

Democracy and Political Instability in Cross-Country Economic

Growth Analysis:

Conceptual and Empirical Issues

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ABSTRACT

Numerous studies have attempted to identify the impact of democracy and political stability on cross-country economic growth, however, a large number of empirical works consist of contradictory findings due to conceptual and technical issues. From the conceptual perspective, while the main message of democracy is freedom of choice and may be classified on the basis of freedom into political, economical and social, it is almost certain that the political aspect of democracy has been dominant in the literature. Therefore, the Comprehensive Democracy Index (CDI) has been introduced to comprise the three aspects of freedom in democracy. Likewise, political stability has focused mainly on political events with an emphasis on government change, however, it may need to notice that what is important in long-term economic growth is the stability of economic environment. Hence, the Comprehensive Political Instability (CPI) Index has been defined to represent two key characteristics of political variables: longevity and size impact. This article also addresses the most common issues in empirical works comprising causality, simultaneity and robustness analysis and thereby, it has shown that the validity of models needs to be examined. Emphasize is that the conceptual and econometrical issues should be concurrently investigated.

1. Introduction

In the seminal paper of Levine and Zervos (1993), “substantial conceptual and statistical problems” are precisely identified in cross country studies. However, researchers may have not exactly noticed these issues in the political economy and in their empirical works. In the context of political economy those studies, which have placed an emphasis on democracy and political instability have been faced with conceptual and econometric issues in regard to definitions and variables selection, simultaneity bias and robustness analysis. In broad terms, this article distinguishes these limitations by addressing conceptual and technical problems in two main parts. The first part elaborates conceptual issues including definitions and components. The second part extracts technical issues indicating the drawbacks of empirical models; mainly causality and model specification.

This article is organized as follows; section 2 examines conceptual issues by focusing on democracy and political stability, section 3 elaborates econometric problems related to the empirical works. Finally, section 4 presents a summary and conclusion.

2. Conceptual Issues

Conceptual aspects of political variables are the first and foremost challenging issue in the context of political economy. The main message of this part is that the concept of democracy and its indices are mainly focused on political attributes and very few attempts have been dealt with the economic and social aspects of democracy. Therefore the Comprehensive Democracy Index (CDI) is introduced to comprise political, economic and social dimensions of democracy. Likewise the political stability encounters the similar problems in growth studies. In political instability what we need to know is that how a political destabilized event, in terms of duration and size impacts, can influence on economic growth. A Comprehensive Political Instability (CPI) Index will introduce to show these effects on economic growth.

2.1 Political Democracy

The political democracy is determined by various attributes such as political liberties and popular sovereignty (Bollen, 1980), contestation and inclusiveness (Coppedge et al., 2011), political rights and civil rights (Freedom House, 2014), Polity IV (Marshall and Gurr, 2013), competition and participation (Vanhanen, 2000a, 2000b) and “Voice and Accountability” in World Governance Indicators (Kaufmann, Kraay, and Mastruzzi, 2011). A vast commentary and criticism has been aimed at democracy indices from different aspects such as definitions, accuracy, coding, aggregation, reliability and validity tests, coverage and sources (Munck and Verkuilen, 2002; Coppedge et al., 2011). Due to methodological and conceptual differences, the issue of measurement has considerably influenced on empirical research (Acemoglu et al., 2014).

Two main findings can be reached by looking at most empirical studies on democracy-economic growth: conceptual differences which have led to substantial variations in data generation, and relying on one or two datasets in most empirical works. Munck and Verkuilen (2002) distinguished three challenges in the methodological literature: conceptualization, measurement, and aggregation. The main reason for the diversity of democracy databases may have stemmed from identifying attributes and concept specifications. Political democracy has conceptually been determined by attributes and components of attributes for some existing datasets (see table 2.1). Although the majority of authors define the logical structure of concepts for political democracy, most datasets follow their own specific attributes and components of attributes (see table 2.2). However, they believe that these data sources are mainly based on minimalist definitions except the Freedom House, which uses maximalist definitions¹ (Munck and Verkuilen, 2002).

Table 2.1: The Logical Structure of Concepts

Concept	Democracy					
Attributes	Contestation		Participation			
Components of attributes	Right to form political parties	Freedom of the press	Right to vote	Fairness of the voting process	Access of parties to public financing	Extent of suffrage

Source: (Munck and Verkuilen, 2002:13)

One of the early efforts to conceptualize democracy and its measurement is related to Bollen (1980) study, which comprises six political indicators including press freedom, group opposition freedom and government sanction (for political liberties), and fairness of elections, executive and legislative selection (for popular sovereignty). The political democracy index is then constructed on the basis of these indicators and calculated for more than 110 countries, ranging from 0 to 100. Since this study contains data just for two years i.e. 1960 and 1965, it is not a reliable source of cross-nation analysis. For this reason, the Gastil annual indicators were introduced for political rights and civil liberties in most countries (Gastil, 1990). Although the Freedom House has produced Gastil's indicator since 1972 and is still a main data sources of democracy for four decades, there are other databases such as Arat's Index Score of Democraticness (Arat, 1991:26 & 136) , Polity IV (Marshall and Gurr, 2013), Vanhanen (2000a; 2000b). An overview of most existing datasets is provided in table 2.2.

In addition to these, other democracy datasets have also been provided for other research purposes such as 'Centripetal Democratic Governance' (Gerring, Thacker, and Moreno, 2005), 'Democracy Time-series Data' (Norris, 2009) and more recently 'World Governance Indicators' (Kaufmann, Kraay, and Mastruzzi, 2011).

Table 2.2: Overview of Existing Datasets on Democracy ^a

Index	Attributes	Components of Attributes	Measurement Levels	Aggregation Rule
Bollen (1980)	Political liberties	Press freedom Freedom of group opposition Government sanctions	Interval	Factor scores (weighted averages)
	Popular sovereignty	Fairness of elections Executive selection Legislative selection and effectiveness		
Freedom House (Gastil, 1990) ^b	Political rights (10 components)	Electoral process: 1. Executive elections 2. Legislative elections 3. Electoral framework Political pluralism and participation: 4. Party systems 5. Political opposition and competition 6. Political choices dominated by powerful groups 7. Minority voting rights Functioning of government: 8. Corruption 9. Transparency 10. Ability of elected officials to govern in practice	Ordinal	Additive, at the level of components
	Civil liberties (15 components)	<i>Freedom of expression and belief:</i> 1. Media 2. Religious 3. Academic freedoms 4. Free private discussion <i>Associational and organizational rights:</i> 5. Free assembly 6. Civic groups 7. Labor union rights <i>Rule of law:</i> 8. Independent judges and prosecutors 9. Due process 10. Crime and disorder 11. Legal equality for minority and other groups <i>Personal autonomy and individual rights:</i> 12. Freedom of movement 13. Business and property rights 14. Women's and family rights 15. Freedom from economic exploitation		
Arat (1991)	Participation	Executive selection	Ordinal	Additive, at the level of

Index	Attributes	Components of Attributes	Measurement Levels	Aggregation Rule
		Legislative selection Legislative effectiveness Competitiveness of the nomination process		components; combined additive and multiplicative, at the level of attributes
	Competitiveness	Party legitimacy Party competitiveness		
	Inclusiveness	-		
	Coerciveness	-	Interval	
Coppedge and Reinicke (1990)	Contestation	Free and fair elections Freedom of organization Freedom of expression Pluralism in the media	Ordinal	Guttman scale (hierarchical), at the level of components
Hadenius (1992)	Elections	Suffrage Elected offices Meaningful elections (openness, fairness, and effectiveness)	Interval	Combined additive and multiplicative (of weighted scores), at the level of components; additive, at the level of attributes
	Political freedoms	Freedom of organization Freedom of expression Freedom from coercion	Ordinal	
Alvarez et al. (1996)	Contestation	-	Nominal	Multiplicative, at the level of components and attributes
	Offices	Election executive Election legislature		
Gasiorowski (1996)	Competitiveness	-	Ordinal with residual category	None
	Inclusiveness			
	Civil and political liberties			
Vanhanen (2000a)	Competition	-	Interval	Multiplicative
	Participation			
Polity IV(Marshall and Gurr, 2013)	Competitiveness of participation	-	Ordinal	Additive (of weighted scores)
	Regulation of participation			
	Competitiveness of executive recruitment			
	Openness of executive recruitment			
	Constraints on executive			

^a Source: Munck and Verkuilen (2002:10), edited by author. Also see table 2.8 for the scales.

^b Based on Gastil (1990:30 & 36-37).

Table 2.3 shows that most democracy-economic growth studies have applied the Freedom House dataset (Gastil Index). This database is largely based on the political attributes. Despite the fact that Freedom House has defined political rights and civil rights as two main attributes of democracy, the table reveals that some parts of attributes and components have been used arbitrarily in some empirical work. For instance, Kormendi and Meguire (1985:154-155), Grier and Tullock (1989:271-273), Levine and Renelt (1992:948-950) have considered civil liberties in their model while others like Barro (1989) and De Haan and Siermann (1996a; 1996b) have emphasized political rights.

It is noteworthy to mention that each study follows its own specific interpretation for using democracy attributes. For instance, Kormendi and Meguire (1985:154) attempted to find out a connection between freedom and economic growth. Grier and Tullock (1989:271) use this variable as a proxy for political infrastructure (repression) of countries. Barro (1989:22) states that his intention to use political rights is 'a proxy for property rights': the higher this index is, the more investment and growth will be. However, in another work he stresses on political instability rather than civil liberties Barro (1991:432). De Haan and Siermann (1996b) use political rights as a proxy for the lack of political freedom.

Table 2.3: Empirical Democracy-Economic Growth Studies

No	Study	Specification	Method	Countries & Period	Data Sources	Impact of democracy on economic growth
1	Weede (1983)	Growth=f (GDI, PRIM, SEC, milit.partic., political democracy)	OLS	89-94 countries, 1960-1979	Bollen (1960 & 1965)	1. Negative relationship for full sample 2. No relationship for LDCs only 3. Negative relationship for countries with (Gov.rev/GDP) $\geq 20\%$
2	Kormendi and Meguire (1985)	Growth=f (GDP, POPGR, stand.dev. real growth, stand.dev. money stocks, export, infl, civil liberties)	OLS	47 countries, 1950-1977	Gastil (CLD=1 when CL=1 or 2 and CLD=0 otherwise.)	Positive relationship (only marginally)
3	Marsh (1988)	Growth=f (GDP, PRIM, PRIM+SEC, literacy, ethno-ling.hetrog., export concentr., FDI, milit. per worker, publ.inv, milit.expend., party compt., low 40% inc.share., gini, civil liberties and political rights.)	OLS	55 LDCs, 1965-1984, 1970-1978	Gastil (Average of civil liberties and average of political rights 1973-1979)	No relationship
4	Scully (1988)	CAPGWT=f (CHGKL, POL OPEN, POL CLOSED, INDIV RIGHTS, STATE RIGHTS, FREE MKT, COMMAND)	OLS	115 market economies, 1960-1980	Gastil (6 dummies: pol.libet<2, pol.libet>5, civ.libert <2, civ.libert>5 econ.libet<2, econ.libet>5)	1. Positive relationship for each dummy 2. Negative relationship for all dummies except FRRE MKT & INDIV RIGHTS.
5	Grier and Tullock (1989)	Growth=f (GDP, pop.growth, infl., change in infl., stand.dev.growth, stand.dev. infl., Gov., OPEC member, lack of civil liberties)	OLS; Pooled cross section time series	89 LDCs, Separate reg. for Africa, Asia and Americas, 1961-1980	Gastil (Dummy for lack of civil liberties)	1. Neg relationship for Africa 2. No relationship for America, Asia
6	Barro (1989)	a: Growth = f(per capita GDP (y_0), y_0^2 , i/y , school, ΔN , g^c/y , g^i/y , g^d/y , g^e/y , pol.rights, social. countries, mixed system, dummies for war, Africa and Latin-America)	OLS	72 countries, 1960-1985	Gastil (Average political rights 1973-1985)	1. Positive relationship by including or excluding dummies for Africa, Latin-America
7	Dasgupta (1990)	Growth = f (democracy)	Spearman Rank Correlation	50 LDCs,	Gastil (Average of civil liberties and average of political rights 1973-1979)	Positive relationship
8	World Bank (1990)	Growth = f (democracy)	Simple correlation	68 countries, 1973-1987	Gastil (average of polit. rights+ civ. liberties 1973.1989)	No relationship
9	Levine and Renelt (1992)	Growth = f (GDP, inv., pop. growth, SEC, GOV, expt, infl., growth domestic credit, revl+ coups, stand. dev.infl., democ.)	OLS, formal sensitivity test	83 countries, 1974-1989	Gastil (average civil liberties 1973 -1989)	No robust relationship
10	Barro and Lee	Growth = f (GDP, male SEC, female SEC, life	IV, Pooled	84-94 countries,	Gastil (average of polit.	No relationship

No	Study	Specification	Method	Countries & Period	Data Sources	Impact of democracy on economic growth
	(1993)	exp., INV, GOV, black, market prem., revol., democ.)	cross-section time series	1973-1985	rights and average of civl. libert.)	
11	Helliwell (1994)	Growth = f (GDP, average GDP, (SEC- n + g + d), (investment- n + g + d), democ.)	IV	125 countries, 1960-1985	Gastil (linear transf. of poli. rights and civl. libert. average 1976 - and Bollen 1960)	Robust and positive effect
12	De Haan and Siermann (1995)	Growth = f (democracy)	Sensitivity analysis	110 countries, 1961-1992	Gasiorowski's dataset	No robust relationship
13	De Haan and Siermann (1996a)	Growth = f (population, capital, political instability or lack of political freedom.)	OLS	97 countries, 1963-1988	Gastil (2 dummies: pol. rights ≥ 3 ; otherwise 0, pol. rights ≥ 4 ; otherwise 0.	1. No relationship for all countries 2. Neg relationship for Africa & Latin America 3. Positive relationship for Asia
14	Tavares and Wacziarg (2001)	Growth= f (human capital, invest rate, trade share, Gini coeff, poli.instab., democ, Govern. Consum, black market premium)	3SLS, sensitivity test	65 developing countries, 1970-1989	Gastil (freedom to elect representatives and the existence of a meaningful opposition 1972-1995)	Negative relationship
15	Plumper and Martin (2003)	Growth= f (GDP per.cap, inv/GDP, pop., human capital, instit.openess, democ., sq.democ., SEA dummy)	OLS	83 countries, 1975-1997	Polity 1998	1. Negative with democ. 2. Positive with sq.democ
16	Drury, Krieckhaus, and Lusztig (2006)	Growth = f (corruption, democracy, life expectancy, government expenditure, pop. Growth, trade openness, dummy for tropical country)		More than 100 countries, 1982-1997	1. Polity IV (2000) 2. Gastil (Freedom House) 3. ACLP Dataabse (Alvarez et al.)	1. Positive relationship in Polity IV and Freedom House 2. Negative relationship in the Democracy Index due to Limited data
17	Cuberes and Jerzmanowski (2009)	Growth trend = f (average of per-worker output, democracy)	Pooled OLS and GMM	116 countries, 1950-2000	Polity IV	Less democratic countries experience more high-frequency growth volatility in the medium term
18	Patti and Navarra (2009)	Growth= f (Invest, (n+ δ +g), FDI, democracy, group dummies, time dummies)	2SLS	66 countries, 1980-2003	Polity IV	Positive relationship
19	Cebula (2011)	Growth=f (economic freedom, political stability, economic factors)	OLS and 2SLS	OECD countries, 2003-2007	Heritage Foundation	Positive relationship
20	Acemoglu et al. (2014)	Growth= f (democracy)	OLS and GMM	175 countries, 1960-2010	Freedom House and Polity IV	Significant and robust positive effect

2.2 Comprehensive Democracy Index (CDI)

Now the important question is that which one, among these datasets, is most beneficial for a democracy-economic growth analysis? To answer this question one needs to consider the fact that the emphasis has been mostly on the political aspects of economic growth, and other aspects of democracy (economic and social) have been largely unnoticed. Barro (1989:21-22) clearly mentions that the political rights index has two weaknesses: having a subjective nature and being representative of political rights not economic rights.

As discussed in the previous section, most growth studies in a cross-section of countries are based on the political aspect of democracy and there are few attempts on economic and social aspects. One of the notable papers belongs to Cebula (2011) who investigates the impact of economic freedom on economic growth. Although Acemoglu et al. (2014) have used the index of economic reforms, the main focus of their study has been “permanent changes in democracy status”.

Since the dominant characteristic of democracy is freedom of choice through democratic decision-making, democracy can be defined in a way so as to reflect all aspects of freedom *i.e.* political democracy, economic democracy and social democracy. Unlike the widely accepted definition of democracy by Lipset (1959)² in the context of political economy, Comprehensive Democracy Index (CDI) needs to be defined to measure these aspects. Table 2.4 specifies the components of CDI and highlights the importance of freedom in a society. As table shows, the common features of political aspect are free and fair executive elections, legislative elections and freedom of group opposition and minorities. In economical aspect of democracy, freedom of all vital components of economy system should be secured. And finally, democracy cannot be achieved without social freedom such as “Freedom of expression and belief”, “Associational and organizational rights” and “Personal autonomy and individual rights”.

To construct a comprehensive index of democracy we have to find indicators to convey all these triple dimensions of democracy mostly. Given that table 2.4 describes the components of

political, economical and social of democracy, there are three inclusive indicators by which CDI can be determined: Voice and Accountability (VA), Index of Economic Freedom (IEF) and Freedom in the World (FIW).

The first index is Voice and Accountability (VA), which can be considered as a fully illustrative indicator of political and social freedom of democracy, based on the representative sources of Worldwide Governance Indicators (WGI). Estimates of this index range from -2.5 (weak) to 2.5 (strong) revealing the governance performance. This indicator captures political and social freedom indicating people's participation in "selecting their government, as well as freedom of expression, freedom of association, and a free media"(Kaufmann, Kraay, and Mastruzzi, 2011:223).

The second one is the annual Index of Economic Freedom (IEF), which ranges from 80-100 (free), 70.0-79.9 (mostly free), 60.0-69.9 (moderately free), 50.0-59.9 (mostly unfree), and 0-49.9 (repressed). This index includes 10 types of freedom and has been classified within four categories as below³:

1. *Rule of Law*: (property rights, freedom from corruption);
2. *Limited Government*: (fiscal freedom, government spending);
3. *Regulatory Efficiency*: (business freedom, labor freedom, monetary freedom); and
4. *Open Markets*: (trade freedom, investment freedom, financial freedom).

Finally the Freedom in the World (FIW) provided by Freedom House, which also a combined index of Political Rights and Civil Rights scaling from 1 (most free) to 7 (least free). In this study the average score of the political and civil rights will be counted.

To calculate CDI as a composite indicator, the FIW index needs to be rescaled from 1(least free) to 7 (most free) so as to have consistency among this three indicators. Also the VA indicator has been rescaled from 1 (lowest) to 6 (highest) so as to avoid the negative sign effect in computing of composite indicator of democracy. After normalizing all indicators between 0 and 100, the Comprehensive Democracy Index (CDI) can be calculated as follow:

$$CDI = \left(\frac{FIW^3 + IEF^3 + VA^3}{3} \right)^{\frac{1}{3}}$$

This indicator has been computed for 154 countries from 2002 to 2012⁴. The calculation shows that out of 1661 observations, the lowest democracy level was 19.17 (Iraq in 2002) and the highest level of democracy was 90.07 (New Zealand in 2005).

Table 2.4: The Comprehensive Democracy Index (CDI)

Aspects	Components of Aspects	Sources
Political	Freedom of group opposition, Fairness of elections, Executive selection Legislative selection and effectiveness.	Bollen (1980)
	<i>Electoral process</i> : Executive elections, Legislative elections, Electoral framework. <i>Political pluralism and participation</i> : Party systems, Political opposition and competition, Political choices dominated by powerful groups, Minority voting rights. <i>Functioning of government</i> : Corruption, Transparency, Ability of elected officials to govern in practice.	Freedom House (Gastil, 1990)
	Executive selection, Legislative selection, Legislative effectiveness, Competitiveness of the nomination process, Party legitimacy, Party competitiveness.	Arat (1991)
	Free and fair elections, Freedom of organization.	Coppedge and Reinicke (1990)
	Suffrage, Elected offices, Meaningful elections (openness, fairness, and effectiveness), Freedom of organization, Freedom of expression, Freedom from coercion.	Hadenius (1992)
	The degree of electoral competition, degree of electoral participation and a combined index of democratization.	Vanhanen's index of democracy
Economical	property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom financial freedom.	Index of Economic Freedom
Social	<i>Freedom of expression and belief</i> : Media, Religious, Academic freedoms, Free private discussion. <i>Associational and organizational rights</i> : Free assembly, Civic groups, Labor union rights <i>Rule of law</i> : Independent judges and prosecutors, Due process, Crime and disorder, Legal equality for minority and other groups <i>Personal autonomy and individual rights</i> : Freedom of movement, Business and property rights, Women's and family rights, Freedom from economic exploitation	Freedom House (Gastil, 1990)
	Press Freedom.	Bollen (1980)
	Freedom of expression, Pluralism in the media.	Coppedge and Reinicke (1990)
	<i>Voice and accountability</i> : Participation in government selection, freedom of expression, freedom of association, and a free media.	WGI

2.3 Political Instability

Political instability like democracy faces two major issues: conceptualization and measurement. From a conceptual point of view, economists have largely relied on a definition based on politics. However, one has to keep in mind that the interpretation of this concept in economic literature is different from a political science view. In politics, stability has been

defined as the regularity of the political exchange streams, and any deviation from this line is then taken into account as political instability (Ake, 1975:273).

There are few studies eliciting the concept of political stability; however, problems such as conceptual complexity, different measurement approaches and interpretation have been recognized. In one study four dimensions of political stability have been introduced: stable government, stable political systems, internal law and order, and external stability (Paldam, 1998:172); however, most studies focus on state stability (Margolis, 2010:326). Political stability has also been attributed by six different components: lack of violence, lack of structural change, lack of control, state functionality, indicators and correlates and finally patterns of political behaviours (Margolis, 2010:327).

In terms of measurement, the literature shows that like democracy, the political instability measures suffers from similar issues. To start with, it is good to know two common ways to measure instability concept: qualitative and quantitative. These measures are based on either predictive indices or the current situation (see table2.5).

Table 2.5: Types of Political Instability Indices

Type	Quantitative Indices
Predictive-based ^a	<ul style="list-style-type: none"> • Fuzzy Analysis of Statistical Evidence (FASE-US Army). • Integrated Crisis Early Warning System (ICEWS-US Army). • Political Instability Task Force (PITF-CIA); formerly known as State Failure Task Force (SFTF).
Current-based ^b	<ul style="list-style-type: none"> • <i>For Government</i>: Country Indicators for Foreign Policy [CIFP]. • <i>For Business</i>: Political Instability Index (PII), Global Political Risk Index (GPRI). • <i>For Academia</i>: Index of State Weakness (ISW) and State Fragility Index (SFI). • <i>For Non-profits</i>: Failed States Index (FSI).

^a See O'Brien (2002; 2010) and Goldstone et al. (2010).

^b See Carment et al. (2006) and :

- PII:http://viewswire.eiu.com/site_info.asp?info_name=social_unrest_table&page=noads&rf=0
- GPRI: <http://investkoreasmes.files.wordpress.com/2010/01/gpri.pdf>
- ISW:http://www.brookings.edu/~media/Research/Files/Reports/2008/2/weak%20states%20index/02_weak_states_index.PDF
- SFI: <http://www.systemicpeace.org/peace.htm>
- FSI: <http://global.fundforpeace.org/>

To shed more light on measurement issue and to distinguish political instability components, three classifications can be identified: *coercive behaviours* such as assassinations, terrorism, armed attacks, civil wars, civil strife conflict, domestic violence and strikes;

government change whether regular or irregular such as illegal election, revolutions, coups; and finally *political protests* like mass arrests, anti-foreign demonstration, fractionalization and so on. Researchers incredibly consider the first two categories.

As table 2.6 shows Barro (1991) considers *revolution, coups and assassination* as representatives of political instability in his study and interprets that revolutions and political assassinations has adverse effect on property rights. Therefore, investment and growth will be negatively affected indirectly by these variables. He also believes that the causality direction runs from economic growth to political stability. Interestingly, in two similar growth-political instability articles (Alesina and Perotti, 1996; Alesina et al., 1996), political instability has been interpreted by two different approaches. First, it is considered as an executive instability-constitutional or unconstitutional- and is viewed as “the propensity of a government collapse” (Alesina et al., 1996:189). They believe that uncertainty about economic decisions mainly resulted from a high propensity of government change. Second, political instability is focused on social unrest and political violence indicators. In fact, a *socio-political instability index* is defined based on the second approach for determining the channel of an inverse relationship between growth and political instability through investment (Alesina and Perotti, 1996). Fosu (2001:292) implies successful coups as an index of political instability (PI). He attributes successful coups (SCOUPS) to abortive coups (ACOPUS) and officially reported coup plots (CPLOTS). In another study (Goldstone et al., 2010), it has been claimed that using a nonlinear five-category measure of type regime constructed from Polity components is the best predictor of political instability rather than a 21- point Polity scale. In addition to civil war (including ethnic and revolutionary wars), who introduce two extra types of political instability: adverse regime changes; and genocides and politicides (Goldstone et al., 2010:191-192). Aisen and Veiga (2013:157) classify this concept into three groups: regime instability index (1 and 2), within the regime instability index (1 and 2) and violence index (1 and 2) and some indicators have attributed for each index. Very little research has been done on political protests. By

using qualitative methods, Berthélemy et al. (2002) consider strikes, demonstration unrest and violence to examine how political instability can be affected by economic factors.

It is obvious that most growth studies based on political instability have used two main data sources i.e. Taylor and Jodice (1984) and Banks and Wilson (2013) have largely been used for constructing government stability indicators. For political instability, the numbers of regular executive transfers and the number of irregular executive transfers (successful coups) have been obtained from the World Handbook of Political and Social Indicators (Taylor/Jodice). The Cross-National Time Series Data Archive (CNTS, Banks) has focused on coups and government changes. Despite the current dominated datasets for regime instability, there are other sources which measure political stability or instability which has been used rarely by other researchers such as World Governance Indicators (WGI) for ‘Political Stability and Absence of Violence/Terrorism (PV)’ and Polity IV which lists all datasets including ‘State Fragility Index and Matrix, 1995-2012’, ‘Coups d'Etat, 1946-2012’, ‘Political Instability Task Force, 1955-2012’. Other dataset include ‘Major Episodes of Political Violence, 1946-2012’ (MEPV)⁵.

Table 2.6: Empirical Political Stability-Economic Growth Studies

No	Study	Specification	Approach	Method	Countries & Period	Data Sources	Impact of political instability on economic growth
1	Barro (1991)	Growth=f (GDP60, GDP70, PRIME60, SEC60, REV, ASSASS, MORT, PPI60DV)	Government Change, Coercive Behaviors	OLS	98 countries, 1960-1985	Banks	Neg. relationship
2	Alesina et al. (1996)	Growth= f (GCHANANGE, EDUC, GROWTH-1, WGROWTH-1, LATIN, AFRICA)	Government Change	Amemiya's generalized least squares (AGLS), sensitivity analysis	113 countries, 1950-1982	Taylor/Jodice and Banks	Neg. relationship
3	Alesina and Perotti (1996)	INV= f (SPI, GDP, PPPIDE, PPPI) SPI= f (ASSASS, SCoup, UCoup, DEM)	Coercive Behaviors, Government Change	2SLS and 3SLS	71 countries, 1960-1985	Barro and Wolf (1989) [originally from BANKS and GASTIL for political instability and democracy, respectively].	Growth will reduce due to negative effect of political instability on Investment
4	Feng (1997)	1. Growth= (democracy,D, government change,P. economic variables,X.) 2. D= (P, G, X) 3. P= (D, G, X)	Government Change	3SLS	96 countries, 1960-1980	Taylor and Banks	1.Positive relationship with major and minor regular government change, 2. Negative relationship with irregular government change
5	Fosu (2001)	Growth= (PI, l, k, PI _k)	Government Change	OLS, Pooled cross section	31 SSA countries, 1960-1985	McGowan (1986)	1. Positive relationship with PI 2. Negative relationship with PI _k
6	Berthélemy et al. (2002)	1. Private Investment= f (Growth, Instability); 2. Growth= (Investment)	Political Protests	Qualitative method	22 countries, 1996-2001	African Economic Outlook Report, AEOR (2002)	Growth will reduce due to negative effect of political instability on Private Investment.
7	Campos and Karanasos (2008)	Growth= (conditional variance of growth, PI)	Coercive Behaviors, Government Change	Power-ARCH	1896-2000, Argentina	Banks (CNTS, 2005)	1.Neg. relationship with informal political instability. 2. Indirect impact with formal political instability.

8	Miljkovic and Rimal (2008)	1. IGG= f (GDP, GGR, DEMO, INDEP); 2. RGG= f (GDP, GGR, DEMO, INDEP, REGION1, REGION2)	Government Change	OLS	122 countries, 1960-1988	Siermann (1998)	Neg. relationship
9	Jong-A-Pin (2009)	Growth= f (lagged GDP Growth, Regime instability, Mass civil protest, Within instability, Politically motivated violence, Investment, Pop. Growth, Sec. Prim. Schl)	Government Change	GMM Dynamic Panel	90 countries, 1974-2003	Banks (CNTS, 2003)	Negative effect of regime instability on economic growth
10	Cebula (2011)	Growth= f(FREEDOM, POLSTAB, ECON)	Coercive Behaviors	PLS and P2SLS	OECD member countries, 2003-2007	World Bank (WGI, 2009)	Positive impact on economic growth
11	Polachek and Sevastianova (2012)	Growth = f (GDP, Conflicts, Control variables)	Coercive Behaviors	OLS and Fixed Effect	90 countries, 1975-2000	Pennsylvania State University (2000, 2005) COW ^a data	Neg. relationship on GDP growth
12	Aisen and Veiga (2013)	Growth= f (economic variables, prim.schl. enroll, Regime Instability Index, Violence Index)	Government Change	GMM	196 countries, 1960-2004 in 5-year periods	CNTS (Banks, 2009), Polity IV, State Failure Task Force (SFTF), Gwartney and Lawson (2009)	Neg. relationship on GDP growth

^a <http://www.correlatesofwar.org/> and <http://www.cow.psu.edu>

2.4 Comprehensive Political Instability (CPI) Index

It seems that studies on political stability in growth studies have mostly focused on government change or regime change, and they have overlooked the ultimate intention of political stability in the context of economic growth. Instead, it would be much more convincing if this concept could reintroduce in terms of time longevity and its coverage impacts on economic growth. The principle behind this is that stability in economic growth is defined as a steadiness and the solidity of government/society in their relations and contracts. Presumably any internal or external force/s and events, which destroy or threaten the stability, can be considered as an instability variable.

Therefore the Comprehensive Political Instability Index (CPI) may need to be introduced to capture the longevity and size impact of destabilized-political events. To do so, the CPI index has to satisfy two conditions. The first condition is that an appropriate political event for the CPI index should be selected indicating instability in a country. The second condition is that *a political event, which destabilize economic environment, would get more weight if it has more impacts in terms of longevity and/or coverage*. It is due to that some political events have huge and longer impacts on stability of economic growth than the other events. Accordingly, four indicators have been selected to be a good representative of longevity and size impacts in economic growth analysis. They are the Weighted Average of Coups d'état Event (WACE), the Major Episodes of Political Violence (MEPV), the Political Stability and Absence of Violence/Terrorism (PSAV) and the State Fragility Index (SFI). The first two indicators (WACE and MEPV) measure the size impact of political instability on economic growth while the last two ones (PSAV and SFI) deal with the longevity impacts on growth.

The Weighted Average of Coups d'état Event (WACE), which has been computed through Coups d'état⁶ database, may use to measure size impact of destabilization on economic environment. In table 3.2, different weights have been devoted to nine types of coups to describe a substantial change in executive leadership. As can be seen from the table

more weights have been given to successful coup, ouster of leadership and assassination. Therefore, The Weighted Average of Coups d'état Event (WACE), which ranges from 0 (lowest level of instability) to 1 (highest level of instability), is calculated as follows:

$$WACE = \frac{\sum_{i=1}^n x_i w_i}{\sum_{i=1}^n w_i}$$

where x_i refers to the component and w_i denotes the weight of each component.

Table 3.2: The Components of WACE

No.	Component	Weight
1	SCOUP1: Number of successful coups d'état	5
2	ATCOUP2: Number of attempted (but ultimately unsuccessful) coups d'état	2
3	PCOUP3: Number of (thwarted) coup plots reported by government	1
4	APCOUP4: Number of alleged coup plots announced by government	1
5	AGCOUP: Indicator of the occurrence Auto-Coup	2
6	FOROUTEX: Ouster of Leadership by Foreign Forces	4
7	REBOUTEX: Ouster of Leadership by Rebel Forces	4
8	ASSASSEX: Assassination of Executive	3
9	RESIGNEX: Resignation of Executive Due to Poor Performance and/or Loss of Authority	1

Another indicator is the Major Episodes of Political Violence (MEPV), which leads to at least 500 deaths over the course of episode by using fatal violence through organized groups. The MEPV is the sum of all societal and interstate major episodes of political conflicts. They include international violence, civil violence, international war, civil war, ethnic violence, ethnic war and international independence war. The MEPV is based on an eleven-point scale ranging from 1 (lowest) to 10 (highest) and 0 that refers to no episode. The more the MEPV rises, the more expanded instability may exist. The third is the Political Stability and Absence of Violence/Terrorism (PSAV) provided by WGI, which measures the likelihood of destabilized or overthrown governments through unconstitutional and violent means. This indicator like VA scales from -2.5 (weak) to 2.5 (strong). Finally, the State Fragility Index (SFI) scores each country based on effectiveness and legitimacy in four dimensions, which are

security, political, economic and social. This index is the combination of 8 indicators and ranges from 0 (no fragility) to 25 (extreme fragility). This index shows the “*state capacity*” in managing conflicts, implementing public policy and delivering essential services, and “*systemic resilience*” in preserving system⁷.

In order to calculate CPI Index and consistency across the indicators, PSAV indicator should be rescaled like CDI, and all these four indicators need to be normalized between 0 to 100. Hence CPI Index will be determined as follow:

$$CPI = \left(\frac{WACE^4 + MEPV^4 + PSAV^4 + SFI^4}{4} \right)^{\frac{1}{4}}$$

This composite indicator like CDI has been produced for 154 countries from 2002 to 2012⁸. The calculation shows that out of 1692 observations, the most stabilized country was Finland (0.00 in 2002) and the most destabilized nation was Iraq (77.88 in 2004).

3. Empirical Issues

Most of empirical models of political-growth studies try to find an association between economic growth and political variables. These attempts, however, comprise huge variations in results due to specific views of researcher to the political variables (subjective or objective) in designing research such as model specification, selecting variables and data sets. For instance, the political instability variable has been used as an instrumental or dummy in most cases because of subjective evaluation of political circumstances. The objective evaluation might be another source of variation. In addition to this, technical issues such as causality and robustness are important in growth analysis. To uncover dissimilarities, it might be valuable to consider the following issues.

3.1 Data

It seems the primary reason for variation in econometric results is using different datasets originated from conceptual issues and authors’ interpretation of political variables. Due to varying definitions of democracy and political instability, a specific data set has been chosen in each

study. For instance, in one article Alesina et al. (1996) define executive instability as political instability and hence they use Taylor/Jodice dataset. While in another study, Alesina and Perotti (1996) consider social unrest as political instability and therefore Barro/Wolf has become their main data sources.

Table 2.3 shows that the dataset selection for democracy has gradually changed from Gastil (Freedom House) to the Polity IV in recent studies. For political instability (table 2.6), however, the dominant data source is still referred to “Banks”.

Table 2.7 depicts the main features of the most-used datasets in empirical studies. As can be seen from the tables 2.3, 2.5 and 2.6, some studies applied directly from the sources, but some researchers have constructed their own datasets, and indices are based on their specific interpretations.

Table 2.7: The Datasets and Indices for Democracy and Political Instability

No	Dataset	Measurement Features	Democracy	Political Instability
1	Gastil (Freedom House)	Uses 3 rating systems: 1. <i>Degree of Freedom</i> : using score level (0-4); 2. <i>Freedom Rating</i> : ranged from 1 to 7; 3. <i>Country's status of free</i> : Free (1.0 to 2.5), Partly Free (3.0 to 5.0), or Not Free (5.5 to 7.0). From 1972-present.	*	
2	Polity IV	<i>Polity Score</i> (1800–2012) is based on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). Three categories are recommended as "autocracies" (-10 to -6), "anocracies" (-5 to +5), and "democracies" (+6 to +10).	*	
3	Banks (CNST)	It is an international and national country database including political instability variables from 1815 to the present.		*
4	Taylor et al.	The World Handbook of Political and Social Indicators III: 1948-1982 includes political, economic, and social data and rates of change for 155 countries. There are four dataset files comprising Aggregate Data, Daily Event Data, Annual Event Data and Quarterly Event Data.		*
5	Gasiorowski	It is known as Political Regime Change Dataset and classified 97 countries into three categories: democratic, semi-democratic and authoritarian. From date of independence to 1992.	*	
6	ACLP database	Democracy index is defined as a dichotomous variable (either democratic or non democratic) and as a further check on the robustness of the results. Countries are rated democratic if the chief executive and the legislature is elected; and if more than one party exists. From 1950-1990.	*	
7	World Governance Indicators (WGI)	It has ranged between -2.5 to 2.5 and based on 6 indicators relying on the perceptions of governance. The data available for 1996-2012.	*	*
8	African Economic Outlook (AEO)	It is based on qualitative data from weekly newspaper, <i>Marchés Tropicaux et Méditerranéens</i> . According to researcher approach, Political instability Index can be driven from these qualitative information. AEO produces three indicators; "Public protest", "Softening of the Regime" and "Hardening of the Regime". The data available for 1996-2012.		*
9	The Correlates of War (COW)	Starts from 1816 to present and includes international politics attributes, especially inter and intra war data and Militarized Interstate Dispute (MID) data.		*
10	Polyarchy Data (Vanhanen)	The dataset contains Democracy (Vanhanen) Index and has been measured from 1810 to 2000.	*	

3.2 Causality and Simultaneity

Most empirical research on the economic growth and political variables have dealt with the existence of causality not causality direction. The econometric results have just revealed the correlation between them. Since most political events (to be exact democracy and political instability) have been assumed to appear in a country while economic growth has already been there, some studies believe that the direction of causation runs from political variables to economic growth. However, some other studies conceptualize a kind of causation that runs from growth to political variables. In fact, a bivariate two-way relationship is plausible and very few papers have examined this issue. It is noteworthy that the Ordinary Least Squares (OLS) have been widely used in the literature and have clearly relied on the assumed direction of causality.

Since the OLS method is not able to depict the causation direction, using the Instrumental Variables (IV) are prescribed to resolve the causation problem. Another advantage of IV is that potential simultaneity will create biased estimates in small and large samples (inconsistency), which can be usually resolved by using suitable exogenous variables as instruments. Since there is no statistical test to examine the validity of these instruments in this field, some justification and persuasion is required to address (Adam and Dercon, 2009). These problems have been seen in a number of empirical studies on causality and consequently revealed some contradictory results.

By using the linear recursive causality models, Pourgerami (1988) examines the causality relationships between development-democracy and democracy-growth. He found that democracy causes economic growth with positive casual association directly and indirectly. The indirect causal effect is also conducted via two other variables *i.e.* LABOR and WELFARE. In contrast, Helliwell (1994) examines feedback linkages between economic growth and democracy, and finds the robust and positive effect of income on democracy. He also found the opposite effect direction became negative but insignificant in simultaneous equations when using Bollen Index as an instrument. Consequently, no significant net effect of

democracy on growth can be seen due to weak positive effect (by combining negative direct effect and positive indirect effect).

By applying a simultaneous approach and employing 3SLS method, Feng (1997) shows the indirect effect of democracy on growth through the political stability -major regular government change)-, which has been induced by democracy. In order to clarify the concept of political stability government change has been classified into three groups: irregular, minor regular and major regular government change. He concludes that democracy improves economic growth through stimulating major regular government change and hindering irregular government change. In fact, democracy has a positive effect on major regular government change and negative effect on regime change in one hand, and on the other hand major regular government change influence on growth positively and regime change affects growth adversely.

Heo and Tan (2001) by using direct Granger causal approach conclude that the causality between democracy and economic growth is two-way. They also emphasize on working beyond the “simple operationalization of democracy” and role of other factors such as geophysical factors, international factors and domestic institutional factors. Tavares and Wacziarg (2001) argue that democracy causes growth through the human capital channel. This indirect effect is positive. However, democracy inhibits growth by lowering physical capital accumulation rate. On the whole and by considering all indirect effects, the total effect of democracy on growth is relatively negative.

Interestingly, another investigation by Narayan have shown an evidence in both directions *i.e.* running from real GDP Granger to democracy and vice versa by using the Freedom House dataset for 30 Sub-Saharan African countries. They conclude that in the long run:

- Real GDP Granger causes democracy (positive association) in some countries.
- Democracy Granger causes real GDP (positive association) in some countries.

- Democracy Granger causes real GDP (negative association) in some countries.

Political stability also contains paradoxical findings. It is sometimes recognised as a cause of slow economic growth and sometimes as a result of it (Feng, 1997). In Haan and Siermann's study (1996b:349), the causality runs from political instability and repression to economic growth. However, the authors believe the possibility of other way round of causality and state that further research needs to be done on the robustness of findings. Gasiorowski (1999) indicates that the causality runs from political instability to economic growth. He shows using four instability measures that peaceful unrest causes a decline in growth, but the other way does not occur. Although violent unrest, coup d'état changes of government lower economic growth, the causality direction is not clear for these three variables. Gyimah-Brempong and Traynor (1999:29) found a "bi-directional causal relationship between political instability and economic growth" through new defined simultaneous equations. He believes that political instability both directly and indirectly influences growth (through reduced capital formation). Fosu (2002) assumes that political instability causes growth. Although he believes that the reverse causation is plausible and needs to be examined by a formal test, he rejects the possibility of the case. Gurgul and Lach (2013) also indicate that the direction of causality runs only from political instability (considered by government change) to growth by using sensitivity analysis. In fact, the causality issue –directly or indirectly- has been classified into three strands: one-way causality; either from PI to growth or vice versa, duality causation and finally, there is no evidence of causality between political instability and growth variable.

In order to resolve the simultaneity problem in the form of a single economic growth equation; Alesina et al. (1996) engages a simultaneous equations approach to overcome endogeneity of government change and economic performance. The exogenous variables, X_c (determining government change) and X_y (for economic growth only), in the structural equation system have been used as instrumental variables for the instability and the growth respectively. Overall, studies confirm that political instability and democracy should be

considered as endogenous variables due to simultaneity bias. Gupta, Madhavan, and Blee (1998) introduce five equations in a simultaneous framework to examine the relationship between economic growth, income distribution, democracy (political regime), political instability and investment. By using instrumental variables they try to get simultaneity bias corrected.

Jong-A-Pin (2009) mentions that considering political instability as a single dimension and ignoring of multidimensionality is a main reason for the measurement error in most political instability-growth analysis. Studies with focus on a single dimension-index have been used in a different ways such as Discriminant Analysis (Gupta, 1990), Principal Component Analysis (Perotti, 1996) and Logit Analysis (Alesina et al., 1996).

In sum, it seems that the causality issue is highly affected by the number of observations, selected variables and model specifications, which may lead to inconsistent results, especially in political instability, which structural parameters are constantly varying and therefore the estimates will not be stationary any more. Many authors confirm the necessity of doing a formal test for casualty direction; however, majority of authors have not used the test and they have just relied on some justifications for interpreting the results. (See, inter alia, Miljkovic and Rimal, 2008; Fosu 2002).

3.3 Robustness

Another issue is related to the robustness of the econometric results due to different specifications introduced in growth equations. Robustness is referred to the validity of a model in such a way that the results would not be affected by violating primary conditions or different assumptions. For instance, a model is robust when estimation methods are insensitive to measurement errors or heteroscedasticity. However, in most cases researchers do not clarify the significance and sign of variables, and whether they depend on the assumed model specifications. Therefore, it is vital to have some diagnostic tools to identify the robustness of a model and make

sure that it is satisfying model assumptions and guarantee a low bias in testing assumptions and the true estimated parameter.

Levin and Renelt (1992) have shown that the statistical significance of most variables in cross-national growth regressions is sensitive to small changes in model specifications particularly the inclusion of right hand side variables. They suggest that a formal sensitivity test is required to control the reliability of variation in a specified model. While very little literature exist for the validity test of results and some measures such as Wald test and White-robust (robustness of heteroskedasticity for standard errors) are also assumed sufficient criterion for this, a few works notice the importance of robustness checks. Table 2.8 reveals that two methods have been used for the robustness validity of results:

1. *Robustness or Sensitivity Analysis (EBA)*: This is the general method of validity using inclusion or exclusion of variables, applying alternative estimation methods and changing the sample coverage.

2. *Extreme Bounds Analysis (EBA)*: The simple idea behind this method is to find out which independent variables are robustly associated with the dependent variable across a large number of model regressions. This approach was originally proposed by Leamer (1985) and then followed by Sala-i-Martin (1997), more flexible version. In Leamer's method, the EBA focuses on lower and upper extreme bounds of regression estimates, while Sala-i-Martin's approach deals with the entire distribution of regression coefficients.

In most cases, robustness tests have been conducted through sensitivity analysis of the results when altering the variables, time spans and countries under study. Here, another question is how one can ensure that the robustness analysis is valid and how model specifications and variables inclusion/exclusion have been properly conducted? To answer these questions, Lu and White (2014) suggest a new method for the structural validity of a model so as to identify the validity of robustness checks and robustness tests. They introduce a Hausman-style specification test and a new estimator, the Feasible Optimally combined GLS (FOGLeSSs) estimator (Lu and

White, 2014:3), in order to identify core and non-core variables and how they can be accurately specified. This procedure can be very helpful in recognizing potential misspecification, validity and reliability of results.

Table 2.8: Robustness Analysis in Democracy and Political Instability

No	Study	Method ^a	Comments
1	Weede (1983)	-	Model is robust over different equations and time points by using Bollen's 1960 values instead of 1965 values for political democracy.
2	Levine and Renelt (1992)	EBA (Extreme Bounds Analysis)	The robustness of estimated coefficients is tested concluding that political stability (REVC: revolutions & coups) and macroeconomic indicators are not robustly correlated with economic growth. In fact they are "fragile" not "robust".
3	De Haan and Siermann (1995)	Sensitivity analysis based on EBA approach	No robustness between democracy (political and civil rights) and economic growth exist. In fact both the direct and indirect effects of democracy on growth are not robust.
4	De Haan and Siermann (1996a)	Sensitivity analysis based on EBA approach	They conclude no robust between democracy (four classified democracy) and economic growth. Also both the direct and indirect effects of democracy on growth are not robust.
5	Easterly and Levine (1997)	Sensitivity Checks	The results are robust indicating that political instability (political assassinations) has negative impact on Africa's growth. The result has been valid even by changing and testing other nine PI indicators.
6	Tavares and Wacziarg (2001)	Sensitivity Analysis	The results are robust through model specification, estimation method and sample coverage: 1. <i>Sensitivity to the specification of system equations</i> through empirical specification search, time and regions effects, excluding per capita income from the channel equations, and SUR estimates. 2. <i>Sensitivity to sample coverage</i> through geographic and time coverage.
7	Plumper and Martin (2003)	-	The robust results are revealed by regional dummies inclusion for East Asian countries and different political constraints.
8	Drury, Krieckhaus, and Lusztig (2006)	-	The robustness of the results has been tested via Index of Democracy (ALCP). It is also examined through other six control variables for cross-sectional time series analysis.
9	Narayan, Narayan, and Smyth (2011)	-	The robustness of the results has been checked through fully modified ordinary least squares (FOLS) (Phillips and Hansen, 1990), Dynamic OLS (Stock and Watson, 1993) and Engle and Granger (1987) OLS.
10	Alesina et al. (1996)	Sensitivity Analysis	The political instability has negative effect on economic growth. The robustness of this result has been examined quantitatively and qualitatively through changes in model specification; i.e. by adding some variables and removing a few numbers of countries.
11	Jong-A-Pin (2009)	Robustness Analysis	The results are robust through model specification and sample coverage; excluding variables and changing time spans.
12	Goldstone et al. (2010)	-	The robustness of results has been checked via different regions, datasets and variables.
13	Campos, Karanasos, and Tan (2012)	-	Inclusions structural break dummies, intercept dummies, using alternative GDP growth series and specifying lagged values of the informal instability measures were means of robustness check in this study.

14	Polachek and Sevastianova (2012)	Robustness Checks	This has been done through 5 different ways: data from 2000, inter- and intra-state war data, the effect of wars in terms of time duration from 1 to 30 years, region, polity, and country income classification and finally using an alternative statistical model specification.
15	Aisen and Veiga (2013)	-	The robustness of results is checked via institutional variables, restricted samples or alternative period lengths.

^a The blank on the method section indicates that the study did not use or devote a specific method for robustness analysis or robustness check.

4. Summary and Conclusion

This article has attempted to reveal the conceptual and econometric issues confronted by political-economic growth studies. Clearly, there is no consensus in the empirical results due to disparities in concepts and methodology. Democracy and political instability have been widely used in the context of political economy of economic growth, however the majority of studies have relied only on one aspect. While the main message of democracy is freedom of choice the political aspect of democracy only has been considered. Hence, the Comprehensive Democracy Index (CPI) is defined to comprise three dimensions of democracy *i.e.* political freedom, economic freedom and social freedom.

Since government has been the dominant factor of political instability in empirical studies, political instability should be clarified in terms of longevity and its impact size to convey the effects of stability on economic growth. The long-term economic growth requires stability of economic environment over time, hence any internal or external force/event causes the violation of this can be considered as an instability variable/index. All instability variables/index classify into two main features: the size impact (strong, moderate and weak) and the duration impact (long-term, mid-term and short-term). Therefore, the weighted mean of Comprehensive Political Instability Index (CPI) Index is computed so as to consider the longevity and impact size of these variables.

In regard to econometric issues, most works have mainly encountered the data/variable selection, simultaneity and robustness problems as well. Due to variation in concepts and perceptions for political variables a variety of datasets have been established. Most empirical studies have relied on Freedom House (for democracy) and Taylor and Banks (for political instability). Therefore, it will be very interesting to see what will happen to the empirical results when these issues are addressed and different data sources are used. Meanwhile, it seems that the causality and simultaneity of model in cross-section analysis should be examined coincidentally so as to distinguish the right directions of political variables in economic growth. Finally, the

robustness analysis/test is applied to check the validity of model through different datasets, sample coverage (time and/or region), model specifications and estimation methods. The robustness analysis is another prerequisite in growth studies to ensure that the model is appropriately selected and estimated.

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Notes:

¹ - In contrast to minimalist definitions, the tendency in maximalist definitions is to include many attributes to the meaning of a concept.

² - He defines democracy based on the political system: "which supplies regular constitutional opportunities for changing the governing officials, and a social mechanism which permits the largest possible part of the population to influence major decisions by choosing among con-tenders for political office".

³ - See: <http://www.heritage.org/index/about>

⁴ - The complete table of CDI is available from the author upon request.

⁵ - See <http://www.systemicpeace.org/inscr/inscr.htm>

⁶ - See <http://www.systemicpeace.org/inscrdata.html>

⁷ - For more detail see: <http://www.systemicpeace.org/inscrdata.html>

⁸ - The complete table of CPI Index is available from the author upon request.