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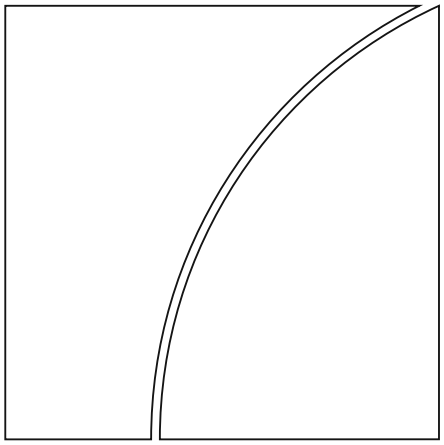

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by Emanuel Kohlscheen, Marco Lombardi and Egon Zakrajšek

Monetary and Economic Department

May 2021

JEL classification: D31, E20, E32.

Keywords: consumption, income inequality, recessions, financial crises, cross-country evidence.

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Income Inequality and the Depth of Economic Downturns

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Abstract

Using an international panel data set, we analyze the implications of rising income inequality for aggregate consumption. We document that greater concentration of (after-tax) income in the top decile is associated with a significantly larger and more persistent contraction in consumption in the aftermath of economic downturns. These findings are consistent with lower propensities to consume among wealthier households and imply that disparities in income flows at turning points of the business cycle can significantly influence macroeconomic outcomes.

JEL Classification: D31, E20, E32
Keywords: consumption, income inequality, recessions, financial crises, cross-country evidence

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1 Introduction

Income inequality has been on the rise throughout the world. In the United States, the share of pre-tax income accruing to earners in the top decile of the distribution rose from 34% in 1980 to 45% in 2019, whereas in China, the share has increased from 27% to 41%. Indeed, the majority of major advanced and emerging economies experienced a significant increase in income inequality over the past four decades (see Table 1). The academic literature has attributed the secular rise in income inequality primarily to the confluence of skill-biased technical change and globalisation (see Atkinson and Bourguignon (eds.), 2015, and references therein).

TABLE 1: Income Inequality in Selected Countries

Country	1980	2000	2019
United States	33.8	42.6	45.3
United Kingdom	29.4	35.1	35.2
Germany	28.3	31.7	37.3
Japan	34.1	40.0	43.3
China	27.2	35.6	41.4
India	31.5	39.9	56.1
Brazil	54.9	54.9	57.3
South Africa	45.9	52.7	65.1

NOTE: The entries in the table represent the share of pre-tax income (in percent) accruing to households in the top decile of the distribution.
SOURCE: World Inequality Database.

Beyond its longer-term social and political implications, an important issue raised by rising inequality is whether an uneven distribution of income also has first-order implications for macroeconomic outcomes at business cycle frequencies. In this paper, we use a comprehensive country-level panel—including both advanced economies (AEs) and emerging market economies (EMEs)—to document that economic downturns in countries where (after-tax) income is more concentrated at the top are followed by significantly larger declines in real per capita consumption. The adverse effect of income inequality on aggregate consumption dynamics following downturns is economically and statistically significant in both AEs and EMEs; moreover, it applies to "normal" downturns and to downturns accompanied by financial crises. These new findings are consistent with the well-documented lower propensity to consume among wealthier households, which is known to decrease further during economic downturns due to a precautionary savings motive (see Mody et al., 2012).

Our paper contributes to the literature analysing how income inequality affects aggregate economic activity.[1] Most relevant from a theoretical perspective is the recent work of Auclert and

[1]The notion that the distribution of income can have first-order effects on economic activity—with greater income inequality depressing aggregate demand and employment—has a long and storied history in economics, harking back to Pigou (1920) and Keynes (1936). The 2007–09 global financial crisis and the economic fallout from the Covid-19 pandemic have brought the quantitative importance of this mechanism back to the forefront of the economic policy debate (see Rajan, 2011; Carstens, 2021).

Rognlie (2020), who develop a quantitative framework to investigate how income inequality affects consumption and output. In their model, an increase in income inequality depresses aggregate output, owing to the negative correlation between marginal propensities to consume and income. However, once general equilibrium effects are taken into account, the size of this effect tends to be small. Consistent with this result, Cuaresma et al. (2018) find no systematic relation between average propensities to consume and the income Gini indices across countries, suggesting that increases in income inequality have no effect on aggregate consumption dynamics.

Our empirical findings, by contrast, are starkly different. We distinguish between economic downturns and "normal" times and find that this distinction is crucial. During normal times, income inequality has no effect on aggregate consumption, a result consistent with Cuaresma et al. (2018). During economic downturns, by contrast, income inequality matters: in countries where (after-tax) income is more concentrated at the top, downturns induce significantly larger and more persistent declines in real per capita consumption. Given the countercyclical nature of labor income risk (see Guvenen et al., 2014), our empirical evidence is thus consistent with an important subset of results from Auclert and Rognlie (2020), which demonstrate that if income inequality is caused by a rise in individual income risk, the outcome is a severe and protracted economic slump.

Our findings also relate to the recent work of Heathcote et al. (2020), who document that the significant rise in inequality in the bottom half of the male labour earnings distribution in the United States since the late 1960s is attributable primarily to declining hours worked. Interestingly, the declines in hours worked are concentrated heavily in economic downturns. In combination, these findings indicate that while recessions tend to increase income inequality through higher unemployment, income inequality can in turn affect the depth and duration of recessions. This interplay can create even greater perverse effects: excessive polarisation that takes away income from those at the bottom of the distribution can magnify aggregate demand shortfalls during downturns, because poorer households have a relatively higher propensity to consume out of their income.[2]

2 Empirical Methodology and Results

To examine whether income inequality matters for macroeconomic outcomes, we use a comprehensive international panel data set to analyse the dynamics of real per capita private consumption following economic downturns.[3] We measure income inequality by the share of *after-tax* income accruing to households in the top decile of the income distribution at any point in time. This is our preferred measure for three reasons. First, it is based on after-tax income, which is what ultimately matters for aggregate demand. Second, it is a measure that has seen a clear upward drift in many

[2]Two recent empirical papers also find evidence in support of such mechanism. Landais et al. (2020) use a comprehensive database of transactions and bank-level information to document that the average marginal propensity to consume of households in the top quartile of the liquid-wealth distribution was less than a third of that of households in the lowest quartile in the immediate aftermath of the Covid-19 shock. Bahadir et al. (2020) find that consumption is more sensitive to household-sector credit shocks in countries with high income inequality.

[3]See the Appendix for the list of countries used in the analysis and other data details.

TABLE 2: Summary Statistics

Variable	Mean	SD	Min	P50	Max
All countries					
Income inequality[a]	30.04	7.67	18.30	27.30	54.80
Downturn indicator (0/1)	0.12	0.32	.	.	.
Real consumption growth[b]	6.22	7.94	−35.47	5.49	64.37
Real GDP growth	3.32	3.75	−22.93	3.29	34.46
Advanced economies					
Income inequality[a]	24.45	2.66	18.30	24.60	30.53
Downturn indicator (0/1)	0.12	0.33	.	.	.
Real consumption growth[b]	3.63	3.56	−8.73	3.54	19.91
Real GDP growth	2.20	2.38	−8.07	2.25	25.16
Emerging market economies					
Income inequality[a]	35.59	7.85	19.70	31.60	54.80
Downturn indicator (0/1)	0.12	0.32	.	.	.
Real consumption growth[b]	7.40	9.04	−35.47	6.99	64.37
Real GDP growth	3.80	4.11	−22.93	3.91	34.46

NOTE: Sample: unbalanced panel of 91 countries (19 AEs and 72 EMEs) with annual data from 1981 to 2019. In percent, unless noted otherwise.
[a] Share of after-tax income accruing to the top decile of the income distribution (five-year trailing average of available data).
[b] In per capita terms.

countries since the mid-1980s, in large part because this share encompasses the upper class professionals that have likely benefited from skill-biased technological change and globalisation. And third, it reflects the portion of national income that accrues to the segment of population that typically has lower propensity to consume out of income (i.e., savers).

Because our data are at an annual frequency, we define economic downturns using a 0/1-indicator that flags years of negative real GDP growth. This definition of a downturn differs from a technical definition of a recession—two consecutive quarters of negative real GDP growth—and will tend to elicit the most severe recessions in our sample.[4]

Table 2 contains the summary statistics for the variables used in our analysis. Looking across all countries, the share of after-tax income accruing to the top decile of the income distribution has a mean of about 30%, with the range running from a minimum of 18% to a maximum of almost 55%. Not surprisingly, the mean (and median) of this measure of income inequality is notably greater in EMEs than in AEs. According to our definition of a downturn (i.e., a year of negative real GDP growth), 12% of country-year observations in both AEs and EMEs are classified as downturns. Consistent with previous studies, consumption and output growth in EMEs are considerably more volatile that their respective counterparts in AEs.

Our baseline hypothesis is that if a large share of national income accrues to high income households, which have a stronger tendency to save rather than consume, the decline in consumption

[4] As a robustness check, we report in the Appendix the results using a milder definition of an economic downturn. Our main conclusions are unchanged.

TABLE 3: Income Inequality and Consumption Growth

	Dependent Variable: $\Delta_{h+1}c_{i,t+h}$		
Explanatory Variable	$h=0$	$h=1$	$h=2$
$\text{IncShare}_{i,t-1}$	0.027	0.065	0.173
	(0.052)	(0.115)	(0.221)
$\text{IncShare}_{i,t-1} \times \text{EME}_i$	−0.064	−0.086	−0.199
	(0.071)	(0.154)	(0.276)
$\text{Downturn}_{i,t-1}$	0.320	0.620	0.749
	(0.283)	(0.675)	(0.998)
$\text{Downturn}_{i,t-1} \times \text{EME}_i$	−1.984***	−3.237***	−3.221***
	(0.653)	(1.022)	(1.138)
$\text{IncShare}_{i,t-1} \times \text{Downturn}_{i,t-1}$	−0.086***	−0.120***	−0.149***
	(0.019)	(0.036)	(0.045)
$\text{IncShare}_{i,t-1} \times \text{Downturn}_{i,t-1} \times \text{EME}_i$	−0.100***	−0.156***	−0.164***
	(0.023)	(0.035)	(0.048)
$\Delta c_{i,t-1}$	0.448***	0.697***	0.696***
	(0.067)	(0.143)	(0.232)
$\Delta c_{i,t-1} \times \text{EME}_i$	−0.343***	−0.596***	−0.608***
	(0.101)	(0.173)	(0.259)
R^2	0.284	0.257	0.222
$\Pr > \lvert CD \rvert$[a]	0.028	0.009	0.012
No. of countries	91	91	91
Observations	2,046	1,971	1,893

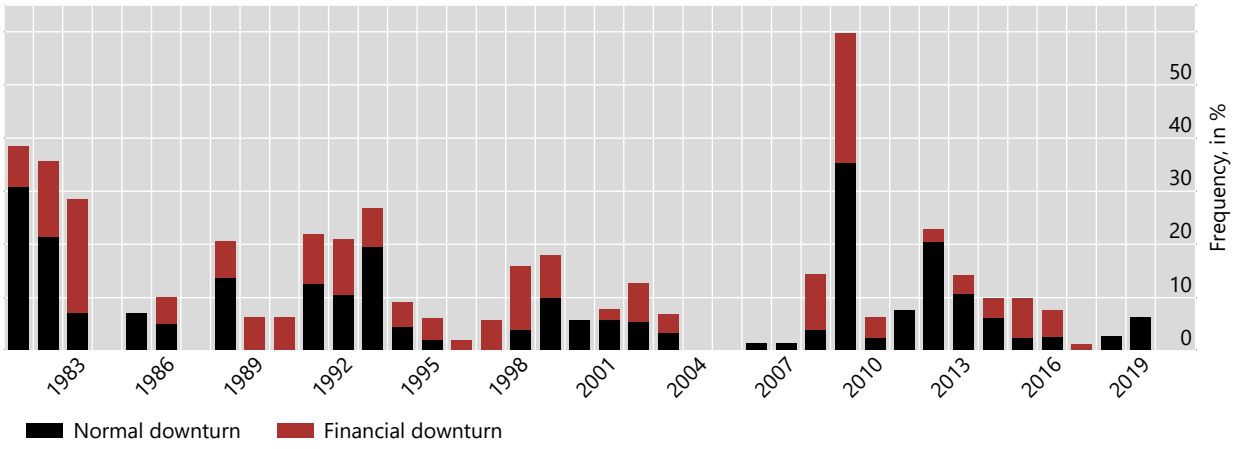
NOTE: Sample period: annual data from 1981 to 2019. $\Delta_{h+1}c_{i,t+h}$ denotes the log-difference of real per capita consumption in country i from year $t-1$ to year $t+h$. The entries in the table denote the OLS estimates of coefficients on the specified explanatory variable: $\text{IncShare}_{i,t}$ = income share of top 10%; $\text{Downturn}_{i,t}$ = 0/1-indicator of economic downturns; and EME_i = 0/1-indicator for whether a country is an emerging market economy. All specifications include country fixed effects and time fixed effects, where the latter are allowed to differ across AEs and EMEs. Asymptotic standard errors reported in parentheses are computed according to Driscoll and Kraay (1998) with the "lag length" parameter equal to $h+1$: * $p<.10$; ** $p<.05$; and *** $p<.01$.
[a] p-value for the Pesaran (2015) test of the cross-sectional dependence of regression residuals.

following a period of aggregate demand shortfall is bound to be larger. We test this proposition by estimating the following regression specification for horizon $h \geq 0$:

$$\begin{aligned}\Delta_{h+1}c_{i,t+h} = \alpha^h \Delta c_{i,t-1} + \beta^h \text{IncShare}_{i,t-1} + \gamma^h \text{Downturn}_{i,t-1} \\ + \delta^h \left[\text{IncShare}_{i,t-1} \times \text{Downturn}_{i,t-1}\right] + \eta_i^h + \lambda_t^h + \epsilon_{i,t+h},\end{aligned}$$

where $\Delta_{h+1}c_{i,t+h}$ denotes the log-difference in real per capita consumption in country i between years $t-1$ and $t+h$; $\text{IncShare}_{i,t-1}$ is our measure of income inequality; and $\text{Downturn}_{i,t-1}$ is a 0/1-indicator variables that equals one if country i experienced negative real GDP growth in year $t-1$ and zero otherwise. The specification also includes a country fixed effect η_i^h, which controls for any unobserved (time-invariant) heterogeneity in consumption processes across countries, while the time fixed effect λ_t^h captures global economic shocks; $\epsilon_{i,t+h}$ represents the error term.

FIGURE 1: Normal vs. Financial Downturns



NOTE: The vertical bars show the incidence of normal (black bars) and financial downturns (red bars) from 1981 to 2019 in our sample of 91 countries.
SOURCE: Authors' calculations using the chronology of Laeven and Valencia (2020).

In effect, this specification relates the cumulative real per capita consumption growth between years $t-1$ and $t+h$ to the aggregate demand shortfall in year $t-1$, where the size of this effect depends on the prevailing level of income inequality. Although not noted explicitly, we allow all regression coefficients—including the time fixed effects—to differ between AEs and EMEs, thereby taking into account the well-documented fact that consumption dynamics in AEs differ systematically from those in EMEs (see Aguiar and Gopinath, 2007). Given the long time series dimension of our panel—the average country is in our panel for 23 years—we estimate the resulting specification by OLS; throughout the paper, we report heteroscedasticity- and autocorrelation-consistent standard errors computed according to Driscoll and Kraay (1998), which are robust to general forms of cross-sectional and temporal dependence.

The results of this exercise for horizon $h = 0, 1, 2$ years are reported in Table 3. According to the entries in the table, the share of income accruing to the top 10% is statistically insignificant during normal times at all horizons in both AEs and EMEs. By contrast, the interaction between the share of the top 10% and the downturn indicator—the main variable of interest—is statistically and economically significant at all horizons in both groups of countries. The negative sign of the estimated interaction coefficient δ^h indicates that a high degree of income concentration at the top depresses consumption growth for several years following a downturn. Specifically, an increase in our measure of income concentration from the 10th to the 90th percentile is estimated to reduce real per capita consumption growth in AEs by a full percentage point over the two years following our definition of a downturn; in EMEs, the corresponding reduction in consumption growth is 6.4 percentage points.[5]

[5]In AEs, $-0.149 \times (27.7 - 20.9) = -1.0$, where 27.7 and 20.9 are the 90th and 10th percentiles of the share of income accruing to the top decile, respectively; the corresponding calculation for EMEs is $(-0.149 - 0.164) \times (43.6 - 23.1) =$

TABLE 4: Income Inequality and Consumption Growth
(Normal vs. Financial Downturns)

	Dependent Variable: $\Delta_{h+1}c_{i,t+h}$		
Explanatory Variable	$h=0$	$h=1$	$h=2$
$\text{IncShare}_{i,t-1}$	0.039	0.081	0.188
	(0.056)	(0.118)	(0.216)
$\text{IncShare}_{i,t-1} \times \text{EME}_i$	−0.076	−0.105	−0.217
	(0.073)	(0.157)	(0.278)
$\text{N-Downturn}_{i,t-1}$	0.523	1.404*	1.992*
	(0.357)	(0.763)	(1.187)
$\text{F-Downturn}_{i,t-1}$	−0.221	−1.313*	−2.371*
	(0.422)	(0.701)	(1.208)
$\text{N-Downturn}_{i,t-1} \times \text{EME}_i$	−2.183***	−4.385***	−5.623***
	(0.730)	(1.155)	(1.359)
$\text{F-Downturn}_{i,t-1} \times \text{EME}_i$	−1.206	−0.708	1.366
	(1.037)	(1.221)	(1.285)
$\text{IncShare}_{i,t-1} \times \text{N-Downturn}_{i,t-1}$	−0.091***	−0.122***	−0.130***
	(0.014)	(0.032)	(0.042)
$\text{IncShare}_{i,t-1} \times \text{F-Downturn}_{i,t-1}$	−0.063*	−0.092	−0.160**
	(0.033)	(0.056)	(0.076)
$\text{IncShare}_{i,t-1} \times \text{N-Downturn}_{i,t-1} \times \text{EME}_i$	−0.058**	−0.105***	−0.142***
	(0.022)	(0.034)	(0.049)
$\text{IncShare}_{i,t-1} \times \text{F-Downturn}_{i,t-1} \times \text{EME}_i$	−0.164***	−0.230***	−0.192*
	(0.044)	(0.081)	(0.104)
	(0.004)	(0.004)	(0.004)
$\Delta c_{i,t-1}$	0.445***	0.679***	0.661***
	(0.069)	(0.146)	(0.239)
$\Delta c_{i,t-1} \times \text{EME}_i$	−0.337***	−0.573***	−0.565***
	(0.104)	(0.178)	(0.267)
R^2	0.290	0.261	0.226
$\Pr > \lvert CD \rvert$[a]	0.022	0.005	0.010
No. of countries	91	91	91
Observations	2,046	1,971	1,893

NOTE: Sample period: annual data from 1981 to 2019. $\Delta_{h+1}c_{i,t+h}$ denotes the log-difference of real per capita consumption in country i from year $t-1$ to year $t+h$. The entries in the table denote the OLS estimates of coefficients on the specified explanatory variable: $\text{IncShare}_{i,t}$ = income share of top 10%; $\text{N-Recession}_{i,t}$ = 0/1-indicator of normal downturns; $\text{F-Recession}_{i,t}$ = 0/1-indicator of financial downturns; and EME_i = 0/1-indicator for whether a country is an emerging market economy. All specifications include country fixed effects and time fixed effects, where the latter are allowed to differ across AEs and EMEs. Asymptotic standard errors reported in parentheses are computed according to Driscoll and Kraay (1998) with the "lag length" parameter equal to $h+1$: * $p<.10$; ** $p<.05$; and *** $p<.01$.

[a] p-value for the Pesaran (2015) test of the cross-sectional dependence of regression residuals.

Historically, cyclical downturns associated with financial crises have been more severe and pro-

−6.4. Both of these effects are statistically highly significant (i.e., $p<.01$).

tracted than downturns associated with other shocks. Moreover, recoveries from such "financial" recessions have been typically slower, reflecting a persistent weakness of domestic demand and tight credit conditions. Given that our downturn indicator tends to identify the most severe downturns, we now refine it so as to distinguish between "normal" downturns and those associated with financial crises. Specifically, using the crises chronology of Laeven and Valencia (2020), we classify economic downturns in our sample as "financial" whenever there was either a banking, currency, or a sovereign debt crisis between two years before the downturn year and the year of the downturn; the remaining downturns, in contrast, are classified as normal.

The incidence of both types of downturns is shown in Figure 1. While clearly frequent, financial downturns do not dominate our sample: among 247 country-year observations with negative real GDP growth, a little more than 40% of them are associated with the most common forms of financial distress. This indicates that the results reported in Table 3 are unlikely to be driven by the special dynamics of financial recessions.

Table 4 shows the estimation results of our baseline specification when we separate downturns by type. According to the entries in the table, financial downturns in AEs are followed by a steeper and more persistent declines in real per capita consumption compared with normal ones. In EMEs, by contrast, this pattern is less clear. These results are consistent with Hoggarth et al. (2002), who find that cumulative output losses incurred during banking crises in AEs are, on average, as high (or even higher) than those in EMEs. More importantly for our purposes, the interaction of high income concentration and downturns—regardless of their type—clearly amplifies the subsequent decline in aggregate consumption; as before, this result holds for consumption dynamics in both AEs and EMEs.

3 Conclusion

We show that economic downturns in more unequal countries are significantly steeper and more persistent. This result is evident in advanced and emerging economies alike and holds for normal and financial downturns. In other words, when aggregate demand falls, the micro matters for the macro, in that the distribution of income has first-order implications for macroeconomic outcomes (see Ahn et al., 2017; Kaplan and Violante, 2018).

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A Appendix

A.1 Data Sources and Methods

The main source of the country-level data is the World Bank. In constructing our international panel data set, we dropped countries with population of less than one million and with GDP per capita of less than $2,000 (in 2010 dollars). Table A-1 lists the countries used in the analysis, along with the date range they appear in our sample.

The definition of of variables used in the analysis is as follows:

- **Real per capita consumption growth** ($\Delta c_{i,t}$): log-difference of per capita personal consumption in constant local currency units.
- **Real GDP growth** ($\Delta y_{i,t}$): log-difference of GDP in constant local currency units.
- **Income inequality** ($\text{IncShare}_{i,t}$): After-tax income share of the 10% of population; simple average of all available observations for country i between year $t-4$ and year t.
- **Downturn** ($\text{Downturn}_{i,t}$): 0/1-indicator that equals one if real GDP growth in country i in year t was negative (i.e., $\Delta y_{i,t} < 0$).
- **Financial downturn** ($\text{F-Downturn}_{i,t}$): 0/1-indicator that equals one if real GDP growth in country i in year t was negative and there was either a banking, sovereign debt, or currency crisis in country i between year $t-2$ and year t, according to the chronology of Laeven and Valencia (2020).
- **Normal downturn** ($\text{N-Downturn}_{i,t}$): 0/1-indicator that equals one if real GDP growth in country i in year t was negative and there was no banking, sovereign debt, or currency crisis in country i between year $t-2$ and year t, according to the chronology of Laeven and Valencia (2020).
- **Emerging market indicator** (EME_i): 0/1-indicator for whether country i is an emerging economy, according to Table A-1.

TABLE A-1: Sample of Countries

Advanced Economies	Emerging Market Economies	
Australia, 1981-2018	Angola, 2004-2018	South Korea, 2006-2016
Austria, 1987-2019	Albania, 1999-2014	Lebanon, 2011-2015
Belgium, 1985-2019	United Arab Emirates, 2014-2018	Sri Lanka, 2004-2019
Canada, 1981-2017	Argentina, 1995-2019	Lithuania, 1997-2019
Switzerland, 1982-2019	Armenia, 2003-2019	Latvia, 1997-2019
Germany, 1991-2019	Azerbaijan, 2003-2009	Morocco, 2001-2017
Denmark, 1987-2019	Bulgaria, 1992-2019	Moldavia, 2005-2019
Spain, 1981-2019	Bosnia & Herzegovina, 2008-2015	Mexico, 1989-2019
Finland, 1987-2019	Belarus, 1998-2019	North Macedonia, 2009-2019
France, 1981-2019	Bolivia, 1981-2019	Mongolia, 2012-2019
United Kingdom, 1981-2019	Brazil, 1981-2019	Mauritius, 2006-2019
Ireland, 1987-2019	Botswana, 1985-2019	Malaysia, 1984-2019
Italy, 1986-2019	Chile, 1987-2019	Namibia, 2003-2019
Japan, 2008-2017	China, 2002-2018	Nigeria, 2009-2013
Netherlands, 1983-2019	Congo, 2005-2015	Peru, 1997-2019
Norway, 1981-2019	Colombia, 1992-2019	Philippines, 2007-2019
Portugal, 2003-2019	Costa Rica, 1981-2019	Panama, 1981-2017
Sweden, 1981-2019	Cyprus, 2004-2019	Poland, 1997-2019
United States, 1981-2018	Czechia, 1992-2019	Paraguay, 1990-2019
	Dominican Republic, 1986-2019	Palestine, 2005-2018
	Algeria, 1988-2015	Romania, 1992-2019
	Ecuador, 1994-2019	Russia, 1998-2019
	Egypt, 2001-2018	El Salvador, 1991-2019
	Estonia, 1995-2019	Serbia, 2012-2019
	Gabon, 2005-2019	Slovakia, 1995-2019
	Georgia, 2012-2018	Slovenia, 1993-2019
	Greece, 1995-2019	Eswatini, 2000-2018
	Guatemala, 1986-2018	Thailand, 1988-2019
	Honduras, 2013-2019	Tunisia, 1985-2013
	Croatia, 2009-2019	Turkey, 1989-2019
	Hungary, 1993-2019	Ukraine, 1992-2019
	Indonesia, 1994-2019	Uruguay, 1992-2019
	Iran, 1986-2017	Venezuela, 1981-2010
	Israel, 1981-2018	Vietnam 2019-2019
	Jordan, 1986-2014	Kosovo, 2008-2019
	Kazakhstan, 1996-2019	South Africa, 1993-2018

NOTE: Date ranges refer to the first and last appearance in the panel.

A.2 Sensitivity Analysis

As noted in the main text, our definition of an economic downturn corresponds to a year of negative real GDP growth. As a robustness check, we re-estimated the baseline specification using a less severe definition of a downturn. Specifically, this alternative indicator equals one when real GDP growth in country i in year t falls two percentage points below the country's average real GDP growth—that is, $\Delta y_{i,t} < [\Delta y_{i,\cdot} - 0.02]$, where $\Delta y_{i,\cdot} = T_i^{-1} \sum_{t=1}^{T_i} \Delta y_{i,t}$. This milder definition of an economic downturn identifies 23% of country-year observations in the panel as downturns (20.5% in AEs and 24.1% in EMEs), compared with 12% under our original definition.

TABLE A-2: Income Inequality and Consumption Growth
(Alternative Definition of an Economic Downturn)

	Dependent Variable: $\Delta_{h+1} c_{i,t+h}$		
Explanatory Variable	$h = 0$	$h = 1$	$h = 2$
$\text{IncShare}_{i,t-1}$	−0.003	0.036	0.110
	(0.051)	(0.122)	(0.223)
$\text{IncShare}_{i,t-1} \times \text{EME}_i$	−0.056	−0.114	−0.167
	(0.067)	(0.167)	(0.277)
$\text{Downturn}_{i,t-1}$	0.516*	0.354	0.116
	(0.261)	(0.658)	(0.761)
$\text{Downturn}_{i,t-1} \times \text{EME}_i$	−4.156***	−6.213**	−7.411*
	(1.273)	(2.482)	(3.931)
$\text{IncShare}_{i,t-1} \times \text{Downturn}_{i,t-1}$	−0.122***	−0.247***	−0.202***
	(0.009)	(0.021)	(0.019)
$\text{IncShare}_{i,t-1} \times \text{Downturn}_{i,t-1} \times \text{EME}_i$	0.074*	0.128	0.165
	(0.039)	(0.077)	(0.116)
$\Delta c_{i,t-1}$	0.375***	0.556***	0.468**
	(0.066)	(0.164)	(0.233)
$\Delta c_{i,t-1} \times \text{EME}_i$	−0.292***	−0.449**	−0.417
	(0.086)	(0.188)	(0.260)
R^2	0.274	0.250	0.211
Pr > $\lvert CD \rvert$[a]	0.132	0.250	0.211
No. of countries	91	91	91
Observations	2,037	1,962	1,884

NOTE: Sample period: annual data from 1981 to 2019. $\Delta_{h+1} c_{i,t+h}$ denotes the log-difference of real per-capita consumption in country i from year $t-1$ to year $t+h$. The entries in the table denote the OLS estimates of coefficients on the specified explanatory variable: $\text{IncShare}_{i,t}$ = income share of top 10%; $\text{Downturn}_{i,t}$ = 0/1-indicator of economic downturns; and EME_i = 0/1-indicator for whether a country is an emerging market economy. All specifications include country fixed effects and time fixed effects, where the latter are allowed to differ across AEs and EMEs. Asymptotic standard errors reported in parentheses are computed according to Driscoll and Kraay (1998) with the "lag length" parameter equal to $h+1$: * $p < .10$; ** $p < .05$; and *** $p < .01$.
[a] p-value for the Pesaran (2015) test of the cross-sectional dependence of regression residuals.

The results of this exercise are reported in Table A-2. Qualitatively, they are very similar to the results reported in the main text. As before, income concentration does not affect consumption growth during normal times. However, greater post-tax income inequality is strongly associated with slower consumption growth in the aftermath of economic downturns. In quantitative terms,

moving from the 10th to the 90th percentile of our income concentration measure is estimated to shave off almost 1.5 percentage points from the cumulative consumption growth two years after the downturn. Interestingly, under this milder definition of a downturn, the difference in the estimated effect between AEs and EMEs is no longer statistically significant.

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