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The Matthew effect in political science: head start and key reforms important for democratization

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Are some countries better equipped from the onset of a democratization process to become democracies? We compared successful and failed episodes of liberalization over the period 1900 to 2018 to examine if starting state influences the probability of successful democratization. We show that liberalization in autocracies was more likely to succeed in countries that had the advantage of a better starting point concerning political institutions, GDP, and education. These more privileged countries could also carry out key reforms more rapidly, and were able to do so even in areas in which they had no initial advantage. This reveals a "Matthew effect" in political science: to countries that already have, more is given. This is a novel observation in political science that has important implications for current methodologies and policies.

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The "Matthew effect"—when advantage begets further advantage—has been observed in fields as disparate as the success of scientists (Merton, 1968, 1988; Petersen et al., 2011; Bol et al., 2018), bestselling books and music (Salganik et al., 2006; Sorensen, 2007), professional sports (Petersen et al., 2011), economics (Rigney, 2010), education (Walberg and Tsai, 1983; Kempe et al., 2011), funding, status, endorsement and reputation (van de Rijt et al., 2014) and biology (where it is termed the "silver spoon effect", e.g., Allaby, 2010). The effect is named from a parable of Jesus in the Gospel of Matthew (13:12 and 25:29; also in Mark 4:25; Luke 8:18 and 19:26), where Jesus states that "For unto every one that hath shall be given, and he shall have abundance: but from him that hath not shall be taken away even that which he hath". Here, we conduct the first test for the existence of the Matthew effect in political science by comparing initial conditions and reform pace for episodes of political liberalization that either failed or succeed to become democracies.

For over 60 years, political science has investigated the causes of democratization (e.g., Lipset, 1959; Acemoglu and Robinson, 2006), largely assuming that effects were the same across the range of explanatory variables and that the process was similar among different countries. Two of the most prominent factors found in the literature to favor democratization has been economic development and education. While a few studies (e.g., Bernhard and Karakoc, 2007; Persson and Tabellini, 2009; Gerring et al., 2012) have demonstrated the importance of prior democratic experience and a recent study has investigated cultural foundations of modern democracies during a recent 25-year period (Ruck et al., 2019), never has the possibility of a general and consistent Matthew effect over the last 128 years been investigated.

To examine the potential for increasing returns in democratization, we use a definition of democracy that closely follows Dahl's (1971) widely regarded conceptualization of "polyarchy". This more minimalist notion of democracy relies upon eight "institutional guarantees" that entail free, fair, and periodic elections, as well as the freedoms of association, free speech, and suffrage. It does not include checks and balances or constraints on the executive, but focuses instead on features that enable citizens to formulate and signify their preferences and to have them weighted equally in deciding the outcome. We also use a classification scheme described in an earlier article to identify when movements towards democracy are occurring (Wilson et al., 2020). We define a liberalization episode as a period of time in which institutional changes take place that moves a country from a non-democratic state towards democracy by at least 10% of the possible range on the now leading measure of democracy—the Electoral Democracy Index (EDI) provided by the V-Dem data base (Coppedge et al., 2019).

The EDI—which closely follows Dahl's (1971) concept of "polyarchy"—is a composite of 24 variables measuring the extent to which officials are elected and the scope of suffrage, the quality of elections, and the freedoms of association and expression (Teorell et al., 2019). We restricted our sample to episodes that began as closed or electoral autocracies to exclude positive changes in countries that were already electoral democracies. We used the classification of liberalization episodes into three groups —successful, failed and censored—developed by Wilson et al. (2020). In that framework, an episode is classified as "successful" if it resulted in a transition to democracy (meaning it reached the threshold for an electoral democracy and held held free and fair "founding" elections, after which the winner was allowed to assume office); "failed" if it started a liberalization episode but did not reach these criteria; and "censored" if its outcome was indeterminate at the end of the period of analysis (it had not yet met the criteria for successful democratization, but also not yet

failed). In our analyses, we compared the liberalization phase of successful episodes with the equivalent phase in failed episodes. Based on these criteria, we identified 337 liberalization episodes in 155 countries from 1900 to 2018; 146 successful episodes in 110 countries, 182 failed episodes in 91 countries, and nine episodes that were still ongoing in 2018 and that therefore were classified as censored (Wilson et al., 2020).

Testing for a Matthew effect, we found that initial conditions differed between countries that successfully transitioned to democracy and those that began a liberalization episode but failed. This was true for values of the EDI in the year the episode began, as well as the years just before and after (Fig. 1). When we examined changes in the components of the EDI that mapped onto different institutional guarantees, we found the significant differences for two-thirds (sixteen) of the indicators for the year the episode commenced (Fig. 2). Fourteen of the indicators significantly differed in the year just before; and seventeen in the year just after (Supplementary Fig. S1). The fourteen measures on which failed and successful episodes consistently differed pertained to all aspects of the quality of elections, the freedom of discussion for men and women, opposition party autonomy and civil society movement, and two measures of media freedom (government censorship and harassment of journalists). By the first year, episodes also differed by outcome on party barriers and
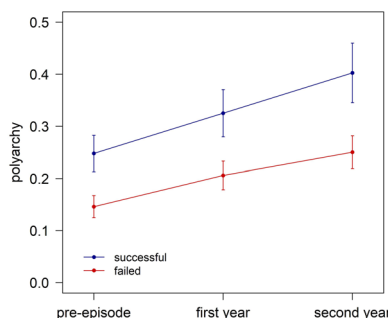

Fig. 1 Initial condition of the Electoral Democracy Index for successful and failed liberalization episodes. Successful (blue) and failed (red) episodes significantly differed in their Electoral Democracy Index (EDI) in the year the episode began, as well as the years just before and after (99.9 percent confidence intervals).
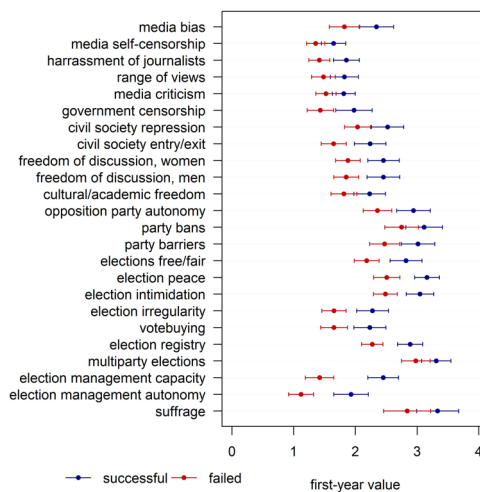

Fig. 2 Initial conditions of 24 democracy indicators for successful and failed liberalization episodes. Successful (blue) and failed (red) episodes significantly differed on 16 of the 24 democracy indicators in the year the episode began (99.9 percent confidence intervals).
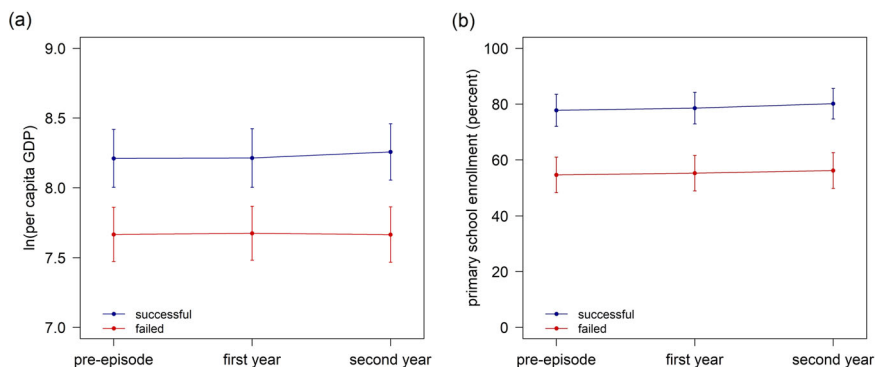
Fig. 3 Initial conditions of GDP and primary school enrollment for successful and failed liberalization episodes. Successful (blue) and failed (red) episodes differed significantly in the year the episodes began, as well as the years just before and after in (**a**) GDP and (**b**) education (99.9 percent confidence intervals).

civil society organization repression, and by the second year they differed on two additional indicators related to media freedoms (media criticism and media bias).

Further, we found that initial conditions concerning GDP per capita, as well as primary school enrollment, differed between countries that successfully transitioned to democracy and those that did not. The results were similar concerning the years just before and just after (Fig. 3). These results corroborate earlier findings that countries with higher GDP per capita and education are more likely to sustain democracy (e.g., Lipset, 1959; Teorell et al., 2019), though this has not been demonstrated as a Matthew effect before.

On average, the difference in reform pace between successful and failed episodes was significant ($p < 0.001$) during liberalization. In terms of the indicators, the average pace was higher for eight measures of freedom of expression (academic freedom, discussion for women, government censorship, media criticism, harassment of journalists, media self- censorship, range of views, and media bias), two measures of freedom of association (entry and exit of organizations and civil society repression), and election management body autonomy (*t*-test $p < 0.05$) (Fig. 4). These results are unlikely to be due to differences in the duration of episodes by outcome, which were statistically insignificant (*t*-test $p = 0.618$). The same differences in pace of change did not exist for GDP per capita, but did so for primary school enrollment (*t*-test $p = 0.01$).

Our analyses demonstrate the existence of a Matthew effect in political science, with a specific view to explaining democratization. This adds political science to the list of fields where this phenomenon has been demonstrated. Given its prevalence (e.g., Merton, 1968, 1988, Walberg and Tsai, 1983; Salganik et al., 2006; Sorensen, 2007; Allaby, 2010; Rigney, 2010; Kempe et al., 2011; Petersen et al., 2011; van de Rijt et al., 2014; Bol et al., 2018), it seems as something of a general rule. It is also informative for our current understanding of democratization; it supports arguments about "legacy effects" but also points to specific elements that make subsequent democratic development more likely. Moreover, it encourages further work to uncover whether there are specific thresholds at which this effect becomes apparent and whether similar effects exist regarding democratic consolidation.

Political institutions that are more developed initially—specifically, election quality—substantively condition the probability that a period of liberalization will lead to successful democratization. More privileged countries become more successful and are able to develop faster, even in areas in which they did not have an initial advantage. We also find that two factors that have consistently been found to affect the probabilities of democratization
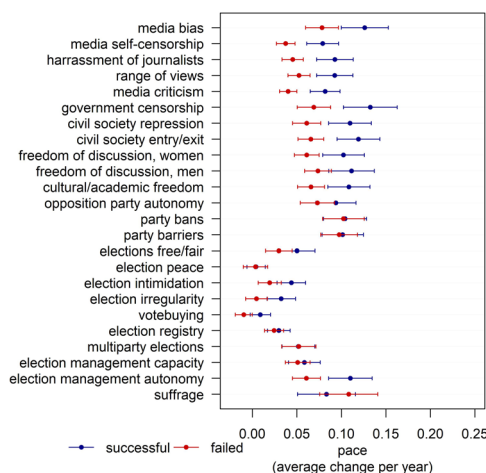

Fig. 4 Rate of change for 24 democracy indicators during successful and failed liberalization episodes. On average across the length of the episode, the rate of change was significantly higher (*t*-test $p < 0.05$) for successful episodes for eight measures of freedom of expression (academic freedom, freedom of discussion for women, government censorship, media criticism, harassment of journalists, media self- censorship, range of views, and media bias), two measures of freedom of association (entry and exit of organizations and civil society repression), and election management body autonomy.

—economic development and education—display a similar Matthew effect. These findings challenge the existing literature on democratization that typically treats cases as the same and that assumes that effects are constant across the range of values of explanatory factors.

That we find a Matthew effect for many of the features representing the quality of elections—and in particular, election management bodies—also suggest that we need to revisit the literature on how electoral practices and the strength of electoral institutions affect the likelihood of successful transitions to democracy. A prominent series of contributions have argued that regimes use electoral practices for cooptation (Gandhi and Przeworski, 2007), fragmentation of opposition (Lust-Okar, 2009), reinforce hegemonic party dominance (Greene, 2010), and for enhancing intra-elite loyalty by signaling credible commitment (e.g., Magaloni, 2008; Boix and Svolik, 2013) in order to stabilize authoritarian rule. Yet, others have found that such regimes are also more likely to transition to democracy upon failure (e.g., Wright and Escribá-Folch, 2012; Wilson, 2019;

Bernhard et al., 2020). The clear evidence of a Matthew effect we present here offers an avenue to reconcile their differences: while elections may be associated with both democratic and autocratic success, higher quality elections make transitions to democracy more likely.

Second, our finding points to the importance of building 'capital' as a precursor to successful democratic practice. While notable works argue that active civic engagement, education, and development are crucial for sustaining democracy (Lipset, 1959; Przeworski and Limongi, 1997; Putnam et al., 1993) with one paper highlighting cultural values of openness towards diversity (Dahl, 1971), the presence of a Matthew effect over more than 120 years suggests that such resources must often be built before attempting a transition to democracy.

Scholars have long debated whether economic development and corresponding socio-economic changes make democratization more likely, with arguments and evidence presented for both sides (e.g., Przeworski and Limongi, 1997; Boix and Stokes, 2003; Przeworski et al., 2000). The Matthew effect we find is compatible with the conclusion that a high level of economic development does not make the beginning of a transition more likely but reveals a new important fact: that it is a strong determinant of successful transitions to democracy once it has begun. This finding again suggests the existing wisdom should be revisited in light of uncovering a Matthew effect in episodes of democratization.

Data availability
The datasets analyzed in this study are available in the Varieties of Democracy (V-Dem) repository: https://www.v-dem.net/.

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Competing interests
The authors declare no competing interests.

Additional information
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