The impact of lower productivity growth on fiscal sustainability: discussion

PIIE conference on policy implications of sustained low productivity growth

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Could fiscal sustainability be threatened by sustained lower productivity growth? The message from Session 1

**Organizing framework:** (Neil Mehrotra’s paper, equations 1 - 3):

- Dynamics of debt/GDP:
  \[ \tilde{D}_{t+1} = \frac{1+r_t}{1+g_{t+1}} \tilde{D}_t + \frac{1}{1+g_{t+1}} (\tilde{G}_t - \tilde{T}_t) \]
- In steady state:
  \[ \tilde{T} - \tilde{G} = (r - g)\tilde{D} \]

where \( \tilde{T} \) is revenues/GDP; \( \tilde{G} \) is non-interest gov. expenditures/GDP; \( \tilde{D} \) is debt/GDP, \( r \) is the real interest rate and \( g \) is the real growth rate.

**Neil’s answer:** not really.
- In a closed economy, if \( g \) falls, \( r \) will generally fall by at least as much
- Small open economies benefit from fall in (world) \( r \).
- Caveat: \( r - g \), currently negative in many countries, could revert.

**Elena’s answer:** absolutely!
- Lower \( r - g \) is not all that matters. Need to worry also about increases in primary deficit \( (\tilde{T} - \tilde{G}) \) and contingent debt increases.
- Such increases are more likely in a low growth, low interest rate environment.

➢ **Note:** this make sense if and only if there is a change of reversion to \( r > g \)
Aside: \( r < g \) implies any primary deficit is sustainable

Plot dynamics of debt/GDP: 
\[
\tilde{D}_{t+1} = \frac{1+r_t}{1+g_{t+1}} \tilde{D}_t + \frac{1}{1+g_{t+1}} (\tilde{G}_t - \tilde{T}_t)
\]

\( r < g \) means coefficient \( \frac{1+r_t}{1+g_{t+1}} \) is below one. Steady state \( \tilde{D}_{t+1} = \tilde{D}_t \) is stable.

- Starting from steady state, a higher primary deficit \( (\tilde{G}_t - \tilde{T}_t) \) will lead to convergence to a new steady state, regardless of the size of the increase.

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- Starting from steady state, a higher primary deficit \( (\tilde{G}_t - \tilde{T}_t) \) will lead to exploding debt, a lower one to disappearing debt (and eventually to increasing cash accumulation).
Why primary deficit and/or contingent debt may rise if productivity growth is persistently lower than currently projected

1. Lower taxes, higher spending for mechanical reasons (i.e. given current structure of tax system and entitlement spending.
   - E.g. less tax progression ("bracket creep"), higher poverty rates.
2. Sustainability of public pensions may be threatened (?)
3. A need to expand transfers or change parameters of the pension system to deal with social pressures related to lower growth.
4. The intellectual force of Larry Summers: \( r < g = \text{time to splurge!} \)

This session: explores 1, 2 and 3 by getting into the nitty-gritty:

- \textit{Börsch-Supan}: international, only pension systems – 2 and 3
- \textit{Sheiner}: U.S., all aspects of public finance – 1, 2 and 3.
But maybe the raw data speaks for itself?

(1) Changes in $\tilde{\tau} - \tilde{e}$ vs. changes in $g$

1. Positive correlation, as expected.
2. But not overly steep: 3 point reduction in growth associated with 1.5 point reduction in primary balance
3. Not very tight. Huge differences across country reactions (e.g. UK vs. Latvia).
Does the raw data speak for itself?

(2) Changes in $\tilde{\tau} - \tilde{\varepsilon}$ vs. changes in $r - g$

1. This time, correlation is even negative: lowering of debt servicing costs $r < g$ not necessarily associated with “splurge”

2. But again, correlation not very tight, and large differences in reactions across countries
Bottom-up answers from two excellent papers

Effect through pensions (both U.S. and non-US): sanguine.

- Productivity slowdown has (virtually) no impact on sustainability of pensions (possible caveat: fully-funded with defined benefits)
  - Intuition: in most systems, pension levels indexed to wage levels (fixed replacement rate). Lower productivity growth → lower wage growth → lower pension growth.
- Even when combined with aging pressures, pension growth will not slow to the point where pensions would fall in real terms.

Effect through all other U.S. fiscal channels: a bit less sanguine

- Productivity slowdown will lead to higher U.S. primary deficit, significantly increasing U.S. debt relative to current baseline (by 13-40 percent of GDP after 25 years, depending on interest rates).
- Channels: fixed nominal discretionary spending, higher social spending, bracket creep.
- But: could fix with fiscal adjustment of just 1% of GDP!
So, should we relax?

Relative to our (at least my) priors: Yes. But two caveats.

1. Low interest rates may lead to increased private leverage which at some point will become public (the Rajan/Duggar worry)

2. What if lower productivity growth is a reflection of, or interacts with, increasing inequality?
   • Both Axel and Louise abstract from this point: assume slower earnings growth across all income groups.
Impact of an inequality-increasing productivity growth slowdown

- Baseline average productivity increase = 1.5%. Slowdown: 0.9%
- Dependency ratio increases by 0.5% (this is true for Germany).
- For illustration, assume PAYG-DC system. Then, dependency ratio increase is fully reflected in lower replacement rate

Imagine two groups: high wage (H, 60%), low wage (L, 40%).

1. Assume slowdown equally affects both groups. Absolute pensions increase by $0.9\% - 0.5\% = 0.4\%$. Still positive! (Axel’s point).

2. Assume slowdown occurs because productivity and wage of the L-group drops to zero ($0.9\% = 0.6 \times 1.5\% + 0.4 \times 0\%$). Then pension increase of L-group is $-0.5\%$ p.a.
   - If level of pension is low to begin with (because of low wage level and low initial replacement rate, e.g. 48% in Germany) this could create a poverty problem (and a political problem).
Conclusions

The impact of a sustained slowdown in productivity growth on fiscal sustainability appears to be less dramatic than you might have thought, for three reasons.

1. A lower-than-expected $g$ likely also implies a lower-than-expected $r$

2. Pensions and most other government outlays are indexed to wages or GDP.

3. A decline of productivity growth to about 1% is not dramatic enough to create a large poverty problem (old-age or otherwise) forcing a sharp increase in social spending.

Caveats:

- Inequality enhancing productivity slowdown (could affect point 3)
- Quasi-fiscal liabilities via private sector leverage