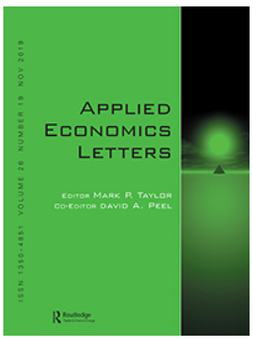

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Inequality in the aftermath of financial crises: some empirical evidence

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ABSTRACT
Analyzing 70 countries over the period 1973–2006, we empirically show that, in the aftermath of financial crises, income inequality exhibits no general pattern of change. This holds for both advanced and emerging economies. However, when we break down the analysis by crisis types, we find that, after stock market crises, inequality goes down in advanced countries, while there is no statistically significant association in emerging ones.

KEYWORDS
Financial crises; income inequality

JEL CLASSIFICATION
D31; D53; D63; G01

I. Introduction

The recent financial crisis has put income inequality once again at centre stage of day-to-day discussions among politicians, economists and policymakers. Within this context, understanding the distributional impact of financial crises remains a crucial prerequisite for optimal policy design. While anecdotal evidence suggests a catalytic role for crises in driving subsequent inequality,[1] whether this constitutes an empirical regularity is still an open question that requires more systematic data analysis.

While some researchers investigate the financial crisis – inequality nexus arguing that widening inequality led to the recent financial crisis (Bordo and Meissner 2012; Kumhof, Rancière, and Winant 2015; Kirschenmann, Malinen, and Nyberg 2016; Perugini, Holscher, and Collie 2016), we focus on whether financial crises impact the distribution of income. Crises might have distributional effects through a variety of channels: differing responses of labour and capital income, relative price changes and heterogeneous change in the availability of credit across the income distribution, among others. Our understanding of the consequences of financial crises on income inequality has so far been limited to country studies (Grabka 2015; Callan et al. 2014; Wolff 2013).[2] We make a first step to fill this gap in the literature by implementing a difference-in-differences analysis in a panel of advanced and emerging economies to examine whether financial crises are a precursor to income inequality.

Analyzing 70 countries over the period 1973–2006, we show that, in the aftermath of financial crises, there is no general pattern in the evolution of income inequality. This holds for both advanced and emerging economies. However, when we break down the analysis by crisis types, we find that, after stock market crises, inequality goes down in advanced countries, while there is no statistically significant association in emerging countries. The results, therefore, suggest that stock market crises reduce wealth at the top of the wealth distribution, where portfolios are dominated by business equity, in countries where capital markets are more developed.

II. Data and econometric specification

We identify financial crisis occurrences using the database of 'Dates for Banking Crises, Currency Crashes, Sovereign Domestic or External Default (or Restructuring), Inflation Crises and Stock Market Crashes (Varieties)' by Reinhart and Rogoff (Reinhart 2010; Reinhart and Rogoff 2009, 2011), which covers 70 countries over 1800–2010.[3]

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[1]See Financial Times (2016, 2017); Kuhn, Schularick, and Steins (2018).

[2]Data availability is a reason for scant empirical evidence, as cross-country data with comparable financial crises and inequality measures became available recently.

[3]Available at http://www.carmenreinhart.com/data/browse-by-topic/topics/7. See Reinhart and Rogoff (2009, 7–11) for definitions of crises.

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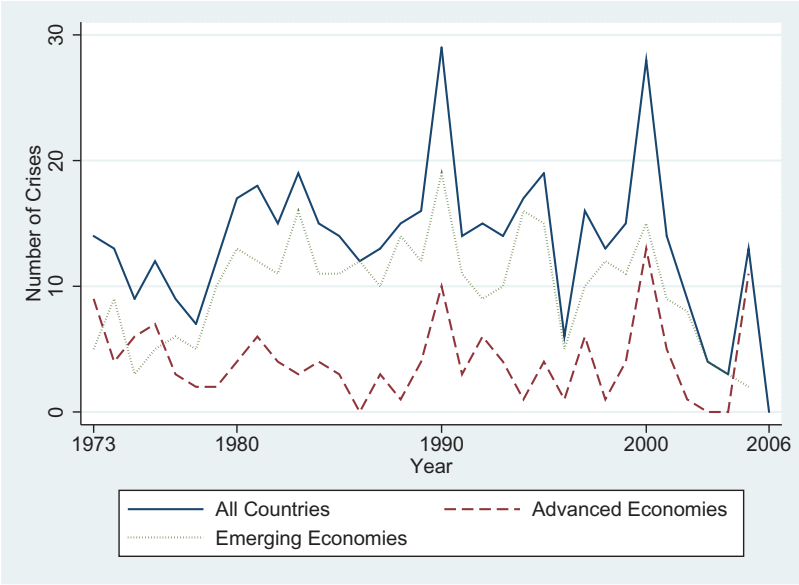

Figure 1. Total number of crisis occurrence over time.

The database distinguishes six financial crisis types: Stock Market, Currency, Inflation, Domestic Debt, External Debt and Banking Crises. On average, 13.5 crisis incidents take place in a given year. Figure 1 illustrates the prevalence of crises over time. To evaluate inequality in the aftermath of financial crises, we first combine all financial crisis types into a single measure. We construct a *Post-Crisis* indicator that equals one within the 5-year aftermath of any crisis (including the crisis year). Next, we break down our analysis into different crisis types.

As per inequality, we rely on the Standardized World Income Inequality Database by Frederick Solt (2009).[4] This data set provides comparable Gini indices of market (gross) and net income inequality (after taxes and redistribution) for 192 countries in the past 40 years and is well suited for cross-country analysis of income inequality as it maximizes comparability for the largest possible sample of countries and years. After matching with the Reinhart and Rogoff's data on financial crises, we are left with a data set containing information on 70 countries for the period 1973–2006.

We estimate the following difference-in-differences specification:

$$Y_{it} = \alpha + \beta PostCrisis_{it} + \rho_i + \gamma_t + \varepsilon_{it}, \qquad (1)$$

where Y_{it} denotes the outcome of interest, inequality, at time t for country i; *PostCrisis* is an indicator variable equal to one within 5 years (including the crisis year) after the start of any of

Table 1. Inequality after financial crises.

	(1)	(2)	(3)	(4)	(5)	(6)
	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality
Post-Crisis	0.541	0.138	0.022	−0.144	0.834	0.268
	(0.589)	(0.394)	(0.506)	(0.34)	(0.628)	(0.416)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.08	0.06	0.08	0.06	0.07	0.05
Obs.	1670	1670	1584	1584	1762	1762

Notes: Baseline sample (columns 1 and 2): Countries with at least one crisis within a 20-year window. Columns 3 and 4 and columns 5 and 6 are robustness to 10-year and 30-year windows, respectively. Robust SEs (clustered by country) are given in parentheses.
*$p < 0.10$, ** $p < 0.05$, ***$p < 0.01$.

[4]Available at https://dataverse.harvard.edu/dataset.xhtml?persistentId=hdl:1902.1/11992.

Table 2. Inequality after financial crises across advanced and emerging economies.

	(1)	(2)	(3)	(4)
	Market inequality	Net inequality	Market inequality	Net inequality
Post-Crisis	−0.455	−0.416	0.275	−0.085
	(0.508)	(0.277)	(0.612)	(0.472)
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Subsample	Advanced	Advanced	Emerging	Emerging
R^2	0.28	0.16	0.15	0.07
Obs.	542	542	923	923

Note: See note to the baseline sample in Table 1.

the six crises; ρ_i and γ_t are country and time fixed effects; and ε_{it} is the error term. SEs are clustered at the country level. In the main estimations, we restrict the sample to countries that experienced at least one crisis and the time window to 20 years around the start of a crisis, so as to compare a crisis episode with the relevant set of countries and time periods.

III. Empirical results

Baseline results

Table 1 presents regressions of both inequality measures on the post-crisis indicator controlling for country and year fixed effects. There is no evidence of a statistically significant general relationship between the occurrence of financial crises and a subsequent change in inequality. Even though the coefficient on *Post-Crisis* is positive in columns 1 and 2, it is not statistically different from zero. Therefore, in general, we do not observe a change in inequality in the aftermath of financial crises. Columns 3 and 4 and columns 5 and 6 show robustness to the use of 10-year and 30-year windows, respectively.

Heterogeneity across advanced and emerging economies

We now investigate heterogeneity across advanced and emerging economies.[5] This is a natural next step as financial market development varies across advanced and emerging economies.

In Table 2, the signs of the correlations between financial crises and inequality differ across advanced and emerging economies. In the aftermath of financial crises, inequality trends downwards in advanced economies and upwards in emerging ones, albeit insignificantly (columns 1 and 3).

Table 3. Inequality after financial crises and heterogeneity across crisis types.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality
Post-Stock Market Crisis	−0.564	−0.335										
	(0.518)	(0.344)										
Post-Currency Crisis			−0.811*	−0.465								
			(0.407)	(0.294)								
Post-Inflation Crisis					−0.027	0.133						
					(0.611)	(0.452)						
Post-Domestis Debt Crisis							−0.339	0.381				
							(0.882)	(0.663)				
Post-External Debt Crisis									0.239	−0.443		
									(0.801)	(0.698)		
Post-Banking Crisis											−0.206	−0.108
											(0.364)	(0.244)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.05	0.04	0.06	0.05	0.05	0.04	0.05	0.04	0.05	0.04	0.05	0.04
Obs.	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465	1465

Note: *$p < 0.10$, **$p < 0.05$, ***$p < 0.01$.
See note to the baseline sample in Table 1.

[5]IMF classification. https://www.imf.org/external/datamapper/NGDPD@WEO/OEMDC/ADVEC/WEOWORLD.

Table 4. Inequality after financial crises and heterogeneity across crisis types for advanced and emerging economies.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality	Market inequality	Net inequality
Panel A: Advanced economies												
Post-Stock Market Crisis	−1.035**	−0.722**										
	(0.430)	(0.294)										
Post-Currency Crisis			0.067	−0.241								
			(0.694)	(0.297)								
Post-Inflation Crisis					2.781	0.570						
					(2.009)	(1.259)						
Post-Domestis Debt Crisis							0.000 (.)	0.000 (.)				
Post-External Debt Crisis									0.000 (.)	0.000 (.)		
Post-Banking Crisis											0.257	−0.681*
											(0.578)	(0.388)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.29	0.18	0.28	0.16	0.30	0.17	0.28	0.16	0.28	0.16	0.28	0.17
Obs.	542	542	542	542	542	542	542	542	542	542	542	542
Panel B: Emerging economies												
Post-Stock Market Crisis	0.256	0.013										
	(0.723)	(0.557)										
Post-Currency Crisis			−0.551	−0.287								
			(0.482)	(0.361)								
Post-Inflation Crisis					0.068	0.355						
					(0.574)	(0.471)						
Post-Domestis Debt Crisis							0.184	0.599				
							(0.961)	(0.697)				
Post-External Debt Crisis									0.103	−0.390		
									(0.820)	(0.738)		
Post-Banking Crisis											−0.207	0.051
											(0.485)	(0.334)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R^2	0.15	0.07	0.16	0.07	0.15	0.07	0.15	0.07	0.15	0.07	0.15	0.07
Obs.	923	923	923	923	923	923	923	923	923	923	923	923

Note: □$p < 0.10$, □□$p < 0.05$, □□□$p < 0.01$.
See note to the baseline sample in Table 1.

A breakdown by crisis types

We now present a breakdown by crisis types. Table 3 shows that most of the coefficients enter negatively. This suggests that there is no increase in inequality in any of the post-crisis environments. Moreover, the coefficient on post-currency crisis suggests that inequality is reduced after currency crises.

To better capture differing dynamics, Panels A and B of Table 4 provide results for advanced and emerging economies. Panel B shows that the correlation between financial crisis and inequality is never significant in emerging economies. In contrast, for advanced economies, we observe that inequality significantly goes down in the aftermath of stock market crises. The income share of the wealthy is reduced as they usually invest more in the stock market. The coefficient in column 1 of Panel A corresponds to a 2.4% reduction with respect to the mean inequality in advanced countries. Furthermore, we obtain that (i) inequality trends upwards after inflation crisis (Panel A column 5); (ii) there are no domestic or external debt crises in advanced economies; and (iii) inequality is reduced after banking crisis only after taxes and redistribution.

IV. Concluding remarks

This article shows that, in the aftermath of financial crises, there is no general pattern in the evolution of income inequality. When we break down the analysis by crisis types, we find that, after stock market crises, inequality goes down in advanced countries, while there is no association in emerging ones.

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No potential conflict of interest was reported by the authors.

References

Bordo, M. D., and C. M. Meissner. 2012. "Does Inequality Lead to a Financial Crisis?" *Journal of International Money and Finance* 31 (8): 2147–2161. doi:10.1016/j.jimonfin.2012.05.006.

Callan, T., B. Nolan, C. Keane, M. Savage, and J. R. Walsh. 2014. "Crisis, Response and Distributional Impact: The Case of Ireland." *IZA Journal of European Labor Studies* 3 (1): 9. doi:10.1186/2193-9012-3-9.

Financial Times. 2016. "Inequality Decreased after Global Financial Crisis." Financial Times, October 2.

Financial Times. 2017. "How Global Income Inequality Has Shifted Since the Crisis." Financial Times, August 12.

Grabka, M. M. 2015. "Income and Wealth Inequality after the Financial Crisis: The Case of Germany." *Empirica* 42 (2): 371–390. doi:10.1007/s10663-015-9280-8.

Kirschenmann, K., T. Malinen, and H. Nyberg. 2016. "The Risk of Financial Crises: Is There a Role for Income Inequality?" *Journal of International Money and Finance* 68: 161–180. doi:10.1016/j.jimonfin.2016.07.010.

Kuhn, M., M. Schularick, and U. Steins. 2018. "How the Financial Crisis Drastically Increased Wealth Inequality in the U.S." *Technical Report, Harvard Business Review*. Cambridge, Massachusett: Harvard Business School Publishing.

Kumhof, M., R. Rancière, and P. Winant. 2015. "Inequality, Leverage, and Crises." *American Economic Review* 105 (3): 1217–1245. doi:10.1257/aer.20110683.

Perugini, C., J. Holscher, and S. Collie. 2016. "Inequality, Credit and Financial Crises." *Cambridge Journal of Economics* 40 (1): 227–257. doi:10.1093/cje/beu075.

Reinhart, C. M., and K. S. Rogoff. 2009. *This Time It's Different: Eight Centuries of Financial Folly*. Princeton, NJ: Princeton University Press.

Reinhart, C. M. 2010. "This Time Is Different Chartbook: Country Histories on Debt, Default, and Financial Crises." *NBER Working Papers 15815*.

Reinhart, C. M., and K. S. Rogoff. 2011. "From Financial Crash to Debt Crisis." *American Economic Review* 101 (5): 1676–1706. doi:10.1257/aer.101.5.1676.

Solt, F. 2009. "The Standardized World Income Inequality Database." *Technical Report, Harvard Dataverse, V20*.

Wolff, E. N. 2013. "The Asset Price Meltdown, Rising Leverage, and the Wealth of the Middle Class." *Journal of Economic Issues* 47 (2): 333–342. doi:10.2753/JEI0021-3624470205.