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Obedience, Schooling, and Political Participation

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Preliminary. Comments are Welcome.

Abstract

This paper proposes a framework for understanding the joint evolution of cultural norms and human capital investment, and how these affect patterns of political participation. We first present some empirical evidence that cultural attitudes towards obedience systematically influence an individual's propensity to engage in different political activities: obedience discourages more confrontational modes of political activity (such as public demonstrations), while raising participation in non-confrontational civic acts (such as voting). These cultural attitudes further appear to be determined in part by cultural transmission across generations. Motivated by this evidence, we develop a dynamic model in which human capital and obedience are both inputs in political and production activities. Individuals optimally choose how to allocate their human capital across these activities, taking their obedience levels as given. They also decide how much to invest in their child's human capital and the degree of obedience to imbue them with. In a baseline case in which the economy features only one traditional sector (say, production-line manufacturing) in which obedience raises productivity, we find that the steady state features a strict complementarity between obedience and human capital: depending on other exogenous forces such as the productivity of human capital, a country could end up in either an "East Asian" steady state of high obedience, high human capital, and relatively non-confrontational politics, or in a converse "Latin American" steady state. However, a richer set of results emerges when we introduce a second production sector (innovation) in which obedience is counter-productive. In particular, a steady state in which obedience is low but human capital levels are high is now possible. Our approach thus illustrates how cultural norms, human capital accumulation, and political participation evolve as the economy advances.

Keywords: Culture; Obedience; Education; Human capital; Political participation; Confrontation

JEL Classification: D72, D78, I20, I21, O15, Z10.

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1 Introduction

How and why do levels of political engagement vary across individuals? Social scientists and pundits have long puzzled about the determinants of political participation, given the importance that this bears for political outcomes such as electoral turnout, campaign contributions, the proper functioning of civil society, and hence for policy outcomes as well. One of the leading explanations in the academic literature has been education: The positive correlation between schooling and political participation at the individual level is broadly speaking one of the most thoroughly-explored and best-established facts in the social sciences. In virtually all countries, more educated citizens are more likely to engage in the full spectrum of political activities, ranging from private acts such as voting to public displays such as demonstrations and petition-signing.[1]

That said, it is also now well-recognized that there is substantial variation across countries in the strength of this relationship between political participation and education (Verba at al. 1987). A stark example in this regard is the following contrast regularly drawn between the prototypical Latin American and East Asian country: While Latin America is often seen as "a region of unusual political phenomena... with its military coups, riots, demonstrations, and frequent unscheduled changes of governments" (Wynia 1978, p.23), East Asian societies have been broadly perceived as ones where "[h]armony and cooperation were preferred over disagreement and competition" and where "the conflict of ideas, groups, and parties was viewed as dangerous and illegitimate" (Huntington 1991, p.24).[2] This presents an obvious puzzle, since it is the East Asian countries that have generally achieved higher levels of human capital accumulation over the last half-century.[3] At first blush, this would appear at odds with the strong positive association between schooling and political participation found in micro-level data within countries.

A classic explanation for this puzzle turns the spotlight on cultural traits. For instance, the role of Confucianism in East Asian societies has often been highlighted because of its emphasis on "a willingness to place the needs of the nation [and] society above oneself and [on] the habit of seeking a consensus" – to use the words of Lee Kuan Yew, the Singaporean leader (quoted by Branegan 1991, p.45). This view is also endorsed by many East Asian scholars, who discuss the role of "a Confucian political culture emphasising obedience, harmony, and discipline" (White and Goodman 1998, p.9).[4] In other words, East

[1] Some selected contributions to this large literature include: Verba and Nie (1987), Rosenstone and Hansen (1993), Putnam (1995), Verba et al. (1995), Bénabou (2000), Schlozman (2002), Dee (2004), Freeman (2004), Milligan et al. (2004), Hillygus (2005), Glaeser et al. (2007), Charles and Stephens (2009), and Campante and Chor (2010).

[2] While Verba et al.'s (1987) seven-nation comparison did not cover Latin America, it is interesting that they found the link between "socioeconomic resources" (such as education) and political participation to be weakest in the one East Asian society (Japan) in their study.

[3] These schooling achievements are documented in the data: East Asian countries lagged slightly behind Latin America in 1960, with the average total years of schooling in the population aged 15 and above in the two regions being 3.95 and 4.07 respectively. By 2000, East Asia had reached 7.48 years of schooling as compared to 6.61 in Latin America (Barro and Lee 2000; calculated using East Asian and Latin American countries present in the dataset in both 1960 and 2000).

[4] This view on "Asian values" has also been put forth by many other Asian leaders, notably Malaysia's Mahathir bin Mohamad (Barr 2002). It is also certainly controversial: White and Goodman (1998) are themselves not sympathetic to the cultural explanation. For broad discussions, see Milner (2000) and Barr (2002).

Asia is different from Latin America when it comes to political involvement and its link with education, so goes this view, because of specific cultural attitudes that stress obedience to elders, political leaders, and sources of authority.

There may be a lot of truth to this culture hypothesis, especially as a body of compelling evidence has emerged on the impact of cultural attitudes on economic and political behavior (see the survey by Guiso et al. (2006), and the references below). We argue though that this explanation is itself incomplete, as it begs the crucial question: Where do these cultural attitudes come from? Under which conditions will they emerge and persist? Specifically in our case, *why* would some countries display more favorable attitudes towards obedience and consensus? After all, cultural values, beliefs, and attitudes may be persistent, but are in principle mutable and not entirely static. What explains their evolution, or lack thereof? The basic culture explanation is also incomplete in that, in its crudest form, it runs the risk of being tautological, with the ascribed influence of culture varying as the outcomes of interest change.[5]

This paper proposes a theory of the joint evolution of cultural attitudes towards obedience, human capital accumulation, and political participation. Our central premise is that there is a need to distinguish between different forms of political and production activities, on which attitudes towards obedience can have very distinct effects. More specifically, political activities can be of a more or less confrontational nature. On the one hand, we have modes of participation that Welch (1975) labels as "protest", and which has elsewhere been termed as "direct action" (Parry et al. 1992) or even "political violence" (Huntington and Nelson 1976). On the other extreme, we have forms of participation, such as voting, which are often regarded as a "civic duty" or even an obligation. It stands to reason that more obedient individuals could well be inclined towards forms of participation that fulfill such a duty, but be less attracted to confrontational activities such as public demonstrations. By the same token, some production activities may be enhanced by obedience – a factory assembly line cannot function if workers question each and every single procedure – while other sectors that involve creativity and "outside-the-box" thinking may actually be hindered by a tendency to conform to rules by default.

We first present evidence drawn from the European Social Survey that the effect of cultural attitudes does vary across distinct modes of political activity, along the lines which we have just suggested. Controlling for a rich set of respondent traits including education, we find that individuals who describe themselves as more rule-abiding are indeed less likely to engage in confrontational political activities, such as demonstrations, boycotts, or petition-signing; on the other hand, such individuals are more likely to vote. Furthermore, cultural norms affect not just the level of participation, but also the intensity of the link between schooling and political participation. It turns out that prevailing attitudes that are favorable towards obedience (as measured by average responses to the survey question on obedience within countries) actually weaken the positive association between schooling and confrontational modes

[5]It has been argued for example that Confucianism had long been viewed as being inimical to economic growth, but that the change in economic fortunes of the East Asian countries led to a re-interpretation that these values were actually growth-enhancing. See White and Goodman (1998, p.8).

of political participation, but conversely strengthens it in the case of non-confrontational activities. We show evidence that this is a result of culturally transmitted traits, instead of idiosyncratic factors: The attitudes that prevail in one's country-of-birth have more explanatory power in this regard than those that pertain to the country-of-residence. This suggests the importance of the communication of these attitudes across generations at an early age.

Motivated by this evidence, we build a framework in which both human capital and obedience are inputs in political and production activities. We distinguish between confrontational and non-confrontational political activities, these being respectively discouraged and encouraged by pro-obedience attitudes. In the model, individuals are endowed with an amount of human capital and a degree of obedience. They in turn decide how much of this human capital endowment to devote to each form of production and political activity. In addition, following Bisin and Verdier (2000a,b) and Tabellini (2008a), they also make decisions on how much to invest in their (single) child's human capital and the degree of obedience to inculcate in him, so that both human capital levels and cultural attitudes emerge endogenously in equilibrium as a result of these inter-generational decisions. Naturally, all of these decisions will depend closely on the economic structure (the available technologies) and the political environment (the institutional setup) in the country.

We first consider a setting in which the production activities in the economy are confined to a non-innovative or conventional sector, in which obedience is productivity-enhancing. This can be interpreted as an economy that is far from the technological frontier, which is dominated by production-line factories. Here, it turns out that since obedience is complementary to human capital in the unique production sector, it follows that the accumulation of human capital will reinforce the incentives to transmit pro-obedience values, and vice versa. This gives rise to the possibility of both "East Asian" (high education and high obedience) and "Latin American" (low education and low obedience) steady states: the former could emerge for instance if there is a particularly high return to human capital in production, be it driven by features of the technology or the factor endowment mix of the country (Campante and Chor 2010). To these different configurations correspond different patterns of political participation, with a relatively high and relatively low prevalence of non-confrontational activities, respectively.

This picture is complicated, however, when we incorporate a second production sector into the model that involves frontier, innovation-driven activities, in which obedience and conformity are now counter-productive instead. The presence of this sector introduces a force in the direction of a negative correlation between human capital and obedience, since the latter now negatively affects some of the available technologies. The strength of this countervailing force depends on how sensitive to obedience the innovation sector is, as well as on how important this sector is in the broader economy. We find that a non-monotonic relationship is now eminently possible, with human capital negatively correlated with obedience at low levels of the latter (precisely because the innovation sector gains prominence when cultural norms are as such), whereas the positive correlation prevails at high levels of obedience. Intuitively too, the forces

pushing towards the negative correlation will be stronger if the innovative sector is particularly intensive in its use of human capital, which seems to be a natural assumption. Yet another push in this direction is introduced if confrontational modes of political activity are more human capital-intensive than non-confrontational ones, since obedience would then discourage human capital accumulation when it comes to the political arena. In sum, when countries move closer to the technological frontier, and innovative, creativity-driven sectors become important, we can expect to observe the combination of high levels of human capital coexisting with cultural values that are averse to obedience, and thus with a relatively higher prevalence of confrontational politics. Culture, political participation, and human capital accumulation thus all respond to changes in the structure of the economy.

This paper relates directly to a large literature that has explored the role of culture in determining economic and political outcomes. Culture-centric arguments are of a very long vintage in the social sciences, dating at the very least to Max Weber.[6] More recently, a body of work by political economists has emerged focusing on the links between outcomes and specific cultural traits – such as cooperation (Tabellini 2008a, Greif and Tabellini 2009), trust (Guiso et al. 2009, Tabellini 2008b), attitudes toward gender roles (Fernandez 2007), family ties (Alesina and Giuliano 2009), *inter alia* (see the survey by Guiso et al. 2006). This literature is also very much concerned with understanding the emergence and transmission of cultural norms. In this regard, our paper is particularly related to the approach in Bisin and Verdier (2000a,b) and Tabellini (2008a), who look at intergenerational transmission in a context in which parents optimally assess the costs and benefits of imbuing their children with specific values. On the empirical side, our use of data on immigrants to tease out the persistence of cultural attitudes is related, among others, to the work of Fernandez and Fogli (2009) and Luttmer and Singhal (2010).

The paper proceeds as follows. Section 2 presents some illustrative empirical findings on how attitudes towards obedience correlate with political participation. Section 3 describes the setup of our theoretical model, while Section 4 proceeds to discusses its implications and predictions, focusing on the rich set of relationships between obedience, human capital investment, and political participation levels that emerge in steady state. Section 5 concludes.

2 Obedience, Schooling, and Political Participation: Motivating Evidence

We first establish some stylized facts on the relationship between attitudes towards obedience and observed levels of political participation. This serves to lay the groundwork for our theory, as it will motivate several of the modeling choices which we will later make. Note therefore that the purpose of this exercise is primarily to throw to light some robust regularities in the data, as opposed to providing an airtight identification strategy.

One of our objectives here is also to understand how privately-held attitudes towards obedience might

[6] Influential works beyond economics include Banfield (1958) and Putnam (1993).

(or might not) evolve over time for a given individual. To this end, much of our empirical exploration below will adopt a strategy that relies on individuals whose country-of-residence differs from their country-of-birth, namely immigrants. The idea here is to examine which cultural norms towards obedience – that or one's country-of-residence (COR), as opposed to one's country-of-birth (COB) – are more relevant for determining political participation levels.

2.1 Data Description

The dataset which we explore is the European Social Survey (ESS), a biennial study of societal values and attitudes across Europe, that is supported by the European Commission and the European Science Foundation. While the ESS is administered in each country by local partner institutions, the survey instrument and protocols have been standardized in order to facilitate formal academic research. Random sampling procedures were used, and an effort was made to ensure a response rate of at least 70%. The survey itself was conducted via a face-to-face interview lasting about an hour.

To date, four rounds of the ESS have been completed, starting with Round 1 in 2002/2003 to the recently concluded Round 4 in 2008/2009. More than 30 countries have cumulatively been covered. We merged the latest version of the data from each ESS round, giving us an eventual sample size of about 100,000 observations to work with. (See Appendix Table 1 for a breakdown of the countries in our sample.) For our purposes, a key advantage of the ESS lies in the fact that it records both the COR and COB of each respondent, allowing us to identify those individuals whose residence and birth countries differ as immigrants. There are about 9,100 such immigrants in our merged dataset, just under 9% of the total sample. Of these, just over half, or about 4,800, are originally from other ESS survey countries within Europe. Naturally, the survey has a narrower Euro-centric focus in terms of country coverage, but as we shall see below, there is nevertheless sufficient variation in the data for us to work with.[7]

We base our measure of an individual's attitudes towards obedience ("Own Obedience", for short) on the following ESS question that appears in the "Human Values" section of the survey:

> *Now I will briefly describe some people. Please listen to each description and tell me how much each person is or is not like you.*
>
> - *She/he believes that people should do what they're told. She/he thinks people should follow rules at all times, even when no-one is watching.*

We recoded the responses to this question to be increasing in obedience, on a scale of 1 (not like me at all) to 6 (very much like me). Moving from individual attitudes to country norms, we further constructed an obedience score for each country: We took a weighted average of the "own obedience" scores of country natives (those born and residing in the country) in each ESS round using the survey design weights,

[7]The World Values Survey, another leading cross-country survey of social attitudes, contains a much wider country sample, but unfortunately does not allow us to distinguish between natives and immigrants.

and then took a simple mean of the weighted scores across ESS rounds. The country obedience scores range from a low of 3.26 (France) to a high of 4.66 (Turkey). A full list of these scores, as well as other summary statistics, is presented in Appendix Table 2.

The ESS contains a good range of political participation measures, which are helpful for distinguishing between more confrontational or "protest"-oriented modes on the one hand, and civic duty activities on the other. On the former, we use three separate dummy variables – "demonstrate", "boycott", and "petition" – that indicate whether the respondent had in the last 12 months taken part in a lawful public demonstration, boycotted certain products, or signed a petition respectively. Additionally, we use an indicator variable for whether the respondent voted in the last national election, voting being the canonical form of political activity that is often viewed as a duty or obligation. Finally, we also examined a variable on self-avowed interest level in politics, coded on a scale of 1 (not at all interested) to 4 (very interested). While this is clearly a more subjective measure, it can be expected to be correlated with an individual's propensity to engage in more active, observable forms of political activity.[8] Appendix Table 3 tabulates some correlations between our key variables. While our five participation variables are all pairwise positively correlated, the magnitudes of these Pearson coefficients are all generally much smaller than 1. In particular, the correlation between "vote" and "demonstration"/"boycott"/"petition" is each less than 0.1 (though still statistically significant at the 1% level), suggesting that these variables are indeed picking up fairly distinct dimensions of political participation.

2.2 Some Stylized Facts

We start by demonstrating the importance of personal attitudes towards obedience in influencing one's propensity to engage in political activities. We explore this issue in Table 1, using OLS regression specifications of the form:

$$PolPart_{irbt} = \beta_1 Educ_{it} + \beta_2 Obed_{it} + \beta_V V_{it} + D_{rt} + D_{bt} + \varepsilon_{irbt} \quad (1)$$

Here, i indexes the respondent, and t refers to time (in our case, the ESS survey round).[9] These regressions thus seek to explain political participation ($PolPart$) as a function of individual traits, in particular one's years of education ($Educ$), and own obedience ($Obed$). To guard against omitted variables bias, the vector V_{it} controls for a host of socio-economic characteristics, namely: age, age squared, gender, marital status, number of children, a student dummy, an employed dummy, log household income, and occupational dummies. (Please see the Data Appendix for details on these auxiliary variables.) We also include COR-ESS round fixed effects (D_{rt}) and COB-ESS round fixed effects (D_{bt}) to capture any

[8] A common caveat in this line of research is that self-reported data are often quite noisy. For instance, Bernstein et al. (2001) have found that voting is often over-reported in surveys as respondents may want to appear to conform to socially-approved behavior. We thus include a comprehensive set of individual attributes and country-round fixed effects in our regressions, since these variables may well be correlated with the unobserved systematic sources of bias in the reported levels of political participation. On the other hand, if the noise is essentially random, this would bias us against finding significant results.

[9] Note that the ESS is not a longitudinal survey, so that we cannot track an individual over time.

country- or time-specific forces that might systematically affect the level of political participation in that ESS country survey.[10] For example, the role of compulsory voting laws in raising turnout rates would be captured by the COR-round fixed effects. (Note that the subscripts r and b respectively keep track of the COR and COB of the respondent.) We report standard errors clustered by COR, to accommodate correlated but unobservable shocks to behavior within countries that are relatively stable across ESS rounds.

[TABLE 1 HERE]

The findings in Table 1 highlight the importance of distinguishing between different modes of political activity when assessing the role of attitudes towards obedience. Focusing first on the upper panel, obedience is positively correlated with one's propensity to vote (Column 1), but appears instead to discourage involvement in demonstrations, boycotts, or petitions (Columns 2-4). More obedient individuals also appear to be less interested in politics (Column 5). Of note, the effects of own obedience are significant, even after controlling for individual education. As expected, education is itself significantly correlated with participation, but unlike obedience, its effect is uniformly positive across all forms of political activity.[11] In the lower panel, we further include a dummy variable for whether the respondent was an immigrant, given the prominent role that these individuals will play in some of our later regressions. This does not detract from the effects of own obedience found in the upper panel baseline. We nevertheless include this additional dummy moving forward in the control vector, V_{it}, given that immigrant status appears to play an important part in influencing particularly one's propensity to vote.[12]

We summarize our findings in the following statement:

Fact 1 *Individuals who place a greater importance on obedience participate less in confrontational forms of political activity, such as demonstrations, boycotts, or petitions. Conversely, they tend to participate more in non-confrontational forms of political activity, namely voting.*

To reiterate, a key takeaway point from this is the distinction between confrontational and non-confrontational modes of political activity, which is especially pertinent when considering how obedience affects political participation.

We next turn to the question of how cultural norms towards obedience might affect the strength of the observed association between schooling and political participation. This positive correlation is itself a well-established stylized fact in the political science literature.[13] Campante and Chor (2010) have in turn

[10] The Table 1 results are very similar if we drop the COB-round fixed effects (available on request).

[11] We do not report the coefficients estimated for the vector of individual controls, V_{it}, for the sake of brevity. The findings here are generally consistent with prior empirical work on the determinants of political participation. In particular, the coefficient on log household income is positive and typically significant, so the estimated effects of own obedience and education are not picking up income effects.

[12] This result on immigrants is not driven by eligibility to vote, since ineligible respondents are coded as missing.

[13] See however Tenn (2007), Kam and Palmer (2008), Berinsky and Lenz (2008) for some key exceptions that uncover a weak relationship between schooling and political participation in particular settings.

shown that various key country characteristics can systematically affect the intensity of this schooling-participation link. Using World Values Survey (WVS) data for example, they find that countries with a stronger norm towards obedience in the workplace tend to feature a weaker correlation between schooling and political participation. We therefore explore a similar empirical specification to theirs:

$$\begin{aligned} PolPart_{irbt} &= \beta_1 Educ_{it} + \beta_2 Obed_{it} + \beta_3 Educ_{it} \times CORObed_r + \beta_4 Educ_{it} \times COBObed_b \\ &\quad + \beta_V V_{it} + D_{rt} + D_{bt} + \varepsilon_{irbt} \end{aligned} \tag{2}$$

This augments (1) with an interaction term between an individual's education and the prevailing obedience score in his/her COR ($CORObed_r$), the idea being to examine whether these cultural norms alter the responsiveness of $PolPart$ to education across countries. In later specifications, we will also consider the interaction effect of the corresponding obedience score in the respondent's COB ($COBObed_b$) to gauge which norms – those pertaining to the country-of-residence versus the country-of-birth – are more relevant in influencing the patterns of political participation. Note that the estimation of these interaction effects (β_3 and β_4) rests primarily on the variation in the COR and COB obedience scores across the roughly 30 European countries in the ESS.

Table 2 presents the results from running (2), taking into account only COR obedience norms for now. Note that we control for the full list of respondent variables, V_{it}, including a dummy for immigrant status, as well as both COR-round and COB-round fixed effects, although we do not present these coefficients in the table. On the whole, Table 2 indicates that a more obedient culture tends to dampen the responsiveness of political participation to schooling: The point estimates for the education-COR obedience interaction are always negative for all the participation measures, albeit statistically insignificant in the case of "vote" and "demonstrate". In the lower panel, we include a further interaction term between individual education and immigrant status, given what we have seen in Table 1 on the potential differences in political behavior between natives and immigrants, but this hardly changes the previously estimated results for β_3. The results are also virtually identical if we use COB obedience instead of COR obedience in the interaction with individual education (regardless of whether the standard errors are clustered by COR or COB; available on request). This is not surprising given that the countries of residence and birth coincide for a little over 90% of our sample.[14]

[TABLE 2 HERE]

We explore in Table 3 which of these norms, namely COR versus COB attitudes towards obedience, might be more important in explaining patterns of political participation. To this end, we run a horse-race following (2) which includes the interaction of respondent education with each of the COR and COB obedience scores respectively. It is worth emphasizing that the joint estimation of both interaction

[14]Note that we can only associate a COB obedience score to respondents whose COB was also an ESS sample country, since the country obedience scores could only be calculated for these European nations. This drops immigrants from non-European origins from our sample, which is roughly half of all the immigrants.

coefficients rests on the subset of immigrants in the sample, whose COR differs from their COB. Focusing first on the upper panel, we now obtain particularly interesting results for the interaction with COB obedience: A more obedient COB culture tends to reinforce the positive correlation between voting and individual schooling (Column 1; β_4 positive and significant at the 10% level). However, COB obedience is associated once again with a weaker link between the confrontational modes of political activity and schooling, particularly for "boycott" and "petition" (Columns 3-4; β_4 negative and significant at the 5% level). We reach a similar set of conclusions in the lower panel, where we further allow the effect of education to vary with immigrant status, although the interaction coefficient for "petition" is now marginally insignificant. Admittedly, prevailing attitudes in one's COR are relevant too, as these appear to dampen the responsiveness of "petition" and "interest" to schooling levels (Columns 4-5). We shall see below however that this role of COR obedience is not robust to a more stringent set of controls.

[TABLE 3 HERE]

One concern with these results is that we are not controlling sufficiently for other country characteristics that might also affect the education-participation relationship. We therefore turn to a set of specifications in which the $Educ_{it} \times CORObed_r$ term in (2) is replaced instead by years of education interacted with a full set of COR-round fixed effects; we drop the first COR-round dummy to ensure no collinearity problem with the main effect of $Educ_{it}$. This allows us to address the issue of potential omitted variables that affect how COR conditions interact with individual education, while at the same time isolating the interaction effect of COB obedience. Note that this is a fairly stern test for the data, since it involves adding as many control variables as there are COR-rounds. Table 4 nevertheless provides some measure of assurance for our results. The point estimate of the COB obedience interaction remains positive for "vote", and is in fact significant at the 5% level in the lower panel where we also include an interaction with immigrant status. On the other hand, the COB obedience interaction has a negative effect on one's propensity to engage in confrontational modes of political activity, with this result being particularly robust for "boycott".

[TABLE 4 HERE]

Table 5 provides a striking contrast when we run the analogous exercise of isolating the interaction effect of COR obedience, while controlling for a full set of interactions between education and COB-round fixed effects. Here, we now find that none of the COR obedience interactions is statistically significant at conventional levels.[15] This leads us to:

Fact 2 *A stronger country culture of obedience tends to lower the responsiveness of confrontational forms of participation to education, but tends to raise the responsiveness of non-confrontational forms*

[15]Tables 4 and 5 cluster the standard errors by COB and COR respectively. The results are unaffected if the alternative clustering is adopted.

of participation to education instead. Importantly, country-of-birth attitudes towards obedience are more influential than country-of-residence attitudes towards obedience in determining the responsiveness of political participation to education.

[TABLE 5 HERE]

Once again, Fact 2 highlights the need to differentiate between "protest"-oriented and "civic duty" modes of political participation, this time because of the distinct interaction effects that are observed between individual schooling and country obedience on the various forms of political activity. The observation that COB norms are more robust predictors is also an important one, as it suggests that the early childhood years are especially pivotal in shaping one's attitudes towards obedience via the inter-generational transmission of such values.

Last but not least, we briefly investigate the determinants of personal attitudes on obedience, as one of the key features in our theoretical model will be a mechanism for the transmission of such values. In this regard, Table 6 considers specifications of the form:

$$Obed_{irbt} = \beta_1 Educ_{it} + \beta_R CORObed_r + \beta_B COBObed_b + \beta_V V_{it} + \varepsilon_{irbt} \tag{3}$$

Thus, we examine whether an individual's views on obedience are in fact explained by the prevailing country attitudes on obedience, where the contrast being drawn between COR and COB cultural norms is very much in the spirit of Luttmer and Singhal (2010).

[TABLE 6 HERE]

The baseline regression in Table 6 controls only for respondent characteristics and excludes country obedience scores. Note here that individual education has no significant effect on personal obedience (Column 1).[16] Adding the COR and COB obedience scores separately (Columns 2 and 3), we find that this roughly doubles the explanatory power of the regression, with COR and COB norms being respectively positively correlated with own obedience almost one-for-one. Of note too, the coefficient on education is now significant, so that having controlled for average country obedience levels, individuals with more years of schooling place less importance on obedience. Including both COR and COB obedience jointly leads to smaller point estimates for the effects of each (Column 4), but both continue to have a statistically significant influence. Reassuringly, these findings are robust to the use of either COB-round or COR-round fixed effects (Columns 5 and 6). In sum:

Fact 3 *An individual's own attitudes towards obedience are positively correlated with the prevailing culture towards obedience in both his/her country-of-residence and country-of-birth.*

[16] Table 6 reports standard errors clustered by COR, but the results are very similar if we allow the error terms to be correlated within COB instead.

We view the above evidence as consistent with the idea that there is some component of personal attitudes towards obedience that is culturally transmitted, presumably from one's parents, as reflected by the continued relevance of COB obedience even when controlling for COR obedience or COR-round fixed effects. While the environment that one lives or works in (the country-of-residence) is clearly also important in this regard, the communication of values from the COB has a persistent influence on immigrants in particular.

These stylized facts will inform our model of cultural transmission, human capital accumulation, and political participation, to which we now turn.

3 A Simple Model of Obedience, Human Capital Accumulation, and Political Participation

Our goal is to understand the joint evolution of human capital, political participation, and cultural attitudes towards obedience. To do so, we consider a model where individuals are faced with a choice over the allocation of their human capital endowment, denoted by H, between production and political activities.[17] Cultural attitudes towards obedience affect the relative productivity or effectiveness of human capital across the different production and political activities, and this will in turn condition one's incentives to transmit these values to one's children, along with how much one will choose to invest in the human capital of the next generation.

3.1 Obedience and Politics

Motivated by the empirical evidence from the previous section, we let political activity take two distinct forms: "confrontation" (such as demonstrations and boycotts), which encompasses what we have labeled as "protest" modes of participation, and "non-confrontation" (as exemplified by voting), which are more related to "civic duty". We look at them as two ways through which citizens can impose checks on the behavior of the government, which we model, as a shorthand, as limits on the latter's ability to expropriate the income generated by the former.

In other words, the government can expropriate a fraction $\tau(x_c, x_n)$, where x_c denotes the amount of human capital devoted to political activity of the confrontational kind, and x_n denotes the amount applied to non-confrontational activities. We assume that $\tau_1, \tau_2 < 0$, $\tau_{11}, \tau_{22} > 0$ – devoting more effort to political activity of either kind increases the checks faced by the government, but at a decreasing rate. We can interpret the relative size of τ_1 and τ_2 as depending on institutional characteristics: for instance, the absolute value of the former relative to the latter is smaller in democracies, where there is more scope for non-confrontational forms of participation.

[17] This model builds on Campante and Chor (2010). In that model, individuals are faced with a choice over the allocation of human capital between three production sectors and one form of political participation.

For our purposes, the crucial difference between the two forms of participation has to do with "culture," or more precisely, with *obedience*. We take as a premise that more obedient individuals – that is to say, those who believe that it is not appropriate to question orders received from those in a higher rank, be they elders, or supervisors, or political leaders – will be less predisposed to political confrontation. One could perhaps argue that obedient individuals could also be willing to take orders from leaders who oppose the established government, but the empirical evidence summarized in stylized Facts 1 and 2 suggests that more obedient individuals are indeed less willing to take part in confrontational activities.

We try to capture this idea by letting each individual be endowed with an obedience parameter, $\theta \in [0,1]$, and assuming that θ makes confrontation less effective in providing checks on the government's expropriation. We also impose, for simplicity, the symmetric assumption that obedience actually helps make non-confrontation more effective. This is not needed for our main results, but to the extent that non-confrontation is related to voting, it captures the idea that voting is often seen as a kind of "civic duty," which obedient citizens may be especially predisposed to fulfill. This is again consistent with the evidence from the previous section, which shows that individuals with favorable attitudes towards obedience are indeed more likely to engage in those kinds of political activity.

In order to facilitate the analysis, we will summarize these assumptions in the following functional forms:

$$x = (1-\theta)^{1-\lambda_c} x_c^{\lambda_c} + \theta^{1-\lambda_n} x_n^{\lambda_n} \tag{4}$$

$$\tau(x) = 1 - Ax^{\sigma} \tag{5}$$

where $\lambda_c, \lambda_n, \sigma \in (0,1)$, and A is suitably chosen so that $\tau(x)$ stays between 0 and 1. We will refer to x as "effective political participation".

3.2 Obedience and Production

In addition to political activities, human capital can also be used in production. Cultural attitudes towards obedience can also affect productivity. *Prima facie*, obedience might hurt or help in production – it depends on the characteristics of technology. On the one hand, innovative activities may require unconventional thinking and creativity, which are stifled by obedience. On the other hand, more conventional activities can thrive on cooperation, which might be enhanced by obedience. Besides the distinct effects of obedience, these activities may also differ in terms of their human capital intensity.

We capture these different possibilities by assuming that total output, y, is the sum of the outputs produced by two sectors that are affected differently by obedience: an "innovative" sector I, and a conventional, "non-innovative" sector N. Individuals can allocate human capital to production across these different sector, in amounts denoted h_I and h_N, and these will generate output according to the

production functions:

$$y_N = A_N h_N^{\alpha} f(\theta), \tag{6}$$

$$y_I = A_I h_I^{\mu} g(\theta). \tag{7}$$

We assume $f'(\theta) > 0$ and $g'(\theta) < 0$, so that obedience enhances productivity in the conventional sector, while hindering it in the innovative sector. (We also assume diminishing returns: $f''(\theta) < 0$ and $g''(\theta) > 0$.) As far as human capital-intensity is concerned, we impose the natural assumption that $\alpha \leq \mu$: the innovative sector is at least as intensive in its use of human capital as the conventional sector. Finally, we impose the parametric assumption $\mu + \sigma\lambda < 1$, so that there are diminishing returns to human capital when both its productive and political role are taken into account and the problem is well-behaved.

3.3 Human Capital Accumulation and the Evolution of Cultural Attitudes

Since we want to study the evolution of culture and the accumulation of human capital, we need a dynamic model. Motivated by the evidence that individual attitudes seem to be affected by prevailing average attitudes in the individual's country of origin, we consider a model in which cultural values are transmitted across generations, adapting Bisin and Verdier (2000a,b) and Tabellini (2008a). More specifically, we take each individual to live for one period, but to have one (and only one) child. We assume that an individual living in period t can endow her child with human capital H_{t+1} and cultural attitudes θ_{t+1}, but this requires an investment of $\omega(\theta_{t+1}, H_{t+1})$ in terms of final consumption.[18] We also assume an intergenerational discount factor of $\beta \in (0, 1)$.

In sum, the individual chooses how much human capital to invest in each type of political activity and in each production sector, and how much of her output (net of expropriation by the government) to set aside for her child's education. This education will leave her child with a certain endowment of human capital, and inculcate her with certain attitudes regarding obedience. This is all captured in the following maximization problem:

$$\max_{(h_{Nt}, h_{It}, x_{ct}, x_{nt}, \theta_{t+1}, H_{t+1})_{t=0}^{\infty}} \sum_{t=0}^{\infty} \beta^t \left[u(c_t)\right]$$

$$\text{s. t.} \quad c_t = (1 - \tau(x_t))\, y_t - \omega(\theta_{t+1}, H_{t+1}), \tag{8}$$

$$y_t = A_N h_{Nt}^{\alpha} f(\theta_t) + A_I h_{It}^{\mu} g(\theta_t), \tag{9}$$

$$h_{Nt} + h_{It} + x_{ct} + x_{nt} = H_t, \tag{10}$$

$$\tau(x_t) = 1 - A x_t^{\sigma}, \tag{11}$$

$$x_t = (1 - \theta_t)^{1-\lambda_c} x_{ct}^{\lambda_c} + \theta_t^{1-\lambda_n} x_{nt}^{\lambda_n}, \tag{12}$$

$$h_{Nt}, h_{It}, x_{ct}, x_{nt}, H_{t+1} \geq 0, \theta_{t+1} \in (0, 1),$$

$$\text{and} \quad \theta_0, H_0.$$

[18] We also follow Tabellini (2008a) in assuming that the cost is independent of θ_t and H_t.

The corresponding Bellman equation is:

$$V(\theta_t, H_t) = \max\left[u(c_t) + \beta V(\theta_{t+1}, H_{t+1})\right], \tag{13}$$

where V denotes the optimal value as a function of the state variables θ_t, H_t.

4 Obedience, Human Capital Accumulation, and Political Participation: Results

We will proceed in our analysis by starting from the simplest possible case, in which there is only one productive technology (the conventional sector) and both types of political activity are equally intensive in human capital. This will build the intuition for our main results, which we will then extend by lifting those simplifying assumptions.

4.1 Benchmark Case: Conventional Production and Symmetric Politics

Let us consider an economy in which there is no innovative sector ($A_I = 0$) and in which both confrontation and non-confrontation are equally intensive in terms of human capital ($\lambda_c = \lambda_n = \lambda$). The former assumption can be interpreted as capturing an economy which is far from the technological frontier, and the latter is a convenient benchmark.

4.1.1 Solution

From the Bellman equation (13), we can derive four FOCs characterizing an interior solution:[19]

1. x_t^c:

$$-u'(c_t)y_t(-\tau'(x_t))\left[(1-\theta_t)^{1-\lambda}\lambda x_{ct}^{\lambda-1} - \theta_t^{1-\lambda}\lambda x_{nt}^{\lambda-1}\right] = 0 \tag{14}$$

2. h_{Nt}:

$$u'(c_t)A_N h_{Nt}^{\alpha} f(\theta_t)\left[(1-\tau(x_t))\frac{\alpha}{h_{Nt}} + \theta_t^{1-\lambda}\tau'(x_t)\lambda x_{nt}^{\lambda-1}\right] = 0 \tag{15}$$

3. θ_{t+1}:

$$-u'(c_t)\omega_1(\theta_{t+1}, H_{t+1}) + \beta V_1(\theta_{t+1}, H_{t+1}) = 0 \tag{16}$$

4. H_{t+1}:

$$-u'(c_t)\omega_2(\theta_{t+1}, H_{t+1}) + \beta V_2(\theta_{t+1}, H_{t+1}) = 0 \tag{17}$$

We can also derive two additional conditions from the envelope theorem:

1. θ_t:

$$V_1(\theta_t, H_t) = u'(c_t)y_t\left[(1-\tau(x_t))\frac{f'(\theta_t)}{f(\theta_t)} - \tau'(x_t)(1-\lambda)\left(\theta_t^{-\lambda}x_{nt}^{\lambda} - (1-\theta_t)^{-\lambda}x_{ct}^{\lambda}\right)\right] \tag{18}$$

[19] The optimal solution obviously involves $h_{It} = 0$.

2. H_t:

$$V_2(\theta_t, H_t) = -u'(c_t)y_t \left[-\tau'(x_t)\theta_t^{1-\lambda}\lambda x_{nt}^{\lambda-1}\right] \tag{19}$$

We can use (18) and (19) to substitute for the value function in (16) and (17), and focus our analysis on a steady state where all the variables of interest are constant. This implies:

$$-\omega_1(\theta, H) + \beta y \left[(1-\tau(x))\frac{f'(\theta)}{f(\theta)} - \tau'(x)(1-\lambda)\left(\theta^{-\lambda}x_n^{\lambda} - (1-\theta)^{-\lambda}x_c^{\lambda}\right)\right] = 0 \tag{20}$$

$$-\omega_2(\theta, H) + \beta y \left[-\tau'(x)\theta^{1-\lambda}\lambda x_n^{\lambda-1}\right] = 0 \tag{21}$$

We thus have five equations, (10), (14), (15), (20), and (21), to determine the five endogenous variables of interest: x_c, x_n, h, θ, H.

4.1.2 Analysis

We first note that (14) immediately implies that:

$$\frac{x_{nt}}{x_{ct}} = \frac{\theta_t}{1-\theta_t} \tag{22}$$

In words, individuals will choose to devote more effort to non-confrontation relative to confrontation if they are more obedient, which is an obvious implication from obedience is conducive to non-confrontation. Similarly, we can manipulate (15) (combined with (11) and (12)) to obtain:

$$h_{Nt} = \frac{\alpha}{\sigma\lambda}\left[\left(\frac{(1-\theta_t)}{\theta_t}\right)^{1-\lambda}\left(\frac{x_{ct}}{x_{nt}}\right)^{\lambda-1}x_{ct} + x_{nt}\right] \tag{23}$$

Combining (22) and (23) in turn yields:

$$h_{Nt} = \frac{\alpha}{\sigma\lambda}(x_{ct} + x_{nt}) \tag{24}$$

From this, using (10), we can easily obtain what we consolidate in the following:

Proposition 1 *If there is no innovative sector ($A_I = 0$) and both political activities are equally intensive in human capital ($\lambda_c = \lambda_n = \lambda$), then:*

$$h_{Nt} = \frac{\alpha}{\alpha + \sigma\lambda}H_t, \tag{25}$$

$$x_{ct} = (1-\theta_t)\frac{\sigma\lambda}{\alpha+\sigma\lambda}H_t, \tag{26}$$

$$x_{nt} = \theta_t\frac{\sigma\lambda}{\alpha+\sigma\lambda}H_t. \tag{27}$$

The functional form assumptions enable us to obtain closed-form solutions whereby individuals will choose to devote a constant share of their human capital to production – a share that will be greater the larger is the effectiveness of human capital in production (α) relative to its effectiveness in politics ($\sigma\lambda$). Out of the share that is devoted to politics, as mentioned above, more will be devoted to

non-confrontational activities by relatively obedient individuals. Note in particular that this result is consistent with the evidence that obedience weakens the link between political participation and education in confrontational activities, while strengthening that link in the case of non-confrontation: $\frac{d^2x_c}{dHd\theta} < 0$, $\frac{d^2x_n}{dHd\theta} > 0$.

Proposition 1 describes how individual choices on the allocation of human capital across different activities will be affected by the human capital endowment and by cultural attitudes. But these will in turn be determined endogenously. To see how this plays out in steady state, we can plug our results back into (20) and (21). After some straightforward algebra, we obtain the following:

Proposition 2 *If there is no innovative sector ($A_I = 0$) and both political activities are equally intensive in human capital ($\lambda_c = \lambda_n = \lambda$), then in steady state we will have:*

$$-\omega_1(\theta, H) + K_1 f'(\theta) H^{\alpha+\lambda\sigma} = 0 \tag{28}$$

$$-\omega_2(\theta, H) + K_2 f(\theta) H^{\alpha+\lambda\sigma-1} = 0 \tag{29}$$

where $K_2 \equiv \beta A_N A \sigma\lambda \left(\frac{\alpha}{\alpha+\sigma\lambda}\right)^{\alpha} \left(\frac{\sigma\lambda}{\alpha+\sigma\lambda}\right)^{\sigma\lambda-1}$ *and* $K_1 \equiv \frac{K_2}{\alpha+\sigma\lambda}$.

To understand the implications of those, it is best to start by imposing separability in the cost function $\omega(\theta, H)$.[20] If that is the case, we can divide (28) by (29) to get:[21]

$$\omega_2(H)H = (\alpha + \sigma\lambda)\frac{f(\theta)}{f'(\theta)}\omega_1(\theta) \tag{30}$$

From this equation it follows that *human capital and obedience are positively correlated in steady state.* Formally, note first that the LHS in (30) is increasing in H, and so is the term $\omega_1(\theta)$ in θ (this relies on the convexity of the cost function); it follows that the correlation is guaranteed to be positive if the term $\frac{f(\theta)}{f'(\theta)}$ is also increasing in θ. It is easy to see that this will be the case if $f''(\theta) < 0$, which we have assumed in order to capture decreasing returns in the $f(\theta)$ function. This result is depicted by the upward-sloping line in Figure 1: the combination of human capital and obedience, in steady state, must be located on this straight line.[22]

[FIGURE 1 HERE]

The intuition for this result is transparent. In the conventional sector, human capital and obedience are complements in production. Obedient individuals are more effective in production, and this greater effectiveness means that an individual will have a stronger incentive to invest in human capital for her

[20] While it simplifies the exposition, the assumption of separability is not necessary. It is enough that the cross-partial ω_{12} be negative – in other words, that it is marginally less costly to educate obedient children.

[21] Note that (28) implies that an interior solution requires $f'(\theta) > 0$, which is what we have assumed. In other words, it must be that obedience enhances production in equilibrium. If that were not the case, there would be no reason to face the cost of inculcating obedience into the minds of the next generation – the positive and negative political effects will cancel each other out in equilibrium.

[22] This Figure is drawn for a special case in which $f(\theta)$ is an isoelastic function.

child if this child will be more obedient.[23] In sum, this model predicts that *highly educated countries (or individuals) will be more obedient than less educated ones.* This seems consistent, *prima facie*, with the contrast between East Asia and Latin America.

4.2 Introducing an Innovative Sector

The conclusions in the previous subsection were contingent on there being no innovative sector in the economy – in other words, a situation that would best describe economies that are far from the technological frontier. But what happens when such a sector exists ($A_I > 0$)?

The same Bellman equation (13) still holds, of course. As it turns out, we can show that (22) will still hold in relating x_{nt} and x_{ct}. We now have separate FOCs with respect to h_{It} and h_{Nt}, but when combined they will yield:

$$h_{It} = \left(\frac{\mu A_I g(\theta_t)}{\alpha A_N f(\theta_t)}\right)^{\frac{1}{1-\mu}} h_{Nt}^{\frac{1-\alpha}{1-\mu}}. \tag{31}$$

In isolation, they will yield, in analogy with (24):

$$h_{Nt} = \frac{\alpha}{\sigma\lambda}\left(x_{ct} + x_{nt}\right)\frac{A_N h_{Nt}^{\alpha} f(\theta_t)}{y_t}, \tag{32}$$

$$h_{It} = \frac{\mu}{\sigma\lambda}\left(x_{ct} + x_{nt}\right)\frac{A_I h_{It}^{\mu} g(\theta_t)}{y_t}. \tag{33}$$

From this we obtain:

Proposition 3 *If an innovative sector exists ($A_I > 0$), and both political activities are equally intensive in human capital ($\lambda_c = \lambda_n = \lambda$), then:*

$$h_{It} + h_{Nt} = \frac{T(\theta, H)}{T(\theta, H) + \sigma\lambda} H_t, \tag{34}$$

$$x_{ct} = (1 - \theta_t)\frac{\sigma\lambda}{T(\theta, H) + \sigma\lambda} H_t, \tag{35}$$

$$x_{nt} = \theta_t \frac{\sigma\lambda}{T(\theta, H) + \sigma\lambda} H_t. \tag{36}$$

where $T(\theta, H) \equiv \alpha\frac{A_N h_{Nt}^{\alpha} f(\theta_t)}{y_t} + \mu\frac{A_I h_{It}^{\mu} g(\theta_t)}{y_t}$.

Proposition 3 is analogous to Proposition 1. Note, however, that T is a weighted average of the human capital-intensity parameters α and μ, with the weights given by the shares of the respective sectors. In that sense, it captures the effective human capital intensity of production. It will also be convenient to rewrite $T(\theta, H) \equiv \frac{\alpha\left(1+\frac{h_I}{h_N}\right)}{1+\frac{\alpha}{\mu}\frac{h_I}{h_N}}$, which shows that T can be understood as a function of the $\frac{h_I}{h_N}$ ratio.

[23] Note that this argument is not reliant on the separability of the cost function. Only if educating obedient children were sufficiently harder than educating disobedient ones would this link possibly be overturned.

4.2.1 Case 1: Both Sectors Have the Same Human Capital-Intensity

In order to make progress, it is convenient to start by considering the special case in which $\alpha = \mu$. In words, the only difference between the technologies (up to the proportionality constants, A_N and A_I) comes from obedience, and not from human capital intensity. It is then easy to show that $T(\theta, H) = \alpha$, and hence both x_{ct} and x_{nt} are the same as before, given by (26) and (27). As a result, the same predictions with respect to the different forms of political participation still hold.

What is different now is that human capital will be devoted to production according to:

$$h_{Nt} = \Omega(\theta_t)\frac{\alpha}{\alpha + \sigma\lambda}H_t, \tag{37}$$

$$h_{It} = (1 - \Omega(\theta_t))\frac{\alpha}{\alpha + \sigma\lambda}H_t, \tag{38}$$

where $\Omega(\theta_t) \equiv \frac{1}{1+\left(\frac{g(\theta_t)}{A_N f(\theta_t)}\right)^{\frac{1}{1-\alpha}}}$. Similarly to the previous section, we can use these equations and the conditions provided by the envelope theorem and FOCs with respect to θ and H to obtain a result that parallels Proposition 2, except that what used to be $f(\theta)$ has now become a combination of $f(\theta)$ and $g(\theta)$, and similarly for $f'(\theta)$ and $g'(\theta)$. More specifically, we have:

Proposition 4 *If an innovative sector exists ($A_I > 0$), both political activities are equally intensive in human capital ($\lambda_c = \lambda_n = \lambda$), and both productive activities are equally intensive in human capital ($\alpha = \mu$), then in steady state we will have:*

$$-\omega_1(\theta, H) + \tilde{K}_1\left[A_N f'(\theta)\Omega(\theta)^\alpha + A_I g'(\theta)(1 - \Omega(\theta))^\alpha\right] H^{\alpha+\lambda\sigma} = 0 \tag{39}$$

$$-\omega_2(\theta, H) + \tilde{K}_2\left[A_N f(\theta)\Omega(\theta)^\alpha + A_I g(\theta)(1 - \Omega(\theta))^\alpha\right] H^{\alpha+\lambda\sigma-1} = 0 \tag{40}$$

where $\tilde{K}_i \equiv \frac{K_i}{A_I}$.

We immediately see that a richer set of results is now possible, as obedience can indeed affect both sectors differently in the way that was previously alluded to. In terms of the correlation between H and θ, what used to depend simply on the term $\frac{f(\theta)}{f'(\theta)}$ now depends on $\frac{[A_N f(\theta)\Omega(\theta)^\alpha + A_I g(\theta)(1-\Omega(\theta))^\alpha]}{[A_N f'(\theta)\Omega(\theta)^\alpha + A_I g'(\theta)(1-\Omega(\theta))^\alpha]}$. This is certainly more complicated, but some tedious algebra shows that its being decreasing in θ, which is a necessary condition for a negative correlation between H and θ, depends on whether:

$$\begin{gathered}
\alpha A_N A_I \Omega'(\theta)\Omega(\theta)^{\alpha-1}(1 - \Omega(\theta))^{\alpha-1}\left[f'(\theta)g(\theta) - f(\theta)g'(\theta)\right] + \\
+ \left[A_I(1 - \Omega(\theta))^\alpha\right]^2 g(\theta)g''(\theta) + A_N A_I f(\theta)g''(\theta)\Omega(\theta)^\alpha(1 - \Omega(\theta))^\alpha \\
> \\
\left[A_N f'(\theta)\Omega(\theta)^\alpha + A_I g'(\theta)(1 - \Omega(\theta))^\alpha\right]^2 - \left[A_N\Omega(\theta)^\alpha\right]^2 f(\theta)f''(\theta) - \\
- A_N A_I f''(\theta)g(\theta)\Omega(\theta)^\alpha(1 - \Omega(\theta))^\alpha,
\end{gathered} \tag{41}$$

where both sides of the inequality, as arranged, are positive. This complicated-looking expression entails that a negative correlation between education and obedience is more likely to arise when $|g''(\theta)|$ is large

relative to $|f''(\theta)|$ – that is, when the marginal loss in the innovative sector is relatively sensitive to changes in obedience, when compared to the marginal gain in the conventional sector. Also, generally speaking, it will arise when the innovative sector is relatively important. Because of that, we should expect to see a negative link between education and obedience to arise when obedience is relatively low.

These results are illustrated by the U-shaped curve in the upper portion of Figure 1.[24] The straight line represents the benchmark relationship between human capital and obedience, as previously discussed in Section 4.1. When an innovative sector exists, the steady-state has a higher level of human capital for any given level of obedience – since the possibilities of human capital in production are expanded while obedience becomes relatively less useful. What is more, we now have a non-monotonic relationship between human capital and obedience. For low levels of obedience, the innovative sector becomes predominant, and we see a negative link between obedience and human capital accumulation: more obedience reduces productivity, and discourages human capital accumulation. The opposite holds for high levels of obedience, case in which the conventional sector is dominant, and the benchmark positive correlation eventually prevails. The picture thus shows that, with an innovative sector, it becomes possible for a country to end up in a situation of relatively low obedience and high levels of human capital.

4.2.2 Case 2: Innovative Sector Is More Intensive in Human Capital

How about the case in which $\alpha < \mu$? Will the insights that we derived above survive this case? We can again derive a result analogous to Propositions 2 and 4:

Proposition 5 *If an innovative sector exists ($A_I > 0$), both political activities are equally intensive in human capital ($\lambda_c = \lambda_n = \lambda$), and the innovative sector is relatively intensive in human capital ($\alpha < \mu$), then in steady state we will have:*

$$\omega_1(\theta, H) = \beta \left[(1 - \tau(x)) \left(A_N h_N^{\alpha} f'(\theta) + A_I h_I^{\mu} g'(\theta) \right) \right] \tag{42}$$

$$\omega_2(\theta, H) = -\beta y \tau'(x) \lambda x_n^{\lambda - 1} \theta^{1-\lambda} \tag{43}$$

As it happens, dividing (42) by (43), using (35) and (36), plus some algebraic manipulation of the quotient relating marginal and total productivity, we can obtain:

$$\frac{\omega_1(\theta, H)}{\omega_2(\theta, H)} = \frac{H}{T(\theta, H) + \lambda\sigma} \frac{\frac{f'(\theta)}{f(\theta)} + \frac{\alpha h_I}{\mu h_N} \frac{g'(\theta)}{g(\theta)}}{1 + \frac{\alpha h_I}{\mu h_N}} \tag{44}$$

We can see in the terms in $\frac{f'(\theta)}{f(\theta)}$ and $\frac{g'(\theta)}{g(\theta)}$ that the correlation of H and θ will once again depend on the relative curvature of the two functions $f(\theta)$ and $g(\theta)$. We now need to understand the implications of changes in the ratio $\frac{h_I}{h_N}$, which summarizes all other ways in which H or θ show up in the expression above. (Recall that T is a function of that ratio only.) It is easy to check that, since $\alpha < \mu$, this function

[24] The figure is again drawn for a separable cost function and isoelastic $f(\theta), g(\theta)$.

T will be increasing in $\frac{h_I}{h_N}$. It is also easy to check that the second quotient on the RHS of (44) will be a decreasing function of $\frac{h_I}{h_N}$. As a result, the RHS will be decreasing in $\frac{h_I}{h_N}$. By differentiating (31) and (34), we can see that this fraction is increasing in H (more human capital is disproportionately allocated to the innovative sector, which uses it intensively) and decreasing in θ (more obedience moves resources towards the conventional sector, which is helped by it). Putting all of this together, we see that the case of $\alpha < \mu$ adds a force that pushes in the direction of a negative correlation between H and θ. The intuition is simple: an increase in θ moves resources to the sector that is less intensive in human capital, and this lower effective intensity of production in terms of human capital will be a discouraging force for human capital accumulation.

We are thus led to conclude that the presence of two sectors will indeed open up the possibility that obedience and human capital are negatively correlated, as suggested by the analysis of the special case $\alpha = \mu$.

4.3 Introducing Greater Human Capital-Intensity of Confrontational Politics

In the previous subsection we have opened up the possibility that production takes place in different sectors, with different human capital intensities, and with which obedience interacts differently. This has already established the possibility of a negative correlation between education and obedience in steady state. However, our specification for the effect of political activities still imposed symmetry in the effect of human capital in the two types of participation, from the assumption that $\lambda_c = \lambda_n = \lambda$. What if we consider the possibility that one type of activity is more intensive in human capital than the other? In particular, we may expect that the confrontational forms of participation would use human capital more intensively: $\lambda_c > \lambda_n$. After all, activities such as engaging in demonstrations are likely to require more human capital and effort than the simple act of voting.[25]

As it turns out, the solution to this problem would be very much analogous to the previous case. Just as we had replaced α by the function $T(\theta, H) \equiv \alpha \frac{A_N h_{Nt}^{\alpha} f(\theta_t)}{y_t} + \mu \frac{A_I h_{It}^{\mu} g(\theta_t)}{y_t}$, a weighted average of the human capital-intensities in the two sectors, we would now replace λ with a function $\tilde{T}(\theta, H)$, that would be a weighted average of λ_c and λ_n, the human capital-intensities in the two different types of political activity. We would thus have, analogous to Propositions 1 and 3:

Proposition 6 *If an innovative sector exists ($A_I > 0$), confrontational political activity is relatively intensive in human capital ($\lambda_c > \lambda_n$), and the innovative sector is relatively intensive in human capital*

[25] After all, voting has been described as "the only political act requiring relatively little initiative" (Verba and Nie 1987, p.77), as well as being the least demanding form of political activity, requiring the least in terms of civic skills (Brady et al. 1995).

($\alpha < \mu$), then:

$$h_{It} + h_{Nt} = \frac{T(\theta, H)}{T(\theta, H) + \sigma\tilde{T}(\theta, H)} H_t, \tag{45}$$

$$x_{ct} = (1 - \theta_t)\frac{\sigma\tilde{T}(\theta, H)}{T(\theta, H) + \sigma\tilde{T}(\theta, H)} H_t, \tag{46}$$

$$x_{nt} = \theta_t \frac{\sigma\tilde{T}(\theta, H)}{T(\theta, H) + \sigma\tilde{T}(\theta, H)} H_t. \tag{47}$$

where $\tilde{T}(\theta, H) \equiv \lambda_c \frac{(1-\theta_t)^{1-\lambda_c} x_{ct}^{\lambda_c}}{x_t} + \lambda_n \frac{\theta_t^{1-\lambda_n} x_{nt}^{\lambda_n}}{x_t}$.

By the same token, analogous to Propositions 2, 4, and 5:

Proposition 7 *If an innovative sector exists ($A_I > 0$), confrontational political activity is relatively intensive in human capital ($\lambda_c > \lambda_n$), and the innovative sector is relatively intensive in human capital ($\alpha < \mu$), then in steady state we will have:*

$$\frac{\omega_1(\theta, H)}{\omega_2(\theta, H)} = \frac{H}{T(\theta, H) + \sigma\tilde{T}(\theta, H)} \frac{\frac{f'(\theta)}{f(\theta)} + \frac{\alpha h_I}{\mu h_N}\frac{g'(\theta)}{g(\theta)}}{1 + \frac{\alpha h_I}{\mu h_N}} \tag{48}$$

How would that change our analysis? $\tilde{T}(\theta, H)$ is a decreasing function of θ, since an increase in obedience would shift weight onto the form of participation that is less intensive in human capital, and would thus reduce the effective human capital-intensity of political activities. As a result, following the argument in the previous subsection, this would introduce yet another force pushing for a negative correlation between H and θ.

We would also have significant implications in terms of our predictions regarding political participation. In the previous model, an increase in obedience would cause a shift towards non-confrontational activities, but also an increase in the overall amount of resources devoted to politics. The intuition is as follows: in the simplified model, a higher θ would reduce the effective human capital-intensity of production, and would thus encourage a shift of human capital away from the latter and towards politics. With the more general model, however, this need no longer be the case, as the same change in θ would also reduce the effective human capital-intensity of politics. The overall effect will now depend on the relative magnitude of these movements.

4.4 Summing Up

We thus have a theory that puts together cultural attitudes towards obedience, education, and (different forms of) political participation, all of which are determined endogenously in response to economic and institutional forces. If we are in a situation where obedience and consensus are good for production – which should be the case for conventional sectors far from the technological frontier – then we would expect that some countries would develop a combination of high obedience, high education, and relatively

low levels of (confrontational) political participation (controlling for levels of human capital). In other words, we could think of this as an "*East Asian*" steady state. Other countries would end up with the opposite combination, which we could label a "*Latin American*" steady state. These differences could be parsimoniously explained, for instance, by one having relatively high productivity of human capital in production, as captured by our A_N parameter. The intuition is transparent: high productivity means that lots of human capital should be accumulated, and invested in production. Because obedience complements human capital, it makes sense to invest in inculcating such values into the minds of subsequent generations. As a result of those high levels of obedience, confrontation will be discouraged in the political arena.

As argued in Campante and Chor (2010), this could be due to differences in factor endowments, or by other kinds of initial conditions. Most importantly, however, it would not require any *ad hoc* assumption on pre-existing cultural attitudes. Instead, our framework explains the emergence and persistence of such attitudes as a function of economic and institutional incentives – culture evolves, and values and attitudes that are inconsistent with those incentives will have a hard time persisting. Conversely, cultural attitudes condition and affect production and political activities, so that the best way to understand their evolution is as jointly endogenous variables.

Our framework also shows that the picture may change for a different set of countries that happens to be close to the technological frontier, with innovative sectors that may be hindered by obedience and consensus. In this case, the link between obedience and education may break down: the role of obedience in production here means that high levels of human capital accumulation might actually induce lower transmission of obedient values. This is more likely to be the case if productivity in the innovative sectors is particularly sensitive to obedience, or put differently, if these sectors are especially reliant on creativity. Intuitively, this sensitivity goes against the complementarity between human capital and obedience that flowed from conventional, non-innovative activities. It is also more likely when the innovative sector is more important, which implies that we should observe the negative correlation at relatively low levels of obedience – after all, low obedience increases the productivity of innovation, and hence its importance.

For the same reasons, the breakdown of the link between education and obedience is also more likely if the innovative sector is more human capital-intensive relative to the conventional sectors. It would also be made more likely if confrontational political activity is made more intensive in human capital, relative to the non-confrontational kind – say, for institutional reasons such as compulsory voting or the end of literacy requirements for voting, which may weaken the link between schooling and non-confrontational participation. After all, this would further de-link human capital and obedience, this time in the political arena.

Although we do not model any such a transition explicitly, the basic logic can also illuminate what one might expect to happen within a country as it approaches the technological frontier. A country that was previously at an East Asian steady state, for instance, might see a previously high-obedience culture

gradually shift towards less obedience, as a result of the emergence of creativity-driven innovative sectors.

To these patterns of correlation between education and obedience correspond distinct patterns of political participation. Naturally, high-obedience (respectively, low-obedience) equilibria display relatively low (high) levels of confrontational political activities; moreover, they display a relatively weak (strong) link between education and these activities.

Our framework also shows, however, that this is made more complex when an innovative sector is present. If this sector is more intensive in human capital, increased obedience will encourage a shift of human capital away from production (since it makes the more human capital-intensive sector less productive) and into both kinds of political activities – though still disproportionately towards non-confrontational activities in high obedience countries. (This force would of course be counteracted if confrontational politics are more human capital-intensive, as higher obedience would also decrease the overall human capital intensity of political activities.) As a result, we would also expect to see changing patterns of political participation as a result of a country's move towards the technological frontier.

5 Concluding Remarks

This paper has developed a simple theory of the joint evolution of cultural attitudes towards obedience, human capital, and political participation. Its key element lies in the way culture affects production and political participation, which varies with technology and the type of political activity. Far from the technological frontier, obedience enhances productivity and thus complements human capital, and as a result a country could end up in an "East Asian" steady state (high obedience, high education, low levels of confrontational politics) or in the contrasting "Latin American" steady state. Which steady state prevails depends on the characteristics of the economy, such as the productivity of human capital in production. In contrast, when innovative sectors are introduced, and particularly when these sectors are human capital-intensive, the link between obedience and education is broken, and the model predicts a change in the values (and modes of political activity) that will prevail in steady state.

We believe our approach represents a step forward towards a deeper understanding of culture-based explanations of comparative development. It is very natural to conjecture that differences in cultural values are to some extent responsible for the distinct paths of economic, political, and institutional development taken by certain countries, but this can only be a satisfactory explanation if we can understand systematically how these differences might emerge and evolve over time. That said, we do not claim that our simple model of intergenerational transmission is a complete portrait of the determinants of culture, even within the narrower confines of obedience: we certainly do not mean to downplay the role of historical accident, and of other sources of influence that might motivate the transmission of culture. Nevertheless, we believe the forces we describe also play an important role.

Last but not least, our approach can certainly be extended in a number of directions. A natural

one would be to investigate in more detail the underpinnings of the different types of political activity that are feature in our model. For instance, it would be interesting to study the role of obedience in an explicit model of endogenous political participation that goes beyond the black-box approach we use here. By the same token, looking at the emergence of different sectors and the role of obedience in a model of endogenous technological progress would also be a natural next step. These are some of the issues we intend to tackle in future research.

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7 Data Appendix

The principal dataset used in the analysis was the European Social Survey (ESS). This biennial study is directed out of the Centre for Comparative Social Surveys in City University, London, and is jointly funded by the European Commission, the European Science Foundation, and other academic partners. The dataset is publicly housed on the website of the Norwegian Social Science Data Services, an official archive and distributor of the ESS data. Four rounds of the survey have been conducted to date, and the most recent versions of the data files were downloaded and merged, respectively: Round 1 (2002/2003, Version 6.1), Round 2 (2004/2005, Version 3.1), Round 3 (2006/2007, Version 3.2), and Round 4 (2008/2009, Version 2.0).

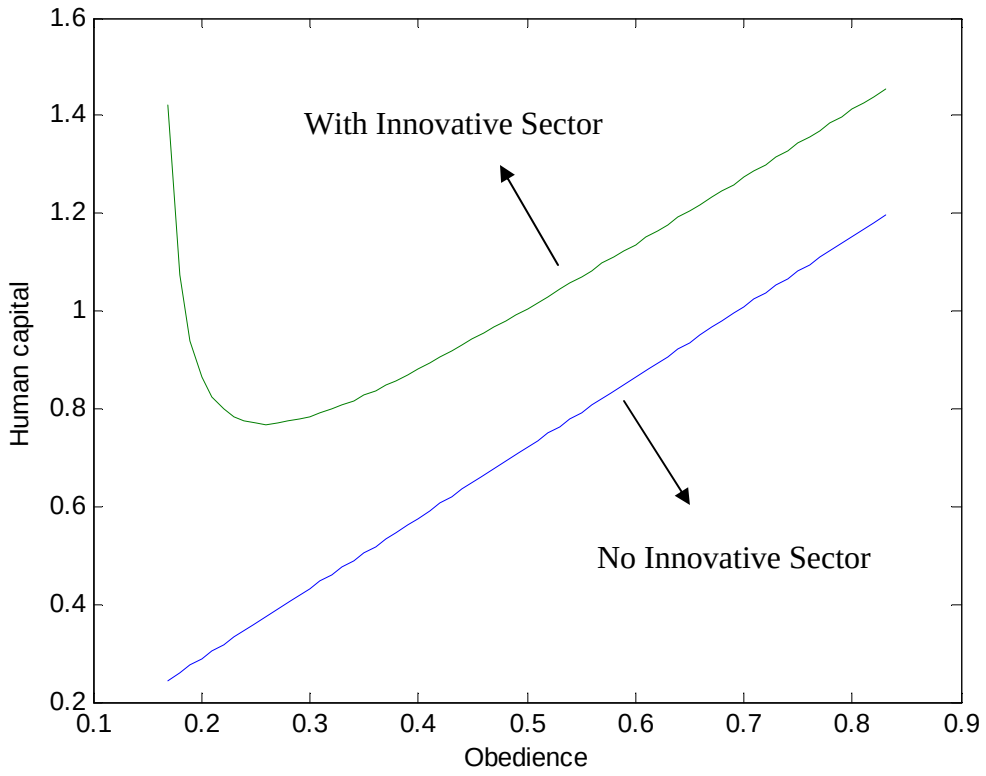
Political Participation: We used several self-reported participation measures. The "vote" variable equals 1 if the respondent voted in the last national election, and is 0 otherwise. Individuals ineligible to vote are coded as missing. The "demonstrate", "boycott", and "petition" variables are dummy variables indicating whether the respondent had in the last 12 months taken part in a lawful public demonstration, boycotted certain products, and signed a petition, respectively. The "interest" in politics variable is coded on a scale of 1 (not at all interested) to 4 (very interested); this is recoded from the original ESS variable to be increasing in interest level.

Obedience: The "own obedience" variable was based on a question soliciting respondents' level of agreement on whether it was important to do as told and follow rules. Responses were recoded to be increasing in obedience, ranging from 1 (not like me at all) to 6 (very much like me). For the country obedience scores, a weighted average of "own obedience" for respondents born and residing in the country was taken for each country-ESS round, using the provided survey design weights. A simple average of the weighted means was then taken across ESS rounds to obtain the score for each country.

Other respondent controls: The age variable was calculated as the difference between the survey interview year and the birth year of the respondent. The gender dummy was coded equal to 1 for females and 0 for males. The marital dummy was generated to take a value of 1 if currently legally married, and 0 for all other options. The number of children was calculated as the number of household members whose relationship to the respondent was declared as a son or daughter (including step- and adopted children). The employment dummy was coded to equal 0 if the respondent was unemployed during the past 7 days (regardless of whether he/she was actively looking for a job or not), and equal to 1 otherwise. The student dummy was coded to equal 1 if the respondent was engaged in education activities during the past 7 days, and 0 otherwise. The occupation dummies were generated based on the first two digits of the International Standard Classification of Occupations (ISCO-88) code of the respondent's occupation. The immigrant dummy takes a value of 1 if the country-of-residence and country-of-birth of the respondent are identical; a value of 0 is assigned otherwise.

For education, we used is the self-reported years of full time education completed. For household income, this is posed in the ESS as a categorical response question. We used the midpoint of the income range corresponding to each response as the value of household income. For the highest income category which has no upper bound, we used the lower income bound plus half the income range of the second-highest income category. (Note that the ESS question switched from twelve response categories in Rounds 1-3 to ten response categories in Round 4. This change was to align the income ranges in the different country surveys to the income deciles within each respective country.)

Figure 1
Illustrating the Steady-State Relationship between Human Capital and Obedience



Notes: The upward-sloping straight line illustrates the steady-state relationship for the baseline case with no innovation sector from Section 4.1. The U-shaped curve illustrates this for the model with both the traditional and innovation sectors from Section 4.2.1, where it is assumed that (i) both sectors share the same human capital-intensity; and (ii) the cost function is separable in the desired human capital and obedience levels of one's child. The graphs are drawn for the special case of $f(\theta) = \theta^{((1-\alpha)/2)}$ and $g(\theta) = \theta^{(-(1-\alpha)/2)}$. The cost function for investing H in a child's human capital is $(1/2)H^2$, and that for inculcating a desired obedience of θ is $(1/2)\theta^2$. The parameter values used are: $\alpha = 0.35$, $\lambda = 0.65$, $\sigma = 0.5$, $A=30$.

Table 1
Individual Attitudes towards Obedience and Political Participation

Dependent variable:	vote	demonstrate	boycott	petition	interest
	(1)	(2)	(3)	(4)	(5)
Education	0.009***	0.004***	0.010***	0.011***	0.045***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]
Own obedience	0.003**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.002]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	102083	108742	108521	108516	108876
R-squared	0.135	0.065	0.120	0.138	0.205
No. of countries	28	28	28	28	28
Education	0.009***	0.004***	0.010***	0.011***	0.045***
	[0.001]	[0.001]	[0.001]	[0.001]	[0.003]
Own obedience	0.003**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.002]	[0.001]	[0.002]	[0.002]	[0.003]
Immigrant?	-0.149***	0.009	0.022**	-0.013	0.018
	[0.025]	[0.008]	[0.010]	[0.013]	[0.018]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	101988	108631	108411	108405	108766
R-squared	0.137	0.065	0.120	0.138	0.205
No. of countries	28	28	28	28	28

Notes: Standard errors are clustered by country-of-residence (COR), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, and occupation dummies; and (ii) COR-ESS round fixed effects. Results are similar when the COB (Country-of-birth)-ESS round fixed effects are omitted.

Table 2
Country-of-Residence Attitudes towards Obedience and Political Participation

Dependent variable:	vote	demonstrate	boycott	petition	interest
	(1)	(2)	(3)	(4)	(5)
Education	0.017	0.014*	0.041***	0.049***	0.091***
	[0.018]	[0.007]	[0.010]	[0.011]	[0.023]
Education X COR Obedience	**-0.002**	**-0.002**	**-0.008*** **	**-0.010*** **	**-0.012** **
	[0.005]	**[0.002]**	**[0.003]**	**[0.003]**	**[0.006]**
Own obedience	0.003**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	101988	108631	108411	108405	108766
R-squared	0.137	0.065	0.121	0.139	0.205
No. of countries	28	28	28	28	28
Education	0.018	0.014*	0.042***	0.050***	0.093***
	[0.018]	[0.007]	[0.010]	[0.011]	[0.023]
Education X COR Obedience	**-0.002**	**-0.002**	**-0.008*** **	**-0.010*** **	**-0.012** **
	[0.005]	**[0.002]**	**[0.003]**	**[0.003]**	**[0.006]**
Education X Immigrant	-0.003	-0.001	-0.002	-0.003	-0.006**
	[0.002]	[0.001]	[0.002]	[0.002]	[0.003]
Own obedience	0.003**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	101988	108631	108411	108405	108766
R-squared	0.137	0.065	0.121	0.139	0.205
No. of countries	28	28	28	28	28

Notes: Standard errors are clustered by country-of-residence (COR), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, an immigrant dummy, and occupation dummies; (ii) COR-ESS round fixed effects; and (iii) COB (country-of-birth)-ESS round fixed effects. Results are similar if COB-ESS round fixed effects are dropped.

Table 3
Country-of-Residence vs Country-of-Birth Obedience and Political Participation

Dependent variable:	vote	demonstrate	boycott	petition	interest
	(1)	(2)	(3)	(4)	(5)
Education	0.017	0.014*	0.043***	0.052***	0.093***
	[0.018]	[0.007]	[0.010]	[0.011]	[0.023]
Education X COR Obedience	**-0.009**	**-0.001**	**-0.001**	**-0.006***	**-0.015***
	[0.005]	**[0.003]**	**[0.004]**	**[0.003]**	**[0.008]**
Education X COB Obedience	**0.007***	**-0.001**	**-0.007****	**-0.004****	**0.003**
	[0.004]	**[0.003]**	**[0.003]**	**[0.002]**	**[0.005]**
Own obedience	0.004**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	98372	104003	103784	103783	104122
R-squared	0.132	0.066	0.122	0.140	0.206
No. of countries	28	28	28	28	28
Education	0.017	0.014*	0.043***	0.052***	0.094***
	[0.018]	[0.007]	[0.010]	[0.012]	[0.023]
Education X COR Obedience	**-0.010**	**-0.001**	**-0.001**	**-0.007***	**-0.018****
	[0.006]	**[0.003]**	**[0.004]**	**[0.004]**	**[0.008]**
Education X COB Obedience	**0.008***	**-0.001**	**-0.007****	**-0.003**	**0.005**
	[0.004]	**[0.003]**	**[0.003]**	**[0.002]**	**[0.005]**
Education X Immigrant	-0.006***	0.000	0.001	-0.002	-0.008*
	[0.002]	[0.001]	[0.002]	[0.003]	[0.004]
Own obedience	0.004**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	98372	104003	103784	103783	104122
R-squared	0.132	0.066	0.122	0.140	0.206
No. of countries	28	28	28	28	28

Notes: Standard errors are clustered by country-of-residence (COR), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, an immigrant dummy, and occupation dummies; (ii) COR-ESS round fixed effects; and (iii) COB (country-of-birth)-ESS round fixed effects. Results are similar if standard errors are clustered by COB instead.

Table 4
Further Evidence: Country-of-Birth Obedience and Political Participation

Dependent variable:	vote	demonstrate	boycott	petition	interest
	(1)	(2)	(3)	(4)	(5)
Education	-0.003	0.022**	0.051***	0.038***	0.067***
	[0.014]	[0.009]	[0.010]	[0.010]	[0.014]
Education X COB Obedience	**0.005**	**-0.001**	**-0.010*** **	**-0.006** **	**0.003**
	[0.004]	**[0.003]**	**[0.003]**	**[0.003]**	**[0.004]**
Own obedience	0.004**	-0.009***	-0.016***	-0.014***	-0.014***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Education X COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	98372	104003	103784	103783	104122
R-squared	0.136	0.073	0.127	0.143	0.210
No. of countries	28	28	28	28	28
Education	-0.008	0.022**	0.050***	0.033***	0.061***
	[0.010]	[0.009]	[0.010]	[0.011]	[0.014]
Education X COB Obedience	**0.006** **	**-0.001**	**-0.010*** **	**-0.005**	**0.004**
	[0.003]	**[0.003]**	**[0.003]**	**[0.003]**	**[0.004]**
Education X Immigrant	-0.007***	-0.001	-0.001	-0.004**	-0.005
	[0.002]	[0.001]	[0.002]	[0.002]	[0.003]
Own obedience	0.004**	-0.009***	-0.016***	-0.014***	-0.014***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Education X COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	98372	104003	103784	103783	104122
R-squared	0.136	0.073	0.127	0.143	0.210
No. of countries	28	28	28	28	28

Notes: Standard errors are clustered by country-of-birth (COB), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, an immigrant dummy, and occupation dummies; (ii) COR-ESS round fixed effects; (iii) COB (country-of-birth)-ESS round fixed effects; and (iv) Individual education interacted with COR-ESS round fixed effects. (The interaction between education and the first COR-round dummy is dropped to avoid a collinearity problem with the main effect of Education.) Results are similar if standard errors are clustered by COR instead.

Table 5
Further Evidence: Country-of-Residence Obedience and Political Participation

Dependent variable:	vote	demonstrate	boycott	petition	interest
	(1)	(2)	(3)	(4)	(5)
Education	0.027	0.009	0.012	0.027*	0.064**
	[0.022]	[0.010]	[0.010]	[0.014]	[0.024]
Education X COR Obedience	**-0.005**	**-0.001**	**-0.001**	**-0.004**	**-0.006**
	[0.005]	**[0.003]**	**[0.003]**	**[0.003]**	**[0.006]**
Own obedience	0.004**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Education X COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	101988	108631	108411	108405	108766
R-squared	0.141	0.071	0.126	0.143	0.209
No. of countries	28	28	28	28	28
Education	0.034	0.008	0.012	0.030*	0.081***
	[0.022]	[0.010]	[0.011]	[0.016]	[0.028]
Education X COR Obedience	**-0.005**	**-0.001**	**-0.001**	**-0.005**	**-0.007**
	[0.005]	**[0.003]**	**[0.003]**	**[0.004]**	**[0.006]**
Education X Immigrant	-0.006**	0.001	0.000	-0.002	-0.011**
	[0.003]	[0.002]	[0.002]	[0.002]	[0.005]
Own obedience	0.004**	-0.009***	-0.017***	-0.015***	-0.013***
	[0.001]	[0.001]	[0.002]	[0.002]	[0.003]
COR-round fixed effects?	Yes	Yes	Yes	Yes	Yes
COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Education X COB-round fixed effects?	Yes	Yes	Yes	Yes	Yes
Observations	101988	108631	108411	108405	108766
R-squared	0.141	0.071	0.126	0.143	0.209
No. of countries	28	28	28	28	28

Notes: Standard errors are clustered by country-of-residence (COR), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, an immigrant dummy, and occupation dummies; (ii) COR-ESS round fixed effects; (iii) COB (country-of-birth)-ESS round fixed effects; and (iv) Individual education interacted with COB-ESS round fixed effects. (The interaction between education and the first COB-round dummy is dropped to avoid a collinearity problem with the main effect of Education.) Results are similar if standard errors are clustered by COB instead.

Table 6
Determinants of Individual Attitudes towards Obedience

Dependent variable:	Own obedience					
	(1)	(2)	(3)	(4)	(5)	(6)
Education	-0.012	-0.015***	-0.014***	-0.015***	-0.019***	-0.020***
	[0.008]	[0.004]	[0.004]	[0.004]	[0.002]	[0.002]
COR obedience		**0.977*** **		**0.772*** **	**0.767*** **	
		[0.037]		**[0.062]**	**[0.051]**	
COB obedience			**0.948*** **	**0.222*** **		**0.243*** **
			[0.040]	**[0.058]**		**[0.049]**
Immigrant?	0.059	0.122***	-0.090	0.017	0.012	-0.027
	[0.047]	[0.033]	[0.076]	[0.028]	[0.038]	[0.033]
COR-round fixed effects?	No	No	No	No	No	Yes
COB-round fixed effects?	No	No	No	No	Yes	No
Observations	108953	108953	104300	104300	108953	104300
R-squared	0.060	0.119	0.119	0.122	0.128	0.130
No. of countries	28	28	28	28	28	28

Notes: Standard errors are clustered by country-of-residence (COR), with ***, **, and * denoting significance at the 1%, 5%, and 10% levels respectively. All regressions include: (i) individual-level controls for age, age squared, a gender dummy, a married dummy, number of children, a student dummy, an employment status dummy, log household income, and immigrant dummy, and occupation dummies. Results are similar if standard errors are clustered by country-of-birth (COB) instead.

Appendix Table 1
List of Countries and ESS Rounds

Country	ISO code	ESS Rounds	N
Austria	AUT	1,2,3	4151
Belgium	BEL	1,2,3,4	5902
Bulgaria	BGR	3	1062
Switzerland	CHE	1,2,3,4	6025
Cyprus	CYP	3	765
Czech Republic	CZE	1,2	2513
Germany	DEU	1,2,3,4	8786
Denmark	DNK	1,2,3,4	5214
Spain	ESP	1,2,3,4	4779
Finland	FIN	1,2,3,4	6471
France	FRA	2,3,4	5018
United Kingdom	GBR	1,2,3,4	6857
Greece	GRC	1,2	3433
Hungary	HUN	2,4	2324
Ireland	IRL	2,3	2091
Iceland	ISL	2	458
Israel	ISR	1,4	3512
Italy	ITA	2	975
Luxembourg	LUX	2	966
Netherlands	NLD	1,2,3,4	6816
Norway	NOR	1,2,3,4	6116
Poland	POL	1,2,3,4	5797
Portugal	PRT	1,2,3,4	4405
Russia	RUS	3,4	3964
Slovakia	SVK	2,3	1942
Slovenia	SVN	1,2,3	3470
Sweden	SWE	1,2,3	4662
Turkey	TUR	2	1607
		Total:	110081

Notes: The "N" column counts all observations that appear in at least one of the regressions in Table 1. Data on obedience from Estonia (Rounds 2, 3, 4) and Ukraine (Rounds 2, 3) are available, which is used to construct a mean country obedience score for these two countries; however, due to various missing individual control variables, these two countries are dropped from the regressions in Table 1.

Appendix Table 2
Summary Statistics for Political Participation and Obedience Measures

Country	Mean Country Obedience	Vote	Demonstrate	Boycott	Petition	Interest in Politics	Education	Log household income	Immigrant
Austria	3.372	0.868	0.070	0.215	0.258	2.648	12.39	10.30	0.068
Belgium	3.768	0.917	0.077	0.114	0.293	2.359	12.40	10.28	0.085
Bulgaria	4.292	0.720	0.022	0.021	0.048	2.327	11.22	8.03	0.010
Switzerland	3.348	0.682	0.085	0.301	0.417	2.689	11.67	10.93	0.197
Cyprus	3.893	0.929	0.026	0.047	0.105	2.347	11.63	10.27	0.054
Czech Republic	4.264	0.637	0.035	0.091	0.149	2.157	12.38	9.37	0.042
Germany	3.562	0.834	0.087	0.268	0.312	2.738	13.33	10.34	0.090
Denmark	3.957	0.939	0.072	0.257	0.326	2.834	13.34	10.64	0.053
Spain	4.029	0.809	0.226	0.110	0.236	1.999	10.91	9.99	0.074
Finland	4.106	0.834	0.020	0.297	0.300	2.472	12.73	10.33	0.025
France	3.259	0.781	0.147	0.284	0.340	2.398	12.40	10.33	0.083
United Kingdom	3.634	0.715	0.041	0.248	0.412	2.497	13.18	10.56	0.096
Greece	4.447	0.913	0.054	0.068	0.041	2.118	9.85	9.74	0.108
Hungary	3.445	0.795	0.013	0.061	0.066	2.260	11.84	9.11	0.021
Ireland	3.957	0.805	0.055	0.117	0.238	2.345	12.72	10.65	0.096
Iceland	3.561	0.927	0.167	0.305	0.510	2.730	13.66	10.88	0.024
Israel	4.128	0.781	0.080	0.101	0.147	2.519	12.96	9.94	0.371
Italy	4.369	0.907	0.112	0.071	0.147	2.198	11.35	10.24	0.022
Luxembourg	3.929	0.746	0.138	0.149	0.216	2.372	11.69	10.78	0.365
Netherlands	4.078	0.854	0.036	0.099	0.237	2.687	13.10	10.45	0.081
Norway	4.243	0.864	0.088	0.234	0.381	2.530	13.42	10.87	0.066
Poland	4.567	0.689	0.015	0.047	0.077	2.308	11.57	9.00	0.013
Portugal	3.792	0.748	0.030	0.025	0.051	2.022	7.02	9.61	0.059
Russia	3.896	0.713	0.057	0.038	0.066	2.360	12.21	8.43	0.062
Slovakia	4.340	0.745	0.039	0.116	0.231	2.346	12.18	9.11	0.033
Slovenia	3.835	0.763	0.028	0.045	0.111	2.320	11.56	9.60	0.083
Sweden	3.616	0.904	0.060	0.345	0.460	2.670	12.39	10.40	0.092
Turkey	4.658	0.759	0.036	0.065	0.062	2.084	6.71	8.74	0.010
Estonia	3.663	---	---	---	---	---	---	---	---
Ukraine	4.010	---	---	---	---	---	---	---	---
Mean	3.934	0.806	0.068	0.148	0.223	2.405	11.850	9.961	0.085
Standard Deviation	0.368	0.086	0.051	0.104	0.138	0.227	1.650	0.780	0.089

Notes: For each variable, a weighted average across respondents within each country-ESS round was taken, using the survey design weights. A simple average of the weighted means across country-ESS rounds for each country was then reported in the Table. For log household income, the logarithm is taken after the averaging. Calculated using all observations that appear in at least one of the regressions in Table 1. Data on Obedience are available for Estonia and Ukraine; however, due to various missing individual control variables, these two countries are dropped from the regressions in Table 1.

Appendix Table 3
Correlation Coefficients between Selected Individual Variables

	Obedience	Vote	Demonstrate	Boycott	Petition	Interest in Politics	Education	Log household income
Vote	0.0253							
Demonstrate	-0.0819	0.0462						
Boycott	-0.1247	0.0698	0.1726					
Petition	-0.1224	0.0882	0.2622	0.3155				
Interest in Politics	-0.0560	0.2422	0.1233	0.2097	0.2006			
Education	-0.1426	0.0854	0.1072	0.2059	0.2219	0.2942		
Log household income	-0.1379	0.1228	0.0652	0.1941	0.2270	0.2184	0.3448	
Immigrant	0.0032	-0.0951	0.0107	-0.0065	-0.0259	0.0124	0.0460	0.0347

Notes: Calculated using all observations that appear in at least one of the regressions in Table 1. All correlation coefficients are significant at the 5% level, except that between individual obedience and immigrant status.