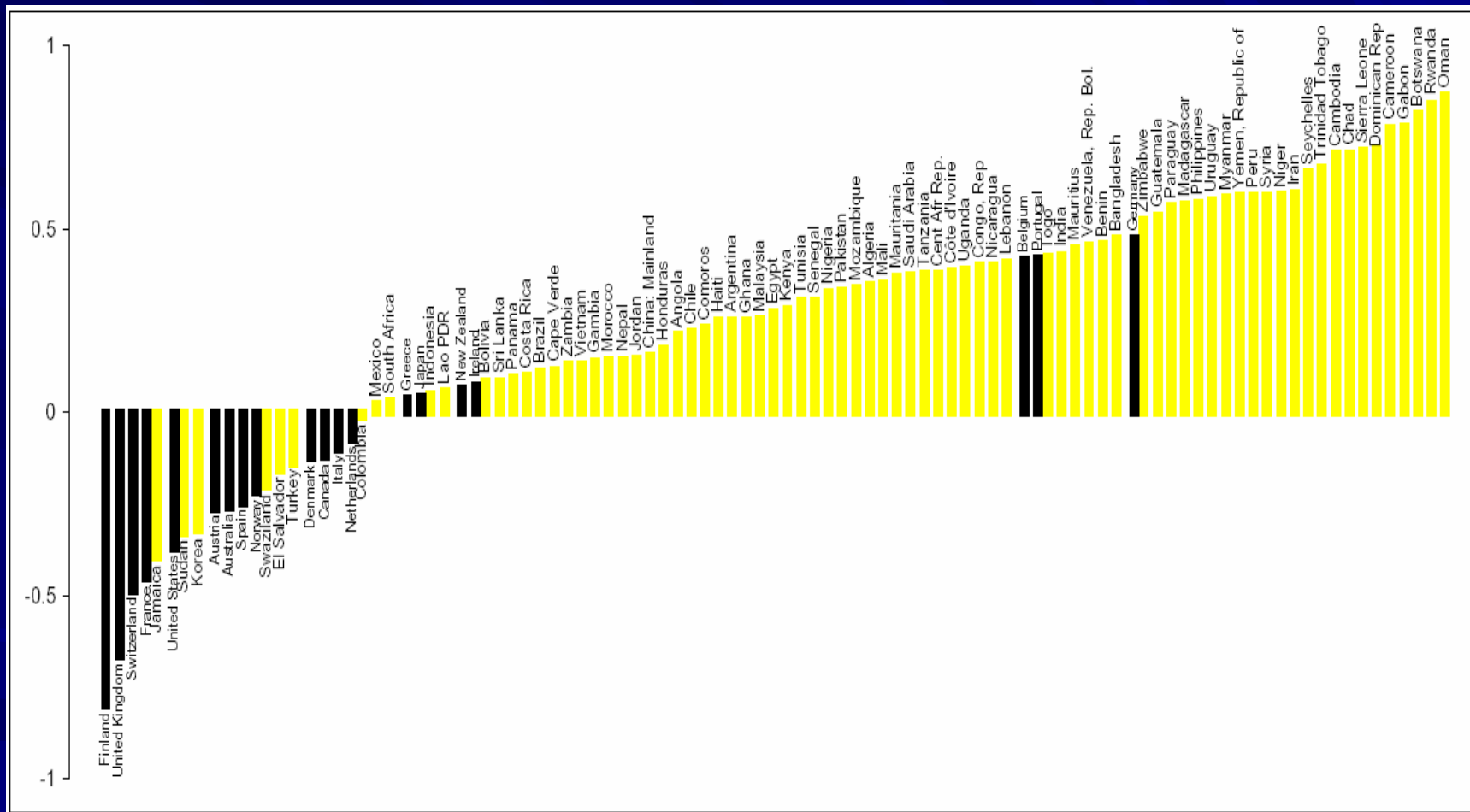
■ Results presented are mostly robust to filtering method

# Net Capital Flows



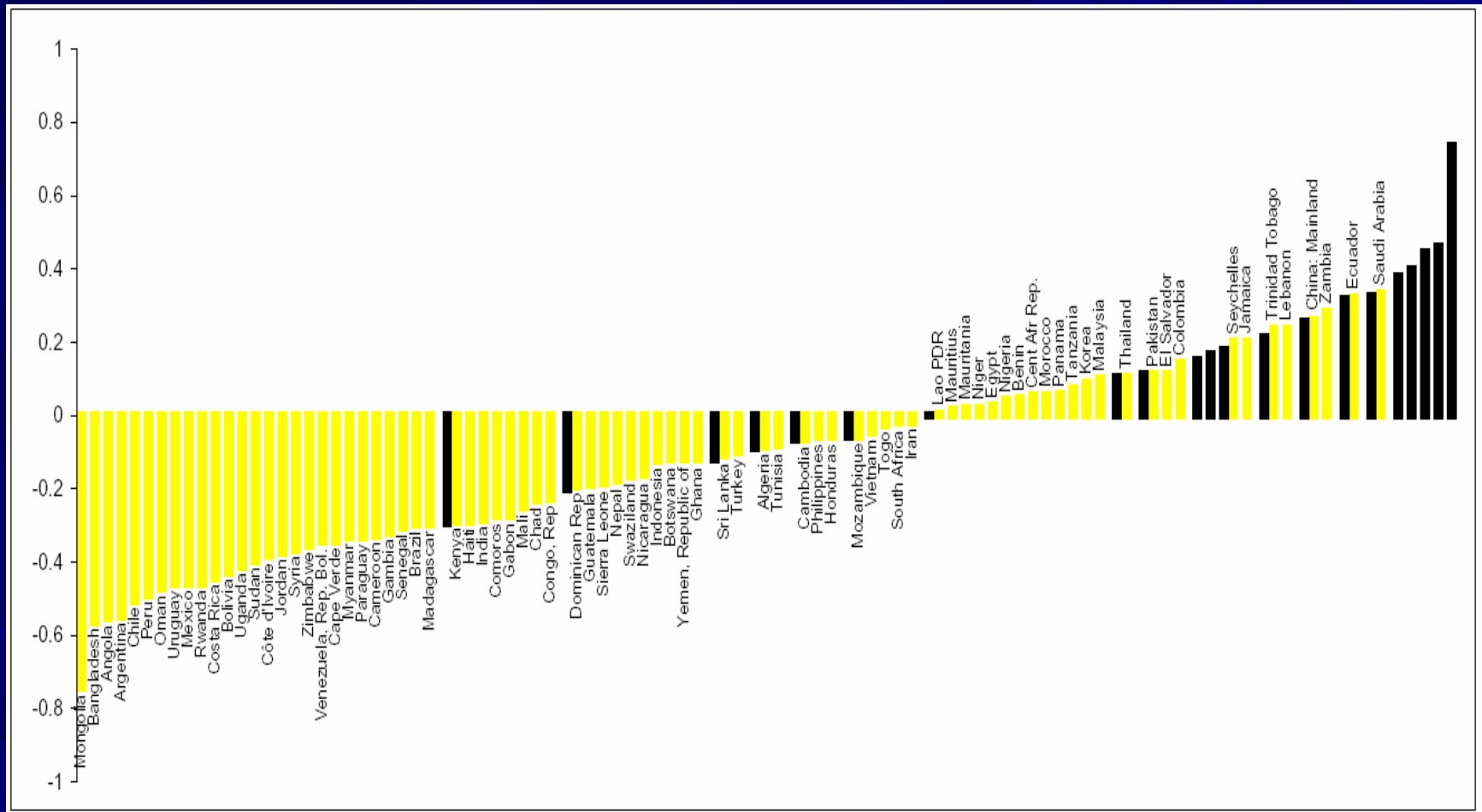
Source: Figure One from KRV (2004); HP filtered data.

# Government Expenditure



Source: Figure Two from KRV (2004); HP filtered data on Real Central Government Expenditure.

# Inflation Tax



Source: Figure Four from KRV (2004); HP filtered data.

# Government Expenditure & GDP

Countries	Central Government				General Government Expenditure	Consolidated Government Expenditure Minus Interest Payments	Inflation Tax
	Expenditure	Expenditure Minus Interest Payments	Expenditure on Goods and Services	Expenditure on Wages and Salaries			
<b>HP Filter</b>							
<b>Correlation with Real GDP</b>							
OECD	-0.13*	-0.05	-0.06	-0.15*	-0.06	-0.07	0.16*
Middle-High Income	0.38*	0.10	0.08	0.01	0.43*	0.10	-0.15*
Middle-Low Income	0.22*	0.13	0.07	0.03	0.20*	0.12	-0.09*
Low Income	0.38*	0.24*	0.54*	0.59*	0.37*	0.17*	-0.20*
<b>Correlation with Net Capital Inflows</b>							
OECD	0.03	0.05	0.04	0.04	0.09	0.03	0.04
Middle-High Income	0.25*	0.22*	0.28*	0.27*	0.25*	0.20*	-0.31*
Middle-Low Income	0.16*	0.11	0.13	0.12	0.18*	0.13	-0.14*
Low Income	0.20*	0.05	0.20	0.37	0.24*	-0.16	-0.09*
<b>Band-Pass Filter</b>							
<b>Correlation with Real GDP</b>							
OECD	-0.05	-0.15*	-0.11	-0.20*	-0.02	-0.12	0.15*
Middle-High Income	0.53*	0.19*	0.23*	0.13	0.44*	0.23*	-0.13*
Middle-Low Income	0.29*	0.29*	0.26*	0.23*	0.23*	0.23*	-0.10*
Low Income	0.46*	0.42*	0.53*	0.59*	0.34*	0.32*	-0.16*
<b>Correlation with Net Capital Inflows</b>							
OECD	0.07	0.08	0.05	0.04	0.14*	0.00	0.02
Middle-High Income	0.19*	0.12	0.28*	0.25*	0.16*	0.09	-0.25*
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Notes: An asterisk denotes statistical significance at the 10 percent level.

Source: IMF, *World Economic Outlook*.

# Gov't Expenditure & Capital Flows

Countries	Central Government				General Government Expenditure	Consolidated Government Expenditure Minus Interest Payments	Inflation Tax
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Middle-High Income	0.19*	0.12	0.28*	0.25*	0.16*	0.09	-0.25*
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Low Income	0.19*	0.25*	0.27*	0.39*	0.22*	0.13	-0.07*

Notes: An asterisk denotes statistical significance at the 10 percent level.

Source: IMF, *World Economic Outlook*.

# GDP, Capital Flows & Inflation Tax

Countries	Central Government				General Government Expenditure	Consolidated Government Expenditure Minus Interest Payments	Inflation Tax
	Expenditure	Expenditure Minus Interest Payments	Expenditure on Goods and Services	Expenditure on Wages and Salaries			
<b>HP Filter</b>							
<b>Correlation with Real GDP</b>							
OECD	-0.13*	-0.05	-0.06	-0.15*	-0.06	-0.07	0.16*
Middle-High Income	0.38*	0.10	0.08	0.01	0.43*	0.10	-0.15*
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OECD	0.03	0.05	0.04	0.04	0.09	0.03	0.04
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Low Income	0.20*	0.05	0.20	0.37	0.24*	-0.16	-0.09*
<b>Band-Pass Filter</b>							
<b>Correlation with Real GDP</b>							
OECD	-0.05	-0.15*	-0.11	-0.20*	-0.02	-0.12	0.15*
Middle-High Income	0.53*	0.19*	0.23*	0.13	0.44*	0.23*	-0.13*
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Middle-Low Income	0.14*	0.08	0.05	0.10	0.16*	0.11	-0.10*
Low Income	0.19*	0.25*	0.27*	0.39*	0.22*	0.13	-0.07*

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Source: IMF, *World Economic Outlook*.

# Robustness

## ■ Results are *mostly* robust

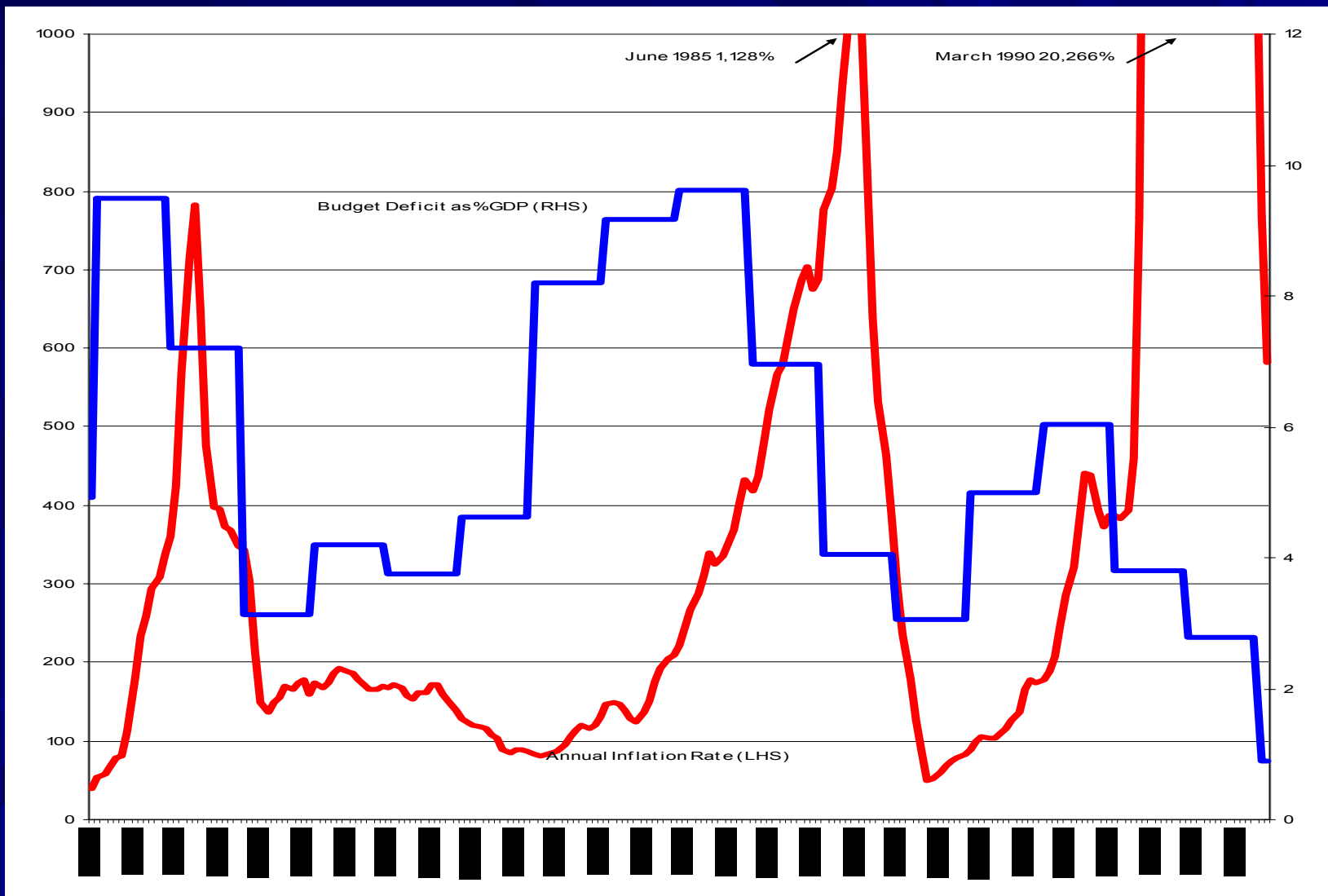
- Different definitions of variables: consolidated government expenditure; excluding interest payments
- Degree of capital mobility (per 1980 versus post 1980)
  - Inflation tax only “pro-cyclical” in latter period
- Exchange rate regime
  - Inflation tax more “pro-cyclical” under float
- Currency crisis periods

Countries	Inflation Tax	
	Pre-1980	Post-1980
OECD	0.11	0.22*
Middle-High Income	-0.04	-0.16*
Middle-Low Income	-0.01	-0.12*
Low Income	-0.08	-0.23*
	<b>Fix</b>	<b>Flex</b>
OECD	0.11	0.26*
Middle-High Income	-0.15*	-0.26*
Middle-Low Income	0.04	-0.15*
Low Income	-0.13*	-0.21*
	<b>Crisis</b>	<b>Tranquil</b>
OECD	n/a	0.17*
Middle-High Income	-0.41*	-0.14*
Middle-Low Income	-0.15	-0.06*
Low Income	-0.09	-0.09*

# What have we learned?

1. Evidence suggests *simple* macroeconomic policy shocks *not* driving force in cycle
  - If so, expect inflation tax and G to co-move
2. Value of Government spending high
  - Else, inflation tax never used
3. Low income countries consistent with relatively passive model of policy
  - Output rises leading to endogenous increase in taxes and G, which lowers incentive to raise revenue by inflation tax
4. Middle income countries consistent with response to financial shocks
  - Lower borrowing costs lead to high Y, high G and low inflation
  - Role for “sophisticated” policy shocks (that change access to or costs of borrowing)

# Argentine Public Finance 1975-1990



# Low Income: (Almost) Passive Government Finance

## ■ Characterized by:

- no access to international capital
- Limited ability to vary most taxes  $\tau$  (except seignorage  $\pi$ ) at business cycle frequency

## ■ Income ( $Y$ ) shocks

## ■ Government maximizes objective approximated by:

$$U(G) - c \pi$$

subject to

$$G = \tau Y + \phi \pi$$

## ■ Solution:

- only use  $\pi$  when  $Y$  is low (relative to value of  $G$ )
- use  $\pi$  less when  $c$  large or  $\phi$  small (fixed exchange rate regimes)

# Middle Income: Borrowing Costs and Government Policy

- In contrast to low income countries, have access to international financial markets at rate  $r$ .
- When  $r$  is low, output increases as country borrows; e.g.

$$Y(r) = \max_k Ak^\alpha - r k$$

- Government maximizes:

$$U(G) - c \pi + V(-r b)$$

subject to

$$G = \tau Y(r) + b + \phi \pi$$

- Solution:
  - Only use  $\pi$  when  $r$  is high (which is also when  $Y$  is low)
  - Government borrows more when  $r$  low (unless  $Y$  increases very fast in  $r$ )

# Two key questions for policy

## 1. What drives high value placed on G relative to ability to tax?

- Usual list of desirable policy reforms to reduce relative demand for G
  - If it is weak institutions (like weak fiscal federalism) ...
  - ... policy/constitutional reform requires constraints on provincial borrowing (prohibitions like US States; loans council a la Australian States; ESCROW)
  - Limitations on tax revenue ...
  - ... reform of tax collection to limit tax avoidance & evasion

## 2. What drives access to and costs of borrowing?

- Exogenous (to developing country) changes in world interest rates
- Endogenous changes as a result of policy shocks (default)
- Self-fulfilling changes in default risk
- Little can be done about changes in world interest rates, but ...
  - Above reforms would reduce sensitivity of policy to changes in costs of finance
  - Tomz & Wright (in progress) present model in which bad institutions can propagate exogenous fluctuations in R
  - Cole, Dow & English (1995) and others build models in which changes in political institutions trigger defaults

# Conclusions

- Understanding the sources of developing country volatility is an important concern for policy
- This paper has advanced our understanding of these sources by providing a careful analysis of the available data on capital flows and policy
- Too early to be confident in our conclusions, but ... evidence suggestive of causal role for interaction of international capital flows and policy in middle income countries
- No “Silver Bullets” available ... just hard policy choices and reforms