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Democratic Institutions and Variability of Economic Growth in Pakistan: Some Evidence from the Time-series Analysis

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This paper explores the empirical association between democracy and per capita output growth in Pakistan using data for the period 1947 to 2006. The findings of the paper indicate a weak negative association between democracy and output growth. Consistent with some current empirical literature, democracy is also found to influence output growth indirectly. The empirical results are robust to different democracy variables and output growth equation specifications. The empirical findings also highlight the role of other variables in determining output growth and, except for rising oil prices, show its positive linkage to physical and human capital, government consumption, openness of trade practices and inflation.

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1. INTRODUCTION

The relationship between democracy and economic growth has concerned social scientists since the seventeenth century. Two main positions still discussed today were staked out in the 1650s, one side arguing that democracy endorsed economic growth, while the other side arguing that democracy obstructed economic growth.¹ Proponents of democracy argue that autocracy, even when benign, weakens the rule of law required for routine economic activity. According to this view, economic growth requires ‘developmental democracy’, in which (legal and electoral) limits on arbitrary power provide individuals the safety to plan for their economic futures [Sklar (1987)]. Democracy promotes rule of law, brings openness in society and provides freedom of choice and stable politics, which discourage corruption and extremist policies. In other words, democracy provides a check on governmental power and thereby limits the potential of public officials to accumulate personal wealth and devise unpopular policies.

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¹For more details on these positions reader is referred to Kurzman, *et al.* (2002).

Democracy leads to credibility of government policies, as lack of credibility tends to weaken stabilisation programmes, delay investment, depress savings, encourage capital flight and promote the growth of black market economies. Democracy limits state intervention in the economy but is responsive to public demands in areas such as education, health and justice, and thereby encourages stable and long-run growth [Rodrik (1999); Baum and Lake (2003)]. Democratic nations are better at managing conflicts, avoiding catastrophes and dealing with major public health crises. In short, supporters of democracy argue that the motivations of citizens to work and invest, the effective allocation of resources in the marketplace, and profit maximising private activity can all be maintained in a climate of liberty, free-flowing information and secured control of property [North (1990)]. With few exceptions, developed nations are also democratic states.

Opponents of democracy, in both academic and political debates, argue that democracy is an inefficient system for developing countries. According to this view, economic growth in developing countries requires 'developmental dictatorship' in which people are required to do hard work and make sacrifices [Gregor (1979)]. It is also argued that democracies lend themselves to popular demands for immediate consumption at the expense of profitable investments. Further, democracies cannot be insulated from the interests of rent-seekers and cannot utilise resources efficiently, and that democracies are prone to conflicts due to social, ethnic and class struggles. In turn, authoritarianism tends to suppress conflicts, resist sectional interests and take coercive measures essential for rapid growth. Many rich countries have become rich under authoritarian rule and have often experienced declines in growth after a democratic transformation.² If this conventional wisdom is correct, one might be justified in concluding that democracy is a luxury to be enjoyed only by countries rich enough to afford it. This, indeed, is a common argument among authoritarian leaders in the developing world.

These two positions have been joined in debate by a third perspective of more recent origin, which states that democracy has no significant effect on economic growth. This view, called as the 'no-effect' position, postulates that economic growth is due primarily to economic production inputs. The difference between democratic or non-democratic regimes is less important than the existence of pro-growth governmental policies. In fact, democracy affects economic growth through various channels. Some channels exhibit positive effects of democracy on economic growth while others exhibit negative effects. The net effects of democracy on economic growth thus remain ambiguous. As a result, studying the effects of democracy on economic growth is often deemed a futile endeavour. Yet this issue deserves close examination as political liberalisation is often the developed countries' precondition for providing financial assistance to developing countries like Pakistan. Therefore, determining democracy's costs and benefits is critical to formulating policies that boost economic development.

Almost all previous studies on this relationship have focused on cross-country data analysis. It is quite possible that in one country, due to its socio-cultural conditions,

²For example, Asian economies such as Taiwan and South Korea achieved democracy only recently after decades of high economic growth under authoritarian regimes.

democracy enhances its economic growth while in another country it may not. In cross-section data the positive (negative) effects of democracy on economic growth in one country may be cancelled out by negative (positive) effects observed in another country, leading to ambiguous conclusions. Further, cross-country data analysis uses period average data and ignores the obvious possibility that the democratic level of a country changes over time. In addition, the use of a single cumulative or average measure of economic growth makes empirical results vulnerable to period effects. This implies that cross-country data analysis may yield bias estimates. This study examines the relationship between democracy and economic growth in Pakistan using annual time-series data for the period 1947 to 2006 such that the problems of stationarity, robustness of specification, as well as the problems related to collinearity, endogeneity and non-linearity of the model are also addressed.³

The rest of the paper is organised as follows. Section 2 presents a brief literature review. Section 3 provides a brief history of democracy and economic growth in Pakistan. Section 4 develops the central theoretical argument of this study and outlines its methodology. Section 5 presents empirical results. The final section relates the conclusions.

2. LITERATURE REVIEW

Post-1960 empirical literature on democracy and development mainly focused on the democracy-growth relationship but has failed to arrive at a clear conclusion. Of the 13 studies surveyed by Sirowy and Inkeles (1990), three found a negative effect of democracy on economic growth, four found this negative effect in some situations, and six found no relationship whatsoever. In their review of 21 statistical findings, Przeworski and Limongi (1993) stipulate that eight found in favour of democracy, eight in favour of authoritarianism and five discovered no difference. Of the 17 papers reviewed in Brunetti (1997), nine found no effect of democracy on economic growth, four found positive effects and the other four found negative effects. Kurzman, *et al.* (2002) reviewed 47 quantitative studies, in which 19 found a positive relationship between democracy and growth, six found a negative relationship, and 10 reported no statistically significant relationship. Seven studies found a combination of positive and non-significant results, two found a combination of negative and non-significant results, two found mixed positive and negative results, and one [Barro (1996)] reported an inverted-U effect.⁴ More recently, Mobarak (2005) finds that higher level of democracy promotes growth because democracy reduces volatility which in turn enhances growth. Gerring, *et al.* (2005) and Rodrik and Wacziarg (2005) have also shown that democracy promotes growth.⁵

³Earlier studies of time-series include Cohen (1985), Sloan and Tedin (1987), McMillan, *et al.* (1993), and Przeworski and Limongi (1997).

⁴Barro (1996) suggests a nonlinear relationship between democracy and economic growth in which democracy enhances growth at low levels of political freedom but depresses growth when a moderate level of freedom has already been obtained.

⁵Authors are unable to find any time-series study conducted for Pakistan regarding democracy-development relationship.

This literature taken as a whole is fairly inconclusive.⁶ Roughly, the same number of studies stand on both sides of the argument, for and against democracy as an economic growth factor. There are various reasons for this inconsistency. The first is inconsistent econometric modelling assumptions, since the models used by different studies do vary widely. The second is sample and data selection bias. The third is the difference in estimation techniques. The fourth is that some studies examine the direct effect of democracy on economic growth while others argue that explicit specification of the channels of influence will allow a better understanding of the economic costs and benefits of democracy [Alesina, *et al.* (1996); Tavares and Wacziarg (2001); Baum and Lake (2003)]. In other words, the ambiguity of theoretical relationship between democracy and growth is another source of inconsistency in empirical results. The fifth is the construction of democracy index, since some studies used a dichotomous variable to measure democracy while others used some objective indices to measure democracy. Thus, the issue is complicated by estimates that differ due to data sources, estimation techniques, sample compositions and time periods. However, this does not imply that there is no relationship between democracy and economic growth. The conditional distribution of growth rate as a function of democracy indices might differ from the unconditional distribution, even when the conditional mean is the same [Almeida and Ferreira (2002)].

3. HISTORY OF DEMOCRACY AND ECONOMIC GROWTH IN PAKISTAN

3.1. Democracy⁷

Pakistan came into existence as a Muslim majority state under the Government of India Act of 1935, which made it a parliamentary democracy. All successive constitutions of Pakistan maintained this notion of parliamentary democracy for Pakistan. However, Pakistan has been under military governance for the majority of its 59 years of existence (1947-2006). In 1958, the army stepped in for the first time to take over political power. The second time was in 1977, and in 1999 for the third time. The nation's five elected governments were established in 1972, 1988, 1990, 1993 and 1997. But these elected governments were removed by the army. As a result, democracy did not work satisfactorily in Pakistan and even it could not perform its basic tasks such as providing law and order, making economic development and building adequate political institutions. The reasons for democracy's failure in Pakistan is attributed to:

- *Lack of Political Institutions*: Political institutions and political parties are an important element of parliamentary democracy. In Pakistan political parties are private enterprises of single persons or families lacking inner democratic structure which prevents them from putting the country on a democratic path.

⁶The inconclusive relationship between democracy and economic growth led researchers to explore also other aspects of politics and growth. For instance, Minier (1998) finds that changes in democracy, rather than the level of democracy, matter.

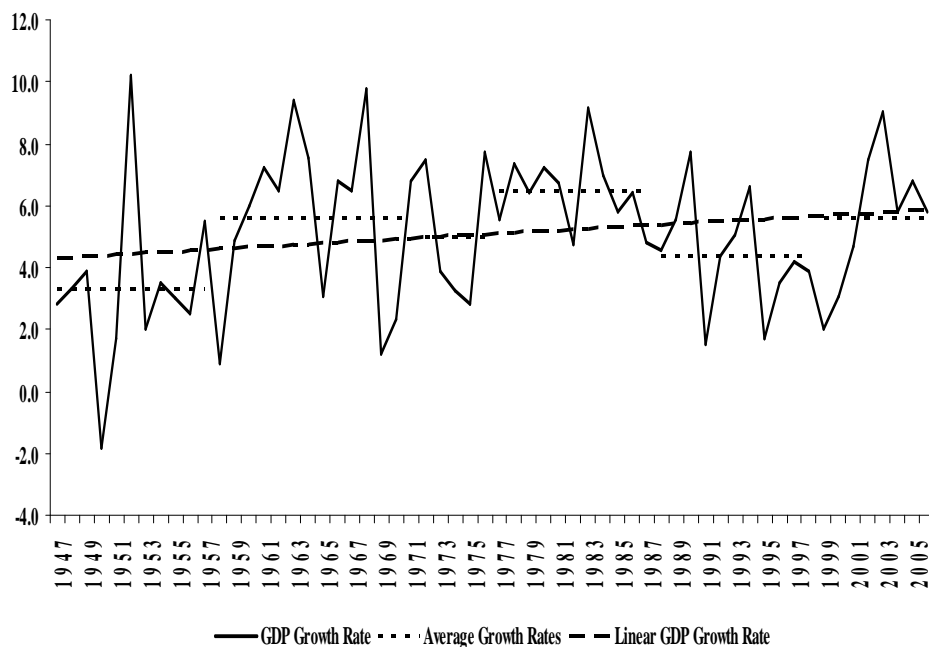
⁷While writing this sub-section help is taken from, among others, Belton (2004), Haqqani (2006) and Robotka (2006).

- *Lack of Sense of Responsibility*: The elected representatives are by and large not aware of their rights and responsibilities and no effective system has been evolved to train them to function as elected legislators.
- *Lack of Accountability*: There has been no public initiative to monitor the performance of the elected representatives and elected bodies and to hold them accountable on the basis of their track record.
- *Emergence of Democratic Leadership disrupted by Military Rule*: During the periods of military rule, the political process, which on its own momentum develops new leadership in the country, remained halted. Whenever democracy was restored, the process did not continue for long enough to allow new leadership to emerge.
- *Strategic Factors*: The Kashmir war and the (real or perceived) Indian military threat for Pakistan were two powerful factors which made the civilian governments concede preeminence to the army and priority to its needs. This foothold of the military in Pakistani politics has made it a full-fledged player in the country's governance.
- *Insulation of Educated Middle Classes from Politics*: Pakistan has always been dominated by a small class of the feudal élite. The educated classes mostly from the middle class have remained largely uninvolved in national politics. They have either been sidelined or have got disillusioned seeing no role or prospects for them in the political process. As a result, political activity has remained largely confined to the moneyed class..
- *International Factors*: Foreign vested interests have found it more convenient to deal with a military government in Pakistan than with a weak political one. This has also discouraged the democratisation process in Pakistan.
- *Socio-economic Structure*: Due to widespread illiteracy and poverty the socio-economic structure of Pakistan has been such that people have had to vote the feudal élite or industrialists into power.

The upshot is that the basic conditions that a functional democracy requires are missing or are insufficient in Pakistan. This flaw or weakness has provided the excuse to the army to step in when political governments have failed to deal with a crisis situation.

3.2. Economic Growth

Pakistan's growth performance throughout its history has remained substandard. Growth trends have fluctuated from period to period as the country lurched from democratic system to dictatorship as Figure 1 shows. Average growth rate from 1947 to 1957 was 3.3 percent, from 1958 to 1971 it was 5.6 percent, from 1972 to 1976 it was 5 percent, from 1977 to 1987 it was 6.5 percent, from 1988 to 1998 it was 4.4 percent, and from 1999 to 2006 it was 5.6 percent. It indicates that the average growth rate of GDP remained slightly lower during democratic periods than during dictatorship periods. One reason is that Pakistan experienced high political instability during democratic periods, which adversely affected output growth. In turn, due to high political stability during dictatorship periods, GDP experienced a high level of growth. However, as the linear GDP growth rate/trend line shows, Pakistan's GDP growth rate kept on increasing throughout the period.

Fig. 1. Gross Domestic Product (GDP) Growth Rates (1947–2006)

4. ANALYTICAL FRAMEWORK

4.1. Theoretical Arguments

In theoretical debates, three schools of thought have worked on the relationship between democracy and economic growth, namely the conflict school, the compatibility school and the skeptical school [Feng (1997)].⁸ Hobbes (1651) is known to have first evolved the conflict view.⁹ To Hobbes, authoritarian regimes were more likely to improve public welfare simply because they could not promote their own interests otherwise. Huntington (1968) argues that democracies have weak and fragile political institutions and lend themselves to popular demands at the expense of profitable investments. According to Krueger (1974) and Bhagwati (1982) democratic governments are vulnerable to demands for redistribution to lower-income groups, and are surrounded by rent-seekers for directly unproductive profit-seeking activities. Persson and Tabellini (1992) suggest that democracies attempt to reduce material inequality through growth deterring redistributive taxation. Lipset (1959) proposes that some level of development is required for democracy to function properly. This view became popular after the growth success stories in South Korea, Taiwan, Hong Kong and Singapore in the 1950s and the 1960s.

⁸For more details on the theoretical debates linking democracy and growth, interested readers are referred to Sirowy and Inkeles (1990), Przeworski and Limongi (1993), De Haan and Siermann (1995), Nelson and Singh (1998), Durham (1999), Gasiorowski (2000), Quinn and Woolley (2001), Kurzman, *et al.* (2002) and Baum and Lake (2003).

⁹Cited in Kurzman, *et al.* (2002) and Doucouliagos and Ulubasoglu (2006).

Authoritarian systems are supposed to implement coercively the hard economic policies necessary for growth, and suppress the growth-retarding demands of low-income earners and labour in general, as well as social instabilities due to ethnic, religious, and class struggles, which democracies cannot suppress. Rao (1984) observes that absolutist regimes increase economic growth by sacrificing current consumption for investment, which makes them rather effective at mobilising savings. For economic progress, markets should come first, and authoritarian systems can easily facilitate such policies. The argument rests on several assumptions, the main one of which is that if given power, authoritarian regimes would behave in a growth-friendly manner.¹⁰ In fact, the conflict view implies that political democracy is a luxury that developing countries cannot afford.

The compatibility school objects to the arguments made by the conflict school and stresses that rulers are potential looters [Harrington (1656)]¹¹ and democratic institutions can act to constrain them [North (1990)]. Implementation of the rule of law, contract enforcement and protection of property rights do not necessarily imply an authoritarian regime. The latter has a tendency to confiscate assets if it can expect a brief tenure [Olson (1993)]. Even in the long-run authoritarian regimes lead to a corrupt and extravagant use of resources, internally inconsistent policies, and short-lived and volatile economic progress [Sah (1991); Bhagwati (1995)]. The motivation of citizens to work and invest, the effective allocation of resources in the marketplace, and profit maximising private activity can only be maintained in a democratic system, which leads to higher political rights and civil liberties. Democracy exhibits peaceful and predictable transfers of political power and results in political stability, which is likely to foster investment and growth by reducing the degree of uncertainty [Barro (1991); Alesina, *et al.* (1996)]. Further, democracies rarely engage in military conflict with each other, and this promotes world peace and economic growth. Proponents of democracy also propose that if not direct, democracy has indirect effects on economic growth [Alesina, *et al.* (1996); Tavares and Wacziarg (2001); Kurzman, *et al.* (2002); Baum and Lake (2003); Gerring, *et al.* (2005)]. Thus, on the question of democracy-growth relationship, one should remember the broader associations that encompass the channels, or the indirect effects, between democracy and growth rather than one-to-one causation from regime to growth.

Finally, according to the skeptical perspective, there is no systematic relationship between democracy and economic growth. The proponents of this view argue that it is the institutional structure and organisations, rather than regimes *per se*, that matter for growth. Pro-growth governmental policies can be implemented in either system. A good leadership that can resolve collective problems and be responsive to rapidly changing technical and market conditions is more critical to economic growth than a political system [Bardhan (1993)].

Another school of thought, which contains the properties of both conflict and compatible schools, suggests a nonlinear effect of democracy on economic growth

¹⁰However, several contrasting cases are provided where dictators pursued their own welfare, and failed apparently in Africa and the socialist world [De Haan and Siermann (1995); Alesina, *et al.* (1996)].

¹¹See footnote 6.

[e.g. see Barro (1996)]. It suggests that growth will initially increase with democracy, but the relation will turn out to be negative once a moderate level of democracy is attained. One way to interpret this result is that in the worst dictatorships an increase in democracy tends to stimulate growth because the benefit from limitations on governmental power is the key matter. But in places that have already achieved a moderate amount of democracy, a further increase hinders growth because the dominant effect comes from the intensified concern with social programmes that redistribute resources. Thus, like empirical literature, theoretical literature is also highly divided on the effects of democracy on economic growth. However, in contrast to empirical literature, the theoretical literature is rich enough with micro and macro level explanations linking democracy to economic growth.

4.2. Empirical Estimation

This section examines democracy-growth linkages using regression analysis. The approach followed here is to add the democracy variable to the right-hand-side variables of a standard growth equation as an explanatory variable. Here the proposition is that democracy is likely to significantly affect output growth. The specification of output growth equation is similar to those specifications commonly used in the growth literature [see e.g. Barro (1991); Kormendi and Meguire (1985); Levine and Renelt (1992); Mankiw, *et al.* (1992)]. The following dynamic growth equation, which outlines the basic thrust of output growth model, will be estimated,¹²

$$Y_t = \gamma_1 + \gamma_2 DMC_t + \gamma_3 k_t + \gamma_4 hc_t + \gamma_5 g_t + \gamma_6 open_t + \gamma_7 INF_t + \gamma_8 oil_t + \mu_t$$

where the lowercase letters denote that the underlying variables are in natural log form. The various variables are defined as follows.

Y_t	= Per capita output growth rate
DMC_t	= Democracy index
k_t	= Capital stock per worker
hc_t	= Human capital
g_t	= Government consumption
$open_t$	= Trade openness
INF_t	= Inflation rate
oil_t	= Oil prices
μ_t	= White-noise error term

where γ 's are the parameters to be estimated, and μ_t is the stochastic disturbance term such that $\mu_t \sim N(0, \sigma^2)$.

¹²Iqbal and Zahid (1998) have also used such type of growth model for Pakistan. Also see, among others, Khan (2005); Iqbal and Sattar (2005) and Malik, *et al.* (2006) for these types of growth models in Pakistan.

Output growth is posited to be the function of a set of control variables. These control variables include an index capturing democracy, physical and human capital accumulations, government size, trade openness, domestic inflation and oil prices. Changes in any of these control variables would be expected to alter per capita output growth.¹³

5. DATA, ESTIMATION AND INTERPRETATION OF RESULTS

5.1. Overview of the Data

This study employs annual time-series data for Pakistan for the period 1947 to 2006.¹⁴ The determining factor behind the selection of theoretically relevant variables is the availability of data. Non-availability of data restricted the use of some important growth determining variables (e.g. corruption, black market premium etc.). The dependent variable is per capita real GDP growth rate. Democracy is proxied by Polity2 score, which is taken from Polity IV dataset described by Marshall and Jaggers. Polity2 is an index ranging from -10 (full autocracy) to +10 (complete democracy). This index employs a 21-point scale and takes into account how the executive is selected, the degree of checks on executive power and the form of political competition. This indicator presents good historical coverage and allows us to consider both the degree and duration of democracy in any given country-year; so it is appropriate to use it in a time-series context.¹⁵ A complete description of variables along with data sources is given in Appendix A.

Table 1 contains summary statistics for the main variables used in this study, which may help in the interpretation of the coefficient estimates by providing the scale of the relevant variables. Column (1) of Table 2 correlates output growth with all independent variables. The value of correlation coefficient -0.10 indicates that output growth is slightly negatively correlated with the democracy index. Output growth is also negatively correlated with oil prices. In turn, growth is positively correlated with physical capital stock, human capital, government consumption, trade openness and domestic inflation. Column (2) contains the correlations between the democracy index and all other independent variables. The democracy index is positively correlated with all independent variables with the possible exception of oil prices, which is negatively correlated with the democracy index. Since the democracy index is correlated with growth-determining variables, column (2) might help in exploring the channels through which democracy is expected to effect output growth.

¹³See Barro (1991) and Bleaney and Nishiyama (2002), among others, for theoretically predicted signs of various independent variables on output growth.

¹⁴In December 1971, East Pakistan became an independent political entity as Bangladesh. However, prior to 1971 certain statistics were published on aggregate basis. Our primary interest is in the democracy index, as it is not possible to disaggregate data on political grounds, therefore, we have used the published aggregate data. Also see Amjad (1982) in this regard.

¹⁵Hereafter the word 'democracy index' will connote 'Polity2 score' unless otherwise indicated.

Table 1

Table 2

5.2. Democracy-Growth Analysis

Before estimating the growth equation, we have first checked the stationarity of the variables using ADF unit-root test. All variables, except per capita GDP growth and the democracy index, are found to be integrated of order one.¹⁶ It indicates that the estimated growth equation can form a long-run relationship of output growth with all explanatory variables except the democracy index; the latter has a short run relationship with output growth. To overcome endogeneity and omitted variable problems, the Generalised Method of Moments (GMM) estimation technique of Arellano and Bond (1991), Arellano (1993), and Arellano and Bover (1995) has been applied to estimate output growth equation using lagged values of the variables as instruments.

Table 3 reports the regression results. The results indicate that once all control variables are held constant, the marginal contribution of democracy to growth is slightly negative. The magnitude of the coefficient of democracy index is very small (-0.0023). This is due to the fact that the democracy index changes after a number of years (not after every year), thereby depicting a small impact on output growth in yearly time-series data. The coefficient estimate implies that, *ceteris paribus*, a one point increase in democracy index would decrease per capita output growth by 0.0023 points.¹⁷ Thus the results are consistent with the findings of some previous studies, which suggest a weak adverse influence of democracy on economic growth. Given that the coefficient of democracy is negative, we can interpret this to mean that as a government institutionalises democracy over time, economic growth in the country should decelerate. The estimated coefficient on the democracy index remains negative and statistically significant to changing variables in growth equation specifications. The model appears to perform well from a statistical point of view.

As far as control variables are concerned, it is found that growth is enhanced by high physical and human capital accumulations. The statistical significance of human capital is greater than that of physical capital; it validates the endogenous (new growth) theory that human capital has a strong influence on growth performance. Moreover, government consumption expenditures, trade openness and domestic inflation positively contribute to growth. A possible justification for the positive effect of government consumption on growth is that, in Pakistan, the economic benefits of public goods of a larger government outweigh the cost of financing its activities through distortionary taxation. Similarly, high inflation rate, for instance, by increasing investment through reduced real interest rate, raises growth. The favourable effect of trade openness on growth is also consistent with the extant literature. In turn, an increase in oil prices distorts output growth; this result is also consistent with theoretical predictions. Overall, the explanatory variables account for about 54 percent variation in output growth. The autoregressive (AR) process has been applied to remove autocorrelation from the model. Values of Durbin-Watson (DW) statistics are reasonably close to the desired value of two, which indicates the absence of autocorrelation problem in the model.

¹⁶To conserve space ADF test results are not reported here. However, results may be obtained from authors upon request.

¹⁷To check the non-linear effect of democracy on output growth a quadratic term in democracy index was introduced in the growth regression. But its effect on growth turned out to be statistically insignificant and hence it is excluded from the estimation. Similarly, some other control variables were also incorporated in the growth regression. But due to their statistically insignificant effects on growth they are also excluded from the estimation.

Table 3

5.3. Sensitivity Analysis

5.3.1. Sensitivity to Political Variables

In this section, two alternative political variables, namely political constraint and democracy dummy, are used to gauge the effects of democracy on output growth. Political constraint is proxied by the POLCONV score, which is taken from POLCON data set described by Henisz. POLCONV is an index ranging from 0 (no constraints on executive's powers) to 1 (full constraints on executive's powers). The political constraint variable measures the degree of constraints on policy change using data on the number of independent veto points in the political system (executive, legislative, judicial and sub-federal branches of government) and the distribution of political preferences both across and within these branches. High constraints on the powers of the executive denote high level of democracy. The democracy dummy takes the value of 1 when there is a democratic system in a given year and zero, otherwise. It is evident from Table 2 that all three measures of democracy—the democracy index, political constraint and democracy dummy—are highly correlated with each other. The correlation coefficient between the democracy index and political constraint is 0.76, while the correlation coefficient between the democracy index and democracy dummy is 0.89. Thus both political constraint and the democracy dummy can be taken as good proxies to measure democracy.

Table 4 provides the regression results. The coefficients on political constraint and the democracy dummy bear significant negative signs. These results support the findings of the previous section that democracy in Pakistan hampers output growth. The magnitude of the coefficients of both political constraint (−0.0558) and democracy dummy (−0.0212) is greater than that of democracy index (−0.0023). The results suggest that, *ceteris paribus*, a one point increase in political constraint (democracy dummy) would decrease growth by 0.0558 (0.0212) points per year. The effect on growth of a one point change in political constraint (−0.0558) is relatively greater not only to the impact of a change in democracy dummy (−0.0212) but also to the impact of a change in the democracy index (−0.0023). The results of control variables are also in accordance with the findings of the previous section in that both physical and human capital accumulations, government consumption expenditures, trade openness and inflation positively contribute to growth while oil prices distort growth.

5.3.2. Sensitivity to the Inclusion of Interaction Terms

The effect of the democracy index on growth may be considered as a 'pure' effect of democracy on growth, independent of the effect of democracy working through its impact on growth determining variables. However, in literature it is well determined that the established link between democracy and economic growth is a result of the connections between democracy and other determinants of growth, e.g. physical capital stock, human capital, government consumption, trade openness, etc. [Barro (1996); Tavares and Wacziarg (2001); Kurzman, *et al.* (2002); Gerring, *et al.* (2005)]. To check the 'indirect effects' of democracy on growth via growth determining variables, different interaction terms have been included in the growth equation. Table 5 provides the regression results. In column (1) the coefficient of the interaction term 'Democracy Index*Capital Stock' is −0.0016. It shows that democracy index has decreased the

Table 4

Table 5

*The GMM Estimates of the Relationship between Per Capita
GDP Growth and Democracy Index [1947 to 2006]*

Variables	(1)	(2)	(3)	(4)
Intercept	0.3461 (2.9562)*	0.4150 (3.8464)*	0.3985 (2.8115)*	0.4059 (3.4399)*
Democracy Index	-0.0118 (-1.7139)**	-0.0113 (-1.7645)**	-0.0385 (-2.0432)*	-0.0072 (-2.0893)*
Capital Stock	0.0457 (2.1166)*	0.0373 (1.8451)**	0.0343 (1.8301)**	0.0515 (2.9512)*
Human Capital	0.0622 (4.5864)*	0.0599 (4.3654)*	0.0738 (4.5580)*	0.0609 (5.1498)*
Govt. Consumption	0.0225 (2.0522)*	0.0249 (1.9821)**	0.0117 (0.6318)	0.0394 (3.1080)*
Trade Openness	0.0412 (2.3465)*	0.0432 (2.5611)*	0.0272 (1.9944)**	0.0283 (1.8554)**
Inflation	0.1979 (1.1115)	0.1858 (1.1229)	0.0975 (0.3463)	0.4495 (3.4585)*
Oil Prices	-0.0013 (-0.2025)	-0.0037 (-0.5913)	-0.0229 (-1.5792)	-0.0057 (-1.4110)
Democracy Index*Capital Stock	-0.0016 (-2.0960)*			
Democracy Index *Human Capital		-0.0017 (-2.1461)*		
Democracy Index*Govt. Consumption			-0.0051 (-1.9316)**	
Democracy Index*Trade Openness				-0.0038 (-1.8010)**
AR(1)	-0.5429 (-6.4828)*	-0.4758 (-5.8378)*	-0.4297 (-3.9730)*	-0.4071 (-4.2589)*
R ²	0.5834	0.5569	0.5320	0.5321
Adjusted R ²	0.5536	0.5327	0.5166	0.5139
DW	1.9891	2.0938	2.1425	2.1126

Note: Values in parentheses denote underlying student-*t* values. The *t* statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.

coefficient of capital stock by -0.0016 percentage points. In other words, it means that as the level of democracy increases, an increase in capital stock will decrease output growth by -0.0016 percentage points per year. Similarly, column (2) suggests that as the level of democracy increases, an increase in the level of human capital will decrease growth by -0.0017 percentage points per year. A similar interpretation holds for columns (3) and (4) in which democracy hinders growth via influencing government consumption expenditures and the country's commercial policy respectively. Thus our results are broadly in line with the findings of previous studies in that democracy hinders economic growth by influencing growth determining variables. However, the inclusion of interaction terms has led inflation and oil prices variables to become statistically insignificant. Similarly, the significant level of the democracy index has also decreased. Thus the results of Table 5 should be taken with caution.

6. CONCLUSION

This paper empirically examines the relationship between democracy and economic growth in Pakistan using annual time-series data for the period 1947 to 2006. The paper identifies three areas for methodological improvement in political economy of growth. First, instead of a dichotomous variable, a near-continuous measure of democracy is used. Second, rather than using static indicators employed in cross-sectional studies, this paper employs time-series data that account for the rise and fall of democracy during the period under study. Third, indirect effects of democracy on growth are also identified. Using standard econometric methodology, the empirical results reveal that, *ceteris paribus*, democracy has slightly negative effects on economic growth in Pakistan. This link between democracy and economic growth is robust to sensitivity checks, which include changing democracy variables and growth equation specifications. Democracy is also found to impair economic growth indirectly by influencing physical capital stock, human capital, government consumption expenditures and trade openness. As far as control variables are concerned, growth is positively related to capital stock per worker, human capital, large government size, trade openness and inflation, while it is negatively related to increased oil prices.

Pakistan remained under military rule for most of the time, which discouraged the proliferation of conditions required for the existence of democracy. As a result, inefficient democratic governments have halted economic growth in Pakistan. This highlights the need to establish political institutions and policies to promote strong democracies in Pakistan. Thus it will take time for Pakistan to become a fully democratic state to reap the benefits of democracy. In fact, this notion indirectly supports the 'conflict view' that democracy improves growth only when a sustainable level of development has been achieved. Since Pakistan is a developing country, it will take time for Pakistan to achieve a threshold level of development required for the existence of democracy. Moreover, independent thinking and discussion is the way to develop democratic setup in Pakistan. Political scientists and analysts have to play their role in this process of public thinking and discussion. In the process of doing so a nation-wide consensus should be evolved, which could form the basis of a concerted effort to find a solution for one of the most burning problems of Pakistan.

Although these results may extend the political economy of development literature in Pakistan in a useful way, it is important to highlight the limitations of this type of empirical work. For example, democracy indexes are subjective measures that are likely to capture other relevant determinants of economic growth other than political institutions only and the data used to construct democracy indices is not free of errors. Moreover, democracy has its greatest effect in the short term, while economic growth is better understood in longer terms. It is also difficult to control for all relevant characteristics of a country. In fact, time-series analysis, as undertaken in this paper, can settle the dispute of democracy's effect on economic growth as the 'conflict view' has been supported by the findings of the paper. Democracy appears to have complex multiple effects on growth that need to be further explored as new variables become available in the time-series format and new estimation procedures are developed for this work.

Given the fact that developing the main ingredients for democracy, namely a democratically minded people, who have free minds, are well educated and can consciously and fully participate in a democratic set-up, will take time, independent thinking and discussion is the way to develop and define such an interim set up. Political scientists and analysts have to play their role in this process of public thinking and discussion. In the process of doing so a nation-wide consensus should be evolved, which could form the basis of a concerted effort to find a solution for one of the most burning problems of Pakistan.

In view of the internal pressure for quick implementation of democracy and making adherence to democracy a decisive criterion by the West for advancing loans or development aid, the allocation of development funds and of other means of economic aid and cooperation, the incentives for 'going democratic' have risen considerably in Pakistan.

APPENDIX A

VARIABLE DESCRIPTION AND DATA SOURCES

Output Growth (Y_t): Dependent variable used in growth equation is real per capita GDP growth rate. The data is collected from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Democracy (DMC_t): Democracy is proxied by Polity2 score, which is taken from Polity IV dataset described by Marshall and Jaggers. Polity2 is an index ranging from -10 (full autocracy) to +10 (complete democracy). The second measure of democracy that is political constraint is proxied by POLCONV score, which is taken from POLCON dataset described by Henisz. POLCONV is an index ranging from 0 (no constraints on executive's powers) to 1 (full constraints on executive's powers). The third variable of democracy that is democracy dummy takes the value of 1 when there is democratic system in a given year and zero otherwise.

Capital Stock per Worker (k_t): Capital stock per worker is defined as the ratio of capital stock to labour force. Data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Human Capital (hc_t): It is proxied by total secondary school enrolment (regardless of age and gender). Data source is World Bank, *World Development Indicators*, and Government of Pakistan, *Economic Survey* (various issues).

Government Consumption (g_t): It is proxied as the ratio of real government consumption (net of education and defense expenditures) to real GDP, and the data is obtained from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Trade Openness ($open_t$): This variable is defined as the ratio of total trade to nominal GDP. Data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Inflation (INF_t): Domestic inflation rate is calculated as the growth rate of consumer price index (CPI), and the data is taken from Government of Pakistan, *Economic Survey* (various issues) and International Financial Corporation, *International Financial Statistics* (various issues).

Oil Prices (oil_t): Data on world oil prices is taken from International Financial Corporation, *International Financial Statistics* (various issues).

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Table 1

Descriptive Statistics for Variables Included in Regressions

	Mean	Median	Maximum	Minimum	Std. Dev.	No. of Obs.
Per Capita Output Growth	0.03	0.02	0.64	-0.07	0.09	59
Democracy Index	0.63	1.00	8.00	-7.00	5.97	60
Political Constraint	0.20	0.22	0.76	0.00	0.23	59
Democracy Dummy	0.45	0.00	1.00	0.00	0.50	60
Capital Stock (ln)	7.70	7.87	9.29	5.38	1.08	60
Human Capital (ln)	7.42	7.51	9.00	5.65	0.99	60
Govt. Consumption (% of Real GDP)	0.04	0.03	0.07	0.01	0.01	60
Trade Openness (% of Nominal GDP)	26.70	28.68	37.95	10.24	6.63	59
Inflation	0.06	0.05	0.24	-0.04	0.05	59
Oil Prices (ln)	2.00	2.49	3.94	0.58	1.26	60

Table 2

Correlation Table for Variables Included in Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Per Capita Output Growth	1.00									
Democracy Index	-0.10	1.00								
Political Constraint	-0.09	0.76	1.00							
Democracy Dummy	-0.04	0.89	0.55	1.00						
Capital Stock (ln)	0.31	0.10	0.07	0.25	1.00					
Human Capital (ln)	0.25	0.17	0.07	0.33	0.98	1.00				
Govt. Consumption (Ratio of Real GDP) (ln)	0.14	0.23	0.19	0.26	0.71	0.66	1.00			
Trade Openness (Ratio of Nominal GDP) (ln)	0.26	0.16	0.09	0.43	0.68	0.65	0.38	1.00		
Inflation	0.15	0.52	0.25	0.62	0.09	0.20	-0.22	0.45	1.00	
Oil Prices (ln)	-0.16	-0.10	-0.22	0.17	0.84	0.83	0.41	0.78	0.29	1.00

Table 3

*The GMM Estimates of the Relationship between Per Capita GDP
Growth and Democracy Index (1947 to 2006)*

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	0.3961 (4.1499)*	0.0721 (13.5614)*	0.1761 (10.9309)*	0.0243 (2.8149)*	-0.0410 (-2.8557)*	0.1044 (2.9534)*	-0.1853 (-2.5509)*	-0.0386 (-2.3669)*	0.0062 (1.0672)	0.0494 (5.4845)*
Democracy Index	-0.0023 (-3.9878)*	-0.0003 (-3.1971)*	-0.0015 (-6.8629)*	-0.0021 (-2.6094)*	-0.0018 (-3.5863)*	-0.0012 (-2.4799)*	-0.0011 (-2.1359)*	-0.0009 (-2.0855)*	-0.0016 (-3.1626)*	-0.0007 (-2.1957)*
Capital Stock	0.0456 (3.0158)*	0.0202 (7.5536)*			0.0076 (3.9478)*					
Human Capital	0.0581 (5.2114)*	0.0273 (11.2773)*				0.0102 (2.2466)*				
Govt. Consumption	0.0320 (2.7813)*		0.0141 (7.5485)*				0.0264 (2.9222)*			
Trade Openness	0.0409 (2.7982)*		0.0331 (4.0898)*					0.0498 (3.8189)*		
Inflation	0.3616 (3.1294)*			0.2205 (2.5320)*					0.1852 (3.2449)*	
Oil Prices	-0.0055 (-1.7105)**			-0.0068 (-2.2510)*						-0.0085 (-2.8966)*
AR (1)	-0.3597 (-4.0219)*									
R ²	0.5447	0.2419	0.2306	0.2795	0.2282	0.2287	0.2492	0.2393	0.2528	0.2142
Adjusted R ²	0.5103	0.2111	0.2170	0.2531	0.1871	0.1989	0.2147	0.1816	0.2207	0.1807
DW	2.0445	1.8747	2.1278	2.0799	2.1105	2.0252	2.0371	1.8999	2.0238	2.1031

Note: Values in parentheses denote underlying student-*t* values. The *t*-statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.

Table 4

The GMM Estimates of the Relationship Between Per Capita GDP Growth and Political Constraint/Democracy Dummy [1947 to 2006]

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	<i>Political Constraint</i>				<i>Democracy Dummy</i>			
Intercept	0.1127 (0.9028)	0.0116 (0.3710)	-0.0330 (-0.8501)	0.0014 (0.2115)	0.3687 (3.8260)*	0.1355 (6.3917)*	0.1762 (10.8586)*	0.0325 (3.4366)*
Political Constraint	-0.0558 (-4.2697)*	-0.0264 (-2.7893)*	-0.0236 (-4.1802)*	-0.0273 (-3.3809)*				
Democracy Dummy					-0.0212 (-3.9466)*	-0.0212 (-3.6277)*	-0.0142 (-5.1525)*	-0.0451 (-5.3930)*
Capital Stock	0.0512 (2.7664)*	0.0591 (2.5206)*			0.0216 (1.7592)**	0.0376 (2.8191)*		
Human Capital	0.0511 (4.8675)*	0.0597 (2.6415)*			0.0379 (4.3388)*	0.0260 (1.8132)**		
Govt. Consumption	0.0068 (0.7858)		0.0130 (2.3533)*		0.0205 (2.2665)*		0.0143 (7.2422)*	
Trade Openness	0.0299 (2.5004)*		0.0353 (3.7008)*		0.0567 (4.4129)*		0.0265 (3.9273)*	
Inflation	0.1769 (2.5766)*			0.1393 (3.5572)*	0.2198 (2.7506)*			0.3166 (4.5859)*
Oil Prices	-0.0076 (-1.3439)			-0.0055 (-3.0121)*	-0.0001 (-0.0481)			-0.0060 (-2.7254)*
AR (1)	-0.5790 (-5.6940)*				-0.3798 (-4.6847)*			
R ²	0.4978	0.2666	0.2580	0.2361	0.5301	0.2381	0.2069	0.1962
Adjusted R ²	0.4537	0.2415	0.2459	0.2132	0.4927	0.2186	0.1848	0.1772
DW	2.1140	2.1257	2.1506	2.1345	2.1447	1.8798	2.1696	1.9322

Note: Values in parentheses denote underlying student-*t* values. The *t* statistics significant at 5 percent and 10 percent levels of significance are indicated by * and ** respectively.