

## **Democracy and Economic Diversification: Experience from Bangladesh**

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*This current study looks into the relationship between democracy and economic diversification for Bangladesh. Using arguments in the line of Johansen-Engel-Granger we find that as Bangladesh is becoming more politically diversified the economy is becoming less economically diversified. We also looked into export and import diversification and found that country wise export becomes more concentrated with democracy. For import we do not find any discernible trend.*

**Keywords:** Democracy, Economic Diversification, Cointegration

**JEL Code:** E02

### **1. Introduction**

Although democracy did not evolve as a measure of economic development nor its arguments explicitly contains economic seeds, yet it is expected that a regime participated by everybody will be economically inclusive. Democracy can be viewed as political diversification, existence of which is crucially dependent on active participation of people from all social strata in voting process. If people of different strata do not find any direct relationship between their economic status and democracy then it is less likely that they will participate (or at least enthusiastically participate) in political process.

Following the idea of Lipset (1959) many studies have contributed to the literature of Institutional Economics focusing on democracy and economic development. Lipset (1959) argued that when income increases there is a tendency for a society to become more democratic. The study also mentioned positive association between attainment of democracy and the degree of industrialization, urbanization and level of education. Following his seminal article there is a plethora of studies addressing democracy and development. Bangladesh maintains a liberal democracy, which is often interrupted by ambitious military and/or authoritative political leaders undermining democratic values and creating a potential breeding ground for non-democratic forces. However, strong protests (with frequent violence) from general people have successfully opposed such fancy ideas in the past.

Bangladesh has recently graduated from the group of low income countries to middle income cohort (following the definition of World Bank, 2015). This is certainly recognition of their hard work and careful macroeconomic planning in last few decades. However, this also puts them into different situation as now they have to face what is commonly known in literature as middle income trap. Somehow they have to come up with strategies to adjust with the standard and expectations from middle income group

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countries and at the same time maintain economic progress so that they can move closer to their higher income colleagues or at least do not slip back to low income group. In that respect, it is very important to know the dynamics between political and economic institutions.

In this paper, we would like to investigate whether there is any causal relationship between political and economic diversification in the context of Bangladesh. To the best of our knowledge there is no such study done on Bangladesh till now. Therefore this will fill the gap left in empirical literature. Findings of such study are important for policy makers as diversification can be an effective tool to achieve sustainable growth and to eliminate vulnerability. The paper is structured as follows; after introductory comments we present a review of relevant literature in literature review section. Then methodology and data are presented which is followed by econometric results obtained and related discussion in Findings and Discussion section. Concluding remarks are presented in the last section.

## 2. Literature Review

There are several interesting studies that address this issue in various setups. Kolstad & Wiig (2014) found that economic diversification has a significant, positive impact on democracy. That is if an economy is more diversified then it leads to a more distributed political power. They argued that in a diversified economy the elites are less unified and the citizens have better economic opportunities. Flachaire et al. (2014) using data for both developed and developing countries for the period of 1975-2005 found that both political and economic institutions affect growth but the roles of these two types of institutions are different. Political institutions are important for determining regimes and economic institutions are important for determining growth rates within the regimes. Their findings also suggest that if political institutions are weak then choice of economic institutions is more sensitive compared to when political institutions are strong.

Man (2014) found nonlinearity in empirical relationship between political competition and economic growth using cross-sectional data of 1988-2007. The study reported that the overall relation between political competition and growth appears negative. However, within a certain legislature, relationship between political competition and growth exhibits an inverted U-shape, at low levels of political competition and from intermediate level onwards the relationship is negative. Madsen et al. (2015) concluded democracy as a significant determinant of both income and growth. They stated that democracy has contributed as an important factor for economic development and improved standard of living within a country across time. They also stated that an autocratic country can increase its income by 47% if it adopts complete democracy from complete autocracy. Positive effect of democracy on income and efficiency is also observed by Asatryan & De Witte (2015).

Previous studies were mostly concerned about the effect of democracy on growth. Robinson (2006) found that economic development does not influence democracy. However, the study found a correlation between income per capita and democracy. Acemoglu et al. (2005) also found such correlation between income per capita and democracy without any causal implication. Another interesting study by Salahodjaev (2015) used data from 93 nations over the period 1970-2013 to find implications of cognitive abilities of voters in the relationship between democracy and economic

growth. The study reports that intelligence is highly beneficial for economic development as it reduces the negative effects of weak political institutions.

Cuberes & Jerzmanowski (2009) and Madsen et al. (2015) found mixed effect of democracy on economic growth. Both studies found that democratic economies show lesser volatility in growth. Other than this the literature also looks into resource-rich countries and countries with ethnic diversity and identifies how these factors affect democracy (OMGBA, 2015; Hillman et al. 2015). Gerring et al. (2011) studied cases for three countries: Brazil, India and Mauritius and found that consolidated democratic polities are better at maintaining policy initiatives compared to new democratized polities. The study explains that policy reforms are better under democracy than under autocracy. They also mention that policies are more likely to sustain under democracy as the parties will like to maintain their popularity before election.

Varshney (1998) found that democracy leads to rural empowerment, which is less likely to happen under authoritarian system. Democracy increases rural presence at upper levels of polity and facilitates rural collective action. There is a visible gap in literature in analyzing growth related interdependence between political and economic development. This is an empirical attempt to reduce that gap using data of Bangladesh.

### 3. Methodology and Data

Bangladesh fought in 1971 in a hope of a prosperous, democratic, diversified, well represented society. Although democracy was jeopardized during its initial stage, it got installed later (Sethi, 2008).

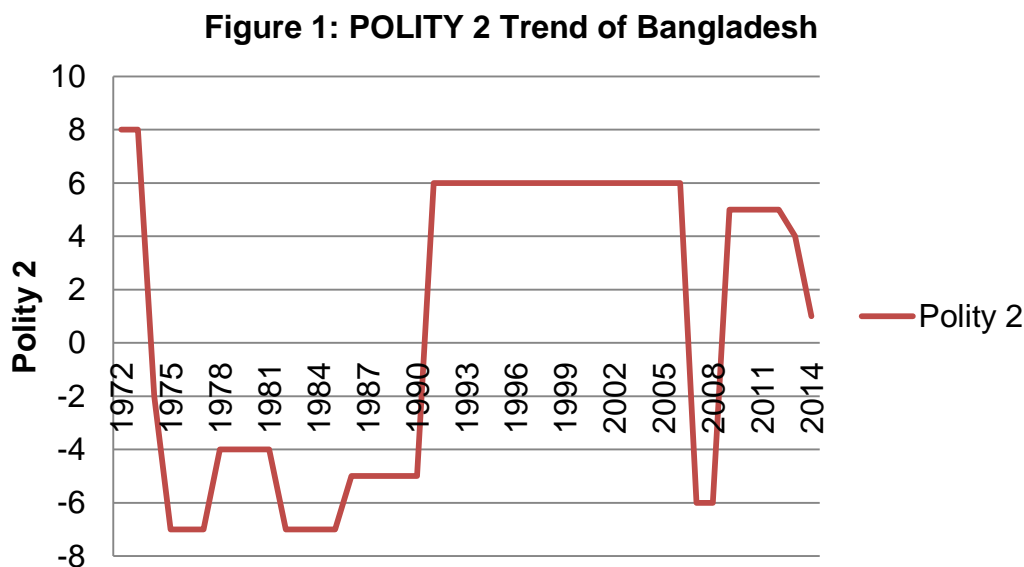
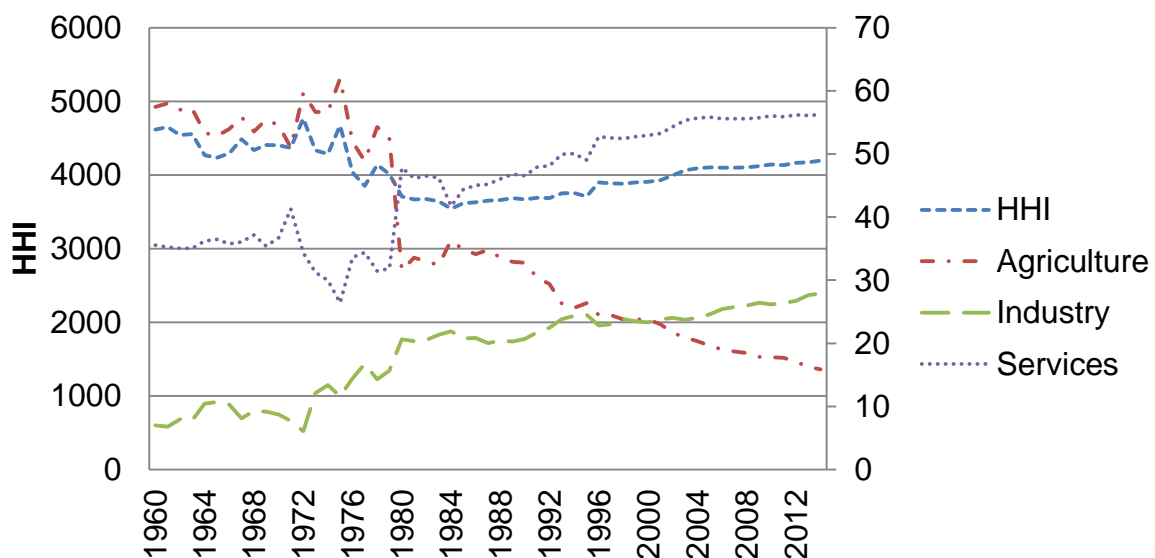


Figure 1 shows variation of the state of democracy of Bangladesh over time as measured by POLITY 2 variable. Prior to 1990 Bangladesh showed lack of political diversification, however, 1990 onwards, the country showed a reasonable level of political inclusion with only break in 2007. POLITY 2 variable is taken from Polity IV database. Polity IV database is maintained by the Center for Systemic Peace. Polity IV database hosts annual polity score of 167 countries for the period 1946-2013. POLITY2 variable, which we use in our study, is one of the main variables of the database. POLITY score is calculated by subtracting the autocracy score from the democracy

score and the scale ranges from +10 (strong democratic) to -10 (strong autocratic). Detailed calculations and methodology can be found in their website <http://www.systemicpeace.org>.

Economic activities of Bangladesh can be broadly divided into three sectors, agricultural, manufacturing and service. Economic diversification captures the extent to which a country diversifies her outputs. Figure 2 shows changes in economic diversification over time. We see that agriculture sector has declined over time while service sector has picked up. Industrial sector attained a slow growth over this period. Fourth curve shows Herfindahl-Hirschman Index (HHI), economic concentration over time. We see that the curve is moving upward showing greater concentration over the years.

**Figure 2: Sectoral Shares and Economic Diversification**



Augmented Dickey Fuller (ADF) and Phillips Perron unit root tests are carried out to find out if data series is stationary or non-stationary. Non-stationary data give rise to spurious regression results for which it is important for us to make our data stationary. Causality has been tested following the spirit of Granger (1986, 1988) and Engel (1987). However cointegration test does not give the direction of relationship among variables so we took help of cointegrating regressions namely Fully Modified Ordinary Least Square (FMOLS), Canonical Cointegration Regression (CCR), and Dynamic Ordinary Least Squares (DOLS). These are single equation regression based methods and are variations of OLS method to avoid some problems that are common among cointegrating relationship. FMOLS, regression is designed to provide efficient estimates of cointegrating regressions after correcting for serial correlation effects and for endogeneity in the regressor. In the same vein, CCR and DOLS estimators deal with the problem of second-order asymptotic bias arising from serial correlation and endogeneity.

For measuring economic diversification we used Herfindahl-Hirschman Index (HHI) as proposed by economists Orris C. Herfindahl and Albert O. Hirschman independently, which is a measure of concentration (Hirschman 1945; Herfindahl 1950). Hirschman proposed the index in his book "National power and the Structure of Foreign Trade" and Herfindahl proposed the index in his doctoral dissertation "Concentration in the U.S.

steel Industry”. To construct the index share of each sector is squared and then added together. A higher value of HHI means higher concentration and lower value of HHI represents a greater equality in concentration. The Herfindahl-Hirschman Index (HHI) is calculated as follows:

$$HHI = \sum_{i=1}^n (S_i)^2$$

Where,

$S_i$  = Share of  $i^{th}$  sector of the economy

HHI, as a measure of concentration, provides important benefits. First, HHI takes into account the asymmetry of shares. However, this advantage requires accuracy of data since, incorrect value of sector shares will change the HHI. Second, the shares of all sectors are reflected in HHI. (Calkins 1983) as opposed to top 3 or top 2 concentration measures. We use annual data on economic and political variables in our study. Economic variables, which include shares of value added by agriculture, industry and service sectors in the economy are taken from World Development Indicators (WDI) managed by the World Bank and spans the period of 1972 to 2013. Other economic variables, which include country wise and product wise export and import values, are taken from different yearbooks published by Bangladesh Bureau of Statistics (BBS) for the period 1990-2012. We used POLITY2 variable of Polity IV database as a measure of democracy attained in our study. Here, a higher value of POLITY2 indicates a more democratic country.

#### 4. Findings and Discussion

Our study looks into the relationship between political and economic diversification. To this end we used three measures of economic diversification:

- a) Overall economic diversification
- b) Export diversification and
- c) Import diversification

For overall economic diversification we divided economy into three sectors, agriculture, industry and service. We understand that such division is little crude and could be made more informative by going down to two or three digit SIC code however such information is not available for Bangladesh. Therefore we confined our attention to such broad category. We took total value added in the economy by agriculture, industry and service sectors. Using the Herfindahl-Hirschman Index (HHI), we find sectoral concentrations. For stationarity, ADF test results are presented in table 1. Phillips Perron Test conform results qualitatively (detailed test results available upon request).

**Table 1: ADF Test Results of POLITY2 and HHI**

Null Hypothesis: D(POLITY2) has a unit root			Null Hypothesis: D(HHI) has a unit root		
	t-Statistic	Prob.*		t-Statistic	Prob.*
ADF test statistic	-4.707	0.0054	ADF test statistic	-6.034	0.0003

\*MacKinnon (1996) one-sided p-values.

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Both variables are unit root free at first difference so we can run cointegration test at levels. We found that a cointegrating relationship exists between the two variables (table 2). Following this we carry out the granger causality test to identify the causal relationship between the two variables.

**Table 2: Johansen's Cointegration Test between POLITY2 and HHI**

Series: POLITY2 HHI				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05Critical Value	Prob.**
None *	0.450674	20.98273	20.26184	0.0397
At most 1	0.268918	7.204288	9.164546	0.1160

Trace test indicates no cointegration at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

**Table 3: Granger Causality Test between POLITY2 and HHI**

Null Hypothesis:	Lags: 2		Lags: 3	
	F-Statistic	Prob.	F-Statistic	Prob.
HHI does not Granger Cause POLITY2	1.56813	0.2227	0.42183	0.7386
POLITY2 does not Granger Cause HHI	3.96777	0.0280	7.43735	0.0006

Finally, we carry out the cointegrating regressions to find the direction of relation between these two variables and we find that the relationship is positive, which means as country is becoming more democratic (variable POLITY2 is increasing) the economy is becoming more concentrated (variable HHI is increasing) or less diversified. Hence, it can be said that the new elites are not contributing to economic diversification rather they are investing in the already concentrated sectors.

**Table 4: FMOLS Result for POLITY2 and HHI**

Dependent Variable: POLITY2				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
HHI	0.011046	0.004992	2.212865	0.0328
C	-42.03679	19.60602	-2.144075	0.0383
R-squared	-0.018170	Mean dependent var.	0.585366	
Adjusted R-squared	-0.044277	S.D. dependent var.	5.809370	
S.E. of regression	5.936588	Sum squared resid	1374.480	
Durbin-Watson stat	0.468012	Long-run variance	60.45326	

Next we study the relationship between democracy and export diversification. That is, we investigate if a more democratic society is leading to greater export diversification for Bangladesh. In this end we used two measures of export diversification, commodity wise and country wise. We first look into commodity wise export diversification. This variable is constructed using data of shares of different exported goods.

After checking for customary unit root test we ran Johansen cointegration test only to find that commodity wise export diversification does not have anything to do with democracy (results not presented here, available upon request). For country wise export diversification we took the share of exports disaggregated according to their destinations. After conducting unit root test we found that country wise export concentration and POLITY2 are cointegrated (table 5).

**Table 5: Johansen's Cointegration Test between POLITY2 and HHIEXCON**

Series: HHIEXCON POLITY2				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05Critical Value	Prob.**
None	0.535080	20.11431	20.26184	0.0524
At most 1	0.174639	4.030625	9.164546	0.4076

Trace test indicates no cointegration at the 0.05 level

\*\*MacKinnon-Haug-Michelis (1999) p-values

Results of causality and FMOLS tests are given below (table 6 and 7 respectively):

**Table 6: Granger Causality Test between POLITY2 and HHIEXCON**

Null Hypothesis	Lags	F-statistics	Probability
POLITY2 does not Granger Cause HHIEXCON	5	3.29128	0.0760
HHIEXCON does not Granger Cause POLITY2		5.00932	0.0286

If we relax our cutoff point from strict 95% to say 93% we can say that country wise export concentration and democracy happens simultaneously.

**Table 7: FMOLS Result for POLITY2 and HHIEXCON**

Dependent Variable: HHIEXCON				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
POLITY2	54.07795	27.45774	1.969497	0.0622
C	1362.553	159.1808	8.559782	0.0000
R-squared	0.061284	Mean dependent var.	1590.667	
Adjusted R-squared	0.016583	S.D. dependent var.	537.7170	
S.E. of regression	533.2400	Sum squared resid	5971243.	
Durbin-Watson stat	1.469846	Long-run variance	261514.6	

From table 7 we find that there is a positive relationship between these two variables, which means political diversification leads to economic concentration and economic concentration leads to political diversification with a lag of 5 years (table 6). Hence, it can be said that as the country is becoming more politically diversified higher export is taking place with the existing trade partners and on the other hand the democratic trade partners are providing their democracy values to Bangladesh with a lag of 5 years. However, these relationships can be considered somewhat weak as general election happens after every five years. Therefore potentially after five years a different group of elites may hold the power.

Finally, we look at the relationship between democracy and import diversification. Again we looked at both commodity wise import diversification and country wise import diversification. We constructed concentration variables in the same way as we did for the case of export. However, in case of import diversification we do not find any relationship between democracy and import diversification for both commodity and country wise diversification.

This study provides us the following insights: For Bangladesh economic and political diversification are related and political diversification precedes economic diversification. However combining with results of auxiliary cointegrating regressions we can conclude that as the country becomes more democratic it becomes less diversified. This is actually against common expectation as we would like to expect that political

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diversification will allow more people to get involved in economic stream with their diverse aptitude and preferences and economy will be more diversified. Such diversification is important as it increases resilience and sustainability of the economy. Most probably for the case of Bangladesh as the country is becoming more democratic more (former) non elite are getting their position into the elite group, but they are not contributing much in promotion of non-traditional activities This may reflect either of the two scenario:

- a. They are unable to do so either due to their incompetence in new technology or due to lack of interest
- b. They join to the already existing elite group and effectively expand the old elite subgroup

While the first explanation is less malignant for the economy but the later one is quite formidable. In that case, political freedom is not likely to bring any good news for the general citizens as with political diversification the power and control of existing elite group will become stronger. Overall it will be optimistic to expect that political diversification (for which Bangladesh has fought for a long time) will exert its positive impacts on enhancing economic sustainability and resilience.

## 5. Conclusion

This simple minded study produces some simple but deep rooted results. Democracy for which Bangladeshi people had sacrificed a lot is yet to demonstrate its full positive impacts on the economy. If democracy is about dismantling autocracy (or rule by a group) then it should manifest economic freedom. An economically concentrated economy is less likely to foster economic freedom. Not to mention that such economy is more vulnerable to external shocks. For Bangladesh, democracy has failed to bring economic diversification. The result is robust following different measures of economic diversification. Though not theoretical, the study has contributed to understanding the relationship between democracy and economic diversification. Possible scope for expansion includes employment diversification. Inclusion of such measure may give further insight on role of elites after attaining democracy. We also did not include any measure of labor productivity, which may contain possible effects of diversification.

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