

Sovereign Defaults During the Great Depression

The Role of Fiscal Fragility

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THE LONDON SCHOOL
OF ECONOMICS AND
POLITICAL SCIENCE ■

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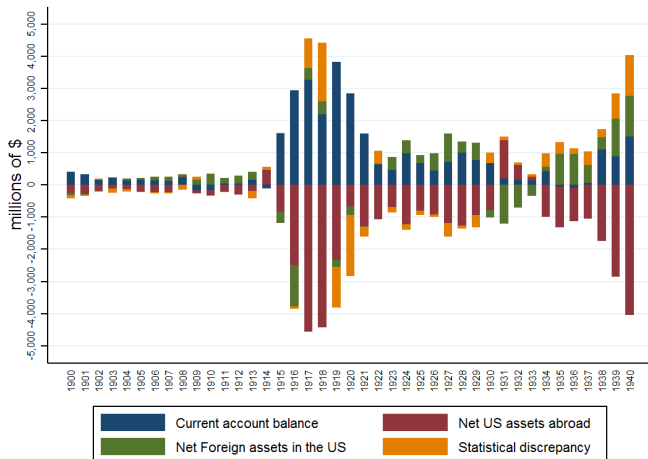
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Interwar deglobalization?

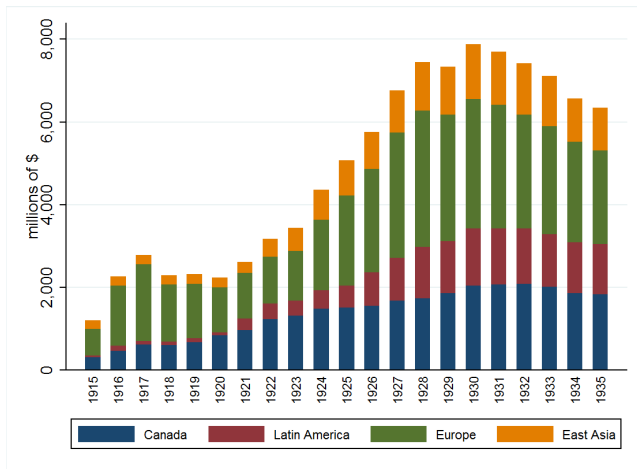
- Interwar years normally seen as a period of deglobalization
- Yet a major development of the time is the opening up of the American economy to foreign markets
- Federal Reserve Act of 1913 lifted the ban on foreign branching of US banks
- US banks set up branches abroad to gather intelligence, underwrite & sell foreign bonds (Eichengreen 1989)
- By 1929, the dollar had overtaken Sterling as the leading international currency (Chitu, Eichengreen and Mehl, 2014a)
- The initial sunk-costs incurred influence US lending abroad to this day (Chitu, Eichengreen and Mehl, 2014b)

The US balance of payments, 1900-1940



Source: Edelstein (2006)

The composition of US lending: net outstanding loans, 1915-35



Source: Lewis (1938)

The interwar debt crisis

- Cycles of international lending and default not a new phenomenon at the time of the Great Depression, but scope was unprecedented (Winkler, 1933; Eichengreen, 1991)
- Probably most widespread peacetime debt crisis in history
- Default on foreign loans represented the largest bond default item of the first half of the 1930s in the US (Madden, Nadler, and Sullivan, 1937)
- Allows the study of a large number of defaults in a relatively short time span with common international economic institutions and political arrangements

The importance of the interwar debt crisis 1/2

The wave of sovereign defaults of the early 1930s was a key event of the Great Depression

- The German default as a case in point
 - It was decisive for the country's recovery (Ritschl 2002)
 - It contributed to the severity of the economic slump in the United States through financial channels (Ritschl and Sarferaz 2014)
 - It put pressure on the British financial system speeding up UK's exit from the Gold Standard (Accominotti 2012)
- Compounded impact of all defaults likely to have had large effect on the American and other creditor and debtor economies

The importance of the interwar debt crisis 2/2

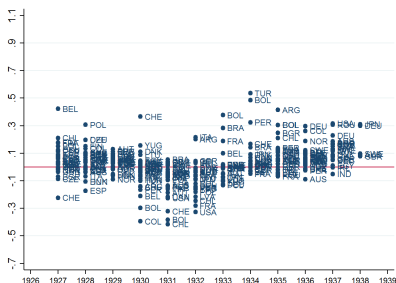
The defaults contributed to the set-up of post-World War II financial regulation

- Wariness of free capital mobility influenced the institutional set-up of the Bretton Woods system (Obstfeld and Taylor 1998)
- In the US, the crisis was a key justification for the Glass-Steagall Act of 1933 (Carosso, 1970; Benston, 1990; Flandreau, Gaillard, and Panizza, 2010)

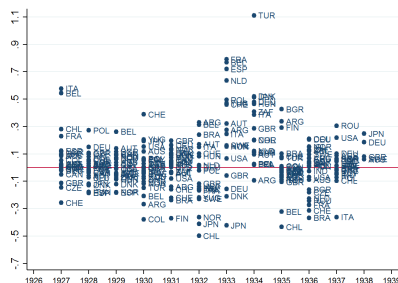
How much do we know about the causes of the interwar debt crisis?

- Excessive capital flows and opportunistic behavior by lenders, underwriters and borrowers (Harris, 1935; Lewis, 1938; Lary, 1943)
- “Bad luck”:
 - The onset and severity of the Great Depression as the key driver of the crisis (Diaz-Alejandro, 1983; Fishlow, 1986)
 - Ample evidence of discrimination between “good” and “bad” borrowers at the lending stage (Eichengreen, 1989; Eichengreen and Portes, 1990)
 - Satisfactory rates of return for foreign creditors (Madden, Nadler, and Sullivan, 1937; Eichengreen and Portes, 1988; Jorgensen and Sachs, 1988)
 - Prestigious underwriters carefully screened and selected loans → less malfunctioning in the international financial markets than previously thought (Flandreau, Gaillard, and Panizza, 2010)
- Both (Eichengreen and Portes, 1986)

The role of fiscal fragility: yearly %change in central government revenues



(a) Tax Revenues



(b) Tax Revenues/GDP

The role of fiscal fragility: cumulative revenue loss, 1931-36

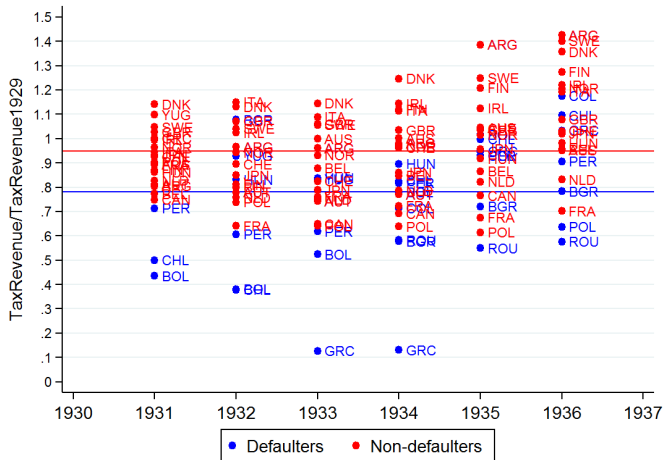


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What the paper does

- Presents new data for over 25 advanced and developing countries between 1927-1936
- Studies the determinants of the incidence and intensity of external default
- Focuses on dollar-denominated loans due to evidence of discrimination between different categories of foreign creditors & prevalence of US lending
- Investigates separately the determinants of default at the national-provincial and municipal level

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Data contribution

- New measure of default size
- New estimates of public debt including sub-national
- The countries included in the overall data set are:
Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Bulgaria, Canada, Chile, Colombia, Czechoslovakia, Denmark, Finland, France, Germany, Greece, Hungary, Indonesia, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Peru, Poland, Romania, Sweden, Switzerland, United Kingdom, Uruguay, Venezuela and Yugoslavia
- No continuous local debt series for
Austria, Bolivia, Chile, Czechoslovakia, Greece, Hungary, Indonesia, Romania, Venezuela, Yugoslavia, *yet*
- Sample covers over 90% of US net outstanding foreign lending

The timing and size of the defaults

Share of the principal of dollar bonds in default, 1930-1936

National and Provincial

Year	Austria	Bulgaria	Czechoslovakia	Germany	Hungary	Poland	Argentina	Bolivia	Brazil	Chile	Colombia	Peru	Uruguay
1930	-	-	-	-	-	-	-	-	0.03	-	-	-	-
1931	-	-	-	-	-	-	-	1	0.4	0.78	-	1	-
1932	0.24	1	-	-	0.62	-	0.02	1	1	1	0.53	1	1
1933	0.28	1	-	0.39	1	-	0.2	1	1	1	1	1	1
1934	0.34	1	-	1	1	-	0.26	1	1	1	1	1	1
1935	-	1	-	1	-	-	0.28	1	1	1	1	1	1
1936	-	1	-	1	-	1	0.25	1	1	1	1	1	1

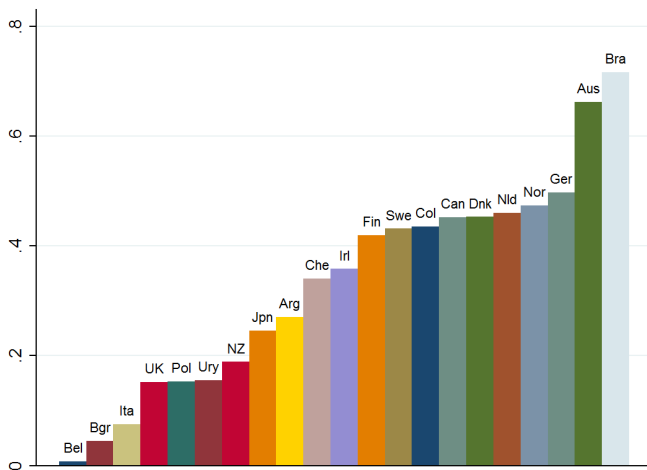
Municipal

Year	Austria	Bulgaria	Czechoslovakia	Germany	Hungary	Poland	Argentina	Bolivia	Brazil	Chile	Colombia	Peru	Uruguay
1930	-	-	-	-	-	-	-	-	-	-	-	-	-
1931	-	-	-	-	-	-	-	-	0.5	0.14	0.46	-	-
1932	1	-	-	-	1	-	0.6	-	0.83	1	1	1	1
1933	1	-	-	1	1	-	0.67	-	0.75	1	1	1	1
1934	1	-	-	1	1	-	0.82	-	0.77	1	1	1	1
1935	-	-	0.24	1	1	-	0.6	-	0.72	1	1	1	1
1936	-	-	0.23	1	1	-	0.82	-	0.72	1	1	1	1

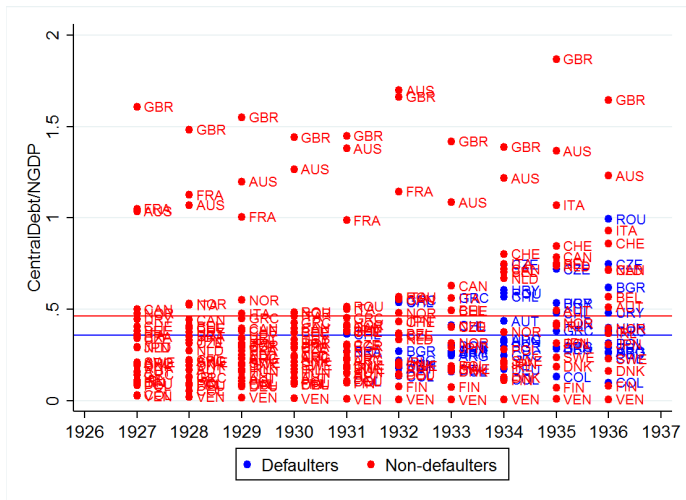
Existing public debt datasets

- Reinhart and Rogoff (2009) and Abbas, Belhocine, El Ganainy, and Horton (2010) recent attempts to reconstruct public debt statistics over the very long run
- For the interwar period, they rely on data collected in a United Nations volume (United Nations, 1948), which is also the starting point of my work
- Using these data for cross-country analysis very problematic due to different accounting standards across countries
- Data is limited to central government and central government guaranteed debt

Average shares of local debt, 1927-1936



Default and debt burdens, central governments 1927-36



Default and debt burdens, central and local governments 1927-36

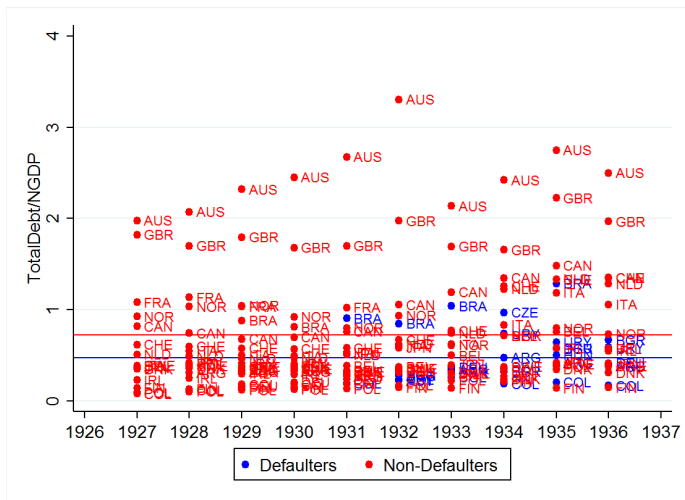


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Strategy

I investigate the role of fiscal fragility in the defaults after controlling for:

- 1 The size and composition of public debts and public+private dollar denominated debts
- 2 The severity of the Great Depression shock
- 3 Country characteristics
- 4 The fiscal policy stance

Model

The basic model is

$$DefaultSize_{i,t} = \alpha + \theta CumulRevLoss_{i,t} + \mathbf{x}_{i,t}\beta + \epsilon_{i,t}$$

where $\mathbf{x}$ is a vector of controls and ϵ is the idiosyncratic error term

Robustness

- 1 Allow for country and year fixed-effects
- 2 Minimize issues of cross-country comparability of the data
- 3 Allow for dynamics i.e. persistence of default & interaction between default and regressors
- 4 Instrument dependent variables with further lags of the same variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	Probit	PPML	FE	FD	diffGMM	sysGMM
VARIABLES	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize
L.NatProvDefaultSize						0.881*** (0.0857)	0.771*** (0.0502)
L.InTaxRev/TaxRev29	-0.595*** (0.133)	-2.283*** (0.742)	-1.321*** (0.308)	-0.438*** (0.129)	-0.172* (0.0882)	-0.330*** (0.0826)	-0.226*** (0.0537)
Constant	0.109*** (0.0391)	-1.067*** (0.243)	-1.975*** (0.268)	0.128*** (0.0155)	0.0406*** (0.0119)		0.0121 (0.0126)
Observations	249	249	249	249	221	244	249
R-squared	0.171		0.095	0.107	0.030		
Number of countries				29	29	29	29
	Robust standard errors in parentheses						
	*** p<0.01, ** p<0.05, * p<0.1						

	(1)	(2)	(3)	(4)	(5)	(6)
	sysGMM	sysGMM	sysGMM	sysGMM	sysGMM	sysGMM
VARIABLES	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize
L.NatProvDefaultSize	0.771*** (0.0491)	0.775*** (0.0594)	0.718*** (0.0714)	0.788*** (0.0538)	0.832*** (0.0862)	0.875*** (0.0996)
L.InTaxRev/TaxRev29	-0.226*** (0.0526)	-0.134*** (0.0506)	-0.191*** (0.0455)	-0.129** (0.0602)	-0.138 (0.0885)	-0.109* (0.0659)
L.InNGDP/NGDP29		-0.229** (0.109)				
L.InCentralDebt/NGDP			-0.000234 (0.0233)		0.0109 (0.0125)	
L.ForShare			0.0218 (0.0598)			
L.STShare			-0.145 (0.145)			
L.InDollarDebt/NGDP					0.00996 (0.0138)	
L.STDollarShare					0.323 (0.382)	
L.Polity				-0.00136 (0.00370)		
L.Openness				-0.0682 (0.136)		
L.FiscBalance						-0.351 (1.012)
Constant	0.0121 (0.0123)	-0.0172** (0.00852)	0.00804 (0.0285)	0.0341 (0.0429)	0.0604 (0.0550)	0.0114 (0.0284)
Observations	249	225	194	225	207	183
Number of countries	29	26	25	26	25	25
Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1						

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	FE	FD	sysGMM	FE	FD	sysGMM	FE	FD	sysGMM
	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize	NatProvDefaultSize
L.NatProvDefaultSize			0.721*** (0.0915)						
L.NatProvDefault						0.634*** (0.137)			0.685*** (0.187)
L.InTaxRev/TaxRev29	-0.272*** (0.0642)	-0.0285 (0.0365)	-0.102** (0.0474)	-0.279*** (0.0694)	-0.0562 (0.0459)	-0.167 (0.174)	-0.323*** (0.0495)	-0.0953 (0.104)	-0.238 (0.160)
L.TaxRev/TaxRev29*InCentralDebt/NGDP		-0.698** (0.328)			-0.644* (0.346)			-1.054* (0.559)	
L.InNGDP/NGDP29	0.273 (0.410)	-0.329* (0.189)	-0.189 (0.141)	0.358 (0.430)	-0.361* (0.186)	0.161 (0.204)	0.0964 (0.317)	-0.342* (0.168)	-0.0360 (0.119)
L.InCentralDebt/NGDP	0.126 (0.148)	-0.0475 (0.0798)	-0.0290 (0.0560)	0.108 (0.132)	-0.0237 (0.0690)	-0.00401 (0.0301)	0.151 (0.164)	0.0160 (0.0934)	-0.0571 (0.0529)
L.InDollarDebt/NGDP				0.0782 (0.0539)	0.0108 (0.0158)	0.00410 (0.0325)			
L.ForShare	-0.676 (0.730)	-0.148 (0.192)	-0.0535 (0.169)				-0.234 (0.650)	0.0140 (0.249)	-0.0266 (0.105)
L.STShare	0.735 (0.574)	0.0686 (0.157)	-0.0232 (0.339)				0.260 (0.310)	0.191 (0.251)	0.0242 (0.487)
L.STDollarShare				-0.498 (0.598)	-0.357* (0.194)	-0.178 (0.751)			
L.Polity	-0.0112 (0.0151)	-0.0177 (0.0137)	0.00246 (0.00535)	-0.0141 (0.0168)	-0.0182 (0.0136)	0.00205 (0.00695)	-0.0280* (0.0145)	-0.0220** (0.00988)	0.00653 (0.00765)
L.Openness	0.221 (0.620)	-0.187 (0.195)	-0.0124 (0.164)	0.643 (0.587)	-0.255 (0.226)	-0.245 (0.290)	0.213 (0.504)	0.000196 (0.209)	0.0297 (0.114)
L.FiscBalance							1.479 (1.014)	1.879 (1.234)	0.171 (0.925)
Constant	0.649* (0.359)	0.0140 (0.0133)	-0.0329 (0.108)	0.652** (0.263)	0.0146 (0.0115)	0.100 (0.142)	0.429 (0.299)	0.0118 (0.0167)	-0.115 (0.161)
Observations	194	162	194	207	178	207	159	134	159
R-squared	0.380	0.108		0.362	0.116		0.397	0.199	
Country fixed-effects	YES	YES	YES	YES	YES	YES	YES	YES	YES
Year fixed-effects	YES			YES			YES		
Number of countries	25	25	25	25	25	25	24	24	24

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	Probit	PPML	FE	FD	diffGMM	sysGMM
VARIABLES	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize
L.MunDeafaultSize						0.902*** (0.165)	0.924*** (0.0483)
L.InLocRev/LocRev29	-0.374* (0.196)	-2.518*** (0.890)	-3.950*** (0.940)	-0.289* (0.166)	-0.0925 (0.109)	-0.268 (0.212)	-0.0787 (0.0723)
Constant	0.0567** (0.0231)	-1.665*** (0.223)	-3.229*** (0.412)	0.0610*** (0.00839)	0.0365** (0.0157)		0.0330* (0.0162)
Observations	176	176	176	176	160	158	176
R-squared	0.111		0.059	0.079	0.008		
Number of countries				24	24	24	24
Robust standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OLS	Probit	PPML	FE	FD	diffGMM	sysGMM
VARIABLES	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize
L.MunDeafaultSize						0.673*** (0.0978)	0.950*** (0.0916)
L.InTotRev/TotRev29	-0.486* (0.278)	-2.990** (1.345)	-4.300*** (1.384)	-0.517** (0.248)	-0.239* (0.135)	-0.402 (0.248)	-0.122 (0.155)
Constant	0.0451** (0.0198)	-1.690*** (0.254)	-3.164*** (0.443)	0.0429** (0.0179)	0.0375** (0.0161)		0.0191 (0.0127)
Observations	166	166	166	166	148	147	166
R-squared	0.101		0.036	0.128	0.038		
Number of countries				24	24	24	24
Robust standard errors in parentheses							
*** p<0.01, ** p<0.05, * p<0.1							

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	FE	FE
VARIABLES	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize
L.InLocRev/LocRev29	-0.313*	-0.235	-0.225	-0.315**	-0.320*	-0.217
	(0.173)	(0.159)	(0.150)	(0.160)	(0.175)	(0.136)
L.InNGDP/NGDP29		-0.547**				-0.362**
		(0.240)				(0.182)
L.InLocalDebt/NGDP			0.0677*			
			(0.0397)			
L.ForShare			0.442			
			(0.331)			
L.STShare			2.258**			
			(0.887)			
L.InDollarDebt/NGDP					0.0666**	
					(0.0327)	
L.STDollarShare					-0.509	
					(0.338)	
L.Polity				-0.00806		
				(0.0136)		
L.Openness				-0.570*		
				(0.336)		
L.NatProvDefaultSize						0.277*
						(0.143)
Constant	0.0686**	0.0184	-0.130	0.278**	0.292**	0.00953
	(0.0276)	(0.0182)	(0.120)	(0.110)	(0.123)	(0.0165)
Observations	176	170	134	170	170	170
Number of countries	24	23	19	23	23	23
Robust standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1						

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	FE	FE
VARIABLES	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize	MunDeafaultSize
L.InTotRev/TotRev29	-0.511** (0.252)	-0.379 (0.242)	-0.448* (0.247)	-0.444* (0.243)	-0.497** (0.253)	-0.232 (0.220)
L.InNGDP/NGDP29		-0.542** (0.270)				-0.405* (0.220)
L.InTotDebt/NGDP			0.0590 (0.0625)			
L.ForShare			0.443 (0.314)			
L.STShare			1.997** (0.786)			
L.InDollarDebt/NGDP					0.0674* (0.0365)	
L.STDollarShare					-0.176 (0.365)	
L.Polity				-0.00535 (0.0142)		
L.Openness				-0.520* (0.288)		
L.NatProvDefaultSize						0.270* (0.150)
Constant	0.0508** (0.0236)	0.00465 (0.0158)	-0.237** (0.115)	0.235** (0.107)	0.271** (0.130)	0.00325 (0.0140)
Observations	166	160	125	160	160	160
Number of countries	24	23	19	23	23	23
Robust standard errors in parentheses						
*** p<0.01, ** p<0.05, * p<0.1						

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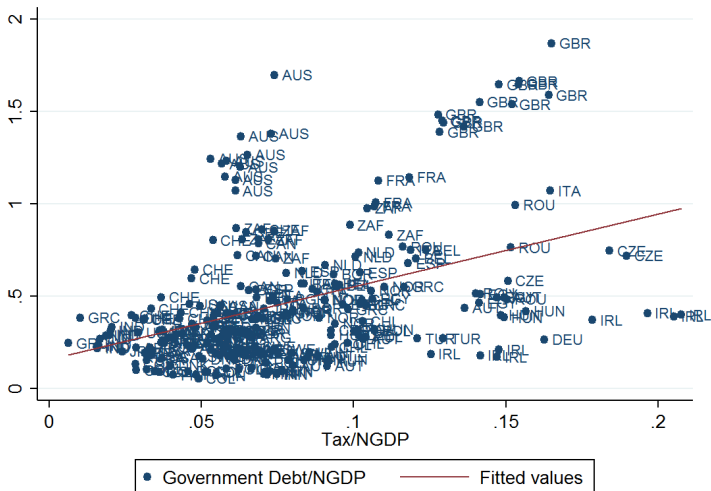
Summary

- ① Higher debt/GDP not correlated with national-provincial default
 - Not consistent with virtually the full set of macroeconomic models of default
- ② The deterioration of public finances is associated with default above and beyond the pure income GD shock
- ③ Municipal default process different from national-provincial one
 - Strength of economic downturn appears to be main culprit
 - Some evidence of fiscal deterioration playing a role
 - Some evidence of a link between amount of borrowing and default
 - Some evidence of spillover from national-provincial defaults

Fiscal fragility, borrowing and default

- How to explain the link between fiscal fragility and default?
 - ① Countries in general borrowed proportionally to their ability to raise fiscal revenues
 - ② However some fiscal systems were structurally more fragile than others
 - ③ Collapse in revenues at least partially determined by preexisting characteristics of fiscal systems, particularly fiscal capacity (Papadia 2016)
 - ④ Policy choices might have also played a role, but strong reasons to believe that expansion of fiscal revenues was constrained by politics and learning costs

Fiscal capacity and borrowing: central governments, 1927-36



Fiscal capacity and borrowing: central and local governments, 1927-36

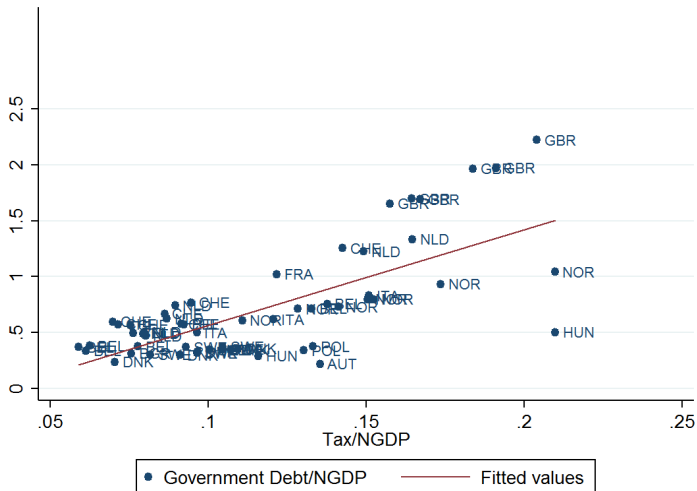


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Takeaways

- The GD shock played an important role in the defaults, but main channel was not the pure income shock
- Room for both “bad luck” and policy choices to play a role in fiscal response to the shock
- Fiscal resilience - i.e. the institutional ability & willingness to extract resources from the economy - emerges as a key determinant of default in the interwar era

Thank you!

Annual bond defaults in the US: principal amounts in thousands of dollars, 1930-1935

Year	Railroads	Industrial	Public Utilities	Real Estate	Foreign
1930	841	134,994	96,344	128,158	708
1931	213,228	443,560	201,722	556,908	632,015
1932	201,739	699,034	593,136	543,579	581,385
1933	1,087,909	482,228	363,933	416,052	1,104,748
1934	310,251	206,435	150,244	83,266	256,601
1935	761,701	92,275	149,128	46,785	9,064
Total	2,575,669	2,058,526	1,554,507	1,744,848	2,584,521

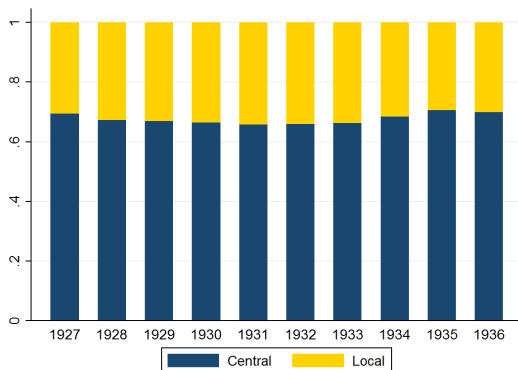
Source: Madden, Nadler, and Sullivan (1937)

Rate of return on US foreign investments by geographical area, 1920-1935

Year	Latin America	Europe	East Asia
1920		7.67	
1921	7.38	7.77	7.07
1922	7.64	7.79	6.39
1923	6.79	7.41	6.35
1924	6.97	7.67	6.64
1925	6.9	7.66	6.45
1926	7.01	7.54	6.48
1927	7	7.3	6.33
1928	7.34	7.5	6.15
1929	6.71	7.44	6.15
1930	6.23	7.44	6.36
1931	4.5	6.52	5.86
1932	1.98	5.47	5.68
1933	1.34	4.27	6.02
1934	1.14	4.91	19.20
1935	1.78	3.93	6.09
Average	5.41	6.77	7.15

Source: Madden, Nadler, and Sullivan (1937)

Average shares of central and local debt over total debt, 1927-1936



Unweighted average. Countries: Belgium, Bulgaria, Denmark, Finland, Germany, United Kingdom, Ireland, Italy, Netherlands, Norway, Poland, Sweden, Switzerland, Argentina, Brazil, Colombia, Uruguay, Australia, Japan, Canada, New Zealand. [Back to](#)

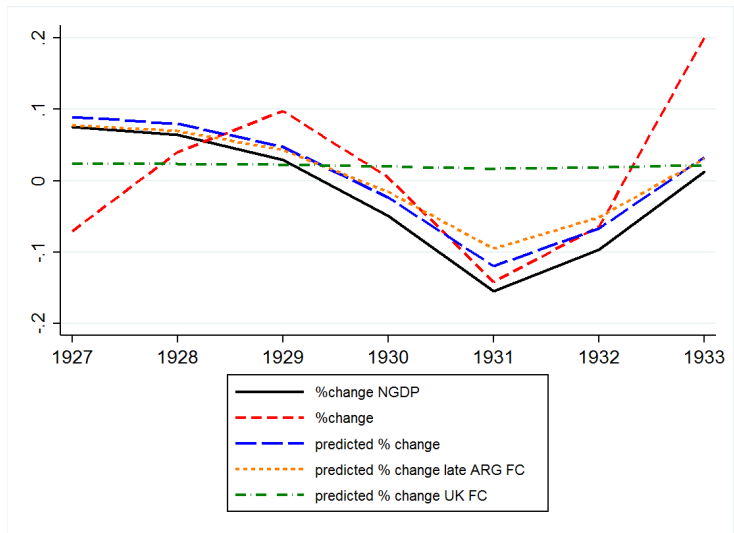
Local debt

Main sources

- United Nations - Public Debt 1914-1946
- Yearbooks of the German Statistical Office
- Statistical Handbook of the World Economy (Statistisches Handbuch der Weltwirtschaft)
- The Institute for International Finance
- The Corporation of Foreign Bondholders
- Moody's Investment Manuals
- League of Nations Statistical Yearbooks
- Cleona Lewis (1937) - America's Stake in International Investment

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Fiscal capacity and tax smoothing: a naive counter-factual for Argentina 1927-33



Tax revenues as a share of GDP, 1914-38

Country	Pre-GD	1929-32	Post-GD	Average
Austria	0.08	0.09	0.14	0.10
Belgium	0.05	0.06	0.10	0.07
Bulgaria	0.07	0.06	0.08	0.07
Czechoslovakia	0.10		0.17	0.14
Denmark	0.07	0.05	0.06	0.06
Finland	0.07	0.06	0.07	0.07
France	0.09	0.11	0.16	0.12
Germany			0.16	0.16
United Kingdom	0.14	0.14	0.15	0.14
Greece		0.11	0.04	0.07
Hungary	0.10	0.09	0.14	0.11
Ireland		0.14	0.20	0.17
Italy	0.07	0.08	0.13	0.10
Netherlands	0.06	0.06	0.09	0.07
Norway	0.10	0.08	0.08	0.08
Poland	0.05	0.07	0.10	0.08
Romania	0.14	0.15	0.15	0.15
Spain	0.01	0.01	0.01	0.01
Sweden	0.06	0.06	0.07	0.06
Switzerland	0.03	0.04	0.06	0.04
Yugoslavia		0.10	0.13	0.11
United States of America	0.03	0.03	0.05	0.04
Argentina	0.05	0.04	0.06	0.05
Brazil		0.04	0.05	0.04
Chile	0.08	0.08	0.07	0.08
Colombia	0.05	0.05	0.03	0.04
Australia	0.06	0.07	0.06	0.06
Japan	0.06	0.06	0.04	0.05
Canada	0.06	0.06	0.07	0.06
Egypt	0.10	0.10	0.14	0.11
Turkey		0.06	0.10	0.08
South Africa	0.07	0.06	0.10	0.08
India	0.02	0.02	0.02	0.02
Average	0.07	0.07	0.09	0.08