Spreading Autocracy
Changes of authoritarian diffusion over time

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Abstract: In recent years there has been a rise in the study of diffusion of democracy. Even though the idea of a spread of autocracy was brought forward by most of the research this has not been done so far. Using a dyad approach this paper is analysing if there is a diffusional effect of autocracy through the joined membership in regional organisation. The results suggest that there is a diffusional effect that cannot be explained by domestic factors or the global trend. Furthermore the diffusional effect is not constant but is changing over time.

1. Introduction

In the last 20 years research on the spread of democracy has gained large attention several papers regarding the different aspects of a possible diffusion of democracy have been published. However the research has mainly focused on the democratic side of the regimes. This is especially surprising since the possible spread and diffusion of autocracy has already been mentioned in “The Third Wave” by Huntington in 1991 which started most of the research in the area. Some of the researches in this area are considering the whole spectrum of democracy level which is represented by Freedom House or Polity IV; however the main focus remains on the democracy aspect.

Changes from democracy (back) to autocratic systems are not as common as changes towards democratic system however especially in states that became independent and in that process democratic there are several examples of a change towards more autocratic structures (e.g. Zimbabwe and other).

This paper is trying to close this gap by analysing if and when autocratic structures are spreading. To do this I will use a dyadic time-series regression analysis. This should give insight in how autocratic structures can spread through cooperation in regional organisations. Furthermore I will analyse if there is a change in the diffusion process depending on the time frame of the analysis. The paper is analysing diffusional aspects on 194 countries from 1960 to 2011. This leads to a possible number of 10.088 observations for the non-dyadic model and 1.946.984 possible observations for the dyadic model.
2. Theoretical framework

The main theoretical problem regarding this paper is the lack of theoretical models on the research area. The main theoretical backgrounds on autocratic system so far are not applicable for larger quantitative analysis since the different types of autocratic systems share a lot of structures. However most of the theoretical ideas considering the diffusional spread of democracy should be applicable for authoritarian structures as well (Starr 1991, p. 361; Starr/Lindborg 2003, p. 494, 500; Leeson/Dean 2009, p. 536; Pevehouse 2002).²

2.1. Diffusion of Democracy

The major study analysing the diffusion of Democracy is “The Diffusion of Democracy, 1946-1994” by O’Loughlin et al. focusing on temporal and spatial diffusion effects of democracy. The first argument for democratic diffusion O’Loughlin et al. use are the ties of development aid to democratic developments (O’Loughlin et al. 1998, p. 546). However with the increase of development aid by non-western countries like Russia and China which do not tie their aid to any form of good governance this argument is losing some of its validity. It could even be useful for some developing countries to get politically closer to these non-western countries to receive more help. A closer connection towards these countries could for example be reached through a common membership in regional organisations. This should be the case since international organisation should fulfil the function of the international society in creating common norms (Starr 1991, p. 357) Furthermore regional organisation can fulfil the same function of a spatial neighbourhood since members interact more with members as well.

2.2. Definition of authoritarian structures

There are several different approaches for a framework of different authoritarian systems. The most well know are possibly the definitions of Tullock and Wintrobe. However both of the frameworks are not perfectly feasible for a large N analysis since the distinctions are sometimes in areas that are complicated to operationalize. A more feasible approach was delivered by Eckstein and Gurr since it is analysing distinctive features of a state as base for

² I will not go into detail about the different possible way the diffusional process takes place. For a good overview see: Dobbin/Simmons/Garrett 2007; Leeson/Dean 2009; Brinks/Coppedge 2006
the theoretical model (Eckstein/Gurr 1975). The framework is built around four areas. First the constraints the executive has regarding its power, second the extent of possible political competition, third the regulation of political participation and fourth the openness of the recruiting process for the government offices. One additional benefit of the model by Eckstein and Gurr is that it is the base for the Polity IV project analysis of authoritarian structures.

Following this theoretical background the level of autocracy should rise if a state is close to other autocratic states. This closeness can be considered as spatial, cultural or political.

3. Empirical Model and operationalization

3.1 Model

To analyse the spread of autocratic structures I will use a dyadic approach described by Gilardi and Füglist in 2008. As the connection (closeness) parameter for my analysis I choose to take the joined membership in regional organisations, which is put forward by Pevehouse for the research on democratic consolidation. Following their approach the model will have the following form:

\[ a_{i,t+1} = \beta_1 a_{i,t} + \beta_2 r_{i,t} + \beta_3 r_{ij,t} a_{j,t} + \beta_4 c_{i,t} + \beta_5 c_{j,t} + \varepsilon \]

where \( a_{i,t+1} \) is the autocracy score of country i at time t+1, \( a_{i,t} \) is the autocracy score of country i at time t, \( r_{i,t} \) is the membership in a regional organisation of country i at time t, \( r_{ij,t} a_{j,t} \) is the interaction term of the joined membership in a regional organisation of the countries i and j at time t with the autocracy score of country j at time t, \( c_{i,t} \) are the control variables for country i, \( c_{j,t} \) are the control variables for country j, \( \varepsilon \) is the error term of the model and \( \beta_1-\beta_5 \) are vectors of coefficient to be estimated.

To control for a global effect of the model of autocracy, as suggested by Starr, I will use a control model taking this into account (Starr 1991, p. 360). The control model has the following form:

\[ a_{i,t+1} = \beta_1 a_{i,t} + \beta_2 \Delta a_{t} + \beta_3 c_{i,t} + \varepsilon \]

3 Pevehouse himself argues that several of the described mechanism can work in both ways, the consolidation of democracy and the change (back) to autocratic systems.
where $\Delta a_t$ is the global level of autocracy at time $t$. Comparing the two models should give an insight which of the models is better explaining the level of autocracy.\(^4\)

Several authors have put forward a number of control variables for democracy and diffusion. The first is the GPD per capita. There should be a positive effect on democracy with a rise in the GDP per capita level (O’Loughlin et al. 1998, p. 549-551). Therefore the level of autocracy should be higher if the per capita GDP is lower. Furthermore states that are in the same region should experience similar developments though external influences (XX). Therefore one should expect a regional clustering effect. To control for this I will include regional dummies which could capture this effect. One additional control for the level of democracy is the population size which is showing significant effects in several studies (XX). However the effects are continuous regarding the direction and it could be that population is only signalling other interfering factors.

### 3.1 Variables and Data

For my dependent variable, the autocracy score of the countries, I will use the autocracy score of the Polity IV project which is maintained by Marshall, Jaggers and Gurr. I will not use Freedom House since they are coding degrees of Freedom and their absence not political structures itself. Furthermore I will not use the aggregated Polity score for two reasons. First of all I’m only interested in the authoritarian structures and not their democratic counterparts and second the polity team itself advise against using the aggregated score for methodological reason since it is running contrary to the theory by Eckstein and Gurr Polity IV is based upon (Marshall/Jaggers/Gurr 2010, pp.16-17). The autocracy score is coded as an eleven point scale ranging from 0 (no authoritarian structures) to 10 (full autocracy). I will use this variable unchanged for my dataset.\(^5\) There is a large development over time that includes rise and fall in the autocracy score (see graph 1) showing that we have variance in the dependent variable.

The common membership in regional organisations is the independent variable. For this analysis I only choose regional organisations that are recognised by the UN as permanent observers to the General Assembly (UN 2008) to reduce the number of organisations. If one

\(^4\) The global level of autocracy will be added as a control variable in the general model at a later point.

\(^5\) For an overview over the main statistics for the variables see Table 3 in Appendix
would take the entire regional organisation it is likely that every country is connected to mostly every other country which would be close to the global effects model.

The control variables for the GDP, the GDP per capita and the population are based on the World Development Indicators (World Bank 2012). The country dummy control variables are based on the categorisation of the countries of the world by the UN (UN 2011).

![Graph 1: Autocracy scores over time](image)

### 4. Results

The global model is showing that there is an effect of the global autocracy level on the level of autocracy in the countries. This effect remains when the lagged dependent variable is included into the analysis (see Model 1 in table 1). Neither the GDP nor the Population has a significant effect in this model; however the effect of population is in the direction which would be assumed if the research on the spread of democracy is correct. One of the regional dummies is significant, showing that Central Asia has a higher level of autocracy than would be explained by the rest of the model. The model in total is explaining about 95% of the variance of the dependent variable. This is explained by the inclusion of the lagged dependent variable.

If one controls for the different parts the autocracy score of Polity IV is built of the model does not change that much. The main difference is that the effect of the GDP becomes highly
significant and the regional dummies are losing their significance. The significance of the global autocracy level and the lagged dependent variable is remaining the same as is the effect.

<table>
<thead>
<tr>
<th></th>
<th>Model 1</th>
<th>Model 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Influence</td>
<td>0.0306106 (0.0126872)*</td>
<td>-</td>
</tr>
<tr>
<td>Lagged Autocracy</td>
<td>0.944454 (0.0049252)***</td>
<td>0.1941982 (0.0015028)***</td>
</tr>
<tr>
<td>Regional Organisation</td>
<td>-</td>
<td>-1.133044 (0.019113)***</td>
</tr>
<tr>
<td>Interaction</td>
<td>-</td>
<td>0.1011714 (0.0025798)***</td>
</tr>
<tr>
<td>GDP pc PPP</td>
<td>0.000000246 (0.00000115)</td>
<td>-0.000062 (0.00000065)***</td>
</tr>
<tr>
<td>Population (in million)</td>
<td>-0.0000847 (0.0000967)</td>
<td>-0.00633 (0.000996)***</td>
</tr>
<tr>
<td>Central Asia Dummy</td>
<td>0.3199574 (0.1203436)**</td>
<td>-</td>
</tr>
<tr>
<td>Constant</td>
<td>-0.0283753 (0.0863945)</td>
<td>3.257333 (0.0207591)***</td>
</tr>
<tr>
<td>R² within</td>
<td>0.8339</td>
<td>0.1088</td>
</tr>
<tr>
<td>R² between</td>
<td>0.9975</td>
<td>0.0100</td>
</tr>
<tr>
<td>R²</td>
<td>0.9475</td>
<td>0.0327</td>
</tr>
<tr>
<td>N</td>
<td>3731</td>
<td>563,816</td>
</tr>
<tr>
<td>N of Groups</td>
<td>149</td>
<td>23,958</td>
</tr>
</tbody>
</table>

Std. error in parentheses; *p<.05, **p<.01, ***p<.001

Table 1: Effects of global autocracy level and diffusional effects of autocracy

The dyadic model is showing similar results as the global effect model. The lagged autocracy score is remaining highly significant however it is explaining way less of the variance in the autocracy score than in the global level. The membership in a regional organisation itself is reducing the level of autocracy by about 11% hinting at a democratic effect of a membership as some researchers of democratisation effect found. However the interaction effect is showing different results. The higher the level of autocracy in country j is the higher the level of autocracy in country i will be if they are joined member in a regional organisation. The GDP (in this case as per capita in the purchase power parity variant) and the population are significant and are going in the right direction. However in total the model is only explaining about 3% of the variance of the dependent variable which is extremely low. The model explains more of the within variance which is a sign against the diffusional effects, but with 11% this explanation is still fairly low.

For the further analysis I will analyse if there are different effects regarding different timeframes. One should expect changes since the international system experienced some changes during the analysed time period. The most drastic change was supposedly the end of
the Soviet Union and the changes occurring from this. To control for the changes I will split the time frame into decades which will be analysed independently.\(^6\)

The results of these analyses are presented in table 2.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lagged Autocracy</td>
<td>0.0016144 (0.0031725)</td>
<td>0.0309983 (0.0024004)**</td>
<td>-0.3713682 (0.0224692)***</td>
</tr>
<tr>
<td>Regional Organisation</td>
<td>-0.5622737 (0.0501775)***</td>
<td>-0.3108905 (0.0259017)***</td>
<td>-0.0094381 (0.0024356)***</td>
</tr>
<tr>
<td>Interaction</td>
<td>0.0727007 (0.0057131)***</td>
<td>0.1128655 (0.0039931)***</td>
<td>0.0492246 (0.0042249)***</td>
</tr>
<tr>
<td>GDP pc PPP</td>
<td>-0.00000718 (0.00000116)***</td>
<td>-0.0000479 (0.00000146)***</td>
<td>-0.0000252 (0.00002249)***</td>
</tr>
<tr>
<td>Population (in million)</td>
<td>-0.00599 (0.0000199)***</td>
<td>-0.00293 (0.0000142)***</td>
<td>-0.00225 (0.0000116)***</td>
</tr>
<tr>
<td>Constant</td>
<td>4.82315 (0.0355981)***</td>
<td>3.01831 (0.0259186)***</td>
<td>2.442968 (0.022416)***</td>
</tr>
<tr>
<td>R² within</td>
<td>0.0115</td>
<td>0.0139</td>
<td>0.0070</td>
</tr>
<tr>
<td>R² between</td>
<td>0.0159</td>
<td>0.0472</td>
<td>0.0125</td>
</tr>
<tr>
<td>R²</td>
<td>0.0161</td>
<td>0.0428</td>
<td>0.0149</td>
</tr>
<tr>
<td>N</td>
<td>133,033</td>
<td>192,620</td>
<td>238,163</td>
</tr>
<tr>
<td>N of Groups</td>
<td>14,763</td>
<td>22,405</td>
<td>23,812</td>
</tr>
</tbody>
</table>

Std. error in parentheses; *p<.05, **p<.01, ***p<.001

Table 2: Effects of different timeframes on diffusional effects of autocracy

Overall the results of the different timeframes support the complete model. All effects except for the lagged autocracy in model 3 remain highly significant. Furthermore except for the lagged autocracy in model 5 all the effects have the same direction as the complete model. The change of signs in lagged autocracy in model 5 suggests that we have an overall development towards less autocracy starting in 2000. This means the more autocratic a state was in the year before the more likely it is that it becomes more democratic. Before 2000 the more autocratic a state was in the year before the more autocratic the state became.

The marginal effects of the complete model show that we have an increase in the effect the higher the autocracy score of country j is (see graph 2 in appendix). However the effect remains negative even for the most autocratic systems. This suggests that the effect of the membership in a regional organisation (which is reducing the autocracy) is stronger than the negative effect of having autocratic members in the regional organisation.

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\(^6\) I will analyse the last two years together with the timeframe beginning from 2000 since the number of observation would otherwise be considerably lower. Therefore there will be 5 timeframes: 1960-1969, 1970-1979, 1980-1989, 1990-1999, 2000-2011. However there are no observations for the first two timeframes which will therefore be dropped from the analyses.
However if we look at the marginal effects of the models which analyse the different timeframes we get a different result. All of the models are turning to a positive effect before an autocracy score of 8 (7 for model 3, 3 for model 4 and 8 for model 5). This suggests that the complete model is influenced by other factors (like the global trend) which are not present in the timeframe models.

5. Conclusion

Overall the results support the idea that there is a diffusional effect of autocracy. There are signs not only for a global effect but more importantly there are also signs for a diffusional effect through the joined membership in regional organisations. This effect furthermore seems not to be constant over time but depends on the timeframe observed. However the model used in this paper has to be further enhanced; including the global effect, fine tuning of control variables, inclusion of other possible diffusional ways (neighbourhood, trade between countries, FDI); to increase the explanatory power of the model and control for interfering factors. Further research then should focus on establishing not only a correlation but a casual relation for the joined membership in regional organisations and the spread of autocracy.

\[\text{\textsuperscript{7}}\text{See graph 3-5 in the appendix.}\]
7. Resources


8. Appendix

<table>
<thead>
<tr>
<th>Variable Name</th>
<th>Obs.</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>autoc</td>
<td>6876</td>
<td>3.574</td>
<td>3.612</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Δautoc</td>
<td>9894</td>
<td>3.713</td>
<td>1.243</td>
<td>1.797</td>
<td>5.301</td>
</tr>
<tr>
<td>GDP</td>
<td>7690</td>
<td>126 Bil.</td>
<td>667 Bil.</td>
<td>9.123 Mil.</td>
<td>14.6 Tril.</td>
</tr>
<tr>
<td>GDP pc PPP</td>
<td>5105</td>
<td>9,696</td>
<td>11,565</td>
<td>140</td>
<td>95,337</td>
</tr>
<tr>
<td>pop</td>
<td>9760</td>
<td>25.3 Mil.</td>
<td>99.7 Mil.</td>
<td>6.104</td>
<td>1.34Bil.</td>
</tr>
</tbody>
</table>

Table 3: Summary statistics

Graph 2: Marginal effects of model 2
Graph 3: Marginal effects of model 3

Graph 4: Marginal effects of model 4
Graph 5: Marginal effects of model 5