

# Political Instability, Policy Uncertainty, and Economic Growth: An Empirical Investigation

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*This paper elaborates upon the effect of political stability on economic growth using a novel approach. Unlike the literature on growth that emphasizes the turnover of decision makers, this paper focuses on the volatility of economic policies as the relevant indicator of stability. The literature on growth ignores the microeconomic instability associated with frequent changes of government policies. The empirical results of this paper indicate that the effect of political instability on economic growth is not conclusive. Most of the commonly used proxies for political instability have failed to explain growth differences across countries. The political instability indices have no significant effect on growth when a reasonable set of core variables is also included in the regression equation. The results also show that almost all of the policy uncertainty variables are significantly and negatively correlated with economic growth. However, the instability of economic policies has no significant impact on the accumulation of capital. (JEL O17, O40, P51)*

## Introduction

A relatively recent approach in growth literature relates economic growth to the stability of the political regime. Most of these studies find that unstable political regimes are characterized by lower growth rates than more stable political regimes. This paper is an empirical investigation of the effect of political stability and the stability of economic policies on economic growth. Current literature on growth emphasizes the stability of the political regime. However, this paper takes a different approach and emphasizes the stability of economic policies.

Current literature on growth ignores the instability associated with frequent changes in government policies. The political instability measures used in growth literature capture only a small part of the insecurity faced by private investors. In making decisions, private entrepreneurs and foreign investors take into account the probability that the rules of the game will still be in force tomorrow. Therefore, for these entrepreneurs, the macroinstability of a regime turnover is an extreme case. More important, the microinstability of government policies affects daily market activities and focuses on measuring the uncertainty created by the sudden changes in government policies and its consequences for economic growth.

The remainder of this paper is organized as follows. The second section is a review of prior studies. The third section reevaluates the empirical results of the effect of political

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instability on economic growth. The fourth section assesses the relationship between policy instability and economic growth. It offers an alternative approach to political instability, concentrating more on the changes in government policies. The fifth section concludes and offers suggestions for further research.

### **A Survey of Prior Studies**

Most of the prior studies on growth find that unstable political regimes grew slower than stable regimes [Hibbs, 1973; Gupta, 1990; Barro, 1991, 1996; Alesina et al., 1992; Alesina and Perotti, 1993; Alesina and Rodrik, 1994]. These studies suggest that political instability often leads to slower economic growth. However, the analyses differ regarding the channels through which political instability translates into a slower economic growth.

Some studies suggest that political instability retards growth, directly lowering total factor productivity (for example, see Hibbs [1973], Gupta [1990], Barro [1991], and Alesina et al. [1992]). In a seminal article, Barro [1991] finds that measures of political instability, such as coups, revolutions, and political assassinations, is inversely correlated with the growth of gross domestic product (GDP) and investment share of the GDP. He concludes that political instability, through its adverse effect on property rights, reduces growth and investment.

Londregan and Poole [1990] showed that political instability measures, such as coups, deaths from political violence, and political executions, are all negatively and significantly correlated with economic development. Hibbs [1973], Venieris and Gupta [1983, 1986], Gupta [1990], and Alesina and Perotti [1993] used social unrest indicators as measures of political instability. These indices include political assassinations, violent deaths, coups, revolutions, political riots, indices of executive adjustments, major constitutional changes, major government crises, excluding revolts, politically motivated purges, war, and separatist movements. They all find that political instability is negatively correlated with the growth of GDP.

Using other measures of political instability, Alesina et al. [1992] came to the same conclusion.<sup>1</sup> After controlling for other correlates of growth in a cross-section study of more than 100 countries, they found that countries with high degrees of political instability grew significantly slower than they otherwise could. They also found that political instability has a persistent character: countries with frequent changes in government in the recent past have a higher probability of observing future government collapses.

Other studies claim that political instability affects growth indirectly through its effect on the accumulation of physical capital [Benhabib and Spiegel, 1992; Alesina and Perotti, 1993; Benhabib and Rustichini, 1996]. These studies find that the incentives to invest or disinvest depend on the likelihood that the policies of the regime and the regime itself will remain stable in the foreseeable future. Foreign investors are unlikely to commit their capital into unstable political environments. Thus, political instability reduces the inflow of foreign capital because of the uncertainties associated with constantly changing regimes.

Further studies contend that political instability restricts growth, leading to suboptimal economic policies. This line of research suggests that political instability leads to inefficient and myopic policy decisions by incumbent political regimes [Alesina and Tabellini, 1989; Glazer, 1989; Perrson and Svensson, 1989; Tabellini and Alesina, 1990; Bestley and Coate, 1998]. For example, given an expected short term in office, incumbent regimes maximize the rents at their disposal by taxing productive capital, thereby inducing huge capital flights. Alesina and Tabellini [1989] also argue that frequent political turnover creates an incentive for incumbent regimes with short-term horizons to borrow heavily and encumber future governments with the burden of debt repayment.<sup>2</sup>

### Reevaluation of Previous Results

The relationship between political instability and economic growth is reevaluated, using several political instability indices currently used in growth literature. Table 1 displays the correlation matrix of the political instability variables. The political instability variables are from the *World Handbook of Political and Social Indicators* [Taylor and Hudson, 1972], *Cross-Polity Time-Series Data* [Banks, 1963], and Easterly and Levine [1997].<sup>3</sup> Most of the data are from 1960 to 1980. A detailed description of the variables is given in Table A1 in the Appendix.

Casual observation of the raw data in Table 1 shows a fairly low correlation among alternative measures of political instability. Only genocidal incidents and civil wars, antigovernment demonstrations and riots, and border wars and civil wars have a partial correlation coefficient higher than 0.5. This low correlation suggests that each individual variable provides some information not captured by other measures of political instability. Each one of these measures taps an important dimension of political instability. Table 2 is a summary statistic for the political instability variables. Data for the other explanatory variables are from *World Development Indicators* [World Bank, 1998], *International Financial Statistics* [International Monetary Fund, various], and *Government Finance Statistics Yearbook* [International Monetary Fund, various]. Data covers 1970 to 1995 and includes more than 119 countries.<sup>4</sup>

Tables 3 and 4 contain the regression results. The dependent variable in Table 3 is the average growth rate of real GDP per capita from 1970 to 1995. Because heteroskedasticity could be important across countries, the standard errors are based on White's [1980] heteroskedasticity-consistent covariance matrix. Column 1 shows a benchmark growth regression with the political instability variable (antigovernment demonstrations) included as an additional explanatory variable. The specification of the growth equation draws heavily on recent growth literature such as Barro [1991] and Levine and Renelt [1992]. The control variables used are standard in growth literature. They include the average population growth rate, the initial level of GDP per capita, and the enrollment in secondary schools as a proxy for human capital. The coefficient of antigovernment demonstrations is insignificant.

TABLE 1  
Correlation Matrix of the Political Instability Variables

Variables	Antigovernment Demonstrations	Assassinations	Cabinet Changes	Constitutional Changes	Genocidal Incidents	Coups	Purges	Revolutions	Riots	Border Wars	Civil Wars
Antigovernment Demonstrations	1.000										
Assassinations	-0.010	1.000									
Cabinet Changes	0.044	0.083	1.000								
Genocidal Incidents	-0.090	0.185	0.004	1.000							
Constitutional Changes	-0.150	0.016	0.257	0.0409	1.000						
Coups	0.050	0.139	0.392	0.007	0.185	1.000					
Purges	0.154	0.174	0.236	-0.0056	0.240	0.240	1.000				
Revolutions	0.022	0.143	0.452	0.093	0.0593	0.585	0.328	1.000			
Riots	0.671	0.004	0.150	-0.0831	-0.082	0.141	0.257	0.126	1.000		
Border Wars	0.002	0.243	0.0086	0.4540	0.0212	0.178	0.155	0.172	0.222	1.000	
Civil Wars	-0.010	0.270	0.0175	0.549	0.023	0.167	0.190	0.182	0.1548	0.884	1.000

TABLE 2  
Descriptive Statistics of the Political Instability Variables

	Antigovernment Demonstrations	Assassinations	Cabinet Changes	Constitutional Changes	Genocidal Incidents	Coups	Purges	Revolutions	Riots	Border Wars	Civil Wars
Mean	1.625	8.7E-05	1.232	0.0714	0.411	0.116	0.393	0.545	1.911	0.688	0.536
Median	0.000	6.2E-06	1.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Maximum	23.000	0.0020	6.000	1.000	2.000	2.000	4.000	5.000	30.000	3.000	3.000
Minimum	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Standard Deviation	3.760	0.0003	1.230	0.259	0.609	0.3736	0.894	0.9854	4.309	0.9589	0.8692

TABLE 3  
The Effect of Political Instability on the Growth Dependent Variable Real GDP Growth Rate: 1970-95

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>GDP70</i>	-2.2E-6 (-2.85)	-2.3E-6 (-2.89)	-2.1E-6 (-2.68)	-2.1E-6 (-2.68)	-2.1E-6 (-2.79)	-2.2E-6 (-2.85)	-2.2E-6 (-2.84)	-2.3E-6 (-2.81)	-2.3E-6 (-2.90)	-2.2E-6 (-2.84)	-0.2E-6 (-2.28)	-2.3E-6 (-2.76)	-2.1E-6 (-2.17)
<i>SEC70</i>	0.007 (2.19)	0.0059 (2.26)	0.006 (2.211)	0.0064 (2.47)	0.006 (2.35)	0.0058 (2.23)	0.0058 (2.21)	0.006 (2.24)	0.006 (2.29)	0.006 (2.22)	0.0053 (2.00)	0.0058 (2.23)	0.005 (2.23)
<i>INV7095</i>	0.125 (5.10)	0.124 (5.019)	0.127 (5.151)	0.1277 (5.25)	0.1264 (5.21)	0.125 (5.10)	0.125 (5.10)	0.1249 (5.09)	0.1251 (5.11)	0.1252 (5.10)	0.1281 (5.15)	0.1243 (5.02)	0.121 (5.32)
<i>POPG7095</i>	-0.009 (-3.914)	-0.009 (-3.97)	-0.009 (-3.72)	-0.009 (-3.52)	-0.009 (-4.09)	-0.009 (-3.94)	-0.009 (-3.91)	-0.009 (-3.95)	-0.009 (-3.95)	-0.009 (-3.93)	-0.009 (-3.91)	-0.009 (-3.94)	-0.009 (-4.11)
Antigovernment	3.84E-5												
Demonstrations	(0.086)												
Assassinations		-2.980 (-0.49)											
Cabinet Changes			0.0009 (0.591)										
Genocidal Incidents				0.0147 (1.519)									
Constitutional Changes					0.0041 (1.29)								
Coups						-0.001 (-0.23)							
Government Crises							-5.5E-5 (-0.06)						

TABLE 3 (CONT.)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
Purges								-0.001 (-0.33)					
Riots									-0.002 (-0.54)				
Revolutions										5.7E-6 (0.003)			
Border Wars											0.001 (0.64)		
Civil Wars												-0.001 (-0.25)	
AIPI													-0.001 (-1.32)
Constant	-0.001 (-0.12)	-0.001 (-0.05)	-0.004 (-0.32)	-0.006 (-0.52)	-0.003 (-0.30)	-0.001 (-0.11)	-0.001 (-0.10)	-0.001 (-0.05)	-0.001 (-0.11)	-0.001 (-0.11)	-0.003 (-0.27)	-0.001 (-0.07)	-0.002 (-0.03)
Observations	83	83	83	82	83	83	83	83	83	83	83	83	82
R <sup>2</sup>	0.466	0.468	0.469	0.469	0.477	0.467	0.466	0.467	0.468	0.466	0.469	0.467	0.481

Notes: *SEC* denotes secondary school enrollment, *INV* denotes the initial level of GDP per capita, *POPG* denotes the average population growth rate, and *AIPI* denotes average index of political instability. The method of estimation in all cases was ordinary least squares. T-statistics are in parentheses.

The control variables are all significant as suggested by current literature on growth. Higher initial per capita GDP is negatively and significantly correlated with GDP. This confirms the conditional convergence hypothesis suggested by Barro [1991] and others. The GDP growth rate is negatively correlated with the population growth rate. However, the coefficients of both the initial GDP level and population growth rate are quite small. The coefficient of secondary schooling is positively and significantly correlated with the growth of GDP.

In Table 3, column 2 adds the political instability measure of assassinations into the basic regression equation. The coefficient of assassinations is insignificant. Column 3 includes the political instability measure of cabinet changes. Its coefficient is positive and insignificant. Columns 4 and 5 report the regression results for measures of genocidal incidents and constitutional changes. Both measures have no significant impact on growth. The coefficients of both measures are insignificant. Columns 6 and 7 add measures of coups and major government crises into the core variables. Once more, the coefficients of both variables are negative but not significantly different from zero.

Columns 8 and 9 include purges and riots as additional explanatory variables. Both coefficients are insignificant at the conventional level. Columns 10 and 11 report the regression results when political instability measures of revolutions and border wars are included in the regression equation. Both coefficients are insignificant and have the unexpected positive sign. The last regression in column 12 reports the result when civil wars are the additional variable of interest. Again, the result indicates that civil wars have no explanatory power on growth.

Column 13 shows the regression results when the political instability indices are aggregated into the composite index, AIPI. The index is the weighted average of all the political instability indices. The principal component analysis is used to determine the weight given to each component in the construction of the composite index. This procedure partitions the variance of a set of variables and uses it to determine the linear combination—the weights—of these variables that maximize the variation of the constructed principal component. This is an objective method of combining a set of variables into a single variable that best reflects the original data. The coefficient of the AIPI is negative and insignificant.

As suggested by other studies in growth literature, it is possible that the relationship between political instability and economic growth is indirect. One possible channel through which political instability translates into a slower growth rate is its effect on investment. Table 4 reports the results when the investment share of the GDP is regressed on political instability variables and other standard controls. Columns 1 through 12 add political instability variables in the core investment equation. In each column, one of the instability measures is used as the additional variable of interest. None of these variables have any explanatory power in explaining cross-country differences of capital formation. The sizes of the coefficients are very small and are not significantly different from zero. Column 13 uses the composite index as the variable of interest. Its coefficient is negative and insignificant.

**TABLE 4**  
**The Effect of Political Instability on the Growth Dependent Variable Investment-GDP Ratio: 1970-95**

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
<i>GDP70</i>	-7.1E-7 (-0.21)	-1.2E-6 (-0.33)	-8.9E-7 (-0.26)	-6.8E-7 (-0.20)	-9.5E-7 (-0.28)	-9.9E-7 (-0.29)	-7.2E-7 (-0.21)	-9.5E-7 (-0.26)	-6.7E-7 (-0.19)	-5.9E-7 (-0.17)	-2.4E-6 (-0.66)	-2.5E-6 (-0.69)	-2.1E-6 (-0.73)
<i>SEC70</i>	0.0022 (0.231)	0.0025 (0.259)	0.0022 (0.228)	-0.002 (-0.19)	0.0007 (0.071)	0.0021 (0.215)	0.017 (0.177)	0.002 (0.19)	0.0014 (0.14)	0.0011 (0.114)	0.0014 (0.15)	0.0025 (0.27)	0.003 (0.32)
<i>POPG7095</i>	-0.004 (-0.45)	-0.003 (-0.41)	-0.003 (-0.34)	-0.003 (-0.34)	-0.003 (-0.30)	-0.004 (-0.42)	-0.004 (-0.41)	-0.004 (-0.43)	-0.003 (-0.40)	-0.005 (-0.55)	-0.005 (-0.62)	-0.005 (-0.55)	-0.006 (-0.81)
Antigovernment Demonstrations	-0.001 (-0.52)												
Assassinations		-26.38 (-0.94)											
Cabinet Changes			-0.004 (-0.60)										
Genocidal Incidents				-0.074 (-2.05)									
Constitutional Changes					-0.013 (-0.91)								
Coups						-0.013 (-0.54)							
Government Crises							-0.001 (-0.11)						



TABLE 4 (CONT.)

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13
Purges								-0.022 (-0.23)					
Riots									0.0001 (0.060)				
Revolutions										0.0068 (0.788)			
Border Wars											-0.013 (-1.33)		
Civil Wars												-0.017 (-1.64)	
API													-0.121 (-0.94)
Constant	0.2263 (7.19)	0.2270 (7.25)	0.2282 (7.175)	0.236 (7.43)	0.2304 (7.24)	0.2264 (7.19)	0.2254 (7.11)	0.227 (7.03)	0.225 (7.15)	0.225 (7.18)	0.2441 (7.13)	0.2404 (7.44)	0.232 (6.84)
Observations	90	90	90	89	90	90	90	90	90	90	90	90	89
R <sup>2</sup>	0.005	0.013	0.007	0.049	0.0124	0.006	0.0029	0.0033	0.0028	0.0100	0.0233	0.0335	0.044

Notes: The method of estimation in all cases was ordinary least squares. T-statistics are in parentheses.

To summarize the results of this section, the effect of political instability on growth, as measured by the typical indicators in growth literature is not conclusive. Most of the commonly used proxies of political instability have no significant effect on the growth of GDP when a reasonable set of core variables is also included in the model. The results show that political instability measures used in growth literature have also failed to account for the differences in the accumulation of physical capital. Nevertheless, this inconclusive result should certainly not be taken as an ironclad proof that political instability has no significant effect on growth. Political instability may have a negative and significant effect on economic growth, operating indirectly through its effect on policy stability, an issue that will be explored next.

### **Policy Instability and Economic Growth**

Although most of the prior studies consider political stability as an important factor underlying growth differences across countries, it is misleading in emphasizing the turnover of political regimes *per se* and ignoring the effect of policy instability within a given political regime. Investors and entrepreneurs arguably care more about the stability of a country's economic policies than the stability of the regime itself [Aizenman and Marion [1991]. Clague et al. [1996] indicated that the turnover in democratic leaders is not a sign of political instability but a reflection of an effective judiciary that denies those who are defeated in elections to unilaterally extend their hold on power, making the underlying institutional framework stable and durable.

Moreover, even if a regime is not in danger of an immediate political collapse, it can be handicapped by unstable economic policies. Some of the longest lasting regimes in Africa and Latin America experienced a dismal growth rate in the 1970s and 1980s, while other countries that went through political turmoil but embraced stable economic policies showed remarkable economic progress.<sup>5</sup> For example, Borner et al. [1995] noted that Thailand has had 13 constitutions, 17 military coups, and several mass riots since becoming a constitutional monarchy in 1932. However, the political turmoil did not affect the security of property rights in Thailand.

In summary, the often-used proxies of political instability such as coups, revolutions, and political assassinations do not capture the detrimental effects that volatile economic policies have on growth. In fact, measures of political turnover *per se* may reflect a smoothly functioning political process rather than a system rife with uncertainty.

Regimes can come and go, yet the confidence of economic agents will not be affected as long as successive governments follow consistent and predictable economic policies. On the other hand, political regimes that seem stable can be plagued by inherently unstable economic policies.

It is important to understand that the decisions of private investors depend on factors that are partly under the control of the government. Uncertainties about future prices, wages, and interest rates, exchange rates, trade regimes, taxes, and regulatory policies are all incorporated and taken into account in the determination of the optimal timing of investment.

The lack of confidence and skepticism about the stability of economic policies force investors to postpone capital investment. From their point of view, the stability and predictability of the incentive structures are more important than the stability of the political regime. In an environment of constant shifts in policies, it takes time before investors are convinced that the changes in economic policies are permanent. They cannot undo decisions about fixed capital every time the government reverses its economic policy.

Pindyck [1988] suggested that predictable policies and clear rules of the game are important for private investment. The irreversible nature of most investments, he argued, makes investors extremely sensitive to changes in policies and the risks associated with it. He concluded that the uncertainty of macroeconomic policies could be a powerful deterrent to private investment. Firms delay investment and wait for new information before committing their resources, knowing they cannot divest when policies change.

In a time series study of individual countries, Serven and Solimano [1992] find that the variability of exchange rates, among other factors, has an adverse and deleterious effect on gross capital formation. Krugman [1988] also finds that the uncertainty of future exchange rates discourage firms from entering the market.

Ingersoll and Ross [1987] and Tornell [1989] examined the effect of interest rate uncertainty on irreversible investment and found that interest rate uncertainty affects the timing of investment. Using simultaneous equation models, Solimano [1989] finds that the volatility of exchange rates and output had a negative impact on investment in Chile. Rama [1995] asserted that variables that are relevant for investment decisions fluctuate more in developing countries, which are characterized by government-induced distortions and sudden and dramatic changes in economic policies.

Al-Mahrubi [1998] tested the effect of the volatility of inflation on economic growth in a cross-section study of 78 countries from 1965 to 1985. After controlling for other country-specific growth correlates, he found that inflation volatility is associated with a lower mean growth rate of GDP.

### The Empirical Evidence

Twelve fiscal, monetary, and trade variables are used to test the effect of policy instability on economic growth and investment (see Table A2 in the Appendix for a description of these variables). Following the procedure used by Aizenman and Marion [1991], the unexpected effect of an economic policy can be calculated by fitting a first-order autoregressive process of the form:

$$(\text{policy})_t = \beta_0 + \beta_1(\text{policy})_{t-1} + \varepsilon \quad ,$$

where  $\beta_1$  is the autoregressive parameter. The standard deviation of the residual is the unexpected part of policy change. These policy instability measures are then included in the growth equation in the form:

$$GDP7095 = \beta_0 + \beta_1(GDP70) + \beta_2(POPG7095) \\ + \beta_3(SEC70) + \beta_4(\text{policy uncertainty}) + \varepsilon$$

Table 5 is a correlation matrix of the policy instability variables and Table 6 is a descriptive statistic of these instability variables. Table 7 reports the empirical results of the relationship between growth and policy instability when 11 policy instability variables are entered into the growth equation. The dependent variable in Table 6 is the average growth rate of GDP per capita from 1970 to 1995. The specification of the growth equation is similar to that adopted earlier.

Almost all of the policy instability variables are significantly and negatively correlated with GDP when controlled for other exogenous variables. In Table 7, column 1 contains the core variables and the standard deviation of the residual (SDR) of domestic credit (*SDR-DCREDIT*) as a measure of monetary policy instability. The coefficient of *SDR-DCREDIT* is negative and significant at the 1 percent level. However, the magnitude of the effect is quite moderate. Evaluating the effect at the sample mean, the estimated coefficient indicates that a one standard deviation increase in *SDR-DCREDIT* reduces the growth rate by 0.71 percent.

The correlation between the fiscal variable of SDR of public and publicly guaranteed debt (*SDR-DEBT*) in column 2 and economic growth is not significant at the conventional level. Column 4 shows the relationship between the fiscal uncertainty variable of SDR of government expenditure as a percent of GDP (*SDR-GOV*) and economic growth. Its coefficient is negative and significant. Columns 3 and 5 include the trade policy variables of SDR of export of goods and services (*SDR-EXPORT*) and SDR of import of goods and services (*SDR-IMPORT*) as additional variables into the growth equation. The coefficients of both variables are negative and significant. The correlation between monetary policy surprises of SDR of deposit interest rate (*SDR-INTEREST*), SDR of GDP deflator (*SDR-INFLATION*), and SDR of money and quasi-money (*SDR-MONEY*) and economic growth is shown in columns 6, 7, and 8. The coefficients of *SDR-INTEREST* and *SDR-INFLATION* are negative and highly significant. However, the correlation between money growth surprises (*SDR-MONEY*) and economic performance is rather weak, with a correlation coefficient of only (-0.0001).

Column 9 adds the fiscal policy variable of SDR of tax revenues (*SDR-TAXES*) into the growth equation, while column 10 includes the trade policy variable of SDR of exchange rate (*SDR-XRATE*) into the same equation. Both variables are negatively correlated with economic growth. Exchange rate volatility does appear to have a noticeable impact on growth. For example, a one standard deviation increase of exchange rate volatility is associated with a decline of 1.6 percent in the growth rate of GDP.

**TABLE 5**  
Correlation Matrix of the Policy Instability Variables

Variables	SDR-DCREDIT	SDR-DEBT	SDR-DEFICIT	SDR-EXPORT	SDR-GOV	SDR-IMPORT	SDR-INFLATION	SDR-INTEREST	SDR-MONEY	SDR-TAXES	SDR-XRATE
SDR-DCREDIT	1.0000										
SDR-DEBT	0.06036	1.0000									
SDR-DEFICIT	0.0541	0.21452	1.0000								
SDR-EXPORT	0.3505	0.1787	0.19863	1.0000							
SDR-GOV	0.3293	0.1839	0.78228	0.3525	1.0000						
SDR-IMPORT	0.2696	0.1995	0.19229	0.7230	0.3589	1.0000					
SDR-INFLATION	0.6770	0.0811	0.13991	0.2132	0.4483	0.4675	1.0000				
SDR-INTEREST	0.5356	0.1301	0.49490	0.4434	0.7812	0.5242	0.4469	1.0000			
SDR-MONEY	0.2468	0.0519	0.53592	0.2667	0.5854	0.1701	0.3699	0.3409	1.0000		
SDR-TAXES	0.25661	0.0528	0.65714	0.4045	0.5957	0.2847	0.2039	0.4464	0.5019	1.0000	
SDR-XRATE	0.3977	0.1613	0.03133	0.5331	0.2252	0.3560	0.1888	0.1817	0.5129	0.2808	1.0000

Notes: SDR-DEFICIT denotes SDR of overall budget deficit.

**TABLE 6**  
Descriptive Statistics of the Political Instability Variables

	SDR-DCREDIT	SDR-DEBT	SDR-DEFICIT	SDR-EXPORT	SDR-GOV	SDR-IMPORT	SDR-INFLATION	SDR-INTEREST	SDR-MONEY	SDR-TAXES	SDR-XRATE
Mean	0.9115	1.2900	2.9051	0.2076	2.1557	0.1852	0.9957	0.4111	4.8294	1.8886	22.7220
Median	0.8244	4.8000	2.2750	0.1862	1.6600	0.1651	0.8097	0.2961	3.6012	1.5035	10.6670
Maximum	3.5139	9.9400	16.5490	0.5851	10.3300	0.6106	4.4260	3.4529	27.9040	8.0770	181.9600
Minimum	-4.8870	0.6700	0.6910	0.0442	0.2779	0.0329	0.1243	0.0000	0.0246	0.0290	1.9230
Standard Deviation	0.8399	2.0000	2.2799	0.1105	1.6578	0.1043	0.7261	0.4895	4.0164	1.3012	36.4980

TABLE 7  
The Effect of Policy Volatility on the Economic Growth Dependent Variable Real GDP Growth Rate: 1970-95

Variables	1	2	3	4	5	6	7	8	9	10
INV7095	0.1260 (5.3100)	0.1120 (3.8480)	0.1239 (5.0179)	0.11841 (5.04448)	0.12320 (4.97471)	0.12798 (5.2132)	0.12958 (5.3530)	0.138118 (5.40447)	0.151851 (6.06834)	0.093799 (3.57280)
SEC70	0.0067 (2.4700)	0.00385 (1.0911)	0.006157 (2.21520)	0.005619 (2.07176)	0.006644 (2.37870)	0.00520 (1.8618)	0.006033 (2.23850)	0.00593 (2.0938)	0.004838 (1.74770)	0.011396 (3.05669)
GDP70	-0.0078 (-2.5240)	-0.0066 (-1.5270)	-0.00903 (-2.7635)	-0.00775 (-2.3860)	-0.00893 (-2.7421)	-0.00623 (-1.8064)	-0.00886 (-2.8680)	-0.00638 (-1.8670)	-0.00729 (-2.3483)	-0.01046 (-2.2571)
POP7095	-0.0080 (-3.435)	-0.00778 (-2.2345)	-0.00839 (-3.5003)	-0.00683 (-2.8940)	-0.00790 (-3.2104)	-0.0081 (-3.2350)	-0.00850 (-3.7094)	-0.00864 (-3.5382)	-0.00812 (-3.4962)	-0.00836 (-3.1836)
SDR-DCREDIT	-0.00778 (-2.6790)									
SDR-DEBT		1.67E-12 (-1.4740)								
SDR-EXPORT			-0.03205 (-1.6796)							
SDR-GOV				-0.00489 (-3.1203)						
SDR-IMPORT					-0.03319 (-1.6773)					
SDR-INTEREST						-0.01153 (-2.7059)				
SDR-INFLATION							-0.00762 (-2.3486)			
SDR-MONEY								-0.00100 (-1.3969)		
SDR-TAXES									-0.00325 (-1.9850)	
SDR-XRATE										-0.00027 (-1.7156)
Constant	0.05417 (2.1854)	0.041399 (1.30430)	0.064907 (2.40164)	0.05607 (2.1768)	0.06175 (2.3351)	0.042376 (1.53589)	0.06312 (2.5370)	0.040052 (1.50706)	0.047287 (1.90549)	0.063328 (1.6871)
Observations	83	57	83	81	83	76	82	81	79	45
R <sup>2</sup>	0.0499	0.346	0.471	0.510	0.471	0.510	0.506	0.467	0.492	0.617

Notes: The method of estimation in all cases is ordinary least squares. T-statistics are in parentheses.

TABLE 8  
The Effect of Policy Volatility on the Economic Growth Dependent Variable Independent-GDP Ratio: 1970-95

Variables	1	2	3	4	5	6	7	8	9	10	11
<i>SEC70</i>	-0.0052 (-0.4950)	-0.01099 (-0.8541)	0.01599 (1.3595)	-0.00770 (-0.7329)	-0.00615 (-0.5597)	-0.00674 (-0.6470)	-0.01475 (1.1611)	-0.00459 (-0.4427)	0.000222 (0.02148)	0.014589 (1.2040)	0.02722 (1.3817)
<i>GDP70</i>	0.01157 (0.8148)	0.02171 (1.0928)	-0.00337 (-0.2464)	0.008686 (0.60099)	0.00993 (0.6396)	0.00856 (0.59578)	-0.00067 (-0.0424)	0.012259 (0.86151)	0.000876 (0.06006)	-0.00063 (-0.0449)	-0.0415 (1.6707)
<i>POPG7095</i>	0.00241 (0.2792)	0.004738 (0.42095)	-0.00044 (-0.0533)	0.002737 (0.31678)	0.00346 (0.37728)	0.00343 (0.3955)	0.005942 (0.64747)	0.003246 (0.37869)	-0.00301 (-0.3554)	0.00267 (0.3168)	-0.00699 (-0.4821)
<i>SDR-DCREDIT</i>	-0.0178 (-1.4323)										
<i>SDR-DEBT</i>		1.87E-12 (0.34874)									
<i>SDR-DEFICIT</i>			0.010766 (2.5143)								
<i>SDR-EXPORT</i>				-0.1231 (-1.4368)							
<i>SDR-GOV</i>					-0.00894 (-1.1756)						
<i>SDR-IMPORT</i>						-0.13847 (-1.5978)					
<i>SDR-INTEREST</i>							-0.01999 (0.99744)				
<i>SDR-INFLATION</i>								-0.02565 (-1.8472)	0.007549 (2.83177)		
<i>SDR-MONEY</i>											
<i>SDR-TAXES</i>										0.00904 (1.2313)	
<i>SDR-XRATE</i>											-0.00129 (-2.9457)
Constant	0.15256 (1.3893)	0.059168 (0.40959)	0.17535 (1.7290)	0.18801 (1.6197)	0.16462 (1.3913)	0.18556 (1.6291)	0.186102 (1.57495)	0.13816 (1.6345)	0.18473 (1.7813)	0.171623 (1.62375)	0.163574 (1.41379)
Observations	90	63	85	90	87	90	81	88	88	85	49
R <sup>2</sup>	0.0348	0.02593	0.105557	0.0349	0.02255	0.040317	0.04159	0.0564	0.1020	0.0528	0.2020

Notes: The method of estimation in all cases is ordinary least squares. T-statistics are in parentheses.

Table 8 reports the statistical results of the relationship between policy instability and investment. The findings in Table 8 suggest that policy instability has no significant impact on the accumulation of capital. With the exception of inflation variability, the coefficients of the policy instability variables are insignificant. The coefficient of monetary policy uncertainty is significant but has the unexpected positive sign. Exchange rate volatility (*SDR-XRATE*) is significantly correlated with investment, however, its coefficient is quite small.

In summary, the negative relationship between policy volatility and economic growth is verified as an empirical regularity. Using a novel approach, the empirical results indicate that policy uncertainty is strongly and negatively correlated with economic growth. The results in Table 7 show that a variety of policy instability variables are closely and negatively associated with economic growth. The data indicate that after controlling for a set of standard correlates, policy instability variables account for a significant portion of growth differences across countries.

Most of the coefficients are negative and highly significant. The negative and significant effect of policy instability on economic growth are particularly strong for the case of domestic credit, interest rate, and inflation volatility, as well as the expenditure share of the GDP and the ratio of taxes to GDP. The effect of policy instability is less pronounced in the cases of money supply, exchange rate, and the export and import share of the GDP. The only insignificant coefficient is that of public debt. When specification that incorporated other policy variables such as openness and real interest rate are considered, the effect of policy instability on growth remained statistically significant. Policy instability has little impact on capital accumulation. With the exception of inflation and exchange rate volatility, all of the other policy instability variables have no significant impact on investment.

## Conclusion

This paper tested the relationship among political instability, policy uncertainty, and economic growth. The political instability variables failed to fully capture the uncertainties faced by individual investors. Most of the widely used measures of political instability such as coups, revolutions, and the like have failed to fully capture the effect of constantly changing policies on the perceptions of important economic agents. This paper presents the empirical results of the relationship between economic growth and several policy instability variables using appropriate econometric techniques. The results show that policy instability has a more dramatic and significant impact on growth than political instability.

The empirical results also indicate that the impact of political instability on economic growth is not conclusive. None of the commonly used measures of political instability have any significant impact either on the composition or the amount of capital investment. Further research is needed to seek better measures and channels through which political instability affects economic growth.



## APPENDIX

**TABLE A1**  
**Political Instability Variable Definitions**

Variables	Definitions
Antigovernment Demonstrations	Any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of distinctly antforeign nature.
Assassinations	The average number of political assassinations per year per million population.
Cabinet Changes	The number of times in a year that a new premier is named or 50 percent of the cabinet posts are occupied by new ministers.
Genocidal Incidents	Dummy = 1 for a country with genocidal incidents involving communal (ethnic) victims or mixed communal and political victims.
Constitutional Changes	The number of basic alterations in a state's constitutional structure, the extreme case being the adoption of a new constitution that significantly alters the prerogatives of the various branches of the government.
Coups	The number of extraconstitutional or forced changes in the top government elite or its effective control of the nation's power structure in a given year. Unsuccessful coups are not counted.
Government Crises	Any rapidly developing situation that threatens to bring the downfall of the present regime, excluding situations of revolt aimed at such overthrow.
Purges	Any systematic elimination by jailing or execution of political opposition within the ranks of the regime or the opposition.
Revolutions	Any illegal or forced change in the top government elite, any attempt at such a change, or any successful or unsuccessful armed rebellion whose aim is independence from the central government.
Riots	Any violent demonstration or clash of more than 100 citizens involving the use of physical force.
Border Wars	Dummy for war on national territory.
Civil Wars	Dummy for civil wars.

**TABLE A2**  
**Policy Instability Variable Definitions**

Variables	Definitions
<b>Fiscal Policy Variables</b>	
Debt	Public and publicly guaranteed debt (in current U.S. dollars).
Deficit	Overall budget deficit including grants (percent of GDP).
Expenditure	Central government consumption (percent of GDP).
Taxes	Total tax revenue (percent of GDP).
<b>Monetary Policy Variables</b>	
Domestic Credit	Net domestic credit (in local currency units).
Exchange Rate	Real effective exchange rate index (1990 = 100).
Inflation	GDP deflator (annual percentage).
Interest Rate	Deposit interest rate (percent).
Money	Money and quasi-money (M2) as percent of GDP.
<b>Trade Policy Variables</b>	
Exports	Export of goods and services (percent of GDP).
Imports	Import of goods and services (percent of GDP).
Trade	Value of imports plus exports (percent of GDP).

### Footnotes

1. Alesina et al. [1992] used dummy variables measuring regular and irregular transfers of executive power, substantial changes in the party or coalition of parties in office, and a measure of political competitiveness.
2. The time-inconsistent literature pioneered by Kydland and Prescott [1977] and elaborated by Fischer [1980], Glazer [1989], Perrson and Svensson [1989], and Tabellini and Alesina [1990] explain the strategic behavior of incumbent regimes that results in inefficient policy choices. In these models, current self-serving governments chose suboptimal, second-best policies to constrain the choices of future governments.
3. Using data from Jodice and Taylor [1983] and Barro [1989] did not significantly change the results.
4. Because of missing data for some countries, the reported results are based on a subsample of the 119 countries.

5. For example, Italy experienced more than 56 regime changes since World War II but has one of the fastest growing economies in Europe. Zaire, which has been ruled by the same dictator from 1965 to 1997, had experienced a negative growth rate.

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