ROADMAP

- Implications of exchange rate regime for distribution:
  - A (selective) literature review, a look at some data, and some reflections.
  - Almost nothing out there on the specific topic of exchange rate regimes/policy and inequality (the effect of real exchange rates on distribution is fairly well studied).

- Interactions could be mediated by various mechanisms:
  - Growth sustainability: Do f/x regimes influence the extent to which growth spells are pro-poor?
  - Inflation: Pegs lower inflation + inflation bad for poor \(\rightarrow\) pegs better for distribution?
  - Volatility: Floats buffer shocks better + shocks hurt poor more \(\rightarrow\) floats better for distribution?

- Need to be especially careful about generalizations: probably the answer is “it depends.” Nonetheless, some tentative conclusions.
Is there a systematic relationship between regime and inequality?

- **Not clear** that there would be on average a particular effect.

- **Some general patterns** (controlling for per capita income, we find Kuznets curve and floats do tend to be richer):
  - For world, LDCs, LICs, SSA: more REER volatility, higher inflation with floats, higher growth with floats.
  - For LDCs, LICs, SSA: Gini higher with floats (significant for LICs).
  - For SSA: growth volatility lower in floats.
Developing countries (2005-2014)

Gini

GDP_Growth

Growth_volatility

REER_volatility

Inflation

Private_credit_ratio

Sources: International Monetary Fund; Beck et al. (2000); Solt (2009); and authors’ calculations
Sub-Saharan Africa (2005-2014)

Sources: International Monetary Fund; Beck et al. (2000); Soit (2009); and authors' calculations
Is sustained growth associated with floats (or pegs) more (or less) pro-poor?

- On average, growth spells associated with floats may have larger increases in the Gini. Hmm. . .
- Something to do with misalignment? But seems true even if we control for overvaluation and undervaluation during spell.
Change in Gini during growth spells (1960-2010)

Sources: Berg et al. (2018); Sub (2009); and authors’ calculations
Pegs better for inflation control, and inflation hurts the poor?

- **Maybe.** Evidence on inflation hurting poor is surprisingly **weak** (Easterly & Fisher, 2001). Seems to matter less once inflation gets reasonably low (Bulir, 2001).
  - Pegs help with inflation, though less as institutions develop (Brooks et al., 2004).
  - Incidence of tax is complicated. Who really holds cash?
  - A little calculation: with cash in circulation 8.7% of GDP, starting with Cameroon's income distribution and assuming that the lowest decile holds 10x as much cash/income as top decile, effect of 6% inflation differential on post-inflation-tax GINI is to raise by 0.2 point. (e.g. from 50.0 to 50.2).

- **An example of endogeneity?** **Inequality** may be the underlying driving force for inflation.
Volatility

- Floats buffer (some) shocks **better**:
  - Generally, less real GDP volatility with floats (Hausmann & Gavin, 1996; Bleaney & Fielding, 2002; Ghosh et al., 2003).
  - Floats better for real shocks (Broda, 2001; Romcharan, 2007), especially TOT (Berg, Goncalves & Portillo, unpublished).

- Growth volatility **worse** for the poor (Guillaumont Jeanneney & Kpodar, 2011; Hausmann & Gavin, 1996; Chauvet et al., 2018, etc.) (reverse causality also plausible).
  - Poor have fewer buffers for consumption smoothing, human capital investment
Volatility - Continued

- On the other hand, floats can open up to **other shocks**, notably monetary, financial/global shocks and associated real exchange rate volatility:
  - **RER volatility** with floats well established—we saw for LICs/SSA.
  - Capital flows generally **pro-cyclical** in EMs.
  - Presumably, poor **less able** to buffer real exchange rate shocks too.
  - “**Fear of floating**” may also be related to distributional consequences of exchange rate volatility.

- Which **regime** reduces volatility depends on **mix of shocks**

- Much may depend on how you peg/float.
<table>
<thead>
<tr>
<th>Y variable: GDP deviations from trend</th>
<th>Full Sample</th>
<th>Emerging Economies LIC and Emerging</th>
<th>ADV and Emerging</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
</tr>
<tr>
<td><strong>Controls</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Terms of trade deviations</td>
<td>0.0138**</td>
<td>0.0118**</td>
<td>0.0127**</td>
</tr>
<tr>
<td></td>
<td>(0.0173)</td>
<td>(0.0418)</td>
<td>(0.0239)</td>
</tr>
<tr>
<td>Floating dummy</td>
<td>0.0134</td>
<td>-0.101</td>
<td>0.0909</td>
</tr>
<tr>
<td></td>
<td>(0.980)</td>
<td>(0.897)</td>
<td>(0.885)</td>
</tr>
<tr>
<td>Floating dummy * Terms of trade deviations</td>
<td>-0.0159*</td>
<td>-0.0174**</td>
<td>-0.0157*</td>
</tr>
<tr>
<td></td>
<td>(0.0901)</td>
<td>(0.0235)</td>
<td>(0.0856)</td>
</tr>
<tr>
<td>GDP per capita</td>
<td>0.00079***</td>
<td>0.00116***</td>
<td>0.00086***</td>
</tr>
<tr>
<td></td>
<td>(0)</td>
<td>(6.98e-09)</td>
<td>(6.52e-09)</td>
</tr>
<tr>
<td>GDP per capita sq</td>
<td>-5.07e-09***</td>
<td>-6.84e-09***</td>
<td>-4.77e-09***</td>
</tr>
<tr>
<td></td>
<td>(1.33e-06)</td>
<td>(1.94e-05)</td>
<td>(0.000250)</td>
</tr>
<tr>
<td>Fixed Effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
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<tr>
<td>Time Effects</td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Observations</td>
<td>740</td>
<td>419</td>
<td>589</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.186</td>
<td>0.280</td>
<td>0.192</td>
</tr>
</tbody>
</table>

Robust p-values in parentheses

*** p<0.01, ** p<0.05, * p<0.1
A Little More about Intermediate Regimes

- Capital account liberalization may **worsen** distribution:

- **Managed floats** may allow the CB to use its international capital market access to smooth, for those without savings or market access.
  - **Danger**: the state may do much worse than the private sector (Collier & Gunning, 1996; Sala-i-Martin & Subramanian, 2003).

- Intermediate regimes may help buffer global financial shocks.
Financial Globalization is an Important Driver of Inequality...

Effect of capital account liberalization on **output**

...apparent also in long-lasting decline in labor share of income

The effect of capital account liberalization on the labor share

PUTTING IT TOGETHER

✓ Many **paths**. Much depends on the nature of the economy and the float/peg.

✓ **Pegs** may be relatively pro-poor, especially in weak-institution environments—high inflation, low financial depth. (However, some pegs institutionally demanding as well).

✓ (Managed?) **well-run floats** may be more pro-poor, especially when real shocks predominate.

✓ **Some LICS** are increasingly able to run decent monetary policies under (managed?) floats.

✓ **Further analytic work** could usefully analyze distributional consequences of different regimes in more granular way—maybe address “fear of floating”? 
REFERENCES

- Easterly, William and Stan Fischer, 2001, Inflation and the Poor, *Journal of Money, Credit and Banking*.
BACKGROUND SLIDES
<table>
<thead>
<tr>
<th>Variables</th>
<th>Definition</th>
<th>Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gini</td>
<td>Index of market income inequality (0–100)</td>
<td>Solt (2009)</td>
</tr>
<tr>
<td>Exchange rate regime (fixed, intermediate and floats)</td>
<td>Fixed exchange rate regimes include hard pegs and conventional fix pegs as classified by the IMF. Intermediate regimes encompass pegged exchange rate within horizontal bands and crawling regimes. Floating regimes include managed and free floats.</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>GDP growth</td>
<td>Change in real GDP (percent)</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>Growth volatility</td>
<td>Standard deviation of GDP growth</td>
<td>Authors</td>
</tr>
<tr>
<td>REER</td>
<td>Real effective exchange rate (CPI based)</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>REER volatility</td>
<td>Standard deviation of the REER</td>
<td>Authors</td>
</tr>
<tr>
<td>Inflation</td>
<td>Change in consumer price index (CPI)</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>Private credit ratio</td>
<td>Amount of credit by deposit money banks to the private sector divided by GDP</td>
<td>Beck, Demirgüç-Kunt, and Levine (2000)</td>
</tr>
<tr>
<td>Growth spells</td>
<td>Periods of at least 5 years during which growth is above 2% and significantly higher than during preceding years.</td>
<td>Berg, Ostry, Tsangarides, Yakhshilikov (2018)</td>
</tr>
<tr>
<td>Exchange rate misalignment</td>
<td>Measures the degree of overvaluation/undervaluation of the exchange rate by the difference between the actual real exchange rate and the Balassa-Samuelson-adjusted rate.</td>
<td>Authors’ calculations following Rodrik (2008)</td>
</tr>
</tbody>
</table>
World-wide Sample (2005-2014)

Gini

GDP Growth

Growth volatility

REER volatility

Inflation

Private credit ratio

Sources: International Monetary Fund; Beck et al. (2000); Solt (2009); and authors' calculations
Low-income countries (2005-2014)

Gini

GDP_Growth

Growth_volatility

REER_volatility

Inflation

Private_credit_ratio

Sources: International Monetary Fund; Beck et al. (2000); Solt (2009); and authors' calculations
Table 1. Simple regression with Gini, Income per capita and Exchange rate regime, 1980-2015 (Pooling)

<table>
<thead>
<tr>
<th></th>
<th>World</th>
<th>World</th>
<th>World</th>
<th>Developing countries</th>
<th>LICs</th>
<th>World</th>
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<tr>
<td>Fixed (lagged)</td>
<td>0.062</td>
<td>0.021</td>
<td>0.012</td>
<td>0.001</td>
<td>-0.021</td>
<td>-0.069</td>
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<tr>
<td></td>
<td>[0.009]***</td>
<td>[0.008]***</td>
<td>[0.007]</td>
<td>[0.008]</td>
<td>[0.011]**</td>
<td>[0.033]**</td>
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<tr>
<td>Intermediate (lagged)</td>
<td>-0.019</td>
<td>-0.026</td>
<td>-0.058</td>
<td>-0.037</td>
<td>-0.039</td>
<td>0.055</td>
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<td></td>
<td>[0.009]**</td>
<td>[0.007]**</td>
<td>[0.007]**</td>
<td>[0.008]**</td>
<td>[0.012]*****</td>
<td>[0.032]**</td>
</tr>
<tr>
<td>Log of GDP per capita (lagged)</td>
<td>-0.078</td>
<td>0.497</td>
<td>0.025</td>
<td>1.081</td>
<td>0.501</td>
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<tr>
<td></td>
<td>[0.002]***</td>
<td>[0.019]***</td>
<td>[0.042]</td>
<td>[0.295]***</td>
<td>[0.020]*****</td>
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<tr>
<td>Log of GDP per capita (lagged) square</td>
<td>-0.034</td>
<td>-0.001</td>
<td>-0.082</td>
<td>-0.034</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>[0.001]***</td>
<td>[0.003]</td>
<td>[0.024]***</td>
<td>[0.001]***</td>
<td>0.010</td>
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<tr>
<td>Fixed* Log of GDP per capita (lagged)</td>
<td>0.001***</td>
<td>0.017***</td>
<td>-2.638***</td>
<td>-1.008***</td>
<td>-4.366***</td>
<td>-2.664***</td>
</tr>
<tr>
<td>Intermediate* Log of GDP per capita (lagged)</td>
<td>-0.325***</td>
<td>[0.017]***</td>
<td>-2.638***</td>
<td>-1.008***</td>
<td>-4.366***</td>
<td>-2.664***</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.993</td>
<td>-0.325</td>
<td>-2.638</td>
<td>-1.008</td>
<td>-4.366</td>
<td>-2.664</td>
</tr>
<tr>
<td></td>
<td>[0.006]***</td>
<td>[0.017]***</td>
<td>[0.077]***</td>
<td>[0.150]***</td>
<td>[0.890]***</td>
<td>[0.081]***</td>
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<tr>
<td>R2</td>
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<td>0.39</td>
<td>0.02</td>
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<tr>
<td>N</td>
<td>4,193</td>
<td>4,061</td>
<td>4,061</td>
<td>2,718</td>
<td>514</td>
<td>4,061</td>
</tr>
</tbody>
</table>

Floating exchange rate regime is the omitted dummy variable. * $p<0.1$; ** $p<0.05$; *** $p<0.01$
Trends in Gini (1990-2014)

Source: Sait (2009)
Change in Gini during growth spells (1960-2010)

Sources: Berg et al. (2018); Soti (2009); and authors' calculations