

**SOCIAL CONFLICT AND RESILIENCE IN THE FACE
OF ECONOMIC SHOCKS**

by

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Abstract

This essay aims to test whether adjustment to shocks tends to be worse in countries with deep latent social conflicts and poor institutions of conflict management. Using a cross-section analysis for the period 2004–2010 and a country-fixed effects model for the period 1964–2011, I find mixed results towards the hypothesis. While there are signs that social cleavages (proxied by indicators of income inequality and ethnic fragmentation) impede societies' effectiveness in adjusting to shocks, the results are not very robust. Institutions of conflict management (proxied by indicators of democratic rights) do help predict the change in the growth rate. However, the result that institutional variables mitigate the effects of social conflicts is not detected in the country-fixed effects model.

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1 Introduction

As pointed out in the first chapter of *Manias, Panics, and Crashes* (Kindleberger and O’Keefe, 2011), the late 1970s marked the first of four waves of post-war economic crises. The first wave was the Latin American debt crisis in the 1980s when Mexico, Brazil, Argentina, and ten other developing countries defaulted on their external loans. The second wave was in the 1990s which swept over Japan, Spain and three Nordic countries—Finland, Norway, and Sweden. The third wave was the Asian financial crisis in 1997 which first erupted in Thailand, Malaysia, and Indonesia, subsequently spreading to South Korea and beyond the region to Russia and Latin American countries. The fourth wave was the Great Recession in 2007, triggered by the decline of real estate prices in the United States, Britain, Spain, Ireland and Iceland, leading to the European Sovereign Debt Crisis in the Eurozone.

In the face of all these crises and the associated growth collapses, how did countries fare? What explains the fact that some countries bounced back more promptly than others? Rodrik (1999) proposes that adjustments to (external) shocks tended to be prolonged in countries with deep latent social conflicts and poor institutions of conflict management during the late 1970s. This essay attempts to test Rodrik’s “Social Conflict Hypothesis” for the period from 1964 to 2011.

The proposed period is of interest for three reasons. Firstly, economic shocks, especially on emerging countries during the period, were no milder than before. The Tequila crisis and the Asian financial crisis had very large effects on Latin American and South East Asian countries. But the recovery processes of countries differed.

South East Asian countries typically enjoyed faster recovery than Latin American countries. Secondly, social characteristics between regions were very different. Social conflicts, as measured by inequality of income, ethnic cleavages, and the lack of social trust, were arguably more pressing in Africa and Latin America than in East Asia. Lastly, the political regimes between regions and countries varied. For instance, Latin America underwent the longest and deepest wave of democratization in its history. Meanwhile, a number of South East Asian countries had prospered under authoritarianism.

The core idea of Rodrik’s social conflict hypothesis can be summarized by the equation:

$$\Delta\text{growth} = -\text{shocks} \times \frac{\text{latent social conflict}}{\text{institutions of conflict management}} \quad (1)$$

The hypothesis argues that exogenous shocks which trigger negative growth are magnified by social conflict yet contained by effective institutions of conflict management. In particular, Rodrik (1999, p.386) uses the term latent social conflict to “indicate the depth of pre-existing social cleavages in a society, along the lines of wealth, ethnic identity, geographical region, or other divisions”. Proxies for it include measures of inequality, ethnic and linguistic fragmentation, and social trust.

By institutions of conflict management, Rodrik means “institutions that adjudicate distributional contests within a framework of rules and accepted procedures—that is, without open conflict and hostilities. Democratic institutions, an independent and effective judiciary, an honest and non-corrupt bureaucracy, and in-

stitutionalized modes of social insurance are among the most significant of conflict-management institutions” (Rodrik, 1999 p.386). Proxies include measures of civil liberties and political rights, the quality of governmental institutions, rule of law, competitiveness of political participation, and public spending on social insurance.

In Rodrik (1999), volatility of the terms of trade, an external shock, helps explain the growth difference between the periods 1960–1975 and 1975–1989. However, this external shock is not exclusive. Varieties of shocks are abundant. Wars and related casualties per capita, volatility in external transfers, and spillovers of financial crises are among the examples. Note that in contrast to latent social conflicts and institutions of conflict management which are relatively stable, shock variables are often volatile and taken as exogenous. The hypothesis stresses that the interaction of the three variables determines the persistence of countries’ growth.

But how do shocks, social conflict and institutions interact with one another? Rodrik (1998) provides a simple model for the hypothesis. Rodrik’s idea is that social conflict could result in or exacerbate coordination failure. In the model, two independent groups must decide ex ante how to distribute the total output (let it be unity) of the economy. Given a negative shock, the economic pie shrinks to $1 - \Delta$. Chances are that: (1) Both do not fight for the resources and each claims $(1/2)(1 - \Delta)$ of the output; (2) Both fight to claim $1/2$ of the output, $1 - \Delta - K$, where K is the deadweight loss due to coordination failure; (3) One fights and claims $1/2$ while the other party does not and thus claims the rest of the resources. From each group’s perspective, the optimal strategy depends on the expected values of fighting or cooperating. Latent social conflict and conflict management institutions are relevant

in decision making once they are parameterized and attached to the probabilities of rewards. The essence is this: when conflict management institutions are strong, the dominant strategy for each group is to cooperate. When conflict management institutions are intermediate, the extent of latent social conflict determines the dominant strategy and the economic outcome.

Although Rodrik has confirmed the social conflict hypothesis by studying the period, 1960–1989, there are alternative hypotheses in explaining the severity of shocks on countries' growth. For instance, Reinhart and Rogoff (2009, 2011) argue that debt intolerance¹ could be a serious impediment on growth. A high level of indebtedness could magnify the effects of banking crises, increasing the chances of debt crises. Mian *et al.* (2014) document the increasing political polarization across 70 countries after financial crises from 1981 to 2008 and argue such polarization could reduce the chance of constructive financial reforms. Whether the social conflict hypothesis still stands against the many episodes of growth collapses in the later period is debatable.

This essay is structured as follow: Section 3 discusses some related research. Section 4 describes the criteria and the sample collection process. A cross-country study for 2004–2010 is detailed in section 4, followed by a panel analysis for 1964–2011 in section 5. Section 6 concludes the study.

¹Debt intolerance is defined as the duress many emerging countries face at an external debt level that would seem manageable by standard of advanced countries. The precise threshold of indebtedness, however, is not absolute. See Reinhart and Rogoff (2010) and Furceri and Zdzienicka (2012) for discussion of debt thresholds.

2 Related Research

This essay draws from three stands of the literature. Literature in empirical growth analyses, financial crises, and some selected works on the variables highlighted in the social conflict hypothesis are briefly reported in this section.

There is a vast literature on cross-country, long-term, growth differences between regions. Stylized facts like the “lost decade” in Latin America, the “poverty trap” in Sub-Saharan Africa and the growth miracle in South East Asia have been studied extensively since the early 1990s. However, as argued by Easterly *et al.* (1993), the fundamental fact that economic growth in emerging countries is not persistent over time has been ignored by the literature. While some countries have steady GDP per capita paths, others have rapid growth followed by stagnation (plateaus), rapid growth followed by decline (mountains) or even catastrophic falls (cliffs), continuous stagnation (plains), or steady decline (valleys), as noted by Pritchett (2000). Given that, studying merely the long-run average growth across countries could be misleading. Two countries sharing an identical average growth rate typically have very distinct growth paths.

Inspired by Easterly *et al.* (1993) and Pritchett (2000), a number of researchers examined structural shifts in GDP series. This approach looks at the turning point of the growth series and asks questions like “What kicks start growth?” and “What triggers and determines the extent of growth collapses experienced in countries?” Rodrik (1999), as discussed, belongs to this literature. Other similar studies include Ben-David and Papell (1997) who identified structural breaks for 74 coun-

tries up to the 1980s, Hausmann *et al.* (2005) who identified and studied episodes of growth acceleration since the 1950s and Jones and Olken (2008). Though the recent literature such as Hausmann *et al.* (2006) and Berg *et al.* (2012) had moved on to using duration analysis to take into account of unfinished growth spells or stagnation, the spirit of Easterly *et al.* (1993) and Pritchett (2000) remains.

The results of the literature are mixed. Overall, one tentative conclusion is that factors that ignite growth are different from those that help sustain it. By the same token, factors that cause a growth collapse generally do not explain why a country is stagnated. Growth accelerations are difficult to predict. They can get going even without major political reforms and have little association with capital accumulation (Jones and Olken, 2008; Hausmann *et al.* 2005). Yet, sustaining growth seems to require sound institutions, openness and property rights (the logic of the Washington Consensus). On the other hand, growth collapses are often triggered by a range of identifiable “shocks” including wars, economic crises, export collapses and political regime shift. But the same factors often cannot determine the duration of crises (Hausmann *et al.*, 2006). Thus, growth accelerations and collapses are essentially asymmetric events.

Unlike Rodrik (1999), this essay does not employ any structural break analysis. Instead, I identified episodes of growth collapse using several economic criteria. Such a method is not uncommon in the literature. Reddy and Minou (2009) study “real income stagnation” which they define as long and uninterrupted periods (at least 4 years) of negative or negligible growth. They find that countries that suffered spells of real income stagnation were more likely to be in Latin America or Africa,

underdeveloped, conflict ridden, and with high dependence on primary commodity exports. Countries which stagnated in the 1960s were more likely to experience “real income stagnation” in the 1990s. A similar result is also reported by Hausmann *et al.* (2006) who find that countries have a harder time exiting the state of growth collapse the longer that they spend in it. These findings seem to be consistent with models of poverty traps or big shocks to the fundamentals.

Since the 1980s, growth collapses have been increasingly associated with financial crises. In particular, financial crises typically occur at the peak of the business cycle and after the credit boom (Gorton, 1988) and are closely related to sudden stops in capital flows (Rodrik and Velasco, 1999 and Calvo *et al.*, 2006). Demirgüç-Kunt and Detragiache (1998) examine the period 1980–1994 and find that low growth, excessively high real interest rates, and high inflation significantly could be the determining factors of systemic problems. The authors also track if institutional variables could reduce the likelihood of systemic crises. Interestingly, while law and order indicators do lower the chance of systemic crises, an explicit deposit insurance scheme raises the likelihood (perhaps due to a moral hazard problem). Explicit deposit insurance schemes also seem to increase the fiscal cost of financial crises. Although the sample size of Demirgüç-Kunt and Detragiache (1998) is small, these results cast doubt on Rodrik’s hypothesis that public spending on social insurance could contain the negative impact of shocks.

The impact of financial crises on economic growth is sizable and has been widely documented. Reinhart and Rogoff (2009) find that peak-to-trough declines following a crisis average about 9%. Furceri and Zdzienicka (2012) study debt crises

in 154 countries over 1970–2008 and find long-lasting output losses—up to 10% after 8 years. Kaminsky and Reinhart (1999) analyse twin crises, a combination of banking and currency crises, in 20 countries for the period 1970–1995. They report that economies which suffered twin crises were more frail, and the crises were far more severe. Cerra and Saxena (2008) study 190 countries for the period 1960–2001 and find that downturns associated with a banking or currency crisis resulted in output losses of about 7.5% of GDP over the subsequent 10 years. They highlight the persistence of output loss related to financial crises and some types of political crises. In contrast, Calvo *et al.* (2006) find swift recovery in crises of systemic sudden stops of capital flows in 33 emerging countries during the period 1980–2003. They dub this the “Phoenix Miracle”, a case in which output recovers quickly with weak if not no recovery in capital inflows and investment. Overall, crises are usually associated with medium-term to long-term output contraction. They often come in clusters, and are closely connected to a weak macroeconomic environment. However, the interaction between financial crises and the growth dynamic is not entirely clear. The causality is not clear due to reverse causation, or the influence of omitted variables.

The last part of this section discusses some selected works on the variables highlighted in the social conflict hypothesis. The recent crisis has sparked a heated debate on whether inequality renders countries vulnerable to economic crises.² Atkinson and Morelli (2011) study the relationship between increases in income inequality and economic crises. They find little support for a causal relationship between the two. Inequality could go up or down before or after crises. Yet, there is some medium to long-run evidence on inequality and growth collapse. Alesina and Perotti (1996)

²See Van Treeck (2014) for a survey for this literature.

argue that inequality could cause political and institutional instability, thereby lowering the investment level and growth of a country. Two IMF discussion notes by Berg and Ostry (2011) and Berg *et al.* (2014) study medium-term growth and growth duration and conclude that “lower net inequality is robustly correlated with faster and more durable growth, for a given redistribution” (Berg, 2014, p.6).

As for the nexus between growth and institutional quality, the literature is largely affirmative. Acemoglu *et al.* (2001, 2003) use colonists’ mortality rates and initial population density as instrumental variables to demonstrate that institutions are important determinants for long-run growth and the frequency of crises. Rodrik *et al.* (2004) further the Acemoglu *et al.* (2001) argument by controlling for the effects of trade and geography.³ Despite research highlighting democracy as a high-quality institutions,⁴ the relationship between democratic institutions and growth is hard to discern. To mention some of the less optimistic studies, Barro (1998) finds a U-shaped relationship from democracy to growth. Persson and Tabellini (2006) notice that democracy and economic liberalization often come hand in hand. But countries liberalizing their economies first then extending political rights seem to perform better. They argue that “Democracy” could be too blunt a concept. After all, “institutional functions may not uniquely map into institutional forms.” (Rodrik, 2007, p.189). Different forms of institutions could perform the same functions.

All in all, it is safe to say that the literature gives a less definite relationship than the social conflict hypothesis does.

³As noted in Rodrik (2008), finding an instrumental variable does not prove any theory. There are a variety of cross-country differences not explained by the two instruments. Countries such as Japan and Turkey have never been colonized before. Yet, the growth difference is obvious.

⁴For instance, see Rodrik (1997) and Rodrik and Wacziarg (2005).

3 Identifying Growth Collapses

I used real GDP per capita data from the Penn World Table 8.1 and extended it from 2012 to 2015 using the IMF’s World Economic Outlook (WEO) database. At the outset, I identified breaks by observing obvious turning points in the GDP per capita series from 1970 to 2010, with a minimum of 5 years between breaks. Break years are selected: if either (1) the growth rate of the particular year is less than 1%; or (2) an abrupt decline in the growth rate is associated with the year; and (3) the 4-year average growth rate prior to the year must be positive. This picks up abrupt output movements that reflect volatility, business cycles, or short-lived commodity price busts. It gives a sample size of 453 episodes of growth collapse. Of the 453 observations, 90% of them are associated with negative growth. The rest are included because of the huge fall in the growth rate, a decline of 4.3% on average.

To ensure the sample is representative, I checked whether the break years in my sample were discussed in the literature. Firstly, break years were matched with Berg *et al.* (2012, 2014)⁵ and Reddy and Minoiu (2009). Berg *et al.* (2012, 2014) employ tests for multiple structural breaks in times series when both the total number and locations of breaks are unknown, following the procedures proposed by Bai and Perrson (1998) and Antonshin *et al.* (2008). A total of 93 observations were matched. Using the definition of “real income stagnation” in Reddy and Minoiu (2009), I included break years followed by at least 4 years of negative or negligible growth. I also included break years which are preceded by civil war and financial crises up to $t - 3$ years. The civil war data in Cerra and Saxena (2008) is based

⁵I matched the break years using data from Berg *et al.* (2014). Their analysis on break years is discussed in detail in Berg *et al.* (2012. p.150).

on Sarkees (2000), Correlates of War Intra-State War Data, 1816–1997 (v3.0). The dataset identifies the participants of intrastate wars. Dummy variables are assigned with a value of unity for a country in the years of conflicts, and zero otherwise. I extended Cerra and Saxena’s (2008) data using an updated version of Sarkees (2000), Correlates of War Intra-State War Data, 1816–2007 (v4.0) (Sarkees, 2010). The dummy variables for banking, currency and debt crises are constructed from the widely used database by Valencia and Laeven (2012) in a similar fashion. This gives a sample size of 223 observations. Lastly, I enlarged the sample by including episodes which coincide exactly with either large negative global interest rate shocks (increases in the U.S. interest rate) or terms of trade shocks (reductions in the terms of trade). The data I referred to are from Berg *et al.* (2014). This increases the sample size to a total of 363 observations.

Figure 1 compares the full sample (453 observations) and the sample that has observations matched by the literature (363 observations), while figure 2 shows the sample which will be used in the panel analysis (394 observations) and the one identified by the literature (311 observations). The two samples largely coincide with one another. In addition to the four waves of financial crises noted by Kindleberger and O’Keefe (2011), the two samples reflect the oil crisis of 1973 as well. All in all, the samples encompass episodes of growth collapse triggered by crises such as financial crises, civil wars, macroeconomic volatility and external shocks. This sets the tone to test whether latent social conflicts and political instability may hamper countries’ effectiveness in responding to shocks.

Fig. 1: Comparing the Full Sample and the Sample Identified by the Literature

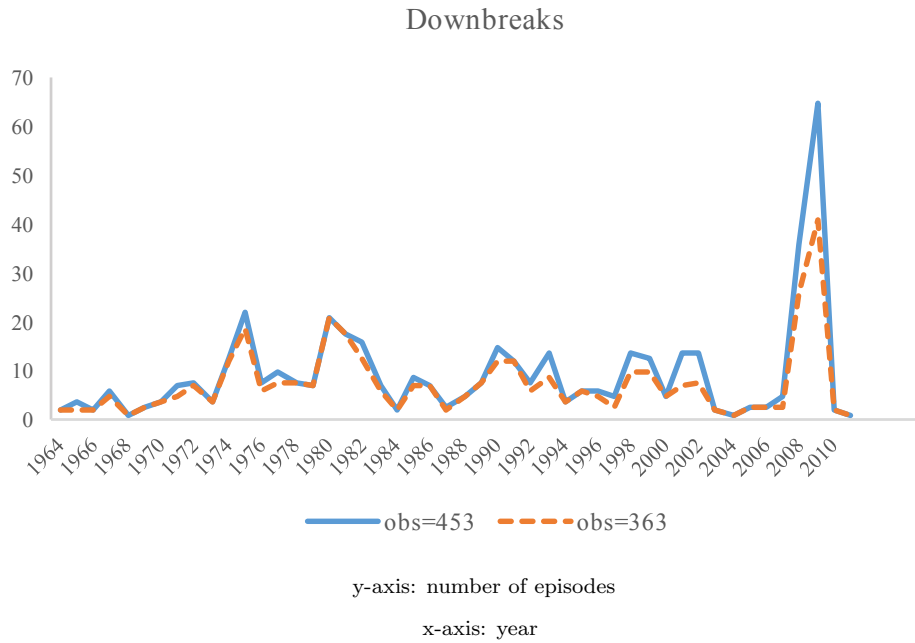
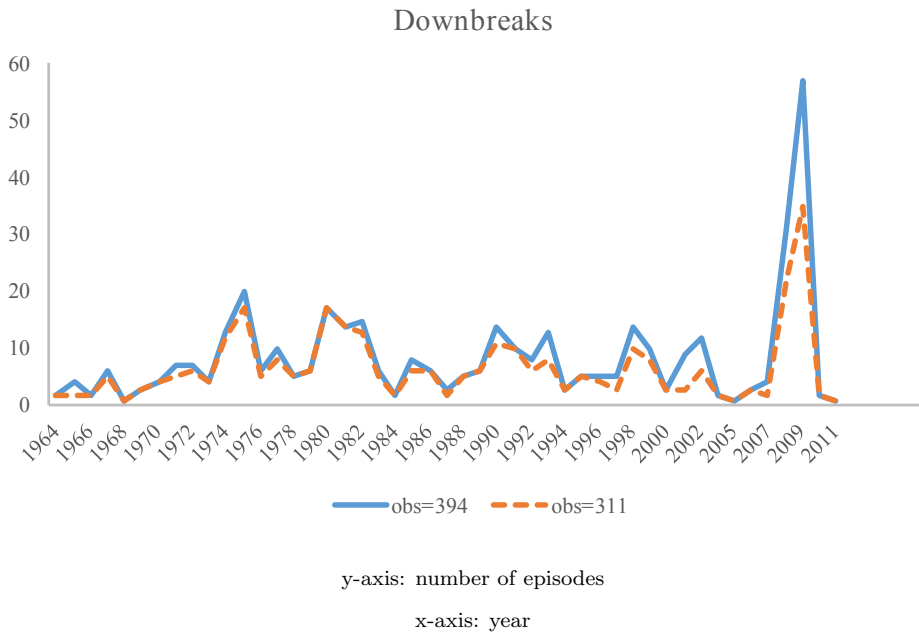


Fig. 2: Comparing the Sample used Panel Analysis and the Sample Identified by the Literature



4 A First Look at the Period 2004–2010

Given the high frequency of growth collapse in the period of 2008–09 and the unusually “quiet period” from 2003 to 2007, I begin testing the social conflict hypothesis in 2000s. This section reports the results of the cross-country analysis. A total of 115 countries (observations) are taken from the full sample using episodes of growth collapse from 2004–2010. Cross-sectional analysis is advantageous since it allows uses of data that are relatively scarce (such as index of ethnolinguistic fragmentation), a variety of measures of social conflict and institutions, and comparison between economic performance between regions.

Table 1 displays the results of OLS regressions. The dependent variable is the average growth differential between two subperiods:

$$growth [t + 1, t + 5] - max. [growth(t - 6, t - 5, t - 4), t-1]$$

where the first term, $growth [t + 1, t + 5]$, is the 5-year average growth rate after t and $[growth(t - 6, t - 5, t - 4), t-1]$ is the maximum of 4-year, the 5-year or 6-year averages growth rate before t . Using the maximum of the 4-year, the 5-year or 6-year averages, instead of one particular cut-off, say the 5-year average, gives a more accurate number representing the growth trend prior to t (recall that the 4-year growth average before t must be positive). The growth rate at the break year is excluded. All regressions contain the following variables: regional dummies for Latin America, Asia, Eurozone area,⁶ lagged growth (average growth rate five year

⁶Classification of regions and income group of countries used is adopted from Cerra and Saxena (2008), except for China which I put it in the dummy *Asia* instead of transitional countries. Latvia

Table 1: Explaining growth collapse in 2004–2010

	Dependent Variable: <i>Five-year average growth differential at t</i>				
	(1)	(2)	(3)	(4)	(5)
<i>log(GDP/cap.), t</i>	−0.199 (0.292)	−0.321 (0.281)	−0.561 (0.290)	−0.577* (0.281)	−0.322 (0.311)
<i>growth [t-5,t-1]</i>	−0.814*** (0.130)	−0.874*** (0.0893)	−0.889*** (0.0942)	−0.847*** (0.0950)	−0.775*** (0.133)
<i>Asia</i>	2.427* (0.977)	1.381 (0.719)	1.567* (0.744)	1.563* (0.686)	2.782** (1.031)
<i>Latin America</i>	1.719* (0.712)	0.916 (0.803)	1.216 (0.697)	0.740 (0.673)	1.519* (0.702)
<i>Africa</i>	0.203 (0.968)	−0.983 (0.974)	−0.0707 (0.923)	−0.0535 (0.885)	0.492 (1.085)
<i>East Europe</i>	0.683 (0.739)	0.258 (0.684)	0.497 (0.776)	0.0551 (0.733)	0.626 (0.736)
<i>Eurozone</i>	−0.770 (0.447)	−1.347** (0.402)	−1.022* (0.419)	−1.395** (0.433)	−1.149* (0.452)
<i>invest. difference</i>	0.0939 (0.0502)	0.156*** (0.0444)	0.132** (0.0457)	0.131** (0.0443)	0.101* (0.0449)
<i>interest rate shocks</i>	−0.766* (0.334)	−0.898** (0.315)	−1.006** (0.320)	−1.038** (0.309)	−0.727* (0.352)
<i>gini11</i>		−0.00494 (0.0203)			
<i>ELF90</i>			−2.173** (0.794)	−1.919* (0.773)	
<i>polity2</i>				0.0837* (0.0336)	
<i>civil violence</i>					−0.00825 (0.0447)
<i>prcl7215</i>					0.308 (0.179)
constant	3.547 (3.012)	6.063* (2.590)	8.672** (2.898)	8.372** (2.843)	3.214 (3.174)
Adjusted R^2	0.545	0.714	0.637	0.651	0.558
Observations	113	93	107	107	111

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Proxies in table 1 are calculated using $(t - 4, t + 4)$ averages

before t), and per capita GDP at t . According to Rodrik (1999), the lagged-growth term allows for a convergence effect or mean reversion of growth. It enters the model with a negative coefficient and highly statistical significance level in all specifications. GDP per capita and regional dummies aim to capture the structural characteristics correlated with income level and geographical locations. Social conflict and conflict management variables are nine-year averages $[t - 4, t + 4]$ around t . Robust standard errors are reported throughout.

Column (1) shows the baseline model with a total of 113 observations. Contrary to the positive signs of *Latin America*, and *East Europe*, the coefficient of *Eurozone* reflects the fact that the Great Recession, followed by the Eurozone debt crises, has dragged down the growth of Eurozone countries. The picture depicted is the reverse of Rodrik (1999), with now emerging countries enjoying higher growth than industrial countries after the crises. This result partly reflects the “long slump” of advanced countries since the crisis, and partly reflects the catch-up of emerging countries due to the wide “convergence gap” since the 1970s (Rodrik, 2012).

Controlling for the difference in investment rate between two sub-periods improves the adjusted R^2 from 0.51 to 0.55 (model not shown). Obtained from the Penn World Table, the investment rate is defined as the share of gross capital formation at current PPPs. The effect of the change in investment is considerable. According to the point estimates, a decline by a 10 percent-point difference of investment rate accounts for a loss of at least 0.9 percentage of growth. Such a big impact seems to be consistent with Hall (2014) who argues a shortfall in business capital and total

and Luxembourg are not included in the dummy, *Eurozone* because they were not part of the zone until 2014 and 2015 respectively.

factor productivity⁷ has contributed to almost half of the output loss in the U.S.

The last variable in column (1) is *interest rate shocks* constructed from Berg *et al.* (2014). *Interest rate shocks* reflects whether the country is adversely affected by the increase in the U.S interest rate. It takes on the value 0 to 4, with 4 denoting a country receiving 4 consecutive shocks in the period $[t - 3, t]$, 0 meaning no shock during the period. As shown in Table 1, it enters the model with a statistically significant negative sign in all specifications.

Next, I introduce an indicator of income inequality in column (2). *gini* is from Milanovic (2014) who provides Gini coefficients calculated exclusively from household surveys up to 2012. In contrast to Rodrik (1999), the variable is not statistically significant. In fact, using other proxies for income inequality or breaking down of the 7-year average to 4-year ones before and after the break year does not alter the findings. Income inequality does not seem to hamper countries' effectiveness in responding to shocks for the period 2004–2010.

In column (3), I replace *gini* with an index of ethnolinguistic fragmentation, *ELF90*. The index measures the likelihood that any two randomly drawn individuals in a country will not be members of the same ethnolinguistic group. The data is obtained from Alesina *et al.* (2003). *ELF90* enters the model with a statistically significant negative coefficient, which is consistent with the social conflict hypothesis. The adjusted R^2 improves to 0.64. One drawback of *ELF90* is that it was constructed using data in the 1900s. To tackle this problem, I used another index of ethnolinguistic fragmentation (*ELF15*) from Desmet *et al.* (2015). The

⁷Controlling for difference in total factor productivity gives similar results to Table 1. But the observations fall below 100.

correlation between the two indices is 0.73 (57 observations), suggesting a moderate change over the decade. The coefficient's sign and significance level basically remain unchanged. However, using the index from Desmet *et al.* (2015) restricts the number of observation to only 58 (results not shown).

Column (4) adds a proxy for conflict management institutions, *polity2*, to the model in column (3), while holding the number of observations at 107. Obtained from the PolityIV database, *polity2* is an indicator of democracy and autocracy based on three criteria: (a) openness of political participation (b) competitiveness of executive recruitment and (c) constraints on the chief executive. It ranges from -10 to 10, with a lower value indicating a lower level of democratic political system. The indicator enters the model with a statistically significant positive coefficient. The R^2 of the regression rises slightly from 0.64 to 0.65. Meanwhile, the coefficient of *ELF90* falls but remains negative and significant. The results echo with the social conflict hypothesis in a sense that conflict management institutions help contain the effects of latent social conflict in the face of economic shocks.

I introduce *civil violence* and *prcl7215* in column (5). Taken from the Major Episodes of Political Violence (MEPV) dataset, *civil violence* captures the level of societal violence within states based on episodes of armed conflict. On a scale from 1 to 10, a higher value of *civil violence* indicates a higher level of societal violence in states in that year. Here, only data before the break year is used for *civil violence* to avoid endogeneity.⁸ Also used in Rodrik (1999), *prcl7215* is a composite index of democracy constructed from the indicators of political rights and civil liberties

⁸Specifically, *civil violence* is the sum of the index for the period $[t - 4, t]$. Averaging the index also gives statistically insignificant results.

compiled by Freedom House. The index ranges from 0 to 7, with 7 indicating a fully democratic system. Unlike *polity2*, *prcl7215* encompasses a broader range of criteria that include electoral process, participation and the functioning of the government, freedom of expression, organizational rights, rule of law, and individual rights. Yet, the two indicators provide little explanatory power to the growth differential. Neither of them is statically significant when added independently to the baseline model.

Overall, evidence in the period 2004–2010 does not seem to consistently support the hypothesis. Income inequality does not explain why some countries recovered faster than others. While the role of conflict management institutions does support the hypothesis to a certain extent, the relationship seem to be unstable.

To shed light on the role of institutions, I adopted another set of proxies on institutional qualities from the World Development Indicators (WDI), namely *rule of law*, *corruption control* and *regulatory quality* in Table 2. The dependent variable is the same as before. All three indices range from approximately -2.5 to 2.5, with higher values denoting better institutional quality. A few observations stand out in Table 2. Before adding the control, *TFP difference*,⁹ to the model, none of the three institutional variables is significant. With the inclusion of *TFP difference*, *regulatory quality* and *rule of law* become significant¹⁰ while *investment difference* and, in some cases, *interest rate shocks* become statistically insignificant.¹¹ The adjusted R^2 rises slightly compared to the one in baseline model (0.54). The loss of significance of the regional dummy, *Eurozone*, is also an encouraging sign that institutions help explain

⁹ *TFP* is a measure of output(GDP) divided by a measure of input(capital and labour).

¹⁰ *prcl7215* in Table 1 also turns to be highly significant after adding *TFP difference* to the model.

¹¹ Multicollinearity does not seem to be the problem as variance inflation factors from the three regressions are no greater then 2.5 and correlations no greater than /0.41/.

the growth differential. The results indicate that *regulatory quality* and *rule of law* were of relevance during the Great Recession, as governments took on a more active role in dealing with the financial crises.

Table 2: Regressions with composite indicators and alternative proxies for institutions

	Dependent Variable: <i>Five-year average growth differential at t</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>log(GDP/cap.), t</i>	-0.571* (0.287)	-0.338 (0.282)	-0.213 (0.284)	-0.538 (0.563)	-0.385 (0.558)	-0.415 (0.439)
<i>growth [t-5,t-1]</i>	-0.855*** (0.0960)	-0.826*** (0.0899)	-0.797*** (0.125)	-0.702*** (0.148)	-0.723*** (0.143)	-0.717*** (0.141)
<i>Asia</i>	1.813* (0.753)	1.740* (0.729)	2.539* (1.001)	2.601** (0.915)	2.736** (0.918)	2.470** (0.898)
<i>Latin America</i>	1.202 (0.723)	1.060 (0.653)	1.934* (0.753)	1.821* (0.719)	1.637* (0.738)	1.626* (0.739)
<i>Africa</i>	-0.0593 (0.966)	-0.393 (1.044)	0.179 (0.942)	0.986 (1.405)	1.038 (1.387)	1.137 (1.351)
<i>East Europe</i>	1.359* (0.678)	1.123* (0.508)	1.722* (0.704)	-0.248 (0.898)	-0.140 (0.944)	-0.494 (0.895)
<i>Eurozone</i>	-1.046* (0.461)	-1.574*** (0.455)	-0.800 (0.492)	-0.785 (0.411)	-0.659 (0.412)	-0.797 (0.414)
<i>invest. difference</i>	0.130** (0.0402)	0.149*** (0.0403)	0.102* (0.0467)	0.104 (0.0716)	0.100 (0.0716)	0.105 (0.0736)
<i>conflict1</i>	-0.168** (0.0508)					
<i>conflict2</i>		-0.00201* (0.000776)				
<i>conflict3</i>			-0.00428* (0.00166)			
<i>interest rate shocks</i>				-0.923 (0.488)	-0.980* (0.489)	-0.951 (0.489)
<i>TFP difference</i>				0.0638* (0.0272)	0.0631* (0.0267)	0.0665* (0.0262)
<i>rule of law</i>				0.842* (0.364)		
<i>corruption control</i>					0.609 (0.318)	
<i>regulatory quality</i>						0.859** (0.316)
Constant	6.778* (2.940)	4.809 (2.896)	2.517 (3.005)	6.578 (5.076)	5.321 (5.075)	5.461 (3.972)
Adjusted R ²	0.633	0.707	0.525	0.552	0.542	0.553
Observations	107	93	113	87	87	87

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Proxies in table 1 are calculated using $(t - 4, t + 4)$ averages

While in Table 1 evidence for social conflict as an impediment to recovery is weak, there does seem to have some evidence when interaction between shocks,

social conflict and institutions are considered. In Table 2, column (1), (2) and (3) add three composite indicators of social conflict:

$$\begin{aligned} \text{conflict1} &= \text{interest rate shocks}_{00s} \times \text{ELF90} \times (10 - \text{democracy}) \\ \text{conflict2} &= \text{interest rate shocks}_{00s} \times \text{gini} \times (10 - \text{democracy}) \\ \text{conflict3} &= \text{interest rate shocks}_{00s} \times \text{civil violence} \times (10 - \text{democracy}) \end{aligned}$$

to the baseline model. The index, *democracy*, is one component of the *polity2* index, ranging from 0 to 10 (a higher value denotes a more democratic system). The conflict indicators are meant to capture the interaction of the key components of the hypothesis. The conclusion is that all indicators enter the model with statistically significant negative signs, hinting that poor institutional management and more severe social conflict do adversely affect the growth differential.

Lastly, as a robustness check, I relax the assumption of using one single break year as the turning point to two years for the countries which experienced negative growth in the year after t . The dependent variable is: 4-year average growth rate after t or $t + 1$ minus the maximum of 4-year, 5-year or 6-year average growth rate before t . The partial results are in Tables 3 and 4 below. In Table 3, I exclude interest rate shocks in the regression models since they are statistically insignificant in all specifications.¹² As a result, *ELF90* becomes statistically insignificant, while *ELF15* is still robust (see Table 3 column (3)). *prcl7215* is significant only after *interest rate shocks* is dropped (as in Table 3 but not in Table 13 in the appendix). On the other hand, *corruption control* becomes statistically significant and outweighs the effect of *TFP difference* (see Table 14 in the Appendix). On balance, econometric evidence

¹²See the appendix for the full model with interest rate shocks.

partially supports the social conflict hypothesis. In particular, the role of institutions as conflict management seems to be grounded. Yet, the role of social conflict in the period 2004–2010 is limited.

Table 3: Robustness check: Explaining growth collapse in 2004–2010

	(1)	(2)	(3)	(4)	(5)
<i>invest. difference</i>	0.0821 (0.0500)	0.145*** (0.0422)	0.144** (0.0437)	0.124** (0.0448)	0.0922* (0.0435)
<i>giniall</i>		0.0121 (0.0252)			
<i>ELF15</i>			-1.844* (0.898)		
<i>ELF90</i>				-1.299 (0.795)	
<i>polity2</i>				0.0849* (0.0368)	
<i>civil violence</i>					-0.0219 (0.0450)
<i>prcl7215</i>					0.370* (0.183)
Adjusted R^2	0.415	0.620	0.635	0.531	0.450
Observations	115	94	58	108	112

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5 Probing Further: Period 1964–2011

To study the reoccurring episodes of growth collapse, this section turns to a country-fixed effects model for the period 1964–2011, with a focus on income inequality and democracy.

Table 4: Robustness check: composite indicators and proxies for institutions

	(1)	(2)	(3)	(4)	(5)	(6)
<i>invest. difference</i>	0.119** (0.0442)	0.142** (0.0446)	0.0808 (0.0499)	0.0908 (0.0730)	0.0866 (0.0727)	0.0922 (0.0760)
<i>conflict1</i>	-0.145** (0.0500)					
<i>conflict2</i>		-0.00169** (0.000566)				
<i>conflict3</i>			-0.00543*** (0.00154)			
<i>interest rate shocks</i>				-0.487 (0.486)	-0.560 (0.493)	-0.525 (0.489)
<i>TFP difference</i>				0.0549* (0.0271)	0.0541 (0.0272)	0.0582* (0.0269)
<i>rule of law</i>				1.082** (0.350)		
<i>corruption control</i>					0.818* (0.363)	
<i>regulatory quality</i>						1.084** (0.329)
Adjusted R^2	0.553	0.644	0.422	0.415	0.399	0.415
Observations	108	94	115	87	87	87

Robust standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

5.1 Impediments to growth: Income Inequality and Debt

As discussed in section 2, there is no reason to believe that latent social conflict and conflict management institutions are the sole determinants of how fast a country recovers from shocks. Factors such as indebtedness of a country, macroeconomic environment, and even the type of economic shocks could affect a country's ability to recover. Therefore, in testing the social conflict hypothesis, I limit my sample to only countries that are matched with the Systemic Banking Crises Database from Valencia and Laeven (2012) in order to control for crises that occurred before the growth collapse. A total of 394 observations from the full sample are used. Table 5 displays the results of the country-fixed effects model with income inequality as the indicator of latent social conflict. To minimize the effects of overlapping episodes, I

Table 5: Impediments to growth (Valencia and Laeven (2012) data)

	Dependent Variable: <i>Four-year average growth differential at specific break years</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>log(GDP/cap.), t</i>	-3.517*** (0.829)	-2.807** (0.909)	-2.619** (0.951)	-2.961** (0.884)	-2.691** (0.965)	-0.839 (2.247)	1.156 (2.063)	-1.040 (2.158)	0.501 (1.997)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.753*** (0.110)	-0.664*** (0.0945)	-0.663*** (0.0977)	-0.684*** (0.0974)	-0.691*** (0.101)	-0.638** (0.209)	-0.684** (0.207)	-0.632** (0.204)	-0.682** (0.206)
<i>nordic crises</i>	0.331 (0.571)	0.283 (0.483)	0.269 (0.536)	0.352 (0.477)	0.357 (0.530)	0.976 (0.853)	0.865 (0.866)	1.037 (0.806)	0.843 (0.774)
<i>teq. crises</i>	2.452*** (0.641)	2.321** (0.697)	2.110** (0.757)	2.334*** (0.687)	2.235** (0.766)	2.321* (0.975)	1.372 (0.849)	2.477* (0.984)	1.406 (0.826)
<i>asian crises</i>	0.840 (0.702)	0.184 (0.775)	-0.0302 (0.756)	0.327 (0.774)	0.154 (0.788)	-0.889 (1.036)	-1.144 (0.957)	-0.801 (0.986)	-0.952 (0.903)
<i>great recess.</i>	2.966*** (0.536)	2.402*** (0.619)	2.263** (0.672)	2.481*** (0.618)	2.318*** (0.687)	3.137** (0.968)	2.293** (0.844)	3.065** (0.962)	2.328** (0.842)
<i>sovereign debt crises</i>	-0.522*** (0.130)	-0.621*** (0.114)	-0.584*** (0.146)	-0.598*** (0.115)	-0.580*** (0.144)	-0.116 (0.416)	0.107 (0.364)	-0.215 (0.388)	-0.0508 (0.324)
<i>banking crises</i>	0.217 (0.247)	-0.153 (0.236)	-0.198 (0.250)	-0.191 (0.248)	-0.271 (0.275)	0.937 (0.485)	1.210** (0.442)	1.013* (0.468)	1.208** (0.423)
<i>civil wars</i>	-0.360 (0.283)	-0.382 (0.237)	-0.550* (0.275)	-0.363 (0.234)	-0.471 (0.272)	-0.599* (0.285)	-0.906*** (0.251)	-0.539 (0.291)	-0.804** (0.236)
<i>interest rate shocks</i>	-0.127 (0.180)	-0.196 (0.172)	-0.213 (0.182)	-0.193 (0.178)	-0.221 (0.189)	-0.627 (0.339)	-0.534 (0.335)	-0.711 (0.362)	-0.689 (0.347)
<i>terms of trade shocks</i>	0.0981 (0.184)	-0.107 (0.204)	-0.107 (0.210)	-0.101 (0.204)	-0.0837 (0.211)	-0.0484 (0.322)	-0.00636 (0.282)	-0.101 (0.312)	-0.0917 (0.285)
<i>invest. difference</i>	0.135** (0.0461)	0.0754 (0.0536)	0.0476 (0.0613)	0.0765 (0.0537)	0.0509 (0.0618)	0.0402 (0.0438)	0.0296 (0.0352)	0.0357 (0.0390)	0.0399 (0.0322)
<i>ginimkt</i>		-0.0518 (0.0305)				-0.0319 (0.0647)			
<i>ginimktb4bk</i>			-0.0621* (0.0255)				-0.0997* (0.0432)		
<i>gininet</i>				-0.00514 (0.0496)				-0.139 (0.0880)	
<i>gininetb4bk</i>					0.00510 (0.0449)				-0.148* (0.0706)
<i>external debt/GDP</i>						-0.0215* (0.00910)	-0.0244*** (0.00694)	-0.0212* (0.00862)	-0.0231*** (0.00676)
<i>broad. money growth</i>						-0.0151 (0.00944)	-0.0182* (0.00911)	-0.0144 (0.00894)	-0.0166* (0.00833)
<i>external shocks</i>						-0.163* (0.0621)	-0.148* (0.0627)	-0.149* (0.0591)	-0.126 (0.0642)
<i>real interest rate</i>						-0.00115 (0.0432)	-0.00857 (0.0405)	-0.00983 (0.0399)	-0.0220 (0.0383)
Constant	30.17*** (7.282)	27.20*** (7.572)	26.24** (8.332)	26.41** (7.921)	23.90** (8.269)	11.20 (18.49)	-2.613 (17.66)	17.30 (18.56)	4.824 (17.75)
<i>R</i> ² Within	0.470	0.373	0.368	0.366	0.354	0.643	0.698	0.656	0.709
Observations	394	321	296	322	296	144	135	144	135
Countries	139	127	124	128	124	92	86	92	86
Hausman test (Prob > <i>Chi</i> ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ *nordic crisis* = dummy for years 1990–91; *teq. crises* = dummy for year 1993–95;*asian crises* = dummy for years 1997–98; *great recess.* = dummy for year 2008–09

use the dependent variable: 4-year average growth rate after t minus the maximum of 4-year, 5-year or 6-year average growth rate before t ($growth [t + 1, t + 4] - max. [growth(t - 6, t - 5, t - 4), t - 1]$). The results show signs for income inequality being useful in explaining why some countries were slow to recover.

Column (1) shows the baseline model. Lagged growth at t , per capita GDP at t and investment rate difference are retained.¹³ Since country characteristics are already controlled by the country dummies in the fixed effects model, regional dummies in the cross-country analysis are replaced by a series of dummies representing the years of crises to capture the contagious effects of the shocks.¹⁴ The five variables above *invest. difference* are indicators of shocks in the period of $[t - 3, t]$, all constructed in the same way explained previously. They range from 0 to 4, with 4 denoting a country receiving 4 consecutive shocks in the period $[t - 3, t]$, 0 meaning no shock during the period. *trade shocks* refers to large negative terms of trade shocks, defined and constructed using data from Berg *et al.* (2014). *sovereign debt crises* and *banking crises* are constructed using data from Valencia and Laeven (2012).¹⁵ The way that *civil wars* is constructed is explained in section 3. Banking and sovereign crises usually happened after the break years. Of the 396 observations matched with

¹³Lagged growth is the maximum of 4-year, 5-year or 6-year average growth rate before t ($max. [growth.(t - 6, t - 5, t - 4), t - 1]$).

¹⁴Given that the average observations for each country is no greater than 2.8, there is a danger that adding yearly dummies may take away too much information for the independent variables of interest. It turns out that using yearly dummies, all four measures of income inequality, and control variables are highly statically significant with the expected negative signs. The results hold after varying the dependent variables as well. But when added independently or with *external debt/GDP*, all measures of income inequality are statistically insignificant.

¹⁵Valencia and Laeven (2012) mark the beginning years of sovereign debt default and years for restructuring, a total of 66 episodes during the period of 1970–2015. In constructing *sovereign debt crises*, I assume that a country is in the state of default between year(s) since the onset of debt crisis and the restructuring year marked.

Valencia and Laeven (2012), 336 (85%) of them were not preceded by any sovereign debt crisis within the period of $[t - 3, t]$; 356 (90%) of them were not preceded by any banking crisis. It should be noted that measures of shocks are imperfect. They relates the number of years that a country is in crises before t to the severity of shocks.

Columns (2) to (5) demonstrate that income inequality alone is inadequate in explaining the growth differential. The indices employed are *ginimkt* which indicates income inequality before taxes, and *gininet*, income inequality after taxes and transfers. The suffix “-b4bk” of the variables means that the variable is a 4-year average before t . Measures of income inequality are from the Standardized World Income Inequality Database (SWIID) (v3.1) (taken from Berg *et al.*, 2014). SWIID (Solt, 2016) is by far the most comprehensive database that allows cross-country comparison with income inequality.¹⁶ According to the social conflict hypothesis, inequality should be negatively associated to the growth differential, holding other factors constant. While all coefficients of income inequality share the expected negative sign, only *ginimktb4bk* is statistically significant.

There does seem to be some evidence for the social conflict hypothesis when control variables are added to the model. Columns (6) to (9) introduce four variables that could potentially explain the dependent variable. Except for *external shocks*, all three other variables are 4-year averages before t . The first variable, *external debt/GDP* is highly robust in all specifications when added either in groups or independently (*ginimktb4bk* is still robust when *external debt/GDP* is added alone). The three other variables, however, are robust only when added in groups after *external*

¹⁶Replacing *giniall* with indices from the SWIID does not alter findings in Table 1 and 2. Income inequality remains insignificant in the period 2004–2010.

debt/GDP. *external shocks* is constructed according to Rodrik (1999). It is measured by multiplying the standard deviation of the first log-differences of the terms of trade $[t - 3, t + 3]$, with the average share of total trade in GDP $[t - 4, t + 4]$. It is meant to capture the unexpected component of the volatility of the streams of income associated with foreign trade. *real interest rates* and *broad money growth* (both obtained from the WDI) reflect the soundness of monetary policies and macro-stability. Typically, a high level of the real interest rate could be related to mismanagement in monetary policy. Fast growth of broad money is found to be associated with more frequent uses of short-term maturities of external debt, resulting in more severe crises when capital flows reverse (Rodrik and Velasco, 1999). With the introduction of the control variables, the effects of net income inequality grow enormously and outweigh that of *ginimktb4bk*. The effects of income inequality on growth differential seem to be relevant when the macroeconomic environment of an economy is weak.

I perform two types of robustness check on the above results. Firstly, I vary the dependent variable by using different ranges of post-break growth minus the average growth prior to the break. Specifically, define

$$\textit{Five-year growth diff.} = \textit{growth} [t + 1, t + 5] - \textit{max.} [\textit{growth}(t - 6, t - 5, t - 4), t - 1]$$

$$\textit{Six-year growth diff.} = \textit{growth} [t + 1, t + 6] - \textit{max.} [\textit{growth}(t - 6, t - 5, t - 4), t - 1]$$

If the results in Table 5 are robust, one should expect little change in the results. Yet, the results of the robustness check question the statistically significant role of income inequality in Table 5. In Table 6, the dependent variables for column (1) to (4) are *Five-year growth diff*; *Six-year growth diff.* for column (5) to (8). Although *external debt/GDP* and other control variables are in general statistically significant, the only

Table 6: Robustness check: Varying ranges of post-break growth (Valencia and Laeven (2012) data)

	<i>Five-year growth diff.</i>				<i>Six-year growth diff.</i>			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<i>log(GDP/cap.), t</i>	-1.326 (2.115)	0.443 (1.913)	-1.399 (2.003)	0.0136 (1.846)	-1.463 (1.465)	-0.424 (1.481)	-1.646 (1.392)	-0.851 (1.450)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.751*** (0.150)	-0.790*** (0.141)	-0.747*** (0.147)	-0.789*** (0.140)	-0.778*** (0.102)	-0.797*** (0.102)	-0.779*** (0.101)	-0.796*** (0.102)
<i>nordic crises</i>	0.938 (0.804)	0.807 (0.787)	0.987 (0.769)	0.790 (0.710)	0.634 (0.757)	0.638 (0.721)	0.620 (0.712)	0.573 (0.661)
<i>teq. crises</i>	1.486 (0.866)	0.772 (0.815)	1.588 (0.862)	0.795 (0.791)	0.731 (0.812)	0.131 (0.808)	0.761 (0.793)	0.152 (0.783)
<i>asian crises</i>	-0.789 (0.920)	-1.042 (0.871)	-0.737 (0.898)	-0.919 (0.833)	0.0358 (0.637)	-0.122 (0.612)	0.0469 (0.614)	-0.0445 (0.597)
<i>great recess.</i>	2.901** (0.855)	2.156** (0.752)	2.851** (0.855)	2.179** (0.750)	2.525*** (0.681)	2.036** (0.748)	2.480*** (0.679)	2.037** (0.740)
<i>sovereign debt crises</i>	-0.169 (0.355)	0.0126 (0.320)	-0.223 (0.340)	-0.0906 (0.300)	-0.152 (0.318)	-0.0463 (0.281)	-0.210 (0.306)	-0.147 (0.264)
<i>banking crises</i>	0.947* (0.421)	1.176** (0.391)	0.996* (0.406)	1.173** (0.376)	0.619 (0.363)	0.799* (0.365)	0.651 (0.356)	0.764* (0.358)
<i>civil wars</i>	-0.473* (0.234)	-0.684** (0.227)	-0.439 (0.237)	-0.616** (0.213)	-0.280 (0.194)	-0.482** (0.174)	-0.246 (0.194)	-0.398* (0.168)
<i>interest rate shocks</i>	-0.688* (0.288)	-0.623* (0.299)	-0.725* (0.323)	-0.726* (0.323)	-0.751** (0.239)	-0.698** (0.237)	-0.817** (0.263)	-0.811** (0.249)
<i>terms of trade shocks</i>	0.0535 (0.252)	0.0804 (0.221)	0.0250 (0.244)	0.0243 (0.218)	0.0190 (0.212)	0.0451 (0.184)	-0.0152 (0.206)	-0.0235 (0.184)
<i>invest. difference</i>	0.0259 (0.0362)	0.0150 (0.0290)	0.0220 (0.0335)	0.0219 (0.0258)	0.0170 (0.0234)	0.0127 (0.0192)	0.0173 (0.0205)	0.0207 (0.0183)
<i>external debt/GDP</i>	-0.0181* (0.00769)	-0.0211*** (0.00593)	-0.0180* (0.00746)	-0.0203*** (0.00584)	-0.0147** (0.00490)	-0.0152*** (0.00417)	-0.0142** (0.00471)	-0.0146** (0.00429)
<i>broad. money growth</i>	-0.0149 (0.00770)	-0.0177* (0.00756)	-0.0146 (0.00755)	-0.0166* (0.00722)	-0.00600 (0.00681)	-0.00772 (0.00686)	-0.00560 (0.00653)	-0.00649 (0.00647)
<i>external shocks</i>	-0.138* (0.0573)	-0.129* (0.0586)	-0.131* (0.0559)	-0.114 (0.0611)	-0.118** (0.0379)	-0.106** (0.0380)	-0.109** (0.0368)	-0.0965* (0.0416)
<i>real interest rate</i>	-0.00611 (0.0342)	-0.0105 (0.0324)	-0.0107 (0.0321)	-0.0192 (0.0311)	-0.0172 (0.0255)	-0.0238 (0.0229)	-0.0216 (0.0239)	-0.0304 (0.0233)
<i>ginimkt</i>	-0.00922 (0.0605)				-0.0326 (0.0485)			
<i>ginimktb4bk</i>		-0.0666 (0.0489)				-0.0804* (0.0364)		
<i>gininet</i>			-0.0777 (0.0793)				-0.0732 (0.0618)	
<i>gininetb4bk</i>				-0.0965 (0.0768)				-0.0911 (0.0505)
Constant	14.75 (17.20)	2.453 (16.03)	18.20 (17.02)	7.254 (16.33)	17.01 (11.91)	10.39 (12.21)	20.22 (12.16)	14.39 (12.54)
R^2 Within	0.657	0.703	0.663	0.708	0.733	0.762	0.737	0.759
Observations	143	134	143	134	139	130	139	130
Countries	91	85	91	85	90	84	90	89
Hausman test (Prob > Chi^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

nordic crisis = dummy for years 1990–91; *teq. crises* = dummy for year 1993–95;

asian crises = dummy for years 1997–98; *great recess.* = dummy for year 2008–09

significant measure of income inequality is *ginimktb4bk* in column (6).¹⁷

An alternative robust check I perform uses data from Reinhart and Rogoff (2011) who have a panel of indicators for external debt default and banking crises for 70 countries. For the 226 observations of growth collapses it gives, 189 (83%) of them happened when the countries were already in external default.¹⁸ Using their data, I constructed another set of shock indicators (labelled (*R&R*)) in Table 8. While market income inequality (*ginimkt*) becomes statistically significant in column (2), none of the control variables as well as measures of income inequality is significant when using the observations by Reinhart and Rogoff (2011). Yet, this could be due to the small sample size (a total of 90 observations). Controlling only for *external debt/GDP* increases the sample size and shows that *ginimktb4bk* is statistically significant, as shown in Table 7 below.

Table 7: Debt and Inequality (Reinhart and Rogoff (2011) data)

<i>external debt/GDP</i>	-0.00434 (0.00220)	-0.00505* (0.00207)	-0.00501* (0.00242)	-0.00551* (0.00234)
<i>ginimkt</i>	-0.0698 (0.0383)			
<i>ginimktb4bk</i>		-0.0711* (0.0291)		
<i>gininet</i>			0.0289 (0.0726)	
<i>gininetb4bk</i>				0.00323 (0.0491)
<i>R</i> ²	0.495	0.519	0.483	0.498
Observations	198	194	198	194
Countries	64	64	64	64

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Country-fixed effect models confirmed by Hausman tests

¹⁷Dropping control variables, *broad. money growth*, *external shocks*, and *real interest rate* increases the observations to no less than 269. But the result remains largely the same, with *ginib4bk* remains the only statistically significant variables.

¹⁸As in Reinhart and Rogoff (2011, p.1702), external debt is defined as “the total liabilities of a country with foreign creditors, both public and private to claims and transactions between a country’s residents and non-residents”.

Table 8: Impediments to growth (Reinhart and Rogoff (2011) data)

	Dependent Variable: <i>Four-year average growth differential at specific break years</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>log(GDP/cap.), t</i>	-2.419** (0.898)	-2.454** (0.820)	-2.453** (0.811)	-2.503** (0.829)	-2.374** (0.840)	-4.822** (1.524)	-4.506** (1.518)	-4.524** (1.505)	-4.487** (1.530)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.635*** (0.0844)	-0.605*** (0.0961)	-0.607*** (0.0942)	-0.624*** (0.0997)	-0.620*** (0.103)	-0.306 (0.242)	-0.318 (0.243)	-0.316 (0.244)	-0.330 (0.245)
<i>nordic crises</i>	0.899 (0.630)	0.648 (0.644)	0.481 (0.672)	0.716 (0.639)	0.553 (0.679)	2.683* (1.056)	2.652* (1.074)	2.660* (1.089)	2.635* (1.066)
<i>teq. crises</i>	1.769** (0.649)	1.790** (0.659)	1.692* (0.668)	1.744** (0.637)	1.754** (0.646)	3.294** (0.981)	3.262** (0.980)	3.264** (0.964)	3.243** (0.958)
<i>asia crises</i>	0.718 (0.691)	0.637 (0.675)	0.463 (0.675)	0.775 (0.708)	0.640 (0.723)	0.553 (0.757)	0.612 (0.740)	0.609 (0.746)	0.620 (0.738)
<i>great recess.</i>	2.038*** (0.518)	1.994*** (0.450)	1.902*** (0.454)	1.997*** (0.470)	1.857*** (0.486)	2.652** (0.828)	2.634** (0.786)	2.637** (0.823)	2.632** (0.785)
<i>banking crises (R&R)</i>	-0.241 (0.167)	-0.236 (0.174)	-0.244 (0.167)	-0.249 (0.170)	-0.259 (0.166)	-0.523 (0.299)	-0.488 (0.292)	-0.492 (0.288)	-0.475 (0.284)
<i>sovereign debt crises (R&R)</i>	-0.463** (0.169)	-0.558** (0.190)	-0.642*** (0.178)	-0.497* (0.204)	-0.574** (0.195)	-0.894*** (0.222)	-0.854*** (0.231)	-0.853*** (0.232)	-0.867*** (0.223)
<i>civil wars</i>	-0.590* (0.269)	-0.446 (0.247)	-0.462 (0.240)	-0.415 (0.248)	-0.401 (0.241)	-0.642* (0.292)	-0.667* (0.306)	-0.665* (0.302)	-0.671* (0.307)
<i>interest rate shocks</i>	-0.507** (0.171)	-0.443** (0.155)	-0.394* (0.156)	-0.446** (0.166)	-0.417* (0.167)	-1.004*** (0.278)	-0.918** (0.285)	-0.923** (0.272)	-0.904** (0.278)
<i>terms of trade shocks</i>	-0.0816 (0.179)	-0.196 (0.193)	-0.238 (0.200)	-0.164 (0.190)	-0.207 (0.193)	0.123 (0.389)	0.112 (0.382)	0.114 (0.392)	0.0953 (0.382)
<i>invest. difference</i>	0.104** (0.0323)	0.113** (0.0337)	0.104** (0.0373)	0.119** (0.0354)	0.115** (0.0382)	0.107** (0.0362)	0.0999** (0.0350)	0.101** (0.0355)	0.0965** (0.0359)
<i>ginimkt</i>		-0.0777* (0.0301)				0.0461 (0.0470)			
<i>ginimktb4bk</i>			-0.0794** (0.0256)				-0.00138 (0.0324)		
<i>gininet</i>				0.00328 (0.0656)				0.00541 (0.0691)	
<i>gininetb4bk</i>					-0.00882 (0.0446)				-0.0226 (0.0486)
<i>external debt/GDP</i>						-0.00983 (0.00627)	-0.0102 (0.00618)	-0.0102 (0.00613)	-0.0104 (0.00606)
<i>broad. money growth</i>						0.00406 (0.00690)	0.00373 (0.00687)	0.00374 (0.00687)	0.00379 (0.00686)
<i>external shocks</i>						0.151 (0.0766)	0.137 (0.0772)	0.139 (0.0764)	0.132 (0.0781)
<i>real interest rate</i>						-0.0562 (0.0486)	-0.0534 (0.0477)	-0.0534 (0.0478)	-0.0542 (0.0476)
Constant	22.62** (8.279)	26.73*** (7.576)	26.91*** (7.601)	23.41** (8.716)	22.84** (8.376)	41.42** (13.18)	40.82** (13.29)	40.67** (13.52)	41.65** (13.25)
<i>R</i> ² Within	0.424	0.443	0.454	0.425	0.429	0.726	0.723	0.723	0.724
Observations	226	211	205	212	205	90	90	90	90
Countries	67	66	66	67	66	49	49	49	49
Hausman test (Prob > <i>Chi</i> ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ *nordic crisis* = dummy for years 1990–91; *teq. crises* = dummy for year 1993–95;*asian crises* = dummy for years 1997–98; *great recess.* = dummy for year 2008–09

I note several additional things about the results summarized. First, some of the shock variables are fairly unsuccessful in explaining the growth differential. For example, *banking crises* sometime comes up with a significant positive sign, which is perplexing. Besides, *external debt/GDP* is highly robust in most of the specifications. Although endogeneity could be one of the reasons for it, an external debt surge does seem to be a better predictor than income inequality.¹⁹

Second, income inequality is highly persistent over time, as are proxies for conflict management institutions (to be discussed). The correlation of market income inequality before and after t is 0.83 and that of net income inequality is 0.94 using a sample size of 243 observations.

Third, strictly speaking, it is the net income inequality that the social conflict hypothesis is calling for in explaining why some countries stayed stagnated and some did not. The fact that measures of the net income inequality are statistically insignificant in the robustness checks suggests that the role of income inequality should not be overstated in explaining the growth differential. I have also tried other Gini coefficients as proxies for income inequality as shown in Table 9. The only statistically significant indicator is the one obtained from the World Bank Estimate which covers the period from 1980–2013.²⁰ But due to the incomparability²¹ of these Gini coefficients and the small sample size problem, these results should be not be taken too seriously. On the whole, despite initial evidence, income inequality does not seem to be a serious impediment to growth recovery.

¹⁹Public debt, however, is not so. Public debt variables constructed from Abbas *et al.* (2010) are statistically insignificant when debt crises are controlled for.

²⁰The data from the World Bank Estimate is the least complete that I have. It only have 1232 observations, compared to 4375 observations on net income inequality from 1960–2010 from SWIID.

²¹See Solt (2016) for discussion and comparison of different datasets of Gini indices.

Table 9: Impediments to growth: Other Gini coefficients as proxies

	Dependent Variable: <i>Four-year average growth differential at specific break years</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>log(GDP/cap.), t</i>	-3.517*** (0.829)	-1.406 (0.853)	-0.448 (0.995)	-1.533 (1.448)	-2.781 (1.826)	-3.007 (2.103)	0.133 (1.516)	-6.231 (3.873)	-10.34** (3.388)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.753*** (0.110)	-0.617*** (0.114)	-0.559*** (0.158)	-0.691*** (0.142)	-0.309 (0.184)	-0.338 (0.180)	-0.321 (0.165)	-0.774*** (0.225)	-0.316* (0.122)
<i>nordic crises</i>	0.331 (0.571)	-0.462 (0.457)	0.276 (0.614)	-0.256 (0.623)	-1.022* (0.498)	1.546 (1.016)	2.601* (1.221)	1.239 (0.636)	2.977* (1.159)
<i>teq. crises</i>	2.452*** (0.641)	1.278* (0.633)	1.485* (0.667)	1.042 (0.758)	0.716 (0.978)	2.203* (1.021)	1.937 (1.072)	0.819 (0.716)	0.752 (0.719)
<i>asian crises</i>	0.840 (0.702)	-0.144 (0.737)	-1.016 (0.861)	-1.558 (0.823)	-1.918** (0.729)	-0.344 (0.874)	-1.013 (0.940)	-1.878 (0.964)	-2.555** (0.940)
<i>great recess.</i>	2.966*** (0.536)	1.335** (0.510)	1.168* (0.519)	1.904** (0.613)	2.043** (0.659)	2.802** (0.868)	2.645* (1.089)	3.771*** (0.803)	4.188*** (0.737)
<i>sovereign debt crises</i>	-0.522*** (0.130)	-0.483*** (0.137)	-0.500** (0.179)	-0.669*** (0.148)	-0.594* (0.228)	-0.420 (0.413)	-0.836* (0.330)	-0.442 (0.401)	-0.675 (0.494)
<i>banking crises</i>	0.217 (0.247)	-0.133 (0.216)	-0.217 (0.276)	0.468 (0.251)	0.604* (0.278)	0.646 (0.394)	0.445 (0.547)	1.309** (0.387)	1.277* (0.485)
<i>civil wars</i>	-0.360 (0.283)	-0.316 (0.254)	-0.513 (0.269)	-0.392 (0.311)	-0.265 (0.307)	-0.835** (0.305)	-1.239** (0.364)	-0.207 (0.356)	-0.681 (0.372)
<i>interest rate shocks</i>	-0.127 (0.180)	-0.312 (0.174)	-0.158 (0.176)	-0.642* (0.318)	-0.670 (0.402)	-0.889** (0.294)	-0.704 (0.386)	-1.625** (0.498)	-2.671*** (0.613)
<i>terms of trade shocks</i>	0.0981 (0.184)	-0.319* (0.143)	-0.204 (0.156)	-0.297 (0.176)	-0.157 (0.167)	0.218 (0.296)	0.548 (0.405)	-0.205 (0.318)	0.353 (0.224)
<i>invest. difference</i>	0.135** (0.0461)	0.105* (0.0407)	0.0856 (0.0481)	0.173*** (0.0284)	0.144*** (0.0355)	0.107* (0.0507)	0.0927 (0.0589)	0.165** (0.0538)	0.158** (0.0593)
<i>gini_{all}</i>		0.0704 (0.0480)				-0.0403 (0.0911)			
<i>gini_{allb4bk}</i>			0.0677 (0.0525)				-0.186 (0.110)		
<i>gini_{wb}</i>				-0.0323 (0.0198)				-0.177*** (0.0294)	
<i>gini_{wbb4bk}</i>					-0.0924*** (0.0269)				-0.181*** (0.0318)
<i>external debt/GDP</i>						-0.00977 (0.00975)	0.0279 (0.0166)	-0.00367 (0.00872)	0.0169 (0.0102)
<i>broad. money growth</i>						-0.0101 (0.00848)	-0.000619 (0.00524)	-0.00151 (0.00524)	0.00267 (0.00592)
<i>external shocks</i>						-0.00286 (0.108)	-0.0235 (0.116)	-0.128 (0.148)	0.0153 (0.135)
<i>real interest rate</i>						-0.0372 (0.0434)	-0.0286 (0.0482)	-0.0511 (0.0321)	-0.105** (0.0356)
Constant	30.17*** (7.282)	10.30 (8.247)	1.408 (9.474)	15.92 (12.24)	27.71 (16.20)	27.83 (17.01)	3.604 (14.00)	64.57 (33.37)	98.12** (29.63)
R^2	0.470	0.394	0.379	0.625	0.686	0.661	0.718	0.829	0.885
Observations	394	291	235	194	142	136	113	122	95
Countries	139	124	111	109	96	90	77	82	66
Hausman test (Prob > Chi^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ *nordic crisis* = dummy for years 1990-91; *teq. crises* = dummy for year 1993-95;*asian crises* = dummy for years 1997-98; *great recess.* = dummy for year 2008-09

5.2 Resilience to shocks: Democracy and Globalization

Rodrik (1999) hypothesized that participatory political regimes could contain the effects of social conflict and tend to handle shocks better. The last part of the essay studies whether countries with democratic institutions are indeed more resilient to economic shocks. I continue with the model in section 5.1 but replace the independent variables of interest with proxies of institutional qualities in Table 10. The last two columns introduce proxies for redistribution.

The initial results of Table 10 support the hypothesis that more democratic countries tend to respond better in the face of economic shocks. *executive constraints* is on the scale from 1 (unlimited executive authority) to 7 (executive parity of subordination). *political competition* is on the scale from 1 (repressed competition) to 10 (open electoral participation). All proxies for institutions enter the model with statistical significance and expected signs.

On the other hand, proxies for redistribution do not provide much explanatory power. Redistribution is introduced for two reasons. First, it is a more direct measurement to social spending in welfare than institutions. Second, through redistribution, one can infer the effects of a change in income inequality before and after the break year on the growth differential. Two types of redistribution are considered: (1) absolute redistribution defined as the difference between the market and net inequality; (2) relative redistribution defined as absolute redistribution divided by market income inequality. The variable, *relreddiff* (*absreddiff*), is the 4-year average difference of relative (absolute) distribution after and before t . Extrapolating from the social conflict hypothesis, one would expect a positive relationship between

Table 10: Democracy and Redistribution

	Dependent Variable: <i>Four-year average growth differential at specific break years</i>								
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>log(GDP/cap.), t</i>	-3.517*** (0.829)	-0.288 (0.170)	-3.602*** (0.769)	-3.479*** (0.806)	-3.657*** (0.751)	-3.724*** (0.739)	-3.838*** (0.857)	-3.086** (1.107)	-3.147** (1.167)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.753*** (0.110)	-0.737*** (0.0530)	-0.769*** (0.111)	-0.756*** (0.109)	-0.752*** (0.112)	-0.788*** (0.102)	-0.771*** (0.107)	-0.656*** (0.0990)	-0.661*** (0.0982)
<i>nordic crises</i>	0.331 (0.571)	-0.587 (0.631)	0.216 (0.553)	0.262 (0.580)	0.160 (0.555)	0.170 (0.529)	-0.00329 (0.548)	0.334 (0.604)	0.281 (0.606)
<i>teq. crises</i>	2.452*** (0.641)	1.190 (0.692)	1.988** (0.655)	2.143** (0.680)	1.917** (0.634)	1.730** (0.655)	2.091** (0.668)	2.161** (0.755)	2.142** (0.749)
<i>asian crises</i>	0.840 (0.702)	-0.0363 (0.697)	0.206 (0.751)	0.170 (0.762)	0.217 (0.733)	-0.137 (0.777)	0.555 (0.746)	0.0577 (0.743)	0.109 (0.747)
<i>great recess.</i>	2.966*** (0.536)	1.009* (0.399)	2.464*** (0.527)	2.629*** (0.575)	2.476*** (0.517)	2.227*** (0.501)	2.484*** (0.536)	1.151 (0.896)	1.246 (0.951)
<i>sovereign debt crises</i>	-0.522*** (0.130)	-0.149 (0.178)	-0.592*** (0.128)	-0.588*** (0.131)	-0.578*** (0.128)	-0.637*** (0.141)	-0.633*** (0.139)	-0.368 (0.256)	-0.371 (0.245)
<i>banking crises</i>	0.217 (0.247)	0.215 (0.266)	0.277 (0.239)	0.255 (0.245)	0.243 (0.239)	0.274 (0.243)	0.216 (0.234)	0.133 (0.279)	0.123 (0.284)
<i>civil wars</i>	-0.360 (0.283)	-0.472* (0.197)	-0.253 (0.289)	-0.300 (0.290)	-0.281 (0.286)	-0.121 (0.288)	-0.200 (0.299)	-0.485 (0.358)	-0.484 (0.355)
<i>interest rate shocks</i>	-0.127 (0.180)	-0.00159 (0.154)	-0.0707 (0.184)	-0.115 (0.177)	-0.0769 (0.184)	-0.117 (0.175)	0.00472 (0.185)	-0.0484 (0.219)	-0.0496 (0.219)
<i>terms of trade shocks</i>	0.0981 (0.184)	-0.0518 (0.144)	0.103 (0.183)	0.0852 (0.186)	0.0876 (0.183)	0.0887 (0.179)	0.0311 (0.174)	-0.0403 (0.220)	-0.0236 (0.224)
<i>invest. difference</i>	0.135** (0.0461)	0.123*** (0.0274)	0.128** (0.0446)	0.123** (0.0445)	0.125** (0.0450)	0.123** (0.0436)	0.125* (0.0480)	0.00873 (0.0768)	0.0108 (0.0775)
<i>polity2</i>		0.134*** (0.0294)							
<i>democracy</i>			0.272** (0.0818)						
<i>autocracy</i>				-0.219* (0.0951)					
<i>executive constraints</i>					0.472** (0.142)				
<i>political competition</i>						0.393*** (0.0824)			
<i>prcl7215</i>							0.721*** (0.191)		
<i>relreddiff</i>								10.80 (6.952)	
<i>absreddiff</i>									0.154 (0.109)
Constant	30.17*** (7.282)	2.174 (1.478)	29.77*** (6.802)	30.45*** (6.991)	29.52*** (6.677)	30.17*** (6.468)	30.42*** (7.403)	27.39** (9.714)	27.90** (10.19)
R^2 Within	0.470		0.494	0.482	0.497	0.519	0.515	0.344	0.332
Observations	394	394	394	394	394	394	373	231	231
Countries	139	139	139	139	139	139	137	101	101
Hausman test (Prob > χ^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ *nordic crises* = dummy for years 1980–82; *teq. crises* = dummy for years 1993–95;*asian crises* = dummy for years 1997–98; *great recess.* = dummy for years 2008–09

the redistribution the difference and growth differential (think of an increase in the redistribution difference as a reduction in inequality or in Rodrik's (1998) model, each group perceives a lower expected gain in opportunistic behaviour). From columns (8) and (9), while the signs of the two variables are positive, they are statistically insignificant. The initial results are against the idea that an increase in redistribution after a down-break in growth are conducive to a faster recovery.

By far, evidence suggests that participatory political regimes do seem to be related to a lower growth differential. But could democratic institutions contain the effects of latent social conflict? Results in Tables 11 and 12 provide little support for that notion. The two tables, again, are constructed in the same way. The only scenario when institutional variables (*polity2*, *executive constraints* and *political competition*) are significant is when measures of income inequality are not. Other proxies for institutions share similar results. Measures of net income inequality and redistribution are not shown because they are all insignificant when added to the baseline model independently. Adding institutional variables to the model where measures of net inequality are found to be robust (in columns (7) and (9) in Table 5) also produces no meaningful results. When measures of income inequality are statistically significant, the additional institutions variable adds no explanatory power to the model. Inclusion of *external debt/GDP* does not alter the findings.

Lastly, columns (7) to (10) introduce proxies for globalization, *social globalization*, *economic globalization* and *political globalization*, to the model. These variables are four-year averages before t of an aggregate globalization index (the so-called KOF index) from Dreher (2016). The aggregate index is designed to be comparable

Table 11: Democracy as conflict management institutions

	Dependent Variable: Four-year average growth differential at specific break years									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
$\log(\text{GDP}/\text{cap.}), t$	-2.234*	-1.792	-2.490**	-1.973	-2.380*	-1.877	-2.524*	-1.772	-2.524*	-1.772
	(0.957)	(1.057)	(0.946)	(1.078)	(0.932)	(1.040)	(0.967)	(0.938)	(0.967)	(0.938)
$\max. [\text{growth}$ $(t - 6, t - 5, t - 4), t]$	-0.705***	-0.711***	-0.719***	-0.711***	-0.711***	-0.710***	-0.624***	-0.610***	-0.624***	-0.610***
	(0.0998)	(0.0999)	(0.100)	(0.101)	(0.0990)	(0.0992)	(0.0894)	(0.0950)	(0.0894)	(0.0950)
<i>nordic crises</i>	-0.0192	-0.0953	-0.0248	-0.101	0.0303	-0.0547	-0.285	-0.263	-0.285	-0.263
	(0.487)	(0.545)	(0.472)	(0.535)	(0.481)	(0.542)	(0.421)	(0.453)	(0.421)	(0.453)
<i>teq. crises</i>	2.348**	1.927*	2.136**	1.835*	2.302**	1.902*	1.417**	1.202*	1.417**	1.202*
	(0.802)	(0.847)	(0.799)	(0.834)	(0.820)	(0.865)	(0.453)	(0.497)	(0.453)	(0.497)
<i>asian crises</i>	0.308	-0.174	-0.0130	-0.365	0.160	-0.338	-0.765	-0.979	-0.765	-0.979
	(0.733)	(0.758)	(0.770)	(0.772)	(0.807)	(0.829)	(0.686)	(0.714)	(0.686)	(0.714)
<i>great recess.</i>	2.424***	2.184**	2.265**	2.102**	2.361***	2.142**	1.075*	1.031*	1.075*	1.031*
	(0.678)	(0.722)	(0.673)	(0.720)	(0.693)	(0.740)	(0.431)	(0.418)	(0.431)	(0.418)
<i>sovereign debt crises</i>	-0.407**	-0.356*	-0.484**	-0.414*	-0.455**	-0.399*	-0.457***	-0.435***	-0.457***	-0.435***
	(0.151)	(0.174)	(0.155)	(0.184)	(0.160)	(0.185)	(0.105)	(0.127)	(0.105)	(0.127)
<i>banking crises</i>	-0.0528	0.0733	0.0198	0.0999	0.00943	0.122	0.119	0.166	0.119	0.166
	(0.211)	(0.220)	(0.215)	(0.222)	(0.232)	(0.241)	(0.181)	(0.210)	(0.181)	(0.210)
<i>civil wars</i>	-0.429	-0.590*	-0.346	-0.544	-0.367	-0.545	-0.223	-0.388	-0.223	-0.388
	(0.242)	(0.284)	(0.252)	(0.295)	(0.255)	(0.295)	(0.212)	(0.251)	(0.212)	(0.251)
<i>interest rate shocks</i>	-0.181	-0.266	-0.144	-0.243	-0.154	-0.248	-0.162	-0.239	-0.162	-0.239
	(0.165)	(0.174)	(0.163)	(0.178)	(0.172)	(0.183)	(0.163)	(0.186)	(0.163)	(0.186)
<i>terms of trade shocks</i>	-0.291	-0.262	-0.268	-0.246	-0.279	-0.249	-0.262	-0.242	-0.262	-0.242
	(0.167)	(0.169)	(0.168)	(0.173)	(0.166)	(0.169)	(0.154)	(0.156)	(0.154)	(0.156)
<i>invest. diff</i>	0.0854*	0.0740*	0.0806*	0.0704	0.0810*	0.0708	0.106***	0.0983***	0.106***	0.0983***
	(0.0377)	(0.0370)	(0.0383)	(0.0380)	(0.0384)	(0.0378)	(0.0297)	(0.0284)	(0.0297)	(0.0284)
<i>external debt/GDP</i>	-0.00594**	-0.00819***	-0.00574**	-0.00779**	-0.00596**	-0.00822**	-0.00627**	-0.00754***	-0.00627**	-0.00754***
	(0.00183)	(0.00225)	(0.00193)	(0.00249)	(0.00193)	(0.00252)	(0.00192)	(0.00223)	(0.00192)	(0.00223)
<i>ginimkt</i>	-0.0634		-0.0539		-0.0607		-0.0119		-0.0119	
	(0.0329)		(0.0345)		(0.0346)		(0.0400)		(0.0400)	
<i>ginimktb4bk</i>		-0.0733**		-0.0725*		-0.0733*		-0.0310		-0.0310
		(0.0268)		(0.0280)		(0.0283)		(0.0308)		(0.0308)
<i>polity2</i>			0.0819	0.0455						
			(0.0465)	(0.0516)						
<i>prel7215</i>					0.270	0.198				
					(0.240)	(0.250)				
<i>social globalization</i>							-0.0480	-0.0415	-0.0480	-0.0415
							(0.0312)	(0.0306)	(0.0312)	(0.0306)
<i>economic globalization</i>							0.0784**	0.0641*	0.0784**	0.0641*
							(0.0288)	(0.0290)	(0.0288)	(0.0290)
<i>political globalization</i>							0.0552***	0.0395*	0.0552***	0.0395*
							(0.0160)	(0.0185)	(0.0160)	(0.0185)
Constant	23.52**	20.59*	25.06**	21.92*	23.53**	20.44*	18.31*	14.24	18.31*	14.24
	(8.695)	(9.794)	(8.589)	(9.917)	(8.550)	(9.668)	(8.527)	(8.443)	(8.527)	(8.443)
R^2 Within	0.488	0.500	0.497	0.503	0.494	0.504	0.562	0.558	0.562	0.558
Observations	296	274	296	274	292	270	286	267	286	267
Countries	125	122	125	122	123	120	121	120	121	120
Hausman test (Prob > χ^2)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$ *nordic crisis* = dummy for years 1990-91; *teq. crises* = dummy for year 1993-95;*asian crises* = dummy for years 1997-98; *great recess.* = dummy for year 2008-09

Table 12: Democracy as conflict management institutions

	Dependent Variable: <i>Four-year average growth differential at specific break years</i>									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
<i>log(GDP/cap.), t</i>	-2.234* (0.957)	-1.792 (1.057)	-2.602** (0.965)	-2.012 (1.103)	-2.605** (0.955)	-2.066 (1.100)	-2.596*** (0.769)	-1.840 (0.937)	-2.614** (0.958)	-1.838 (0.944)
<i>max. [growth (t - 6, t - 5, t - 4), t]</i>	-0.705*** (0.0998)	-0.711*** (0.0999)	-0.704*** (0.101)	-0.705*** (0.101)	-0.717*** (0.0991)	-0.706*** (0.0996)	-0.648*** (0.0980)	-0.606*** (0.0970)	-0.631*** (0.0896)	-0.610*** (0.0954)
<i>nordic crises</i>	-0.0192 (0.487)	-0.0953 (0.545)	-0.0311 (0.471)	-0.100 (0.532)	0.0118 (0.473)	-0.0668 (0.535)	-0.248 (0.435)	-0.259 (0.447)	-0.260 (0.417)	-0.248 (0.451)
<i>teq. crises</i>	2.348** (0.802)	1.927* (0.847)	2.055** (0.753)	1.799* (0.796)	2.074** (0.783)	1.802* (0.822)	1.365** (0.502)	1.159* (0.498)	1.335** (0.457)	1.169* (0.502)
<i>asian crises</i>	0.308 (0.733)	-0.174 (0.758)	0.0472 (0.750)	-0.329 (0.743)	0.0130 (0.776)	-0.376 (0.769)	-0.584 (0.751)	-1.027 (0.716)	-0.820 (0.699)	-1.025 (0.718)
<i>great recess.</i>	2.424*** (0.678)	2.184** (0.722)	2.249*** (0.636)	2.098** (0.692)	2.236*** (0.652)	2.077** (0.705)	1.156* (0.483)	1.029* (0.421)	1.086* (0.426)	1.033* (0.421)
<i>sovereign debt crises</i>	-0.407** (0.151)	-0.356* (0.174)	-0.472** (0.148)	-0.412* (0.166)	-0.492** (0.151)	-0.430* (0.175)	-0.517*** (0.119)	-0.461*** (0.125)	-0.498*** (0.103)	-0.462*** (0.128)
<i>banking crises</i>	-0.0528 (0.211)	0.0733 (0.220)	-0.00609 (0.210)	0.0869 (0.221)	0.0147 (0.213)	0.0927 (0.223)	0.0835 (0.196)	0.174 (0.210)	0.145 (0.183)	0.176 (0.210)
<i>civil wars</i>	-0.429 (0.242)	-0.590* (0.284)	-0.375 (0.252)	-0.560 (0.291)	-0.307 (0.252)	-0.516 (0.292)	-0.256 (0.245)	-0.374 (0.257)	-0.175 (0.221)	-0.364 (0.259)
<i>interest rate shocks</i>	-0.181 (0.165)	-0.266 (0.174)	-0.138 (0.167)	-0.239 (0.182)	-0.129 (0.165)	-0.230 (0.179)	-0.149 (0.159)	-0.229 (0.191)	-0.144 (0.165)	-0.230 (0.190)
<i>terms of trade shocks</i>	-0.291 (0.167)	-0.262 (0.169)	-0.263 (0.171)	-0.243 (0.176)	-0.245 (0.172)	-0.220 (0.180)	-0.268 (0.158)	-0.233 (0.158)	-0.243 (0.156)	-0.227 (0.162)
<i>invest. difference</i>	0.0854* (0.0377)	0.0740* (0.0370)	0.0807* (0.0381)	0.0716 (0.0379)	0.0807* (0.0385)	0.0697 (0.0385)	0.107*** (0.0286)	0.0969*** (0.0287)	0.104*** (0.0297)	0.0967** (0.0288)
<i>external debt/GDP</i>	-0.00594** (0.00183)	-0.00819*** (0.00225)	-0.00556** (0.00191)	-0.00777** (0.00241)	-0.00562** (0.00193)	-0.00760** (0.00250)	-0.00670** (0.00234)	-0.00736** (0.00240)	-0.00606** (0.00212)	-0.00736** (0.00246)
<i>ginimkt</i>	-0.0634 (0.0329)		-0.0501 (0.0351)		-0.0467 (0.0346)		-0.0380 (0.0364)		-0.00744 (0.0410)	
<i>ginimktb4bk</i>		-0.0733** (0.0268)		-0.0705* (0.0280)		-0.0684* (0.0280)		-0.0298 (0.0312)		-0.0303 (0.0313)
<i>executive constraints</i>			0.301* (0.150)	0.162 (0.157)			0.218 (0.150)	0.0737 (0.137)		
<i>political competition</i>					0.201* (0.0864)	0.128 (0.0975)			0.0905 (0.0866)	0.0466 (0.0915)
<i>economic globalization</i>							0.0575* (0.0229)	0.0623* (0.0298)	0.0751* (0.0294)	0.0628* (0.0294)
<i>social globalization</i>								-0.0416 (0.0304)	-0.0475 (0.0309)	-0.0412 (0.0305)
<i>political globalization</i>								0.0387* (0.0183)	0.0500** (0.0159)	0.0371* (0.0180)
Constant	23.52** (8.695)	20.59* (9.794)	24.68** (8.490)	21.53* (9.891)	24.70** (8.492)	21.82* (9.921)	21.67** (6.615)	14.52 (8.348)	18.73* (8.378)	14.64 (8.388)
R ² Within	0.488	0.500	0.502	0.504	0.505	0.506	0.536	0.559	0.565	0.559
Countries	125	122	125	122	125	122	121	120	121	120
Hausman test (Prob > Chi ²)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

nordic crisis = dummy for years 1990-91; *teq. crises* = dummy for year 1993-95;

asian crises = dummy for years 1997-98; *great recess.* = dummy for year 2008-09

over time and between countries from 1970 and onward. A higher value of the index indicates that a country is more “incorporated into a single world society” (Giddens, 1991, p.64). With these new variables, measures of income inequality and institutions are no longer statistically significant while controls such as *external debt/GDP* and *invest. difference* are still robust. ²²

Indeed, if one treats social globalization as a support of the social conflict hypothesis, the results seem to be at odds with the hypothesis. The KOF Index measures social globalization by information flows, personal contacts, and cultural proximity, which, according to the social conflict hypothesis, should be negatively related to social conflict and have a positive impact on the growth differential. Yet *social globalization* is statistically insignificant. The interpretation of political globalization is not easy as well. *political globalization* is composed of embassies in the country, membership in international organization, and international treaties and so on. Whether it represent “institutions that adjudicate distributional contests within a framework of rules and accepted procedures (without open conflict and hostilities)” (Rodrik 1999, p.386) is debatable. *economic globalization* is measured by components like foreign direct investment (FDI) and the size of international trade. These factors are not addressed in the social conflict hypothesis and could be viewed as alternative explanations. At the very least, the introduction of the globalization variables casts doubt on whether it is democratic institutions that are at play in explaining what helps contain the effects of income inequality as social conflict.

²²All globalization indices enter the model with positive statistically significant signs. See Table 17 in the appendix.

6 Conclusion

I have examined the idea of social and political conditions as determining how countries react to economic shocks for the period of 1964–2011. On the whole, this essay finds that a combination of poor institutional management and deep social conflict does contribute to a prolonged recovery in the face of economic shocks. But the robustness of the results is contentious. The results on whether income inequality worsens a country’s ability to react to shocks are mixed and occasionally outweighed by indebtedness of the country. While democratic institutions are consistently shown to be effective in managing conflict when added to the models independently, the hypothesized result—that institutional variables mitigate the effects of social conflicts is not detected using the country-fixed effects model.

The cross-country analysis finds no relationship between income inequality and the prolonged recovery for the period of 2004–2010; while market and net income inequality do have a negative effect on growth differential when control variables are added in the country-fixed effects model. The relationship is not entirely robust. A weak macroeconomic environment (high levels of real interest rate, broad money growth, volatility of trade, and external debt surge) seems to be a precondition for income inequality to have an impact. Besides, an increase in redistribution (wider discrepancy between market and net income inequality) after the break year, be it in absolute or relative terms, does not explain the growth differential well, nor do measures of income inequality when added to the model alone. These results point against the idea that income inequality hinders societies’ effectiveness in handling shocks.

An alternative explanation for the differences in growth differential is the mismanagement of debt liabilities. Countries are more prone to debt crises if public spending is not kept in check. Consistent with the literature, I find that an external debt surge does predict a lower growth differential, after controlling for debt crises which preceded the identified growth collapses. Comparison of external debt liabilities and income inequality demonstrates that an external debt surge seem to be a more consistent predictor than income inequality.

In addition to institutional factors, I also test whether globalization has a role in determining a country's resilience to shocks. While political and economic globalization are shown to be factors that help alleviate the adverse effects of income inequality, social globalization does not. And when globalization variables are controlled for, the statistical significance level of institutional variables declines. Overall, the findings in this essay show only limited support for the social conflict hypothesis argued by Rodrik (1999).

The analysis is no doubt imperfect. To name a few extensions, measures of shocks and other proxies perhaps could be improved. Other potential useful variables such as M2-to-GDP ratio, debt-to-export ratio, black-market premium, and education are omitted in the analysis. Moreover, it should be recognized that the measurement of growth collapse is also debatable, despite efforts of filtering the sample with information from the literature. Finally, several important aspects of crisis management are assumed away in the analysis, namely the role of international organizations, and economic reforms in the aftermath of crises. More remains to be done to understand the dynamics of shocks and crisis management.

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Appendix: Additional Tables and Data Sources

Table 13: Robustness check: Explaining growth collapse in 2004–2010 (full model)

	Dependent Variable: <i>Five-year average growth differential at t or t + 1</i>				
	(1)	(2)	(3)	(4)	(5)
<i>log(GDP/cap.), t</i>	0.0371 (0.300)	-0.0541 (0.243)	-0.167 (0.318)	-0.353 (0.260)	-0.114 (0.302)
<i>growth [t-5,t-1]</i>	-0.693*** (0.145)	-0.763*** (0.109)	-0.642*** (0.130)	-0.745*** (0.105)	-0.652*** (0.146)
<i>Asia</i>	2.364* (1.059)	1.147 (0.750)	1.810** (0.633)	1.385 (0.768)	2.736* (1.131)
<i>Latin America</i>	2.305** (0.718)	1.217 (0.829)	0.796 (0.666)	1.156 (0.701)	1.924** (0.701)
<i>Africa</i>	0.639 (1.043)	-0.645 (0.967)	-1.006 (1.027)	0.114 (0.900)	0.848 (1.132)
<i>East Europe</i>	1.590* (0.790)	1.029 (0.740)	0.159 (0.718)	0.764 (0.835)	1.303 (0.795)
<i>Eurozone</i>	-0.633 (0.537)	-1.231* (0.567)	-0.879 (0.579)	-1.293* (0.553)	-1.171* (0.528)
<i>invest. difference</i>	0.0805 (0.0515)	0.145** (0.0449)	0.146** (0.0437)	0.120* (0.0471)	0.0899 (0.0454)
<i>interest rate shocks</i>	-0.217 (0.346)	-0.440 (0.277)	-0.403 (0.283)	-0.591* (0.290)	-0.268 (0.340)
<i>gini11</i>		0.00811 (0.0252)			
<i>ELF15</i>			-1.960* (0.933)		
<i>ELF90</i>				-1.419 (0.780)	
<i>polity2</i>				0.0865* (0.0361)	
<i>civil violence</i>					-0.0151 (0.0474)
<i>prcl7215</i>					0.364 (0.185)
Constant	0.340 (3.204)	2.366 (2.223)	4.098 (3.376)	5.424* (2.681)	0.283 (3.214)
Adjusted R^2	0.412	0.627	0.638	0.543	0.448
Observations	115	94	58	108	112

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 14: Robustness check: composite indicators and proxies for institutions (full model)

	Dependent Variable: <i>Five-year average growth differential at t or $t + 1$</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
<i>log(GDP/cap.), t</i>	-0.372 (0.263)	-0.0522 (0.236)	0.00435 (0.288)	-0.504 (0.563)	-0.338 (0.586)	-0.334 (0.445)
<i>growth [t-5,t-1]</i>	-0.763*** (0.106)	-0.734*** (0.109)	-0.685*** (0.142)	-0.487** (0.152)	-0.510** (0.151)	-0.508*** (0.148)
<i>Asia</i>	1.570* (0.787)	1.535* (0.651)	2.547* (1.083)	2.533* (0.999)	2.702** (1.010)	2.371* (0.981)
<i>Latin America</i>	1.478* (0.721)	1.415* (0.609)	2.329** (0.745)	2.193** (0.743)	1.955* (0.762)	1.943* (0.747)
<i>Africa</i>	0.200 (0.947)	0.0609 (0.867)	0.718 (1.006)	1.292 (1.453)	1.334 (1.447)	1.493 (1.397)
<i>East Europe</i>	1.495 (0.763)	1.324* (0.644)	1.833* (0.771)	0.142 (0.893)	0.283 (0.937)	-0.168 (0.882)
<i>Eurozone</i>	-0.953 (0.518)	-1.471** (0.541)	-0.643 (0.541)	-0.771 (0.497)	-0.613 (0.495)	-0.781 (0.503)
<i>invest. difference</i>	0.119** (0.0442)	0.142** (0.0446)	0.0808 (0.0499)	0.0908 (0.0730)	0.0866 (0.0727)	0.0922 (0.0760)
<i>conflict1</i>	-0.145** (0.0500)					
<i>conflict2</i>		-0.00169** (0.000566)				
<i>conflict3</i>			-0.00543*** (0.00154)			
<i>interest rate shocks</i>				-0.487 (0.486)	-0.560 (0.493)	-0.525 (0.489)
<i>TFP difference</i>				0.0549* (0.0271)	0.0541 (0.0272)	0.0582* (0.0269)
<i>rule of law</i>				1.082** (0.350)		
<i>corruption control</i>					0.818* (0.363)	
<i>regulatory quality</i>						1.084** (0.329)
Constant	4.938 (2.702)	2.117 (2.425)	0.340 (3.095)	5.137 (5.147)	3.781 (5.366)	3.596 (4.048)
Adjusted R^2	0.553	0.644	0.422	0.415	0.399	0.415
Observations	108	94	115	87	87	87

Robust standard errors in parentheses
 * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 15: Correlation matrix: Democracy and Globalization (N=382)

	<i>democracy</i>	<i>KOF index</i>	<i>social glob.</i>	<i>economic glob.</i>	<i>political glob.</i>
<i>democracy</i>	1				
<i>KOF index</i>	0.4678	1			
<i>social glob.</i>	0.5112	0.8378	1		
<i>economic glob.</i>	0.4568	0.9936	0.8405	1	
<i>political glob.</i>	0.6272	0.4033	0.5204	0.398	1

Table 16: Correlation matrix: Variables used in Tables 8 and 9 (N=220)

	<i>ginimkt</i>	<i>ginimktb4bk</i>	<i>democ</i>	<i>prcl7215</i>	<i>reddiff</i>	<i>absreddiff</i>	<i>ext. debt/gdp</i>
<i>ginimkt</i>	1						
<i>ginimktb4bk</i>	0.9522	1					
<i>democ</i>	-0.1556	-0.1802	1				
<i>prcl7215</i>	-0.1746	-0.1919	0.828	1			
<i>relreddiff</i>	-0.0323	-0.2055	0.0191	0.0845	1		
<i>absreddiff</i>	-0.0758	-0.07	0.0417	0.1002	0.9659	1	
<i>ext. debt/gdp</i>	-0.0619	-0.07	0.0866	0.1418	-0.0057	0.0096	1

Table 17: Globalization as an alternative explanation for resilience to shocks (partial results)

	(1)	(2)	(3)	(4)	(5)	(6)
<i>social globalization</i>	0.0778** (0.0255)			0.0697** (0.0238)		
<i>economic globalization</i>		0.110*** (0.0250)			0.104*** (0.0237)	
<i>political globalization</i>			0.0952*** (0.0164)			0.0837*** (0.0160)
<i>prcl7215</i>				0.651** (0.209)	0.488* (0.194)	0.513* (0.222)
R^2 Within	0.545	0.588	0.583	0.569	0.603	0.596
Observations	343	330	343	340	327	340
Countries	134	128	134	133	127	133
Hausman test (Prob > χ^2)	0.00	0.00	0.00	0.00	0.00	0.00

Robust standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 18: Variables and Sources

Description	Variable/Code name	Source
Real GDP (Constant at 2005 USD)	rgdpca	Penn World Table 8.1 (PWT 8.1)
Population (in millions)	pop	Penn World Table 8.1 (PWT 8.1)
Investment Rate	csh.i	Penn World Table 8.1 (PWT 8.1)
TFP level at current PPPs (USA=1)	ctfp	Penn World Table 8.1 (PWT 8.1)
GDP based on PPP per capita	PPPC	IMF World Economic Outlook
Democracy	democ	Polity IV Annual Time-Series, 1800-2015
Autocracy	autoc	Polity IV Annual Time-Series, 1800-2015
Polity2	polity2	Polity IV Annual Time-Series, 1800-2015
Executive constraints	xconst	Polity IV Annual Time-Series, 1800-2015
Political competition	polcomp	Polity IV Annual Time-Series, 1800-2015
Civil violence	civviol	Major Episodes of Political Violence, 1946-2015
Civil liberties	pr7215	Freedom House: Individual country ratings and status
Political rights	cl7215	Freedom House: Individual country ratings and status
KOF index	kofglob	Dreher (2016)
Economic globalization	econglob	Dreher (2016)
Social globalization	socglob	Dreher (2016)
Political globalization	politglob	Dreher (2016)
Public debt-to-GDP ratio	debtgdp	Abbas <i>et al.</i> (2010)
External debt-to-GDP ratio	lmfdebtl	Lane and Milesi-Ferretti (2007), Berg <i>et al.</i> (2014)
Broad money growth (annual %)	broadm	World Development Indicators (WDI)
Real interest rate (%)	FR.INR.RINR	World Development Indicators (WDI)
Net barter terms of trade index	TT.PRI.MRCH.XD.WD	World Development Indicators (WDI)
Trade (% of GDP)	trade	World Development Indicators (WDI)
Rule of Law	RL.EST	Worldwide Governance Indicators
Regulatory quality	RQ.EST	Worldwide Governance Indicators
Control for corruption	CC.EST	Worldwide Governance Indicators
Gini coefficient	SI.POV.GINI	World Bank Estimate
Gini coefficient	giniall	Milanovic (2014)
Net Gini coefficient	gini_net	Slot (2010), Berg <i>et al.</i> (2014)
Gross/ market Gini coefficient	gini_market	Slot (2010), Berg <i>et al.</i> (2014)
Absolute redistribution	red_abs.diff	Slot (2010), Berg <i>et al.</i> (2014)
Civil Wars	civilwar	Sarkees (2010), Cerra and Saxena (2008)
Large negative interest rate shocks	du3.l1usrategr	Berg <i>et al.</i> (2014)
Large negative terms of trade shocks	db3.l1tttgr	Berg <i>et al.</i> (2014)
Ethnic and linguistic fragmentation index	ELF90	Alesina <i>et al.</i> (2003)
Ethnic and linguistic fragmentation index	ELF15	Desmet <i>et al.</i> (2015)
Banking crises	na.	Valencia and Laeven (2012)
Sovereign debt crsies	na.	Valencia and Laeven (2012)
Banking crises (R&R)	na.	Reinhart and Rogoff (2011)
Sovereign debt crsies (R&R)	na.	Reinhart and Rogoff (2011)