

Macroeconomic Shocks Around The World: The Response of Top Shares in Historical Perspective

Salvatore Morelli
University of Oxford

This paper attempts to investigate the distributional impact of systemic banking shocks and economic crises (GDP and consumption collapses) since the beginning of twentieth century. We will seek to (a) clarify the underlying hypotheses, (b) examine empirically the pattern of change in inequality before and after economic crises, and (c) consider the possible economic mechanisms. Using “The World Top Incomes Database” (F. Alvaredo, T. Atkinson, T. Piketty and E. Saez, 2011) we will try to provide evidence for or against the view that such macroeconomic shocks have tangible distributional consequences by analyzing the behavior of top-income shares around crises episodes for a series of 25 different Countries.

After discussing the identification of different macro shocks and the nature of data we will describe the temporal association between the crises and the dynamics of the top tail of the income distribution as a first step in the empirical investigation. In what follow, in order to take more seriously the time-series properties of the data, we will adopt an empirical methodology which is standard in the analysis of macroeconomics perturbations but constitutes a novelty in the study of distributional consequences of macro shocks.

We will first assume away any influence other than the shock itself on top shares, and we will exclude any feedback effects from top shares to crisis (excluding therefore any role of inequality in driving the likelihood of crisis to occur). These assumptions will be tested formally within the robustness and exogeneity analysis. Banking crises are usually associated to stock and real estate market crashes, economic downturns and raise in unemployment, government and central banks interventions. This complicates a great deal the identification of direct impact of the banking shocks on the top shares. In particular further research steps are needed in order to take into account the overlapping feature of different set of macro-shocks. This requires also the assembling data on a widest possible set of different macro-shocks including Currency crises, Debt Crises, Hyperinflation episodes etc.

We will then undertake further steps in our empirical analysis. We start investigating whether following a macro shock the growth rate of top shares series deviate from their forecasted pattern given their past behaviour. This can be considered as a first step toward comparing actual values with some row measure of counterfactuals. We will then take a step forward carrying on a sensitivity analysis based on Autoregressive Distributed Lags (ADL) model where the dynamic series of growth rate of top shares will be assumed to be exposed to impulses (macro shocks). This allows us to estimate the dynamic impact of banking turmoil's and economic crises on the behaviour of top shares. In a classic robustness check exercise we will then test whether former estimates are sensitive to the exclusion of important factors, such us raise in unemployment, change in taxation regimes and stock market performances. Importantly, we will test the assumption of exogeneity of top shares with respect to current and lagged values of their growth rates assumed away throughout the analysis. Indeed, the consistency of estimated parameters in the ADL model depends on the assumption that growing levels of inequality have no feedback

effect on the occurrence of crisis. Is this assumption correct? If not, the correct procedure to implement would require to solve the system of structural equations in order to work out the reduced form equation and get rid of the bias.

In particular, the reverse causality problem requires the estimation of the probability of crisis occurrence as a function of the measures of the level or the change in inequality. Lastly, for some countries, it is possible to breakdown income accruing at the top by different sources (Wage, Capital, Business). This will provide useful guidance for the economic interpretation of the results.

Additional notes:

Understanding the overall distributional consequences of macroeconomic shocks could be an extremely challenging and complex task. Ideally, such an analysis presupposes the use of a wide range of detailed micro-data which includes post-tax income data, unfortunately not available for a long period of time. Given the wide number of perspectives one could adopt in order to analyze the distributional impact of banking crises we will force ourselves to a specific observation angle. Namely, we will adopt the increasingly popular perspective, drawing the attention on country's richest quantiles shares in gross income distributions. There are number of reasons why this might be an interesting and informative exercise, namely:

1. The composition of income and wealth at the right tail of the distribution is such to make the link with the financial meltdown more plausible.
2. Tracing the dynamics of such a relatively small number of households is not uninformative on the general disparity of income distributions (e.g. Gini coefficient). (In other words and taking the example of income distribution 'If we treat the very top group as infinitesimal in numbers, but with a finite share S^* of total income, then the Gini coefficient can be approximated by $S^* + (1-S^*)G$, where G is the Gini coefficient for the rest of the population' as recalled by A.B. Atkinson (2007, p.19) and proved more formally in Alvaredo (2011).
3. The financial sector, likely to be more harmed during a banking turmoil, is increasingly populated by wealthy and rich individuals.
4. It is possible to analyze an extraordinary long time horizon covering most of twentieth century and the beginning of the twenty-first century.
5. The use of data based on Gross income definition will help a great deal disentangling most of the direct impact of fiscal policies following a macro shock. Nevertheless tax units - especially at the top income brackets- have strong incentive to report their income so to minimize their tax liabilities (tax evasion and avoidance). Yet, such behavioural response to change in taxations it is a residual indirect impact of fiscal policy that could be easily dealt in the empirical specification as recent literature (especially related to the work of Emmanuel Saez and others) on top income shares has shown.