

ECONOMIC  
RESEARCH  
FORUM



منتدى  
البحوث  
الاقتصادية

2018

# working paper series

DOES EDUCATION INDOCTRINATE?  
THE EFFECT OF EDUCATION  
ON POLITICAL PREFERENCES IN  
DEMOCRACIES AND AUTOCRACIES

Ishac Diwan and Irina Vartanova

Working Paper No. 1178

**DOES EDUCATION INDOCTRINATE?  
THE EFFECT OF EDUCATION ON POLITICAL  
PREFERENCES IN DEMOCRACIES AND AUTOCRACIES**

Ishac Diwan and Irina Vartanova

**Working Paper 1178**

**April 2018**

Financial support by ERF is gratefully acknowledged. Thanks to Daniel Cohen, Hadi Esfahani, Eduard Ponarin, Mohamed Saleh, Djavad Salehi, Mark Tessler, Thierry Verdier, and to the participants of the “Arab Pulse” workshop (August 2016, American University of Beirut, Lebanon) for useful discussions and suggestions.

**Send correspondence to:**

Ishac Diwan

Paris Sciences et Lettres, Columbia University and ERF

[Ishac\\_Diwan@hks.harvard.edu](mailto:Ishac_Diwan@hks.harvard.edu)

First published in 2018 by  
The Economic Research Forum (ERF)  
21 Al-Sad Al-Aaly Street  
Dokki, Giza  
Egypt  
[www.erf.org.eg](http://www.erf.org.eg)

Copyright © The Economic Research Forum, 2018

All rights reserved. No part of this publication may be reproduced in any form or by any electronic or mechanical means, including information storage and retrieval systems, without permission in writing from the publisher.

The findings, interpretations and conclusions expressed in this publication are entirely those of the author(s) and should not be attributed to the Economic Research Forum, members of its Board of Trustees, or its donors.

## Abstract

Using World Value Survey and European Value Study data spanning 96 countries and over 300,000 individuals, we first establish that the regime type individuals live under moderates the correlation between education and political values. While more education is always associated with more political emancipation, the effect is larger in democracies than in autocracies. We then investigate two mechanisms that can lead to these outcomes – indoctrination through the education system, and the social and political interests of the educated. First, we look at all countries that have undergone regime change, and ask whether individuals educated under different regimes hold different political values. We find evidence that those educated under a democratic system have a larger political return to education than those educated in autocracies. Second, using the full sample, we relate individuals' political values to both the regime under which they have studied, and the regime under which they currently live. We find that the educated tend to be more conservative politically when they live in autocracies, than when they live in democracies or autocracies.

**JEL Classification:** I25

**Keywords:** Civic action, democratic values, opinion polls, indoctrination.

## ملخص

باستخدام مسح القيمة العالمية وبيانات دراسة القيمة الأوروبية التي تغطي 96 دولة وأكثر من 300,000 فرد ثبت لنا أولاً أن نظام الحكم الذي يعيش الأفراد في ظلّه يوجه العلاقة بين التعليم والقيم السياسية. فبينما يرتبط المزيد من التعليم دوماً بتحرر سياسي أكثر، إلا أن هذا التأثير يكون أكبر في الديمقراطيات منه تحت حكم الفرد المطلق. ثم ننتقل إلى بحث في البتين يمكن أن تؤدي إلى هذه النتائج – وهما آلية تلقين عقيدة من خلال نظام التعليم، وآلية لمصالح الاجتماعية والسياسية للمتعلمين. أولاً، نظرنا إلى جميع البلدان التي خضعت لتغيير أنظمتها، وتساءلنا عما إذا كان الأفراد المتعلمين في ظل أنظمة مختلفة يحملون قيمًا سياسية مختلفة. فوجدنا أدلة على أن المتعلمين في ظل نظام ديمقراطي لديهم عائد سياسي أكبر للتعليم من أولئك المتعلمين في الأنظمة الأوتوقراطية. وثانياً، باستخدام العينة الكاملة، فإننا نربط القيم السياسية للأفراد بالنظام الذي درسوا في ظلّه، والنظام الذي يعيشون تحته في الوقت الحالي. نجد أن المتعلمين يميلون إلى أن يكونوا أكثر محافظة سياسياً عندما يعيشون في النظم الأوتوقراطية، أكثر مما إذا كانوا يعيشون في دول ديمقراطية أو أنظمة حكم الفرد المطلق.

## 1. Introduction

There is a strong belief among most scholars that education emancipates politically. Such beliefs are based on prior research, which has focused on differences within countries, and across individuals, in their propensity to engage in political activities, and predicting that education influences political participation via a more rational approach to governance, increased self-expression, and improved coordination of collective action. As a result, there is also a great attachment to the notion that as countries get more educated, they will tend to become more democratic (Rosenstone and Hansen 1993, Verba, Scholzman and Brady 1995, Wolfinger and Rosenstone 1980s, Inglehart and Welzel 2005, 2010, Deo 2004).

While cross-individual variation in political participation is an important issue, it does not account for large differences in political participation across countries and the implications of political regime type for this variation. In this paper, we argue that regime type determines how education affects political values and behavior, which cannot be inferred from within-country empirical research, and which has not featured in prior theoretical research. Theoretically, we argue that political values and behaviors are shaped by two factors: individual preferences, and socio-economic interests. Second, we argue that preferences are in part shaped by educational policies, with different regimes trying to indoctrinate students in their own values. Third, we argue that the interests of the educated vary across democratic and non-democratic regimes. Empirically, our results confirm that the preferences of the educated are shaped by both interests and preferences; that the regime type in place during individuals' schooling age affects their political preference throughout their lives, with democratic regimes promoting democratic values, and autocracies promoting values of obedience to authority; and finally, that the educated *living* in non-democracies tend to have more conservative political behaviors and values than educated individuals living in democracies.

The differential effect of education on political values in different regime types is increasingly apparent in the world. Contrary to the traditional modernization thesis, the large rise in aggregate education in countries such as China, Russia, or the rich oil countries of the Gulf Cooperation Council have not been met with rising levels of democratization. Moreover, new studies have started to show, using micro-data, that education has little or no effect on participation in political activities, such as demonstrating or voting, in non-democratic countries (Huang 2015, Wang 2016, Dang 2017, Larreguy and Marshall 2016, Croke, Grossman, Larreguy, and Marshall 2016, Blaydes 2006, Friedman, Kremer, Miguel, and Thornton 2013, Al-Ississ and Diwan 2015). But with only a handful of case studies on non-Western countries, it has not been possible to date to reach a definite conclusion on the differences between the "political return" of education in different regime types.

We start by documenting the extent of cross-country variation across regime types. We do so by comparing globally the political returns to education, using a dataset that covers about 300,000 individuals in 96 countries. Our results confirm that the size of the correlation between education levels and political values is smaller in non-democracies than in democratic countries. Moreover, the differences in the returns are large, with university education increasing political emancipation about twice as much in democratic countries than in non-democratic ones.

We then explore the mechanisms that can explain these differences in the political effect of education across countries, focusing on two main channels: political preferences, and political interests. We look at how political *preferences* vary along regime types, as we are principally interested in the possibility that education is used as an indoctrination tool by the state, with each regime type manipulating its education sector in order to promote its preferred political values. In

order to measure individual political preferences, we rely centrally on the proposition that individuals form their political preferences during their formative stage, between the ages of 18-25, and thus, largely at the moment when they pursue an education (Inglehart and Welzel 2005, 2010, Yates and Youniss, 1998, Burke and Stets 2009).

The focus on political *interest*, as different from preferences, arises from a recognition that the political actions and values of educated may differ across regime types due to the economic incentives they face. In terms of political action, the educated stand to lose their higher returns to education in regimes where open dissent is penalized. Moreover, in many countries, the economic and social interests of the educated may push them to support autocratic rule, even if such a stand conflicts with their ideological preferences, in order to avoid high taxation, or the imposition of social policies they dislike.

We perform two quasi-experiments to first show that different political regimes do affect the preferences of educated individuals in different ways, and second, to show that interests also vary across countries, in relation to where individuals currently live.

In the first exercise, the goal is to prove the existence of indoctrination effects. We focus on a set of countries that have transitioned from autocracy to democracy, and vice-versa, during the past 50 years. We compare the political return to education of two groups of individuals: those that have studied under the old regime, and those that have studied under the current regime. The results of this quasi-experiment strongly back the indoctrination thesis. They indicate that among the educated living in democracies, those that have studied during the autocratic period tend to be more conservative politically than those that have studied under the new regime. And similarly, we find that in autocracies, those that have been educated during the democratic period are less conservative politically than those that have studied during the new regime.

These results are bolstered by the fact that transitions from autocracies to democracies (and vice-versa) represent large political shocks, which can be reasonably considered to be exogenous events, unrelated to mass political preferences. On the other hand, transitions involving the middle case of anocracies are more likely to involve reverse causality. Indeed, we also find that the cases involving transitions from or to anocracies do not exhibit such marked differences between those educated pre- and post-regime change.

Second, having established the presence of indoctrination, we test for the presence of current interest effects. We take advantage of variations in the regime under which individuals live (which should determine their interests) v.s the regime prevalent during their formative age (which should determine their preferences) in the whole global sample, in order to separate the impact of preferences and interest on their political values. Our results demonstrate that part of the differences in political behavior and values among individuals across countries can be attributed to differences in the regimes in which they live. In particular, we find that individual living in anocratic countries tend to favor democratic behaviors and values less than those living in democracies, or autocracies.

The paper is connected to several literatures. The claim that education is used as an indoctrination tool by the state has a rich tradition in sociology and political theory. Following Gramsci (1971), Bourdieu (1990) defining work in particular has been to show how state institutions work to reproduce the existing system, largely by ensuring the dominance of the values of the elites. It is also consistent with the extensive progressive pedagogy literature, where education is viewed as the main mechanism to strengthen democratic values, at least since the groundbreaking work of Dewey in 1916 (see for example Dewey 2004) in developed countries, and that of Freire (2000)

and Fanon (1965) for developing countries. In this tradition, Lott (1999) presents convincing evidence on the prevalence of propaganda and indoctrinating institutions in all types of regimes.

The new empirical literature based on country case studies (which has focused on China, Vietnam, Kenya, Egypt, and Zimbabwe) has looked at ideological differences within countries, asking in particular whether, in these autocratic and poorer countries, education causes higher levels of political participation, as it does in richer countries. These papers recognize that unobserved individual-level characteristics make it difficult to infer a causal effect of education on political participation. For example, in unequal countries where only the rich gets a higher education, graduates could be predominantly conservative not because education conveys those values, but because the rich are politically conservative (Kam and Palmer 2008). To deal with this adverse selection problem, Friedman, Kremer, Miguel, and Thornton 2013, looking at Kenya, use an experimental design, while Huang 2015 on China, Dang 2017 on Vietnam, and Larreguy and Marshall 2016 on Nigeria build an identification strategy by using the onset of compulsory schooling reforms as an instrument for an exogenous change in the education system. When extending this line of work to a cross-country comparison of political values and behaviors, we will restrict our attention to countries/periods characterized by mass education, in order to reduce the self-selection bias.

In these recent studies, the differences found between educated and non-educated individuals could be attributed to preferences or interests or preferences. Huang (2015) is one of the rare studies that attempt to separate these effects. He argues that in China, propaganda acts as a credible signal of the state's hold on power, but that it does not manage to effectively brainwash the educated. In particular, he finds that students that are more aware of propaganda are not more satisfied with the government, but they are more likely to believe that it has a strong capacity to maintain public order, and they are consequently less willing to express dissent.<sup>1</sup> Like Huang, we will compare variables that measure both political behavior and political values, as this helps to further understand the difference between political actions, that are easily sanctionable, and preferences, which are less easy to observe, and thus to sanction.

The paper is organized as follows. Section 2 characterizes the empirical relation between regime types and political returns to education. Section 3 discusses theoretical foundations and sets up our hypotheses. Section 4 divides the sample into the various types of political transitions in order to show the existence of indoctrination effects. Section 5 separates the effects of political interest and preferences in the global sample. Section 6 summarizes our main results and concludes.

## **2. The impact of political regimes on the relation between education and political values**

In this section, we characterize empirically the relation between education and political behavior and values in different regime type, and find that it indicates that while education is correlated with higher levels of political emancipation, this effect is larger in democracies than in non-democratic countries. We further make a distinction between autocracies and anocracies (or electoral autocracies), and find that in the latter, education is connected with even higher levels of political conservatism than in hard autocracies.

We use the full WVS six waves spanning 1980 to 2015, to maximize the number of countries and also be able to look at changes over time. We also use the European Values Studies data, which largely overlaps with the questionnaires of the WVS, and provides a good coverage of European

---

<sup>1</sup> Seurat (2015) and Weeden (2015) develop similar arguments on Syria, albeit in a more anthropological and less formalized way, by arguing that people are pushed by propaganda to use the narrative of the ruling Baath party, and that this acts as a credible signal that the regime is firmly in control.

counties.<sup>2</sup> Together, the data includes 96 countries and about 300,000 individuals, some of which were educated as far back as in the 1950s. The combined data includes 71 country spells of democracy, 44 of anocracy, and 69 of autocracy (see the precise definition of regime spells below and in Annex 1).

While most of the literature has focused on political behavior, we are interested in characterizing (and contrasting) a range of political values, going from political *actions*, such as voting or demonstrating, to political *preferences*, such as being committed or not to democratic values. Actions are more readily observable, and thus, in repressive environments, more prone to personal strategic choice that trade off interest and political preferences. Admittedly, preferences too can be falsified in repressive environments (Kuran 1997), but to the extent that they are less observable, they are less likely to be deterred by fear of sanction. More precisely, we construct the following three variables from responses to sets of questions in the WVS/EVS (see annex for more details), normalizing all variables over the interval [0,1]:

*Civic action:* We combine responses to question about whether the respondent has ever, might do, or would never "sign a petition", "join in boycotts" or "attend peaceful demonstrations". This variable provides a clean measure of political behavior, and it has been widely used in the literature.

*Respect for authority:* We combine responses to two questions: (i) Greater respect for authority a good thing? (ii) mentioning "obedience" when asked about the most important qualities children need to learn at home. The variable measures a central quality for the maintenance of autocratic rule. It measures partly behavior, and partly values. It measures behavior since lack of respect for authority can be punishable in a hard autocracy. But is also reflects values since there is a value judgment associated with the way the questions are asked (i.e good or bad).

*Commitment to democracy (CtD):* We average responses to a question that asks respondents to rank the values provided in three separate menus, where each menu includes at least one value connected to democratic environments ("people have more say in how things are done", "giving people more say in important government decisions", "protecting freedom of speech, progress towards a less impersonal and more humane society") and one to authoritarian environments ("making sure the country has strong defense forces", "maintaining order in the nation", "the fight against crime"). This variable measures the relative preference for democratic values compared to those for a "strong rule".<sup>3</sup> The variable is aspirational, and an individual in a hard autocracy could at the same time be attached to democratic values, and not engage in civic action for fear of reprisals.

While the three variables have some level of correlation, they also express different information, as the correlation coefficients are not large - between 0.4 and 0.54 at the country level, and only 0 to 0.33 at the individual level within countries.

To get a feel for the data, we have summarized the mean and SD of these variables in Table 1. All three values are, on average, more "emancipated" in democracies than in non-democracies. In order to examine further the effect of regime type on the relation between education and values, we have graphed in Figure 1 on the y axis the country average, for each level of education, of our core three values (the last available wave for each country is used), with on the x axis, the

---

<sup>2</sup> <http://www.europeanvaluesstudy.eu/>

<sup>3</sup> Al-Ississ and Diwan (2016) argue that this measure is more informative than responses to unconstrained questions, such as "how would you rate your preference for democracy".



countries' level of democracy, as measured by their Polity score.<sup>4</sup> While education is associated with political values that are more “emancipated” for all levels of the polity variable, the gap in values between educated and uneducated is greatest for large Polity scores. On the other hand, it is lowest for either the lowest scores, or the middle scores, depending on the values considered.

We are interested in taking full advantage of our large data set, which includes variations across country and time, and within country, to check if these features generalize in a more formal statistical model that also controls for exogenous differences in country, time, and individual effects. To do so, we use a three levels model with respondents nested in country-year nested in countries. A multilevel modeling approach allows us to account for individual, time of survey, and country level variation simultaneously.

The general model, which is purely descriptive at this stage, with no claim of causality, has the following form:

$$y_{ijk} = a + b \text{edu}_{ijk} + c \text{regime}_{jk} + d \text{edu}_{ijk} * \text{regime}_{jk} + e X_{ijk} + f \text{GDP}c_{jk} + v_k + u_{jk} + e_{ijk} \quad (1)$$

where  $y_{ijk}$  represents the values being investigated, with individuals  $ijk$  nested in country-waves  $jk$  which in turn are nested in countries  $k$ .  $\text{Edu}_{ijk}$  stands for education dummies,  $X_{ijk}$  is a vector of other individual characteristics,  $\text{GDP}c_{jk}$  is log transformed per capita GDP that corresponds to the year of the survey<sup>5</sup>, and  $\text{Regime}$  is countries' political regime type in the year of the survey.  $v_k$  and  $u_{jk}$  are country and country-waves random intercepts that capture cultural differences between countries and possible time differences due to notable events. Like individual error term  $e_{ijk}$ , they are normally distributed with the mean 0 and standard deviation  $\sigma_v^2$ ,  $\sigma_u^2$ , and  $\sigma_e^2$  respectively. The multiplicative term is meant to check whether regime type conditions the effect of education on values.

Education is coded as primary (as a baseline), secondary, and tertiary. Other individual characteristics include age captured in a series of dummy variables covering 10 years' each, with the youngest group taken as the baseline category; gender is a 0/1 variable that takes the value of 1 for women. We also use relative household income on 10 points, which we standardize by subtracting the mean and dividing by standard deviation within each country-wave.

Each country's regime type is defined by its polity score. Regime type is arranged in three categories (and two dummy variables), with polity score between -10 and -5 coded as autocracies (the baseline), scores of -4 to 4 as anocracies (or competitive autocracies), and scores of 5 to 10 as democracies. Many countries have experienced spells of more than one type of regime. For example, Chile has experienced three regime types: democracy from 1955 to 1973; autocracy from 1973 to 1987; and democracy again afterwards (see electronic appendix for details).

We fit the model by using a restricted maximum likelihood estimator, which has the advantage of unbiased random effects. In estimating (1), our dependent variables are discrete.<sup>6</sup> While we use a

<sup>4</sup> <http://www.systemicpeace.org/polityproject.html>. We look at one moment in time (the last wave of the WVS), because the polity score changes over time for most countries.

<sup>5</sup> From World Bank Indicator database <http://data.worldbank.org/indicator>

<sup>6</sup> The dependent variables take 4 different values for CtD and respect for authority, and 7 for civic action.

multilevel linear model for its ease of interpretation, we recognize that non-linear techniques would be more precise.

The results of the estimation of model 1 are in Table 2. As suggested by the modernization literature, our measures of political values all go up with education levels: more educated individuals engage more often in civic action, are less respectful of authority, and are more committed to democracy. Females tend to be more committed to democracy but less engaged than males in civic action. There is generational pattern as well, with middle age people engaging most in civic action, while the youth are less respectful of authority and more committed to democracy – note that these should be interpreted as a life cycle effects, given that time periods are controlled for with  $u_{jk}$  in (1). Also, while all political values rise with personal income, the effect of a country's level of development (as measured by its GDP per capita) is less prevalent.

The main result to note, in Tables 2, is that the regime type variables, interacted with middle and high levels of education, are mostly significant, for the three values investigated. But while education “emancipates” in all regime types (i.e, the coefficients for education plus those for education interacted with regime types are always positive), education is connected with higher levels of emancipation among individuals living in democracies. The educated that live in democracies engage more in civic action, have less respect for authority, and have a higher commitment for democracy than the educated living in autocratic regimes (autocracy is the reference point, and so the values of the educated in autocracies are given by the coefficients of the educated in the top 2 lines of the Table).

It is possible that the emancipation gap that we have found is over-estimated, due to an elite-selection bias, as discussed in the introduction, to the extent that elite education is more prevalent in non-democratic countries than in democracies.<sup>7</sup> We thus re-run model 1 by restricting our sample to countries with mass education systems, which we define as more than 50% of individuals having achieved secondary education, and more than 10% having achieved university level education.<sup>8</sup> As can be seen in columns 2, 4, and 6, the results remain essentially similar.

These results thus generalize the emerging view in the literature about a smaller correlation between education and political values in non-democratic regimes, relative to democracies. To get a sense of magnitude, a high level of education increases civic action (relative to no education) by around 0.10 scale points in anocracies and autocracies, and by around 0.18, or nearly twice as much, in democracies (these are the sums of the education and education interacted with regime type). The magnitude of the effect on political values is also significant, albeit smaller. Among individuals with a high level of education, respect for authority is 0.07 scale points lower than among uneducated in autocracies, and about 0.10 lower in democracies.

Thus, the data suggests that there is a distinction in the political return to education in democracies vs non-democracies, an empirical regularity not noted in the literature previously. Even though we have attempted to purge the possible effects of an adverse selection bias, it is however still not possible at this stage to claim that political regimes cause different political values among the educated. There may be other influences at play, such as interests, which are unrelated to preferences, or reverse causality effects, and we will need to weed those out in order to identify

---

<sup>7</sup> In theory, this bias could actually go in either direction, as richer students may be more conservative due to their economic interests, but they could also be more emancipated politically due to their higher incomes.

<sup>8</sup> This is a conservative technique, which removes from our dataset all countries that can be suspect of elite education, even when their youth may already be educated under a system of mass education. Ideally, we would restrict our data to sample cohorts from each country that were educated at a time after mass education began. However, we have too few cells per cohort to devise an effective test for each cohort within a country.

effects working solely through preferences. To do so however, we need a better understanding of the underlying mechanisms at play, in order to develop a convincing identification strategy.

### **3. Education and political preferences: theoretical foundations**

The correlation between political returns to education, and regime type, can be explained by several possible mechanisms.

First, it is possible that education is used as an indoctrination tool by the state. It has been noted in the literature that the state is directly invested everywhere in delivering education, in democratic and autocratic settings alike (Kremer and Sarychev 2000, Pritchett 2002). States set the school curricula, and they enforce its application by disciplining teachers according to particular criteria of performance, controlling the provision of diploma, and in weeding out of the system students that do not internalize what is considered by the state to be basic national principles. In such a view, each regime type tries to manipulate its education sector in order to promote its own values, with democratic regimes promoting democratic values, and autocracies promoting values of obedience to authority. Education policy can be a particularly effective policy tool of control to the extent that the education children receive affects their political values after their formative age and into adulthood.

Second, differences in individual political values in different regimes can be due to differences in social and political *interests*, rather than just political preferences.<sup>9</sup> In particular, the educated can ascribe to an autocratic bargain, whereby they give up their political rights against economic or social advantages (Desai et al, 2009). In highly unequal societies in particular, more educated (and therefore richer) individuals may fear that they would be taxed more in a more democratic regime, where the interests of the less educated (and poorer) individuals become the majority view (Acemoglu and Robinson 2005).<sup>10</sup> To the extent that non-democratic countries are more unequal, we can presume that on average, the educated will be more often against a democratic system in non-democracies, in our sample, because their interests are upheld by their ruling regimes.<sup>11</sup> Closely related to this, the educated may have an induced interest in not opposing non-democratic regimes. In particular, they have more of an interest than the uneducated to refrain from expressing dissent in autocracies because they risk losing their larger return to education (as in Greig and Tadelis, 2010).<sup>12</sup>

Third, these results can be due to third factors or reverse causality. We recognize that some autocratic regimes may have some dose of legitimacy, either because they deliver results (Giley 2006), or because of a “collectivist” culture (Gorodnichenko and Roland 2015). We will control such effects to the extent they apply to all individuals in a country by using country fixed effects. A more serious identification problem will arise if third factors affect the values of the educated more than those of the uneducated.

---

<sup>9</sup> We presume, as in Bisin and Verdier (2000, 2001) that individuals chose their level of political activism and their type of political values according to both their moral code, and to their interests, which are related to the costs and benefits these subject them to, given the political circumstances they live in.

<sup>10</sup> Also, as has been noted in the literature on the Arab world, the educated tend to have pro-secularist social values, and they may fear that a more democratic regime would risk giving power to Islamic parties that would favor more religious and conservative values (Lust 2009).

<sup>11</sup> There is evidence that democratic societies are more equal, because they redistribute income, spend more on education, and have higher wages. See Rodrik (1999), Lindert (2004), Person and Tabellini (2003). For a dissenting view however, see, Acemoglu and Robinson (2013).

<sup>12</sup> There is country-level evidence that in electoral authoritarian regimes, more educated citizens may deliberately disengage from politics (Croke et al 2016 on Zimbabwe, Blaydes 2006 on Egypt) because they understand that political opposition will be costly but is unlikely to make a difference.

When focusing on regime change in particular, the question is whether these are exogenous events, unrelated to mass political values, or whether political change responds to changes in political values. Focusing first on the larger issue of education, the consensus in the literature is that education does not cause democracy.<sup>13</sup> Indeed, prominent political scientists tend to believe that many factors unrelated to individual preferences shape democratic outcomes – such as elite bargains and external influences (O’donnell et al, 1986), and that the conditions needed to transition to democracy are difficult to achieve (North et al 2005).<sup>14</sup> Seen from this perspective, indoctrination policies would be driven more by a desire for efficient governance and regime consolidation than the avoidance of revolutions.

Still, it is possible that in some cases, societies with more conservative educated elites beget non-democratic regimes, and that the empirical results we found in section 2 can be partly driven by this regularity. To deal with this possibility, we will contrast cases of large political change, from autocracy to democracy (or vice versa), which are less likely to be driven by changes in opinion, with cases of movements in/out of anocracies, where the possibility of political values contributing to (a more marginal) regime change towards either democracy or autocracy is more likely to depend on whether elites were conservative, or progressive.

There are other possibilities that we will not consider as carefully, given the nature of our data. Individuals are subject to parental socialization efforts, which can push them to support or oppose the rulers’ political preferences (Bisin and Verdier, 2000, 2001). In turn, the incentives of the parents are driven by their own moral code, as well as their interest in their children’s welfare. While it is difficult to disentangle this possibility from that of indoctrination through the education system, we will presume that parental socialization is at play when we observe the values of the uneducated moving in parallel to those of the educated (controlling for interests).

In sum, we are mainly interested in testing two types of hypotheses. First, are we able to measure political *preferences*, and are the preferences of the educated tilted towards the political status-quo, presumably because of state indoctrination (H1)? Second, can we isolate political interests, and are the political *interests* of the educated supporting of democracies (H2)? We also presume that the emancipation return differential in democracies and non-democracies will be larger for political behavior, than for political preferences, because behavior is more readily observable, and thus sanctionable. The correlation we found in section 1 between regime type and political return to education can be consistent with either or both of these hypotheses. We would thus need to find some identification strategy that can separate interest from preferences to be able to compare the impact of these mechanisms.

We are also interested in secondary hypotheses, which would shed further light on the main hypotheses above. One aspect of this relates to comparing the political values of the non-educated, in democracies and non-democracies. While the less educated are not subject to as much indoctrination through schooling, their values can be affected by state propaganda, by parental socialization, and by their social and economic interests (H3).

Finally, hypothesis 4 is concerned with the middle case of anocracies. On political behavior, we expect people living in anocracies and autocracies to behave in a similar manner, since dissent is repressed in both types of systems. We would expect that in some (successful) anocracies,

---

<sup>13</sup> While some authors have argued that aggregate education causes democracy (Glaeser et al 2007, Castello-Climent, 2008), the claim has been disputed by Acemoglu et al (2005) who argue that these results are driven by comparisons between countries, and not over time, and that the relation goes away once country fixed-effects are taken into account.

<sup>14</sup> A middle-of-the road argument is provided by Przeworski et al (2000), who argue that the accumulation of education makes reversion to autocracy less likely.

indoctrination could be more successful than in autocracies, in line with Greif and Tadelis (2010) result that indoctrination policies become more attractive than sheer repression when the preference gap between society and rulers is smaller (H4).

Our results in Table 2 already reveal empirical regularities that bear on these issues. First, the magnitude of the variation in the values of the educated across regime types is larger for political action than for political preferences. In particular, the size of the coefficients for the multiplicative terms high education\*democracy are largest for civic action, followed by respect for authority, and then by CtD. This bolsters the view that autocracies can deter civil action but not political preferences, by threatening sanctions.

Second, there is no apparent variation in the political values of the uneducated across different political regimes. In Tables 2, the values of the uneducated are characterized by the slopes of the variables democracy and anocracy (which are measured relative to autocracy), which turn out not to be significant. This is a surprising result. It suggests that unlike education, propaganda and/or parental socialization, which if effective, should have equal effect on the un-educated, do not appear to be effective mechanisms in influencing political values.

Third, the data suggests that anocracies are different from autocracies. Anocratic regimes are intermediate regimes that include elements of power legitimization (such as elections,) compared to autocracies. These have been perceived by the literature to be less stable, and to be more of a mixed bag than the other two regime categories. The results in Table 2 show that the educated in autocracies resemble those in autocracies in terms of their political action, but that on preferences, the educated are more conservative in anocracies than in autocracies. This may suggest that some anocracies are more effective at, or more compelled to, influencing values than hard autocracies in order to survive.

But as noted above, it is difficult to interpret the correlation we have uncovered, and indeed to test the hypotheses listed above, in the absence of stronger identification strategies. The correlations we have observed probably reflect a mix of influences, with several possibly going in the same direction - the correlations can indicate preference shifts, but also can reflect different interests, or reverse causality. Moreover, these effects can play out differently across countries.

The identification strategies that we use in the next two sections rely on two main ideas. First, to separate preferences from interests, we identify individual preferences by the regime type that prevailed during their formative age, and their interests by the regime in place when their opinions were collected by the WVS polls. Second, in order to demonstrate the existence of indoctrination in education, we focus on variations in political values in countries that have witness regime change, and compare the values of individuals educated in the current v.s the former regime. The next section focuses on countries that have witnessed regime change. Section 5 attempts to separate interests from preferences by taking advantage of value variations in the whole sample. In both cases, we find results that support our priors that the differences in values among the educated are shaped by regime type, stemming from different indoctrinating strategies, as well as by different social and political interests of the educated.

#### **4. Using transitions histories to identify political preferences**

To characterize individual preferences, we rely centrally on the proposition that individuals form their civic and political values during their formative period, between the ages of 18-23. The shared predispositions of age cohorts are described as generation effects in the sociological literature, which has produced robust findings that certain attitudes, after being formed during the formative period, persist throughout life (Inglehart and Welzel 2010, Yates and Youniss, 1998, Burke and

Stets 2009; Alwin 1993, 1994; Alwin, Cohen, and Newcomb 1991; Krosnick and Alwin 1989; Sears 1983).

If political preferences are acquired during schooling, one method for checking if different types of regimes manage to affect citizens' political preferences differentially is to compare the values of individuals educated in different regimes in countries that have witnessed regime change. For example, in the case of Chile, which as noted above has experienced three different regimes since the mid-1950s, we can isolate 3 types of cohorts, according to the regime under which they studied. A comparison between the Pinochet cohorts - all individuals that were aged 18-23 between 1979 (1973+6, to allow sufficient time for the regime to influence education policies) and 1990 – and the recent democratic cohorts – all individuals that were aged 18-23 after 1996. (see electronic appendix for more detail).

In associating preferences with cohorts, we need to be mindful when identifying cohort effects of several important complexities. First, the circumstances of a particular period may not have the same impact on all members of a generation (Sears and Valentino 1997). Second, life cycle considerations suggest that values change systematically as individual age – and as they move from school, to employment, marriage life, child-rearing, and retirement, with each stage altering interests and experiences and modifying values as a result (Shanahan 2000). In addition, it has to be recognized that major historical events may overwhelm any previously formed cohorts with “period reset effects”.<sup>15</sup> The possibility of reset would lower our estimates downward. We will thus recognize that cohort effects may be different across education levels (as noted above), and that they also need to be disentangled from life cycle effects (which we will do by controlling for age separately, as before). We will also explore the possibility of reset effects by looking at surveys taken before regime change.

When comparing individuals that live in a given regime depending on whether they were educated under the current regime, or the previous one, there are 6 possible permutations of past/current regime. As discussed in the previous section, cases of gradual political change from or to anocracy are potentially driven by gradual shifts of preferences among the population, and so the most promising transitions for testing for the existence of cohort effects is that from autocracy to democracy, and vice-versa, since such big jumps are less likely to be endogenous and due to gradual value shifts in preferences among the population.

In each of these quasi-experiments, the current interest of the educated, which is related to the regime in place, can be assumed to be similar, and so the variation in value among the educated will depend only on the regime under which they had studied. Interest on the other hand varies according to the current regime in place – in particular, all individuals, irrespective of the timing of their education, would be expected to be deterred from open political opposition for fear of sanction in non-democracies (but not in democracies), and especially so for the educated individuals.

Our model 2 is as follows:

$$y_{ijk} = a + b \text{edu}_{ijk} + e X_{ijk} + f \text{GDPC}_{jk} + g \text{cohort}_{ijk} + h \text{edu}_{ijk} * \text{cohort}_{ijk} + v_k + u_{jk} + e_{ijk} \quad (2)$$

---

<sup>15</sup> For example, a study comparing 7 different birth cohorts in 60 societies using World Values Survey data finds stronger evidence for intergenerational differences in advanced industrial societies than in countries that have experienced collapse and turmoil in their economic, political, and social systems, presumably because period effects supersede cohort effects in such environments (Inglehart and Baker 2000).

which is estimated separately for the group of countries that have transitioned from autocracy to democracy, and for each of the other types of transition. As before, when comparing the values of those that have studied after transition with those that have studied before, the latter tend to be older, and given that we know that there are life cycle effects (older people being more conservative), we need to control for this in order to avoid an age bias. We assume for more precision that life-cycle effects are specific to types of transition.

We code each person's cohort by the regime type that prevailed when she was between the ages of 18-23. Since we are interested in finding policy induced effects (eg changes in the curriculum), we need to ensure that the regime was already in place for a while so as to have been able to set-up propaganda and indoctrinating institutions. We assume that it takes at least 6 years to do so.<sup>16</sup>

In our dataset, the size of the sub-sample for each of these permutations varies, allowing us to study particular histories better than others. The dataset that covers transitions from autocracy to democracy is the largest, as it covers 34 countries, comprising four waves of democratization: in the FSU and EEC of the later 1980s and early 1990s (21 cases), those of Latin America in the 1980s (4 cases); those in Asia, later in the 1990s (5 cases, including Turkey), of southern Europe (2 cases), and 2 of Africa: Mali 1991 and Zambia 2000. When we remove from the sample countries without mass education, we lose 10 countries (Albania, Bangladesh, Chile, Czech Rep., Hungary, Mali, Poland, Spain, Turkey, Uruguay). We also have 17 cases of transition from democracy to autocracy, which are reduced to only 6 when we remove countries without mass education. We have 17 cases of transition from anocracy to autocracy, 17 cases of transition from anocracy to democracy, 25 cases of transition from autocracy to anocracy, and only one case of transition from democracy to anocracy – see Annex Table 2.

The results of estimating model 2 for the case of transitions from autocracy to democracy are in the first lines of Figures 2 (and in Table 3a). They broadly support H1, in spite of our sample being now smaller than in the estimation of model 1 (about 40,000 to 75,000 observations, v.s 300,000 before). In particular, those educated in the previous autocratic regime are found to be more conservative (the sign of  $edu*cohortdemo$  is positive and significant for civic action for individuals with both middle and high levels of education), negative and significant for respect for authority (for the high education individuals), and positive and significant for CtD (for those with middle education). Also, and as expected, the magnitude of the effect is largest for civic action, followed by authority, and then by CtD (see Figure 2).<sup>17</sup>

On the other hand, when we estimate model 2 in the sample of autocratic countries that have transitioned from democracy to autocracy in the past, we find fewer measurable differences among cohorts (see the last lines in Figures 2). This can partly be the result of a much smaller set of such countries/wave.<sup>18</sup> But this is also to be expected as, as argued above, the fear of sanctions is likely to affect values in autocracies. We find that the only cohort effect that is significant (and large), and of the expected sign, is for CtD, an aspirational variable that is less costly to hold onto in non-democracies. The cohorts effects related to respect for authority and civic action are also of the expected sign, but they are respectively marginally, and not significant. As argued above, this is

---

<sup>16</sup> We code cohorts as transitional if there was no single regime in place for 6 consecutive years during their formative age.

<sup>17</sup> It is interesting to find that cohort effects are also operational for civil action, indicating that as found in Yates and Youniss (2008), individuals develop such skills during their formative age, and thus, that the variable civil action is also like respect for authority, and CtD a political value that is acquired, and not just a behavioral variable.

<sup>18</sup> Here, and in the remaining permutation of regime cases, we do not use the restricted sample, as it shrinks to less than 3000 observations when we remove countries with no mass education in their starting regime (for this case, Brazil, Chile, Czech Rep., Nigeria, Uruguay).

to be expected, since the latter values can be observed more readily than CtD, and be sanctioned more easily.

The results for other types of transitions (involving anocracies) are also reported in Figure 2 and in Table 3b. These are the cases where reverse causality is a larger potential problem. While the sample size gets too small to expect sharp results, some coefficients of interest are significant, and they broadly support H4 – i.e., that regime change involving anocracies contains a good deal of reverse causality. The estimated coefficients reveal an interesting contrast between transitions from anocracies to autocracies on the one hand, and to democracies on the other (see Figure 2, lines 2 and 4). We find that anocracies that become autocracies are those where the educated in the old regime tend to be less emancipated politically than those in the new regime. One can speculate that this must have helped in operating this transition. On the other hand, in anocracies that have transitioned to democracies, we see the reverse taking place - those that where the educated in the old regime tend to be as emancipated politically as those in the new regime, which again could have helped in achieving this type of transition.

The case of transition from autocracy to anocracy offers less sharp characteristics, with the exception that civic action is higher among those educated in the old regime, one can speculate that these regimes may have been forced to open-up at the margin in response to increased contestation.

Finally, we can look at how the uneducated fared in the different transitions. Remarkably, there are very few cohort effects at play in all the different types of transitions (Tables 3a and 3b). This then suggests that it is very much schooling during formative age that can make a difference on values, and not merely living during a particular regime. This sheds more light on H3, and suggests that general propaganda is not as effective as schooling in shaping political preferences.

Overall, the results of model 2 show that each permutation of regime has its own specificity, but there are some commonalities however. While the coefficients of the “cohort after” vary among the different regime histories, they are of the predicted sign for transitions involving democracies and autocracies, and they tend to be less significant in cases involving anocracies.

### *Case studies*

To illustrate these results, an ideal case study is provided by the fall of communism around 1990s. Here, it is useful here to compare how political values evolved among the Eastern European countries, which moved from autocracy to democracy around 1990s, and the countries that have emerged from the Soviet Union and Yugoslavia around the same time, but where the evolution of Polity scores was more mixed.<sup>19</sup> We would expect that in Eastern Europe, but not in the former Soviet and Yugoslav republics, individuals that have been educated after regime change would be more emancipated politically than those educated under the old communist regime. The WVS data broadly support this hypothesis, although it also suggests that there is a lot of country specificity at work. In our sample, it is the last two cohorts (of 10 years each) that have studied under a democratic regime, while older cohorts have studied under the autocratic regime. The evolution of values across cohorts in the countries of Eastern Europe reveal a discernable change in the political returns to education among the youth in most countries, especially on respect for CtD - most notably in the Czech Republic, where the rise precedes political change but accelerates afterwards, and in Poland, Romania, and Slovakia. In contrast, one sees very little change in the political return

---

<sup>19</sup> In Eastern Europe, Polity scores moved around 1990 from below 4 to above 5 in all countries. In contrast, in the countries that emerged from the former Soviet Union, the evolution of the Polity scores were more mixed - only Estonia and Lithuania moved to high Polity scores.



to education amongst the two youngest cohorts in the countries that have emerged from the Soviet Union and Yugoslavia, most of which have not moved up to high Polity scores in recent years (see the electronic appendix).

Another set of interesting cases, which illustrates how transitions involving anocratic regimes are suspect of reverse causality effects, is provided by the countries of Latin America, most of which transitioned from an anocratic regime to a democratic one between the late 1970s and the mid-1990s. Where cohort effects are discernable, as in the cases of Argentina, Brazil, Guatemala, and Mexico, the education return for CtD was highest for cohorts that have studied under the anocratic regime, and it falls after the transition to democracy, suggesting that political emancipation has preceded regime change – possibly contributing to making the transition a success (see electronic appendix for more detail).

### ***Reset effects***

While we have found that the echo of past education remains after regime change, we have noted that it is likely to be weakened during transitions to democracy. We expect indoctrination traces to be particularly neutralized in cases where regime transition embodied momentous events, as during the dramatic fall of the Berlin wall (Inglehart and Baker, 2000), as such events can partly over-ride the indoctrination provided by past regimes. To the extent that such “reset effects” exist, our estimates of the effect of indoctrination would be biased downwards – meaning that indoctrination may have shaped individual values before regime change more than what our estimates suggest.

We can get a feel for the importance of the reset effect by comparing information from opinion polls taken before and after political transition. Unfortunately, the WVS contains only two cases where polls had been taken before a political transition occurred. These are the cases of Mexico and Korea, where the older polls have been taken respectively in 1981 and 1982, 5 and 15 years before their respective democratic transitions.<sup>20</sup> The transition to democracy was more dramatic in Korea than in Mexico, where we would thus expect larger reset effects.

Comparing polls taken before and after the transition to democracy turns out to support the existence of reset effects, especially in the case of South Korea, in spite of the fact that the older data is spotty in some important dimensions.<sup>21</sup> For both countries, a comparison of the values of different cohorts educated under autocracy and democracy reveals greater change when the comparison uses polls taken before regime change, compared to a procedure that uses only post-regime change data (as in the estimation of model 2).

For example, in the case of South Korea, political values measured before regime change are more conservative than those measured after regime change, but among those educated in the old regime (especially for the value of respect for authority, see Figure 3, right panel). This suggests that those educated before regime change have updated their values upwards after regime change, thus reducing the traces of autocratic indoctrination. As a result, a comparison that uses only post-regime change data under-estimates the democracy gap that existed before regime change.

In Mexico too using post-regime change data reveals only small differences between those educated before and after regime change, while comparing values using polls taken before and after regime change reveals starker differences. During its autocratic period, more educated

---

<sup>20</sup> South Korea was an autocracy from the early 1970s to the mid-1980s, and democratic after 1990; Mexico was autocratic from the 1929 to 1975, anocratic until 2000, and democratic afterwards.

<sup>21</sup> The data for both countries does not cover CtD; we do not have information on age in South Korea; and income is measured differently between waves.

individuals were actually *more* respectful of authority than less educated ones – an extreme pattern not seen in many countries. After the transition however, a more normal pattern is established, with the more educated being less respectful of authority than the less educated, and the political return to education rises for those educated during democracy (Figure 3, left panel).

In sum, while there are clear indications in the data that when looking at political preferences, the return to education depends on the regime in which individuals studied, we also argue that those observable effects are biased downwards because of rest effects, and thus, that the effects of indoctrination before regime change must be larger than those that we have measured in this section. It is difficult not to attribute these effects to pro-active attempts by the state at indoctrination.<sup>22</sup>

### 5. Separating interests from preferences

Now that we have established the existence of indoctrination effects, which relate current political values with the regime under which individuals spent their formative age, it is tempting to test for the existence of a separate contemporaneous influence. As discussed above, we term this an “interest effect” since it reflects the residual part of current political values held by individuals that is not explained by past indoctrination. Moreover, we are interested in checking if current interests are related to current political regime – in particular, we expect that the educated living in autocracy or anocracies may have a dislike for democracies, compared to the educated that live in democracies, controlling for indoctrination effects. This is more likely to be the case if regime types were correlated with income inequality, as argued above.

To separate preference from interests, we develop a further model (model 3) that decomposes the overall relation between education and political behavior and values in two components: one that relates to the regime under which individuals currently live - and which would be connected to reasons of self-interest – and the other which is connected to particular cohorts - and which is thus inherited from the education system that prevailed when individuals were in their formative age. The assumptions that allow us to separate preference from current interests are that the contemporaneous effects depend *only* on the regime in place when the opinion poll is taken, and that cohort effects depend *only* on the regime type at the time of education. Beyond testing for the existence of a contemporaneous interest effect, we are also interested in exploring whether the interest of the educated living in autocracies and in democracies diverge in predictable ways – the presumption being that they do, because non-democratic societies are more unequal (see footnote 11).

We expand the model in equation (2) to model 3:

$$y_{ijk} = a + b \text{edu}_{ijk} + c \text{regime}_{jk} + d \text{edu}_{ijk} * \text{regime}_{jk} + e X_{ijk} + f \text{GDP}c_{jk} + g \text{cohort}_{ijk} + h \text{edu}_{ijk} * \text{cohort}_{ijk} + v_k + u_{jk} + e_{ijk} \quad (3)$$

where y represents alternatively: respect for authority, civic action, and CtD.  $\text{cohort}_{i,j,k}$ , represents the regime type when individual (i,j,k) was between 18 and 23 years of age, while  $\text{regime}_{j,k}$  is like before, the regime under which individual i,j,k currently lives. Both variables enter alone, and

---

<sup>22</sup> The other possibility is parental socialization, but it is not convincing. When the penalty for political deviance is sufficiently high (and this depends on the ability to detect deviance), parent may socialize their children to conform with the authority-preferred morality (Bisin and Verdier 2000, 2001; Greif and Tadelis 2010). However, if this was the case, we should observe this effect across all education levels, especially that parents do not know, when educating their children, which education level they would achieve in the future.

multiplied by the education variables, in order to assess whether the influence of education on individual behavior and values varies with the regime in place currently, vs during formative age. Note that we also control for the regime and cohort effects of the non-educated to check if their political values also vary by regime type.

Our data is quite balanced in terms of variations in current/cohort regimes. While we have 34 countries with no regime change, we also have in the sample 66 countries that have experienced at least one regime change, and that thus produce variation in terms of the regime under which different cohorts received an education. We estimate (2) in both the full sample, and in the restricted sample of countries/waves that had a system of mass education, as defined earlier.

The results of the estimation of model 3 are in Table 4. Focusing first on the effect of democracies, when compared to autocracies, we find that *living* in a democracy is less influential than *studying* under a democratic regime when it comes to the political behavior and values of the educated. The only exception is that educated individuals living in a democracy have a higher level of civil action, which is not surprising given that political action is less costly in such environments. These results contrast with those of Table 2, indicating that the correlations we found earlier (between political values and current regime types) were spurious, and were due to the fact that the missing cohort effects are correlated with current effects (especially that there was no regime change in 34 countries). The fact that the interests of the educated is found to be similar in democracies and autocracies may be due to the fact the level of inequality and regime type are not highly correlated (Acemoglu et al, 2013).

In contrast, cohort effects are found to be prevalent, especially among the educated, confirming the results of the event study of the previous section (although it must be kept in mind that the sample is larger now, and includes countries with no regime change, as well countries with all types of regime change). As before, we find that individuals educated in democracies (especially those with higher education) have an extra emancipation push on their political returns to education - they are less respectful of authority, more involved in civil action, and more committed to democracy, compared to those educated under autocracies.

The results on anocracy are different, as both interest and preference effects very much operate in parallel and with about the same intensity. Both individuals living in, and educated under anocracies, have an emancipative gap (compared with those living in, and/or educated in autocracies, respectively) as they tend to be more conservative on civil action, respect for authority, and commitment to democracy. This suggests that anocracies are not only more successful at indoctrination than autocracies, but that moreover, they seem to form an autocratic bargain with the middle and rich classes where the educated predominate, in the sense that those classes identify their interests with those of the regime in place, and thus become its defender, against the democratic alternative, that they seem to perceive as hurting their interests.

These results therefore confirm the presence of indoctrination effects, and show that current interest effects are also at work, especially in anocracies. Together, these results thus confirm hypothesis H1 and support hypothesis H2. Moreover, anocracies are shown to be different from autocracies, as in H3. We also find that on balance, the uneducated individuals currently *living* in

all regime types have broadly similar political interests and preferences.<sup>23</sup> Thus, H4 is supported again in this exercise.<sup>24</sup>

### ***Case studies***

It should be noted that these results are colored not only by the experience of countries that have transitioned across regimes, the focus of section 4, but also, by the experience of countries that have remained with the same regime through the period of analysis, and in particular, the experience of democratic Europe, and of autocratic Middle East.

Among the 21 countries that have been democratic from the whole period of analysis, the weight of the OECD countries is preponderant (see Table A2). These countries have been democratic since the end of War World II, with a few exceptions (Spain, Portugal, and Greece, until 1974-75). The political returns to education in the OECD countries tend to be large, at between 5 and 10% (see graphs in the electronic appendix). The highest return is observed in France, known for its republican education system. In Spain, there is a clear emancipative trend - among those with low education for authority, and among the educated for PfD, reflecting the renovation of the education regime starting in the mid- 1970s, after the Franco era. The effect of including these countries in the regression of model 3 is to raise the estimated political return to education in democracies.

On the other hand, the autocratic countries in our sample are dominated by the group of Arab countries, most of which have been autocratic or anocratic for the whole period of analysis (Table A2). In our data, the political values of educated are very close to those of uneducated in most Arab countries (on average 2 to 3 %, see graphs in the electronic appendix). Moreover, there seem to have been little change over time, as values tend to be flat over cohorts. These results confirm the claims in the Middle East literature on the weak role of the educated in political life (UNDP 2002, 2016). Thus, the inclusion of those countries in the sample pushes down the political return to education under autocracy.

## **6. Conclusions**

Education does not automatically lead to more politically emancipated values and behavior, thus inexorably leading to more democratic outcomes. Our results show that all regimes, including autocracies manipulate the political behavior and values of the educated in order to strengthen the political status-quo. While education still emancipates politically in most non-democratic countries, it does so with a much lower intensity than in democracies. The finding that education does not automatically lead to political emancipation helps resolve three paradoxes in the literature on education politics. First, it explains why autocracies do educate their citizens - Bourguignon and Verdier, 2000 have argued in a noted paper that their interest should be to not educate. Second, and related, it also explains how autocracies can stay in power even as they educate, as found empirically to be the case by Acemoglu et al (2005). Finally, our results explain why the state is so invested in delivering education, in democratic and autocratic settings alike (Kremer and Sarychev 2000, Pritchett 2002).

We also found that anocracies are different from autocracies and democracies in several respects.

---

<sup>23</sup> The only exception is that uneducated individuals that lived through their formative age in anocracies tend to be *less* conservative than those that grew up in autocracies.

<sup>24</sup> This result also bears on the possible role of family socialization in affecting individuals' preferences. As argued before, if families were actively socializing their children in ways to conform to the prevailing political incentives, such an effort should be equally spread among those that end up with high levels of education, and those that do not. Yet, in our results, the un-educated are not found to become more "conservative" in non-democratic regimes. This thus puts in doubt the importance of family socialization.

They tend to be better at indoctrination, and on average, they also affect the current interests of the educated more. This suggests that in many anocracies, there is a convergence of interests between rulers and the educated, resulting in an anocratic bargain of sorts that pushes the educated to refrain from civic action, uphold the value of respect for authority, and oppose political democratization.

We generally found that the uneducated on the other hand tend to have the same political preferences and interests irrespective of the regime in which they live at the time of the survey, and the regime under which they lived during their formative age.

The potential political and policy implications of these results are important. So far, much of the policy debates about the quality of education had focused on whether it produces the skills needed in the work place. If education indeed can “cause” conservative and anti-democratic values, then an important set of policy reforms that new democratic regimes need to urgently consider involve changing their education systems in ways that make the “social returns” to education larger, in order to consolidate the new democratic gains for the future. Seen from this perspective, education appears as the main battleground between autocratic regimes and civil society, and it is hard to foresee a successful democratization that is not built on an earlier societal effort to liberate the education system itself.

## References

- Acemoglu, Daron, and James A. Robinson. *Economic origins of dictatorship and democracy*. Cambridge University Press, 2005.
- Acemoglu, Daron, et al. *From education to democracy?*. No. w11204. National Bureau of Economic Research, 2005.
- Acemoglu, Daron, et al. *Democracy, redistribution and inequality*. No. w19746. National Bureau of Economic Research, 2013.
- Al-Ississ, Mohamad, and Ishac Diwan. "Preference for Democracy in the Arab World." *Politics and Governance* 4.4 (2016).
- Alwin, Duane F., and Jon A. Krosnick. 1991. "Aging, Cohorts, and the Stability of Sociopolitical Orientations over the Life Span." *American Journal of Sociology* 97(1):169–95.
- Apple, Michael W. *Ideology and curriculum*. Routledge, 2004.
- Berinsky, Adam J., and Gabriel S. Lenz. "Education and political participation: Exploring the causal link." *Political Behavior* 33.3 (2011): 357-373.
- Bisin, Alberto, and Thierry Verdier. "The economics of cultural transmission and the dynamics of preferences." *Journal of Economic theory* 97.2 (2001): 298-319.
- Bisin, Alberto, and Thierry Verdier. "A model of cultural transmission, voting and political ideology." *European Journal of Political Economy* 16.1 (2000): 5-29.
- Blaydes, Lisa. "Who votes in authoritarian elections and why? Determinants of voter turnout in contemporary Egypt." *Annual Meeting of the American Political Science Association*, 2006.
- Bourdieu, Pierre, and Jean-Claude Passeron. *Reproduction in education, society and culture*. Vol. 4. Sage, 1990.
- Bourguignon, François, and Thierry Verdier. "Oligarchy, democracy, inequality and growth." *Journal of development Economics* 62.2 (2000): 285-313.
- Burke, P. and Stets, J. 2009. *Identity Theory*. Oxford University Press.
- Bowles, Samuel, and Herbert Gintis. *Schooling in capitalist America*. Vol. 57. New York: Basic Books, 1976.
- Castelló-Climent, Amparo. "On the distribution of education and democracy." *Journal of Development Economics* 87.2 (2008): 179-190.
- Cesur, Resul, and Naci H. Mocan. *Does secular education impact religiosity, electoral participation and the propensity to vote for Islamic parties? Evidence from an education reform in a Muslim country*. No. w19769. National Bureau of Economic Research, 2013.
- Croke, K., Grossman, G., Larreguy, H. A., & Marshall, J. (2016). *Deliberate disengagement: how education can decrease political participation in electoral authoritarian regimes*. *The American Political Science Review*, 110(3), 579.
- Dang, Thang. "Quasi-Experimental Evidence on the Political Impacts of Education in Vietnam." (2017).
- Dee, Thomas S. "Are there civic returns to education?." *Journal of Public Economics* 88.9 (2004): 1697-1720.

- Desai, Raj M., Anders Olofsgård, and Tarik M. Yousef. "The logic of authoritarian bargains." *Economics & Politics* 21.1 (2009): 93-125.
- Dewey, J. (2004). *Democracy and education*. Courier Corporation.
- Doumato, Eleanor Abdella, and Gregory Starrett, eds. *Teaching Islam: textbooks and religion in the Middle East*. Lynne Rienner Publishers, 2007.
- Dunning, Thad. *Crude Democracy: Natural Resource Wealth and Political Regimes* (Cambridge: Cambridge University Press, 2008).
- Fanon, Frantz. "The wretched of the earth. Translated [from the French] by Constance Farrington." (1965).
- Freire, Paulo. *Pedagogy of the oppressed*. Bloomsbury Publishing, 2000.
- Friedman, W., Kremer, M., Miguel, E., & Thornton, R. (2011). *Education as liberation?* (No. w16939). National Bureau of Economic Research.
- Gilley, Bruce. "The meaning and measure of state legitimacy: Results for 72 countries." *European Journal of Political Research* 45.3 (2006): 499-525.
- Glaeser, Edward L., Giacomo AM Ponzetto, and Andrei Shleifer. "Why does democracy need education?." *Journal of economic growth* 12.2 (2007): 77-99.
- Gorodnichenko, Yuriy, and Gerard Roland. *Culture, institutions and democratization*. No. w21117. National Bureau of Economic Research, 2015.
- Gramsci, Antonio. *Selections from the Prison Notebooks of Antonio Gramsci*: Ed. and Transl. by Quintin Hoare and Geoffrey Nowell Smith. International Publishers, 1971.
- Greif, Avner, and Steven Tadelis. "A theory of moral persistence: Crypto-morality and political legitimacy." *Journal of Comparative Economics* 38.3 (2010): 229-244.
- Haber, Stephen and Victor Menaldo, "Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse," *American Political Science Review* 105 (2011): 1–26.
- Huang, Futao. "Building the world-class research universities: A case study of China." *Higher Education* 70.2 (2015): 203-215.
- Inglehart, Ronald, and Christian Welzel. 2010. "Changing Mass Priorities: The Link Between Modernization and Democracy." *Perspectives on Politics* 8 (02): 551–567.
- Inglehart, Ronald, and Christian Welzel. *Modernization, cultural change, and democracy: The human development sequence*. Cambridge University Press, 2005.
- Inglehart, Ronald. 1977. *The Silent Revolution: Changing Values and Political Styles in Advanced Industrial Society*. Princeton: Princeton University Press.
- Inglehart, Ronald. 1990. *Culture Shift in Advanced Industrial Society*. Princeton: Princeton University Press.
- Inglehart, Ronald, and Wayne E. Baker. 2000. "Modernization, Cultural Change, and the Persistence of Traditional Values. *American Sociological Review* 65(1):19–51.
- Jennings, M. Kent. 1987. "Residues of a Movement: The Aging of the American Protest Generation." *American Political Science Review* 81(2):367–82.

- Kam, Cindy D., and Carl L. Palmer. "Reconsidering the effects of education on political participation." *The Journal of Politics* 70.3 (2008): 612-631.
- Kremer, Michael, and Andrei Sarychev. "Why do governments operate schools?." Harvard University: Cambridge, Mass (2000).
- Krosnick, Jon A., and Duane F. Alwin. 1989. "Aging and Susceptibility to Attitude Change." *Journal of Personality and Social Psychology* 57 (September): 416-25.
- Kuran, Timur. *Private truths, public lies: The social consequences of preference falsification.* Harvard University Press, 1997.
- Larreguy, Horacio, and John Marshall. "The effect of education on civic and political engagement in non-consolidated democracies: Evidence from Nigeria." *Review of Economics and Statistics* 0 (2016).
- Lindert, Peter H. (2004) *Growing Public: Social Spending and Economic Growth since the Eighteenth Century*, New York; Cambridge University Press.
- Lipset, Seymour Martin. "Some social requisites of democracy: Economic development and political legitimacy." *American political science review* 53.01 (1959): 69-105.
- Lott, Jr, John R. "Public schooling, indoctrination, and totalitarianism." *Journal of Political Economy* 107.S6 (1999): S127-S157.
- Lust, Ellen. "Competitive clientelism in the Middle East." *Journal of Democracy* 20.3 (2009).
- Mazawi, Andre Elias. "Schooling and Curricular Reforms in Arab and Muslim Societies." (2008): 329-337. *Middle East Journal*. Volume 62, No. 2. Spring 2008.
- Milligan, Kevin, Enrico Moretti, and Philip Oreopoulos. "Does education improve citizenship? Evidence from the United States and the United Kingdom." *Journal of public Economics* 88.9 (2004): 1667-1695.
- Mocan, Naci H., and Colin Cannonier. *Empowering women through education: Evidence from Sierra Leone.* No. w18016. National Bureau of Economic Research, 2012.
- Newcomb, Theodore M. 1947. "Some Patterned Consequences of Membership in a College Community." In *Readings in Social Psychology*, ed. Theodore M. Newcomb et al., pp. 345-57. New York: Henry Holt.
- Newcomb, Theodore M., Kathryn E. Koenig, Richard Flacks, and Donald P. Warwick. 1967. *Persistence and Change.* New York: Wiley.
- North, D. C., Wallis, J. J., & Weingast, B. R. (2005). *The Natural State: The Political-Economy of Non-Development.* Los Angeles: UCLA International Institute. Available at: [www.international.ucla.edu/research/article.asp](http://www.international.ucla.edu/research/article.asp).
- o'Donnell, Guillermo, Philippe Schmitter, and Laurence Whitehead. "Transitions from authoritarian rule." Vol. I-IV. Baltimore (1986).
- Oneasca, Iulian. "Cultural Foundations of Autocracy and Their Amendment: What Can Higher Education Institutions Do?." *Romanian Journal of European Affairs* 12.4 (2012).
- Oforiwaa Gyamera, Gifty. "Education, democracy and development: does education contribute to democratization in developing countries?." *Journal of Education and Politics*



- Oreopoulos, Philip, and Kjell G. Salvanes. "Priceless: The nonpecuniary benefits of schooling." *The journal of economic perspectives* 25.1 (2011): 159-184.
- Persson, Torsten and Guido Tabellini (2003) *The Economic Effects of Constitutions*, Cambridge: MIT Press.
- Pritchett, Lant. "When Will They Ever Learn"? Why All Governments Produce Schooling. 202. Mimeo, Harvard Kennedy School of Government.
- Przeworski, A. (2000). *Democracy and development: political institutions and well-being in the world, 1950-1990* (Vol. 3). Cambridge University Press.
- Rodrik, Dani (1999) "Democracies Pay Higher Wages," *Quarterly Journal of Economics*, 114, 707-738.
- Rosenstone, Steven, and John M. Hansen. "Mobilization, participation and democracy in America." (1993).
- Ryder, Norman B. 1965. "The Cohort as a Concept in the Study of Social Change." *American Sociological Review* 30:843-61.
- Sears, David O. 1983. "On the Persistence of Early Political Dispositions: The Roles of Attitude Object and Life Stage." In *Review of Personality and Social Psychology*, vol. 4, ed. L. Wheeler, pp. 79-116. Beverly Hills, CA: Sage.
- Sears, David O., and Nicholas A. Valentino. 1997. "Politics Matters: Political Events as Catalysts for Preadult Socialization." *American Political Science Review* 91:45-65.
- Seurat, Michel. *L'Etat de barbarie*. Ed. du Seuil, 1989.
- Shanahan, Michael J. 2000. "Pathways to Adulthood in Changing Societies: Variability and Mechanisms in Life Course Perspective." *Annual Review of Sociology* 26:667-92.
- Sherrod, Lonnie R. "Promoting the development of citizenship in diverse youth." *Political Science and Politics* 36.02 (2003): 287-292.
- Schlozman, Kay Lehman, Sidney Verba, and Henry E. Brady. "Participation's not a paradox: The view from American activists." *British Journal of Political Science* 25.1 (1995): 1-36.
- Starrett, Gregory. *Putting Islam to work: education, politics, and religious transformation in Egypt*. Vol. 25. University of California Press, 1998.
- Tessler, Mark, Carrie Konold, and Megan Reif. "Political generations in developing countries evidence and insights from Algeria." *Public Opinion Quarterly* 68.2 (2004): 184-216.
- United Nations Development Programme and Arab Human Fund for Economic and Social Development, *Arab Human Development Report 2002: Creating Opportunities for Future Generations* (New York: United Nations Publication, 2002).
- United Nations Development Programme. *The Arab Human Development Report 2016: Youth and the Prospects for Human Development in a Changing Reality* (New York: United Nations Publication, 2016)
- Wang, Yuhua. "Are College Graduates Agents of Change? Education and Political Participation in China." (2016).
- Weakliem, David L. "The effects of education on political opinions: An international study." *International Journal of Public Opinion Research* 14.2 (2002): 141-157.

- Wedeen, Lisa. *Ambiguities of domination: Politics, rhetoric, and symbols in contemporary Syria*. University of Chicago Press, 2015.
- Wolfinger, Raymond, and Steven Rosenstone. *Who votes?* Vol 22. Yale University Press, 1980.
- Yates, Miranda and James Youniss (ed). 1998. *Roots of Civic Identity: International Perspectives on Community Service and Activism in Youth*. Cambridge University Press.

**Table 1. Basic statistics**

	<b>Autocracy Mean</b>	<b>Autocracy SD</b>	<b>Anocracy Mean</b>	<b>Anocracy SD</b>	<b>Democracy Mean</b>	<b>Democracy SD</b>
Respect for authority	0.58	0.27	0.67	0.28	0.53	0.28
Civic engagement	0.22	0.25	0.23	0.24	0.36	0.27
Commitment to Democracy	0.39	0.30	0.43	0.30	0.51	0.31

Notes: Mean and SD in different regime types for each variable. Values are first averaged within each country-wave with sampling weights, then averaged for each regime type with equal weights for each country-wave.

**Table 2. Political behavior and values as a function of regime type**

	Civic action		Authority		Commitment to democracy	
	Full sample	Full sample	Restricted sample	Full sample	Full sample	Restricted sample
	(1)	(2)	(3)	(4)	(5)	(6)
Middle education (rel. low education)	0.056*** (0.004)	0.062*** (0.007)	-0.046*** (0.004)	-0.049*** (0.005)	0.052*** (0.004)	0.051*** (0.006)
High education	0.098*** (0.006)	0.102*** (0.008)	-0.073*** (0.005)	-0.077*** (0.006)	0.106*** (0.006)	0.108*** (0.007)
Anocracy (rel. Autocracy)	-0.037 (0.026)	0.053 (0.043)	-0.044 (0.022)	-0.023 (0.034)	0.027 (0.022)	0.063 (0.031)
Democracy	-0.009 (0.026)	0.032 (0.035)	-0.031 (0.022)	-0.013 (0.029)	0.050 (0.021)	0.063 (0.025)
Female	-0.052*** (0.001)	-0.043*** (0.001)	0.002 (0.001)	0.001 (0.001)	0.006*** (0.001)	0.007*** (0.002)
Age: 26-35 (rel. 18-25)	0.003 (0.002)	0.002 (0.002)	0.004 (0.002)	0.005 (0.002)	-0.004 (0.002)	-0.009** (0.003)
Age: 36-45	0.012*** (0.002)	0.014*** (0.002)	0.005* (0.002)	0.005 (0.002)	-0.016*** (0.002)	-0.021*** (0.003)
Age: 46-55	0.014*** (0.002)	0.018*** (0.002)	0.005* (0.002)	0.003 (0.002)	-0.025*** (0.002)	-0.031*** (0.003)
Age: 56-65	-0.014*** (0.002)	-0.012*** (0.002)	0.019*** (0.002)	0.018*** (0.003)	-0.046*** (0.002)	-0.057*** (0.003)
Age: 66>	-0.065*** (0.002)	-0.067*** (0.003)	0.045*** (0.002)	0.048*** (0.003)	-0.088*** (0.003)	-0.103*** (0.003)
Household income	0.013*** (0.001)	0.010*** (0.001)	-0.011*** (0.001)	-0.012*** (0.001)	0.002** (0.001)	-0.002 (0.001)
GDP per capita, log	-0.012 (0.010)	-0.037* (0.012)	-0.017 (0.009)	-0.006 (0.010)	0.039*** (0.008)	0.052*** (0.009)
MidEdu*Anocracy	-0.010 (0.005)	-0.018 (0.008)	0.029*** (0.005)	0.030*** (0.007)	-0.020** (0.005)	-0.013 (0.008)
HighEdu*Anocracy	0.010 (0.007)	0.005 (0.010)	0.029*** (0.007)	0.028** (0.009)	-0.049*** (0.007)	-0.052*** (0.010)
MidEdu*Democracy	0.030*** (0.004)	0.020* (0.007)	0.004 (0.004)	0.009 (0.005)	-0.008 (0.005)	-0.017* (0.006)
HighEdu*Democracy	0.084*** (0.006)	0.076*** (0.008)	-0.029*** (0.005)	-0.024** (0.006)	-0.006 (0.006)	-0.015 (0.008)
Constant	0.424*** (0.090)	0.613*** (0.113)	0.784*** (0.079)	0.639*** (0.100)	0.058 (0.073)	-0.081 (0.086)
Groups	206, 91	124, 56	218, 96	134, 60	190, 88	115, 55
R squared (fixed/random)	0.07/0.3	0.06/0.36	0.02/0.22	0.02/0.24	0.04/0.14	0.05/0.13
N	250,238	152,881	278,132	172,207	236,959	145,376

Note: multilevel models with random intercepts for country-waves and countries; p-values are adjusted for multiple tests with 6 dependent variables. \*p<0.05; \*\*p<0.01; \*\*\*p<0.00

**Table 3a. Political behavior and values: transitions from autocracy to democracy**

	Civic action		Authority		Commitment to Democracy	
	Full sample	Restricted sample	Full sample	Restricted sample	Full sample	Restricted sample
	(1)	(2)	(3)	(4)	(5)	(6)
Middle education (rel. low education)	0.080*** (0.003)	0.073*** (0.004)	-0.053*** (0.003)	-0.050*** (0.004)	0.038*** (0.004)	0.038*** (0.005)
High education	0.164*** (0.004)	0.159*** (0.005)	-0.101*** (0.005)	-0.101*** (0.005)	0.099*** (0.006)	0.101*** (0.006)
Cohort demo	-0.021*** (0.005)	-0.038*** (0.007)	0.005 (0.006)	-0.002 (0.007)	0.003 (0.007)	0.004 (0.010)
MidEdu*cohort demo	0.017*** (0.004)	0.021*** (0.006)	-0.007 (0.005)	0.014* (0.006)	0.016** (0.006)	0.022** (0.008)
HighEdu*cohort demo	0.050*** (0.006)	0.048*** (0.007)	-0.021** (0.006)	0.004 (0.008)	0.011 (0.008)	0.018 (0.011)
Constant	0.526*** (0.117)	0.615*** (0.146)	0.484*** (0.124)	0.414* (0.162)	-0.077 (0.123)	-0.266* (0.132)
Groups	93, 34	64, 24	92, 33	63, 23	76, 33	50, 23
R sq (fixed/random)	0.08/0.25	0.08/0.3	0.03/0.19	0.02/0.22	0.05/0.15	0.07/0.14
N	74,431	53,328	74,897	52,612	57,179	39,083

Note: multilevel models with random intercepts for country-waves and countries; p-values are adjusted for multiple tests with 3 dependent variables. Regressions also include controls for age, gender, income, and GDPc (not shown). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

**Table 3b. Political behavior and values - Other political transitions**

	Respect for authority				Civic action				Commitment to Democracy			
	Demo To auto	Ano to demo	Ano to auto	Auto to ano	Demo to auto	Ano to demo	Ano to auto	Auto to ano	Demo to auto	Ano to demo	Ano to auto	Auto to ano
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Middle education (rel. low edu)	-0.068*** (0.015)	-0.028*** (0.006)	-0.011 (0.012)	-0.029*** (0.005)	0.040** (0.014)	0.065*** (0.005)	0.029** (0.011)	0.052*** (0.004)	0.080*** (0.017)	0.035*** (0.006)	-0.006 (0.013)	0.043*** (0.005)
High education	-0.106*** (0.025)	-0.071*** (0.010)	-0.045* (0.018)	-0.060*** (0.007)	0.133*** (0.023)	0.143*** (0.009)	0.071*** (0.016)	0.101*** (0.006)	0.129*** (0.029)	0.066*** (0.011)	0.053** (0.020)	0.083*** (0.007)
Cohort after	0.012 (0.015)	-0.007 (0.008)	-0.006 (0.010)	-0.019* (0.008)	-0.012 (0.014)	-0.005 (0.008)	0.016 (0.009)	0.003 (0.007)	0.037* (0.018)	-0.001 (0.009)	0.021 (0.011)	0.007 (0.009)
MidEdu*coh-after	0.030 (0.016)	-0.004 (0.007)	-0.024* (0.012)	0.001 (0.008)	0.025 (0.015)	-0.015* (0.007)	0.013 (0.011)	-0.018** (0.007)	-0.066*** (0.018)	0.001 (0.008)	0.055*** (0.014)	-0.006 (0.008)
HighEdu*coh-after	0.043 (0.027)	-0.003 (0.012)	-0.021 (0.018)	0.005 (0.011)	0.005 (0.025)	-0.018 (0.011)	0.042* (0.017)	0.002 (0.010)	-0.065* (0.031)	0.009 (0.014)	0.042* (0.021)	-0.014 (0.012)
Constant	0.809*** (0.222)	0.780* (0.320)	0.537* (0.214)	1.095*** (0.147)	0.308 (0.223)	0.016 (0.259)	0.701** (0.259)	0.578** (0.179)	0.504** (0.178)	-0.039 (0.238)	0.524* (0.230)	0.486*** (0.145)
Groups	22, 8	41, 18	32, 14	42, 22	22, 8	40, 17	30, 13	41, 21	20, 8	40, 17	29, 14	42, 22
R squared (fixed, Random)	0.01 0.17	0.01 0.31	0.01 0.28	0.02 0.12	0.05 0.25	0.04 0.18	0.06 0.24	0.06 0.23	0.01 0.1	0.02 0.11	0.02 0.12	0.01 0.11
N	10,956	31,232	20,779	29,098	10,447	27,705	17,614	27,458	9,255	28,574	18,347	28,425

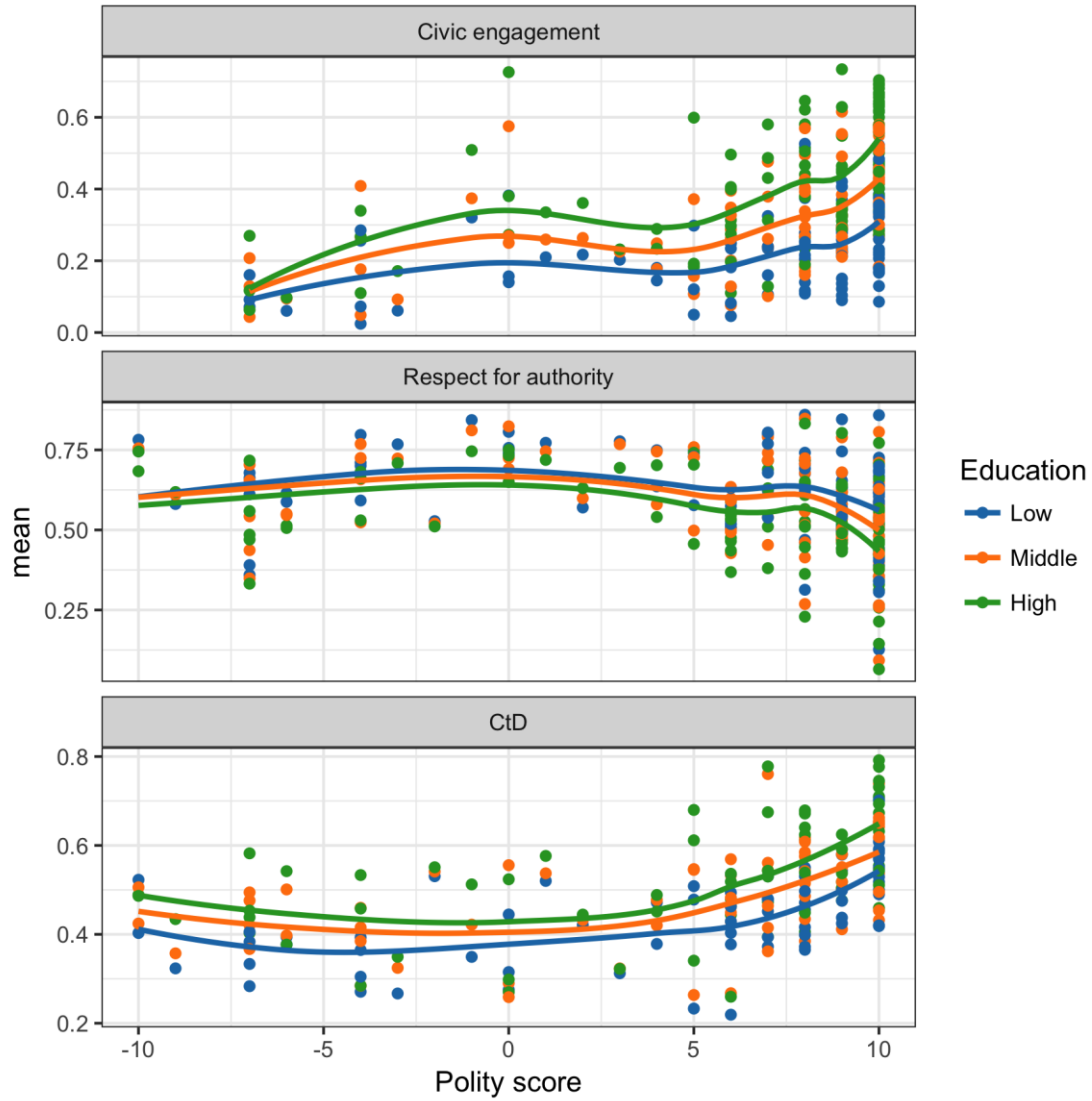
Note. Note: multilevel models with random intercepts for country-waves and countries; p-values are adjusted for multiple tests with 3 dependent variables. Regressions also include controls for education, age, gender, income, and GDPc (not shown). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001. Regressions use the full sample, as there are not a sufficient number of countries to restrict the regressions to countries with massive education.

**Table 4. Political Behavior and Values: Separating current and cohort effects of regime type**

	Civic action		Authority		Commitment to Democracy	
	Full sample	Restricted sample	Full sample	Restricted sample	Full sample	Restricted sample
	(1)	(2)	(3)	(4)	(5)	(6)
Middle education (rel. low education)	0.055*** (0.004)	0.061*** (0.007)	-0.047*** (0.004)	-0.052*** (0.005)	0.049*** (0.004)	0.051*** (0.006)
High education	0.092*** (0.006)	0.102*** (0.008)	-0.076*** (0.005)	-0.084*** (0.006)	0.104*** (0.006)	0.110*** (0.007)
Anocracy (rel. Autocracy)	-0.040 (0.026)	0.052 (0.043)	-0.041 (0.022)	-0.016 (0.036)	0.024 (0.022)	0.054 (0.031)
Democracy	-0.008 (0.026)	0.042 (0.035)	-0.034 (0.023)	-0.017 (0.030)	0.049 (0.021)	0.064* (0.025)
Cohort Ano (rel. Auto)	0.006 (0.004)	-0.008 (0.005)	-0.014*** (0.004)	-0.024*** (0.005)	0.007 (0.004)	0.022** (0.006)
Cohort Demo	-0.005 (0.003)	-0.024*** (0.005)	-0.003 (0.003)	-0.004 (0.005)	0.008 (0.004)	0.005 (0.006)
MidEdu*Anocracy	-0.004 (0.005)	-0.015 (0.008)	0.025*** (0.005)	0.022** (0.007)	-0.014* (0.006)	-0.003 (0.008)
HighEdu*Anocracy	0.017 (0.007)	0.010 (0.010)	0.026*** (0.007)	0.022* (0.009)	-0.038*** (0.008)	-0.033** (0.011)
MidEdu*Democracy	0.032*** (0.005)	0.012 (0.007)	0.005 (0.004)	0.007 (0.006)	-0.008 (0.005)	-0.020* (0.007)
HighEdu*Democracy	0.079*** (0.006)	0.057*** (0.009)	-0.017* (0.006)	-0.006 (0.007)	-0.003 (0.007)	-0.019 (0.009)
MidEdu*Cohort Ano	-0.021*** (0.004)	-0.007 (0.006)	0.012* (0.004)	0.026*** (0.006)	-0.016** (0.005)	-0.029*** (0.007)
HighEdu*Cohort Ano	-0.026*** (0.007)	-0.021* (0.008)	0.020* (0.007)	0.034*** (0.008)	-0.043*** (0.008)	-0.065*** (0.010)
MidEdu*Cohort Demo	-0.004 (0.003)	0.014** (0.004)	-0.001 (0.003)	-0.000 (0.005)	0.002 (0.004)	0.014* (0.006)
HighEdu*Cohort Demo	0.014** (0.004)	0.033*** (0.005)	-0.018*** (0.005)	-0.030*** (0.006)	-0.000 (0.006)	0.018* (0.007)
Constant	0.430*** (0.090)	0.629*** (0.114)	0.773*** (0.080)	0.612*** (0.102)	0.048 (0.072)	-0.089 (0.085)
Groups	210, 92	128, 57	222, 97	138, 61	193, 89	118, 56
R squared (fixed/random)	0.07/0.3	0.06/0.36	0.02/0.23	0.02/0.24	0.04/0.14	0.05/0.13
N	250,140	152,784	278,031	172,107	236,876	145,294

Note: multilevel models with random intercepts for country-waves and countries; p-values are adjusted for multiple tests with 3 dependent variables. Regressions include controls for transitional regimes, and for education, age, gender, income, and GDPc (not shown). \*p<0.05; \*\*p<0.01; \*\*\*p<0.001.

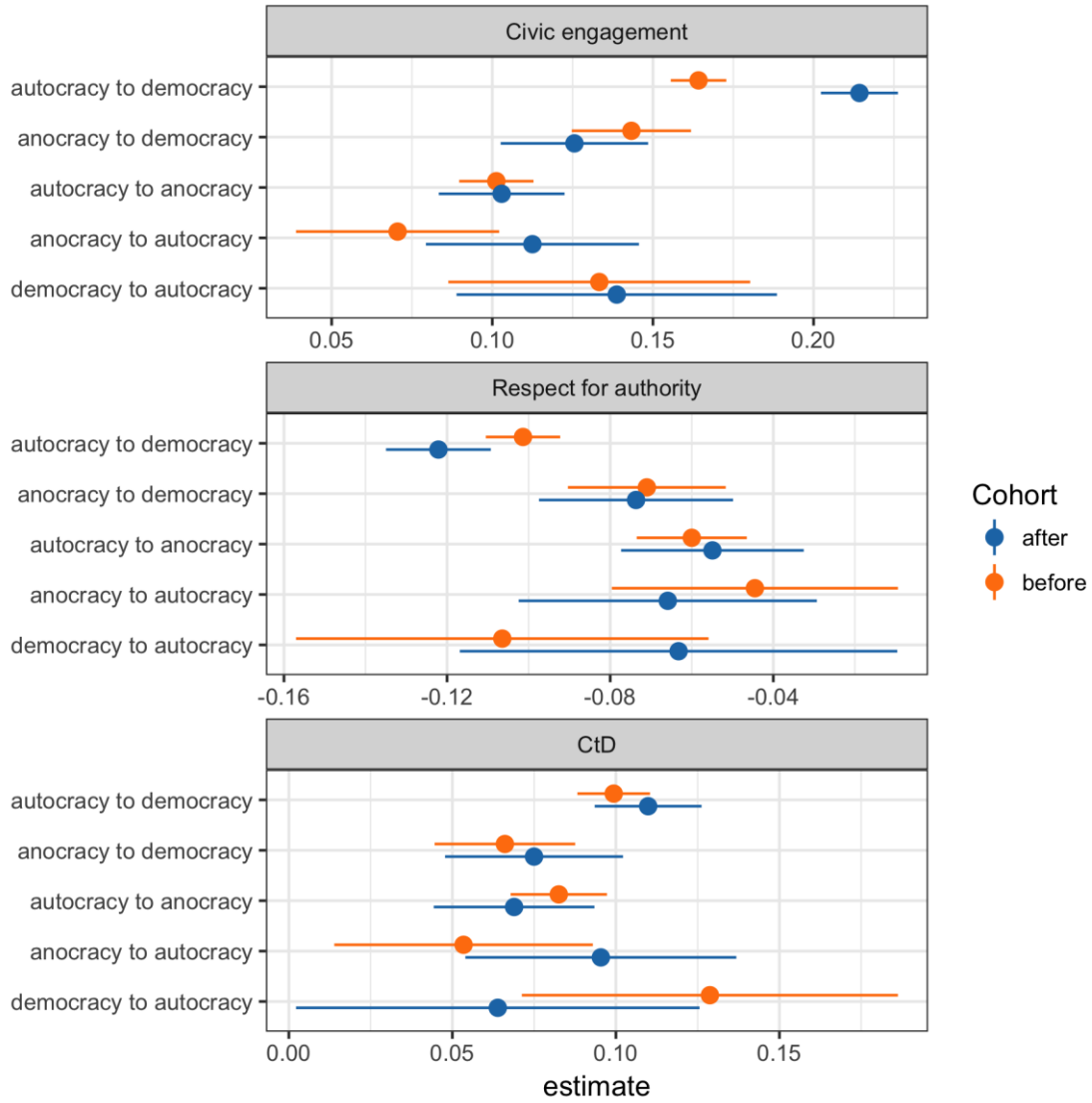
Figure 1. Political Values and behavior, for three levels of education (WVS6)



Note: Aggregated averages with no controls. In each panel, Y-axis shows the country mean for the variable considered, for a given level of education.

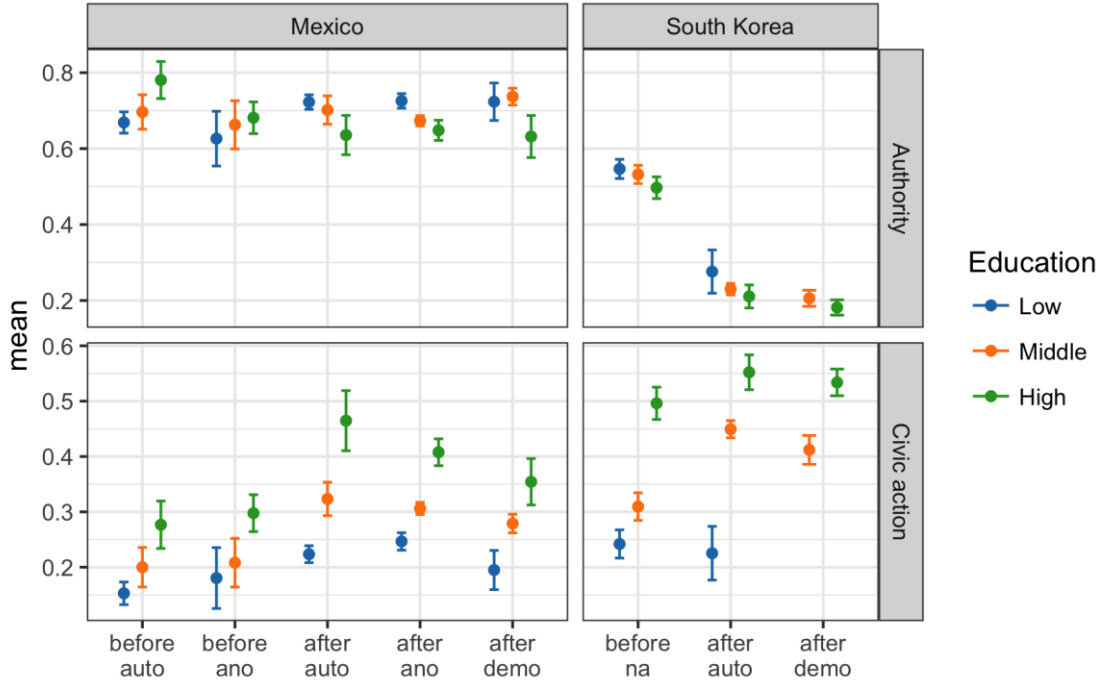


**Figure 2. High education effect before and after different transitions**



Notes: The figures show the estimated effect of high education from the models in the tables 4a and 4b. The related regressions also include controls for education, age, gender, income, and GDPc and use the full sub-samples for each type of transition, as samples are too small in most regime transitions to allow for restricting them to cases of mass education only.

**Figure 3. Korea and Mexico**



**Notes.** “After” refers to opinion polls taken after regime change (i.e. during democratic period). “Before” refers to older polls taken during the autocratic period in Korea, and in the autocratic, and anocratic periods in Mexico. Demo, ano, and auto refer to cohorts educated under a democratic, anocratic, and autocratic phase respectively. The data in the early Korea poll does not specify individual’s age. The data in the graph represents direct averages; the error bars represent a 95% confidence interval.

## ***Annex. Definition of variables***

### **Dependent variables**

*Civic Engagement*: Average value of 3 variables: Have you ever, might or would never: (i) Sign a petition"; (ii) Join in boycotts"; (iii) Attend peaceful demonstrations.

*Respect for Authority*. Average of: (i) Do you think it would be a good thing, a bad thing, or don't you mind? "Greater respect for authority"; (ii) mention "obedience" when asked about the most important qualities children need to learn at home.

*Commitment to democracy (CtD)*. Uses responses to the question: "People sometimes talk about what the aims of this country should be for the next ten years. In each of the 3 menus listed below, which option you consider the most important? And which would be the next most important?" PfD is defined as the number of times democratic principles (M1: 3; M2: 2; M3: 2 or 3) are listed ahead of security interests (M1: 2; M2: 1, M3: 4).

#### *Menu 1*

1. A high level of economic growth
2. Making sure this country has strong defense forces
3. Seeing that people have more say about how things
4. Trying to make our cities and countryside more beautiful

#### *Menu 2*

1. Maintaining order in the nation
2. Giving people more say in important government decisions
3. Fighting rising prices
4. Protecting freedom of speech

#### *Menu 3*

1. A stable economy
2. Progress toward a less impersonal and more humane society
3. Progress toward a society in which Ideas count more than money
4. The fight against crime

### **Independent variables: individual level**

*Age*: 15-99.

*Education*: Aggregated into a 1-3 scale where 1 stands for people who at most have a primary school diploma, 2 for people who have more than primary school and less than university education and 3 for people who have a university degree.

*Female*: takes a value of 1 for female and 0 for male.

*Income*: relative income as stated by respondent.

### **Independent variables: country level**

*LnGDPc*: Logarithmic value of GDP per capita (PPP, constant 2005 international \$), for the year of the survey (World Bank Indicators).

*Regimes types (t)*. We use Policy scores, which range from -10 to+10, to define regime type at the time a survey is taken in time t (note that the definitions are slightly more conservative than standard practice in order to increase the set of democracies and autocracies in our sample):

- *Democracy(t)*. Country had a polity score equal or above 5 at time t.
- *Anocracy(t)*. Country had a polity score above -5 and below 5 at time t
- *Autocracy(t)*. Country had a polity score below -4 at time t

*Cohort (i)* - is the main regime when respondent *i* was 18-23 years old (in a certain country and year of survey). If there was more than one regime type during this period, we take the type that was the longest. Cohorts are coded as transitional during the first 6 years after regime change.

### Annex table 1. Distribution of regime spells

Cohort type	Respondents total	Countries
Autocracy	89384	69
Anocracy	27743	44
Democracy	99456	71

Note: A regime should be stable for at least 6 consecutive years to be considered a spell. Shorter consecutive periods in any one regime are classified as transitional.

### Annex table 2. Regime change

Transition type	N	Countries
Autocracy anocracy	to 22	Algeria, Argentina, Brazil, Burkina Faso, Egypt, El Salvador, Ghana, Guatemala, Iraq, Jordan, Kazakhstan, Kyrgyzstan, Mexico, Nigeria, Rwanda, Tanzania, Thailand, Tunisia, Uganda, Venezuela, Yemen, Zimbabwe
Autocracy democracy	to 34	Albania, Armenia, Bangladesh, Bulgaria, Chile, Colombia, Croatia, Czech Rep., East Germany, Estonia, Georgia, Hungary, Indonesia, Italy, Latvia, Lithuania, Macedonia, Mali, Moldova, Montenegro, Peru, Philippines, Poland, Romania, Serbia, Slovakia, Slovenia, South Korea, Spain, Turkey, Ukraine, Uruguay, West Germany, Zambia
Anocracy autocracy	to 14	Bulgaria, Egypt, Hungary, Indonesia, Iran, Iraq, Kazakhstan, Peru, Romania, South Korea, Thailand, Yemen, Zambia, Zimbabwe
Anocracy democracy	to 18	Argentina, Brazil, Chile, Dominican Rep., Ecuador, El Salvador, Finland, Ghana, Greece, Guatemala, Japan, Lebanon, Mexico, Pakistan, South Africa, Thailand, Uruguay, Venezuela
Democracy autocracy	to 8	Brazil, Chile, Czech Rep., Malaysia, Nigeria, Philippines, Slovakia, Uruguay
Autocracy. change	No 11	Azerbaijan, Belarus, China, Kuwait, Libya, Morocco, Qatar, Russia, Saudi Arabia, Uzbekistan, Viet Nam
Anocracy. change	No 1	Singapore
Democracy. change	No 20	Australia, Austria, Belgium, Canada, Cyprus, Denmark, France, Great Britain, India, Ireland, Israel, Luxembourg, Netherlands, New Zealand, North Ireland, Norway, Sweden, Switzerland, Trinidad and Tobago, United States

Notes: Some countries have experienced more than one transition. We only code transitions between stable regime spells (of more than 6 years) and only if cohorts have at least 10 respondents. Countries without such transitions are included in the "no change" categories.