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Abstract

This paper examines the effect of democracy on development outcome of Bangladesh for the period 1972 to 2016. It analyzes both the long-run relation and the direction of causality using the Vector Error Correction Model (VECM) framework. The paper uses the Polity data constructed by the Polity IV project as the proxy for democracy, and GDP per capita (constant 2010 US$) as the proxy for development. The estimation based on VEC Model suggests the coefficients of co-integration equations do not adjust towards either long-run or short-run equilibrium, meaning that the results find no evidence of any relationship between democracy and economic development in Bangladesh.

Key Words

Co-integration, Democracy, Economic Development, Bangladesh

List of Acronyms

ADF	Augmented Dickey–Fuller
AIC	Akaike Information Criterion
BIGD	BRAC Institute of Governance and Development
DF	Dickey-Fuller
ECT	Error Correction Term
FPE	Final Prediction Error
GDP	Gross Domestic Products
HQIC	Hannan-Quinn Information Criterion
IDRC	International Development Research Centre
LM	Lagrange-multiplier test
NGO	Non-Governmental Organization
PP	Phillips and Perron test
SBIC	Schwarz Information Criterion
TTI	Think Tank Initiative
UNDP	United Nations Development Programme
VAR	Vector Auto Regressive model
VECM	Vector Error Correction Model
WDI	World Development Indicators

1. Introduction

This paper examines the causal relationship between democracy and development outcomes in Bangladesh context. Bangladesh's present state of democracy has evolved over the last two decades. Although this democratic journey has been marked with upheavals and political uncertainty, at least five elected regimes have successfully transferred power through arguably free and fair elections. During this period, Bangladesh enjoyed a steady and moderate economic growth with significant successes in the social sector. Democratic governments have been credited for many of the developmental successes Bangladesh has achieved since 1991. For instance, the country's GDP per capita PPP (constant 2010 US$) income has more than doubled during this period, increased from just $1,288 in 1991 to $3,319 in 2016. Life expectancy at birth has also increased significantly, from about 59 years to 72 years during the same period. The mortality rate of children under five has drastically decreased from 96 (per 1,000 live births) to only 28, while population growth fell from 2.36 per cent to only 1.08 per cent during this period. (World Bank, 2016)

However, despite achieving stunning social sector progresses, Bangladesh lags far behind in terms of its political development and its democracy remains largely procedural than consolidated. (BIGD, 2013; Zakaria, 2013) This is evident in military's twin interventions or attempted intervention to resolve political crises—first, in 1996 (largely remained in the shadow) and second, in 2007. Given that politics and governance barely marched along with economic and social sector progresses, many experts find Bangladesh's development success puzzling and term it 'Bangladesh surprise'. (Asadullah, Savoia, & Mahmud, 2014). There is however no systematic inquiry made in order to assess any relationship between political or democratic progress and development outcome. This paper attempts to fill in that knowledge gap.

The paper is organized into five sections. The introduction provides a brief context of the study, along with a brief outline of the paper, including definitions of key concepts. The literature review section highlights critical academic debates surrounding democracy and development relationship. The methodology section outlines the methods and econometric models used in the paper and the procedures of gathering, processing, and analysing data. The results and discussion section reports the findings and discusses the results. The conclusion summarizes the findings and offers a synthesis of what the findings mean in both general and specific contexts.

Definition of Concepts

Democracy

At its most basic and procedural level, democracy is defined as an electoral arrangement that allows citizens to vote to make political decisions. (Schumpeter, 1942) However, Dahl (1971) coined a new term, 'polyarchy', in order to define a formal democracy. He significantly expanded the scope of a formal democracy and laid out a number of criteria which are essential for a full democracy, including free and fair elections, the right to run for public office, freedom of expression, freedom of association, and access to information.

Since the 1980s, however, the inability of many new democracies to consolidate the democratic system has led to a paradigm shift in the definition of democracy. The existing minimalist definitions were found insufficient to capture the complexities of democratic transition. Political theorists have therefore opted for a more substantive definition of democracy, highlighting democratic accountability. Three dimensions of accountability mechanisms have since emerged: i) 'Vertical accountability', wherein citizens hold their leaders accountable through electoral mechanisms; ii) 'Horizontal accountability', which refers to institutional arrangements within the government system that enable checks and balances among government functionaries to oversee, control, redress, and, if need be, sanction unlawful actions by other state institutions; (O'Donnell, 1996) and (iii) 'Social accountability', which refers to the (ongoing) watchdog functions of civic associations, other NGOs, and an independent mass media over the actions of the state. (Schedler, Diamond, & Plattner, 1999)

Development

Development is a multifaceted concept and lacks a single all-embracing definition. The concept has long been synonymous with economic development, measured in gross domestic product (GDP). However, development economists started expanding the notion in the late 1980s.In his classic work Development as Freedom (1999), Sen defined development as 'a process of expanding the real freedoms that people enjoy'. (p.3)

Stiglitz defined development as a 'transformation of society' that goes beyond economic growth to include social dimensions such as literacy, (2003, p.76) distribution of income, life expectancy, etc. Stiglitz argued that the traditional approach is 'a failure to understand the subtleties of [the] market economy…' and stressed instead that 'an economy needs an institutional infrastructure and a moral ecology'. (*ibid*, p.80) Stiglitz further expanded his notion of development by entrenching it with individual choice and freedom, claiming that these values are critical to end individuals' sense of isolation in a society. (*ibid*, p.77)

In recent times, a rights-based approach to development has also emerged that focuses more on participation, accountability, and similar elements. (UNDP, 2000; Sen, 1999; Stiglitz, 2003) In analysing the relationship between democracy and development, however, this paper considers only the income aspect of development i.e., GDP per capita income.

2. Literature Review

In his famous essay 'Some Social Requisites of Democracy', Lipset (1959) first presented a positive correlation between wealth and democracy. Academics and experts, however, have divergent opinions on democracy's effect on development outcomes. For some experts, democracy fosters social and economic development, while many experts believe there is no correlation, or even a negative relationship between these two concepts. Barro (1997) concluded that more political rights do not have an effect on growth; reviewing academic literature until the mid-2000s, Gerring *et al*. (2005) also argued that the net effect of democracy on economic growth performance cross-nationally over the last five decades is negative or null. On the other hand, there are strong opinions that democracy does contribute to economic growth and enables better socio-economic outcomes. More recently, the prominent economists Acemoglu *et al*. (2015) showed, based on empirical analyses, that democracy does indeed cause economic growth, and its effects are significant and sizable. The authors used data from a panel of countries gathered between 1960 and 2010, and estimated the effects on economic growth of the various types of democracy.

There is also a debate as to whether democratic consolidation can only be achieved by political regimes that foster development, economic equality, and social justice.[1] Many experts (e.g. Schmitter and Karl, 1996) argue that there is nothing inherent in the nature of a democratic system that would automatically lead to certain outcomes. Sen (1999), however, argued that the democratic process does have a set of intrinsic values, and the process should facilitate an inclusive, participatory, and representative approach to making public policies that are independent of different social interests, inherently transparent, and accountable.

Traditional assumptions embedded in modernisation theory also support Sen's view. Modernisation theorists submit that democracy is not an outcome or consequence of development, but a necessary ingredient of development (see Leftwich, 2005, UN-OHRLLS & UNDP, 2006). The essence of the argument that democracy helps promote development, however, rests on some of the key institutional features of democratic systems, that is its accountability mechanisms. It is assumed that these features help rein in abuses of executive power and provide a predictable (in terms of rules, not outcome), transparent, periodic, and reliable institutional mechanism for redress of grievances. In this regard, Halperin *et al*. (2005) strongly argued in favour of the developmental benefit of participatory and accountable systems of governance over time, as compared to authoritarian regimes; they also asserted that the better performance of democracies can be attributed to their relatively greater propensity for establishing institutions of shared power, information openness, and adaptability. They found that low-income democracies outperform autocracies across a wide range of development indicators, and emphasized that low-income democracies have superior levels of social welfare across various measures of development progress. (*ibid*)

Many East Asian development examples from 1960s to the 1990s suggest that faster economic growth and social development can in fact be achieved even without a democracy or liberal

1 A number of authors have criticized the liberal democratic framework for excluding social and economic aspects of democratisation (Mkandawire, 2001; Sandbrook, 2000). Others have argued that the formal, or liberal, notion of democracy is too elitist and that aspects of participation are neglected (Pateman, 1970; Chambers, 1996).

political order. Many experts (e.g. Evans, 1995; Haggard, 1990) submitted that the secret of East Asian development is in their institutional capacity/autonomy. In the limited political order in those countries, strong institutions not only worked efficiently but also demonstrated remarkable resilience, even during the crisis. Therefore, strong institutions and democracy can be independent of each other. Moreover, Leftwich (2005, p.694) suggested that the aim of achieving political and economic development goals (alongside equity, stability, and national autonomy) simultaneously is unrealistic.

2.1 Positive Views

The positive view in terms of democracy and development argues that some literature on this topic would be beneficial to determine the actual situation of democratic values and inclusive development in this country over the years. The authors on this specific topic explain different channels by which democracy and democratic values can contribute positively in enhancing the efficiency of the economy and improving living standard of their people. Michel (2014) observed democracy and development trends around the globe. The paper identified that there is strong relationship between democracy and growth in each society and it provides a distinctive background of what efforts should be made to improve human conditions. Sen & Velde (2009) observed this relationship as highly complex in terms of achieving inclusive development in a country for human security, well-being and dignity of people living in that society. Unsworth & Moore (2006) explored that the success or failure of this relationship depends how human security and well-being determines inclusive economic development and good governance in a growing state. Consequently, effective relationship between democracy and development is more likely to help developing countries like Bangladesh to achieve stability, prosperity and justice within their society.

Michel (2014) presented the nature of development process which is highly complex and long-term process to be expressed in the stability, prosperity and people participation in the democratic process of a country. With increased democratic values, people participation increases and their faith, freedom and security increase on national political system. It indicates that development is directly associated with increased dependence on democracy, widely shared societal goals and improved quality of life with equal participation of people in the democratic process of a country.

Santiso (2002) explored that with the setup of democratic governments in developing countries, people get equal opportunity of participation, better health and education, more secure livelihood, political and cultural freedom, security against crime and physical violence. They believe that the democratic political government is working for the protection of their social, political, economic and legal rights and their confidence on central governments increases. The main objective of inclusive development is to create enabling environment in developing countries where people get complete freedom of their enjoying their human rights with healthy and creative lives. In societies where democracy and development is ensured, people get equal resources to life with improved living conditions, redistribution of wealth and impressive reduction in poverty. Increased democracy and democratic norms in a country promotes social, political and economic rights of people and it attributes to sustainable economic growth in that country. (Islam, 2011)

Islam (2011) identified two decades of democracy in Bangladesh by conducting a survey across all the continents in the period of 2005 and observed that around 80 percent of men and women considered democracy as the best form of governance. The survey observed two important variables of the perceptions of democracy including free and fair elections and the rule by the will of people.

2.2 Pessimistic Views

A pessimistic view indicates the reactions that are considered to be most common among economists and researchers on democracy and development. Critics of this hypothesis argue that democracy in the country like Bangladesh can be determined through increased inequalities and sociopolitical instability in the countries. Ncube *et al*. (2012) found that there are weaker institutions and poor quality of government in Bangladesh despite the continuation of electoral democracy in the country. The pessimistic view presents the negative relationship between the democracy and development and indicates that democracy in underdeveloped countries is rather misused to pursue authoritative objectives i.e., elected regimes often crush political opponents as is the case of Bangladesh. Mitlin (2008) believe that democracy and development in a country depends on the commitment and capacity of an elite government to ensure the positive outcomes of inclusive development. High level of state capacity is required in getting success and ensuring long-run development goals have been achieved in a country practicing both democracy and development. Poteete (2009) also observed that despite consensus and agreement on the implementation of long-term development in their respective states, the democratic governments of some countries have specific levels of commitment and capacity in achieving and delivering different forms of development.

2.3 Democracy in Bangladesh

Bangladesh is one of the fastest growing developing countries located in South Asia. Despite poor governance record, the country demonstrated remarkable success in socio-economic development indicators, which, by many experts, termed as a Bangladesh paradox (World Bank, 2016). Facing chaos and anarchy in its political order, Bangladesh democracy is often mired in internal strife between competing political and social groups aligned along different ideologies. The fierce competition over the distribution of newfound resources accumulated from fast economic growth, has increased the stake in power thus electoral competition turns violent.

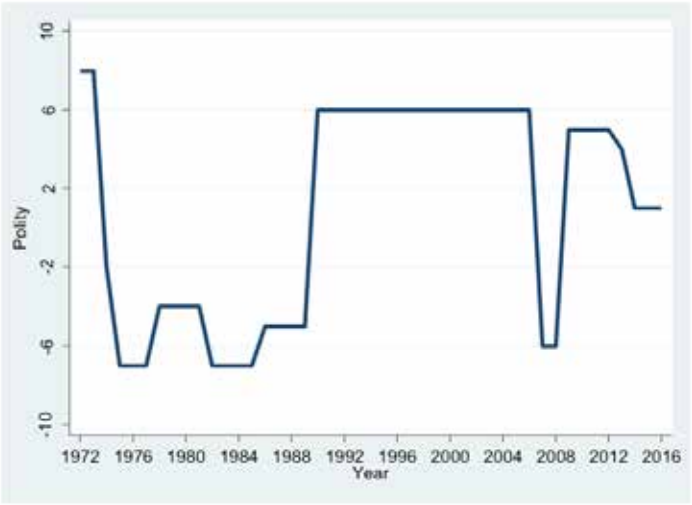
Apparently democracy and economic growth both have moved along upward in the case of Bangladesh. However, a closer look would reveal that the level of poverty, discrimination, inequality among different sections of society, and the weak state of democratic institutions over time has not only sustained but aggravated in some cases. Since its independence in 1971, democracy and democratic values has observed multiple violent crises and democratic deficiencies. Bangladesh has also experienced frequent military interventions into country's political system. Evidences suggest that long military rule affects the governance system of a country and harms the cohesion and harmony in the society. (Santiso, 2002)

After the collapse of military rule in Bangladesh in 1990, first parliamentary elections were held and the constitution was amended in 1991 to give the political system a parliamentary democracy character (Samans *et* al., 2015). Nevertheless, the parliamentary system was soon put to

challenge by both the regime and opposition party and was marked by long boycotts leading to a dysfunctional parliament. The trend not only continued, but worsened in the subsequent 6th, 7th, 8th, and 9th parliament. (BIGD, 2014) The ruling party(ies)'s conduct towards opposition turns more violent and repressive, while the opposition finds little incentive to attend parliamentary debates. The notion of democratic accountability has been put to test, and many academics claimed that the experiment has in fact failed in the case of Bangladesh. (BIGD, 2013) The civil society and media have enjoyed relative freedom since 1990. However lately there has been growing tensions between the democratic governments and independent civil society and free media. (Sattar, 2016) The Figure 1 below reflects the political development in Bangladesh since 1971.

Figure 1 shows the state of democracy in Bangladesh over the period of 1972-2016. The figure shows that Bangladesh's political journey has been unstable throughout the history and moved consistently back and forth from democracy to autocracy and vice versa. The country enjoys the status of democracy briefly after its independence in 1971 but quickly descended into an autocracy after a military coup in 1975. The country returned to a democratic state in 1991, after the ouster of the then military dictator. Post-1991 democracy has been steady for two decades before descending into political instability again in 2007-08, which the country experienced a pseudo-military regime. Despite the elections in 2008 promised to return to normalcy once again, reflected in the country's sharp increase in the Polity score, the state of affairs remained shaky, which finally broke down again in 2014 elections, boycotted by the main opposition parties. The post-2014 scores have significantly suffered from a series of political instability and violence mired the entire country.

Figure 1: Bangladesh's Polity score: 1972-2016



Note: grid denoting vertical thresholds for Democracy (+6 and above) and Autocracy (-6 and below).
Source: Author's Calculation from Polity IV annual data

2.4 Development in Bangladesh

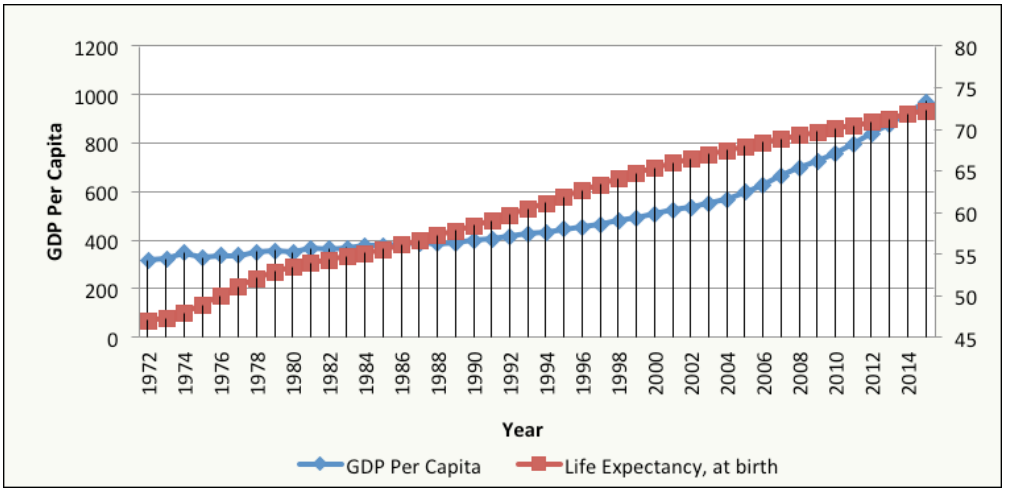
Bangladesh observed a modest economic growth during the 1990s and its annual GDP growth averaged 5 percent during that period. The per capita income to GDP growth also increased to 36 percent during the same period. In the first decade of 21st century, annual GDP growth rate has passed the 6 percent threshold. These developments contributed greatly in poverty reduction and improvement in the standard of living of poor people. The poverty rate declined sharply from 58 percent in 1992 to 24 percent in 2016. (World Bank, 2016)

In the areas of inclusive development, the development indicators highlight that during the second phase of democracy after 1990s, the successive democratic governments of Bangladesh

has lifted the living standard of millions of Bangladeshi people and achieved sustainable growth despite internal and external challenges and global economic downturns, political instability and natural disasters over the same period. (Sen & Velde, 2009) Gross National Income (GNI) per capita (constant 2011 US$) of the country has increased from just $1332 in 1991 to $3,514 in 2016. Despite such staggering achievements, Bangladesh still remains one of the poorest countries in the region. Still a significant portion of the rural population is living below the poverty line of $1.25 per day. By the end of 2016, about 24 percent people are still living below the poverty line (measured in poverty headcount ratio). (World Bank, 2016)

In human development, the performance of Bangladesh is rather significant. In 1990, the infant mortality rate was about 100 per 1,000 live births, which considerably fell down to just 28 in 2016. (World Bank, 2016) According to democratic and health survey data, Bangladesh governments have made remarkable progress in reducing the mortality rate in the rural as well as urban areas of the country. The life expectancy of people has also marked a sharp increase - from about 58 in 1990 to 72 in 2015. However, despite these successes, Bangladesh is still in the lower tier of human development among countries, for example, according to UNDP Human Development Report 2015, the country ranked 142nd with the overall index of 0.57. (UNDP, 2015)

Figure 2: GDP Per Capita and Life Expectancy (1972-2015)



Source: Authors calculation from World Development Indicators (1972-20015)

Figure 2 and 3 graphically shows the significant success Bangladesh has made in three key indices of development: GDP per capita, life expectancy at birth, and infant mortality. GDP per capita observed a ten-fold increase from just below $318 in 1972 (constant 2010 US$) to about $1030 in 2016. The new born country had mean life expectancy, at birth, of only 47 years, and in just four decades, the life expectancy has increased to 72 years--a remarkable

Figure 3: Infant Mortality (per 1,000 live births)

Source: Author's calculation from World Development Indicators (1972-20016)

progress compared to countries with similar socio-economic conditions. A more robust success is recorded in the drastic reduction of infant deaths—the number sharply declined from about 150 deaths per 1000 births to only 28 during the same period.

This two seeming independent trends in political development vis-à-vis socio-economic development begs the important question: is there any relationship at all between the two or does one influence the others? While the changes in democratic nature have been very erratic, and more recently declining, the socio-economic development progress has been very steady, fast moving. This paper is motivated by this questions and attempts to shed a closer look at the relationship.

3. Methodology

3.1 Data and Variables

The variable used in this study to measure democracy is polity. Polity is measured by 45 years (1972-2016) 'Polity' score from the Polity IV database, which provides a 21 point scale ranging from -10 (hereditary monarchy) to +10 (consolidated democracy) that combines various components of democracy: competitiveness of political participation, regulation of political participation, competitiveness of executive recruitment, openness of recruitment and constraints on the chief executive. Development is measured by the growth of real GDP per capita. The GDP data for 1972-2016 has been collected from World Bank's World Development Indicators (WDI).

3.2 Econometric Specification

First, we determine whether data series are stationary or not. Time series data generally tend to be non-stationary; hence, suffer from unit roots. Non-stationary regressions therefore likely produce spurious results. The problems stemming from spurious regression have been described in Granger & Newbold (1974). Therefore, in order to meet the stationarity criteria, the data series should be integrated to the order of 0 [I(0)]. The study uses Dickey and Fuller test (1979, 1981) for checking unit roots. The below equation checks the stationarity of time series data used in the study:

$$\Delta y_t = \beta_1 + \beta_{1t} + \alpha y_{(t-1)} + \gamma \sum_{t=1}^{n} \Delta y_{(t-1)} + \varepsilon_t \qquad (1)$$

Where ε_t is white noise error term in the model of unit root test, with a null hypothesis that variable has unit root. Once the number of unit roots in the series was decided, the next step before applying Johansen's (1988) co-integration test was to determine an appropriate number of lags to be used in estimation. Second, Johansen's co-integration test checked the existence of co-integration between the GDP and Polity. Third, following the confirmation of the existence of a co-integration, Vector Error Correction Model (VECM) in the first difference is applied, which is then followed by the test of autocorrelation and normality.

3.3 Unit root tests

As the study deals with time series data, we fit the following form of Augmented Dickey–Fuller (ADF) test with a constant and a trend, where y is the series.

$$\Delta y_t = \alpha + \gamma y_{(t-1)} + \lambda_t + \sum_{(s=1)}^{m} \alpha_s \Delta y_{(t-s)} + \upsilon_t \qquad (2)$$

Besides, given the ADF test's vulnerability to incorrect establishment of lag parameter and its

tendency to under–reject the null hypothesis (Agiakoglu & Newbold, 1992), we applied the Phillips and Perron test (PP test) (1988). The reason being, the PP test incorporates an automatic correction to the ADF test to allow for autocorrelated residuals. The null hypothesis of ADF and PP test is that a series is non-stationary.

3.4 Co-integration test

Following the determination of the order of integration, co-integration technique is used to investigate the presence of a cointegrating relationship among the variables. Series that are cointegrated move along in the long run at the same rate, which illustrates that they observe an equilibrium relationship in the long run. Therefore, the co-integration analysis will demonstrate whether the development outcome is possible with or without democracy. Co-integration has been investigated by the multivariate approach Johansen Co-integration Test (Johansen and Juselius, 1990) or VECM. We examine the co-integration by both approaches.

3.5 Johansen and Juselius approach

The Johansen-Juselius (1990) approach uses a maximum likelihood procedure to test the possibility of multiple cointegrating relationships among the variables. The methodology provides inference on the number of cointegrating relations (cointegrating rank (r)) determined by the trace test statistic. This is a popular multivariate generalization of the Dickey-Fuller unit root test.

3.6 Granger causality test

Empirical works based on time series data assume that the underlying time series is stationary. However, many studies have shown that majority of time series variables are non-stationary or integrated of order 1 (Engle and Granger, 1987). The time series properties of the data at hand are therefore studied in the outset. Formal tests will be carried out to find the time series properties of the variables. If the variables are I(1), Engle and Granger (1987) assert that causality must exist in, at least, one direction. The Granger causality test is then augmented with an error correction term (ECT) as shown in the below equations.

The Granger causality suggests that X causes Y only if the past values of X help predict the changes in Y. In the same way, Y causes X only if the past values of Y help predict the changes of X. If a set of variables are cointegrated (confirmed by the Johansen Cointigration Test), there must be short run and long run causality, however, such causality cannot be captured by the standard first difference VAR model (Granger, 1988). In this case, we implement the Granger causality test with the Vector Error Correction model (VECM) models as follows:

$$\Delta GDP_t=\alpha_{10}+\sum_{(i=1)}^{l11}\alpha_{11}\Delta GDP_{(t-i)}+\sum_{(j=1)}^{l12}\alpha_{12}\ \Delta POLITY_{(t-j)}+\lambda_{13}\ ECT_{(t-1)}+\mu_{1t} \quad (3)$$

$$\Delta POLITY_t=\alpha_{20}+\sum_{(i=1)}^{l21}\alpha_{21}\Delta GDP_{(t-j)}+\sum_{(j=1)}^{l22}\alpha_{22}\Delta POLITY_{(t-j)}+\lambda_{23}ECT_{(t-1)}+\mu_{2t} \quad (4)$$

where, dependent variables ΔGDP_t represent GDP per capita in first difference, and $\Delta POLITY$ represents democratic index in its first difference. Δ stands for the first difference operator, λ_1 and λ_2 are error correction terms, while μ_{1t} and μ_{2t} are random error terms. $ECT_{(t-1)}$ is the error correction term showing the adjustment towards long-run equilibrium and α_1 and α_2 coefficients show adjustment in the short-run equilibrium.

4. Results and Discussion

The study ran Augmented Dickey-Fuller (ADF), Phillips-Perron (PP), and KPSS test for checking unit root in the data series. The presence of unit roots in the series would indicate that the series is non-stationary and vice versa. The Table 1 (Panel A and B) presents the ADF test and PP test of the two series in level and in first difference. The Null hypothesis in all variables is that the series has a unit root. We find that the test statistic for LGDP is 4.641 for ADF test and 7.371 for the PP test; both values are larger than the critical values at 1, 5, and 10 percent levels of significance. Similarly, the test statistics for Polity is -2.345 for ADF test and -2.452 for the PP test and again both are larger than the critical values at 1, 5, and 10percent levels of significance. Hence, we determine that both series have unit roots, meaning that they not stationary at levels. We then repeat the tests for first difference and find that the value of test statistics for LGDP and POLITY became smaller than the critical values at 1percent level of significance. In Panels C of Table 1, we present results for KPSS tests, respectively. In KPSS test, the null hypothesis is that the series is trend stationary. At the 1percent level, critical value is 0.216. The results show that both LGDP and POLITY are not trend stationary at their level, but became trend stationary in first difference.

Table 1: Unit Root tests

	Test Statistics	1% Critical	5% Critical	10% Critical
Panel A: Augmented Dicky-Fuller Test				
		LGDP		
Z(t)	4.641	-3.621	-2.947	-2.607
		Δ LGDP		
Z(t)	-5.955	-3.628	-2.950	-2.608
		POLITY		
Z(t)	-2.345	-3.621	-2.947	-2.607
		Δ POLITY		
Z(t)	-5.817	-3.628	-2.950	-2.608
Panel B: Phillips-Perron Test				
		LGDP		
Z(rho)	1.944	-18.492	-13.108	-10.580
Z(t)	7.371	-3.621	-2.947	-2.607
		Δ LGDP		
Z(rho)	-52.256	-18.424	-13.076	-10.560
Z(t)	-6.237	-3.628	-2.950	-2.608
		POLITY		
Z(rho)	-10.398	-18.492	-13.108	-10.580
Z(t)	-2.452	-3.621	-2.947	-2.607
		Δ POLITY		
Z(rho)	-34.412	-18.424	-13.076	-10.560
Z(t)	-5.774	-3.628	-2.950	-2.608

Panel C: KPSS Test		
Lag Order	**Test Statistics LGDP**	**Test Statistics POLITY**
0	1.07	0.325
1	0.563	0.192
2	0.391	0.151
3	0.306	0.131
Test	5% level is 0.146	
Statistics	1% level is 0.216	
Lag Order	**Test Statistics Δ LGDP**	**Test Statistics Δ POLITY**
0	0.0911	0.0956
1	0.152	0.0886
2	0.161	0.101
3	0.168	0.11

Δ refers to variables at their first difference.

Table 2: Selection of appropriate lag length

lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-135.996				2.87423	6.73152	6.76196	6.81511
1	19.1157	**310.22***	4	0.000	.001809	-.639793	**-.548477***	**-389026***
2	23.8054	9.3793	4	0.052	**.001752***	**-.673434***	-.521241	-.255489
3	24.5017	1.3926	4	0.845	.002068	-.512279	-.29921	.072843
4	25.5974	2.1913	4	0.701	.002401	-.370603	-.096657	.381697

**denotes suggested lag length.*

Determination of an appropriate number of lags to be used in estimation is a critical first step, since the choice of lag length is crucial in the Johansen Cointigration procedure. For our equation, as above Table 2 suggests, FPE and AIC test chose 2 lags, while LR, HQIC and SBIC test selects 1 lag. We therefore settled for 1 lag. In measuring the VECM, we will apply this selection.

In Panel A of Table 3 below, we present the result of rank test and find that the system has a rank of one for both lambdatrace and lambdamax statistics. The trace statistics at r = 0 of 35.1238 exceeds the 5 percent critical value of 14.07. However, the trace statistics at r = 1 of 3.0440 is less than the 5 percent critical value of 3.76, therefore, we cannot reject the null in this instance that there are one or fewer cointegrating equations. In Panel B of Table 3, we present Max statistics lambdamax and find similar results. Therefore, using a model with three lags, we find one cointegrating equation in the bivariate model.

Table 3: Rank Test

Maximum Rank	Parsm	LL	Eigenvalue	Trace Statistics	Critical Value 5%
Panel A: Lambda Trace Statistics					
0	10	1.7649931	-	35.1238	15.41
1	**13**	**17.804892**	**0.53411**	**3.0440***	**3.76**
2	14	19.326914	0.06991		
Panel B: Lambda Max Statistics					
0	10	1.7649931		32.0798	14.07
1	**13**	**17.804892**	**0.53411**	**3.0440***	**3.76**
2	14	19.326914	0.06991		

Note: Maximum Rank is 1 for both trace and max statistics, highlighted in bold.

We therefore move to next step to estimate VECM for the cointegrating equation. The relationship between co-integration and error correction model stems from the Granger representation theorem. According to the Granger theorem, two or more cointegrated time series have an error correction representation and two or more error-correcting time series are cointegrated (Eagle & Granger, 1987). The following Table 4 presents the VEC Model estimation.

Table 4: VEC Model Estimation

	Coef.	Std. Error	*z*	*p*>*z*
D_LGDP				
_ce1 L1.	.0629934	.0096422	6.53	0.000
LGDP LD.	-.5216412	.1429193	-3.65	0.000
POLITY LD.	.000375	.0007366	0.51	0.611
_const	-.0060923	.0062044	-0.98	0.326
D_POLITY				
_ce1 L1.	1.29798	2.051689	0.63	0.527
LGDP LD.	-42.81118	30.41079	-1.41	0.159
POLITY LD.	.0723253	.1567354	0.46	0.644
_const	.0002957	1.320189	0.00	1.000

Co-integration Equation

	Parms	chi2	*p*>chi2
_ce1	1	1.837885	0.1752

Identification: Beta is exactly identified
Johansen normalization restriction imposed

	Beta	Coef.	Std. Error	*z*	*p*>*z*
_ce1	LGDP	1.000			
	POLITY	.0109226	.0080569	1.36	0.175
	_const	-5.441024			

Note: Maximum Rank is 1 for both trace and max statistics, highlighted in bold.

For _ce1.L1 we find that the estimate is 0.06 and is significant at 1 percent level but has a positive sign. The LGDP.LD coefficient is -.5216412, which is also significant at 1 percent level. Coefficient of POLITY.LD is .000375 and is not significant. The results indicate that though the cointegrating coefficient on the one period lagged error correction terms is statistically significant, the positive sign implies that due to any disturbance in the system, divergence from equilibrium will take place and the system will be unstable. Hence, we can conclude that there is no long run causality running from POLITY to GDP per capita growth. The insignificant coefficient of first difference POLITY renders no short-run causality in the equation as well. From both of these results, we can convincingly argue that the development outcome in Bangladesh is uncorrelated with its democratic predicament.

This result is consistent with Levine and Renelt (1992), Lowi (1969), Crozier *et al*. (1975), Buchanan and Wagner (1977), and Barro (1999), who, studying the relationship between democracy and economic growth, rather argue that relationship is negative. The reasons as authors argue are multifaceted that include institutions in many countries are created by former colonialists are inherently undemocratic (Barro, 1999, Huntington, 1968), the ability of democratic regimes to attract investment due to its slow decision-making process and populist behavior democratic governments that gives priority to current consumption rather long-term investments (Keefer, 2007).

To check the strengths of the model, we employed the Lagrange-multiplier (LM) test for residual autocorrelation and Jarque-Bera normality test to make sure that none of these violated the standard assumptions of data normality of the model. The test finds no evidence of model misspecification due to autocorrelation. (Annex 3, Table A-2) As regards the normality test, the null hypothesis that the errors are normally distributed has been rejected in all cases; hence, both data series suffer from non-normal distribution. (Annex 3, Table A-3) We also checked the stability of our model and the results rejected model misspecification due to stability. (Annex 3, Table A-4)

5. Conclusion

This paper examined the relationship between democracy and development in Bangladesh using Polity IV and WDI data over the period 1972-2016. Our statistical analyses based on VEC Model suggest there is no long run causality running from democratic changes to economic growth i.e., the growth of GDP per capita. The results clearly indicate that though the cointegrating coefficient on the one period lagged error correction terms is statistically significant, the positive sign implies that due to any disturbance in the system, divergence from equilibrium will take place and the system will be unstable. We also did not find any short-run causality in the equation.

The results of this study come with some restrictions. First, the subjective nature of Polity IV is not immune from biases. Second, in such a short time-series of 45 annual observations, though acceptable for statistical analysis, the problem of degree of freedom may depict apprehension.

References

Acemoglu, D., Naidu, S., Restrepo, P., & Robinson, J. (2015). *Democracy Does Cause Growth.* Cambridge: MIT Press.

Agiakoglu, C., Newbold, P. (1992). Empirical Evidence on Dickey–Fuller Type Tests. *Journal of Time Series Analysis,* 13 (6), 471-483.

Asadullah, N., Savoia, A., & Mahmud, W. (2014). Paths to Development: Is there a Bangladesh Surprise? *World Development, 62*, 138-154.

Barro R. (1999). The Determinants of Democracy. *Journal of Political Economy, 107* (6), 158-183.

Barro, R. (1997). *Getting it Right: Markets and Choices in a Free Society.* Cambridge: MIT Press.

BIGD. (2013). *The State of Governance in Bangladesh Report 2013: Democracy, Party, Politics.* Dhaka: BRAC Institute of Governance and Development, BRAC University.

BIGD. (2014). *The State of Governance in Bangladesh Report 2014: Institutions, Outcome, Accountability*. Dhaka: BRAC University.

Buchanan J., Wagner R. (1977), Democracy in Deficit: *The Political Legacy of Lord Keynes.* New York: Academic Press.

Chambers, S. (1996). Reasonable Democracy. Ithaca, NY: Cornell University Press.

Crozier, M., Huntington, S., & Watanuki, J. (1975). *The Crisis of Democracy*. New York: New York University Press.

Dahl, R. (1971). *Polyarchy: Participation and Opposition*. New Haven, CT: Yale University Press.

Dickey, D., & Fuller, W. (1979). Distributions of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association, 74* (366a), 427-431.

Dickey, D., & Fuller W. (1981). Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root. *Econometrica, 49* (4), 1057-1072.

Engle, R., & Granger C. (1987). Co-integration and Error Correction Representation: Estimation and Testing. *Econometrica, 55* (2), 251-276.

Gerring, J., Philip, B., William, B., & Carola, M. (2005). Democracy and Growth: A Historical Perspective. *World Politics, 57* (3), 323–364.

Granger, C. (1988). Some recent development in a concept of causality. *Journal of Econometrics, 39* (1–2), 199-211.

Granger, C., Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics, 2*, 111-120.

Halperin, M., Joseph, S., & Weinstein, M. (2005). *The Democracy Advantage: How Democracies*

Promote Prosperity and Peace. New York: Routledge.

Huntington S. (1968). *Political Order in Changing Societies.* New Haven, CT: Yale University Press.

INSCR. (2017). P*olity IV Project: Political Regime Characteristics and Transitions (Bangladesh)*, 1972-2016. Vienna: Integrated Network for Societal Conflict Research (INSCR).

Islam, M. N. (2011). Two Decades of Democracy in Bangladesh (1991-2010): Disillusionment with Practice. *Berkeley Journal of Social Sciences, 1(3)*, pp. 1-28

Johansen, S. (1988). Statistical analysis of co-integration vectors. J*ournal of Economic Dynamics and Control,* 12 (2), 231-254.

Johansen, S., Juselius, K. (1990). Maximum Likelihood Estimation and Inference on Co-integration with Applications to the Demand for Money. *Oxford Bulletin of Economics and Statistics, 52* (2), 169-210.

Keefer, P. (2007). Clientelism, Credibility, and the Policy Choices of Young Democracies. *American Journal of Political Science, 51* (4), 804-821.

Leftwich, A. (2005). Politics in Command: Development Studies and the Rediscovery of Social Science. *New Political Economy, 10* (4), 573–607.

Levine, R., & David R. (1992). A Sensitivity Analysis of Cross-Country Growth Regressinon*s. The American Economic Review, 82* (4), 942-963

Lipset, S. (1959). Some Social Requisites of Democracy, Economic Development, and Political Legitimacy. *American Political Science Review, 53* (1), 69–105.

Lowi, T. (1969). The End of Liberalism. New York: Norton.

Michael, J. (2014). *Linking Growth and Governance for Inclusive Development and Effective Inter national Cooperation.* Washington, D.C.: Creative Associates International

Mitlin, D. (2008). With and Beyond the State: Co-Production as a Route to Political Influence, Power and Transformation for Grassroots Organizations. *Environment and Urbanization, 20*, 339-360.

Mkandawire, T. (2001). Thinking about Developmental States in Africa. C*ambridge Journal of Economics, 35* (3), 289–313.

Ncube et al. (2012). *South Africa's Quest for Inclusive Development.* African Development Bank, BP 323-1002 Tunis Belvedere (Tunisia), Working Paper No. 150, 1-28.

O'Donnell, G. (1996). Illusions about Consolidation. *Journal of Democracy, 7* (2), 34–51.

Pateman, C. (1970). *Participation and Democratic Theory.* Cambridge: Cambridge University Press.

Phillips, P., Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika, 75*(2), 335-359.

Poteete, A. R. (2009). Is Development Path Dependent or Political? A Reinterpretation of Miner al-Dependent Development in Botswana. *Journal of Development Studies, 45* (4), 544-571.

Samans et al. (2015). *Benchmarking Inclusive Growth and Development.* World Economic Forum Discussion Paper, 1-38.

Sandbrook, R. (2000). Closing the Circle: *Democratization and Development in Africa.* London: Zed Books.

Santiso, C. (2002). Education for Democratic Governance: *Review of Learning Programs.* Management of Social Transformation (MOST), Discussion Paper 62.

Sattar, M. (2016). Bangladesh Editor Faces 79 Court Cases After an Unusual Confession. *New York Times, March 27, 2016.* Retrieved from: http://www.nytimes.com/2016/03/28/world/asia/bangladesh-editor-faces-79-court-cases-after-saying-he-regrets-articles.html.

Schedler, A., Diamond, L., & Plattner M. (1999). *The Self-Restraining State: Power and Accountabil ity in New Democracies.* Boulder, CO: Lynne Rienner.

Schmitter, P., & Karl, T. (1996). What Democracy Is…and Is Not. In L. Diamond and M. Plattner, eds. *The Global Resurgence of Democracy.* Baltimore, MD: Johns Hopkins University Press.

Schumpeter, J. (1942). *Capitalism, Socialism and Democracy.* London: Harper Perennial.

Sen, A. (1999). *Development as Freedom.* Oxford: Oxford University Press.

Sen, K. &Velde, D. W. (2009). State Business Relations and Economic Growth in Sub-Saharan *Africa. Journal of Development Studies, 45,* pp. 1267-1283.

Stiglitz, J. (2003). Towards a New Paradigm of Development. *In Making Globalization Good*, edited by Dunning J. H. Oxford: Oxford University Press.

UNDP. (2015). *Human Development Report 2015*.New York, NY: UNDP.

UNDP. (2000). *Human Rights and Human Development: Human Development Report.* New York, NY: UNDP.

Unsworth, S. & Moore, M. (2006).Critique of DFID White Paper on Making Government Work for Poor People. *Development Policy Review,* 24 (6), 707-715.

World Bank. (2014). *World Development Indicators 1972-2016.* Washington D.C.: The World Bank.

Zakaria, S.M. (2013). *Democratic Consolidation in Bangladesh: A Reality Check* (IGS Working Paper Series No. 16/2013). Dhaka: Institute of Governance Studies, BRAC University.

Annex 1: Variable Description

Variabl	Description	Source
GDP per capita (constant 2005 US$)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in constant 2005 U.S. dollars.	World Bank national accounts data, and OECD National Accounts data files.
Polity	Combined Polity Score: The POLITY score is computed by subtracting the AUTOC score from the DEMOC score; the resulting unified polity scale ranges from +10 (strongly democratic) to !10 (strongly autocratic). Note: The POLITY score was added to the Polity IV data series in recognition of its common usage by users in quantitative research and in the overriding interest of maintaining uniformity among users in this application. The simple combination of the original DEMOC and AUTOC index values in a unitary POLITY scale, in many ways, runs contrary to the original theory stated by Eckstein and Gurr in Patterns of Authority (1975) and, so, should be treated and interpreted with due caution Its primary utility is in investigative research which should be augmented by more detailed analysis. The original theory posits that autocratic and democratic authority are distinct patterns of authority, elements of which may co-exist in any particular regime context. The inclusion of this variable in the data series should not be seen as an acceptance of the counter-proposal that autocracy and democracy are alternatives or opposites in a unified authority spectrum, even though elements of this perspective may be implied in the original theory. The POLITY variable provides a convenient avenue for examining general regime effects in analyses but researchers should note that the middle of the implied POLITY “spectrum” is somewhat muddled in terms of the original theory, masking various combinations of DEMOC and AUTOC scores with the same POLITY score. Investigations involving hypotheses of varying effects of democracy and/or autocracy should employ the original Polity scheme and test DEMOC and AUTOC separately.	Polity IV Individual Country Regime Trends, 1972-2016 (http://www.systemicpeace.org/polity/polity4.htm)

Annex 2: Summary Statistics

Table A-1: Summary Statistics for selected variables from 1972-2013

Variable	Obs	Mean	Std. Dev.	Min	Max
Polity	45	1.022222	5.630634	-7	8
GDP per capita (constant 2010 US$)	45	512.9587	193.8834	317.7006	1029.578

Annex 3: Test Tables

Table A-2: Test of Auto-Correlation

lag	chi2	df	Prob>chi2
1	3.5274	4	0.47372
2	4.2377	4	0.37479

Table A-3: Test of Normality

Equation	Skewness	chi2	df	Prob>chi2
Jarque-Bera Test				
D_LGDP		34.426	2	0.00000
D_POLITY		59.782	2	0.00000
ALL		94.208	4	0.00000
Skewness Test				
D_LGDP	1.1101	8.832	1	0.00296
D_POLITY	.83633	5.013	1	0.02516
ALL		13.845	2	0.00099
Kurtosis Test				
D_LGDP	6.7796	25.594	1	0.00000
D_POLITY	8.5289	54.769	1	0.00000
ALL		80.363	2	0.00000

Table A-4: Test of Stability

Eigenvalue	Modulus
1.036772	1.03677
1	1
-.4548758	.454876
.04595803	.045958

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