THRESHOLDED LASSO: EMPIRICAL APPLICATION.

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This document is generated from a `knitr` file which contains all the code necessary to replicate the plots and tables in the application. To replicate these results, simply compile the file with the `knitr` package for `R`.

1. Data

We use the data made available by Cecchetti et al. (2012)[1], which originates mainly from the IMF and OECD data bases. The data contains measures of the debt-to-GDP ratio for:

(1) Government debt,
(2) Corporate debt,
(3) Private debt (corporate + household),
(4) Total (non financial institutions) debt (private + government).

The data of Cecchetti et al. (2012) also contains a measure of household debt that we drop as the series is incomplete. A set of control variables, composed of standard macroeconomic indicators, is also included in the data.

(1) GDP: The logarithm of the *per capita* GDP.
(2) Savings: Gross savings to GDP ratio.
(3) ΔPop: Population growth.
(4) School: Years spent in secondary education.
(5) Open: Openness to trade, exports plus imports over GDP.
(6) ΔCPI: Inflation.
(7) Dep: Population dependency ratio.
(8) LL: Ratio of liquid liabilities to GDP.
(9) Crisis: An indicator for banking crisis in the subsequent 5 years, from Reinhart and Rogoff (2010).

The data is observed for 18 countries[2] from 1980 to 2009 at an annual frequency, the details on the construction of each variables can be found in Cecchetti et al. (2012).

2. Results

References

Cecchetti, S. G., M. Mohanty, and F. Zampolli (2012). The real effects of debt. *Bank for International Settlements Working Paper No. 352.*.

Reinhart, C. M. and K. S. Rogoff (2010). Growth in a time of debt. *American Economic Review 100*(2), 573–78.

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[1]The original data is available at `http://www.bis.org/publ/work352.htm`, and can also be found in the replication material for this section.

[2]US, Japan, Germany, the United Kingdom, France, Italy, Canada, Australia, Austria, Belgium, Denmark, Finland, Greece, the Netherlands, Norway, Portugal, Spain, and Sweden.

	Threshold:	Government		Government		Government		Government	
		L	T	L	T	L	T	L	T
$\hat{\beta}$	intercept	42.43	42.43	79.611	79.611	86.416	86.416	136.988	136.988
	GDP	-3.643	-3.643	-7.419	-7.419	-7.495	-7.495	-11.621	-11.621
	Savings	-0.035	-0.035	0.033	0.033	0.02	0.02		
	ΔPop	-1.692	-1.692	-1.493	-1.493	-0.879	-0.879	-0.813	-0.813
	School	0.426	0.426	0.507	0.507	0.095	0.095	-0.082	-0.082
	Open	0.003		0.026		0.024	0.024	0.037	0.037
	ΔCPI	-0.061	-0.061	-0.056	-0.056	-0.157	-0.157	-0.252	-0.252
	Dep	-0.091	-0.091	-0.104	-0.104	-0.132	-0.132	-0.22	-0.22
	LL	-0.433	-0.433	0.33	0.33	0.574	0.574	0.631	0.631
	Crisis	-1.277	-1.277	-1.58	-1.58	-0.949	-0.949	-1.396	-1.396
	Government	-0.713	-0.713					-0.518	-0.518
$\hat{\delta}$	intercept	-12.167	-12.167	-1.504	-1.504				
	GDP								
	Savings	0.087	0.087	-0.037		-0.052	-0.052	0.008	
	ΔPop	1.563	1.563	0.42	0.42	0.222	0.222	0.61	0.61
	School	-0.077	-0.077			0.203	0.203	0.098	0.098
	Open	-0.006		0.007		0.012			
	ΔCPI								
	Dep	0.181	0.181			-0.035	-0.035		
	LL	0.827	0.827	0.909	0.909				
	Crisis	-0.459	-0.459	-0.294	-0.294	-1.338	-1.338		
	Government	1.762	1.762	1.471	1.471			-3.23	-3.23
	$\widehat{\tau}$	0.82	0.82	0.68	0.68	0.59	0.59	0.65	0.65
	$\widehat{\lambda}$	0.007	0.007	0.015	0.015	0.007	0.007	0.008	0.008
	$\widehat{C}$	-	0.1	-	0.3	-	0.1	-	0.1
	Sample	1981 - 2004		1981 - 2004		1990 - 2004		No overlap	
	FE	×		✓		✓		✓	

TABLE 1. Estimated parameters, year: XXXX. Empty cells are parameters set to zero, dashes indicate parameters not included in the model.

	Threshold:	Corporate		Private		Total	
		L	T	L	T	L	T
$\hat{\beta}$	intercept	140.097	140.097	126.236	126.236	134.725	134.725
	GDP	-11.642	-11.642	-10.616	-10.616	-11.396	-11.396
	Savings	-0.026	-0.026	-0.031	-0.031	-0.011	-0.011
	ΔPop	-1.063	-1.063			-0.995	-0.995
	School	-0.172	-0.172			-0.132	-0.132
	Open	0.053	0.053	0.041	0.041	0.047	0.047
	ΔCPI	-0.204	-0.204	-0.19	-0.19	-0.166	-0.166
	Dep	-0.242	-0.242	-0.191	-0.191	-0.235	-0.235
	LL	0.332	0.332	0.316	0.316	0.376	0.376
	Crisis	-0.96	-0.96	-0.319	-0.319	-0.943	-0.943
	Corporate	0.491	0.491	-	-	-	-
	Private	-	-	-0.968	-0.968	-	-
	Total	-	-	-	-	0.284	0.284
$\hat{\delta}$	intercept	8.261	8.261	2.301	2.301		
	GDP						
	Savings	-0.243	-0.243	0.022	0.022		
	ΔPop	-2.154	-2.154	-1.1	-1.1	2.387	2.387
	School	-0.29	-0.29	-0.33	-0.33	0.387	0.387
	Open			-0.007		0.063	0.063
	ΔCPI	-0.032	-0.032	-0.082	-0.082	0.777	0.777
	Dep					-0.192	-0.192
	LL	1.175	1.175	0.365	0.365		
	Crisis	-2.389	-2.389	-1.167	-1.167	-31.521	-31.521
	Corporate			-	-	-	-
	Private	-	-	0.563	0.563	-	-
	Total	-	-	-	-		
	$\widehat{\tau}$	0.69	0.69	1.62	1.62	2	2
	$\widehat{\lambda}$	0.001	0.001	0.005	0.005	0.002	0.002
	$\widehat{C}$	-	0.1	-	0.1	-	0.1
	Sample	1981 - 2004		1981 - 2004		1981 - 2004	
	FE	✓		✓		✓	

TABLE 2. Estimated parameters, year: XXXX. Empty cells are parameters set to zero, dashes indicate parameters not included in the model.