SOCIOPOLITICAL INSTABILITY AND LONG RUN ECONOMIC GROWTH:

A CROSS COUNTRY EMPIRICAL INVESTIGATION

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Abstract

This paper investigates the long-run growth effects of a large number of sociopolitical instability measures using the cross-country growth regressions. Overall our results are consistent with the existing literature implying that there exists at best a weak relationship between sociopolitical instability and growth. More importantly, this relationship depends crucially on the variable used in the empirical estimates. Specifically, while government instability and social instability measures have usually weak and, in some cases even positive, relationship with growth, political violence indicators have relatively more negative and robust association with growth. Furthermore, our results indicate that sociopolitical instability has relatively more adverse effects on countries with relatively higher levels of development and democracy. Although the issue of potential reverse causality is widely emphasized in the literature, our IV estimation results imply that simultaneity has not been the severe problem for the estimates of sociopolitical instability measures. On the contrary, the existence of outlier countries and, in a lesser degree, parameter heterogeneity has been much more serious problems for these variables.

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1. Introduction

This paper studies the effects of sociopolitical instability on economic growth using the cross-country growth regressions. There has been a widely recognized consensus that economic stability and sociopolitical stability must go together for a successful development. It is commonly believed that sociopolitical stability has an instrumental economic value and it is a necessary condition for development and growth. Correspondingly, many studies suggested that sociopolitical instability by creating uncertainties in politic and economic environments distorts economic decisions such as investment, production, and labor supply. However, the empirical literature failed to provide strong, negative relationship between sociopolitical instability and growth.

Despite an extensive literature, there is a strong ambiguity about the meaning of sociopolitical instability. Indeed, it is hard to define and measure social and political instability in a way that can be used in the empirical estimates. Sociopolitical instability can be viewed and measured in several ways such as using measures of government stability, social unrest, and political violence. This is probably the reason why there have been so many measures of sociopolitical instability used in the literature. However, since different studies used very different subset of available measures, and since some studies also included several of these measures in the same regressions, they provide neither comparable results nor a systematic overview of the growth effects of sociopolitical instability. Thus, using the same specifications in the regressions for seventeen different measures of sociopolitical instability where each variable measures a considerably different aspect of it, we try to accomplish two things. First, we believe that our results provide a more complete picture and, secondly, enable us to compare regression results across individual measures. Given that literature has not paid enough attention to the problem of reverse causality, we examine sensitivity of our estimations to the simultaneity problem by using instrumental variables. IV estimation results imply that our conclusions do not seem to be sensitive to the existence of reverse causality. At the same time, since they have been largely ignored issues in this literature, we have also investigated the

issue of outlier observations and parameter heterogeneity. Our estimation results show that adverse growth effects of sociopolitical instability on middle-income and good-democracy countries are more evident than those on low-income and poor-democracy countries. Our results indeed imply that parameter heterogeneity and the issue of outliers are much more serious problems than simultaneity.

The outline of this paper is as follows. Section 2 reviews the theoretical and empirical literature on sociopolitical instability. Section 3 describes a standard growth equation and the data sources and definitions. Section 4 separately reports the estimation results for various measures of sociopolitical instability. In this section, we further address the potential problems of the cross-country growth framework. Finally, Section 5 concludes the paper.

2. Literature Review

A large number of studies suggested very different channels through which sociopolitical instability may adversely affect economic growth. A number of papers (such as Persson and Svensson 1989; Tabellini and Alesina 1990; Edwards and Tabellini 1991; Ozler and Tabellini, 1991; and Cukierman et al. 1992) argued that governments in politically unstable and polarized countries are more likely to follow inefficient or suboptimal policies such as a maintenance of inefficient tax system, higher current government consumption, or accumulation of larger external debts, which, in turn, have adversely affected economic growth in the long run.

Moreover, Alesina and Perotti (1996) argued that sociopolitical instability caused by income inequality leads to uncertainty in the politic and economic environment, which in turn, adversely affects growth by reducing investment. Similarly, Svensson (1998) claimed that governments in politically unstable and polarized societies tend to maintain low quality of property rights, which may be the rational choice of policy makers maximizing individual welfare of their social or ethnic group, as opposed to social welfare. Thus, sociopolitical instability defined as the propensity of an imminent government change reduces growth through reducing discouraging domestic investment and shifting

savings towards non-marketable production or capital flight. It is also known that politically unstable and polarized countries find it difficult to take necessary reforms or to implement them to create good economic as well as politic environment (see, Alesina and Drazen 1991; Dollar and Svensson 2000). Furthermore, Venieris and Gupta (1986) also showed that sociopolitical instability may affect growth through reducing savings.

There is a very broad and dispersed empirical literature that studies the links between different sociopolitical instability variables and economic growth. Although a large number of instability measures have been used in the empirical literature, some measures of sociopolitical instability such as revolutions, coups, and assassinations, have used more frequently than others. For example, Barro (1991) and Knack and Keefer (1995) found that sociopolitical instability measured by a number of revolutions, coups, and assassinations has negative and significant relationship with growth. Easterly and Levine (1997) also reported negative growth effects of assassinations. Most studies, however, reported a negative but weak association between sociopolitical instability and growth as reviewed in Brunetti (1997).

One of the most frequently raised concerns about this literature has been that most empirical studies have not sufficiently considered the issue of reverse causality. For example, Brunetti (1997) argued that the political instability literature has not paid necessary attention to the issue of simultaneity. In most of these papers, the direction of the causation is running from sociopolitical instability to low economic growth in the sense that sociopolitical instability affects economic performance. However, there is a strong possibility of reverse causation in a way that poor economic performance (such as high inflation rates, poor growth or investment rates) may lead to sociopolitical instability. Moreover, there are also some arguments claiming that high growth rates or economic transformation may lead to sociopolitical instability (see, Olson 1963; and Goldsmith 1987). At the same time, over the long run, Olson also asserted that political stability can be economically dysfunctional and cause growth to slow down because stable societies with strong regimes tend to increase rent seeking activities and interest groups which in

turn reduce a society's capacity to adopt new technologies and to reallocate resources in response to changing economic conditions. Yet, he emphasized that chronic political instability is also harmful for growth because it might keep interest groups perpetually off balance.

Several studies have considered the issue of reverse causality issue but reported ambiguous results. For example, Londregan and Poole (1990) and Alesina et al. (1992) have explicitly taken into account this problem and analyzed relationship between sociopolitical instability and growth. Londregan and Poole (1990) found that while economic performance of countries significantly affected the probability of coups, neither past nor contemporaneous propensity of coups significantly affect the growth rates. Londregan and Poole (1990) also found the existence of so called "a coup trap" in a way that country's past coup experience is also significant determinants of the probability of coups. However, Alesina et al. (1992) found an inverse and significant relationship between growth and sociopolitical instability measured as the possibility of government collapse. They also found that contemporaneous low economic growth is not found to increase the contemporaneous propensity of government changes. Like Londregan and Poole (1990), they also found that political instability tends to be persistent. Our IV estimation results are also not inconsistent with these studies and show that reverse causality has not been the serious problem for this literature. Furthermore, our results also imply that the existence of outlier countries and, in a lesser degree, parameter heterogeneity have been more serious problems for this literature.

3. Model and Data

We use the following empirical framework to investigate the growth effects of a large number of sociopolitical instability measures. In general form, this model can be characterized as

$$\gamma_{yt} = F\left(y_t, k_t, h_t; Z_{(t)}\right), \tag{1}$$

where γ_{yt} is a country's per capita growth rate in period t, y_t is initial GDP per capita, k_t is the physical capital stock per person, h_t is initial human capital per person. We use telephone mainlines per worker and life expectancy rates as rough proxies for the stock of physical and human capital, respectively. Although the initial GDP per capita level is employed to assess the issue of conditional convergence, it is also possible to interpret it as a proxy for the stock of capital for a country. The variable Z represents a vector of control and environmental variables. These variables include a measure of total trade flows, type of political regime, and three regional dummies.

While GDP growth (GRWB) is calculated using the national accounts data from the World Development Indicators 1999 CDROM (WDI 1999), initial GDP per capita levels (GDPSH) are from the Summers and Heston (SH) data.[1] Data for telephone mainlines (TELPW) come from Easterly and Lu[2] and life expectancy figures (LIFE) are taken from WDI 1999. The most basic measure of trade openness (TRADE) is the ratio of exports plus imports to GDP that is used to control the trade openness of countries. Data on this variable is taken from the WDI (1999). Data on political regime type (REGIME), used to measure the level of democracy in a country, come from Polity III data.[3] Dummies for Sub-Saharan African countries (AFRICA), East Asian countries (EASIA), and Latin America and the Caribbean countries (LATIN) are also used to measure the effects of location on a country's growth performance.

Even though it is hard to divide sociopolitical instability measures into certain groups, we divide them into three groups; government stability measures, social stability indices, and political violence and war measures. First group includes number of coups per year, number of revolutions per year, cabinet changes, anti-government demonstrations, and government crises. Second group consists of external conflict risk,

[1] See, Nuxoll (1992) and Summers and Heston (1991) on the discussion of why researchers should use the Summers and Heston data for initial income levels but the World Bank data for growth rates.
[2] They maintain a database called "Global Development Network Growth Database" on the World Bank Web site: http://www.worldbank.org/research/growth/
[3] Polity III web page: http://paradocs.pols.columbia.edu/datavine/BrowseFrameSet.jsp?dsetID=100.

racial and nationality tensions, political terrorism, and civil war risk. We have two data points for four of them coming from 1984 and 1990. These measures either 0-10 or 0-6 indices and higher number indicates less risky countries. Third group includes deaths from political violence per capita, number of political protests, number of assassinations per year, purges, riots, general strikes, war casualties, and a dummy variable for a war taking place on national territory. Except for the last variable that is taken from Bruno and Easterly (1998), all of these variables are published by Easterly (1999) on the World Bank web site. Easterly provides detailed information about data sources.[4]

The cross-country growth regressions apply to a panel of over a hundred developed and developing countries observed from 1970 to 1997. Socialist countries (or formerly socialist) and oil exporting countries are excluded from the sample. Moreover, the number of countries is limited by the availability of data. The system is a three-equation system. The dependent variables are the average growth rates of real per capita GDP over three periods: 1970-1979, 1980-1989, and 1990-1997. The system of equations is estimated by using the seemingly unrelated regressions (SUR) and three-stages least squares (3SLS) estimation methods.

4. Empirical Results

4.1 Correlation across Sociopolitical Instability Measures

Table 1 examines the simple correlation between seventeen different measures of sociopolitical instability that are used in the empirical part of the study. The results show that even though there is not a statistically significant correlation among the all instability measures, most of the correlation coefficients have the correct signs except for the correlation coefficients for POLDTH and POLPRT that have usually insignificant coefficients with incorrect signs.

As expected, social stability measures are significantly and positively correlated with each other. However, correlation among the government stability measures and

[4] See, Data Appendix for the definition of sociopolitical instability measures.

Table 1 Pearson Correlation Coefficients for various Sociopolitical Instability Measures[a]

Variable	COUP	REVOL	CABCHG	AGOVTD	GOVCR	EXTCNF	RACIAL	POLTER	WARCIV	POLDTH	POLPRT	PURGE	RIOTS	STRIKE	ASSAS	WARC
REVOLS	0.54	1.0														
	.0001															
CABCHG	0.11	0.30	1.0													
	0.12	0.0001														
AGOVDEM	-0.018	0.008	0.044	1.0												
	0.80	0.90	0.52													
GOVCRIS	0.21	0.28	0.30	0.17	1.0											
	0.002	0.0001	0.0001	0.0023												
EXTCNFR	-0.10	-0.39	-0.22	-0.056	-0.059	1.0										
	0.35	0.0001	0.03	0.44	0.42											
RACIALT	-0.12	-0.26	-0.10	-0.24	-0.040	0.46	1.0									
	0.24	0.013	0.34	0.0011	0.58	0.0001										
POLTER	-0.18	-0.52	-0.29	-0.18	-0.14	0.58	0.63	1.0								
	0.09	0.0001	0.05	0.014	0.064	0.0001	0.0001									
WARCIV	-0.27	-0.58	-0.0223	-0.082	-0.13	0.64	0.61	0.80	1.0							
	0.008	0.0001	0.031	0.26	0.074	0.0001	0.0001	0.001								
POLDTH	-0.03	0.11	0.04	-0.034	-0.060	-0.16	-0.12	-0.14	-0.24	1.0						
	0.76	0.20	0.66	0.69	0.49	0.17	0.28	0.22	0.34							
POLPRT	-0.06	0.09	0.15	0.41	0.015	0.15	-0.16	-0.07	0.048	-0.0006	1.0					
	0.45	0.26	0.055	0.0001	0.56	0.19	0.15	0.54	0.66	0.99						
PURGES	0.006	0.30	0.21	0.14	0.14	-0.055	0.081	-0.054	0.015	-0.025	0.015	1.0				
	0.93	0.0001	0.0026	0.015	0.009	0.46	0.27	0.46	0.83	0.77	0.84					
RIOTS	0.025	0.038	0.21	0.67	0.20	-0.11	-0.28	-0.20	-0.15	0.089	0.29	0.16	1.0			
	0.72	0.59	0.0018	0.0001	0.0002	0.14	0.0001	0.0056	0.038	0.30	0.0001	0.0033				
STRIKES	0.090	0.13	0.12	0.25	0.29	0.080	0.080	-0.096	-0.087	-0.025	0.11	0.036	0.23	1.0		
	0.21	0.07	0.09	0.0001	0.0001	0.27	0.27	0.19	0.23	0.77	0.16	0.52	0.0001			
ASSASS	0.20	0.31	0.12	0.15	0.27	-0.072	-0.072	-0.38	-0.29	0.037	0.18	0.054	0.15	0.37	1.0	
	0.003	0.0001	0.09	0.0088	0.0001	0.32	0.32	0.0001	0.0001	0.66	0.019	0.34	0.0067	0.0001		
WARC	0.056	0.35	0.036	-0.021	0.025	-0.35	-0.17	-0.32	-0.34	-0.004	-0.072	-0.007	0.0034	-0.19	0.027	1.0
	0.42	0.0001	0.60	0.71	0.65	0.0001	0.017	0.0001	0.0001	0.96	0.33	0.90	0.95	0.73	0.62	
WARD	0.15	0.42	0.03	0.12	0.12	-0.31	-0.44	-0.58	-0.57	0.11	-0.011	0.06	0.27	0.04	0.49	0.40
	0.04	0.0001	0.72	0.05	0.04	0.0001	0.0001	0.0001	0.0001	0.21	0.88	0.33	0.0001	0.45	0.0001	0.0001

a The top figures show simple correlation coeffcients for decade averages; the bottom figures indicate the P-level of the test.

political violence measures are relatively weak. While GOVCRIS is significantly correlated with other measures of government stability and political violence measures, AGOVDEM is significantly correlated with the measures of political violence measures. Moreover, several variables such as REVOLS, ASSASS, and RIOTS also seem to be correlated most of the other instability measures.

It seems that war measures are significantly correlated with the all measures of social stability but they have usually weak or no correlation with the measures of other two groups. Low correlation coefficients among instability variables indicate that they considerably measure different aspects of sociopolitical instability. Thus, it is important to separately investigate the growth effects of these measures.

4.2 Government Stability Measures

Before explaining our estimation results for sociopolitical instability measures, we shall briefly discuss the results for other growth determinants used in the analysis. In almost all of the specifications they have the expected signs with significant coefficients. Our estimation results provide evidence in favor of conditional convergence. Additionally, they indicate that countries with more open trade regimes and more human and physical capital stocks grow faster. In almost all of the specifications, estimated coefficients for the regional dummies have expected signs with significant coefficients. Moreover, negative but statistically insignificant coefficients for political regime type reject the hypothesis that the relationship between growth and democracy is different in democracies and nondemocracies. Note that in Tables 2 through 8, we both present the SUR and 3SLS estimation results for each variable. As discussed earlier, our cross-country regressions may be subject to simultaneity problems. Therefore, to address the endogeneity problem appropriately we use instrumental variables technique. However, the major problem with this technique is that it is difficult to find good instruments that are correlated with the exogenous variables but are not correlated with the error terms. Based on our reading of the literature outlined in second section, in addition to the actual or lagged values of exogenous variables used in the study, we also used ethnolinguistic and party

fractionalization indices, five year lagged values of government consumption and inflation as instruments.[5] All instruments are listed in Table 2. The instrumental variables estimation is conducted using three-stage least squares (3SLS). Overall our results show that 3SLS estimation results are very similar to those from the SUR estimation.

In this section, we use five measures of government stability and report the regression results in Table 2, 5, 6, and 7. While in Table 2, estimated coefficients for COUPS are both insignificantly positive, those for REVOLS are insignificantly negative. We then divide the countries based their income and democracy levels[6] and reestimate the same regressions. As can be seen from Tables 5 and 6, although our results for COUPS do not change in any significant way, REVOLS has now negative and statistically significant coefficients for the good-democracy countries.

Estimated coefficients, in Table 2, for CABCHG are significantly positive and it seems that these results are mainly driven by the good-democracy countries with insignificantly positive coefficients in the all other specifications. These results imply that cabinet changes may actually be an indication of political stability in the sense that these changes have been occurring within the system without any insurrections. For example, Duff and Mccamant (1963, 1125) defined a stable political system as "one which can manage to change within its structures." Thus, cabinet changes may indicate the stability of political system instead of instability. Our results for CABCHG are consistent with this view. Similar to COUPS, GOVCRIS has insignificantly positive coefficients and disaggregating the data does not significantly change these results.

Finally, AGOVDEM has statistically significant and positive coefficient in the 3SLS estimation from the full sample. Further regressions based on democracy and income levels in Tables 5 and 6 do not produce any significant coefficients. Moreover, unlike the

[5] These variables are taken from Easterly and Lu (see, footnote 2) and see, Data Appendix for the description of the ethnolinguistic and party fractionalization indices.
[6] We arbitrarily define middle-income countries as countries with real per capita GDP above $1900 both at the beginning (1970-79) and at the end (1990-97) of the time period. Good-democracy countries are defined as countries with Gastil indices higher than 0.5 in a 0-1 scale.

Table 2 Government Stability Measures and Per Capita GDP Growth Rates: Panel of Three Decades (1970 - 1997)

	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
Variable	1	2	3	4	5	6	7	8	9	10
Log (GDPSH)	-2.03	-2.24	-2.22	-2.38	-2.03	-2.15	-2.44	-2.45	-2.49	-2.52
	(2.79)	(2.98)	(2.99)	(3.16)	(2.77)	(2.92)	(3.38)	(3.38)	(3.42)	(3.47)
Log (LIFE)	8.63	9.55	8.34	9.72	7.89	9.44	10.82	10.77	10.97	10.52
	(2.10)	(2.27)	(2.00)	(2.28)	(1.86)	(2.20)	(2.61)	(2.62)	(2.63)	(2.55)
TELPW	0.009	0.009	0.009	0.009	0.010	0.010	0.012	0.012	0.012	0.013
	(1.98)	(2.05)	(2.01)	(2.13)	(2.34)	(2.34)	(3.38)	(3.48)	(3.37)	(3.68)
TRADE	0.011	0.011	0.010	0.010	0.012	0.012	0.013	0.012	0.013	0.013
	(3.31)	(3.18)	(3.08)	(3.02)	(3.33)	(3.42)	(3.70)	(3.56)	(3.64)	(3.76)
REGIME	-0.28	-0.43	-0.02	-0.11	-0.10	-0.01	-0.05	-0.11	-0.03	0.0007
	(0.67)	(0.92)	(0.06)	(0.28)	(0.28)	(0.03)	(0.15)	(0.32)	(0.09)	(0.00)
COUPS	0.77	2.58								
	(0.38)	(0.83)								
REVOLS			-0.96	-0.30						
			(1.40)	(0.23)						
CABCHG					0.49	0.95				
					(1.96)	(2.04)				
GOVCRIS							0.05	0.26		
							(0.36)	(1.24)		
AGOVDEM									0.02	0.16
									(0.29)	(1.64)
AFRICA	-1.63	-1.68	-1.83	-1.81	-1.77	-1.57	-1.65	-1.51	-1.73	-1.66
	(2.70)	(2.75)	(2.94)	(2.79)	(2.80)	(2.45)	(2.65)	(1.39)	(2.79)	(2.72)
LATIN	-1.34	-1.43	-1.44	-1.58	-1.34	-1.41	-1.26	-1.38	-1.33	-1.35
	(3.21)	(3.38)	(3.39)	(3.74)	(3.10)	(3.26)	(2.94)	(3.22)	(3.07)	(3.12)
EASIA	0.41	0.39	0.48	0.45	0.83	0.86	0.78	0.84	0.76	0.69
	(0.78)	(0.74)	(0.91)	(0.85)	(1.67)	(1.74)	(1.54)	(1.66)	(1.48)	(1.36)
R2, for each	.13,.55	.12.55	.09,.59	.08,.58	.24,.58	.23,.57	.20,.58	.19,.58	.19,.59	.11,.59
eq., (# of obs)	(131)	(131)	(131)	(131)	(132)	(132)	.33,(197)	.32,(197)	.33,(197)	.32,(197)

For each variable, the first column uses the SUR and the second column uses the 3SLS technique. The system has 3 (2 for some variables) equations, where the dependent variables are per capita growth rates over each decade. Each equation has a different constant term (not reported here). Other coefficients are restricted to be the same for all periods. t-statistics are in parentheses. The instruments used in the 3SLS estimations are five-year earlier log of (GDPSH) (for example, for 1965 in the 1970-1979 equation); five-year lagged values of log (LIFE) (for example, for 1965-1969 averages in the 1970-1979 equation); actual values of TELPW and REGIME, and previous five-year values of TRADE are used. For example, the 1980-1989 equation uses averages of the TRADE for 1975-1979 period. Finally, index of ethnolinguistic fractionalization in 1960, party fractionalization index in the 1970s and 1980s, and five-year lagged values of government consumption and inflation rates are also used.

previous four variables, leaving out the three outlier observations (the United States in the 1970s, India and South Africa in the 1980s)[7] produces insignificant coefficients for AGOVDEM in the full sample. However, as can be seen from Table 7, regressions without outliers produce negative and significant coefficients for the middle-income countries. Thus, estimation results for government instability variables imply weak and ambiguous relationship with economic growth.

4.3 Social Stability Indices

Table 3 reports the regressions for four indices of social stability. Both SUR and 3SLS estimation results show that these indices have no or weak relationship with economic growth. However, further regression results show that sociopolitical instability measured with external conflict risk has affected growth negatively in middle-income countries but positively in poor-democracy countries. Since these variables are 0-10 or 0-6 scaled indices, it is hard to detect the existence of outlier countries but we identify two outlier observations with extremely poor growth performances.[8] As Table 7 reports, regressions without two outliers are very similar to those from the other tables. The only difference is now that EXTCNFR has also affected positively growth in the low-income countries, too.

4.4 Political Violence and War Indicators

Table 4 presents the regression results for political violence and war measures. These measures have relatively more robust and negative relationship with economic growth, especially without outliers, with an exception of POLPRT. Table 4 reports insignificant and positive coefficients for POLPRT. Further regressions in Table 5 imply that there exists statistically significant and positive relationship between economic growth and POLPRT in the low-income countries. In addition, excluding four outlier observations

[7] We exclude Argentina and Thailand in the 1970s for COUPS, El Salvador in the 1980s for REVOLS, and Canada, Guatemala, and Italy in the 1970s for GOVCRIS from the cross-country regressions.

[8] These countries are Sierra Leone and Zaire in the 1990s. Their average growth rates in the 1990s are -7.2% and -9.4%, respectively. Note that these countries are also excluded from all the regressions in Tables 7 and 8.

Table 3 Social Stability Measures and Per Capita GDP Growth Rates: Panel of Three Decades (1970 - 1997)

	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
Variable	1	2	3	4	5	6	7	8
Log (GDPSH)	-3.12	-3.60	-3.11	-3.47	-3.06	-3.93	-3.36	-3.74
	(3.03)	(3.29)	(3.02)	(3.17)	(2.76)	(3.09)	(3.09)	(3.23)
Log (LIFE)	25.40	25.81	25.96	26.36	25.60	25.98	25.74	25.99
	(4.099	(3.66)	(4.14)	(3.73)	(4.10)	(3.71)	(4.10)	(3.70)
TELPW	0.005	0.006	0.006	0.007	0.005	0.006	0.005	0.006
	(1.04)	(1.22)	(1.17)	(1.28)	(1.04)	(1.28)	(1.03)	(1.17)
TRADE	0.011	0.010	0.011	0.010	0.011	0.010	0.011	0.010
	(2.70)	(2.44)	(2.71)	(2.42)	(2.73)	(2.21)	(2.66)	(2.34)
REGIME	0.14	0.05	0.14	0.04	0.13	0.06	0.16	0.09
	(0.28)	(0.10)	(0.28)	(0.09)	(0.25)	(0.11)	(0.31)	(0.15)
EXTCNFR	-0.017	0.05						
	(0.20)	(0.36)						
RACIALT			-0.08	-0.02				
			(0.61)	(0.10)				
POLTER					-0.05	0.14		
					(0.37)	(0.60)		
WARCIV							0.04	0.10
							(0.26)	(0.45)
AFRICA	-1.01	-1.04	-0.95	-0.97	-0.95	-1.18	-1.06	-1.09
	(1.34)	(1.33)	(1.22)	(1.22)	(1.20)	(1.41)	(1.34)	(1.34)
LATIN	-1.68	-1.81	-1.56	-1.75	-1.69	-1.76	-1.71	-1.83
	(3.159	(3.34)	(2.72)	(2.86)	(3.14)	(3.27)	(3.16)	(3.39)
EASIA	0.78	0.60	0.73	0.68	0.75	0.60	0.68	0.59
	(1.29)	(0.95)	(1.22)	(1.149	(1.25)	(0.96)	(1.11)	(0.94)
R2, for each	.47,.33	.47,.31	.46,.34	.48,.31	.47,.33	.48,.29	.47,.32	.49,.30
eq., (# of obs)	(141)	(141)	(141)	(141)	(141)	(141)	(141)	(141)

Notes: See, Table 2

(the United States from the 1970s equation and the United Kingdom, Pakistan, and Spain from the 1980s equation) obtains significant and positive coefficients for the full sample and poor-democracy countries. The reason for this positive relationship is probably that it may indicate the democracy level of low-income and poor-democracy countries in the sense that it is relatively difficult to gather in protests in non-democracies. Thus, these results are similar to those for CAHCHG and both variables are likely to measure political stability of the countries rather than instability.

While 3SLS estimation results produce insignificant and positive coefficient for POLDTH for the full sample, in all the other specifications they have negative coefficients. Thus, statistically significant coefficients for the middle-income and good-democracy

Table 4 Political Violence Measures, War Measures and Per Capita GDP Growth Rates: Panel of Three Decades (1970 - 1997)

	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
Variable	1	2	3	4	5	6	7	8
Log (GDPSH)	-3.19	-3.90	-2.71	-2.85	-2.45	-2.46	-2.40	-2.36
	(3.41)	(3.76)	(3.40)	(3.54)	(3.35)	(3.40)	(3.32)	(3.25)
Log (LIFE)	18.87	22.01	8.92	9.48	10.44	10.29	11.15	11.13
	(3.76)	(4.02)	(2.01)	(2.14)	(1.49)	(2.49)	(2.68)	(2.71)
TELPW	0.010	0.010	0.10	0.011	0.010	0.011	0.012	0.012
	(1.87)	(1.76)	(2.49)	(2.54)	(3.24)	(3.28)	(3.54)	(3.64)
TRADE	0.007	0.008	0.009	0.009	0.012	0.011	0.013	0.013
	(1.61)	(1.56)	(2.48)	(2.32)	(3.43)	(3.21)	(3.91)	(3.80)
REGIME	-0.40	-0.53	-0.10	-0.12	-0.09	-0.14	0.06	0.07
	(0.96)	(1.16)	(0.28)	(0.35)	(0.24)	(0.41)	(0.18)	(0.21)
POLDTH	-1.61	0.21						
	(1.27)	(0.11)						
POLPRT			0.013	0.022				
			(1.25)	(1.17)				
ASSASS					-0.10	-0.08		
					(0.64)	(0.36)		
RIOTS							0.10	0.17
							(1.69)	(1.71)
AFRICA	-0.71	-0.82	-2.23	-2.15	-1.77	-1.78	-1.63	-1.54
	(0.99)	(1.019	(3.38)	(3.21)	(2.82)	(2.84)	(2.63)	(2.49)
LATIN	-1.08	-1.28	-1.40	-1.35	-1.15	-1.29	-1.23	-1.31
	(2.24)	(2.39)	(3.16)	(2.89)	(2.60)	(2.98)	(2.85)	(2.99)
EASIA	1.66	1.30	1.18	1.27	0.82	0.83	0.79	0.80
	(2.27)	(1.65)	(2.24)	(2.37)	(1.61)	(1.65)	(1.53)	(1.61)
R2, for each	.36, .60	.32,.59	.31, .61	.30, .60	.19,.58	.17,.59	.18,.60	.15,.61
eq., (# of obs)	(91)	(91)	(118)	(118)	.32,(201)	.32,(201)	.35,(197)	.34(197)
	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
Variable	9	10	11	12	13	14	15	16
Log (GDPSH)	-2.46	-2.40	-2.43	-2.44	-2.41	-2.51	-2.41	-2.46
	(3.39)	(3.24)	(3.36)	(3.37)	(3.28)	(3.40)	(3.33)	(3.37)
Log (LIFE)	10.67	10.83	10.94	10.62	10.42	10.43	10.70	9.99
	(2.58)	(2.62)	(2.63)	(2.59)	(2.49)	(2.51)	(2.60)	(2.41)
TELPW	0.012	0.012	0.012	0.012	0.011	0.011	0.011	0.010
	(3.41)	(3.27)	(3.32)	(3.41)	(3.27)	(3.34)	(3.08)	(2.80)
TRADE	0.013	0.012	0.012	0.012	0.012	0.011	0.011	0.009
	(3.67)	(3.46)	(3.60)	(3.47)	(3.57)	(3.34)	(3.02)	(2.66)
REGIME	-0.06	-0.06	-0.04	-0.07	-0.099	-0.09	-0.15	0.20
	(0.16)	(0.17)	(0.12)	(0.20)	(0.28)	(0.27)	(0.43)	(0.57)
PURGES	-0.10	0.11						
	(0.35)	(0.25)						
STRIKES			-0.08	0.05				
			(0.61)	(0.27)				
WARC					.00001	-.0004		
					(0.35)	(0.62)		
WARD							-0.39	-1.26
							(0.66)	(1.55)
AFRICA	-1.72	-1.68	-1.71	-1.70	-1.70	-1.72	-1.63	-1.83
	(2.98)	(2.67)	(2.76)	(2.78)	(2.72)	(2.78)	(2.59)	(2.88)
LATIN	-1.28	-1.48	-1.30	-1.47	-1.14	-1.29	-1.13	-1.23
	(2.98)	(3.44)	(3.01)	(3.46)	(2.65)	(2.99)	(2.66)	(2.89)
EASIA	0.79	0.75	0.74	0.79	0.84	0.83	-1.16	1.23
	(1.54)	(1.44)	(1.45)	(1.57)	(1.65)	(1.62)	(2.16)	(2.26)
R2, for each	.19,.59	.18,.59	.20,.59	.17,.59	.19,.56	.16,.59	.21, .58	.20, .60
eq., (# of obs)	.33,(197)	.32,(197)	.33,(197)	.32,(197)	.34,(201)	.31,(201)	.33,(195)	.27,(195)

Notes: See, Table 2

countries suggest negative and robust relationship between growth and political instability. Excluding an outlier observation (Zimwabwe in the 1980s) does not alter our results any significant way.

In Table 4, both of the estimated coefficients for ASSASS are insignificantly negative. Further disaggregating the data also obtains similar results for the groups of countries. However, estimating the regressions without five outliers (Argentina in the 1970s, El Salvador and Guatemala in the 1980s, and Colombia and Guatemala in the 1990s) produces more fruitful results. As can be seen from Table 7, ASSASS has now positive but insignificant coefficients for all countries. Contrary to the common expectations, regression results in Table 7 show that ASSASS has significantly and negatively affected growth in the poor democracy countries but significantly and positively affected growth in the good democracy countries. Given the fact that ASSASS is twice as high as in both good-democracy and middle-income countries compared to poor-democracy and low-income countries, respectively, it is not a complete surprise to reach these results. This implied positive relationship between growth and political instability for the good-democracy and middle- and high- income countries may also be considered as evidence for the Olson's hypothesis that political stability can be harmful for growth due to the potentially high level of rent seeking activities and interest groups.

Table 4 reports statistically significant and positive coefficients for RIOTS for all countries. Moreover, estimation results in Table 5 suggest that while RIOTS has positive and significant effects on growth in the low-income countries, it has significantly adverse effects on growth in the middle-income countries. However, as can be seen from Table 7 excluding three outliers (India and South Africa from the 1980s equation and India from the 1990s equation) changes our results significantly because now for all countries and low-income countries we have negative but insignificant coefficients. Thus, it is clear that positive coefficients for RIOTS are driven by a couple of outliers.

PURGES and STRIKES both have insignificantly negative coefficients from the SUR estimation and insignificantly positive coefficients from the 3SLS estimation. Tables

5 and 6 report significantly negative coefficients for the good-democracy countries for PURGES and for the low-income countries for STRIKES. However, excluding an outlier observation (South Korea in the 1980s) produces statistically significant and negative coefficients for PURGES. Meantime, STRIKES without six outlier observations (Argentina, Spain, and Italy in the 1970s, Argentina, Greece, and Uruguay in the 1990s) has negative but insignificant coefficient for all countries. However, without outliers both PURGES and STRIKES have now statistically significant and negative coefficients for both the low-income and good-democracy countries.

Finally, we use two war measures in the cross-country growth regressions. Table 4 reports negative but insignificant coefficients for both WARC and WARD. Further regressions in Tables 5 and 6 obtain similar coefficients for WARD. WARD has also similar coefficients without two outliers. Nevertheless, for WARC, Tables 5 and 6 show significantly different results for the groups of countries. While both low-income and poor-democracy countries have statistically significant and positive coefficients, good-democracy countries have statistically significant and negative coefficients. Conversely, without three outliers (Burundi in the 1970s and Mozambique and Sudan in the 1990s), in almost all specifications, WARC has negative coefficients but only those for the good-democracy countries statistically significant. Therefore, it seems that positive coefficients for low-income and poor-democracy countries are driven by three outliers.

4.5 Robustness and Sensitivity Analysis

One of the frequently raised problems in the empirical growth literature is the potential existence of reverse causality and not surprisingly, as discussed in section 2, sociopolitical instability literature has also been strongly criticized on this issue. Due to these concerns we have also reported 3SLS estimation results with SUR results. As can be seen from regression tables, 3SLS estimation results are very similar to those from the SUR estimation. Only in a couple of specifications, estimated coefficients turn out to be statistically significant when they are not in the SUR estimation, such as AGOVDEM that has now statistically significant and positive effects on growth. That 3SLS estimation

Table 5 Growth Regressions: Pooled Decades (1970s, 1980s, 1990s)

	Low-Income Countries				Middle-Income Countries			
Variables	SUR	R^2 (# of obs)	3SLS	R^2 (# of obs)	SUR	R^2 (# of obs)	3SLS	R^2 (# of obs)
COUPS	2.80	.14,.49	1.81	.10,.51	-0.55	.28,.63	-0.68	.25,.64
	(0.62)	(51)	(0.34)	(51)	(0.24)	(80)	(0.26)	(80)
REVOLS	-1.75	.05,.59	-1.56	-.01,.62	-0.12	.27,.63	-0.54	.24,.65
	(1.56)	(51)	(1.14)	(51)	(0.13)	(80)	(0.44)	(80)
CABCHG	0.38	.20,.64	0.03	.15,.66	0.28	.31,.60	0.58	.30,.59
	(0.73	(53)	(0.05)	(53)	(1.03)	(79)	(1.37)	(79)
GOVCRIS	0.004	.23,.55	0.005	.23,.56	0.02	.24,.63	0.11	.21,.67
	(0.01)	.55,(80)	(0.01)	.55,(80)	(0.18)	.23,(117)	(0.69)	.18,(117)
AGOVDEM	0.19	.24,.53	0.20	.23,.54	-0.08	.23,.66	-0.07	.21,.69
	(1.08)	.57(80)	(1.14)	.56(80)	(1.41)	.24,(117)	(0.89)	.20,(117)
EXTCNFR	-0.09	.42,.51	-0.18	.43,.50	0.12	.65,.36	0.16	.67,.32
	(0.51)	(61)	(0.82)	(61)	(1.51)	(80)	(1.77)	(80)
RACIALT	0.005	.41,.51	-0.19	.41,.51	-0.04	.63,.36	0.04	.65,.32
	(0.02)	(61)	(0.47)	(61)	(0.34)	(80)	(0.29)	(80)
POLTER	0.23	.45,.49	0.11	.46,.48	0.005	.63,.36	0.13	.64,.32
	(0.73)	(61)	(0.26)	(61)	(0.04)	(80)	(0.85)	(80)
WARCIV	0.11	.44,.50	0.012	.44,.49	0.24	.64,.36	0.37	.66,.33
	(0.48)	(61)	(0.04)	(61)	(1.14)	(80)	(1.52)	(80)
POLDTH	-2.08	.32,.62	-1.001	.30,.63	-3.52	-.08,.77	-3.36	-.27,.78
	(0.88)	(42)	(0.39)	(42)	(2.26)	(49)	(2.03)	(49)
POLPRT	0.058	.21,.65	0.08	.17,.66	0.005	.55,.62	0.01	.55,.62
	(1.57)	(50)	(1.65)	(50)	(0.58)	(68)	(0.91)	(68)
ASSASS	-0.47	.29,.60	-0.57	.28,.63	-0.012	.24,.59	-0.04	.22,.62
	(1.26)	.51,(81)	(1.53)	.48,(81)	(0.08)	.25,(120)	(0.23)	.21,(120)
RIOTS	0.17	.21,.53	0.18	.19,.54	-0.16	.23,.65	-0.15	.21,.67
	(1.67)	.60,(80)	(1.72)	.60,(80)	(2.26)	.31,(117)	(1.81)	.28,(117)
PURGES	-0.54	.25,.59	-0.56	.24,.61	1.29	.27,.63	1.45	.25,.66
	(1.28)	.53,(80)	(1.37)	.51,(80)	(1.14)	.22,(117)	(1.23)	.17,(117)
STRIKES	-0.94	.27,.61	-1.02	.27,.63	-0.007	.24,.63	-0.002	.21,.66
	(1.83)	.53,(80)	(1.91)	.52,(80)	(0.06)	.23,(117)	(0.01)	.19,(117)
WARC	0.001	.30,.41	0.001	.330,.41	-0.0005	.23,.61	-0.0008	.20,.64
	(1.88)	.65,(54)	(1.83)	.65,(54)	(0.68)	.25,(80)	(1.02)	.21,(80)
WARD	-0.07	.25,.53	-0.16	.23, .55	-1.10	.29,.61	-1.09	.28,.63
	(0.07)	.56,(54)	(0.18)	.54,(54)	(1.55)	.31,(76)	(1.45)	.28,(76)

Notes: See, Table 2

results are almost indistinguishable from the results obtained by SUR estimation in Tables 2 through 8 suggests that our estimation results seem not to be sensitive to the simultaneity problem. Thus, overall our results suggest that reverse causality has not been the most serious problem for this literature.

On the contrary, the existence of outlier observations and parameter heterogeneity across certain groups of countries have been the much more severe problems for this literature. Comparison of Tables 2 through 6 with Table 7 indicates that the issue of

Table 6 Growth Regressions: Pooled Decades (1970s, 1980s, 1990s)

	Poor-Democracy Countries				Good-Democracy Countries			
Variables	SUR	R^2 (# of obs)	3SLS	R^2 (# of obs)	SUR	R^2 (# of obs)	3SLS	R^2 (# of obs)
COUPS	1.87	.35,.62	2.61	.34,.63	-3.24	-.11,.41	-0.66	-.16,.42
	(0.61)	(62)	(0.61)	(62)	(0.94)	(69)	(0.19)	(69)
REVOLS	0.11	.35,.61	0.22	.35,.58	-3.18	-.12,.56	-3.86	-.18,.58
	(0.10)	(62)	(0.16)	(62)	(3.10)	(69)	(3.25)	(69)
CABCHG	0.63	.37,.69	0.06	.34,.69	0.46	.17,.37	1.17	.10,.27
	(1.49)	(64)	(0.11)	(64)	(1.46)	(68)	(2.55)	(68)
GOVCRIS	0.09	.37,.66	0.22	.35,.68	0.08	.03,.40	0.15	.02,.41
	(0.28)	.50,(96)	(0.65)	.48,(96)	(0.57)	.05,(101)	(0.88)	.03,(101)
AGOVDEM	-0.06	.39,.64	-0.01	.37,.66	0.02	-.04,.44	0.014	-.06,.46
	(0.46)	.51,(96)	(0.10)	.50,(96)	(0.27)	.05,(101)	(0.19)	.03,(101)
EXTCNFR	-0.21	.60,.54	-0.38	.59,.51	0.11	.34,.08	0.18	.32,.07
	(1.61)	(64)	(2.11)	(64)	(0.91)	(77)	(1.34)	(77)
RACIALT	0.04	.63,.49	0.20	.68,.43	-0.08	.35,.07	-0.14	.34,.08
	(0.20)	(64)	(0.85)	(64)	(0.43)	(77)	(0.62)	(77)
POLTER	0.06	.62,.50	-0.12	.64,.47	-0.20	.33,.14	-0.05	.32,.14
	(0.24)	(64)	(0.42)	(64)	(1.02)	(77)	(0.21)	(77)
WARCIV	-0.06	.62,.50	-0.17	.64,.48	0.09	.35,.06	0.27	.35,.02
	(0.27)	(64)	(0.66)	(64)	(0.37)	(77)	(0.95)	(77)
POLDTH	-1.01	.46,.71	-0.77	.41,.72	-8.95	.26,.43	-10.83	.12,.45
	(0.72)	(56)	(0.46)	(56)	(1.57)	(45)	(1.89)	(45)
POLPRT	0.003	.47,.68	-0.02	.46,.68	0.003	-.27,.48	-0.0004	-.31,.50
	(0.18)	(60)	(0.64)	(60)	(0.23)	(58)	(0.02)	(58)
ASSASS	-0.48	.41,.67	-0.45	.39,.69	0.08	-.05,.36	0.04	-.06,.39
	(1.71)	.51,(96)	(1.56)	.50,(96)	(0.44)	.10,(105)	(0.21)	.07,(105)
RIOTS	0.018	.37,.65	0.06	.34,.67	0.10	-.02,.45	0.12	-.05,.47
	(0.19)	.51,(96)	(0.54)	.49,(96)	(1.35)	.08,(101)	(1.37)	.06,(101)
PURGES	0.15	.38,.65	0.08	.36,.66	-1.93	-.05,.56	-1.97	-.08,.58
	(0.40)	.51,(96)	(0.23)	.49,(96)	(3.27)	.05,(101)	(3.52)	.01,(101)
STRIKES	-0.23	.40,.63	-0.09	.38,.65	-0.07	-.04,.45	-0.13	-.07,.48
	(0.99)	.52,(96)	(0.37)	.51,(96)	(0.47)	.03,(101)	(0.72)	.00,(101)
WARC	0.001	.42,.59	0.001	.40,.61	-0.001	-.06,.47	-0.001	-.10,.50
	(2.09)	.58,(96)	(1.89)	.57,(96)	(1.81)	-.03,(105)	(2.09)	-.03,(105)
WARD	-0.31	.38,.66	-0.60	.37,.68	0.52	-.02,.33	0.36	-.01,.35
	(0.34)	.50,(96)	(0.61)	.48,(96)	(0.65)	.08,(99)	(0.44)	.06,(99)

Notes: See, Table 2

outlier countries is extremely important and influential especially in the estimates of political violence and war measures. Note that since these are the variables that have more significant relationship with economic growth makes this issue more crucial. Almost all of the political violence measures, AGOVDEM, EXTCNFR, and WARC have changed signs and at the same time most of them either become insignificant when they are not or turn out to be insignificant when they are significant. For example, South Korea has the highest number of purges in the last three decades. Leaving South Korea in the 1980s

Table 7 Growth Regressions: Without Outlier Countries[a]

	Full Sample		Low-Income C.		Middle-Income C		Poor-Democracy C.		Good-Democrac	
Variable	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
COUPS	0.85	5.20	3.55	3.27	-0.61	-0.99	3.22	6.77	-3.24	-0.66
	(0.35)	(1.38)	(0.55)	(0.52)	(0.23)	(0.33)	(0.80)	(1.14)	(0.94)	(0.19)
REVOLS	-0.36	0.20	-0.68	-0.12	-0.12	-0.54	0.11	0.22	-2.91	-4.67
	(0.46)	(0.15)	(0.47)	(0.47)	(0.13)	(0.44)	(0.10)	(0.16)	(1.80)	(2.28)
CABCHG	0.49	0.95	0.38	0.03	0.28	0.58	0.63	0.06	0.46	1.17
	(1.96)	(2.04)	(0.73	(0.05)	(1.03)	(1.37)	(1.49)	(0.11)	(1.46)	(2.55)
GOVCRIS	0.003	0.18	0.07	0.14	-0.11	-0.03	0.27	0.40	-0.23	-0.29
	(0.02)	(0.66)	(0.15)	(0.30)	(0.67)	(0.14)	(0.83)	(1.17)	(1.20)	(1.28)
AGOVDEM	-0.08	0.09	-0.13	-0.12	-0.19	-0.21	-0.14	-0.02	-0.03	-0.07
	(0.74)	(0.56)	(0.54)	(0.50)	(1.83)	(1.65)	(0.89)	(0.11)	(0.23)	(0.43)
EXTCNFR	-0.04	0.04	-0.30	-0.53	0.12	0.16	-0.26	-0.32	0.11	0.18
	(0.43)	(0.33)	(1.89)	(2.75)	(1.51)	(1.77)	(2.44)	(2.31)	(0.91)	(1.37)
RACIALT	-0.08	-0.08	0.05	-0.16	-0.03	0.04	0.04	0.12	-0.08	-0.14
	(0.63)	(0.41)	(0.15)	(0.45)	(0.34)	(0.29)	(0.20)	(0.61)	(0.43)	(0.62)
POLTER	-0.02	0.16	0.23	0.25	0.005	0.13	0.16	-0.04	-0.20	-0.05
	(0.15)	(0.72)	(0.73)	(0.92)	(0.04)	(0.85)	(0.79)	(0.18)	(1.02)	(0.21)
WARCIV	0.04	0.10	-0.01	-0.17	0.24	0.37	-0.06	-0.22	0.09	0.27
	(0.028)	(0.53)	(0.06)	(0.64)	(1.14)	(1.52)	(0.27)	(0.92)	(0.37)	(0.95)
POLDTH	-1.61	0.21	-2.08	-1.001	-3.52	-3.36	-1.01	-0.77	-8.95	-10.83
	(1.27)	(0.11)	(0.88)	(0.39)	(2.26)	(2.03)	(0.72)	(0.46)	(1.57)	(1.89)
POLPRT	0.014	0.08	0.02	0.04	0.01	0.004	0.06	0.12	-0.02	-0.04
	(0.63)	(2.04)	(0.27)	(0.39)	(0.53)	(0.18)	(1.42)	(1.92)	(0.81)	(1.14)
ASSASS	0.06	0.40	-0.22	-0.26	0.24	0.26	-0.84	-0.81	0.73	0.87
	(0.28)	(1.20)	(0.55)	(0.65)	(1.00)	(0.90)	(2.46)	(2.28)	(2.91)	(3.12)
RIOTS	-0.02	0.03	-0.10	-0.12	-0.19	-0.21	-0.04	0.09	-0.05	-0.08
	(0.18)	(0.20)	(0.65)	(0.76)	(2.09)	(1.93)	(0.27)	(0.59)	(0.45)	(0.64)
PURGES	-0.85	-0.82	-1.21	-1.22	1.29	1.45	-0.56	-0.81	-1.93	-1.97
	(2.31)	(1.66)	(2.40)	(2.41)	(1.14)	(1.23)	(1.12)	(1.57)	(3.27)	(3.52)
STRIKES	-0.71	-0.56	-1.21	-1.25	-0.32	-0.58	-1.26	-0.70	-0.68	-0.88
	(2.74)	(1.28)	(2.69)	(2.62)	(1.05)	(1.54)	(1.92)	(0.92)	(2.52)	(3.13)
WARC	-0.0008	-0.0009	-0.0008	-0.0008	-0.0005	-0.0008	0.0003	0.001	-0.001	-0.001
	(1.32)	(1.39)	(0.79)	(0.75)	(0.68)	(1.07)	(0.29)	(1.11)	(1.81)	(2.09)
WARD	-0.39	-0.85	-0.49	-0.60	-1.10	-1.21	-0.73	-0.83	0.52	0.36
	(0.70)	(1.13)	(0.60)	(0.71)	(1.55)	(1.60)	(0.93)	(0.94)	(0.65)	(0.44)

a Growth rates are taken from the World Bank. Notes: See, Table 2

out of the regressions makes surprisingly crucial differences in the estimates of PURGES, as can be seen from Tables. India is another example, which has the highest numbers of riots in the last two decades with considerably high growth rates. Similarly, exclusion of them has also significant impacts on the estimates of RIOTS. Therefore, researchers should be extremely careful for the existence one or several outliers that can drive some strange results.

Table 8 Growth Regressions: Without Outlier Countries[a]

	Full Sample		Low-Income C.		Middle-Income C		Poor-Democracy		Good-Democracy	
Variable	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS	SUR	3SLS
COUPS	1.73	7.01	2.61	1.83	-1.37	-2.05	4.40	6.50	-2.52	0.20
	(0.73)	(1.88)	(0.49)	(0.31)	(0.53)	(0.69)	(1.29)	(1.30)	(0.73)	(0.06)
REVOLS	-0.22	0.18	-0.32	0.34	0.09	-0.66	0.27	0.18	-2.62	-4.91
	(0.31)	(0.14)	(0.28)	(0.25)	(0.09)	(0.55)	(0.31)	(0.16)	(1.53)	(2.22)
CABCHG	0.57	1.06	0.38	0.14	0.36	0.76	0.64	0.39	0.53	1.30
	(2.41)	(2.44)	(0.74)	(0.22)	(1.33)	(1.81)	(1.61)	(0.71)	(1.71)	(2.89)
GOVCRIS	0.01	0.21	-0.25	-0.18	-0.06	-0.007	0.13	0.21	-0.16	-0.18
	(0.07)	(0.79)	(0.45)	(0.34)	(0.40)	(0.04)	(0.42)	(0.65)	(0.84)	(0.81)
AGOVDEM	-0.21	-0.21	-0.41	-0.41	-0.28	-0.35	-0.28	-0.23	-0.10	-0.14
	(1.78)	(1.21)	(1.38)	(1.34)	(2.32)	(2.61)	(1.67)	(1.30)	(0.59)	(0.81)
EXTCNFR	-0.015	-0.02	-0.19	-0.31	0.12	0.14	-0.05	-0.18	0.008	0.04
	(0.19)	(0.15)	(1.11)	(1.63)	(1.30)	(1.62)	(0.35)	(1.04)	(0.08)	(0.41)
RACIALT	0.02	-0.10	0.36	0.26	0.006	0.010	0.16	0.20	-0.20	-0.34
	(0.13)	(0.57)	(1.06)	(0.70)	(0.05)	(0.07)	(0.69)	(0.88)	(1.11)	(1.61)
POLTER	-0.08	-0.06	0.21	0.11	-0.02	0.04	0.09	-0.06	-0.22	-0.10
	(0.55)	(0.21)	(0.74)	(0.31)	(0.13)	(0.28)	(0.37)	(0.22)	(1.22)	(0.45)
WARCIV	0.08	0.10	0.18	0.09	-0.0007	0.17	0.08	-0.20	0.05	0.20
	(0.52)	(0.50)	(0.82)	(0.34)	(0.00)	(0.68)	(0.31)	(0.72)	(0.20)	(0.76)
POLDTH	-1.96	-1.00	-2.60	-2.53	-2.99	-3.11	-1.70	-2.16	-6.05	-7.55
	(1.56)	(0.50)	(1.10)	(0.96)	(1.83)	(1.78)	(1.27)	(1.38)	(1.07)	(1.37)
POLPRT	0.01	0.09	0.01	0.02	0.05	0.003	0.02	0.05	-0.02	-0.03
	(0.64)	(2.27)	(0.14)	(0.23)	(0.51)	(0.11)	(0.51)	(0.75)	(0.75)	(0.94)
ASSASS	0.05	0.20	-0.41	-0.42	0.04	-0.04	-0.98	-1.15	0.78	0.95
	(0.22)	(0.51)	(0.76)	(0.79)	(0.14)	(0.14)	(2.57)	(2.99)	(2.68)	(2.88)
RIOTS	-0.06	-0.14	-0.25	-0.26	-0.15	-0.17	-0.18	-0.09	0.013	0.019
	(0.73)	(0.98)	(1.47)	(1.55)	(1.37)	(1.33)	(1.10)	(0.54)	(1.12)	(0.16)
PURGES	-0.55	-0.81	-1.02	-1.01	1.56	1.68	-0.19	-0.39	-1.12	-1.13
	(1.47)	(1.59)	(1.85)	(1.85)	(1.53)	(1.62)	(0.39)	(0.83)	(1.68)	(1.76)
STRIKES	-0.62	-0.92	-0.71	-0.73	-0.58	-1.11	-2.51	-2.25	-0.36	-0.46
	(2.15)	(1.87)	(1.36)	(1.36)	(1.69)	(2.67)	(2.44)	(1.93)	(1.26)	(1.50)
WARC	-0.0002	-0.0004	0.00003	0.00007	-0.0004	-0.0006	0.001	0.002	-0.0007	-0.0008
	(0.34)	(0.54)	(0.03)	(0.06)	(0.53)	(0.77)	(1.16)	(1.58)	(0.99)	(1.17)
WARD	-0.44	-0.67	-1.22	-1.51	-0.93	-0.88	-1.52	-1.97	0.93	0.66
	(0.72)	(0.69)	(1.25)	(1.53)	(1.10)	(1.05)	(1.59)	(1.92)	(1.12)	(0.80)

a Growth rates are taken from the Summers and Heston data. Notes: See, Table 2

In addition to the outliers problem, our results also suggest that the estimates of sociopolitical instability measures, especially of political violence measures have been considerably different across certain groups of countries. Our estimation results imply that sociopolitical instability has considerably more adverse effects on middle-income and good-democracy countries compared to the other two groups. Based on the 3SLS estimations in Table 7, while only four specifications suggest the negative and strong relationship between sociopolitical instability and economic growth for the low-income and

poor-democracy countries, nine specifications imply the same relationship for the other two groups. It may be the reason for that middle income and good-democracy countries have much more at stake in the state of sociopolitical instability even though they are supposed to have good and strong institutions to deal with these problems. The reason why poor growing and democracy countries, however, may not much be affected from sociopolitical instability is that they have been more accustomed to these problems. Another reason would be that even if these countries have actually been more politically unstable compared to democratic and high income countries, political instability may not easily manifest itself due to the high level of repression in these countries. Thus, since instability measures used in the literature are mostly outcomes variables and since there is a high possibility of mismeasurement of these variables in less democratic and less developed countries, they may not appropriately let the actual relationship out for these countries.

To test the sensitivity of our results to different data sets, we next replicate the regressions in Table 7 using the growth rates from the Summers and Heston data (GRSH) instead of from the World Bank. Regression results are reported in Table 8. Comparison of Table 7 with Table 8 indicates that there are several differences across these two types of estimates, especially true for the regressions based on disaggregated data. However, there is only one specification, RIOTS for good-democracy countries, has obtained the reverse sign and it has now significantly positive coefficient. Moreover, based on Table 8, while four specifications suggest negative association between growth and sociopolitical instability in low-income and poor-democracy countries, six specifications suggest the same relationship for the other two groups.

5. Conclusions

This paper investigates the long-run growth effects of a large number of sociopolitical instability measures using the cross-country empirical framework. Overall our results imply that there is no a simple and straightforward relationship between sociopolitical instability and growth and this relationship at best is weak. More importantly,

it depends crucially on the choice of an instability variable. Specifically, while government instability and social instability measures have usually weak and, in some cases positive, relationship with growth, political violence indicators have relatively more negative and robust association with growth. Furthermore, our results indicate that sociopolitical instability has more adverse effects on middle- and high-income and good-democracy countries than low-income and poor-democracy countries.

On the one hand, although the issue of reverse causality is widely emphasized by many studies, our IV estimation results imply that reverse causality has not been the severe problem for the estimates of sociopolitical instability measures. On the other hand, the existence of outlier countries and, in a lesser degree, parameter heterogeneity has been more serious problems for sociopolitical instability measures. Note that estimation results for political violence and war measures are extremely sensitive to the existence of outliers and parameter heterogeneity.

While, as discussed in earlier, a number studies (such as, Londregan and Poole 1990; Alesina et al. 1992; and Easterly et al. 1993) claimed that sociopolitical instability as well as other country characteristics has been persistent or stable over time, there exists considerable evidence that economic growth across nations and over time has not been persistent or stable (see, Easterly et al. 1993; Easterly and Levine, 2001). Therefore, the high persistency of sociopolitical instability can explain the absence of robust relationship between growth and sociopolitical instability. Furthermore, Easterly et al. (1993) suggest that either temporary shocks are crucial compared to country characteristics in determining long-run growth, or that worldwide technological advances determines growth while country characteristics determine relative income levels.

Data Appendix

Code	Description
AGOVDEM	Antigovernment demonstrations: any peaceful public gathering of at least 100 people for the primary purpose of displacing or voting their opposition to government policies or authority, excluding demonstrations of a distinctly antiforeign nature.
ASSASS	Assassinations: the number of any politically motivated murder or attempted murder of a high government official or politician, decade average.
CABCHG	Major cabinet changes: the number of times in a year that a new premier is named and/or 50% of the cabinet posts are occupied by new ministers.
COUPS	Coups d'etat: the number of extraconstitutional or forced changes in the top government elite and/or its effective control of the nation's power structure in a given year. Unsuccessful coups are not counted, per year.
ETHNİCF	Index of ethnolinguistic fractionalization in 1960. It measures probability of that two randomly selected people from a given country will not belong to the same ethnolinguistic group.
EXTCNFR	External conflict risk for 1984 and 1990, 1 (high risk) to 10 (low risk).
GOVTCRIS	Major government crises: any rapidly developing situation that threatens to bring the downfall of the present regime –excluding situations of revolt aimed at such overthrow.
PARTYF	Party fractionalization index: formula; $1 - \sum_{1}^{m} (t_i * t_i)$, where t is the proportion of members associated with the i^{th} party in the lower house of the legislature.
POLDTH	Deaths from political violence, per capita.
POLTER	Political terrorism risk for 1984 and 1990, 0 (high risk) to 6 (low risk).
POLPRT	Number of political protests.
PURGES	Purges: any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition.
RACIALT	Racial tension for 1984 and 1990, 0 (high tension) to 6 (low tension).
REVOLS	Revolutions: any illegal or forced change in the top governmental elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government, per year.

RIOTS	Riots: any violent demonstration or clash of more than 100 citizens involving the use of physical force.
STRIKES	General strikes: the number of any strike of 1,000 or more industrial or service workers that involves more than one employer and that is aimed at national government policies or authority.
WARC	Average war casualties per capita, decade average.
WARD	Dummy for war on national territory during the decade.
WARCIV	Civil war risk: for 1984 and 1990, 0 (high risk) to 6 (low risk).

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