Who Builds Up Foreign Debt And Who Brings It Down?

Yong Kyun Kim ykim@pacific.edu University of the Pacific

Abstract

We present an empirical analysis of the political determinants of foreign-debt buildup and reduction in developing countries. Three interesting patterns stand out. First, most factors exhibit nonlinearity when the dependent variable's sign changes. Federalism, for instance, helps prevent a large debt buildup but does not promote a large debt reduction. Second, some factors are symmetric in the sense that they accelerate or dampen changes in both directions. Presidential systems are associated with a significant rise in foreign debt as well as with its big fall. Finally, the way many political institutions are related to changes in foreign debt differs significantly across different levels of democracy. Governments with a larger share of seats in the legislature and left governments are better able to bring their foreign debt down only if they are highly democratic. When highly autocratic, they make it less likely to happen. We show that political institutions as a whole explain a great deal of variation in the increase and decrease of foreign debt and that they do so in a complex manner.

Data

From annual data on the debt-to-GDP ratio, we first selected spells of debt increases or decreases for two or more consecutive years, which left us with 111 debt-buildup cases and 126 debt-reduction cases. Then we calculated for each debt-change spell the total debt change (Δ) by subtracting the last year's debt level from that of the year prior to the spell. For independent variables, we averaged each of them over each of the debt-change spells. This resulted in a time-series, cross-sectional dataset consisting of a total of 237 country-spells.

Dependent Variable

To construct the dependent variable (y), we trichotomized the debt change (Δ) as follows:

$$y = \begin{cases} \text{increase} & \text{if } \Delta \geq z, \\ \text{no change} & \text{if } -z \leq \Delta < z, \\ \text{decrease} & \text{if } \Delta < -z. \end{cases}$$

For the cut points, $\pm z$, we employed six different values for robustness. Specifically, $z = \{5, 10, 15, 20, 25, 30\}$.

Multinomial Logit

To separately estimate the effects of variables on the positive and negative changes in foreign debt, we fit multinomial logistic regressions. The model takes the following form:

$$\log\left(\frac{\pi_{inc}}{\pi_{no}}\right) = \beta_{inc} x,$$
$$\log\left(\frac{\pi_{dec}}{\pi_{no}}\right) = \beta_{dec} x,$$

where π_j is the probability of y taking one of $j = \{inc, no, dec\}$. Then $e^{\beta_{inc}}$ of a certain variable x captures that variable's impact on the relative odds of having a large increase in foreign debt compared to having no change. $e^{\beta_{dec}}$ can be interpreted likewise.

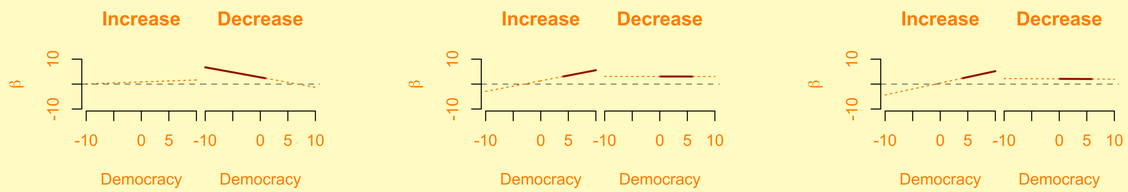
Model of Debt Change

The right-hand side of the regression models includes the following set of variables:

- GDP growth
- Real interest rates
- Currency devaluation
- Terms of trade
- Other economic controls
- Duration of the spell
- Initial debt level
- Region dummies
- Political factors
  - Federalism
  - Presidentialism
  - Government party's legislative seat share
  - National elections
  - Government party's ideology
  - Income inequality
  - The level of democracy (the Polity 2 score) and its interaction terms with each of the above

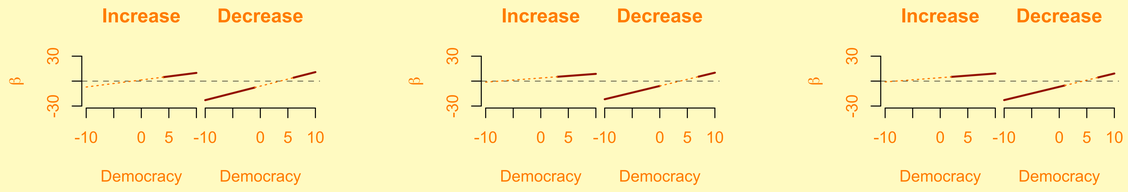
Results

- Presidentialism



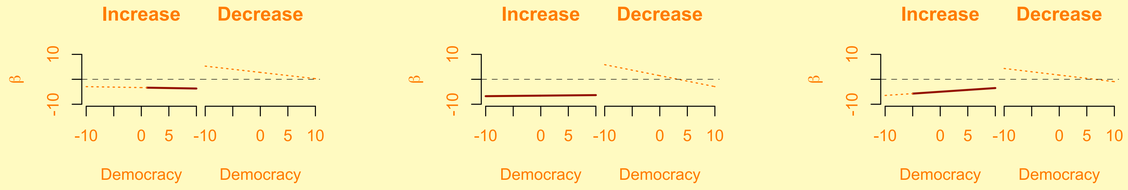
a) $z = 15$ b) $z = 20$ c) $z = 25$

- Legislative seat share



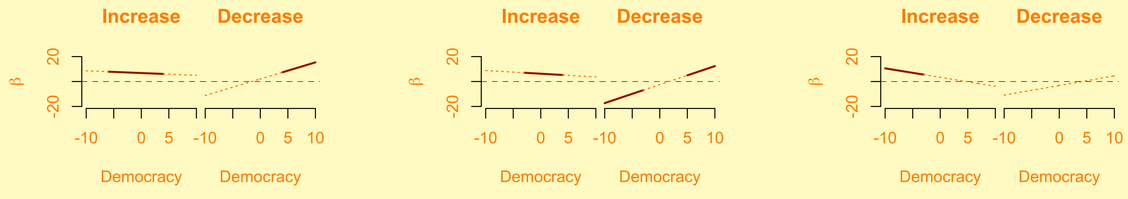
a) $z = 15$ b) $z = 20$ c) $z = 25$

- Federalism



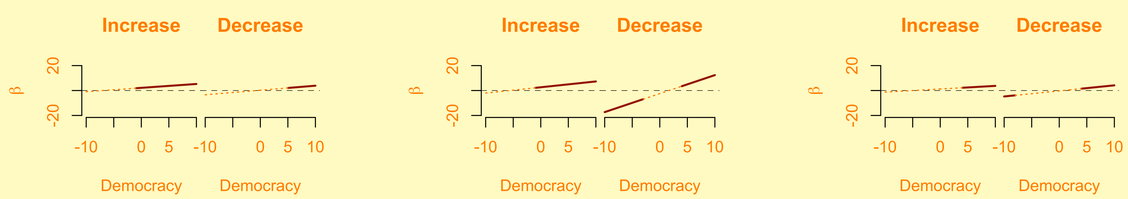
a) $z = 15$ b) $z = 20$ c) $z = 25$

- Elections



a) $z = 15$ b) $z = 20$ c) $z = 25$

- Left government



a) $z = 15$ b) $z = 20$ c) $z = 25$