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Does a democracy improve environmental quality?

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Abstract

Does a democracy improve environmental quality? Albert Gore, the 2007 Nobel Peace Prize winner, has said that “an essential prerequisite for saving the environment is the spread of democratic government to more nations of the world.” This topic is important because a democracy has been conceded as one of potential determinants of good environmental quality.

As compared to an autocracy, there are several theoretical reasons why a democracy may improve environmental quality. Democratic citizens have more access to information regarding environmental quality (Schultz and Crockett 1990; Payne 1995), and more freedom of speech and organization allowing them to organize and appeal to their governments (Kotov and Nikitina 1995; Payne 1995). As a result, these governments can be held accountable for their ignorance of environmental quality if there is a noticeable degradation of environmental quality (Payne 1995).

What are the effects of political institutions on environmental quality comprised of global air quality, land quality and natural resources, and sustainable development policies? Since past research addressing this topic has provided mixed results, this paper offers a fresh perspective by incorporating three different types of composite indicators consisting of a revised combined Polity score, an institutionalized autocracy and an institutionalized democracy that form political institutions. Furthermore, this paper implements four different component variables comprised of a competitiveness of executive recruitment, an openness of executive recruitment, executive constraints and a competitiveness of political participation that form an institutionalized democracy, which is one of the aforementioned three composite indicators. These composite indicators and component variables are named and managed through the Polity IV Project by the Center for Systematic Peace.

In a hope of finding some important relationships between political institutions and environmental quality, a panel data set covering periods from 1990 to 2010 for 127 countries is used. However, instead of using yearly data as other past research has done, since political institutions are less likely to vary over short periods of time, a panel data set for periods with a 5-year interval (i.e., the years 1990, 1995, 2000, 2005 and 2010) is used.

For global air quality, $\text{CO}_2$ emissions (kt) is used. For land quality and natural resources, a negative annual change rate of the forest area (1,000 ha) and terrestrial protected areas (% of total land area) are used. For the sustainable development policies, improved water sources (% of population with access) is used. GDP per capita - PPP (constant 2011 international $) and its squared value, manufacturing - value added (% of GDP), trade (% of GDP), total population, and urban population (% of total) are used as controls to verify the results. Furthermore, for an estimation methodology, a country- and year-fixed effects model is implemented to mitigate unobserved characteristics in each of the 127 countries and the 5 different time periods.

The results using the three composite indicators suggest that a revised combined Polity score worsens land quality and natural resources by decreasing terrestrial protected areas, but improves sustainable development policies by increasing improved water sources.

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1 Gore 1992, 179.
An institutionalized autocracy increases terrestrial protected areas, but decreases improved water sources. An institutionalized democracy increases improved water sources. The results using the four component variables suggest that a competitiveness of political participation decreases terrestrial protected areas, but increases improved water sources. Finally, executive constraints increase improved water sources.

The positive associations among the two composite indicators representing a democracy (henceforth, democratic indicators), the four component variables and improved water sources agree with the findings by Yoon (2014), who find that a democracy improves sustainable development policies. However, there are negative associations among the two democratic indicators, the four component variables and terrestrial protected areas. These results agree with the findings by Mark and Lew (2011), who find that a democracy increases deforestation damage. The researchers explain their findings by stating that more tightly controlled (autocratic) governments may be better at managing land quality and natural resources if the governments receive some benefits from managing these environmental quality. The researchers also state that autocratic countries do not necessarily improve global air quality because they do not usually receive benefits, but incur costs from reducing emissions. This last explanation might explain insignificant associations among the three composite indicators, the four component variables, and CO₂ emissions.

The results by this paper may have some important policy implications. Furthermore, since variables implemented in this paper are related to economics, environmental studies and political science, the results from this paper may be informative and hope to act as bridges among these important disciplines.
References


