

The Role of Real Undervaluation in Supporting Growth: An Updated Assessment

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Work in progress, comments are welcome

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1. Research question and background

Does an undervalued real exchange rate (RER) promote economic growth and more generally structural change?

This question has returned to the forefront of economic policy debates owing to several development since the beginning of the 21st century :

- Global value chains;
- In the wake of GFC, the relative merits of export-led growth strategies have been questioned;
- Sharp currencies movements after GFC without much response...

These cast doubt about whether such prescription still holds nowadays...

2. Literature review

- Undervaluation tends to support growth in developing countries
 - Rodrik (2008);
 - Korinek and Serven (2010);
 - Rapetti, Skott and Razmi (2011);
 - Gluzmann, Levy-Yeyatia & Sturzenegger (2012) and Yeyatia, Sturzenegger and Gluzmann (2013);
 - Steinberg (2015).
- Undervaluation works only for low-income countries
 - Haddad and Pancaro (2010)
- Benefitting exports
 - Freund and Pierola (2012);
 - Mattoo, Subramanian and Mishra (2012)

3. My main findings

- RER undervaluation is overall favourable to growth.

Yet, more disaggregated estimates call for a more nuanced picture:

- In specific developing regions (primarily developing Asia);
- Mostly in low-income countries;
- Positive effects seem to have vanished in more recent years, in particular since the start of the 21st century.

Additional finding:

RER volatility is harmful -> a stable RER supports growth.

4. Data

- The analysis relies on the Penn World Table (version 9.0).
- Dataset covers a maximum of 175 countries and spans the period of 1950–2014.
- Each observation represents an average for a five-year window (1950-54; 1955-59; ...;2010-14).

5. Methodology

Building an indicator of real undervaluation, *UNDERVAL*, to control for the Balassa-Samuelson effect (Rodrik, 2008):

$$(1) \quad \ln RER_{it} = \alpha + \beta \cdot \ln GDPpc_{it} + f_t + u_{it}$$

$$(2) \quad UNDERVAL_{it} = \ln RER_{it} - \ln \widehat{RER}_{it},$$

The rest of the estimation procedure consists in estimating the following equation:

$$\beta \cdot \ln GDPpc_{i,t-1} + \delta \cdot UNDERVAL_{it} +$$

$$\ln GDPpc_{it} = \gamma \cdot RER Volatility_{it} + \text{Cur. dep. with bank crisis}_{it} + \\ \text{Cur. dep. without bank crisis}_{it} + f_i + f_t + v_{it}$$

N.B. positive value of *UNDERVAL* refers to RER undervaluation, while a negative value corresponds to RER overvaluation.

Table 1: Regressions of economic growth on undervaluation measure, 1950–2014

	(1)	(2)	(3)	(4)	(5)	
Dependant variable: Ln real GDP per capita (Ln_GDPpc)						
	All economies		Developing countries and economies in transition			
	1950-2011	1950-2011	1950-1979	1980-1999	2000-2014	
Lagged Ln_GDPpc	0.919a [0.0135]	0.857a [0.0208]	0.653a [0.0954]	0.700a [0.0426]	0.631a [0.0711]	
UNDERVAL	0.0431b [0.0205]		0.177b [0.0766]	0.0417 [0.0396]	-0.107b [0.0423]	
UNDERVAL in developed economies		0.0378 [0.0415]				
UNDERVAL in developing and transition economies		0.0648a [0.0243]				
RER Volatility	-0.00689b [0.00277]	-0.0107a [0.00405]	-0.0132a [0.00403]	-0.00455a [0.00155]	-0.00832 [0.0147]	
Dummy: Cur. dep. w/ bank crisis	-0.0461b [0.0215]	-0.0269 [0.0210]		-0.0284 [0.0287]	-0.0218 [0.0258]	
Dummy: Cur. dep. w/o bank crisis	-0.0232 [0.0237]	-0.0271 [0.0207]		-0.0537c [0.0299]	-0.00101 [0.0208]	
Country fixed effects (CFE)	yes	yes	yes	yes	yes	
Period fixed effects (PFE)	yes	yes	yes	yes	yes	
# Observations	1659	1659	380	490	407	
R ² within	0.886	0.901	0.747	0.635	0.784	
# Countries	175	175	118	135	137	

Table 2: Regressions on selected developing/transition economies, 1950–2014

	(1)	(2)	(3)	(4)
	Dependant variable: Ln real GDP per capita (<i>Ln_GDPpc</i>)			
	Africa	Latin America & Caribbean	Asia	Economies in transition
Lagged <i>Ln(GDPpc)</i>	0.887a [0.0450]	0.793a [0.0330]	0.871a [0.0324]	0.219c [0.105]
<i>UNDERVAL</i>	0.0651 [0.0389]	0.0572 [0.0372]	0.104b [0.0474]	-0.0106 [0.149]
<i>RER Volatility</i>	-0.0164a [0.00554]	-0.0278b [0.0115]	-0.00433 [0.00465]	-0.0128 [0.0247]
<i>Cur. dep. w/ bank crisis</i>	-0.0181 [0.0424]	-0.0649b [0.0269]	0.0021 [0.0278]	0.00852 [0.0362]
<i>Cur. dep. w/o bank crisis</i>	-0.0101 [0.0309]	-0.137b [0.0567]	-0.0704a [0.0217]	-0.0602 [0.0546]
CFE	yes	yes	yes	yes
PFE	yes	yes	yes	yes
# Obs.	517	348	330	72
<i>R</i> ² (within)	0.844	0.914	0.936	0.898
# Countries	50	35	34	17

Table 3: Regressions on selected income groups, 1950–2014

	(1)	(2)	(3)
Dependant variable: Ln real GDP per capita (<i>Ln_GDPpc</i>)			
	UMICs	LMICs	LICs
Lagged	0.821a	0.859a	0.815a
<i>Ln(GDPpc)</i>	[0.0444]	[0.0376]	[0.0540]
<i>UNDERVAL</i>	0.0439 [0.0512]	0.0105 [0.0345]	0.156b [0.0598]
<i>RER Volatility</i>	-0.0140b [0.00697]	-0.00675b [0.00333]	-0.0320a [0.00771]
<i>Cur. dep. w/</i>	0.0331	-0.0121	0.0222
<i>bank crisis</i>	[0.0377]	[0.0313]	[0.0644]
<i>Cur. dep. w/o</i>	-0.0631	-0.0146	-0.019
<i>bank crisis</i>	[0.0518]	[0.0293]	[0.0315]
CFE	yes	yes	yes
PFE	yes	yes	yes
# Obs.	434	349	312
R ² (within)	0.9	0.887	0.769
# Countries	47	37	31

Table 4: Robustness checks on the nonlinearity in the relationship between undervaluation (UNDERVAL) and economic growth for developing countries and economies in transition, 1950–2014

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Dependant variable: Ln real GDP per capita (Ln_GDPpc)							
	Baseline (entire sample)	Greater than -150%	Greater than -100%	Greater than -50%	Greater than -25%	Between 50% and -50%	Greater than 0%
<i>UNDERVAL</i>	0.0790a [0.0236]	0.0717a [0.0254]	0.0719a [0.0267]	0.0527c [0.0279]	0.0485 [0.0342]	0.0462 [0.0297]	0.131a [0.0500]
<i>RER Volatility</i>	-0.00920b [0.00376]	-0.00894b [0.00376]	-0.00920b [0.00381]	-0.00760b [0.00358]	-0.00660c [0.00336]	-0.0239a [0.00567]	-0.00705b [0.00313]
CFE	yes	yes	yes	yes	yes	yes	yes
PFE	yes	yes	yes	yes	yes	yes	yes
# Obs.	1205	1201	1190	1125	988	1044	633
R ²	0.896	0.895	0.895	0.903	0.911	0.904	0.917
# Countries	120	120	120	119	118	119	109

Table 4: (continued)

	(8)	(9)
Dependant variable: 1st difference of 'Ln GDP per capita (<i>Ln_GDPpc</i>)'		
	Entire sample	Entire sample
D. <i>UNDERVAL</i>	0.139a [0.0402]	
D. <i>UNDERVAL</i> >=0 and L. <i>UNDERVAL</i> >=0		0.153c [0.0853]
D. <i>UNDERVAL</i> <0 and L. <i>UNDERVAL</i> >=0		0.146b [0.0562]
D. <i>UNDERVAL</i> >=0 and L. <i>UNDERVAL</i> <0		0.143c [0.0774]
D. <i>UNDERVAL</i> <0 and L. <i>UNDERVAL</i> <0		0.104 [0.0973]
D. <i>RER Volatility</i>	-0.00363 [0.00228]	-0.00372c [0.00213]
CFE	no	no
PFE	yes	yes
# Obs.	1085	1085
R ²	0.3	0.3

7. Conclusion / Future research

- RER undervaluation had supported growth in developing countries, but such prescription does not seem to hold nowadays...
- Stability (rather than just levels) also matter
- Better understand why undervaluation seems to have worked better in certain regions, income-country groups and finally periods in time, and plausibly the role played by complementary policies...

THANK YOU !!!