The Real Exchange Rate Policy Trilemma in Developing Economies

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December 2018

Background

- Inter-temporal issues that arise in the pursuit of real undervaluation to achieve rapid development
- Policy makers face a trade-off between achieving a capital stock target in a given amount of time on the one hand and boosting real wages and output in the short run, on the other

Contribution

I focus narrowly on labor market trade-offs and long-run growth issues in the context of a developing economy with significant un(der) employment. This generates a *trilemma*:

1. use the real exchange rate as an instrument of development policy,
2. meet the development target within a politically relevant time frame (possibly dictated by elections), and
3. maintain political stability

Contribution

- Meeting long-run development goals requires continuous and increasing real undervaluation generating societal tensions.
- For sufficiently short planning horizons and relatively unambitious capital stock targets, however, I show that the optimal trajectory resembles that of the electoral cycle literature

Motivation

- Several recent studies have shown the benefits of real exchange rate undervaluation in developing economies [Rodrik (2008), Razmi, Rapetti, Skott (2012), etc.].
- This is especially true for developing economies.
- Market imperfections and externalities (Rodrik 2008, Ros and Skott, 1998), underemployment of labor and other labor market issues (Razmi *et al.* 2012), export-led growth (Feder, 1982).

Motivation

- OTOH, large currency devaluations are often undertaken in traumatic circumstances.
- Devaluations are “one of the most dramatic – even traumatic – measures of economic policy that a government may undertake," (Cooper, 1971)
- Sometimes traumatic enough to cause regime change (Argentina in the 1950s and 60s).

Motivation

- There is an oft-ignored political economy dimension
- *Steinberg and Malhotra (2014)* argue that tenure security matters
- Exchange rates tend to be more undervalued in monarchies and civilian dictatorships, regimes that provide their leaders with highly secure tenures, than in democracies and military dictatorships, where leaders' tenures are less secure.
- *This (IPE) conventional wisdom provides an accurate portrayal of an important subset of authoritarian countries, but authoritarian regimes are a much more heterogeneous grouping ... for example, it is true that China's Communist Party has sustained a highly undervalued exchange rate, but it is also true that military dictatorships from Argentina to Nigeria have adopted massively overvalued exchange rates*

Motivation

An illustration ...

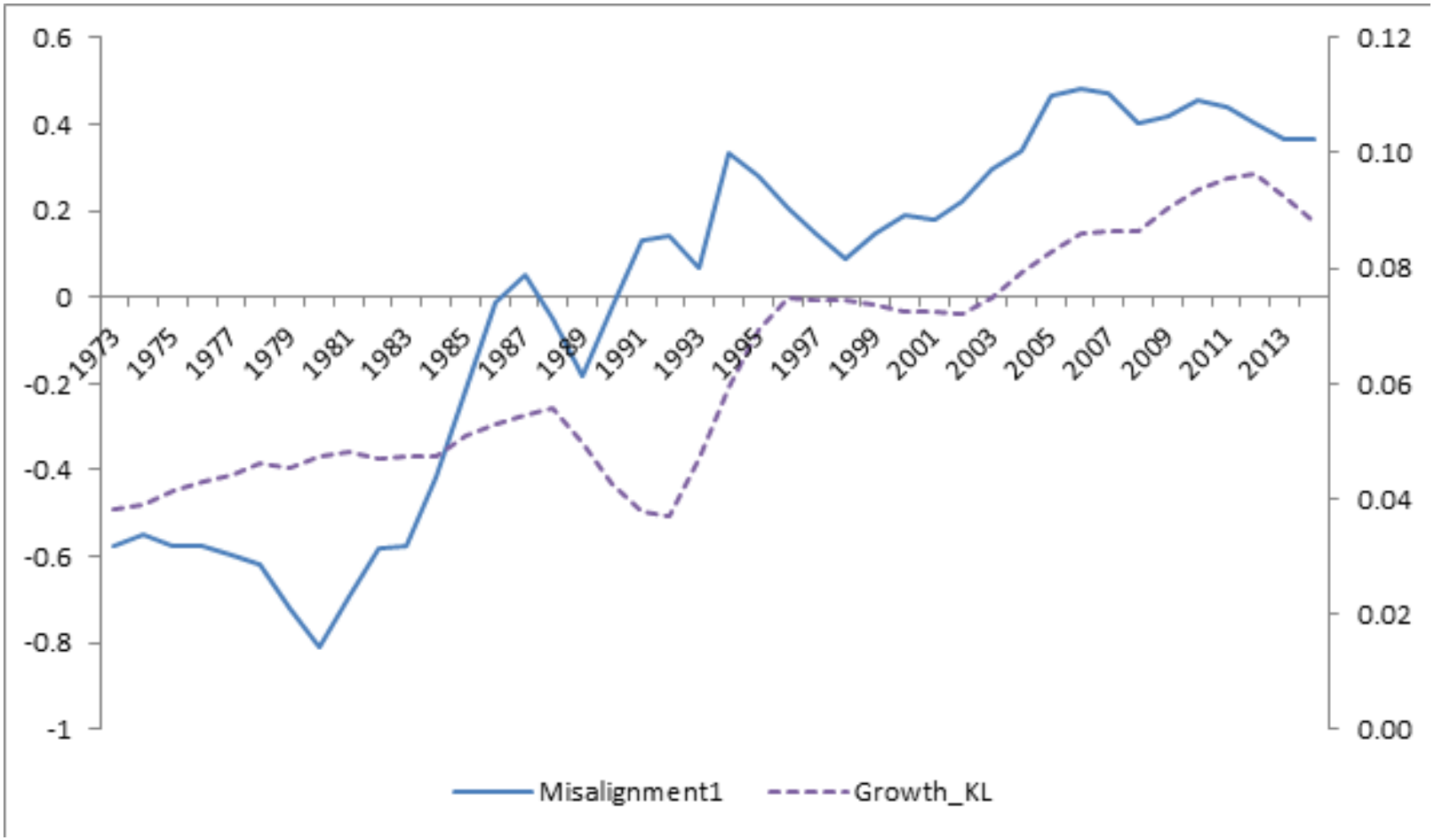
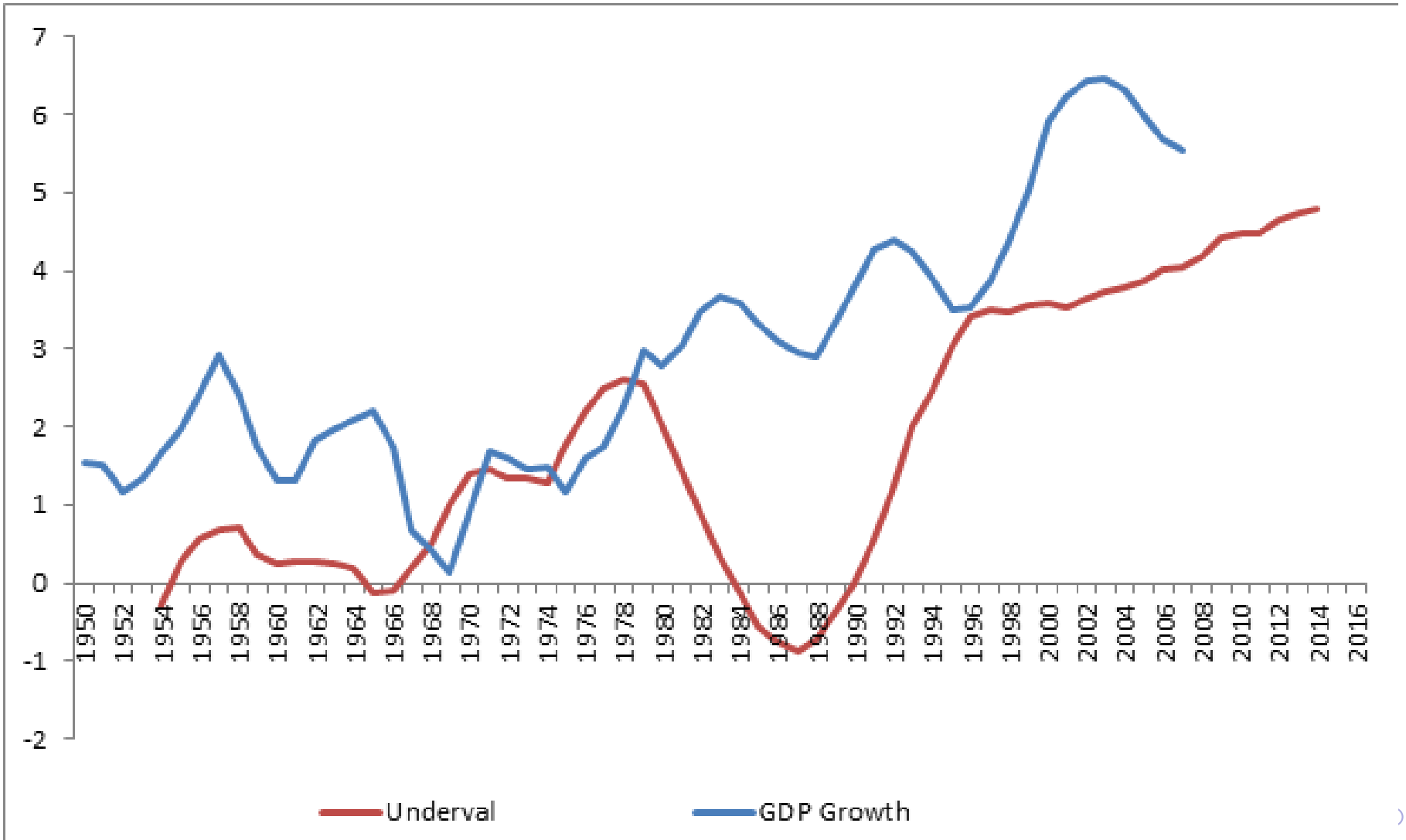


Figure: China: Exchange rate misalignment, Misalignment1 (left scale) and change in capital stock per person, Growth_KL (right scale), 1973-2014. Sources: CEPIIEQCHANGE and Penn World Table, 9.0, respectively

Motivation

But democracies can also maintain RER undervaluation and stability
An illustration (India) ...



Motivation

- Why don't policy makers simply maintain undervalued real exchange rates? One issue is credibility (Edwards, 1996, Collins, 1996)
- Among other things, real devaluations have real consequences for income distribution and the political economy of labor markets.
- As Damill and Frenkel (2017) point out in the context of recent Latin American experience, the tendency towards appreciation is appealing. It facilitates increase in tradable goods' consumption while allowing real wages to grow without generating inflation.
- Political Business Cycle literature

Motivation

- Policy makers face dilemmas and trade-offs. RER policy creates tensions between gainers and losers and between the short-run and the long-run.
- I analyze these latter tradeoffs.
- Policy makers aim to maximize an index of domestic labor market conditions including real wages and employment while reaching a pre-specified target level of capital stock in a given amount of time.

Framework

- 2 sectors, T and NT. Only the former uses capital with a fixed coefficients technology.
- NT employment determined by demand for nontradables.
- Underemployment and labor mobility between the two sectors (leading to wage equalization).
- The real wage in terms of non-tradables is a function of the level of capital stock.
- Independent investment function.
- Underemployment means expanding one sector or the other does not require raising wages in the short run.

Optimal RER Policy

- Our focus is on political economic considerations in the labor market.
- The policy maker has an objective function that assigns weights ϕ_1, ϕ_3, and ϕ_3 respectively, to:

1. the real wage in terms of tradables, i.e., the real wage in terms of non-tradables (w) divided by the real exchange rate (q),
2. non-tradable sector employment (L_N), and
3. tradable sector employment (L_T).
4. the real exchange rate here is defined as the price of tradables relative to non-tradables ($q = eP_T / P_N$).

$$\max_q \int_0^T \left[\phi_1 ln\left(\frac{w}{q}\right) + \phi_2 ln(L_N) + \phi_3 ln(L_T) \right] e^{-\rho t} dt$$

Optimal RER Policy

- Output in tradable sector, Y_T, is constrained by the level of the capital stock through a Leontief technology.

$$Y_T = min\left(K, \frac{L_T}{a}\right)$$

- Labor the only factor of production in non-tradable production and w.

$$Y_N = wL_N$$

$$w = w(K); w', w'' > 0$$

- Mangassarian sufficiency conditions

Optimal RER Policy

- Independent investment function.

$$\dot{K} = g(r - \bar{r})K;\ g' > 0, g'' = 0$$

$$r = \frac{eY_T - WaK}{eK} = 1 - \frac{wa}{q}$$

- Non-tradable equilibrium condition:

$$wL_N = C_N$$

- With continuously balanced trade:

$$C_T = \left[1 - g\left(1 - \frac{wa}{q} - \bar{r}\right)\right] K$$

Optimal RER Policy

- Non-tradable employment is determined by demand

$$L_N = \frac{1 - g\left(1 - \frac{wa}{q} - \bar{r}\right)}{w} qK$$

- And, if $g' \frac{wa}{q} > 1 - g$, we get contractionary devaluations (Krugman and Taylor, 1978, etc.)

$$\frac{dL_N}{dq} = \left(1 - g - g' \frac{wa}{q}\right) Kw < 0$$

The assumption above stiffens the trade-off faced by policy-makers between the short-run and long-run effects of undervaluation on employment.

Optimal RER Policy

- The policy makers' long term problem is:

$$\max_{q} \int_0^T \left[\phi_1 ln\left(\frac{w}{q}\right) + \phi_2 ln\left(\frac{1-g\left(.\right)}{w(K)} qK\right) + \phi_3 ln(aK) \right] e^{-\rho t} dt$$

$$s.t. \dot{K} = g\left(1 - \frac{wa}{q} - \bar{r}\right) \quad (1)$$

$$K(0) = K_0, K(T) = K_T \quad (2)$$

Optimal RER Policy

- Or, in terms of the current-value Hamiltonian:

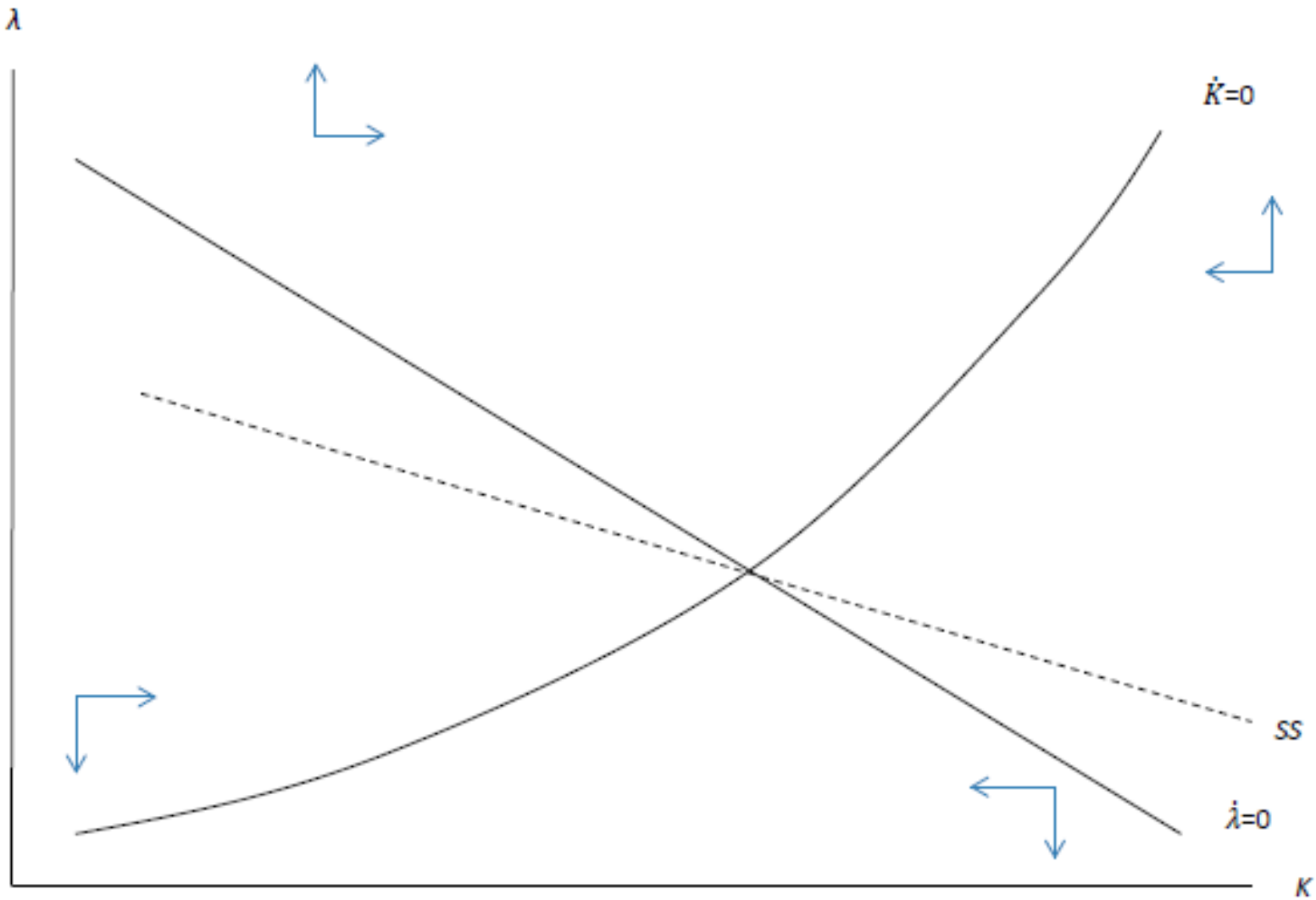
$$H \equiv \left\{ \phi_1 ln\left(\frac{w}{q}\right) + \phi_2 ln\left[\frac{1-g\left(1-\frac{wa}{q}-\bar{r}\right)}{w(K)} qK\right] + \phi_3 ln(aK) \right\}$$
$$+\lambda g\left(1-\frac{wa}{q}-\bar{r}\right)$$

where λ is the shadow value of capital.

- From the F.O.C., along the optimal path:

$$q = q(\lambda); q' > 0$$

The basic set-up

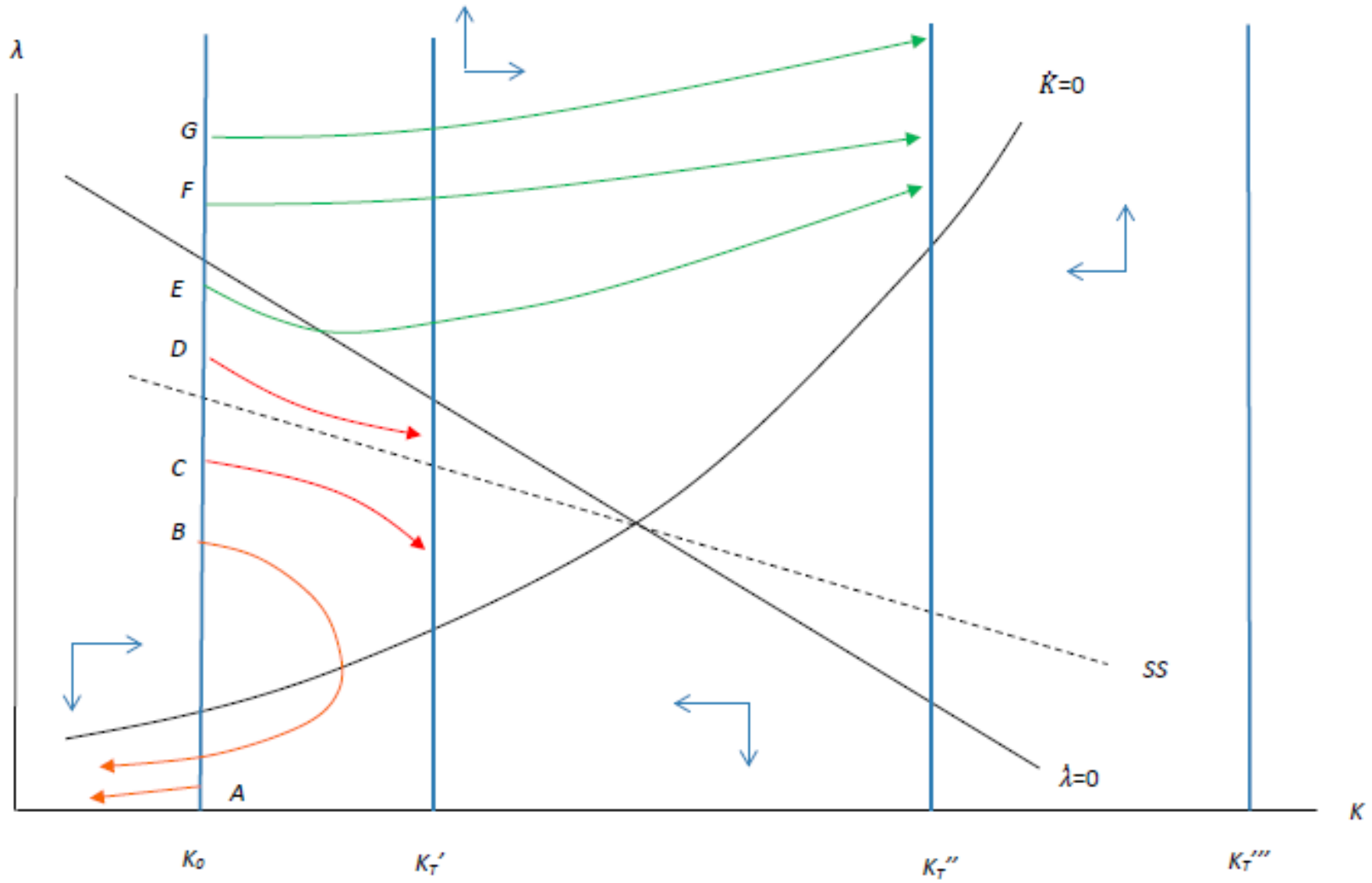


Terminology

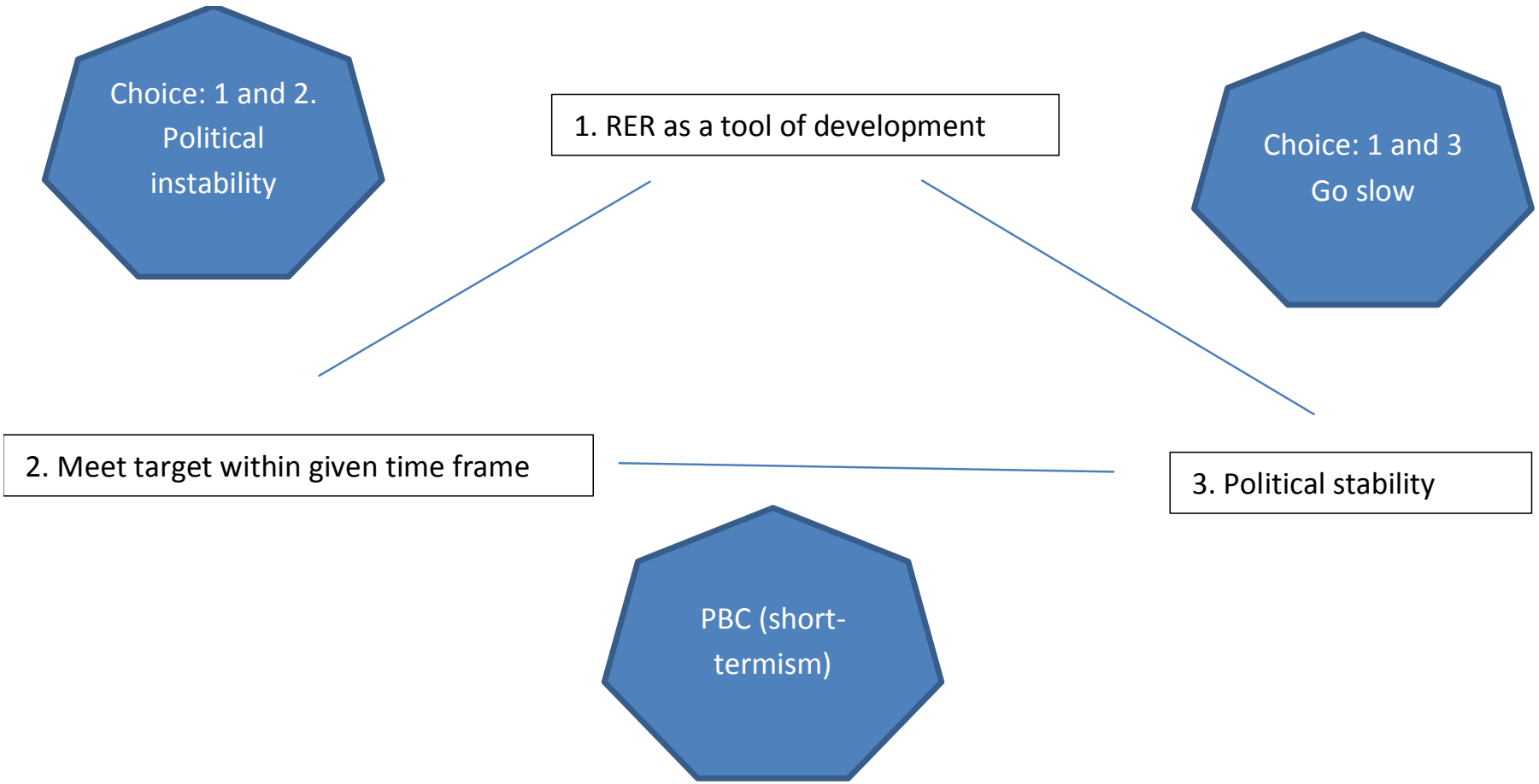
I define the real exchange rate as:

- **"highly overvalued"** if λ is at a level below both isoclines
- **"slightly overvalued"** if λ is above the $\dot{K} = 0$ isocline but below the stable arm,
- **"slightly undervalued"** if λ is above the stable arm but below the $\dot{\lambda} = 0$ isocline, and
- **"highly undervalued"** if λ is at a level above both isoclines.

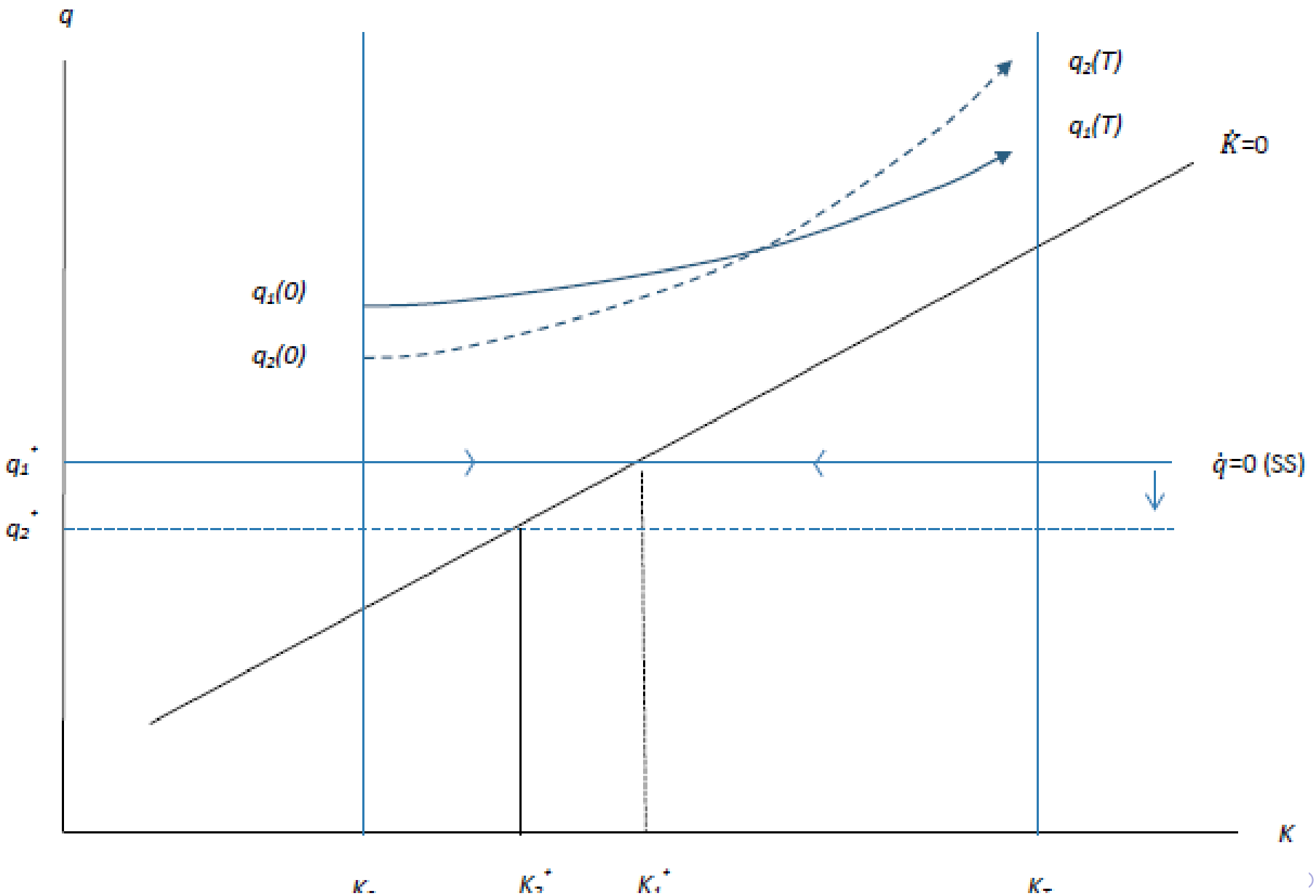
The Choices



The Trilemma



More Contractionary Devaluations



More Contractionary Devaluations

- Large short-run contractionary effects of devaluations, will lower the optimal initial undervaluation, but increase the pace of further undervaluation required,
- This culminates in a lower real wage at the end of the day

Greater Effect of Accumulation on Employment

- A stronger positive effect of capital accumulation on economy-wide employment, by contrast, will raise the optimal initial level of the real exchange rate and reduce the further depreciation required along the trajectory to the capital stock target.

Concluding Remarks

- Classical economists talked about the role of distribution in the growth process ["Engel's Pause" (Robert Allen, 2009)]
- Distributional issues continue to be important.
- Japan overtook the UK as a major exporter of manufactured goods not simply by catching-up in labour productivity terms, but by holding the growth of real wages below the growth of labour productivity so as to enjoy a unit labour cost advantage [Broadberry, *et al.* 2015]
- Galor (2011)

Concluding Remarks

- Our framework yields a trilemma whereby policy makers can choose two but not all three options among employing the real exchange rate for development, achieving development targets within a given time, and political stability.
- The typical political business cycle – involving a rising real wage, expanding non-tradable employment, and falling tradable inflation as the next election cycle approaches – emerges as a special case.
- The problem of course, to borrow a phrase from – written not surprisingly in the Latin American context – is that "bringing down inflation is not the end of the story; rather, it is the beginning of the next cycle."