

# Political Regime wise Comparative Analysis of Value Added in Agricultural Sector

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## ABSTRACT

The study was conducted with the aim to compare the value added in agricultural sector in different political regimes. The study period was from 1971-2018. The data on real value added in agriculture and allied sectors was collected from the official website of FAO STATISTICS and the data on political regime scores were collected from Polity Project website. The study period was divided into three periods, each lasting 15 years, namely period I (1971–1986), period II (1987–2002), and period III (2003–2018). The triennium ending averages of the first and last years for each period were used as the base year and the current year, respectively. The analytical tools used in the study were absolute change, relative change compound growth rate and coefficient of variation. In the first period coefficient of variation was higher in autocratic regimes. In the second period the variation among autocratic regimes increased to 18.62 percent compared to 8.70 percent among democratic regimes. In the third period the variation increased to 28.67 per cent in the autocratic conditions. The compound annual growth rate of the real value added in the agriculture sector under autocratic regimes during the third period was 5.91 percent, higher than it was for the first two. This growth rate was about 3.5 times higher in autocratic nations than in democratic ones. It is important for democratic economies to adopt advantageous features of agriculture policy from autocratic regimes in order to boost economic growth.

*Keywords: GDP, Agriculture, Autocracy, Political Regimes, Democracy*

## 1. INTRODUCTION

Economic development is the key goal of all economic policies. Economic development requires the growth of GDP per capita in the economy which is possible when major sectors of economy are propelled to growth. Agriculture is the primary sector of economies around the Globe. In many developing and under-developed countries, large proportion of population is heavily dependent on agriculture for their sustenance. The growth of agricultural sector has strong links with policies of the government. The government formation has large bearing on type of policies framed for economy (Sims 1988)[1].

The government can be either through democratic or autocratic. Democratic government implies citizens of the country gets to decide on either directly on policies, laws and constitutional issues as in direct democracy or directly elect law makers, office bearers and President or Prime Minister who decides policies and laws for whole of the nation as in

majoritarian proportional representative democracy or constitutional democracies. Democratic governments have challenge to satisfy the median voter preferences (populism), protect rights of citizens while maintaining transparency and accountability as well as avoid interest group who lobby for resources (Iqbal, Khan, and Irfan, Muhammad 2008)[2].

In contrast, autocratic regimes don't allow citizens to decide the leader or law makers and participate in policy making. The autocratic regimes can be a dictatorship or absolute monarchy wherein single person or monarch (King) rules the whole nation and decides the policies and preferences for the whole nation or oligarchy wherein few capitalists rule the nation keeping their business/private interest in mind or theocracy wherein authority to rule is derived from religion or religious institution. The autocratic regimes don't have to stand up to expectation of citizens and hence are assumed to be making efficient and effective policies considering long-run economic outcomes for the nation (Bardhan 1993)[3].

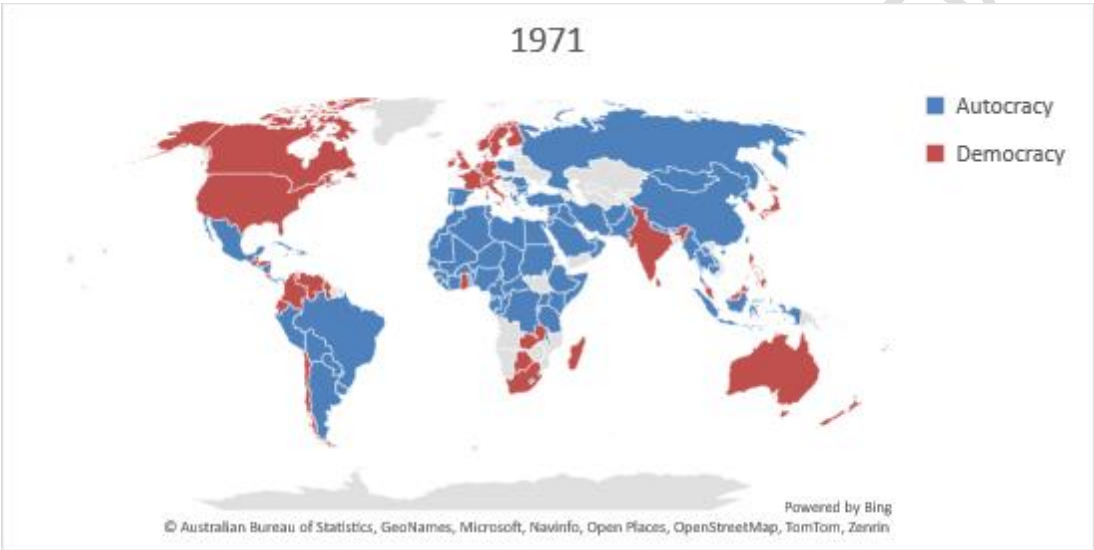
The effect of such autocratic or democratic regime on economic growth, protection from international trade (Olper 2001; Beghin and Kherallah 1991)[4], civil rights and liberties (Mulligan, Gil, and Sala-i-Martin 2004)[5], and protection of property rights (Knutsen 2011)[6] are well documented. In case of agriculture, limited empirical work has been carried out to find out differences in policies towards agriculture and economic outcomes for agricultural sector between different political regimes. Munir (2018)[7] had found positive effect of democracy on agricultural efficiency in Pakistan. Lio and Liu (Lio and Liu 2008)[8] found positive effect of democracy on agricultural output but through economic freedom. Other studies concerning agriculture did highlight the link with governance but not with polity. Further investigation is needed to find political regime wise differences in respect of agriculture.

The value added in agricultural sector is the market value of all the final produce of agricultural sector (including animal husbandry, forestry and fishing). It is the income of the producers engaged in agricultural sector. The growth of value added in agricultural sector shows the growth in income of the producers. With this background study was conducted with objective to assess regime-wise differences in value added in agricultural sector.

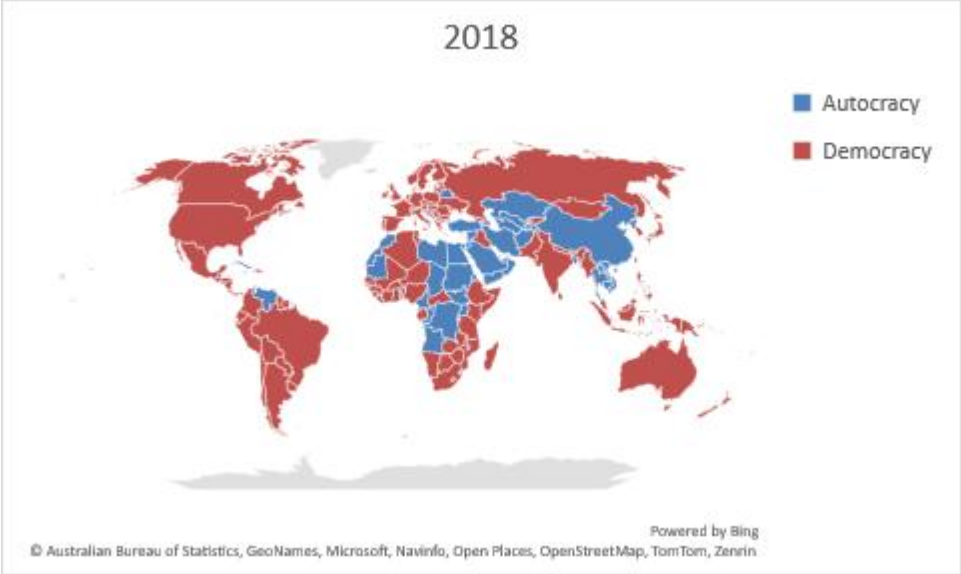
## **2. METHODOLOGY**

The study was based on secondary data for a period of 48 years from 1971 to 2018 for all countries of the World. The data on real value added in agriculture and allied sectors (measured in million US \$ at constant 2015 prices) were obtained from the official website of FAO STATISTICS (FAOSTAT 2022)[9]. The use of real values compared to nominal values

allows for aggregation and comparison over years. The data on political regime scores were collected from Polity Project website (Marshall and Gurr, Ted Robert 2020)[10]. The political regime scores ranged from -10 (for the most autocratic regime) to +10 (for the most democratic regime). The countries were divided into autocratic regime when political score was below zero and democracy otherwise. Atlas of the World was prepared to depict the countries under different political regimes around the World during 1971 and 2018 [Fig 1 and 2]. While the number countries governed under democratic regime rose very sharply over the years, number of countries governed under autocratic regimes have declined sharply.



**Fig 1. Countries under different political regimes around the World during 1971**



**Fig 2. Countries under different political regimes around the World during 2018**

The study period was divided into three period of 15 years each, i.e., period I (from 1971 to 1986), period II (from 1987 to 2002) and period III (from 2003 to 2018). For each period, triennium ending averages of initial years and terminal years for the given period were taken as base and current year, respectively. To estimate the overall and comparative change in production value respectively absolute and percentage change were worked out for all three periods and for each regime type. The difference between current and base year triennium ending average of gross production value was worked out as absolute change. The absolute change time 100 and divided by base year triennium ending average value provided percentage change.

$$\text{Absolute change} = V_n - V_0$$

$$\text{Percentage change} = \frac{(V_n - V_0) \times 100}{V_0}$$

Where,

$V_n$  = Current year triennium ending average for value of gross agricultural production during current year period

$V_0$  = Base year triennium ending average for value of gross agricultural production during current year period

Compound annual growth rate was used in the study to analyse the growth rate of value added in agriculture and allied sectors during the study period for autocracy and democracy regimes. To estimate compound annual growth rate, semi-log model was estimated. The above equation was estimated after logarithmic transformation using OLS technique.

$$Y_t = abt$$

$$\text{Compound annual growth rate (\%)} = (\text{Antilog } b - 1) \times 100$$

Where,

$Y$  = Agricultural value

$t$  = Time in year

$b$  = Regression coefficient

The coefficient of variation is used in the study to evaluate the degree of dispersion from the mean.

$$CV = \frac{\text{Standard deviation}}{\text{Mean}} * 100$$

### 3. RESULTS AND DISCUSSION

It was observed that under both regime, there was increase in the real value added in agricultural sector throughout the study period [Table 1]. The autocratic regimes had higher real value added in agricultural sector in base year as well as in current year compared to democratic regimes. The absolute change was also higher for autocratic regimes compared to democratic regimes for all three periods as well as for overall period of the study. For the first period, the absolute change in real value added in agricultural sector in democratic regime was just half that of autocratic regimes. This was the period before fall of the Berlin Wall and the USSR. During this period, the support provided by the USSR to many autocratic regimes helped which was partly responsible for 47.44 percent change in real value added in agricultural sector compared to 41.76 percent in democratic regimes. However, the coefficient of variation for autocratic regimes during this period was higher than democratic regimes signifying the higher extent of variation which prevailed among autocratic regimes.

For the second period, increase in real value added in democratic regimes was less than in first period as well as it decreased to less than one seventh of autocratic regime. However, the variation among autocratic regimes increased to 18.62 percent compared to 8.70 percent among democratic regimes. This was the result of many nations under autocratic regimes splitting into smaller nations which were later on governed under democratic ones. Increase in growth in second period for autocratic regimes was driven by opening of economies for trade after WTO regime started. However, democratic regimes couldn't reap benefits of WTO as autocratic regimes could due to differences in basket of commodities traded and stage of economic development.

For the third period, the compound annual growth rate of real value added in agricultural sector in autocratic regimes was higher than previous two periods at 5.91 percent. This growth rate in autocratic regimes was nearly 3.5 times that of democratic regimes. However, as more countries turned democratic in third period, with a smaller number of countries, coefficient of variation increased to 26.67 percent for autocratic countries up from 18.62 percent in previous period.

Consistent increase in growth rate of real value added in agricultural sector in autocracies than democracies was not on account of miracle but due to the fact that in economies ruled under autocratic regimes agriculture had higher share of GDP than economies ruled under democratic regimes. Thus, with economic growth and development and convergence effect, real value added in agricultural sector in autocratic regimes was larger than democratic regimes. The second reason was that with economic development

countries shift from autocratic regimes to democratic regimes and agriculture sector starts to shrink in proportion. Thus, countries with small share of agriculture in GDP turned democratic during successive period thereby reducing the growth rate for democratic regimes. Thus, very high growth in agricultural sector in democratic regimes was not apparent.

From the foregoing discussion it appeared that the reason for consistently higher growth in autocracies was only a statistical puzzle but there are countries which were always under some autocratic rule, for example, People's Republic of China, Islamic Republic of Iran, North Korea, and Cuba. It is no doubt that the People's Republic of China has had consistent double-digit growth of agricultural sector and its overall economy. Thus, there must be some other reasons for higher growth under autocracies. The other possible reasons for autocracies to output perform democracies may include efficient utilization of resources and public goods. It is important for democracies to learn from autocracies the differences in production pattern and policies of agriculture which have provided consistent growth.

On the whole, autocratic regimes had higher growth rate of agricultural sector than democratic ones. These findings are consistent with results of (Iqbal, Khan, and Irfan, Muhammad 2008; Greyling, Vink, and Mabaya 2015; Przeworski and Limongi 1993)[11]. All these three studies quoted higher growth under autocratic regimes than under democratic ones.

**Table 1. Dynamics of growth and instability in value added in agricultural sector in autocracy and democracy regimes during different time periods**

<b>Regime</b>	<b>Period</b>	<b>Base Year</b>	<b>Current Year</b>	<b>Absolute change</b>	<b>Percentage change</b>	<b>Growth rate</b>	<b>Coefficient of Variation</b>
<b>Million US \$ at 2015 constant prices</b>						<b>%</b>	
<b>Autocracy</b>	<b>Period I</b>	<b>8010</b>	11811	3800.27	47.44	3.06	15.82
	<b>Period II</b>	<b>12680</b>	21391	8711.66	68.71	4.00	18.62
	<b>Period III</b>	<b>24423</b>	51815	27391.72	112.16	5.91	26.67
	<b>Overall</b>	8010	51815	43804.15	546.84	4.36	63.11
<b>Democracy</b>	<b>Period I</b>	<b>4766</b>	6757	1990.36	41.76	2.43	11.91
	<b>Period II</b>	<b>7679</b>	8848	1168.81	15.22	1.35	8.70
	<b>Period III</b>	<b>9416</b>	11546	2129.66	22.62	1.73	8.36
	<b>Overall</b>	4766	11546	6779.70	142.24	1.87	25.82

## 4. CONCLUSION

From the ongoing study it was observed that autocratic regime showed higher value as well as growth of real value added in agricultural sector as compared to democratic regime during all three period as well as during the overall study period. It is important for economies under democratic regimes to learn beneficial aspects of agricultural policy from autocratic regimes and implement them in their economies for higher growth.

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