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Current account deficits in rich countries

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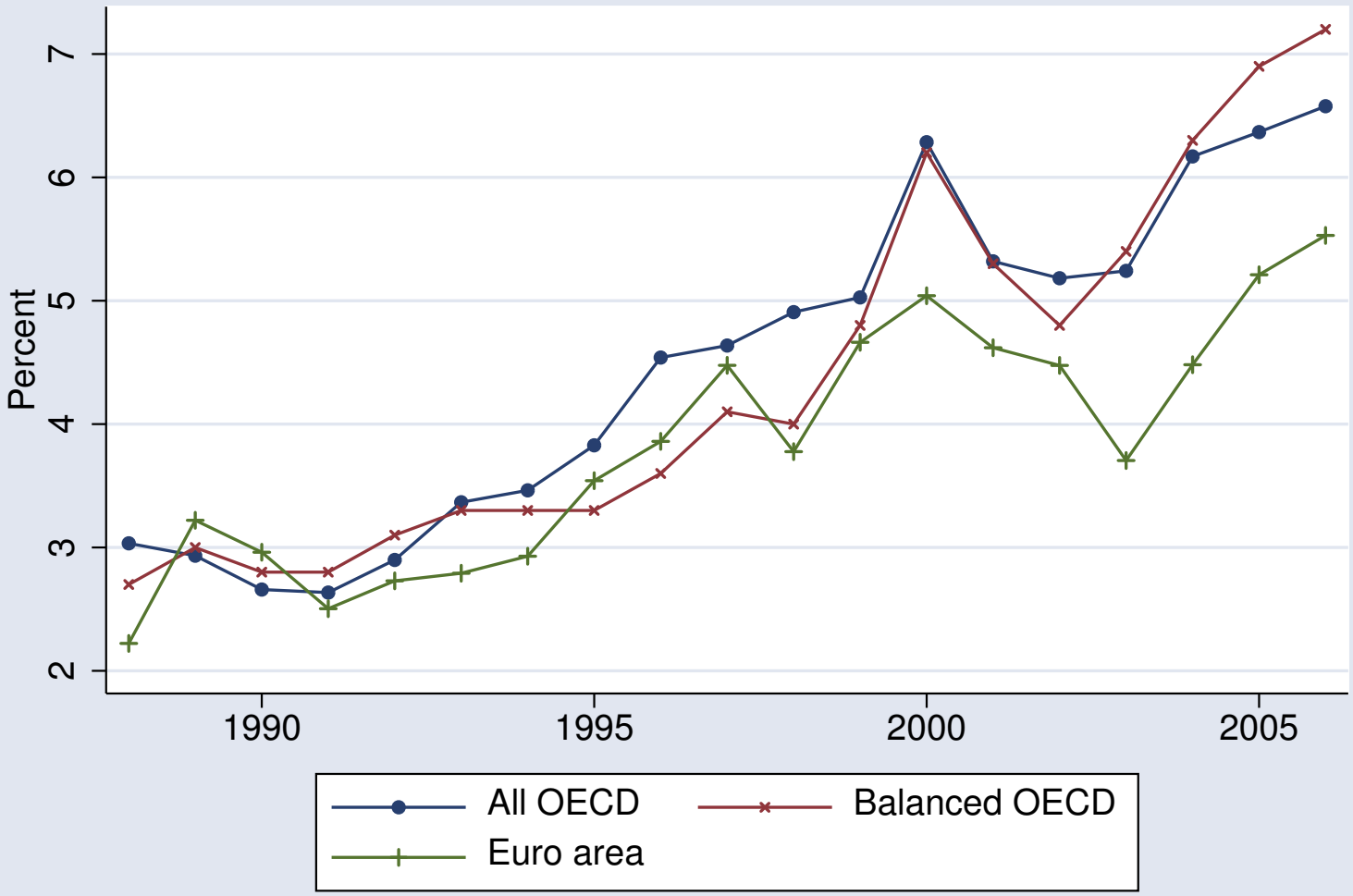
1. Introduction

Current account deficits in rich (OECD) countries have steadily increased. Two major evolutions:

- "Global imbalances": The US deficit, with surpluses from all other regions.
- Within the Euro: Portugal, Spain.

Figure 1. Standard deviation of CA deficits/GDP



Surely not the first time. Previous episodes: Latin America in early 1980s, Mexico in the mid 1990s.

This time, nature of the deficits is different:

- Rich countries.
- Not primarily driven by fiscal deficits.
- FDI, equity and domestic currency government bonds, rather than bank lending.

Among policy makers: Two extreme views:

- "Lawson doctrine": First welfare theorem.

  If private saving, private investment, which is largely the case, then no reason to worry.

- "Prudential view" Even then, reason to worry. Deficits are too large. Implications can be bad.

  Reflected in choice of words: "Global imbalances". "Fragility."

Purpose of lecture. Reexamine the issue.

- Review the facts: CA deficits in the Euro area. Global imbalances.
- Construct economy where CA deficits from shifts in private saving/private investment. No fiscal deficits. Rational expectations. $\Rightarrow$ First best.
- What can go wrong? Introduce plausible distortions.
  - Price/wage rigidities.
  - Financial constraints.
  - Interaction with sudden stops.

  In each case, examine implications for outcome, CA deficits, and potential role of policy.
- Briefly return to implications for Euro-countries, global imbalances.

2. CA deficits within the Euro

The example of Portugal. Useful because observe pre/post. Two periods.

Boom, until 2000

- Increase in private spending. Low fiscal deficits. Causes: Lower real interest rates, and anticipations of faster convergence within Euro.
- Effects. Boom. Steady appreciation. Increasing CA deficits: 0 in 1995, 10% of GDP in 2000.

Slump since 2001

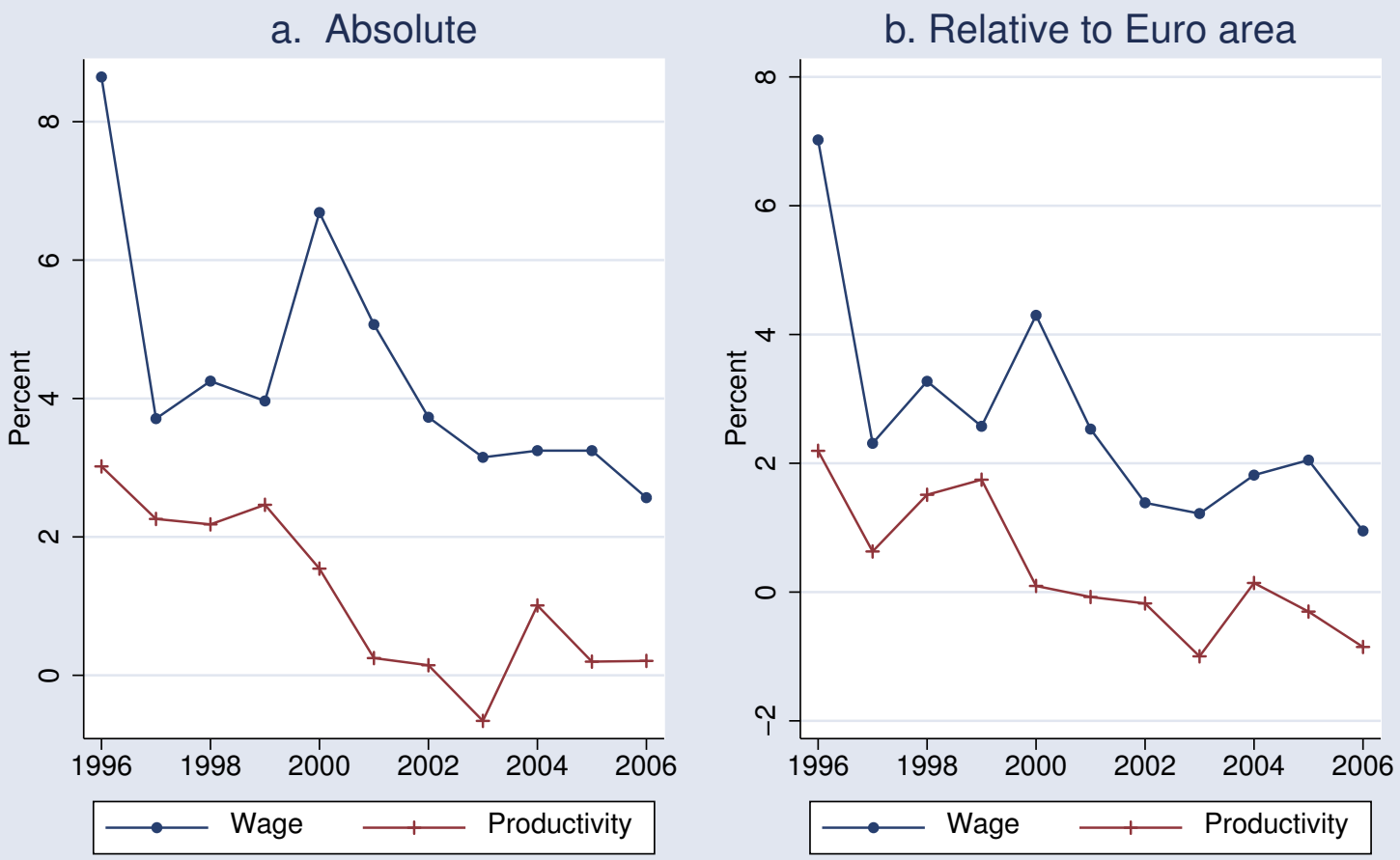
- Expectations of faster convergence turned out to be incorrect. Decrease in private spending. Fiscal deficits in response to slump. Low growth.
- Very slow real depreciation. Continuing large CA deficits (10% in 2006).

Figure 2. Unemployment rate and current account deficit

Portugal, 1995–2007

Figure 3. Wage and labor productivity growth

Portugal 1996–2006



Portugal. A summary.

- CA deficits driven primarily by private saving, private investment. Reasonable (rational?) expectations.
- Should the Portuguese government have done something else between 1995 and 2000? (ex-ante)

Spain. On the same path?

- Consumption/(residential) investment boom. CA deficit: 9% in 2006. Fiscal surplus: 1%. Large appreciation.
- What happens next?
- What should the government have done/do?

3. "Global imbalances"

- Causes. Low US saving. High foreign saving. Low foreign investment. Portfolio shifts towards US assets.

- Limited role of US fiscal deficits. (Fed simulation: 5% of GDP reduction of fiscal deficit over 5 years. $50b out of $b800.)

- Financed by FDI (18%), purchases of corporate equities and bonds (50%), T-bills (18%, official holdings 11%).

- Reasonable expectations? No strong evidence against.

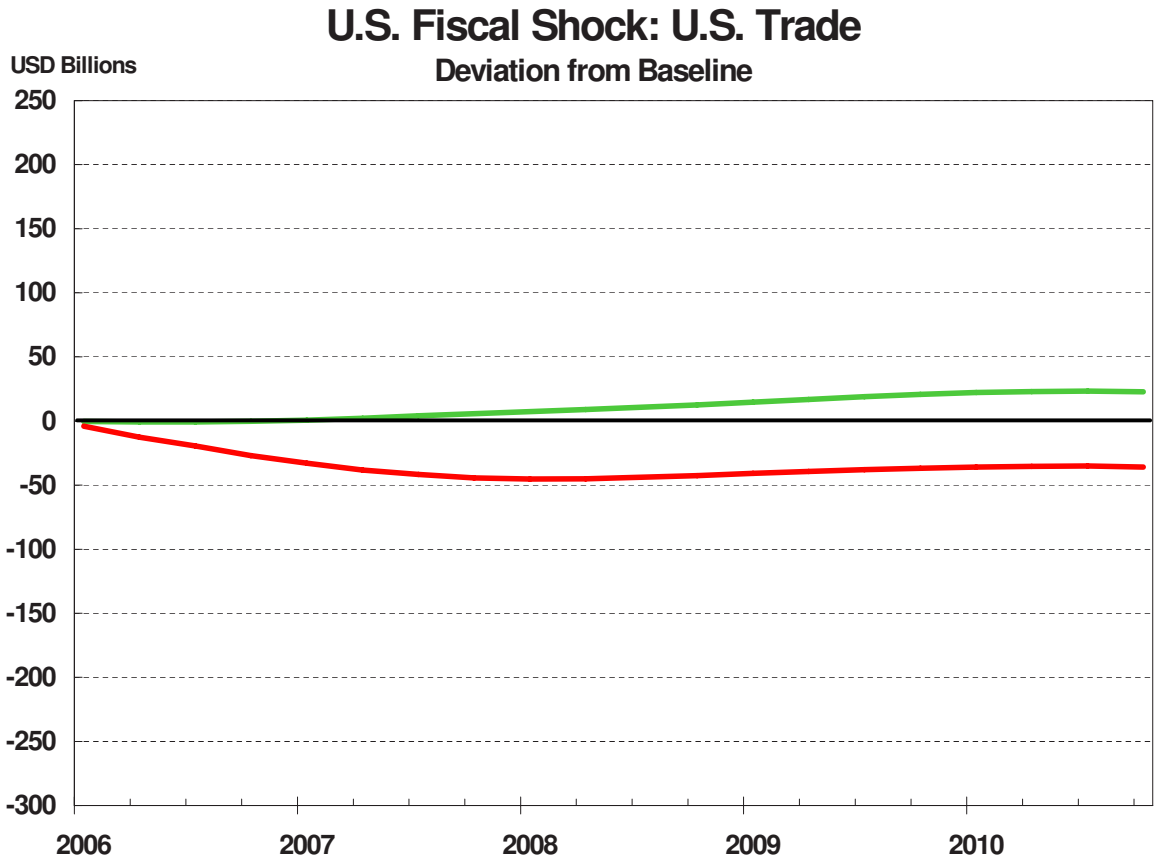
So why is the CA deficit so bad?

Table 1. The U.S. current account deficit and its counterparts. 2006-2, in billions of dollars, at annual rates.

Total 880					
of which					
Europe	192	Asia		424	
Canada	38		China		247
Latin America	118		Japan		112
Middle East	55				

Table 2. Composition of foreign holdings of U.S. assets (billions of dollars).

	Flows (2005)	Stocks (2006-2)
Total	1045	11,605
T-bills	287	2029
Official holdings	71	1322
Private holdings	215	706
Corporate equities	87	2485
Corporate bonds	330	2510
Direct investment	110	1970


U.S. Fiscal Shock: U.S. Trade
Deviation from Baseline
USD Billions
250
200
150
100
50
0
-50
-100
-150
-200
-250
-300
2006
2007
2008
2009
2010

4. A benchmark model

- Small country.
- Two periods.
- Two goods, tradables and non-tradables, and leisure. (why leisure?)
- World interest rate equal to zero.
- World price of tradables equal to one.

Tastes:

$$\max V \equiv U + \beta U'$$

where

$$U = \log(C) + \phi \log(L)$$

and

$$\log(C) \equiv \frac{1}{2}\log(C_T) + \frac{1}{2}\log(C_N)$$

subject to:

$$qC_N + C_T + q'C'_N + C'_T = A \equiv w(N_T + N_N) + w'(N'_T + N'_N) + \pi + \pi'$$

where $N_N + N_T = \bar{L} - L$, w is the wage in terms of tradables, and π is profit.

Technology:

Competitive firms maximize profit subject to:

$$Y_T = N_T^a, \qquad Y_N = N_N^a$$

Equilibrium conditions

$$C_N = Y_N \Rightarrow \frac{1}{2}\ \frac{1}{1+\beta}\ \frac{1}{q}\ A = \left(\frac{w}{aq}\right)^{a/(a-1)}$$

$$C'_N = Y'_N \Rightarrow \frac{1}{2}\ \frac{\beta}{1+\beta}\ \frac{1}{q'}\ A = \left(\frac{w'}{aq'}\right)^{a/(a-1)}$$

$$N_T + N_N = \bar{L} - L \Rightarrow \left(\frac{w}{a}\right)^{1/(a-1)} + \left(\frac{w}{aq}\right)^{a/(a-1)} = \bar{L} - \frac{1}{1+\beta}\ \frac{\phi}{w}\ A$$

$$N'_T + N'_N = \bar{L} - L' \Rightarrow \left(\frac{w'}{a}\right)^{1/(a-1)} + \left(\frac{w'}{aq'}\right)^{a/(a-1)} = \bar{L} - \frac{\beta}{1+\beta}\ \frac{\phi}{w'}\ A$$

where $A \equiv Y_T + Y'_T + qY_N + q'Y'_N$

Increased impatience: $d\beta < 0$

Starting from $\beta = 1,\ q = 1,\ w = a(\tilde{w} \equiv w/a = 1)$ and $Y_i = N_i = 1$, a convenient normalization:

Two mechanisms at work: Intertemporal and intratemporal reallocation.

- People want to spend more and work less in the current period.
- Consumption of non tradables and tradables go up.

$$dC_N = \frac{1}{2}\frac{a}{3-2a}(-d\beta) > 0; \qquad dC_T = \frac{1}{2}(-d\beta) > 0$$

- Employment goes down. Employment in non-tradables goes up, employment in tradables goes down more.

$$dN = -\frac{1}{2}\ \frac{1}{3-2a}\ (-d\beta) < 0$$

$$dN_N = \frac{1}{2}\frac{1}{3-2a}(-d\beta) > 0; \qquad dN_T = -\frac{1}{3-2a}(-d\beta) < 0$$

- The price of non tradables increases. The product wage goes up in terms of tradables, down in terms of non-tradables. The real consumption wage goes up.

$$dq = \frac{3}{2}\ \frac{1-a}{3-2a}(-d\beta) > d\tilde{w} = \frac{1-a}{3-2a}(-d\beta) > 0$$

- Increased demand and decreased supply of tradables lead to a current account deficit.

$$d \text{ current account deficit } = \frac{1}{2}\ \frac{3}{3-2a}\ (-d\beta) > 0$$

- All changes hold with opposite signs in the future period.

What can go wrong? Three directions.

- Distortion 1. Rigid prices/wages. Limited a-temporal reallocation. Boom/slump in non-tradables. Portugal?

- Distortion 2. Financial market imperfections. Limited inter-temporal reallocation. Contraction, then expansion in tradables? Dutch disease?

- Distortion 3 (?) Sudden stops, plus? Financial market imperfections.

5. Price/wage rigidities

Symmetric or asymmetric (downward) rigidity?

Assumption: $\tilde{w}$ and q fixed at 1. Employment demand determined in non-tradable sector.

Equilibrium conditions (as $Y_T = Y_T' = 1$):

$$Y_N = C_N \qquad \Rightarrow Y_N = \frac{1}{2(1+\beta)}(2 + Y_N + Y_N')$$

$$Y_N' = C_N' \qquad \Rightarrow Y_N' = \frac{\beta}{2(1+\beta)}(2 + Y_N + Y_N')$$

Increased impatience. $d\beta < 0$

Now only one mechanism at work: Intertemporal reallocation.

- People want to spend more and work less in the current period.
- Consumption of non tradables and tradables both go up by the same amount.

$$dC_N = \frac{1}{2}(-d\beta) > dC_N^* > 0; \qquad dC_T = \frac{1}{2}(-d\beta) = dC_T* > 0$$

- Total employment goes up. Employment in non-tradables goes up. Employment in tradables does not change.

$$dN = -\frac{1}{2a}\ (-d\beta) > 0 > dN*$$

$$dN_N = \frac{1}{2a}(-d\beta) > 0; \qquad dN_T = 0$$

- Increased demand and unchanged supply of tradables lead to a current account deficit, smaller than in the first best (not robust).

$$d \text{ current account deficit} = \frac{1}{2}\,(-d\beta) > 0$$

- All changes hold with opposite signs in the future period.
- The economy goes through a boom/current account deficit period, then a slump/current account surplus period. The boom/slump is inefficient.

Role for policy? Introducing a government.

- Monetary/exchange rate policy. If $q, \tilde{w}$ rigid in nominal terms, role for monetary/exchange rate policy. Nominal appreciation in first period $q > 1, \tilde{w} > 1$.

  May or may not be able to achieve first best depending on wage setting. Not an option open to Portugal (Euro).

- Fiscal policy. Need to introduce government explicitly. Extend utility function:

$$U = \log(C) + \phi \log(L) + \alpha \log(G)$$

  where G is government spending, given by:

$$\log(G) \equiv \frac{1}{2} \log(G_T) + \frac{1}{2} \log(G_N)$$

  Assume lump sum taxation (so Ricardian equivalence). (Different taxes on tradables and non-tradables, if feasible, and on labor can obviously achieve first best.)

- Fiscal policy in first best:

  $G_i = \alpha C_i$, so for $\beta = 1$, $C = 1/(1+\alpha), G = 1/(1+\alpha)$.

  Call this neutral component of fiscal policy.

- Fiscal policy in second best.

  Define deviation from neutral component by dg_i. Because of symmetry, optimal policy is such that $dg_i' = -dg_i$. So have to determine only dg_N and dg_T.

- dg_N affects dY_N (but not dC_N):

$$dY_N = \frac{1}{2}(-d\beta)+dg_N, \quad dC_N = \frac{1}{2}\frac{1}{1+\alpha}(-d\beta), \quad dG_N = \frac{1}{2}\frac{\alpha}{1+\alpha}(-d\beta)+dg_N$$

- dg_T does not affect dY_N.

$$dY_T = 0, \quad dC_T = \frac{1}{2}\ \frac{1}{1+\alpha}\ (-d\beta), \quad (dG_T + dg_T) = \frac{1}{2}\ \frac{\alpha}{1+\alpha}\ (-d\beta) + dg_T$$

- Optimal policy:

$$dg_N = \frac{\alpha(1+a)}{2(\alpha+a+a\alpha)}(-d\beta) < 0, \qquad dg'_N = -dg_N; dg_T = dg'_T = 0$$

No effect on the current account deficit, only on output.

6. Financial constraints

First best implies squeeze, then expansion of tradables sector. What if financial constraints make the expansion harder, the larger the squeeze. (Dutch disease.)

For example, constraints from retained earnings, at the level of firm or sector.

Formalization:

$$Y_T' = \min(Y_T, \tilde{w}'^{\ \frac{a}{a-1}})$$

Constraint taken as external to each firm, so short run profit maximization.

One interpretation: Borrowing up to some multiple earnings to pay wage bill in second period. (more appealing/explicit formalization in Caballero-Lorenzoni: ability to cover losses.)

Equilibrium conditions are the same as for first best, except for demand for labor in future period by tradables.

$$C_N + G_N = Y_N \quad \Rightarrow \quad \tfrac{1}{2}\ \tfrac{1}{1+\beta}\ \tfrac{1}{q}\ A + dg_N = \left(\tfrac{\tilde{w}}{q}\right)^{a/(a-1)}$$

$$C'_N + G'_N = Y'_N \quad \Rightarrow \quad \tfrac{1}{2}\ \tfrac{\beta}{1+\beta}\ \tfrac{1}{q'}\ A + dg'_N = \left(\tfrac{\tilde{w}'}{q'}\right)^{a/(a-1)}$$

$$N_T + N_N = \bar{L} - L \quad \Rightarrow \quad \tilde{w}^{1/(a-1)} + \left(\tfrac{\tilde{w}}{q}\right)^{a/(a-1)} = \bar{L} - \tfrac{1}{1+\beta}\ \tfrac{1}{\tilde{w}}\ A$$

$$N'_T + N'_N = \bar{L} - L' \quad \Rightarrow \quad (\tilde{w})^{1/(a-1)} + \left(\tfrac{\tilde{w}'}{q'}\right)^{a/(a-1)} = \bar{L} - \tfrac{\beta}{1+\beta}\ \tfrac{1}{\tilde{w}'}\ A$$

where

$$A \equiv Y_T + T'_T + qY_N + q'Y'_N - (q\ dg_N + q'\ dg'_N + dg_T + dg'_T)$$

Increased impatience

Absent active fiscal policy:

- People take into account that lower tradables production in the current period leads to lower tradables production in the future. So lower wealth.
- Lower wealth means lower consumption, and higher labor supply. But still the desire to intertemporally substitute.
- So increase in the demand for tradables and non tradables, but by less than first best.

$$dC_N + dG_N = dY_N = \frac{a}{6}(-d\beta) > 0 \qquad dC'_N + dG'_N = dY'_N = -\frac{a}{6}(-d\beta) > 0$$

$$dC_T + dG_T = \frac{3-2a}{6}(-d\beta) > 0 \qquad dC'_T + dG'_T = -\frac{3+2a}{6}(-d\beta) < 0$$

- Higher labor supply, and smaller increase in demand for non tradables imply a smaller decrease in tradables output than first best. Financial constraints imply equal decrease in second period:

$$dY_T = -\frac{a}{3}(-d\beta) < 0 \qquad dY'_T = -\frac{a}{3}(-d\beta) < 0$$

- Higher demand and lower supply of tradables lead to a current account deficit, but smaller than in first best.

$$d \text{ current account deficit} = \frac{1}{2}(-d\beta) > 0$$

- Lower appreciation, and lower wage increase than in first best.

$$dq = \frac{1-a}{2}(-d\beta) > 0; \qquad dq' = -\frac{1+a}{2}(-d\beta) < 0$$

$$d\tilde{w} = \frac{1-a}{3}(-d\beta) > 0 \qquad d\tilde{w}' = -\frac{a+2}{3}(-d\beta) < 0$$

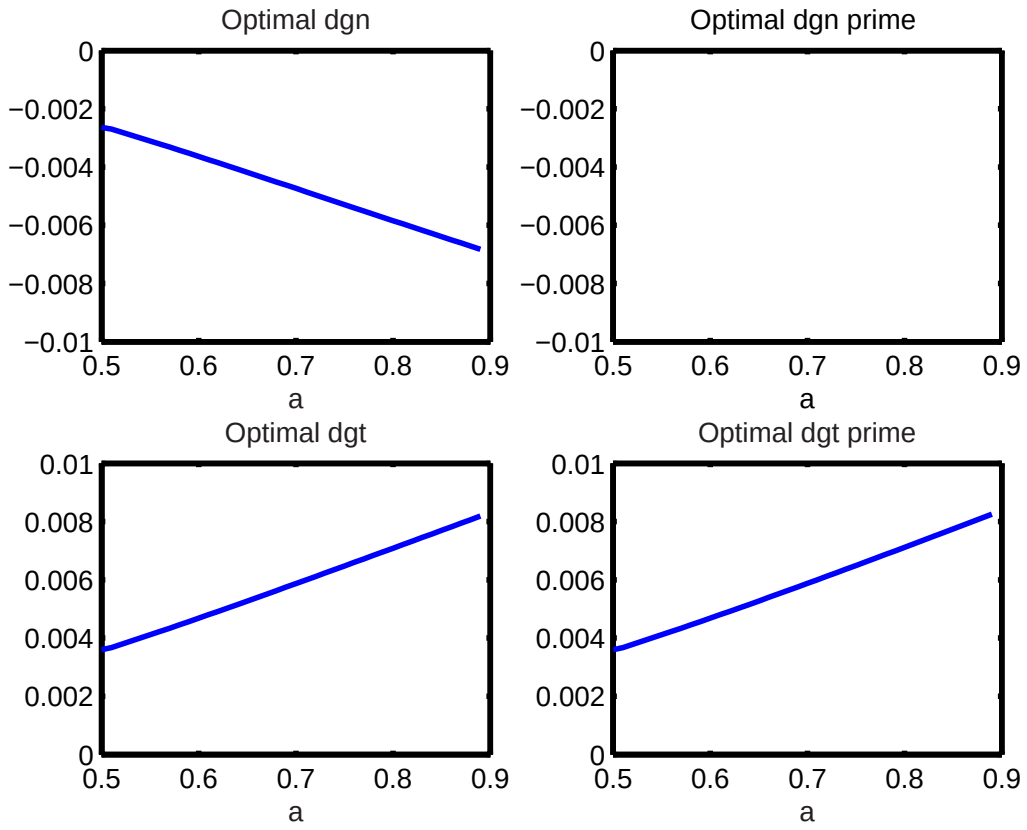
- No longer symmetric adjustment. Output of tradables down in both periods, output of non-tradables up in both periods.

- First order loss of welfare.

$$dA = -\frac{4}{3}(-d\beta) < 0; \qquad dV = -\frac{a(1+\alpha)}{6}(-d\beta) > 0$$

Optimal fiscal policy

- Negative g_N, so as to increase output of tradables in both periods.
- Role of g_T and g'_T only through wealth. Positive g_T and g'_T lead to lower demand for non-tradables in first period, thus higher output of tradables in both periods.
- Higher current account under optimal policy. Higher Y_T, lower C_T, but also higher G_T.


Optimal dgn
0
−0.002
−0.004
−0.006
−0.008
−0.01
0.5
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0.8
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Optimal dgn prime
0
−0.002
−0.004
−0.006
−0.008
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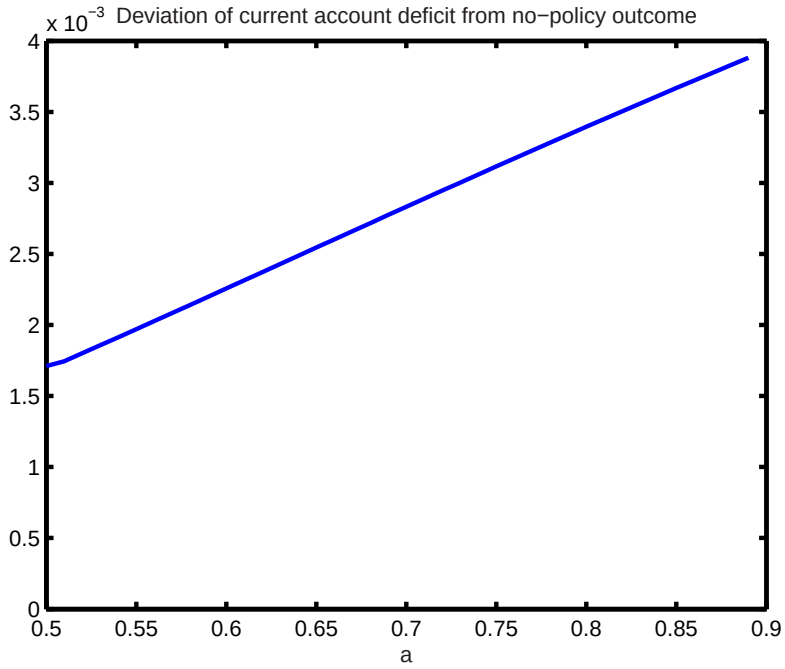
a

Optimal fiscal policy and the current account deficit



- Back to asymmetric (downward) wage rigidity: High real wage leads to low output of tradables and non-tradables in second period (as opposed to misallocation).

  Wealth effects lead in turn to higher labor supply and lower demand in first period. Positive but smaller current account deficit.

  Roughly similar policy implications.

- Empirical relevance? Internal costs of adjustment will not do (other things equal, maintain first best). Learning by doing (a la Krugman-Thatcher)?

7. Sudden stops

Clearly, one of the main worries among policy makers and some economists (Roubini, etc).

An obvious point: If sudden stops (say country cut from world financial market, or facing much higher rate rate of return) are exogenous, and no other distortions, then first best still holds.

Need interaction with some other distortion.

Extend model by one period: So three periods. Same preferences, and

$$V = U + \beta' U' + \beta'' U''$$

Initially, $\beta' = \beta'' = 1$.
Then:

- Decrease in one or both βs
- World interest rate: $r = 0$
- Probability of being cut from world financial market in period 2: p.

Clearly probability of sudden stop affects CA deficit in first period. Extreme example: $d\beta'' < 0$, and $p = 1$: then no CA deficit.

Increased impatience

Assume that $d\beta' = d\beta'' \equiv d\beta < 0$. Then:

- The higher the probability of a sudden stop, the smaller the initial current account deficit (as agents take this into account):

$$d \text{ current account deficit} = \frac{1}{3+p}\frac{2-2a}{2-a}(-d\beta)$$

- The lower the probability of a sudden stop, the larger the initial appreciation, and so the larger the depreciation if a sudden stop actually takes place:

$$dq = \frac{4(1-a)}{2-a}\frac{1}{3+p}(-d\beta)$$

If a sudden stop takes place in the second period:

$$dq' = -\frac{4(1-a)}{2-a}\frac{1}{3+p}(-d\beta), \quad dq'' = 0$$

- How likely? If p is positive, the term structure (in terms of tradables) is upward sloping.

$$r_L - r_S = \frac{p}{3+p}(-d\beta) \geq 0$$

  No evidence in any of the large CA deficit countries of such upward sloping yield curve (Portugal, or the US). (Relative to?)

- Still first best. No justification for intervention.

- Need to interact with distortions. If interact with previous ones, similar flavored results.

- Other distortions? Foreign currency denominated debt? Domestic/international liquidity? Not obviously relevant for rich countries.

8. Tentative conclusions

Main messages:

- Do not intervene before having identified the relevant distortions and their quantitative importance. So far, the case is weak.
- When intervening, not obvious that optimal policies lead to a decrease in the current account deficit.

Jumping back to actual CA deficits:

Within the Euro?

Fiscal policies aimed at stabilizing output, and limiting contraction of tradables sector. Main tool: Spending on non-tradables.

Global imbalances?

Why things are more complicated: Shifts in private saving and investment themselves due in part to distortions, or to fiscal policy:

- Lack of insurance and precautionary saving in China
- Poor financial intermediation, and low investment in parts of Asia.
- U.S. fiscal deficits.

What should then be done? Complex second best issues. A rough answer—with a lot more work needed:

- Reduce these distortions. Worth doing in each country for its own sake. This will reduce imbalances, but not the goal.
- Probably little/no need for coordination.
- If CA deficits still large (as simulations suggest), then not obvious that more should be done.