Political Disagreement, Lack of Commitment and the Level of Debt

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Introduction

Optimal policy as the outcome of a problem with:
- ONE planner
- ... always in charge
- Full Commitment

In this paper we consider:
- Interaction among planners
- Political Disagreement
- Lack of Commitment
Framework

- Tools: Debortoli and Nunes (2007) with Political Disagreement

Main economic questions:
- Level of Debt
  - Debt is a sizeable fraction of GDP
  - Large differences across industrialized countries
- Welfare. Interaction among Disagreement and Commitment
The building block of the model

- **Households:**

\[
\max \left\{ c_t, x_t, b_t^P \right\} \sum_{t=0}^{\infty} \beta^t u(c_t, x_t, g_t)
\]

\[st : c_t + p_t^b b_t^P = (1 - \tau_t)w_t(1 - x_t) + b_{t-1}^P\]

- **Technology is linear, labor \((1 - x)\) is the only factor of production**

- **No uncertainty - complete markets**

- **Government:**

\[g_t + b_{t-1}^G = \tau_t w_t(1 - x_t) + p_t^b b_t^G\]

- **⇒ Debt minimizes the deadweight losses of distortionary taxation**
The Full-Commitment case

Interest rate manipulation at period 0:

\[ p_t^b = \beta \frac{u_{c,t+1}}{u_{c,t}} \]

\[ c_t \uparrow, c_{t+1} \downarrow \implies p_t^b \uparrow \]

\[ g_t + b_{t-1}^G = \tau_t (1 - x_t) + p_t^b b_t^G \]
The Full-Commitment case

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The No-Commitment case:

The planner’s problem is:

\[
V(b_{t-1}) = \max_{\{c_t, b_t, g_t\}} \left\{ u(c_t, 1 - c_t - g_t, g_t) + \beta V(b_t) \right\}
\]

s.t. \( c_t u_{c,t} + \beta u_{c,t+1}(\psi(b_t)) b_t = (c_t + g_t)u_{x,t} + b_{t-1}u_{c,t} \)
The No-Commitment case:

The dynamics:

\[ p_t^b = \beta \frac{u_{c,t+1}(\Psi(b_t))}{u_{c,t}} \]

\[ g_t + b_{t-1}^G = \tau_t(1 - x_t) + p_t^b b_t^G \]
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Intuition:

Incentive: \( p_t^b \uparrow \)

To achieve the goal: \( c_t > c_{t+1} \)

\( b \) is the only state and \( b \uparrow \implies c \uparrow \)

Therefore, for \( c_t > c_{t+1} \) it must be that \( b_t > b_{t+1} \)
The No-Commitment case:

\[
\frac{\partial c}{\partial b} + \frac{\partial g}{\partial b} = -\frac{\partial x}{\partial b}
\]
The No-commitment: Exogenous g?

\[
\frac{\partial c}{\partial b} + \frac{\partial g}{\partial b} = -\frac{\partial x}{\partial b}
\]

\[
\frac{\partial c}{\partial b} = -\frac{\partial x}{\partial b}
\]

If b↓ we have:

- τ ↓⇒ x ↓
- As a result: c ↑
The Loose Commitment case:

What is *Loose Commitment*?

- Promises sometimes are fulfilled, sometimes not
- Probability of commitment $\pi$ is exogenous

The planner’s problem is:

$$V(b_{-1}) = \max_{\{c_t, b_t, g_t\}_{t=0}^{\infty}} \sum_{t=0}^{\infty} (\beta \pi)^t \left\{ u(c_t, 1 - c_t - g_t, g_t) + \beta(1 - \pi)V(b_t) \right\}$$

$$c_t u_{c,t} + \beta b_t \left( \pi u_{c,t+1} b_t + (1 - \pi)u_{c,t+1}(\Psi(b_t)) \right) = (c_t + g_t)u_{x,t} + b_{t-1}u_{c,t}$$
The Loose Commitment case:

The dynamics:
The Loose Commitment case:

The dynamics:

\[ p^b_t = \beta \frac{u_{c,t+1}}{u_{c,t}} \]

\[ c_t \uparrow, c_{t+1} \downarrow \implies p^b_t \uparrow \]

\[ p^b_t = \beta \frac{\pi u_{c,t+1} + (1 - \pi)u_{c,t+1}(\Psi(b_t))}{u_{c,t}} \]
Two agents $A$ and $B$, two public goods: 1 and 2

Different but symmetric preferences for the composition of public good

\[
g^A_t = g_1^t + \alpha g^2_t \\
g^B_t = g_2^t + \alpha g^1_t, \quad 0 \leq \alpha \leq 1
\]

Separable preferences:

\[
u(c, x, g^i) = r(c) + v(x) + h(g^i), \quad i = A, B
\]

Tax is the same across agents
Debt under Political Disagreement and No Commitment over the Tenure
Debt under Political Disagreement and Commitment over the Tenure
Some empirical evidence

- Measures of political disagreement typically with positive and significant effects on debt

- Unclear effects of tenure duration
Welfare implications of building commitment: No Disagreement
Welfare gains from no commitment over the tenure to commitment over the tenure

More disagreement, less gains from commitment
Welfare gains depending on party - from no commitment to commitment over the tenure

Figure 15: Welfare Implications of Commitment in the presence of Political Disagreement

Note: The figure plots, for several degrees of disagreement (measured by $\alpha$), the difference in welfare (in percentage consumption-equivalent variation (CEV) from second-best), between the case where governments have commitment over their tenure and the case where there is not commitment over the tenure (regardless of $\pi$). The continuous line refers to the case where the favorite party starts in office, while the dashed line indicates the case where the adverse party starts. The frequency of turnover is $\pi = 0.75$. 
<table>
<thead>
<tr>
<th>$\alpha$</th>
<th>With Turnover $\pi = .75$</th>
<th>With Turnover $\pi = .5$</th>
<th>With Adverse Party</th>
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<tbody>
<tr>
<td>1</td>
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<td>-0.04</td>
<td>0.00</td>
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<td>0.95</td>
<td>-0.70</td>
<td>-0.72</td>
<td>-1.36</td>
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<td>-1.43</td>
<td>-2.74</td>
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<td>0.8</td>
<td>-2.91</td>
<td>-2.93</td>
<td>-5.62</td>
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<td>-6.36</td>
<td>-6.38</td>
<td>-11.93</td>
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<td>0.1</td>
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Conclusions

- New framework to disentangle the importance of Commitment and Disagreement
  - Without full-commitment $b \rightarrow 0$
  - $b \uparrow$ when promises are reneged, $b \downarrow$ when they are fulfilled
  - With political disagreement, debt is a sizeable fraction of GDP

- To understand differences among countries and across time:
  - degree of polarization matters
  - Small role of frequency of turnover and degree of commitment

- With political disagreement, the welfare gains of building commitment are lower
Appendix
<table>
<thead>
<tr>
<th>Country</th>
<th>Gross</th>
<th>Net</th>
<th>Country</th>
<th>Gross</th>
<th>Net</th>
</tr>
</thead>
<tbody>
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<td>Japan</td>
<td>176.2</td>
<td>89.5</td>
<td>Total OECD</td>
<td>76.9</td>
<td>44.4</td>
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</tbody>
</table>

Source: OECD Economic Outlook
Steady State with No-Commitment

FOCs:

\[ b_t : \quad \gamma_t (u_{cc,t+1} \psi_{b,t} b_t + u_{c,t+1}) = u_{c,t+1} \gamma_{t+1} \]

\[ c_t : \quad -u_{x,t} + u_{c,t} = \gamma_t (u_{x,t} + u_{cc,t+1} (b_{t-1} - c_t) - u_{c,t}) \]

\[ g_t : \quad -u_{x,t} + u_{g,t} = \gamma_t u_{x,t} \]

In steady state:

\[ \gamma u_{cc} \psi_{b} b = 0 \]

\[ \Rightarrow \text{either } b = 0 \]

\[ \quad \text{or } \quad \gamma = 0 \]

\[ \quad \text{or } \quad \psi_{b} = 0 \]
Steady State with No-Commitment
Calibration

Utility function:

\[ u(c, x, g) = (1 - \phi_g) \left[ \phi_c \frac{c^{1 - \sigma_c} - 1}{1 - \sigma_c} + (1 - \phi_c) \frac{x^{1 - \sigma_x} - 1}{1 - \sigma_x} \right] + \phi_g \frac{g^{1 - \sigma_g} - 1}{1 - \sigma_g} \]

Table: Parameter values

<table>
<thead>
<tr>
<th>( \beta )</th>
<th>( \phi_c )</th>
<th>( \phi_g )</th>
<th>( \sigma_x )</th>
<th>( \sigma_c )</th>
<th>( \sigma_g )</th>
</tr>
</thead>
<tbody>
<tr>
<td>.96</td>
<td>.2</td>
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<td>3</td>
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