Does Democracy Impact Economic Growth? Exploring the Case of Bangladesh – A Cointegrated VAR Approach

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BANGLADESH
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Abstract

The key socioeconomic indicators of Bangladesh have apparently experienced improvement since the advent of a new phase of democracy in 1991. This paper examines the impact of democracy on economic growth in Bangladesh using a cointegrated Vector Autoregressive model. Results suggest that democracy as practiced in Bangladesh does not seem to have a significantly positive impact on economic growth, and at the same time authoritarian regimes tend to have a significantly negative impact on economic growth. Inadequate democratic decision making practices, ineffective policy designs and weak policy making institutions are some of the likely causes behind this relationship. The situation is aggravated by the fact that the institutions do not positively alter the decision making behaviour even under democratically elected regimes.

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Acronyms

ADF	Augmented Dicky-Fuller
AL	Bangladesh Awami League
BNP	Bangladesh Nationalist Party
CTG	Caretaker Government
GDP	Gross Domestic Product
MDG	Millennium Development Goal
OLS	Ordinary Least Square
RMG	Readymade Garments
USD	United States Dollar
VAR	Vector Autoregression
WDI	World Development Indicator

1. INTRODUCTION

The debate on whether democracy promotes or hinders economic growth is centuries old (Hobbes 1651; Harrington 1656) and continues to cause controversy to date. Although the concepts of democracy and economic growth have undergone changes in the last three centuries, evidence on the causal relationship between the two remain quite inconclusive. The "trade-off" proponents among the analysts continue to argue that democracy is an inefficient luxury that only wealthy countries can afford. In this view, economic growth, especially inpoor countries, requires what Gregor (1979) calls "developmental dictatorship," in which "masses must be infused with a work, sacrifice and obedience ethic." Conversely the proponents of the need for democratic values for economic growth maintain that dictatorships, however benevolent, undermine the rule of law needed for routine economic activity. In this view, economic growth requires what Sklar (1987) calls "developmental democracy", in which legal and electoral limits on arbitrary power give individuals the security to plan for their economic futures. Admittedly, the relationship between democracy and economic growth is rather complex, as a number of the intermediate variables are often abstract and are difficult to measure. Thus, not only the nature of relationship existing between these two is being continuously debated, but the methodology of those queries is also often subject to intense scrutiny.

While the issues of democratic regimes, autocratic rule and military rule in Bangladesh have been in the limelight for the better part of three decades, the impact of regimes on economic growth is yet to be empirically studied. This paper seeks to contribute to the existing literature on democracy-economic growth relationship by using country-specific analysis and incorporating a cointegrated Vector Autoregressive approach to investigate the impact of democracy on economic growth. In this connection, the paper attempts to explore the above mentioned relationship (i.e. between democracy and economic growth) in the specific circumstances of Bangladesh. In doing so, the paper draws on the dataset on democratic and autocratic qualities of countries developed under the *Polity IV* project.[1]

The empirical results suggest that democracy as practised in Bangladesh does not seem to have a statistically significant impact on economic growth. Rather as elected regimes become authoritarian in nature, as is often the case in Bangladesh, they seem to have a negatively significant impact on economic growth.

The paper begins by revisiting the literature on democracy-economic growth inter-play (Section 2), followed by a brief review of the political regimes of Bangladesh in terms of their economic performance (Section 3). The theoretical framework along with the econometric model of investigation is presented in Section 4, while Section 5 discusses the robustness tests and empirical results. The paper concludes with a summary of the results and provides a few policy reflections on them.

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[1]The conceptual scheme of *Polity* examines concomitant qualities of democratic and autocratic authority in governing institutions. For details, see http://www.systemicpeace.org/polity/polity4.htm

2. LITERATURE REVIEW

It is widely recognised that democratic governments encourage greater political participation and give rights to the people of the country to have a say in the decisions made by the government including those in the areas of economic policies. Political systems in terms of their democratic attributes vary from country to country and the kind of participatory rights the citizens enjoy in terms of property rights, pursuit of economic activities and access to public resources. In this connection, researchers have long tried to establish the nature of causal links between democracy and economic growth.

The Three Schools of Thoughts

The relationship between democracy and economic growth is not axiomatic and three major schools of thoughts may be discerned in the relevant literature in this regard. This paper revisits the terminologies and definitions of the three schools of thoughts delineated by Huntington (1987), Sirowy and Inkeles (1990) and Feng (1997), namely (i) the conflict view; (ii) the complementary view; and the (iii) sceptical view. The 'conflict view' argues that democracy does not favour growth, whereas, authoritarian governments can take unpopular target-oriented decisions which in turn may lead to higher growth (Gregor 1979). Proponents of the 'complementary view' maintain that democracy favours growth because only democratic governments have the power to take productive policy-oriented decisions through popular support. While the 'sceptical view' suggests that many more variables need to be considered before establishing this relationship (Przeworski *et al*. 2000).

Conflict View

Hobbes (1651) is known as one of the first to support the conflict view. He believed absolutist regimes were more likely to improve public welfare because they could not promote their own interests otherwise. Huntington (1968) agrees with Hobbes and argues that democracies have "weak and fragile political institutions and lend themselves to popular demands at the expense of profitable investments" (Doucouliagos and Ulubaşoğlu 2008). Democratic governments are susceptible to demands for income redistribution to lower-income groups, and at the same time are surrounded by rent-seekers for "directly unproductive profit-seeking activities" (Krueger 1974; Bhagwati 1982). It is reckoned that, non-democratic regimes can implement growth-promoting economic policies that are not usually supported by the general public. Further, such regimes can use force and power to halt growth-retarding demands of low-income earners and labour in general, as well as social instabilities caused by ethnic, religious and class struggles. Democracies are constrained and cannot suppress such conflicts with the use of extreme force since that would lead to erosion of political legitimacy.

Peev and Mueller (2012) show that democracy can have an adverse effect on economic growth by expanding the size of the public sector and public deficit, which may lead to higher taxes and a greater fiscal drag on the economy. The study points out that although the former communist countries, which have been transitioning to democracy, have experienced higher levels of growth, the results suggest that democracy also brings with it some institutional changes that hinder economic growth.

Democracies are also unable to implement measures to increase investment as it requires people to decrease their consumption levels. However, authoritarian regimes are able to take such measures (Rao 1985). The advocates of the conflict view also argue that democracies are often unable to limit public social spending to foster growth in the face of distribution pressures (Haggard 1990). Huntington (1968) suggests that the political institutions required for economic growth tend to be weak in developing countries to begin with and the governments are usually unable to absorb the pressures exerted by participatory democratic systems.

Complementary View

On the other hand, it has been discovered that when countries' regime history is taken into account, cross-country analyses show a positive and robust relationship between democratic stock and economic growth (Gerring *et al.* 2005; Persson and Tabellini 2009), as well as to various economic policies deemed essential to growth (Thacker 2011).

Goodin (1979), King (1981), Goodell and Powelson (1982), and Kohli (1986) argue that democratic governments in the developing countries are best suited to foster sustained and equitable economic growth and development. In their view, democratic processes, the existence and exercise of fundamental civil liberties and political rights generate the societal conditions most conducive to economic development. Krieckhaus (2006) states that democracy positively impacts growth by mitigating the effects of corruption. They reckon promoting democracy in nations that are fraught with corruption will not only give rise to better human rights, but also will improve their opportunities for prosperity. Hence, they are proponents of the complementary view.

Minier (1998) examines the growth experience of countries that have undergone significant changes in democratic structure. Democratic countries are found to grow faster than a *priori* similar countries, while countries that are less democratic, grow more slowly than comparable countries. The estimated effect of a decline in democratic practices on economic growth is negative and statistically significant in both the short and long-run. Among the developed and fairly high-literate countries, human capital accumulation seems to have a more significant effect on growth in more democratic countries, while the estimated effect of physical investment is stronger in the less democratic countries.

Gerring *et al*. (2005) provide evidence that regime type has an effect on economic growth based on the country's secular historical experience of democracy and authoritarianism. They claim that a country's level of democracy in a single year has no measurable impact on the growth rate, rather, a country's democratic stock or democratic experience over a period is positively associated with growth in the subsequent years. They conclude that long-term democracy leads to stronger economic performance. However, it was also added that democracy itself cannot improve growth if not accompanied by other essential elements, such as good governance and favourable investment climate (Goodell and Powelson 1982).

Comeau (2003) agrees that the sample period may be better understood if political legacy from previous years is also taken into account. This paper shows that democracies are more

favourable towards economic prosperity and that a non-linear relationship exists between growth and the type of regime.

The proponents of complementary view further argue that democracy is favourable for investment and has a positive indirect effect on economic growth. Investment is more likely to increase in situations of liberty, free-flow of information and property rights secured from the arbitrary power of the state Goodell and Powelson (1982).

Mobarak (2005) finds that the democracy-economic growth stability relationship is robust. According to his paper, higher levels of democracy and diversification of economic sectors lower volatility; and volatility itself retards growth. Cuberes and Jerzmanowski (2009) also find that reversals of growth are more prominent and more frequent in non-democracies. They draw a positive relationship between democracy and industrial diversification, which in turn, leads to growth. Persson and Tabellini (2007) using semi-parametric methods combining difference in differences with matching, also find that democracy positively impacts growth. Their results show negative effects on income per capita as large as 45 per cent when the economy transits away from democracy.

While the studies mentioned above take a range of countries into account, a study (Rock 2008) conducted with emphasis on Asia suggests that electoral democracy, by itself, increases growth and investment in Asia. On the other hand, almost no support is found in this study for the hypothesis that autocracy, by itself, increases growth and investment. The finding that autocracies by themselves do not seem to increase growth and investment is not particularly surprising; it confirms what is known from the case studies that, not all autocracies are committed to development, do not have the capability to implement their development visions, or adopt development policies that work.

Central to the arguments by the proponents of the complementary view is that political pluralism is critical to the survival and vitality of economic pluralism. They argue that economic pluralism depends on open competition and predictability. In their view, predictability exists only when the political system is organised according to democratic rules and mechanisms as well as citizens have effective fundamental rights conducive to competition. This, in turn, fosters economic growth.

Sceptical View

However, the possible causal connections between regime history and economic policy and performance remain opaque. Arguments are highly speculative, for the causal pathways are usually difficult to measure and are not readily testable in a large-N cross-country format (e.g. Bohara *et al*. 2004; Kapstein and Converse 2008; Keefer 2003; Lederman *et al*. 2005; Montinola and Jackman 2002).

Sceptics such as Barro (1996) analysed the effect of democracy on growth for a panel of about 86 countries. The cross-country analysis brings out agreeable effects on economic growth from maintenance of the rule of law, free markets, small government consumption and high human capital. However, once variables of this kind and the initial level of GDP (gross domestic product) are held constant, the overall impact of democracy on growth is

weakly negative. Barro concludes that there is some indication of a non-linear relationship in which more democracy increases growth at low levels of political freedom, but decreases growth when a moderate level of political freedom has already been achieved. When evaluating the effects of economic development on democracy, the analysis shows that improvements in the standard of living – measured by real GDP per capita, infant mortality rate, and male and female school attainment – raise the probability of political institutions becoming more democratic over time. Thus, affluent countries can afford to consume more democracy for its own sake even though enhanced political freedom may have a small negative effect on growth. The reason is that rich nations can allow for reduced rates of economic progress due to already existing high standards of living. Hence, according to Barro, democracy is not the key to economic growth, although it may have some positive effects for countries that start with few political rights.

Rodrik and Wacziarg (2005) and Papaioannou and Siourounis (2007) suggest that the relationship is not so straightforward. They conclude that electoral democracies grew faster than their authoritarian counterparts but it may be region or polity specific, that is, it may depend on how, among other things, power relationships play out in particular democracies/autocracies. Kurzman *et al.* (2002) explore the democracy-economic growth relationship with direct-effects models using 30-year cross-sections data and find no long-term relationship between democracy and economic growth. They conclude that democracy has a marginally significant positive effect on investment, which in turn has a positive effect on economic growth. However, the results are not robust across fixed-effects and random-effects models. Reduction in democratic practices has a negative effect on government expenditures, which has a negative effect on growth. This results in an indirect effect of democracy on economic growth, that is, negative and significant at low levels of democracy, and positive and significant at high levels of democracy, and close to zero and not significant in middle levels of democracy.

Whatsoever, most of the papers mentioned above suffer from either missing variable bias (not including variables for human capital and/or government spending) or model misspecification (failing to show cointegration). The present paper attempts to contribute to the existing literature by addressing these shortcomings through the use of time series techniques in its investigation of the democracy-growth relationship in a country context viz. in Bangladesh.

Bangladesh provides a unique case to study the democracy-economic growth relationship in the sense that there have been periods of both democracy and autocracy (in the form of military rule) in the last three decades. At the same time the country has experienced varying economic performance. This paper deploys standard Solow growth models supplemented by the Polity IV variables. As is the case with basic Solow growth models, initial wealth, investment, human capital, population growth rate are used as control variables to determine a country's growth path. The model takes the savings rate, population growth, and technological progress as exogenous variables. While one of the goals of this paper is to explore the mechanisms that link the political regimes of Bangladesh with its historical growth performance, the inclusion of the Polity variables (indicators for democratic qualities) not only captures the effects of the changes in regimes on the

economic growth of Bangladesh, but also improves the robustness of economic growth models for Bangladesh as evident by cointegration.

The following section provides an analytical narrative of Bangladesh's economic performance in terms of the trends of the major variables used in this paper.

3. RELATING ECONOMIC PERFORMANCE TO DEMOCRATIC EXPERIENCE OF BANGLADESH

Bangladesh (former East Pakistan) became an independent state in December 1971 after suffering genocide and waging a nine-month long war with Pakistan (then known as West Pakistan). Since independence, Bangladesh has gone through various types of political regimes including military rule. These regimes can be broadly divided into the following three phases: elected civilian regime (1972-1975), military and quasi-military rule (1975-1990), and democratic civilian governance (1991-2009) (BTI 2012).[2]

Infrastructural damage suffered during the Liberation War resulted in low levels of economic growth during the post-independence years in Bangladesh. However, the country, over the last four decades has performed relatively well in improving its macroeconomic indicators, reducing the level of extreme poverty, raising women empowerment, enhancing literacy rate, and in achieving other Millennium Development Goals (MDGs). This has happened despite recurrent natural calamities, widespread corruption and political instability affecting the country.

Economic growth of Bangladesh started stabilising from the late 1980s (Figure 1) and started to accelerate sequentially (Bhattacharya and Misha 2011).

Over the last three decades (1980-2010), the size of the GDP of Bangladesh has expanded four-fold, when GDP growth rate increased by 1.0 per cent in each decade on average. The growth rate of GDP in 1980s was 3.4 per cent, in 1990s – 4.8 per cent and in 2000s – 5.8 per cent. As Figure 1 suggests, the per capita GDP growth in Bangladesh has also paralleled the economic growth trend in the last four decades. Decline in population growth – from 2.5 per cent in 1981 to 1.3 per cent by 2011 – has also facilitated the per capita GDP growth.

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[2]The assassination of President Sheikh Mujibur Rahman in a military coup ended the first post-independence democratic regime, led by Bangladesh Awami League (AL), in Bangladesh, and was followed by military government under General Ziaur Rahman (1975-1981). General Ziaur Rahman established his own political platform in 1978, named as the Bangladesh Nationalist Party (BNP). Following the assassination of General Zia, General H M Ershad took over the power in 1981; and he also created his own political party (i.e. Jatiya Party) in January 1986, which acquired majority in parliamentary elections in 1986. The era of military ended in December 1990 through a popular uprising. The elections of February 1991 brought the BNP back to power under the leadership of Begum Khaleda Zia. In a rare show of agreement between AL and BNP, the parliament unanimously amended the constitution and re-introduced the parliamentary form of government in 1991. Power alternated between these two parties in elections held between 1991 and 2006. Street agitation, violence and months of uncertainty led to the appointment of a military-backed technocratic caretaker regime in January 2007, under a constitutional provision enacted in 1996. In the election held in December 2008, the AL-led alliance emerged victorious.

Figure 1: GDP and Per Capita GDP Growth by Regime
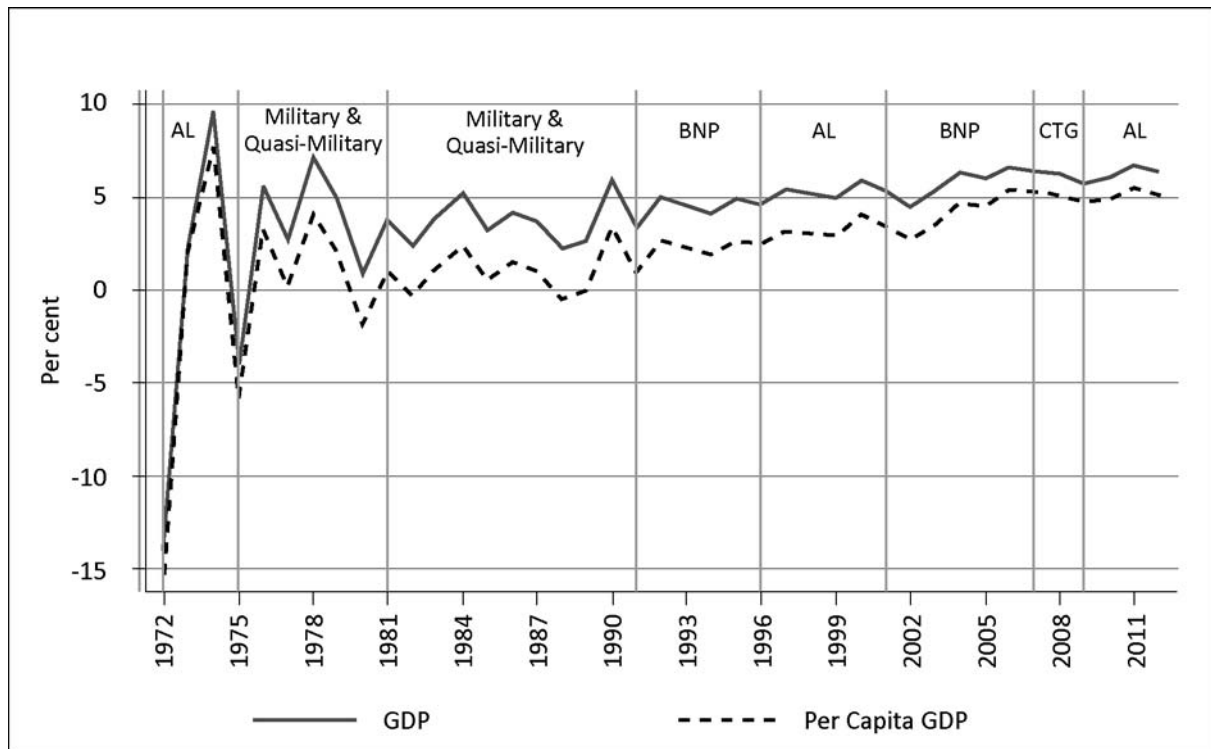
Source: Collated from the World Development Indicators (WDI) (2012).
Note: CTG: Caretaker Government.

Major expansion in export-oriented readymade garments (RMG) sector (from USD 31.6 million in FY1983-84 to USD 21.52 billion in FY2012-13) and contribution of the increased remittances from the expatriate workers (from USD 237 million in FY1979-80 to USD 14.5 billion in FY2012-13), along with trebling of crop production during the last four decades had been the major drivers of economic development in Bangladesh. As a result, while growth in services sector has remained consistently high and agricultural growth had been appreciable, industrial growth had taken the lead in bringing about changes in the sectoral composition of the country's economy.

Apparently, the socioeconomic indicators in Bangladesh have improved over time, particularly after the advent of 'new democracy' in the country in 1990. Table 1 reports a set of critical socioeconomic indicators to establish that their performance had indeed been better during the democratic phase (1991-2010) in comparison to the preceding period of military and quasi-military rule.

Table 1 reveals that during the democratic period (1991-2011), the average GDP growth was 1.6 percentage points higher than that of in the military and the quasi-military periods. While the average government expenditure during the two decades of democracy (1991-2011) was 4.9 per cent of GDP, the comparable figure for the preceding decade was 4.3 per cent.

Table 1: Performance of Key Socioeconomic Indicators of Bangladesh during Pre and Post Democracy Periods

Indicator	Pre-Democracy (FY1980-81 – FY1989-90)	Post-Democracy (FY1990-91 – FY2009-10)
GDP Growth (%)	3.7	5.3
Population Growth (%)	2.2	1.5
Government Expenditure/GDP (%)	4.3	4.9
Gross Capital Formation/GDP (%)	16.8	21.9
Manufacturing/GDP (%)	13.8	15.7
Secondary Enrolment Growth (%)	3.3	4.9
Infant Mortality (per thousand Live Births)	97.0	37.0

Source: Calculated using data from World Bank (2012) and Ministry of Finance, Government of Bangladesh.

Gross capital formation as a portion GDP increased by more than 5 percentage points between the two regimes. Indeed, the share of manufacturing increased by 1.9 percentage points of GDP during the democratic period. In the social sector, for example, the secondary school enrolment rate increased from an average 3.3 per cent (1981-1990) to 4.9 per cent (1991-2010). Furthermore, infant mortality has more than halved – from 97 deaths per thousand live births in 1990 to 37 per thousand in 2010 (World Bank 2012).

The data presented in Figure 1 and Table 1 suggest that overall economic growth and average performance of the key socioeconomic indicators in Bangladesh have experienced an upswing since the advent of 'new democracy' in 1991. However, the critical question is whether this democratic governance had a role in precipitating this observed progress. Could this be rather simply 'natural growth', as the literature suggests (North 1990; Mankiw *et al*. 1992; Barro 1996), or could it be driven by 'other factors', such as improvement of physical investment, human capital, investment climate and population growth. Moreover, are these possible 'other factors' indicating the endogeneity between economic growth and democratic stock?

Endogeneity between economic growth and democracy stock is less worrisome than it may appear. Previous studies (Przeworski *et al*. 2000; Londregan and Poole 1996; Helliwell 1994; Baum and Lake 2003) have shown a causal relationship between the levels of economic development (as measured by per capita GDP) and presence of democratically elected government. It seems unlikely that a country's growth performance in time *t* would have any effect whatsoever on its democracy stock at *t-1* (stock being a measure that extends back over many decades). One, thus, has to take appropriate lag of democracy stock while undertaking the analysis.[3]

This paper proposes an econometric model developed by incorporating the above mentioned factors along with democracy stock to investigate the impact of democracy on the economic growth in Bangladesh. The following section discusses the methodology used in this paper and along with a description of the variables used.

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[3]It must be acknowledged that causal factors at work in the democracy-growth relationship are much more complex than can be explained by any econometrics model; they include, for example, multiple feedback loops, which have been omitted.

4. METHODOLOGY

4.1 Theoretical Framework

This paper investigates the effect of democracy (as practised in Bangladesh) by using an 'augmented' Solow growth model (Solow 1956). The neo-classical model of economic growth for the paper includes physical capital accumulation, outward dependence, human capital, public sector, and using a specific functional form incorporates indicators for democracy in Bangladesh for the period 1981-2011.

In the basic Solow model, output, physical capital, labour and knowledge (reflects the degree of technological development of a country) are the four variables which are used to explain the economic growth path of a country while savings rate, population growth and technological progress are exogenous variables. Using these specifications, a Cobb-Douglas production function can be written as:

$$Y(t) = K(t)^{\alpha}(A(t)L(t)^{\beta}; \ 0 < \alpha < 1, \ \beta = 1 - \alpha \qquad (1)$$

Where, Y is the level of real output, K is the stock of capital, L is the stock of labour, while A is the effectiveness of labour. Thus,

$$L(t) = L(0)e^{nt} \qquad (2)$$
$$A(t) = A(0)e^{gt} \qquad (3)$$

In the Solow growth model presented in Equation 1, capital and technology grow exogenously at rates n and g respectively, where n is the population growth rate, and g is the growth rate of labour productivity and capital depreciates at the rate of δ.

The Solow growth model based on Equation 1 was augmented by Mankiw *et al.* (1992) to include human capital variables (such as education attainment). The function can now be written as:

$$Y(t) = K(t)^{\alpha}H(t)^{\beta}\big(A(t)L(t)\big)^{1-\alpha-\beta}; \ 0 < \alpha < 1, \ \beta = 1 - \alpha \qquad (4)$$

Where, H is the stock of human capital.

Using the specifications provided by Solow (1956), Mankiw *et al.* (1992) and Barro (1996), where s_k and s_h are fractions of outputs invested in physical capital and human capital respectively, the log of output per capita at steady state can be written as:

$$\ln\left[\frac{Y(t)}{L(t)}\right] = \ln A(0) + gt - \left(\frac{\alpha-\beta}{1-\alpha-\beta}\right)\ln(n + g + \delta) + \left(\frac{\alpha}{1-\alpha-\beta}\right)\ln(s_k) + \left(\frac{\beta}{1-\alpha-\beta}\right)\ln(s_h) \quad (5)$$

However, North (1990) argued that the above model still does not account for institutions that determine a country's long-run economic growth. Grigorian and Martinez (2000) further developed North's theory and augmented the Solow growth model by introducing

variables for institutions. Incorporating their specifications, the production function can be written as:

$$Y(t) = K(t)^{\alpha}H(t)^{\beta}(J(t)A(t)L(t))^{1-\alpha-\beta}; \ 0 < \alpha < 1, \ \beta = 1 - \alpha \tag{6}$$

In Equation (6), J is a matrix of institutional measures such as civil and political liberties that influence a country's economic growth. This particular specification is of interest for this paper as it attempts to study the impact of democratic practices on economic growth in Bangladesh by incorporating measures of democratic practices.

From Equation 6, the capital per unit of labour (Equation 7) and human capital per unit of labour (Equation 8) can be written as:

$$k(t) = s_k y(t) - (n + g + \delta)k(t) = s_k J^{1-\alpha-\beta}k^{\alpha}(t) - (n + g + \delta)k(t) \tag{7}$$
$$h(t) = s_h y(t) - (n + g + \delta)h(t) = s_h J^{1-\alpha-\beta}h^{\beta}(t) - (n + g + \delta)h(t) \tag{8}$$

The economy converges to a steady state when:

$$k^* = J(t)\left[\frac{s_k^{1-\beta}s_h^{\beta}}{n+g+\delta}\right]^{\frac{1}{1-\alpha-\beta}} \tag{9}$$

$$h^* = J(t)\left[\frac{s_h^{\alpha}s_h^{1-\alpha}}{n+g+\delta}\right]^{\frac{1}{1-\alpha-\beta}} \tag{10}$$

By incorporating Equations (7) and (8) into the production function (6) and taking the natural logarithm, the following equation representing income per worker can be derived:

$$\ln\left[\frac{Y(t)}{L(t)}\right] = lnA(0) + gt + lnJ(0) - \left(\frac{\alpha-\beta}{1-\alpha-\beta}\right)ln(n+g+\delta) + \left(\frac{\alpha}{1-\alpha-\beta}\right)ln(s_k) + \left(\frac{\beta}{1-\alpha-\beta}\right)ln(s_h) \tag{11}$$

Romer (1996) developed a simple model of learning-by-doing occurring as a result of production of new capital. Using the production function in Equation (1), Romer defined effectiveness of labour as:

$$A(t) = BK(t)^{\phi}; B>0, \phi>0 \tag{12}$$

In order to better explain economic growth, the two Solow growth models can be combined; first the Equation (12) is substituted into Equation (6) to obtain:

$$Y(t) = K(t)^{\alpha}H(t)^{\beta}(BK(t)^{\phi}J(t)L(t)^{1-\alpha-\beta} \tag{13}$$

From Equation (13), physical capital per labour (14) and human capital per labour (15) can be defined as:

$$s_k J^{1-\alpha-\beta}y(t) - \left(n + \delta + \frac{\phi}{K(t)}\right)k(t) \tag{14}$$

$$s_h J^{1-\alpha-\beta} y(t) - \left(n + \delta + \frac{\phi}{K(t)}\right) k(t) \tag{15}$$

Using Equations (14) and (15), the income per worker can be written as:

$$ln\left[\frac{Y(t)}{L(t)}\right] = lnB(0) + lnJ(0) + gt - \left(\frac{\alpha}{1-\alpha-\beta}\right) ln\left(n + \delta + \frac{\phi}{K(t)}\right) + \left(\frac{\alpha}{1-\alpha-\beta}\right) ln(s_k) + \left(\frac{\beta}{1-\alpha-\beta}\right) ln(s_h) \tag{16}$$

The augmented Solow growth model defined in Equation (16) will be used in this paper to study the relationship between democratic practices and economic growth in Bangladesh.

4.2 Econometric Model

Using a Vector Autoregressive (VAR) model, this paper estimates the impact of democratic practices on economic growth in Bangladesh. Based on the augmented Solow growth model in Section 4.1, the variables representing democracy – apart from being the independent variables of interest, also somewhat addresses the missing variable bias attributed to the existing growth models for the third world countries. The missing variable bias mostly arises from the fact that most growth models do not control for institutional or political regime related qualities.

The VAR allows for the forecast of time series and the analysis of dynamic impact of random disturbances on the system of variables. The VAR approach considers every endogenous variable as a function of the lagged values of all the endogenous variables in the system. The VAR is used in conjunction with the Granger-causality method to test for Granger causality (Barnhart and Darrat 1989) between government expenditure and economic growth in Korea.

The conventional simultaneous equations technique or structural modelling procedure have been criticised as simply too restrictive, and the selection of endogenous and exogenous variables is far too arbitrary and judgmental. On the other hand, in a VAR system all the variables in the model are endogenous and each of them can be written as a linear function of its own lagged values and the lagged values of all other variables in the system. Additionally, one of the advantages of VAR is that it allows testing for causality between two or more variables. Moreover, the results of testing for causality with a multivariate VAR model are more robust compared with the typical bivariate causality tests (Barnhart and Darrat 1989). Furthermore, by using a multivariate model, biased causality inferences due to the omission or exclusion of relevant variables can be avoided (Lutkepohl 1982).

The major variables that need to be controlled for in the present study as evident from the literature review are democratic stock (the nature of the Polity IV variables means that the status of good governance will also be reflected), physical investment, human capital, investment climate and population growth. Using the theoretical framework developed in Section 4.1, the following econometric model will be estimated:

$$y_t = \alpha + \beta democracy_t + \lambda Z_t + \varepsilon_t \tag{17}$$

Where, y_t represents real GDP per capita in Bangladesh, democracy represents the score assigned to the quality of democracy in Bangladesh in the Polity IV dataset. Z_t is a vector of up to four other explanatory variables effecting growth in Bangladesh: (i) gross capital formation; (ii) education expenditure; (iii) government expenditure as percentage of GDP; and (iv) population growth.[4]

Although these variables are of limited interest for this paper, the signs and the magnitudes of the variables may be used to validate the growth model. In case of the democracy variable, this paper argues regimes are historically informed phenomena rather than as contemporary variables. This means looking both backward and forward in time (via lagged predictors). In particular, it means measuring a country's accumulated stock of democracy rather than its level of democracy at a particular moment in time. The core insight is that institutional effects unfold over time, sometimes a great deal of time, and that these temporal effects are cumulative.

4.3 Data and Variables

The present study uses the Polity IV database for democracy data. The Polity conceptual scheme examines concomitant qualities of democratic and autocratic authority in governing institutions and incorporates component measures such as key qualities of executive recruitment, constraints on executive authority, political competition and changes in the institutionalised qualities of governing authority. The Polity data contains information only on the institutions of the central government and on political groups acting within the scope of that authority. These scores are used extensively in international relations and comparative politics; more importantly, all of the indicators used to construct the aggregate measure are accessible and well documented, unlike some other alternative measures.

The Polity scores are designed to provide a scaled description of 'polities,' based on 'authority patterns' guided by the theoretical work by Eckstein and Gurr (1975). The scoring spectrum spans from fully institutionalised autocracies through anocracies to fully institutionalised democracies. The Polity score captures the regime authority spectrum on a 21-point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy). The Polity scores can be converted to regime categories where -10 to +6 would represent autocracies, -5 to +5 would represent anocracies, and +6 to +10 would represent democracies.

Of the available democracy measures, *polity2* most directly assesses the strength of democratic political institutions, since it is created by coding countries based on the competitiveness of elections and the competitiveness and openness of executive recruitment. Each country is scored on a scale from -10 to 10 with 10 being a consolidate democracy.

The Polity IV democracy (*democ*) is a continuous variable, i.e. it measures the stock of democracy rather than the level. This particular variable essentially measures the electoral aspects of a democracy, and is measured by competitiveness of political participation, competitiveness of executive recruitment, openness of executive recruitment and constraints on the chief executive. It is conceived as three essential, interdependent elements. One is the

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[4]The descriptive statistics of the variables used in the econometric analysis are provided in Annex Table 1.

presence of institutions and procedures through which citizens can express effective preferences about alternative policies and leaders. Second is the existence of institutionalised constraints on the exercise of power by the executive. Third is the guarantee of civil liberties to all citizens in their daily lives and in acts of political participation.

The variable autocracy (*autoc*) is defined as operationally in terms of the presence of a distinctive set of political characteristics and measures the authoritarian qualities of a regime. In mature form, autocracies sharply restrict or suppress competitive political participation. Their chief executives are chosen in a regularised process of selection within the political elite, and once in office, they exercise power with few institutional constraints. These two variables are incorporated separately into the present regression models.

Economic growth: Log difference of real GDP per capita for Bangladesh is used as the dependent variable following standard econometric practice (Barro 1996; Mankiw *et al*. 1992).

Initial wealth: A country's level of development (initial wealth) is measured as the natural log of lagged real GDP per capita (as earlier), using a one-year lag.

Population growth: In keeping with leading econometric growth models, a flow measure for growth of the labour force is employed, estimated by the annual log difference of population.

Investment: Natural log of gross capital formation is used as a proxy for average investment rate in physical capital (investment share of GDP).

Government expenditure: Government spending is measured as the natural log of the percentage share of real final government expenditure in GDP.

Human capital: Econometric growth models of the past decade insist on the inclusion of human capital indicators. The present study has followed Barro (1996) and include the ratio of education expenditure to GDP as a proxy for human capital in absence of data on educational attainment in Bangladesh.

Polity2 variable from the Polity IV dataset has also been employed. This variable is constructed by measuring the extent to which democratic or autocratic 'authority patterns' are institutionalised in a given country. *Polity2* essentially captures those mixed traits by subtracting a country's rank order score on *autoc* from its rank order score on *democ*. This indicator is highly sensitive (it employs a 21-point scale). Moreover, it allows to consider both the degree and the duration of democracy in any given country-year.

5. RESULTS

5.1 Unit Root Tests

Augmented Dicky-Fuller (ADF) and Phillips-Perron tests provided evidence all the explanatory variables except the population growth are non-stationary at their levels, but stationary when their first differences were taken (Annex Figure 1).

The results of unit root tests also suggest that none of the series are integrated beyond I (1), thus Bound test for cointegration can be applied.

5.2 Bound Test for Cointegration

An Ordinary Least Squares (OLS) model was conducted before using the Bound test for cointegration. Pesaran and Shin (1999) suggests a maximum lag order of two (2) for annual observations. The estimated F-statistics for Bounds Tests for Cointegration 10.08 (model with Democracy), 13.66 (model with Autocracy) and 12.49 (model with *polity2*) is greater than even the 1 per cent upper bound critical values. This suggests that the null hypothesis of no integration can be rejected – thus there is evidence of long-run relationship among the regressors (including democracy and autocracy) and the dependent variable of real GDP growth in both models.

5.3 Impact of Democracy on Economic Growth

In the context of Bangladesh, a standard econometric growth model is presented following Solow's framework, supplemented by two political variables, i.e. democracy and autocracy. The independent variables show expected signs (Annex Table 2, Models 1 and 2) and the results suggest that this study ends up with an alternative stance of 'sceptical view' of the democracy-economic growth relationship.

In Model 1, the impact of quality of democracy on economic growth in Bangladesh is investigated. According to the theoretical framework of growth models, the core explanatory variables such as physical capital, human capital and government spending should have a positive impact on economic growth, thus their coefficients should all have positive signs. The coefficients for gross capital formation, government spending and education expenditure are all positive and statistically significant at the 1 per cent level. The coefficient of lagged export growth suggests that there is evidence of export-led growth in Bangladesh. Also, gross capital formation (proxy for physical capital), government spending and education expenditure (proxy for human capital) seems to have a significant impact on GDP per capita in statistical terms. Although statistically significant, the coefficient for capital formation is extremely small; suggesting the impact of investment on the economic growth of Bangladesh has not been as high as expected. The coefficient for population growth, although positive, is significant. This may suggest that Bangladesh is unable to accommodate its growing labour force to contribute to its GDP.

The coefficient for democratic quality is not statistically significant, suggesting that democracy – as practised in Bangladesh – has no significant impact in promoting economic growth. More importantly, the effect of a change in political regime (whether democratic or not) seems to be negatively significant at the 5 per cent level (Annex Table 3, Model 3) after one time-period. This suggests that, the policies of a newly elected regime have a positive impact on economic growth for the first year, but a negative effect thereafter.

When the most widely used Polity variable *polity2* is used (Annex Table 3, Model 4), the signs of the coefficients and the level of significance of the other explanatory variables remain same – while *polity2* is positive but not statistically significant. This suggests that

even when both the degree and the duration of democracy in Bangladesh are considered, it does not have a positively significant impact on economic growth.

Regression results also suggest that after one year, unrestricted executive power, notwithstanding the democratically elected nature of the government, starts to become 'autocratic' in practice.

6. CONCLUSION

Literature exploring the impact of democracy on economic growth has largely remained inconclusive. This paper has attempted to study this relationship in the context of Bangladesh which has four decades of experience with different types of political regimes. This paper provides evidence indicating that economic growth, macroeconomic performance, demographic attributes and human assets related indicators have all, on average, experienced improvement in Bangladesh during the recent period (1991-2010) of successive democratically elected governments.

In an effort to ascertain the role of the elected government in this positive process, the paper deployed a cointegrated VAR model. The results of the model suggests that democracy, as practised in Bangladesh, seems to have had *no significant* impact on economic growth of the country. The existing literature on the relationship between democracy and economic growth suggests that this could be as a result of inefficient economic policy design, lack of consensus on economic policy and policy continuation, inadequate democratic decision making process, pressures from lobbying groups, weak institutions and lack of institutional reforms required to promote economic growth. The other explanation may be that the country is yet to acquire the critical level of democratic stock which may have defining impact on the level of economic growth.

Furthermore, the Polity IV data used in the present analysis conceptualises democracy in terms of three essential elements: the presence of institutions and procedures through which citizens can express preferences about alternative policies and leaders; the existence of institutionalised constraints on the power of the executive; and the guarantee of civil liberties to all citizens. All these relate to existence of formal structures, systems, institutions, laws, and regulations, and do not necessarily say anything about their practice, effectiveness and access. It is often argued that democracy in Bangladesh is essentially limited to casting votes once in five years; this could be another reason why democratic stock has no significant impact on economic growth in Bangladesh as yet. Rather, results show that, one year after the national elections, democratically elected executive power tends to become autocratic in practice.

At the same time, investment or capital formation in the economy has remained low and democratic regimes have often failed to promote investment-friendly environments, which in turn, affected the employment scenario. While government spending has had a *significantly* positive impact on economic growth, its coefficient is *not sufficiently* large. This is partly due to the fact that spending on infrastructure has often remained inadequate during democratic regimes, although this might be more of a general trend.

The reasons behind democracy having *no significant* impact on economic growth in Bangladesh are also likely causing autocracy to have a negative impact. This is supplemented by the fact that in Bangladesh, even under an democratic regime, policy making institutions required to promote and foster economic growth, do not alter their decision making behaviour and continue to be inefficient.

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ANNEX

Annex Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	Min	Max
Real GDP/Capita	953.25	282.06	680.96	1788.26
Real GDP/Capita Growth	3.06	1.62	-0.41	5.26
GDP/Capita Growth	4.85	1.25	2.16	6.66
Gross Capital Formation Growth	12.64	1.02	10.95	14.36
Government Expenditure Growth	13.92	0.18	13.59	14.33
Education Expenditure Growth	7.57	1.17	5.01	9.49
Democracy	3.68	2.97	0.00	6.00
Autocracy	2.32	2.86	0.00	7.00
Population Growth	1.67	0.50	0.83	3.10

Annex Table 2: Impact of Democracy and Autocracy

|	Model 1	Model 2
Dependent Variable: Real GDP/Capita Growth		
Lagged RGDP	0.0743**	0.0743**
	(0.0302)	(0.0312)
Lagged Government Spending	0.633***	0.628***
	(0.150)	(0.151)
Lagged Gross Capital Formation	0.00111***	0.00113***
	(0.000375)	(0.000376)
Lagged Education Expenditure	0.149***	0.147***
	(0.0146)	(0.0158)
Population Growth	0.00859	0.00933
	(0.0149)	(0.0151)
Democracy	0.000159	-
	(0.00255)	
Autocracy	-	-0.000665
		(0.00239)
Constant	0.241	0.314
	(2.022)	(2.039)
Observations	30	30

Note: Standard errors in parentheses;
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Annex Table 3: Lagged Impact of Democracy

	Model 3	Model 4
Dependent Variable: Real GDP/Capita Growth		
Lagged RGDP	0.946*	0.1.046*
	(0.0345)	(0.0039)
Lagged Government Spending	0.629***	0.502***
	(0.119)	(0.205)
Lagged Gross Capital Formation	0.00119**	0.0105**
	(0.000460)	(0.000587)
Lagged Education Expenditure	0.214***	0.220***
	(0.0229)	(0.0652)
Population Growth	0.0404***	0.0391***
	(0.00968)	(0.00622)
Lagged Democracy	-0.00781**	-
	(0.00313)	
Polity2	-	0.0069
		(0.693)
Constant	-0.143	-0.129
	(1.604)	(1.802)
Observations	26	26

Note: Standard errors in parentheses;
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

Annex Figure 1: Stationarity of Variables
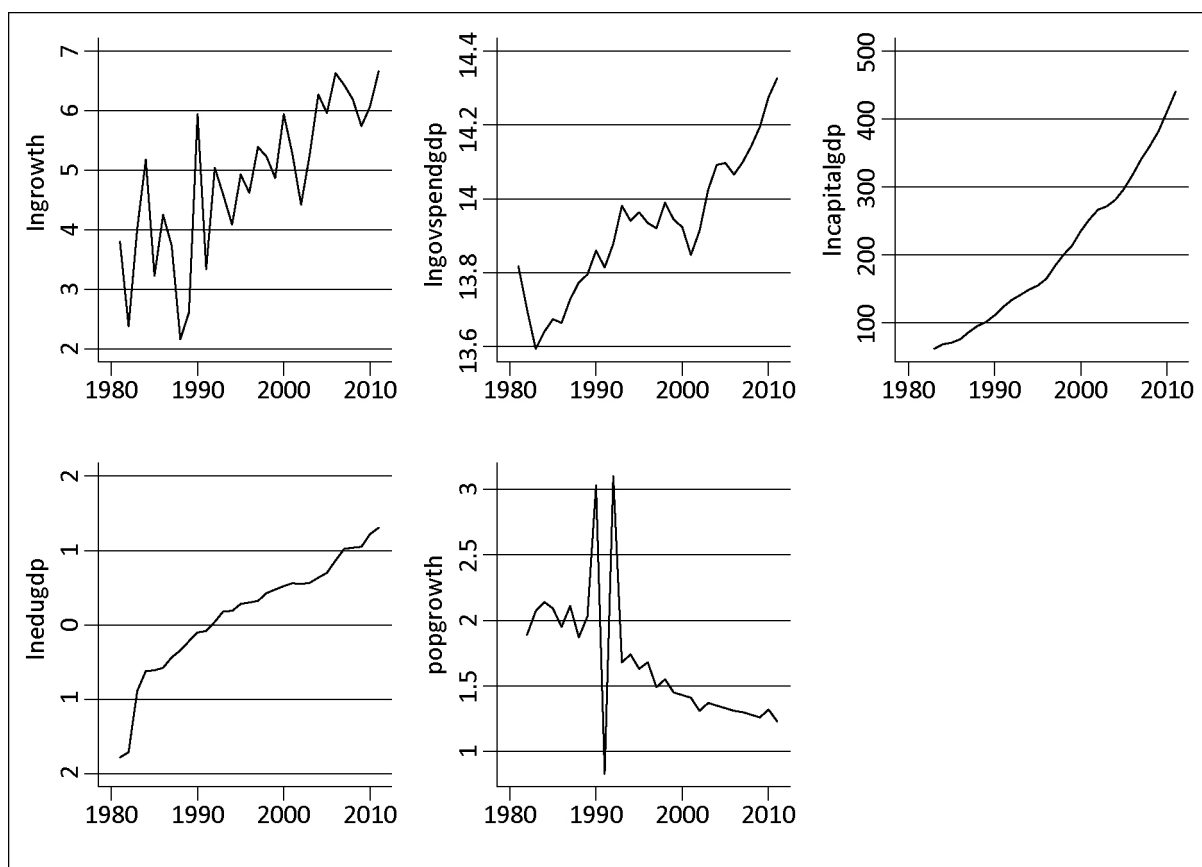
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