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Analysis and Comparison of Policy Regimes for the Value Added in Agricultural Sector

Gourav Kumar Vani [a*], Ashutosh Shrivastav [a], Poonam Chaturvedi [a] and Ankita Rajput [b]

[a] Department of Agricultural Economic and Farm Management, COA, JNKVV, Jabalpur, India.
[b] Department of Agricultural Economic and Farm Management, RVSKVV, Gwalior, India.

Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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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 were 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 average annual growth rate and instability index. In the first period instability was higher in democratic regimes. In the second period instability among autocratic regimes increased to 2.34 percent compared to 2.12 percent among democratic regimes. In the third period growth rate increased to 6.03 per cent in the autocratic conditions. The

**Corresponding author: E-mail: gkvani@jnkvv.org, kumaragri.vani1@gmail.com;*

instability of the real value added in the agriculture sector under autocratic regimes during the second period was 2.34 percent, higher than it was for the other periods. It is important for democratic economies to adopt advantageous features of agricultural 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 [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 Minster 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 [2].

In contrast, autocratic regimes don't allow citizens to deicide 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 [3].

The effect of such autocratic or democratic regime on economic growth, protection from international trade [4], civil rights and liberties [5], and protection of property rights [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 [7] had found positive effect of democracy on agricultural efficiency in Pakistan. Lio and Liu [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. Thus, study on differences in value added in agricultural sector in reference to political regime can add the missing policy directions. With this background study was conducted with objective to assess regime-wise differences in value added in agricultural sector. Here, the first null hypothesis is that there was no differences in value added in agricultural sector between autocracy and democracy. The second null hypothesis is that there was no difference between growth of value added in agricultural sector between autocracy and democracy.

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 [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 [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 [Figs. 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.

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

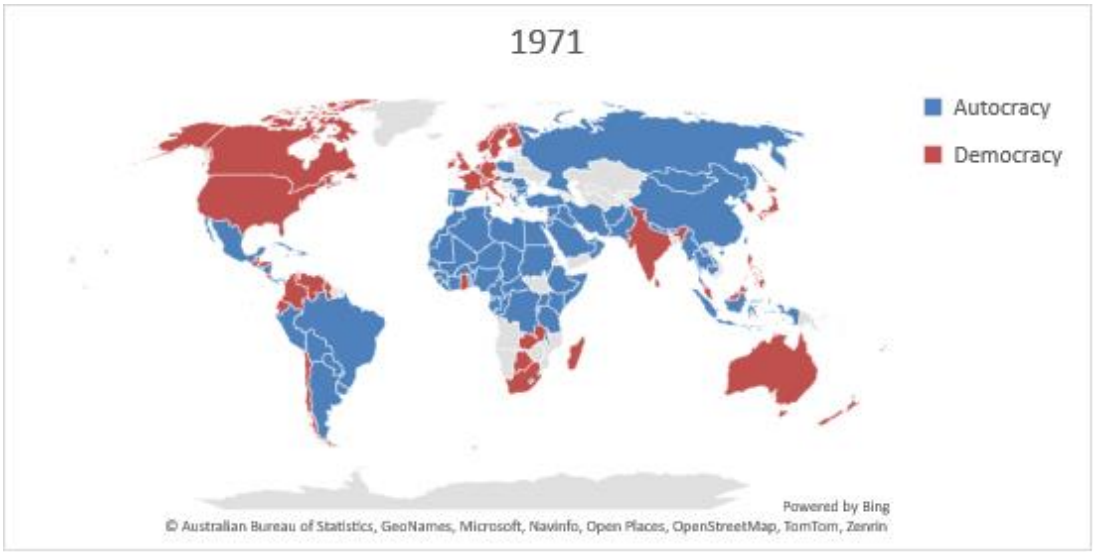

Fig. 1. Countries under different political regimes around the World during 1971

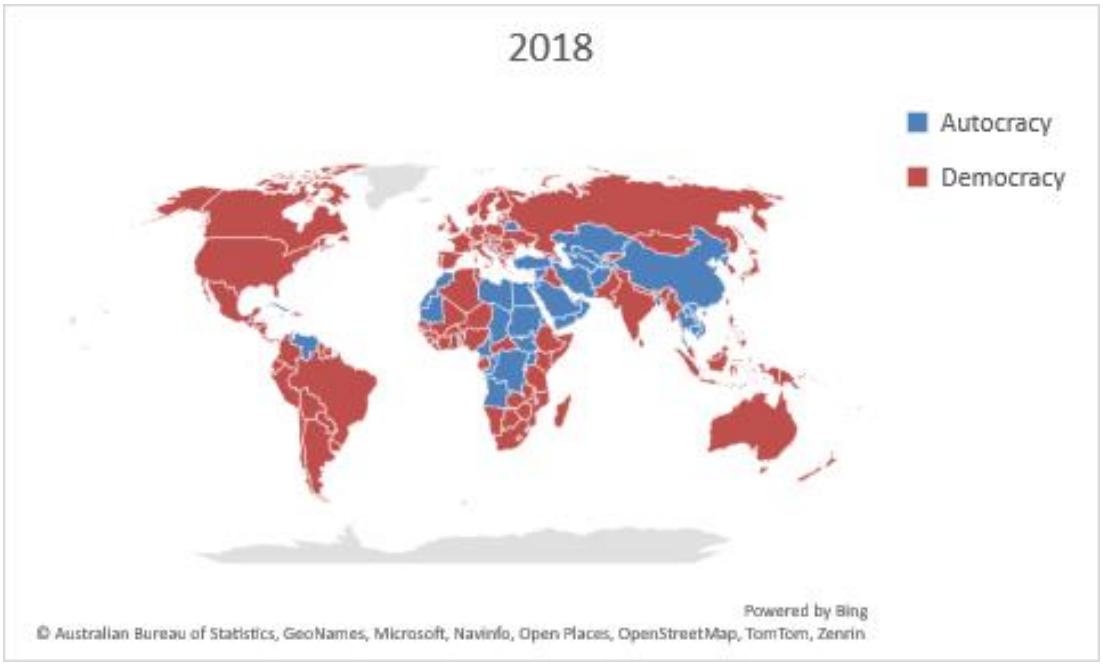

Fig. 2. Countries under different political regimes around the World during 2018

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.

Absolute change = $V_n - V_0$

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

Where,

Vn= Current year triennium ending average for value of gross agricultural production during current year period
Vo= Base year triennium ending average for value of gross agricultural production during current year period

Average annual growth rate (AAGR) was used in the study to analyze the growth rate of value added in agriculture and allied sectors during the study period for autocracy and democracy regimes. AAGR was calculated by taking arithmetic mean of series of annual growth in the variable. The annual growth rate was obtained by dividing the current value by its previous value minus one. To convert the series into percentage it was multiplied by 100. The annual growth in the variable concerned is calculated by assuming previous year as the base year.

AAGR = $\left\{\sum_{t=1}^{N}\left(\frac{Y_t}{Y_{t-1}}\right) - 1\right\} \times 100$

Where,

Y_t = agricultural value in current year
Y_{t-1} = agricultural value in previous year
N = Total time period

The Ray (1983) approach was employed in the current study to examine instability because it provides a fairly simple measurement of instability via standard deviation in annual growth rates. Instability index was calculated using the following formula:

Instability Index= Standard deviation of natural logarithm (Yt+1/Yt)*100

Where,

Yt is the agricultural value in the current year and,
Yt+1 is agricultural value in the next year

To test the hypothesis of no difference, student's t-test was used. The p-value which is the true level of significance was compared with five percent level of significance. Upon p-value being less than level of significance, null hypothesis was rejected in favor of alternate hypothesis. The alternate hypothesis was two-sided.

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 instability among autocratic regimes increased to 2.34 percent compared to 2.12 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 growth of real value added in agricultural sector in autocratic regimes was higher than previous two periods at 6.03 percent. This growth in autocratic regimes was

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

Regime	Period	Base Year	Current Year	Absolute change	Percentage change	AAGR	Instability Index
		Million US $ at 2015 constant prices			%		
Autocracy	**Period I**	**8010**	11811	3800.27	47.44	2.93	1.16
	Period II	**12680**	21391	8711.66	68.71	4.21	2.34
	Period III	**24423**	51815	27391.72	112.16	6.03	1.05
	Overall	8010	51815	43804.15	546.84	4.20	1.72
Democracy	**Period I**	**4766**	6757	1990.36	41.76	2.83	1.94
	Period II	**7679**	8848	1168.81	15.22	1.52	2.12
	Period III	**9416**	11546	2129.66	22.62	1.56	0.84
	Overall	4766	11546	6779.70	142.24	2.10	1.73
p-value for significance of difference		1.43E-08				1.45E-02	

nearly three times that of democratic regimes. In the overall period, the autocratic had a higher growth rate as compared to the democratic regimes.

The p-value of t-test being less than five percent level of significance meaning that both the null hypothesis were rejected. Hence there was significant differences in value added in agricultural sector between autocracy and democracy.

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 [11]. All these three studies quoted higher growth under autocratic regimes than under democratic ones.

4. CONCLUSION

From this 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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COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Sims H. Political Regimes, Public Policy and Economic Development: Agricultural Performance and Rural Change in Two Punjabs. Sage Publication, New Delhi; 1988.
   Available:https://www.cabdirect.org/cabdirect/abstract/19896708275
2. Iqbal, Nasir, Sardar Javaid Iqbal Khan, Irfan, Muhammad. Democracy Autocracy and Macroeconomic Performance in Pakistan. Kashmir Economic Review. 2008;XVII(1):61–88.
   Available:https://doi.org/10.2139/ssrn.1735650
3. Bardhan, Pranab. Symposium on Democracy and Development. Journal of Economic Perspectives. 1993;7(3):45–49.
   Available:https://doi.org/10.1257/jep.7.3.45
4. Beghin John C, Mylene Kherallah, eds. Political Institutions and International Patterns of Agricultural Protection; 1991.
   Available:https://doi.org/10.22004/ag.econ.259512
   Olper, Alessandro. Determinants of Agricultural Protection: The Role of Democracy and Institutional Setting. Journal of Agricultural Economics. 2001; 52(2):75–92.
   Available:https://doi.org/10.1111/j.1477-9552.2001.tb00926.x
5. Mulligan Casey B, Ricard Gil, Xavier Sala-i-Martin. Do Democracies Have Different Public Policies than Nondemocracies? Journal of Economic Perspective. 2004; 18(1):51–74.
   Available:https://doi.org/10.1257/089533004773563430
6. Knutsen Carl Henrik. Democracy, Dictatorship and Protection of Property Rights. Journal of Development Studies. 2011;47(1):164–82.
   Available:https://doi.org/10.1080/00220388.2010.506919
7. Munir, Qaiser, Muhammad Afzal, Kanza Sohail, Hania Afzal. Does Democracy Foster Agricultural Efficiency in Pakistan: A Historical Perspective. 2018;25.
8. Lio, Monchi, Meng-chun Liu. Democracy and Agricultural Productivity; 2008.
9. FAOSTAT. Food and Agriculture Organization Statistical Databases; 2022.
   Available:https://www.fao.org/faostat/en/#data
10. Marshall Monty G, Gurr Ted Robert. POLITY5, Political Regime Characteristics and Transitions, 1800-2018 Dataset Users' Manual. Center for Systemic Peace, Vienna, USA; 2020.
    Available:http://www.systemicpeace.org/inscr/p5manualv2018.pdf.
11. Greyling, Jan C, Nick Vink, Edward Mabaya. South Africa's Agricultural Sector Twenty Years after Democracy (1994 to 2013); 2015. September, 15.
    Przeworski Adam, Fernando Limongi. Political Regimes and Economic Growth. Journal of Economic Perspective, Summer. 1993;7(3):51–69.
    Available:https://pubs.aeaweb.org/doi/pdfplus/10.1257/jep.7.3.51

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