

**FISCAL SPACE AND THE AFTERMATH OF FINANCIAL CRISES:  
HOW IT MATTERS AND WHY**

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**GUIDE TO DATA AND PROGRAMS**

**A. DATA**

The data are in Romer-Romer\_data.xlsx. The first sheet, **Notes**, briefly explains the data. The second sheet, **Measure of Financial Distress**, has our new measure of financial distress for the full time period for which it is available (1967–2017). The third sheet, **Data**, has the data used in the paper. They are semiannual and cover the period 1980–2017. The data series are:

**CRISIS.** Our new measure of financial distress.

**GDP.** The data are for the second and fourth quarters.

**GROSSDEBT.** Ratio of gross government debt to GDP, in percent. The data are annual, end-of-year values; we use the annual observation for both half-years of the year.

**NETDEBT.** Ratio of net government debt to GDP, in percent. The data are annual, end-of-year values; we use the annual observation for both half-years of the year.

**SURPLUS.** Ratio of government budget surplus to GDP, in percent. The data are annual; we use the annual observation for both half-years of the year.

**SPRATING.** Standard & Poor sovereign bond rating, converted to a numerical scale. The rating is as of the end of the half-year.

**LTBOND.** Interest rate on long-term government debt, in percentage points. Data are for the last month of the half-year.

**IMFDUMMY.** A dummy variable for whether the country was subject to an IMF stand-by arrangement or extended fund facility as of the end of the half-year.

**CDSBASIC.** The spread on credit default swaps on 5-year senior government debt, in basis points. Data are for the last month of the half-year.

**CDSADJUSTED.** The CDS data after the adjustments described in n. 21.

**TAU.** The responsiveness of the budget surplus to GDP (used in specifications where we do not impose a common value of  $\tau$  across all countries). The value of this variable differs across countries, but is constant within each country over time.

Additional details about the data and their sources are provided in the paper.

## **B. PROGRAMS**

The programs were run in RATS. The program files (".RPF" files) are plain text files that can be opened with any word processor. The ".DED" files are RATS data banks containing the data in the form they are accessed by RATS.

### **1. KEY PROGRAMS**

The programs that produce the results reported in the figures in the paper are:

**FISCAL\_SPACE.RPF.** This program:

- Finds the average aftermath of financial distress for the full sample and various subsamples (Figure 2).
- Finds how the average aftermath of financial distress varies with the debt-to-GDP ratio (Figure 4).
- Finds the average aftermath of financial distress when the contemporaneous relationship between output and financial distress is not included (described in n. 6).

**FORECAST.RPF.** This program:

- Finds the forecast errors for episodes of high financial distress (Figure 3).

**POLICY\_REACTION.RPF.** This program:

- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio (Figure 5).
- Reports the behavior of financial distress, the debt-to-GDP ratio, and the high-employment surplus in episodes of high financial distress (Figures 6 and 7).

**POLICY\_REACTION\_CDS.RPF.** This program:

- Finds how the fiscal policy response to financial distress varies with the CDS spread, both excluding the debt-to-GDP ratio (Figure 8a) and including the debt-to-GDP ratio and its interaction with financial distress (Figure 10a).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when the CDS spread is also included (Figure 10a).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when the sample is restricted to the observations used in the main regressions reported in Figure 10a (lighter blue "debt-to-GDP" line in Figure 10a).
- Examines the effects of using the CDS data without the adjustments described in n. 21.

**POLICY\_REACTION\_ACCESS.RPF.** This program:

- Finds how the fiscal policy response to financial distress varies with the S&P rating, the long-term bond rate, and the dummy for being under an IMF program, both excluding the debt-to-GDP ratio (Figures 8b, 8c, and 8d) and including the debt-to-GDP ratio and its interaction with financial distress (Figures 10b, 10c, and 10d).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when one of the three measures of market access is also included (Figures 10b, 10c, and 10d).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when the sample is restricted to the observations used in the main regressions reported in Figures 10b, 10c, and 10d (lighter blue "debt-to-GDP" lines in Figures 10b, 10c, and 10d).

- Examines the effects of using the spread between a country's long-term rate and the German rate (or the lower of the German and U.S. rates) rather than the long-term rate (discussed in n. 23).

**POLICY\_REACTION\_MULTIPLE\_ACCESS.RPF.** This program:

- Finds how the fiscal policy response to financial distress varies when the S&P rating, the long-term bond rate, and the dummy for being under an IMF program all differ, both excluding the debt-to-GDP ratio (Figure 9) and including the debt-to-GDP ratio and its interaction with financial distress (Figures 11).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when all three of these measures of market access are also included (Figure 11).
- Finds how the fiscal policy response to financial distress varies with the debt-to-GDP ratio when the sample is restricted to the observations used in the main regressions reported in Figure 11 (lighter blue "debt-to-GDP" line in Figure 11).
- It also examines the effects of using the spread between a country's long-term rate and the German rate (or the lower of the German and U.S. rates) rather than the long-term rate (discussed in n. 23).

## **2. OTHER PROGRAMS**

The programs that produce results that are only mentioned in the text or in footnotes:

**Calculations for Table 6.xlsx.** This spreadsheet computes the averages reported in Table 6.

**FISCAL\_SPACE\_SES.RPF,**

**POLICY\_REACTION\_SES.RPF,**

**POLICY\_REACTION\_ACCESS\_SES.RPF,** and

**POLICY\_REACTION\_MULTIPLE\_ACCESS\_SES.RPF.** These programs:

- Redo the core regressions in POLICY\_SPACE.RPF, POLICY\_REACTION.RPF, POLICY\_REACTION\_ACCESS.RPF, and POLICY\_REACTION\_MULTIPLE\_ACCESS.RPF with different ways of calculating the standard errors (discussed in n. 5).

**FISCAL\_SPACE\_SURPLUS.RPF,**

**POLICY\_REACTION\_SURPLUS.RPF,**

**POLICY\_REACTION\_ACCESS\_SURPLUS.RPF,** and

**POLICY\_REACTION\_MULTIPLE\_ACCESS\_SURPLUS.RPF.** These programs:

- Perform the analysis discussed in Section II.D (including n. 18). That is, they redo the core regressions using the prior surplus-to-GDP ratio in place of (or in addition to) the prior debt-to-GDP ratio as the measure of fiscal space.

**POLICY\_REACTION\_TAUS.RPF,**

**POLICY\_REACTION\_ACCESS\_TAUS.RPF,** and

**POLICY\_REACTION\_MULTIPLE\_ACCESS\_TAUS.RPF.** These programs:

- Redo the core regressions with country-specific values of  $\tau$  (discussed in n. 14). They also redo the regressions assuming a common  $\tau$  for the sample excluding Mexico and Turkey (for which we do not have country-specific  $\tau$ 's).

**SERIAL\_CORRELATION.RPF.** This program:

- Analyzes the serial correlation of the measures of market access and the debt ratio (discussed in Section III.C).