Discussion of:

Debt Delevaraging and The Exchange Rate

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Borrowing constraints and spillovers

- Revival of models with borrowing frictions since the beginning of the crisis, including in open-economies (Devereux and Yetman).

- Substantial de-leveraging of the private sector (ex: international activities of banks; narrowing of imbalances in the euro area).

- The paper considers the international impact of a tightening of borrowing constraints.
  - Model without nominal rigidities presents the mechanisms and main results.
  - Model with wage rigidities and the ZLB assesses policies and constrasts exchange rate regimes.

Main results

- A reduction of the borrowing constraint faced by the Home country leads to (in the short run):
  - A real depreciation of the Home currency, because of lower demand for domestic goods.
  - A drop of the interest rate as the demand for funds from borrowers falls.
- With wage rigidities and the ZLB binding through the deleveraging:
  - Home consumption and output fall.
  - A unilateral peg is the worst regime.
  - A currency union or a flexible exchange rate are better.
  - Stretching the period of low interest rates or accepting some inflation eases the burden.

Comment 1: a broader view

- The paper focuses on deleveraging, but the mechanisms apply (qualitatively) to any financial shocks.
- Consider a simple model without frictions and with shocks to discount factors (Bussière, Lopez and Tille 2012).
  - Simple to solve through a linear approximation around a steady state with no cross-border asset holdings.
  - A temporary increase in Home relative patience raises the terms-of-trade *(t* in terms of log deviation):

$$t = \beta(2\alpha - 1)(\hat{\beta}^H - \hat{\beta}^F)$$

- Broader policy questions, such as dealing with capital flows bonanzas.

Comment 2: determinants of Q

- The paper considers that there is one traded good in each country, with endowment output.
- Consider instead one traded good (numeraire) and two nontraded goods.
  - Productivities can vary across sector, and factors can be re-allocated:

$$Y_T = A_T (L_T)^{1-\alpha} \qquad Y_N = A_N (L - L_T)^{1-\alpha}$$

where α is between 0 (constant returns to scale) and 1 (endowment). *L* is constant.

  - The real exchange rate reflects productivities in the two sectors in the two countries and labor allocation.

Labor allocation and exchange rate

- Labor is allocated to equalize the marginal returns across sectors:

$$P_N = \frac{A_T}{A_N}\left(\frac{L_T}{L - L_T}\right)^{-\alpha} \qquad P_N^* = \frac{A_T^*}{A_N^*}\left(\frac{L_T^*}{L - L_T^*}\right)^{-\alpha}$$

- The real exchange rate is then:

$$Q = \left(\frac{P_N}{P_N^*}\right)^{1-\gamma} = \left(\frac{A_T}{A_T^*}\frac{A_N^*}{A_N}\right)^{1-\gamma}\left(\frac{L - L_T}{L_T}\frac{L_T^*}{L - L_T^*}\right)^{\alpha(1-\gamma)}$$

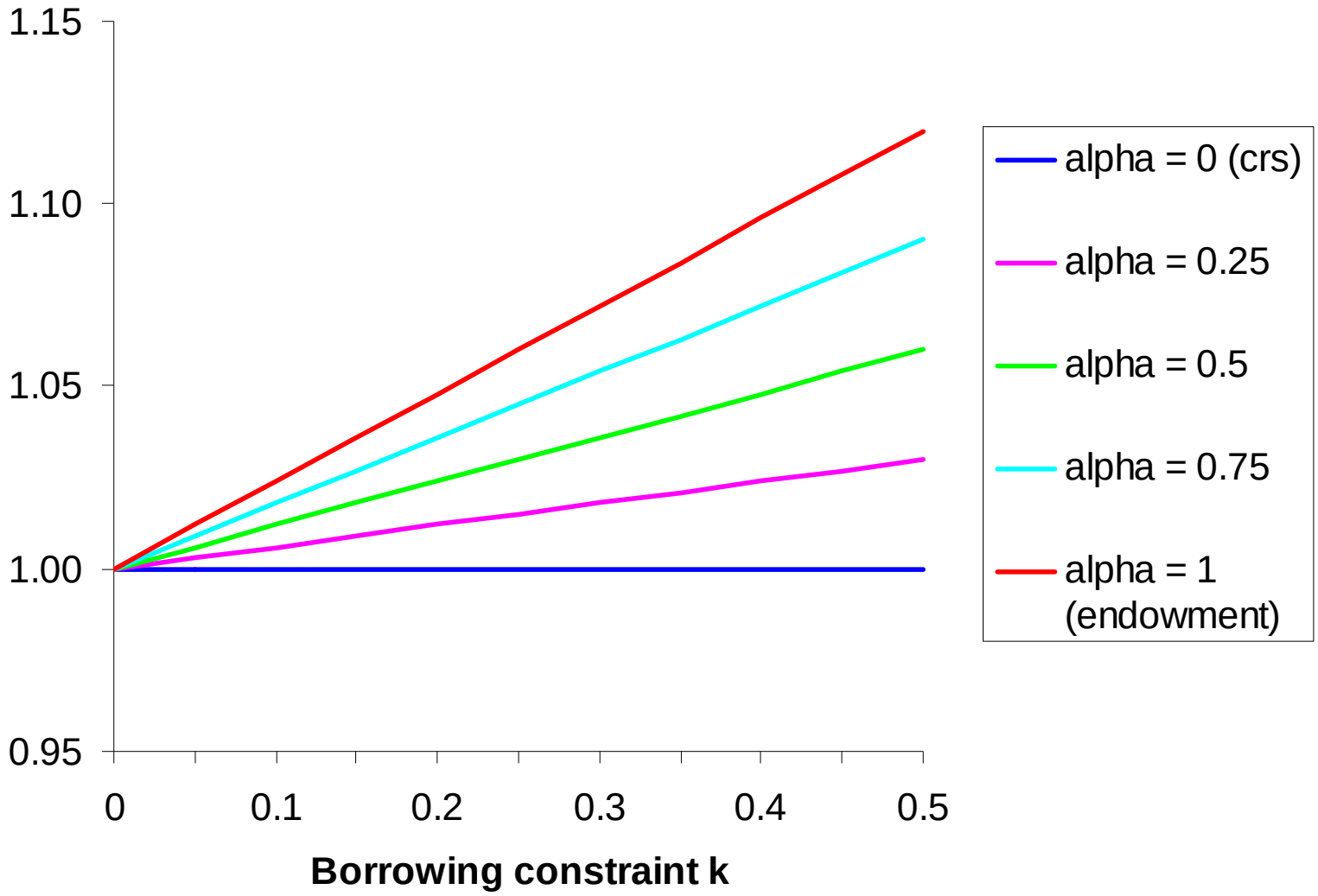
- With $\alpha = 0$ the real exchange rate is completely pinned down by productivity (Balassa-Samuelson).
  - Returns to scale affect the magnitude of the results.

A traded-nontraded variant of the model

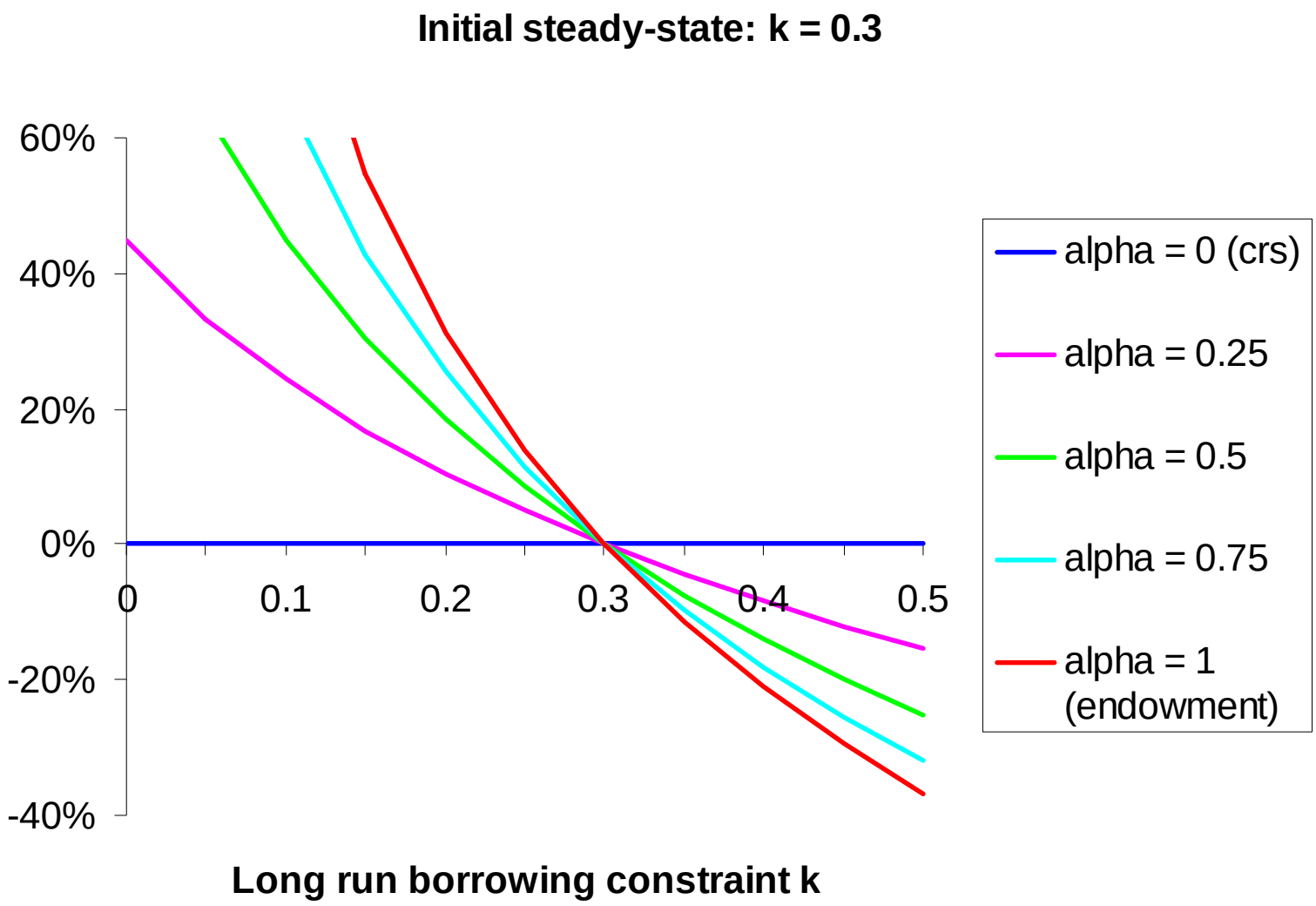
- The model can be solved considering traded and nontraded goods (requires a numerical solution).
- The qualitative results are the same, but the magnitude is reduced when we allow for factor mobility across sectors.
- The model can also be written without frictions, considering the impact of time discount shocks around a steady state with no cross-border asset holdings.
  - A temporary increase in Home relative patience depreciates the real exchange rate (γ is the share of traded goods):

$$q = \frac{\alpha(1-\gamma)\beta}{\gamma + \alpha(1-\gamma)}(\hat{\beta}^H - \hat{\beta}^F)$$

Steady state real exchange rate



Short run depreciation



A modelling comment

- Constraint of the Home country (all agents are borrowers):

$$...+(1+i_t)^{-1}D_{t+1}-D_t$$

- In the transition to the new steady state we clearly have:

$$D_{t+1}=k_{low}\overline{GDP}_{low}$$

- The paper assumes (equation 20):

$$D_t=k_{high}GDP_{short\_run}$$

- As the initial debt was set before agents learnt about the change in the borrowing constraint, it cannot be re-adjusted. We should thus consider:

$$D_t=k_{high}\overline{GDP}_{high}$$

  - Makes the solution more complicated, but reinforces the results somewhat.

Comment 3: other policies

- The paper focuses on monetary policy, including a temporary increase in inflation and stretching the period of low interest rates.
- Discuss alternative policies.
  - Fiscal stimulus to sustain the demand for domestic goods.
  - Deficit-spending so that public leveraging absorbs private de-leveraging.
- Can the Foreign country help?
  - Foreign demand stimulus raises demand for Home goods (a bit). It however also raises demand for Foreign goods (a lot), leading to more Home real depreciation.
  - Would a Foreign assistance package to fund a Home demand stimulus be better?

Comment 4: magnitudes and welfare

- Section 3.2.1 points that keeping interest rates low or accepting some inflation helps. The magnitudes are however so large as to be questionnable:
  - 3 more quarters at the ZLB boost consumption by 24 % at time 0 (figure 4).
  - 2 quarters with inflation at 2.5 % instead of 2 % boost consumption by 6 % (figure 8).
- The welfare under alternative policies should be given in section 4.
- Is there an optimal rate of depreciation under the flexible exchange rate (γ in equation 30)?