

INSTITUTION-PREFERENCE COMPLEMENTARITIES: DO TRANSITIONS FROM AUTHORITARIAN TO LIBERAL-DEMOCRATIC INSTITUTIONS CULTIVATE THE VALUE OF AUTONOMY?

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ABSTRACT. To explore the complementarity of liberal-democratic institutions and preferences and their possible fragility, we study how an institutional shock – transitions from Communist rule to a liberal environment – affected people's value of individual autonomy. We exploit three measures - independence as a child-rearing value, 'control aversion', and responses to mandated versus voluntary covid policies, from economic experiments and surveys. Populations not experiencing the institutional shock allow difference-in-difference estimates of the effect of liberalization controlling for age effects. We consistently find that people raised under liberal institutions value autonomy more than those raised under authoritarian rule, suggesting institutions-and-preferences complementarities.

KEYWORDS: endogenous preferences, institutions, authoritarian regime, liberal democracy, control aversion, intrinsic motivation, online experiment, conformist learning, preference falsification.

1. INTRODUCTION

The research reported here is motivated by the following premises. The sustainability of liberal democracy depends in part on a particular set of values, social norms, and psychological predispositions. These "liberal preferences" are not exogenously given, but instead evolve in an environment shaped by a society's institutions. It follows that liberal democracy, or indeed any sustainable set of institutions must "generate its own supportive moral attitudes" as John Rawls put it (1971, p. 399).

Moreover, which set of these cultural attributes are essential to the viability of a social system depends on the nature of its institutions. Whereas authoritarian regimes need to cultivate the submissive citizens on which their sustainability depends, for example, valuing personal autonomy

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We acknowledge financial support from the Max Planck Society and the Santa Fe Institute.

may be both shaped by and crucial for the functioning and perpetuation of a liberal democracy. To be dynamically stable, a society's institutions and culture must therefore serve as complements, each contributing to the conditions required for the successful functioning and perpetuation of the other.

The apparent breakdown of this complementarity of liberal institutions and preferences motivated the works of scholars reacting to the fall of the Weimar Republic's fledgling democracy and the rise of fascism in Germany, notably Erich Fromm's *Escape from Freedom* (1941) and Theodor Adorno and coauthors' *Authoritarian Personality* (1950). Adorno and his coauthors studied a culture of "submissive authoritarianism" and its contribution to the rise of Fascism. Kurt Lewin, a German contemporary of Adorno considered to be among the founders of social psychology, wrote that "the first act of modern Fascism ... has been ... to make emotions and obedience the all ruling principles in education and life from kindergarten to death" (1948, p. 83).

Like these German scholars, responding to the rise of Fascism and Communism, the Americans Gabriel Almond and Sydney Verba wrote that "a democratic form of participatory political system requires ... a political culture consistent with it," reasoning that "particular psychological tendencies ... are important for the functioning of political systems." Like Lewin, they stressed the "upbringing of children" as part of the formation of this psychological foundation of liberal democracy (1963, pp. 12, 33).

The concerns motivating these mid 20th century works have renewed resonance today, in particular the possibility that liberal democratic societies might eventually confront their own Weimar moment due to the demise of liberal and democratic "psychological tendencies" and a resulting rupture of the complementarity of institutions and preferences on which liberal democracy depends. Public support for populist leaders, for example Donald Trump in the U.S. or Viktor Orban in Hungary, is predicted by high scores on a psychometric scale measuring Adorno's authoritarian submissiveness (Nilsson and Jost, 2020). In Germany, voting for the far-right party *Alternative für Deutschland* (AfD) is predicted by high scores on a measure of the submissive authoritarianism personality based on the voter's own values about the importance of obedience as a goal of child rearing (Crepaz, 2019, Crepaz and Naoufal, 2022).

Here we study the value a person places on individual autonomy as exemplary of a preference that is both essential to the workings of liberal-democratic institutions and the antithesis of Adorno's submissive authoritarianism. Documentation of the intrinsic value of autonomy began half a century ago with the works of psychologists Mark Lepper and his coauthors (1973) and

Edward Deci (1971) on the importance of what they termed “self-determination” as a fundamental attribute and objective of humans.

Economists have recently taken up these ideas with studies of employees’ value of autonomy as a constraint on monitoring and surveillance of workplace effort Falk and Kosfeld (2006), the value of autonomy as a component of human capital and a determinant of wages (Ek, 2024), the inter-generational transmission of the value of autonomy as opposed to obedience and its contribution to the perpetuation of societal economic inequalities (Acemoglu, 2022), the idea of “free labor” as the freedom to quit (Naidu, 2026), the experimental measurement of the extent of an intrinsic desire for autonomy (Bartling et al., 2014), and cultural differences in the value of autonomy as a determinant of comparative advantage and countries’ specialization (Belloc and Bowles, 2017, Campante and Chor, 2017).

Our hypothesis is that liberal institutions cultivate personal autonomy as a value and that authoritarian institutions cultivate authoritarian submissiveness in the spirit of Adorno. We test our hypothesis measuring three aspects of the value of autonomy. These are, first, the importance of “independence” relative to “obedience” as values in child rearing elicited in the World Value Surveys from 21 liberal-democratic countries, 8 of them formerly ruled by the Communist Party (Section 4); second, “control averse” behavior (as termed by behavioral economists) in incentivized experiments (Sections 5, 6, and 7); and third, survey responses to mandated as opposed to voluntary public health measures during the covid pandemic (Section 8). Section 3 explains the elements of our research design that are common to these three data sets, summarized in Table I.

The use of child rearing values as a measure of the value of autonomy is somewhat novel in economics. Items concerning child rearing values are prominent in psychologists’ measures of authoritarian submissiveness, for example, a respondent’s extent of agreement with the statement that “obedience and respect for authority are the most important values children should learn” (Funke, 2005, p. 214). A recent study making the case for the importance of obedience relative to independence as an indicator of the authoritarian submissive personality concludes “that this measure of authoritarianism faithfully measures the concept, is exogenous to politics, and responses to it are stable over time” (Engelhardt et al., 2023, p. 556). Thus, while measuring a characteristic that is closely associated with the authoritarian-submissive personality, a subject’s survey responses on child rearing values appear to be distinct from and not driven by their political opinions about the desirability of democratic versus authoritarian rule.

The end of Communist Party rule in many countries, all occurring within a matter of months as the result of the demise of Communist Party rule in another country – the Soviet Union – con-

stitutes the exogenous institutional shock, the effect of which on preferences we wish to estimate. Like Nicola Fuchs-Schündeln and her coauthors (Fuchs-Schündeln and Schündeln, 2015, 2020) and Daron Acemoglu (2025) among others, our identification strategy is based on age cohort comparisons within a given country (rather than between-country comparisons). Thus, as a control we need estimates of cohort differences in the value of autonomy or submissiveness that would arise for reasons unrelated to the institutional shock, for example, due to aging effects *per se*.

We estimate the effect of the institutional shock in two steps. First, in the ex-Communist nations, we measure differences in preferences for autonomy between those raised under Communist rule and younger cohorts. Second, we estimate cohort differences in the value of autonomy in a large sample of longstanding liberal democratic nations (that did not experience the shock). The estimated preference difference due to the institutional shock is then a difference in difference, that is the observed cohort difference in the formerly Communist nations minus any cohort difference in the liberal democratic nations that did not experience the shock (see Equation 1 in Subsection 3.1). In Section 3.4 we consider possible shortcomings of this identification strategy.

Consistent with our hypothesis, we find that those who grew up under liberal institutions value personal autonomy more than older cohorts whose formative years were under Communist Party rule. This applies to the World Values Survey data on child rearing values across 21 countries (both long-standing liberal democratic and formerly Communist), as well as our three different data sets on Germany, comprising all our measures of autonomy, i.e., child rearing values, experimentally measured control averse behavior, and opposition to mandated (compared to voluntary) covid policies.

Using continuous age measures instead of the binary age cohort design does not alter these results. The value of autonomy among those who were brought up under authoritarian rule is monotonically declining in the years they lived under Communism.

One may wonder why living under authoritarian rule would make people *less* instead of *more* control averse. Natural selection has equipped us to develop nauseous aversions to foods that in the past have made us ill; why would a similar aversive reaction to control not be especially pronounced among the targets of authoritarian rule in the Communist regimes in our data set?

The key to a convincing answer is to understand control tolerance or a limited value of autonomy as a psychological adaptation to restricted freedom. Thus, the analogy to the natural selection of diet choice is misplaced. Natural selection has also equipped many species to recognize dominant members of their group and submit to them where their dominance is inescapable.

In similar vein, our findings suggest that adapting to life (even surviving, as Milena Nikolova and Olga Popova, 2024, point out) under authoritarian rule may have induced a lesser valuation of autonomy and greater tolerance of control, while the subsequent liberalization favored the adoption of more pro-autonomy, control-averse preferences. Our understanding, then, is that placing a high value on autonomy is an adaptation to a liberal environment in which there are personal benefits and fewer risks associated with exercising self-determination. Similarly, control tolerance or submissiveness is an adaptation to the unavoidable experience of being controlled, rather than a cognitive judgment of “how bad” control is.¹

Our paper contributes to the literature in the following ways.

First, our evidence on liberal-democratic “psychological tendencies” complements the findings on political opinions – i.e., the desirability of alternative forms of government (including “democracy”, a “strong leader”, “army rule” and “experts making decisions”) or “freedom of speech” – provided by Fuchs-Schündeln, Acemoglu, Nikolova and their co-authors that we report in Section 2.3. The effect of institutions on these political opinions could be accounted for by the fact that democracies literally teach (for example in schools and the media) their citizens that democracy is the best form of government, along with related political opinions. Our focus instead is on what Almond and Verba termed the matters of “attitude and feeling” that are “harder to learn,” and required for “the effectiveness and stability of the democratic polity” (1963, pp. vii, 5, 34).

These two aspects of liberal democratic culture – pro or con political opinions about democracy, on the one hand, and valuing autonomy as a personality attribute on the other – are surprisingly independent. Where comparable survey evidence is available, the political opinions measured by Fuchs-Schündeln, Acemoglu, Nikolova and their co-authors are substantially uncorrelated with the value of autonomy as an aspect of personality that we study here. Less than one percent of the variance of our measure of autonomy based on child rearing values is statistically explained by the opinions about democracy and alternative forms of government studied by Acemoglu et al. (2025) or the value respondents place on freedom of speech (the main variable in Nikolova and Popova, 2024).²

¹This is analogous to the hypothesis from attachment theory in psychology that children of abusive parents are more likely to end up in intimate relationships in which they suffer abuse (Berzenski and Yates, 2010, Firestone, 2018), consistent with evidence that “being exposed to and experiencing violence as a child correlate strongly with ... being subjected to intimate partner violence” (Goodmark, 2018, p. 62f).

²In our sample of 21 countries from the World Values Survey presented in Section 4, using a regression with country fixed effects, the increase in explained variance of our measure of autonomy resulting from including each of these political beliefs is less than one percentage point.

Second, we contribute a multi-faceted study to the small but growing literature on endogenous preferences, surveyed in the next section. We exploit three empirical measures of differing aspects of the value of autonomy, using samples from different populations at different times. Across these different measures and estimation methods, we consistently find that liberalization has a positive effect on people's preference for autonomy. For the German case in particular, our research design includes an unusual combination:³ a) preferences measured in controlled incentivized experiments, b) a treatment difference arising from a sharp discontinuity in institutions – from life under what was one of the most invasive authoritarian regimes ever experienced to an already well-established liberal democracy (the sharp discontinuity is evident from the right-hand panel of Figure 2 below), and c) a culturally similar control population that did not experience a discontinuity in their system of rule (i.e., West Germans of different age cohorts).

Distinct from much of the endogenous preferences literature, we suggest plausible psychological mechanisms (including conformism and preference falsification) accounting for our results.⁴ Following Almond and Verba, our model underlines the importance of one's "experience with the political system" (Almond and Verba, 1963, p. 34) in addition to more cognitively oriented and intentional socialization mechanisms such as the formal content of school curricula and political propaganda.⁵

Third, while it is common in the evolutionary literature to treat culture as "deeply rooted," "persistent" and "slow moving" relative to institutions (Roland, 2004, Guiso et al., 2016, North, 1990), the very rapid transformation of younger ex-Communist cohorts' preferences for autonomy provides a counter example, more consistent with the work of Belloc and Bowles (2013), Alesina and

³In Appendix A, we review 54 studies using German data to explore the effects of institutional differences on political opinions or preferences. The vast majority (40 papers) are based on East-West comparisons rather than cohort comparisons in the East, using non-experimental measurements of preferences. We found only three studies based on experimental evidence (Ockenfels and Weimann, 1999, Brosig-Koch et al., 2011, Ariely et al., 2019), all of which rely on East-West differences as the basis for the identification of the effects of institutions.

⁴In the Appendix J, we formalize these mechanisms in an evolutionary model of preference formation. We develop some of the implications of the endogeneity of preferences for two fundamental concepts in microeconomic theory – the Nash equilibrium as used in mechanism design and what is termed "liberal neutrality" concerning preferences – in Bowles and Schmelz (2025).

⁵Treating preference endogeneity as for the most part an unintended by product of ones' ordinary experiences under a particular set of institutions rather than the effect of deliberate attempts by powerful social actors to affect preferences (e.g. through advertising, propaganda an school curriculum) originated with Gintis (1972).

[Fuchs-Schündeln \(2007\)](#), [Fernandez \(2011\)](#), [Giuliano and Spilimbergo \(2014\)](#) and [Acemoglu and Robinson \(2025\)](#); see also [Giavazzi et al. \(2019\)](#), [Giuliano and Nunn \(2021\)](#).

Fourth, the above tools and empirical evidence shed a bit of light on the urgent question motivating our research: under contemporary conditions, is liberal democracy a complementary set of institutions and culture that is sustainable? The rapid liberalization of preferences among young cohorts in ex-Communist countries following the fall of the Wall suggests that liberal institutions and preferences can work as complements. But it also points to a distressing possibility, namely that a similarly rapid process could run in reverse: an exogenous erosion of liberal and democratic institutions might generate a new authoritarian institution-culture complementarity.

We begin in the next section by surveying important works suggesting that, consistent with the evidence we present here, preferences are endogenous with respect to institutions, and more specifically, that liberal institutions may cultivate liberal preferences.⁶

2. INSTITUTIONS AND PREFERENCES: BACKGROUND

During the evolution of biologically modern humans prior to the development of states and other political hierarchies five or six thousand years ago, submitting to the authority of others would have been for the most part avoidable and would likely have reduced an individual's fitness. Moreover, those seeking to control others would have encountered resistance. Mobile hunter gatherers are notoriously hostile – to the point of lethal violence – to aggrandizing power seekers ([Boehm, 1993](#), [Knauff, 1991](#)). In this environment, autonomous individuals who accepted the self-determination of others may have had higher fitness. Thus, it could well be that there is a genetic element in autonomy being something that humans value. However, to understand the effect of institutions on preferences concerning autonomy over brief historical periods rather than multi-millennial biological timescales, we focus on the cultural element, namely the process by which preferences concerning autonomy and submissiveness are learned.

2.1. *Endogenous preferences*

We begin by asking how preferences are endogenous with respect to institutions⁷.

⁶We address this question more fully in [Bowles and Schmelz \(2025\)](#).

⁷We have treated this topic at greater length in [Bowles and Schmelz \(2025\)](#). Seminal early works on endogenous preferences are [Gintis \(1972\)](#), [Becker \(1996\)](#), [Sunstein \(1996\)](#), [Posner \(2000\)](#), and [Hirschman \(1985\)](#); recent important additions are [Mattauch et al. \(2022\)](#), [Kreps \(2023\)](#), [Von Weizsäcker \(2024\)](#) and [Besley \(2020\)](#).

Institutions may affect preferences by shaping how people regularly interact (e.g., affecting the feasible set of actions and associated rewards). The nature of these interactions may favor the long-term adoption of some preferences over others, such that (distinct from framing effects (Tversky and Kahneman, 1981)) learned preferences endure even after the conditions under which they were learned no longer exist.

Economists' understanding of the effect of institutions on preferences (including social norms) has been advanced in recent decades by models of cultural evolution (Cavalli-Sforza and Feldman, 1981, Boyd and Richerson, 1985, Bisin and Verdier, 2000, Giuliano and Nunn, 2021, Akerlof and Kranton, 2000), including the coevolution of cultures and institutions (Belloc and Bowles, 2017, Fernandez, 2013, Tabellini, 2008b, Bisin and Verdier, 2023a,b), and by empirical evidence on the association of social norms and societal institutions (Bowles, 1998, Greif and Tabellini, 2010, Gächter et al., 2010, Gächter and Schulz, 2016, Tabellini, 2008a, Lane et al., 2023, Grosjean, 2011).⁸

Identifying the causal processes whereby the possible preference-learning effects of institutions might work has proven challenging. The reason is that the developmental processes by which we learn new preferences take place over years or decades of upbringing and life experience. Consequently, evidence on the impact of institutions on the evolution of preferences via learning effects is limited. In the remainder of this section we review a set of studies that have devised convincing strategies to identify causal effects, first for the endogeneity of preferences in general and then specifically for the effect of liberal institutions on liberal preferences.

2.2. Empirical evidence on endogenous preferences

Empirical studies of endogenous preferences have drawn on plausibly exogenous temporal or spatial discontinuities to establish treatment differences for alternative societal institutions. Nathan Nunn and Leonard Wantchekon (2011), for example, exploited geographical differences in the extent to which enslaved people were taken from Africa along with recent survey responses to make a convincing case that slave trade had an enduring negative effect on interpersonal trust in the localities from which people were enslaved. To estimate the effect of institutions on experimentally measured contemporary social norms, Sara Lowes and her co-authors (2017) studied populations on either side of what had been the boundaries of the Kuba Kingdom in early 17th century Central Africa to capture differences in the degree of political centralization and state capacity.

⁸Recent reviews are found in Bowles et al. (2021), Nunn (2021); and Persson and Tabellini (2021).

Similarly, Sascha Becker and his coauthors (2016) found that populations of modern day Ukraine, Poland, Montenegro, Poland and Serbia living within the boundaries of what had been the Habsburg Empire at least a century earlier reported on surveys that they had substantially greater trust in the police and courts than did their fellow citizens living on the other side of the Habsburg border. In another paper, Becker and his coauthors (2020a) found that Poles from families who had been forcibly relocated from Eastern to Western Poland (presumably with substantial loss of property) in the aftermath of World War II were today significantly more educated today than other Poles, a difference the authors attribute to “a shift in preferences away from material possessions toward investment in human capital.”

The staggered extension of the vote to women in Switzerland allowed Michaela Slotwinski and Alois Stutzer (2022) to use age differences to identify institutional changes as a cause of transformation of gender norms as measured, for example, by female labor force participation. Bruno Caprettini and Hans-Joachim Voth (2022) leveraged exogenous geographical variation in government spending along with individual data on bond purchases, volunteering for military service and bravery in battle to show that Americans who benefited from social spending during the New Deal were substantially more likely to exhibit patriotic behavior during World War II.

These papers, we think, establish convincing evidence that institutions affect preferences. We now ask if the same can be said of specifically liberal institutions and preferences.

2.3. *Evidence that liberal institutions support liberal preferences*

There is a substantial survey-based literature dating from the middle of the last century on individualism, collectivism, and civic culture, which documents cross-national differences that are relevant to the functioning of liberal institutions (Almond and Verba, 1963, Hofstede, 1980, Inglehart and Welzel, 2005). More recent contributions have moved beyond this literature by exploiting identification strategies that identify causal effects. These include the ways that liberal institutions such as local self-rule, markets, and the rule of law under national states (as distinct from kinship or lineage based systems of governance) may cultivate liberal preferences, and correspondingly how hierarchical institutions may cultivate authoritarian preferences.

The effect of hierarchical social interactions at work on the evolution of preferences is demonstrated in Ertola Navajas et al. (2022). The authors exploited the fact that a large segment of Argentine military personnel are selected by lot from the young male population. Compared to a comparable control group of non-recruits, those randomly selected to serve in the military underwent substantial personality changes characterized by values more closely approximating Adorno’s

authoritarian personality. The estimated effects are substantial: being randomly selected to serve in the Argentine military is associated with one-third of a standard deviation difference in the personality index devised by Navajas et al.

To identify the opposite effects of institutions of local self-governance, Devesh Rustagi (2024) leveraged the end of noble rule in some Swiss municipalities in the 13th century that had occurred due to the accidental deaths of the only legitimate heirs. Current residents of those localities were substantially more cooperative in a one-shot public goods experiment than those living in places where self-rule was not introduced until the 19th century. Inhabitants of municipalities with a long history of self-governance also engaged more in community associations and environmental protection activities, and were more likely to vote for the expansion of democratic rights in the 11 referendums (expanding suffrage and citizenship, eliminating gender discrimination) held between 1960 and 2022. Similarly, Luigi Guiso et al. (2016) found that self-governance in Italian cities in the medieval period supported an enduring culture of democratic civic values.

Consistent with the “doux commerce” ideas originally advanced by Montesquieu and Voltaire, three papers provide evidence that markets support norms that are essential to liberal governance (Hirschman, 1977). Joseph Henrich and his coauthors (2001) found that in populations of farmers, herders, and hunter gatherers, the degree of market exposure of a society was associated with more fair-minded and cooperative behavior in experimental games. Rustagi (2023) exploited the fact that in Ethiopia, the location of markets was initially dictated by military considerations to identify a substantial positive effect of market exposure on social preferences. Benjamin Enke (2023) studied differences in the content of folklore among ethno-linguistic groups and found a strong positive association between market-like themes in the folklore and themes relating to social preferences and moral universalism.

A suite of papers explores how the prevalent role of kinship relations in societal governance as opposed to more depersonalized relationships under the rule of law affects preferences concerning political participation and how order is sustained. Guido Tabellini (2008a) found that societies ruled by non-despotic regimes in the past are more likely to exhibit the kinds of generalized (rather than familial or other limited) morality that is essential to the workings of modern markets and democracy.

Jonathan Schulz (2022) provides evidence that weak kin networks are associated with the formation of self-governing institutions and a preference for political participation. His evidence suggests that the medieval Catholic Church contributed to the advancement of democracy in Europe by dissolving strong kin networks (i.e., prohibiting cousin marriage). He shows that within Euro-

pean countries, a proxy for the extent of civicness (national election voter turnouts) varies inversely with strong kin networks (proxied by cousin-marriages rates).

In an earlier paper, [Schulz et al. \(2019\)](#) provided evidence that exposure to kinship-based institutions is positively associated with obedience and conformity among their citizens, suggesting that these traits are deeply rooted in cultural evolutionary processes. Relatedly, [Enke \(2019\)](#) found that societies characterized by loose kinship tend to rely on universal moral values that apply independently of group membership, along with internalized guilt to maintain cooperation. In contrast, behavioral regulation in kin-based societies is achieved via moral values specific to particular communities and public shame.

A series of papers have explored the effect of alternative institutions on political beliefs. Nicola Fuchs-Schündeln and her coauthors have used cohort differences in survey responses among East Germans and other Communist ruled populations to identify regime effects on political opinions (for example, agreement with the statement “Democracy is preferable to any other form of political system.” [Alesina and Fuchs-Schündeln, 2007](#), [Fuchs-Schündeln and Schündeln, 2015, 2020](#), [Bondar and Fuchs-Schündeln, 2023](#)).

Using a similar identification strategy, Daron Acemoglu and his coauthors ([Acemoglu et al., 2025](#)) found that the belief that democracy is “better than other forms of government” is greater the more a person has been exposed to democratic rule. The study is unusual in providing some evidence about the mechanisms involved, namely their finding that the effect was almost entirely accounted for by democracies that sustained economic growth, provided public goods and maintained peace. Nikolova and Popova also use age cohort comparisons to identify an effect of the “personal experience” of Communist rule, namely, an enduring reduction in survey respondents’ opinion that freedom of speech is important relative to other government priorities ([Nikolova and Popova, 2024](#), p. 5).

3. IDENTIFICATION: THE DEMISE OF COMMUNIST RULE AS A NATURAL EXPERIMENT

Like the above literature, we identify causal effects of institutions on preferences by means of arguably exogenous shifts in institutions, that is, temporal differences in systems of rule due to an external cause.

3.1. *Exogenous shocks to institutions and differences in preferences across cohorts*

The virtually global collapse of Communist rule allows us to compare cohort differences in child rearing values in a set of ex-Communist countries that made a transition to liberal-democratic institutions (treatment group) with cohort differences in populations with a long and uninterrupted

history of liberal-democratic rule (control group). Our analysis is based on the World Values Survey, using wave 5 from 2005-2009, which focused on values in ex-Communist nations (Inglehart et al., 2014). This data set allows us to compare age cohort differences in 8 formerly Communist ruled populations to cohort differences in 13 longstanding democracies.

Separately, we also take a closer look at age cohort differences in preferences in the culturally more similar populations of East and West Germany, using three data sets: the World Values Survey (2006) eliciting child rearing values, our behavioral experiments on control aversion that we implemented in 2011, and our survey evidence responses to mandated as opposed to voluntary covid policies from the first wave of the pandemic in 2020.

For all of our measures, we take the observed cohort difference in the established liberal democracies as the difference between the younger and older cohorts (control) that we would expect to observe in the ex-Communist cohorts in the hypothetical absence of Communist rule. We subtract this from the observed cohort difference in the ex-Communist societies (treatment) to measure the causal effect of liberalization on preferences for autonomy, as captured by the difference in difference estimator.

So, using the notation such that $A(I, J)$ refers to the mean value of autonomy in the four cohorts, where $I \in \{Young, Old\}$ and $J \in \{Treatment, Control\}$, the difference in difference estimator of the effect of liberalization on the value of autonomy is ΔA :

$$\Delta A = [A(YoungTreatment) - A(OldTreatment)] - [A(YoungControl) - A(OldControl)] \quad (1)$$

For example, for the case of German reunification, Equation 1 can be read as follows:

$$\Delta A = [A(YoungEast) - A(OldEast)] - [A(YoungWest) - A(OldWest)] \quad (2)$$

The hypothetical example in Figure 1 illustrates why a difference in difference estimator like Equation 1 or 2 is required to identify the causal effect of liberal institutions on preferences for autonomy. Suppose we found that the value of autonomy among those raised under Communism (Treatment, Old) was less than among the younger cohort in the ex-Communist country (Treatment, Young), as shown by the red bars in the figure. One might infer that liberalization increased the young generation's value of autonomy, consistent with our hypothesis. However, this could simply reflect the process of aging *per se*, as shown by a comparison of the two age cohorts that did not experience the institution shock (the control group, represented by the grey bars). Applying Equation 1 to our hypothetical example, i.e., taking account of the age cohort differences expected in the absence of an institution shock, we see that the transition from Communism to liberalism

would have reduced (rather than increased) the value of autonomy. Thus, not accounting for the age confound would have led us to misinterpret our hypothetical finding not only in magnitude, but also in the direction of the effect.

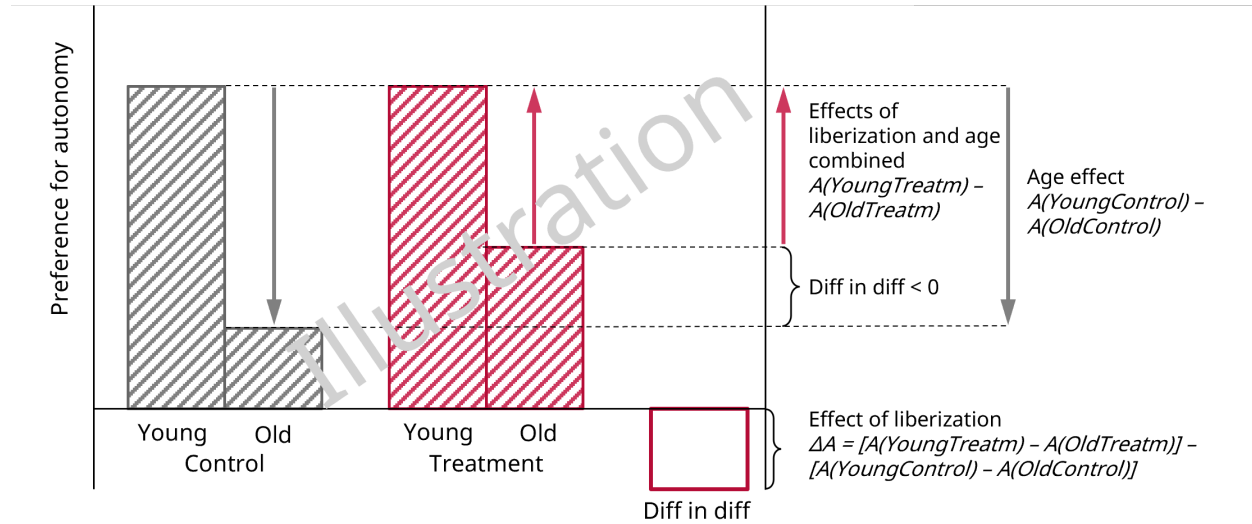


FIGURE 1.—Hypothetical illustration of the meaning and relevance of our *Diff in diff* measure.

Note: The arrows illustrate the directions of the effects: while the hypothetical treatment effect is positive (liberalization leading to an increase in preferences for autonomy from the older to the younger cohorts, red arrow), the hypothetical age effect is negative (decreasing with age, grey arrow). Subtracting the larger negative age effect from the smaller positive treatment effect yields a negative difference in difference estimator, reflecting a hypothetical negative effect of liberalization on preferences for autonomy.

3.2. Institutional discontinuity and stability (1985-2009) in our global sample

We now establish that our identification strategy satisfies two empirical desiderata. First, there is a sharp institutional discontinuity (the treatment) both in East Germany and in the larger set of 8 ex-Communist nations in the WVS data set. Second, no such institutional shock occurred in our control group, the longstanding liberal democracies.

To select the appropriate treated and control groups, we use the Electoral Democracy Index (EDI) provided by The Varieties of Democracy project (V-Dem, Coppedge et al., 2023) that measures “to which extent political leaders are elected under comprehensive voting rights in free and

fair elections, and freedoms of association and expression are guaranteed.”⁹ The index ranges from 0 to 1 (least to most democratic).

Our set of 13 control countries are all of the longstanding liberal democracies that were covered by the WVS wave 5 with populations largely of European origin: Australia, Canada, Finland, France, Great Britain, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, and the U.S. Our treatment set are the formerly Communist ruled nations that in 1990 made a transition to liberal democratic governance, which we posit to be ex-Communist nations that had an Electoral Democracy Index value greater than 0.5 in 2007 (the midpoint of the 2005-2009 WVS wave 5 period): Bulgaria, Georgia, Hungary, Poland, Romania, Serbia, Slovenia, and the Ukraine.¹⁰

The left panel of Figure 2 shows the Electoral Democracy Index for the resulting set of countries from the WVS. Our set of ex-Communist populations experienced a dramatic shift in institutions, while this is not the case for our control group. The right panel shows that this institutional shock was particularly pronounced for East Germans.

3.3. *German reunification as a natural experiment to identify causal effects*

In addition to the global WVS set of countries, we give particular attention to the reunification of the former German Democratic Republic (GDR) in the East with the Federal Republic of Germany (FRG) in the West. The nature of the institutional shock and its effect on daily life is especially well documented for the case of Germany (as we explain in Section 9.2).

The staggered timing of liberalization in Germany, which illustrates our identification strategy, is illustrated in Figure 3. The solid vertical lines indicate institutional discontinuities. The red line at 1990 is the discontinuity we exploit to identify the causal effect of a regime change. The dashed line at 1949 refers to the end of occupation and the beginning of the new regimes in East and West Germany.

Studies treating the East-West spatial discontinuity in Germany as a natural experiment to investigate endogenous preferences have found substantial differences. For example, having experienced Communist rule has been shown to be associated with more egalitarian gender norms (Lipp-

⁹The project is managed by the V-Dem Institute, based at the University of Gothenburg in Sweden.

¹⁰To give an intuition of the meaning of the Electoral Democracy Index and the 0.5 cutoff, countries barely above the index value of 0.5 in 2023 are Bolivia, Indonesia, Mexico and Poland, while countries slightly below are Cote d’Ivoire, Hungary, Nigeria, Philippines, and the Ukraine. Examples of countries in the V-Dem data set with Electoral Democracy indices above 0.5 at the time of the WVS survey that declined below that cutoff value in recent years are Hungary, India and the Ukraine.

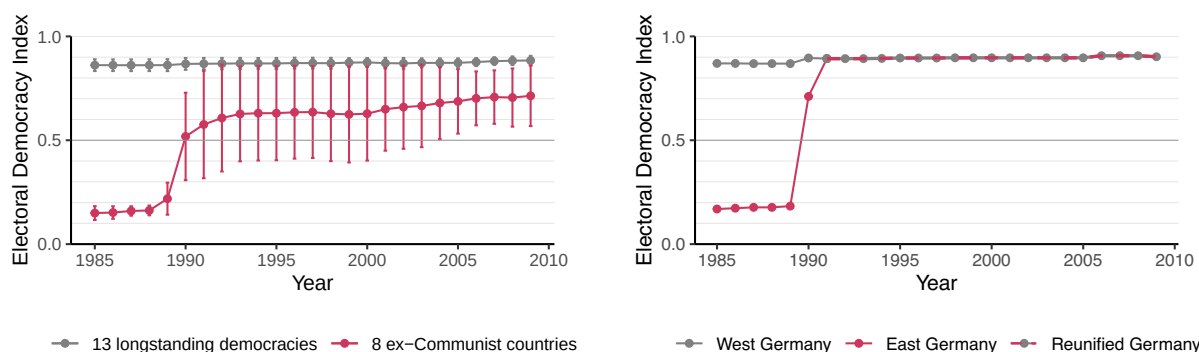


FIGURE 2.—Electoral Democracy Index (EDI) in ex-Communist, liberal democratic nations and Germany before and after the collapse of the Soviet Union.

Note: Left panel: Mean EDI for the 13 longstanding liberal democracies (grey dots) and the 8 formerly Communist party ruled nations (red dots). Error bars represent ± 1 SD. Right panel: Similar information for Germany (not included in the left panel), i.e., EDI for East and West Germany prior to 1991 and for reunified Germany thereafter.



FIGURE 3.—Identification strategy exploiting institutional discontinuities in authoritarian and liberal Germany.

mann et al., 2020) and redistributive preferences (Alesina and Fuchs-Schündeln, 2007). Becker et al. (2020b) provide a review of these studies.

Becker and his coauthors, however, have pointed out that due to “pre-existing differences [...] German division and reunification do not provide a straightforward case of a natural experiment” (Becker et al., 2020b, p. 143). While sharing a common language and many aspects of culture, historically the East and the West were governed by different institutions regulating the extent and types of control by some people over others. More hierarchical landowner-dominated structures were common in the East and more liberal institutions in the West, for example, the free cities of

1 south-western Germany dating from the 15th century (Becker et al., 2020b, Brenner, 1976, Domar, 1
2 1970, Gerschenkron, 1944).

3 Becker et al. show that long prior to Communist rule, the East was distinct from the West in 3
4 political culture (greater support for far left parties) and the degree of autonomy at work (lesser 4
5 fraction of self-employed and greater fraction of “working class”). The result of these pre-existing 5
6 differences is that East-West comparisons do not provide a clean identification of the effects of 6
7 institutional differences on preferences.

8 However, the Becker-critique does not mean that the German case is uninformative about the 8
9 effects of institutions on preferences.

10 In the German case, for all three of our measures of autonomy – independence rather than 10
11 obedience as a child rearing value, experimentally measured control aversion and survey evidence 11
12 on responses to mandated versus voluntary covid policies – we adopt the same strategy, exploiting 12
13 age cohort differences within East Germany as our identification mechanism. Thus, our strategy 13
14 is not subject to the confound that Becker et al. (2020b) pointed out, namely pre-existing cultural 14
15 differences of the populations on the two sides of the post 1948 borders.

17 3.4. *Is our identification strategy convincing?*

18
19 The key parallel trends assumption motivating Equation 1 as our identification strategy is that after 19
20 the Second World War, had East Germany and the other 8 Communist ruled nations in our data 20
21 set been governed by the same liberal institutions as West Germany and the 11 other long-standing 21
22 democracies, then we would observe the same cohort-based evidence in the value of autonomy that 22
23 we observe in West Germany and the other liberal societies, namely the value of autonomy being 23
24 similar or even somewhat greater among older people.

25 Of course, there is no way to adequately assess how plausible this hypothetical counterfactual is. 25
26 There are two reasons why the parallel trends assumption might fail, neither of which we consider 26
27 to be likely.

28 The first reason is related to Becker et al. (2020b)’s critique of East-West differences as a strategy 28
29 to identify the effect of institutions, namely pre-existing differences. Accepting Becker’s reason- 29
30 ing, we do not use East-West German (or Communist-liberal) differences to identify the effect of 30
31 institutions. However, there could be a second-order version of this critique. This is the possibility 31
32 that there are systematic differences in how aging *per se* would have affected our dependent vari- 32
33 able – the value of autonomy – if the East and West had both been ruled hypothetically by liberal 33
34 democratic institutions. We cannot exclude this violation of parallel trends, but we find it far less 34

plausible than Becker's critique based on well documented pre-existing differences between what became the GDR and FRG. And we know of no evidence that would suggest that it is likely.

The second possible violation of parallel trends is that the treatment (Communist rule) may have affected the variable of interest in the control populations (violating what Donald Rubin (1980) termed the "stable unit treatment value assumption" or SUTVA, and Manski (2013) the "individualistic treatment response" assumption). For example, elder cohorts in longstanding democracies may have been particularly aware (via media and possibly the content of school curricula) of the harms inflicted by autocratic rule on citizens experiencing Communism in other countries, and therefore, may have come to hold strong pro-democracy opinions. Our estimate of the effect of aging *per se* on the value of autonomy under liberal conditions would then be inflated by this "having observed the harms of Communism" effect. The result would be that the difference in difference estimator exaggerates the effect of liberal institutions on the value of autonomy.

If true, this confounding effect would seem to operate with particularly great force in the case of the two Germanies (amplified by proximity, common language and the fact that many families had members on both sides of the Wall). This reasoning is not consistent with our empirical findings: Figure 4 shows that the slightly positive age effect on control aversion in West Germany is no different from the other long-standing democracies.

As a robustness check, we have also looked at cohort differences in child rearing values in the liberal-democratic countries in which the older generation may have had a lesser engagement with the harms of Communist Party rule in Europe (that is, New Zealand, Australia and Canada) and found that these do not differ significantly from the rest of our longstanding liberal-democratic countries.

As with what we have termed the "second order Becker critique," there is no definitive way to exclude this possible confound. But it seems unlikely that the greater awareness among elder cohorts in liberal-democratic countries of the harms of Communist party rule as form of government would substantially affect our three measures of autonomy: preferences about child rearing, behavior in an experiment entirely lacking in political connotations, and responses to mandated or voluntary covid policies 30 years after the end of Communist rule.¹¹

¹¹This argument may not be as strong for the third measure: Opposition to mandated covid policies could be a composite of an autonomous personality (which is what we seek to measure) and a political belief, namely, opposition to a government imposing mandates. For elder West Germans, the latter could be the result of having indirectly observed the East German authoritarian government, rather than an effect of aging *per se*, thereby overestimating the age effect and as a result, also overestimating our difference in difference estimate of the impact of institutions. However, the effect size of our difference in difference estimate for the covid policy measure is the smallest of all our estimates.

Another concern about our identification strategy is the possibility that the observed cohort differences in autonomy values might be the effect of the economic shock and labor market disruptions that accompanied the institutional shock. This confound could account for our results, for example, if the economic shock (not the experience of living under different institutions) induced a lesser value of autonomy among older but not younger ex-Communist cohorts.

The global financial crisis in 2007/2008 – an economic shock in the absence of an institutional change – allows a placebo test, using data on West Germans as well as on the subset of our longstanding democracies covered by the WVS wave 5 just before the financial crisis (2004-2007) that were also surveyed in wave 6 after the financial crisis (2011-2013) – i.e., Australia, Netherlands, New Zealand, Spain, Sweden and the U.S. We find no evidence that the economic crisis affected age cohorts' valuation of autonomy in child rearing differently ($p - values > 0.89$).

In Section 7, we return to other possible confounds (e.g., selective migration) along with supplementary data in support of our research design.

3.5. Implementing our research design

In the following sections, we compare age-cohort differences for our three measures of the value of individual autonomy in countries that have experienced an institutional shock with cohort differences in countries that have not. Table I summarizes our research design.

Defining older and younger age cohorts

Table II provides an overview of our subsamples. The older cohorts are born before 1980, and the younger cohorts are born in the 1980's (or later in case of the covid survey). For all our measures, the cohorts are comparable with respect to their age between the treatment (ex-Communist) and the controls (longstanding liberal democracies).

Ideally, we would measure the older cohorts' preferences at the end of Communist rule in 1990 and compare this with similar measures for a younger cohort born after 1990 who had lived a substantial period of time under liberal institutions. However, even if such data were to exist, measuring the cohorts' value of autonomy at different times would confound the effects we wish to measure with the effects of other unobserved changes.

In our first measure, we rely on the World Values Survey's 5th wave conducted between 2005 and 2009, which is the only wave that focuses on formerly Communist nations. Given the limited time that passed between 1990 and the survey, there could not be a cohort of adults born after 1990 in our WVS sample. Therefore, we compare older cohorts born after 1945 and before 1980

Aspect of the value of individual autonomy	Empirical basis	Institutional shock as identification strategy: end of authoritarian (Communist Party) rule
Value of independence relative to obedience in child rearing (Section 4)	World Values Survey, wave 5 (2005-2009): representative samples with $n = 18,688$ respondents from 21 countries of which: • 8 made a transition from Communist Party rule (Bulgaria, Georgia, Hungary, Poland, Romania, Serbia, Slovenia, Ukraine); • and 13 are long-standing liberal democracies (Australia, Canada, Finland, France, Great Britain, Italy, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, U.S.).	In the pool of 8 ex-Communist countries, we measure the difference in the value of autonomy between older and younger cohorts. To account for age effects, we compare this difference with cohort differences in the value of autonomy in the pool of 13 long-standing liberal democracies.
Value of independence relative to obedience in child rearing (Section 4)	World Values Survey, wave 5 (2006), representative samples with $n = 1,365$ respondents from East and West Germany (oversampling of East).	Among East Germans, we measure the difference in the value of autonomy between older and younger cohorts. To account for age effects, we compare this difference with cohort differences in the value of autonomy among West Germans.
Control averse behavioral reaction to restrictions by another experimental participant (Sections 5, 6)	Principal-agent experiment (that we conducted in 2011), extending Falk and Kosfeld (2006), among $n = 721$ East and West German professionals with a university degree.	Among East Germans, we measure the difference in control averse behavior between older and younger cohorts. To account for age effects, we compare this difference with cohort differences in control averse behavior among West Germans.
Control averse survey responses to covid policy restrictions imposed by government (Section 8)	Representative survey ($n = 4,623$) that we conducted during the first wave of the pandemic in 2020. We study policies that have parallels with GDR experience: covid vaccination, travel restrictions and a contact tracing app.	Among East Germans, we measure the difference between older and younger cohorts in control averse responses towards covid policies, whether mandated versus voluntary. To account for age effects, we compare this difference with cohort differences in control averse responses towards mandated versus voluntary covid policies among West Germans.

TABLE I

SUMMARY OF OUR RESEARCH DESIGN.

(“raised under Communist Party rule”) with younger cohorts born in the 1980s (where the oldest were 9 years in 1990). The same applies to our experimental data set, which relies on the working population. For consistency, we also apply the same 1980 cutoff to our third measure, on responses to mandated and voluntary covid policies.

		Year of birth	
		Mean (sd)	N
WVS in 21 countries (2005-2009): autonomy as a child rearing value			
	Older ex-Communist	1963 (9.79)	5,935
	Younger ex-Communist	1984 (2.90)	1,571
	Older democratic	1962 (9.53)	9,283
	Younger democratic	1984 (2.77)	1,899
WVS in Germany (2006): autonomy as a child rearing value			
	Older East	1961 (9.22)	586
	Younger East	1984 (2.35)	103
	Older West	1962 (9.13)	563
	Younger West	1984 (2.80)	113
Experiment in Germany (2011): control averse behavior			
	Older East	1970 (8.56)	75
	Younger East	1983 (1.94)	116
	Older West	1970 (8.32)	139
	Younger West	1983 (1.77)	202
Covid survey in Germany (2020): control averse responses to policies			
	Older East	1963 (10.16)	925
	Younger East	1989 (5.93)	486
	Older West	1962 (9.74)	2,169
	Younger West	1991 (6.07)	1,114

TABLE II

COHORTS USED IN OUR IDENTIFICATION STRATEGY.

Note: In all data sets, we separate older participants born before 1980 from younger participants born in the 1980's (or later in case of the covid survey). The greater number of West Germans in our own recruited samples of the experiment and covid survey reflects the preponderance of West Germans in the country (64.4 million of West as opposed to only 15.9 million of East Germans at the time we collected our experimental data, [O'Neill, 2022](#)).

Inevitably, not only did our younger cohorts experience some years living under authoritarian Communism, but our older ex-Communist cohorts experienced decades under liberal-democratic institutions. This means that differences between the age cohorts in all three measures of the value of autonomy are likely to be attenuated compared to what we would observe in the ideal case just identified above, thus biasing downward the quantity $A(Young, Treatment) - A(Old, Treatment)$ in Figure 1. Consequently, our results may underestimate the effect of institutional discontinuity.

Recall that using continuous age measures instead of our binary age cohort design does not alter our findings. In contrast to those brought up under liberal democratic institutions, the value of

autonomy among those who were brought up under authoritarian rule is monotonically declining in the years they lived under Communism (see Appendices B, F.2, H.3). This suggests that our results are not the artifact of a specific age cutoff.

4. GLOBAL SURVEY EVIDENCE ON COHORT DIFFERENCES IN THE VALUE OF AUTONOMY

Our first measure of the value of autonomy, from 21 countries (8 of them formerly Communist Party ruled) as well as Germany is the importance the respondent places on “independence” relative to “obedience” as values in child rearing.

4.1. *Measuring the value of independence versus obedience in child rearing*

To measure child rearing values, we rely on the fifth wave of the World Values Survey (WVS, Inglehart et al., 2014), conducted between 2005 and 2009. We use this wave as it is distinctive in that it focuses on ex-Communist countries. It not only includes a large set of formerly Communist countries, but also over-samples East Germans (yielding similar numbers of respondents from each part of Germany, despite the much smaller size of the East German population).¹²

All 20,053 respondents in the World Values Survey data set that our analysis is based on were asked the following question: “Here is a list of qualities that children can be encouraged to learn at home. Which, if any, do you consider to be especially important? Please choose up to five!” The list to choose from captured ten values, including independence and obedience.

Consistent with the social psychologist Melvin Kohn (1977)’s representation of the child rearing values of obedience and independence as manifestations of a latent authority-autonomy value continuum (to which we return in Section 9.1), for each respondent, we generate the variable *Preference for autonomy in child rearing* or *A* which reflects whether independence or obedience is valued. Each value mentioned is reflected by 1, and 0 otherwise. Technically, our measure captures the difference of independence minus obedience, which can be either 1 (independence is mentioned but obedience is not), 0 (both independence and obedience are mentioned, or neither of them), or -1 (independence is not mentioned but obedience is).

4.2. *Results on cohort differences in the value of autonomy in child rearing*

We find that for the large sample of formerly Communist ruled societies that made a transition away from authoritarian rule, the cohorts raised under Communist Party rule value independence

¹²From the 21 countries we rely on using the WVS wave 5, only 11 and 7 countries are represented in waves 6 and 7, respectively.

less relative to obedience than the younger cohort (as evident from the left panel of Figure 4). In contrast, in long-term democratic societies, this cohort difference is not observed - here, the older cohorts tend to value independence relative to obedience somewhat more than the younger cohorts.

Because Germany plays a substantial role in our identification strategy and overall evidence, the panel on the right of Figure 4 shows this comparison separately for the German case also using the WVS wave 5. The same cohort contrast holds: East Germans raised under Communist rule value independence relative to obedience in child rearing less than do East Germans brought up under liberal institutions.

The observation that this cohort difference is greater in the East German compared to the other Ex-Communist samples may arise because the East Germans merged overnight into a well-functioning and long-established liberal democracy, whereas the institutional transitions were less sharp in other ex-Communist countries (comparing the two panels of Figure 2).¹³

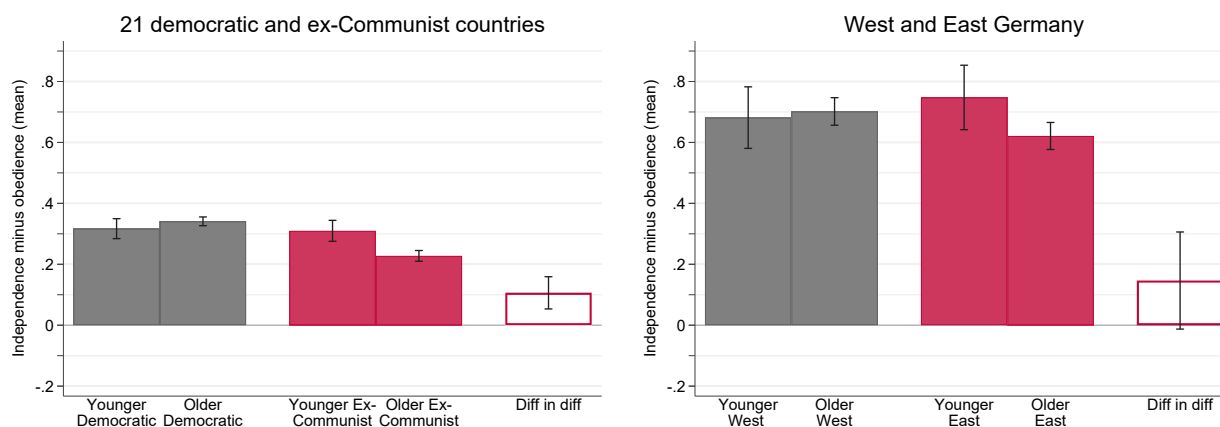


FIGURE 4.—WVS wave 5 data on cohort differences in the value that people place on independence relative to obedience in raising children, among cohorts raised under Communist rule and liberal democratic institutions. Left: 13 established Western liberal democracies vs. 8 ex-Communist countries that made a transition away from authoritarian Communist party rule towards a less authoritarian institutional setting (collected between 2005 and 2009). Right: Germany (collected in 2006), which is not included in the panel on the left. The error bars reflect 95% CI. The bars and their CI for the 21 countries are estimated from OLS regressions with country fixed effects. Our results are robust to clustering standard errors on the level of countries. The effect sizes implied by the difference in difference estimates for the 21 countries and Germany, respectively, are 0.15 and 0.27 standard deviation units of the value of autonomy.

¹³Note that our interest is in exploiting cohort differences within societies to estimate the cultural effects of institutional change, not in cross-national comparisons of the extent of liberal values. The validity of cross-country comparisons of the absolute level of preferences for autonomy is limited not least because the connotations of the terms “independence” and “obedience” differ across languages and cultures.

The difference in difference estimates of ΔA , the effect of liberalization on valuing autonomy in child rearing, for the 21 countries and Germany, respectively, are 0.1063 ($p < 0.001$) and 0.147 ($p = 0.071$). Using continuous measures for age instead of cohort splits yields very similar results as shown in Appendix B. These difference in difference estimates of the effect of liberalization are not trivial in magnitude: those raised under liberal institutions value autonomy between about a seventh and a quarter of a standard deviation more than those raised under Communist institutions (see the caption of Figure 4). The larger effect size for the German case is not surprising given the unusually dramatic change in institutional structures experienced in the East (mentioned above and further discussed in Section 9.2).

We provide three robustness checks. First, our results are robust to alternative specifications of the value of autonomy. If we exclude those for whom our measure of autonomy equals zero (i.e., those valuing both independence and obedience, and those valuing neither independence nor obedience), or only those who value both independence and obedience, the results are qualitatively in line with the full sample results and are thus not driven by these subgroups. Estimating results similar to those in Figure 4 treating independence and obedience as separate measures of an underlying value of autonomy, again, yields results in line with our hypothesis.

Second, we use two alternative measures of autonomy as proposed in the World Values Survey, their *Autonomy Index* as well as the *Welzel Autonomy subindex* (Welzel, 2013). Both alternative measures yield qualitatively similar results as our measure of autonomy motivated by Adorno's work.

Third, in Appendix B, we show that the difference in difference estimates from regressions including sociodemographic controls for the level of education, gender and religious denomination are not qualitatively different from the results on the transition from Communist to liberal and democratic rule presented in Figure 4.¹⁴

In Section 1, we have already suggested that valuing autonomy is an adaptation to the experience of autonomy. Thus, it could be that in both institutional settings the more highly educated, being more likely to experience autonomy in their job and other areas of life, would value autonomy more. Consistent with this reasoning, we find that the respondent's education level is positively associated with their value of autonomy in child rearing ($p < 0.001$ in both the global and Ger-

¹⁴We rely on the sociodemographic controls that were collected in the WVS wave 5 in all countries we included. Also controlling for being a parent and city size in the subset of countries where these controls are available does not affect our main findings (both measures are positively related to valuing autonomy in child rearing).

man data). The fact that more educated people value autonomy more highly motivates an entirely different data set of university graduates that we collected in Germany.

5. EXPERIMENTAL EVIDENCE ON THE VALUE OF AUTONOMY IN REUNIFIED GERMANY: METHODS AND PREVIEW

Our second measure of the value people place on autonomy is control averse behavior, measured in an incentivized experiment with older and younger East and West Germans. While our samples of experimental data are unavoidably smaller than in the World Values Survey, the advantages of experimental evidence are substantial, as Armin Falk and James Heckman (2009) point out:

“Whereas surveys can generate large and representative data sets that provide statistical power, experiments allow the elicitation of preferences and attitudes in a controlled and incentive-compatible way because participants have to make choices with real money at stake. Such evidence is particularly important in securing better understanding of preference heterogeneity.” (p. 537)

Our experimental design again exploits the staggered timing of liberalization in West and East Germany (see Figure 3) to estimate a possible effect of institutions on control aversion, i.e., the preference for autonomy as opposed to being constrained.

We study the incentivized experimental behavior of a sample of 721 East and West Germans from the working population. In our experiment, an agent chooses an effort level that is costly to them but beneficial to the principal. The level of effort chosen by the agent determines the distribution of payoffs between the two.¹⁵ An entirely self-regarding agent would choose the least permissible effort. However, in experimental games with this set-up, many agents contribute more than the minimum required, apparently placing a positive value on the principals’ payoffs.

Prior to the agent’s choice, the principal can place a lower bound on the agent’s permissible effort or choose not to restrict the agent’s choice. We observe control aversion if an agent’s effort is greater when unrestricted than when control (i.e., a lower bound) is imposed. In these cases, control crowds out other-regarding motives that in the absence of control would lead the agent to choose more than the minimum, thereby benefiting the principal.

We now introduce control aversion as a liberal preference. Then we describe the details of our experimental game, practical procedures, and the recruitment of our sample.

¹⁵Our principal-agent game is an extension of the game used by Falk and Kosfeld (2006) in their main treatments as detailed in Schmelz and Ziegelmeyer (2020).

5.1. *Control aversion as a liberal preference and its experimental measurement*

A person's degree of control aversion is a personality trait associated with a distinctive behavioral pattern that is sufficiently regular so as to provide the basis for predicting individual choices. It is, in conventional economic terms, a preference (sharing this feature with other preferences more widely recognized in economics: inequality aversion, risk aversion, or time preferences). Control aversion is a liberal preference in our usage because its absence and antithesis – Adorno's authoritarian submissiveness – undermines the defense of liberty and (as Adorno wrote) facilitates authoritarian encroachment on democratic governance.

Following [Falk and Kosfeld \(2006\)](#), behavioral experiments have documented control aversion as an economically relevant phenomenon: an agent who, in the absence of constraints, is motivated to exert some effort that confers benefits on a principal, appears to be less motivated to do so if required by the principal, often reducing their effort to the minimum allowed by the restrictions imposed by the principal (e.g., [Dickinson and Villeval, 2008](#), [Ziegelmeyer et al., 2012](#), [Burdin et al., 2018](#), [Kosfeld, 2020](#), [Schmelz and Ziegelmeyer, 2020](#), [Herz and Zihlmann, 2024](#)).

A plausible mechanism for how this motivation is compromised by control is that the agent places a positive value on self-determination and/or a negative value on the perceived malign intent or the distrust that is conveyed by controls ([Falk and Kosfeld, 2006](#), [Rudolf et al., 2018b](#), [Eisenkopf and Walter, 2022](#)). Falk and Kosfeld (p. 1612) explain that “most agents indicate that they perceive the decision to control as a signal of distrust and a limitation of their choice autonomy.” Control aversion observed by economists is consistent with the psychologist Mark Lepper and his coauthors' reference to the “detrimental effects of unnecessarily close ... supervision or the imposition of unneeded temporal deadlines” or other “superfluous constraints on children's actions” ([Lepper et al., 1982](#), p. 62). A common response to the imposition of control – termed reactance in social psychology – is hostility towards the source of the control and attempts to reassert one's own autonomy ([Brehm, 1966](#)).

We model control averse preferences in our experimental setting as follows. First, the agent has some positive valuation of the principal's payoffs – for example due to inequality aversion or reciprocity – that is conditional on the agent's understanding of the principal's type.¹⁶ Second, these conditional preferences may be crowded out if the principal restricts the agent's choice set and thereby signals their “bad” type. Thus, an agent who is generous when a principal refrains

¹⁶For example, as modeled in [Ellingsen and Johannesson \(2008\)](#) and [Schmelz and Bowles \(2026b\)](#), the latter providing empirical evidence for cultural differences determining whether or not inequality aversion is crowded out by the principal imposing control.

from imposing control may reduce their effort to the minimal level permitted as a response to the principal's imposition of control as a form of reactance (e.g., punishing the principal and asserting their autonomy).

For the purpose of illustration, we take a particular utility function in the spirit of David Levine (1998) and Mathew Rabin (1993). Suppose the agent i , interacting with a principal j , has the following control-averse utility function:

$$u_i = E_i - \frac{e_i^2}{2} + e_i(\alpha_i + \beta_i\theta_{ij}) \quad (3)$$

where E_i is the endowment initially held by the agent (i.e. their payoff were they to exert no effort), and e_i is the agent's effort, translating into the principal's payoff. The second term on the right is the cost of effort to the agent, so the agent's monetary payoff is the sum of the first two terms on the right-hand side of Equation 3.

The third term is the agent's valuation of the payoff received by the principal: α_i is the agent's level of unconditional altruism towards j ; and β_i is the agent's generic degree of reciprocity, inequality aversion or other positive valuations of the principal's payoffs that is conditional on θ_{ij} , the agent's perception of the principal's type, with $\theta_{ij} = -1$ if the principal has imposed control, and $+1$ otherwise. Equation 3 expresses the fact that the agent values both their own as well as the principal's payoff (possibly negatively, that is, if the principal imposes control and $\alpha_i - \beta_i < 0$).

Differentiating Equation 3 with respect to e_i and setting the result equal to zero to select the level of effort that maximizes the agent's utility entails $e_i = \alpha_i + \beta_i$ if control has not been imposed and $e_i = \alpha_i - \beta_i$ otherwise (conditional on these expressions being non-negative: if $\alpha_i - \beta_i < 0$, the agent exerts the lowest possible effort). So the agent chooses the effort level that equates the marginal cost of effort (e_i) to the marginal benefit of effort, that is, $(\alpha_i - \beta_i)$ or $(\alpha_i + \beta_i)$ depending on whether control has been imposed or not.

Thus, control averse preferences may be observed experimentally if the agent's positive preferences towards the principal's payoffs, for example due to reciprocity or inequality aversion, are conditional on the agent's perception of the principal's type and so are subject to reversal by the principal's imposition of control.

To explore the neurological foundations of control aversion, using resting state fMRI technology, we have traced the neural mechanisms associated with individual differences in control aversion to differences in stable functional brain organization. In Rudolf et al. (2018a), we identify a neural trait underlying control-averse behavior, i.e., a task-independent neural measurement that differs among individuals and is stable across time, similar to a neural fingerprint. Consistent with this

neurological evidence, individual differences in control aversion estimated from panel survey data on people's responses to voluntary or legally enforced policies to address the covid pandemic and climate change exhibit a strong generic (not policy-specific) component (Schmelz and Bowles, 2026a).

5.2. *The principal-agent interaction*

To study how people who have experienced different institutional regimes react to restrictions on their choice, we conducted an online experiment measuring reactions to the imposition of control among older and younger East and West German working adults. The objective of our experiment and our sample was not to estimate the level of control aversion in the German population. Instead, we sought to estimate the effect of institutions on control aversion – measured by how the effect of the imposition of control on agents' behavior differs between older and younger cohorts in the East (the treatment) and in the West (the control). We therefore implemented a game and a sampling strategy designed to elicit substantial control averse behavior, allowing us to study its variation across cohorts.

In our experiment, a principal chooses whether to restrict the action set of the agent in the following interaction. An agent chooses a level of “effort,” which is costly to the agent and beneficial to the principal, the agent's choice determining the distribution of payoffs between the two. Before the agent chooses an effort level, the principal can either leave the agent's effort set unrestricted by choosing “no control” ($\underline{e} = 1$), or they can to restrict the agent's effort set by choosing one of two control levels: “low control” ($\underline{e} = 2$) or “medium control” ($\underline{e} = 3$).¹⁷ (Note that there is no “high control” option; the maximum level of effort that the principal can impose entails very limited costs for the agent as shown in Table III.) The agent then chooses an effort level $e \in \{\underline{e}, \underline{e} + 1, \dots, 10\}$.

Control-averse agents exert more effort in the absence of control than if controlled, i.e., their generosity is crowded out when $\underline{e} > 1$. For example, aversion to medium control is expressed if more effort is provided in the absence of control ($e(1)$) than when medium control is imposed ($e(3)$), so that ($e(1) > e(3)$).¹⁸ We employ the strategy method, meaning that the agent chooses an

¹⁷Thus, principals not only choose whether or not to control the agents, but they also choose to which extent they exert control. Our design allows us to take account of the fact that reactions to the presence of control as well as the extent of control could differ, but this is not what we find.

¹⁸Though the agent knew that the principal could not select a minimal level less than 1 (so requiring that the agent provide $e = 1$ meant granting the agent as much freedom of choice as was permitted), to avoid a demand effect, we described all

effort level for each of the three possible control levels before knowing the principal's choice of no, low or medium control.¹⁹

	Effort level									
	1	2	3	4	5	6	7	8	9	10
Agent's monetary payoffs	99	98	96	93	89	83	75	65	51	35
Principal's monetary payoffs	1	16	29	41	53	64	75	82	87	90

TABLE III

PAYOFFS IN EXPERIMENTAL CURRENCY UNITS (ECUs) BY EFFORT LEVEL.

In addition to control averse agents, three other behavioral types are possible in our setup: First, an entirely self-regarding agent will always choose the lowest permitted level of effort. These agents will never exhibit control averse behavior, by definition. Second, the control-neutral type shows the same level of effort with and without control (conditional on choosing more than the minimal effort level in the absence of the control); and third, we call control-prone those who respond positively to control by voluntarily exerting more effort when control is imposed than in the absence of control.

Our selection of the monetary payoffs shown in Table III was designed to induce sufficient levels of control aversion to allow an estimate cohort differences. Agents who always choose the minimal effort convey no information about a preference for control aversion. The convex effort costs for the agent and concave benefits to the principal serve to make exerting more than the minimal effort cheap for the agent and extremely beneficial for the principal. Thus, even agents with little generosity may at very low cost substantially increase the principal's payoff when control is absent ($\underline{e} = 1$), making it more likely for control aversion to be observed in our experiment.

Notice from Table III that the effort level that equalizes the payoffs of the two (and also maximizes total payoffs) is $e = 7$. Even the most stringent required level of effort provided by the agent (the "medium" control level: $\underline{e} = 3$) guarantees only that the principal will receive 23 percent of the total payoff ($= \frac{29}{29+96}$). Thus, control does not allow the principal to gain what agents would consider to be an unfair share of the payoffs. It thus seems unlikely that an agent's negative reac-

three levels of effort in the same terms in the instructions and on the decision screens. Thus, our instructions are conservative with respect to the categorical effect of control.

¹⁹Concretely, each agent is asked to choose a triplet of effort levels $(e(1), e(2), e(3))$ where $e(1) \in \{1, 2, \dots, 10\}$ is payoff-relevant in case the principal does not enforce a minimal effort, $e(2) \in \{2, 3, \dots, 10\}$ is payoff-relevant in case the principal enforces a low effort, and $e(3) \in \{3, 4, \dots, 10\}$ is payoff-relevant in case the principal enforces a medium effort.

tion to the imposition of control would be motivated by inequality aversion, i.e., a sense that the principal's action would have violated fairness norms.

Before they interacted, agents were asked to guess the share of principals that would choose each of the three control levels. We describe how beliefs were incentivized in Appendix C.

In a given session, each participant was assigned to be either an agent or a principal. To allow for learning about the experimental setting, they played 10 one-shot interactions, where participants met each partner only once. We implemented a “no-contagion” matching protocol, described in Appendix C, such that a player's future interaction partners could not be indirectly affected by their own choice. To limit the possibility that players would learn about the choices of other participants, subjects were informed about the behavior of only their own counterpart in each round. Subjects did not learn about the correctness of their beliefs during the experimental session. Experimental screens including the instructions and decision screens are provided in Appendix D.

5.3. *Rationale for our sample*

Recall that our aim is to isolate the effect of regime experience on preferences rather than to make inferences about differences in the distributions of preferences in the general population of the two regions. Therefore, we adopted a matched sampling approach, confining our subjects to relatively highly educated people in employment (Rubin, 2006, Young, 2018). from both parts of Germany. This sample has the advantage that their jobs are typically characterized by responsibility, complexity and leeway, three aspects that foster the experience of autonomy in everyday life and the intrinsic or other-regarding motivation that control might crowd out. By conducting our experiment online, we gained access to a sample of the German population with heterogeneity in terms of age and regime experience.

We restrict the sample to non-migrants who spent their childhood, their studies and adult lifetime either only in East Germany or only in West Germany.²⁰ We again split this sample of non-migrants into younger and older cohorts, i.e., Germans born in the 1980s and born before 1980. Our results are robust to alternative cutoff years as well as continuous representations of age (i.e., number of years lived in the GDR for East Germans; see Appendix F.2).

²⁰In our survey, participants were asked to enter the cities where they spent most of their childhood, their studies and their time after their studies. Based on these entries, we classified the subsamples into East or West German non-migrants.

5.4. Procedures and payment

To isolate the effect of institutions on control aversion from other explanatory variables, in addition to the experimental part, we also implemented a survey in which we elicited individual characteristics that might be related to control-related preferences. Participants were asked about their socio-economic characteristics as well as their subjective attitudes towards trust and control, and we also collected information about subjects' jobs (see Appendix E.2).

We relied on a hybrid random incentive scheme (Baltussen et al., 2012) where a random choice or belief is selected for payment to only a randomly selected subset of participants. This setup has been shown to be an effective alternative to traditional payment schemes (e.g. Cubitt et al., 2011, Harrison et al., 2002). In light of the professional status of our participants, we aimed at rather high conditional payoffs. Before registering, participants were informed that 4 winners would be paid a minimum of 155 euros and a maximum of 645 euros and that none of the other participants would be paid.²¹ The four winners earned on average 376 euros. Further details on the participation and payment procedures are provided in Appendix C.

When registering, participants were unaware of the content of the study. Participants were aware that other participants also belonged to the German working population, but the distinction between East and West Germans of different cohorts was never mentioned.

5.5. Recruitment and sample

Our recruitment strategy included: (i) Issuing a press release and contacting newspapers to report about a novel platform for interactive online experiments²² (without providing any information about the topic of the experiment); (ii) Announcing the study in mailing lists of former students (in particular, alumni lists of the Max Planck Society, of the German Up with People Alumni Association, and of a few universities who consented); (iii) Posting in social networks (facebook, twitter, maxNet); (iv) Advertising in a job newsletter for academic professionals (academics.de);

²¹The announced numbers are the sum of a fixed amount of 30 ECUs for completing the survey plus the lowest (1 ECU) or highest (99 ECUs) possible income from the employment interaction as evident from Table III, multiplied by a conversion rate of 1 ECU to €5.

²²The experiment was conducted in February 2011 with the help of an internet platform developed by the authors, as detailed in Schmelz and Ziegelmeyer (2020).

(v) And, recruiting former students from subject pools of German experimental laboratories via ORSEE ([Greiner, 2015](#)).²³

A total of 721 professionals with a university degree participated in 22 sessions of the experiment. The data analyses reported to test our hypothesis are based on the sample of 532 non-migrant subjects (agents and principals pooled) who spent their childhood, their studies and adult lifetime either only in East Germany or only in West Germany.

Because prior to registering participants were unaware of the experiment's content, it appears unlikely that there would be selection biases on preferences relevant to our results. Virtually all of those who dropped out during the course of the experiment did so for exogenous reasons (for the most part, technical failures), as detailed in Appendix E.1.

Most of our subjects in all cohorts are employees working in full-time jobs. Appendix E.2 provides work-related statistics for our subsamples. Apart from a few exceptions which are not surprising given the German labor statistics, our younger and older cohorts in East and West are similar with respect to their job characteristics. For example, our younger cohorts are rarely self-employed and less often in charge of other employees than our older cohorts. Our subsamples are very comparable with respect to their skill level: as intended by our recruitment strategy, the large majority of our subjects are highly skilled professionals. We turn now to our experimental results.

6. RESULTS: THE EFFECT OF INSTITUTIONS ON CONTROL AVERSION

We first give an overview of agents' effort choices, and then present our results on control aversion by cohort and region. The results presented in this section are complemented by additional data analyzes in Appendix F.

6.1. Agents' average effort

Figure 5 shows agents' effort levels for the three cases: no, low and medium control. The degree of generosity revealed by agents' effort in the absence of control (i.e., $\underline{e} = 1$) is sufficiently large so that aversion to low and medium control could potentially be observed, as it exceeds the minimum requirement by far in all subsamples. Moreover, the older East cohort is not less generous than the younger East. Thus, a putative lack of generosity in the absence of control resulting there being "nothing to crowd out" could not account for the fact that we observe little control aversion among

²³We are grateful to the researchers in charge of the experimental laboratories in Bonn, Cologne, Duisburg-Essen, Erfurt, Heidelberg, Karlsruhe, Konstanz, Magdeburg, Mannheim, Munich and Oldenburg.

the older East Germans (we provide supplementary evidence on the distribution of agents' types in Appendix F.3).

In Figure 5, the bars on low and medium control (compared to the no control bars) reflect a combination of two effects: the direct effect of controls, increasing the effort of selfish agents, and the possible indirect crowding-out effect that might lead intrinsically generous agents to decrease their effort under control. For three of the four subsamples, control increases average effort. Among the older East cohort, the overall positive effect on effort is substantial: for example, medium control increases effort by about one effort level unit. However, for the older West Germans, on average the positive direct effect of control is entirely offset by the indirect crowding-out effect, as we detail below.

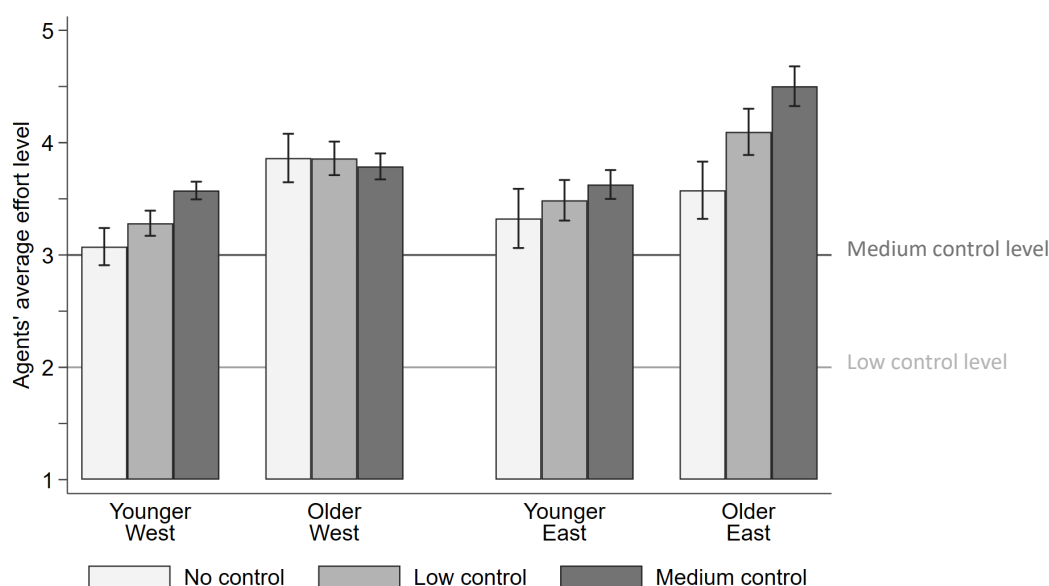


FIGURE 5.—Average agents' effort under no, low, and medium control.

Note: The error bars represent 95% confidence intervals.

6.2. Control-averse behavior by cohort and region

To measure the extent of control-averse behavior in our cohorts, we have to isolate the indirect effect of control from the direct disciplining effects of control on the average effort. Following the standard procedure in the literature on control aversion due to Falk and Kosfeld (2006), to measure the extent of the indirect effects, we set aside the direct increases in effort that result mechanically from the imposition of the lower bound.

Thus, we measure the extent of aversion to medium control ($\underline{e} = 3$) by first setting aside these mechanical effort increases, i.e., taking the maximum of the actual effort under no control $e(1)$ and the enforcement level under medium control (which equals 3, i.e., $\max[e(1), 3]$). Our measure of aversion to medium control is then the difference between this shifted effort under no control and the actual effort under medium control $e(3)$. So, aversion to medium control in a cohort is $(\max[e(1), 3] - e(3))$ averaged across all members of the cohort sample, and analogously for low control.²⁴ Accordingly, we refer to control aversion on the sample level as the net indirect effect of control-averse and control-prone behaviors, negative control aversion in a sample indicating that control prone behaviors more than offset control-averse behaviors.

Figure 6 provides an overview of average control aversion among younger and older East and West Germans. Pooled across all rounds, average aversion to low control (on the left) and medium control (on the right) is clearly positive for all subsamples except for older East Germans. On average, the older East Germans are slightly control prone, exerting more effort voluntarily when a lower bound is imposed than in the absence of the bound. Cohort differences in average control aversion are statistically significant in the East (p -values of t -tests are 0.04 and 0.024 for aversion to low and medium control, respectively, but not in the West. All estimates are performed in a linear regression with clustered standard errors to account for an agents' choices to be correlated over the course of the session).

Most importantly, the difference in difference estimates of ΔA , the effect of liberalization on valuing autonomy as expressed by control aversion, are statistically significant for both low and medium control ($p = 0.037$ and $p = 0.009$, respectively, based on the same regression analysis). Note that the estimated effect sizes are substantially larger for experimentally measured preferences than for the estimates of child rearing values based on surveys, shown in Figure 4, and also much larger than the estimated personality effects of service in the Argentine military estimated by Ertola Navajas et al. (2022), introduced in Section 2.3.

To test our hypothesis more formally, we rely on a series of OLS linear regressions with standardized dependent variables and standard errors clustered for agents. While our subjects are of similar education level, East and West Germans differ slightly in their socio-demographics, so we

²⁴Concretely, to calculate the level of control aversion, any effort smaller than the enforced effort level $e(1) < \underline{e} = 2$ and $e(1) < \underline{e} = 3$ in the no control setting ($\underline{e} = 1$) is reset to the enforced effort level $\underline{e}$. Aversion to low control implies that the difference between the reset efforts under no control and efforts under low control ($\max[e(1), 2] - e(2)$) is positive, and aversion to medium control implies that the difference between the reset efforts under no control and efforts under medium control ($\max[e(1), 3] - e(3)$) is positive.

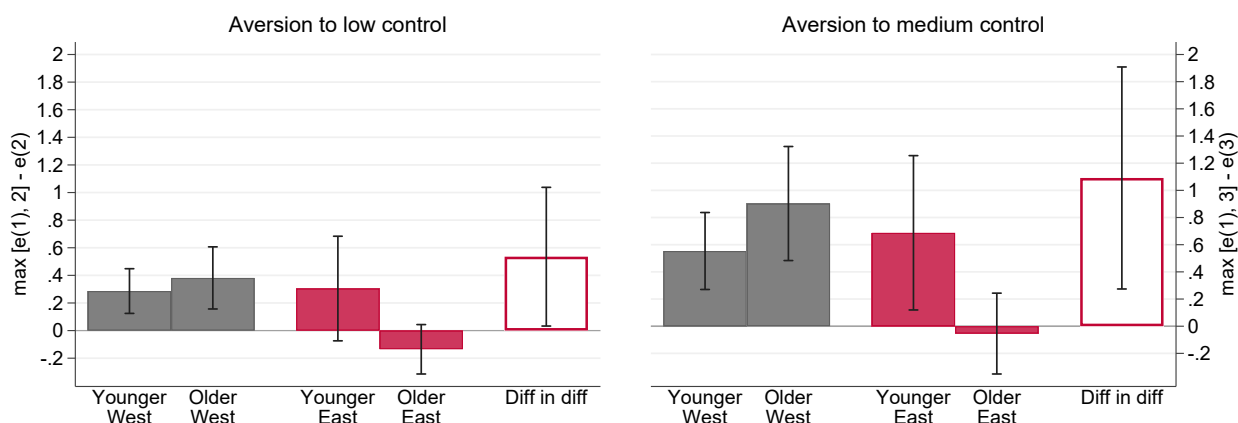


FIGURE 6.—Average control aversion by cohort and region.

Note: The larger the values, the more control averse. The error bars represent 95% confidence intervals, based on standard errors clustered on the individual. The negative values for the older East indicate that they were (on average) control prone. The effect sizes based on the difference in difference estimates for the low and medium control, respectively, are 0.43 and 0.60 standard deviation units of the value of autonomy (measured by control aversion).

also include controls (see Appendix E.1). Figure 7 shows our estimation results. The experimental behavior of older East Germans is captured by the constant and thus, the coefficients shown in the figure are differences from older East Germans.

The second pair of estimates in the figure shows that younger (compared to older) East Germans are more averse to low and medium control by 37% and 42% of a standard deviation, respectively. Comparing the third and fourth pairs of lines reveals that the estimated age effect is in the opposite direction for West Germans. The bottom line shows that the effect of liberalization accounts for an increase in aversion to low and medium control of 43% and 60% of a standard deviation, respectively. We also explored other possible influences on control aversion (including type and sector of work and educational specialization), finding that their effects are for the most part imprecisely estimated and uniformly much smaller than the cohort and region differences shown in Figure 7. Inclusion of these additional predictors of control aversion does not affect our main findings.

Our results are robust to alternative model specifications, as shown in Appendix F: (i) not controlling for sociodemographics; (ii) using OLS regressions with fixed effects for sessions in addition to standard errors clustered for subjects; (iii) relying on multilevel mixed-effects linear regressions including random intercepts for experimental sessions and for agents nested in the sessions; (iv) restricting the data to more experienced agents (behavior in the second half of rounds); (v)

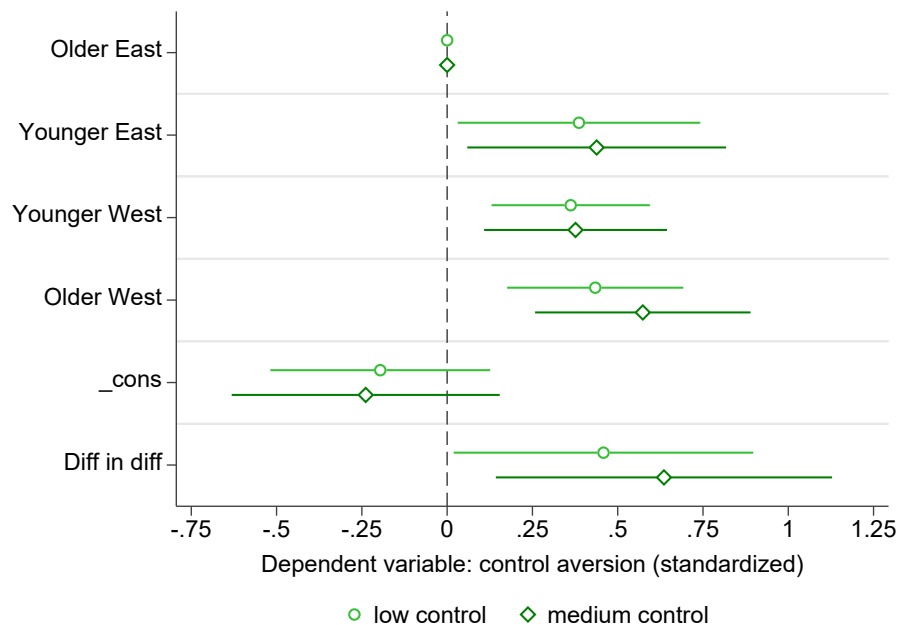


FIGURE 7.—Difference in control aversion from the older East cohort.

Note: Shown are coefficient plots with 95% CIs, estimated in OLS regressions with standardized dependent variables of aversion to low and medium control, standard errors clustered on agents, and socio-demographic controls. *Diff in diff* reflects the difference between the younger and older Eastern cohorts adjusted for age (i.e., the difference between the younger and older West). For clarity, we also plot a coefficient of zero for older East, representing the regression baseline.

measuring control aversion based on effort costs instead of effort levels to account for the non-linearity of the payoff functions;²⁵ (vi) restricting the sample to agents sufficiently generous to express control aversion; (vii) adding work-related controls; (viii) considering alternative divisions into younger and older cohorts by varying the age cutoff as well as using age as a continuous variable; and (ix) performing randomization inference tests (rather than conventional p-values, Young, 2018).

In a nutshell, we obtain two main results from our experimental study. First, older East Germans are less control averse than younger East Germans; this is not the case for West Germans. Second, the difference in difference estimators are consistent with the hypothesis that liberalization had a positive effect on control aversion. These effects are remarkably large given that we measured behavior 22 years after the fall of the Wall, and that most of the elder East Germans in our

²⁵Details are available from the authors upon request.

experimental sample experienced Communist rule only as children and adolescents and thus had relatively limited exposure to that authoritarian environment.

7. SUPPLEMENTARY EVIDENCE

Here we present supplementary evidence concerning: East to West migration and selective admission to higher education (and hence to our sample) in the GDR as a possible sources of bias, the possibility that our results reflect differences in beliefs rather than preferences, and a separate experiment on younger East and West Germans confirming a convergence in their preferences.

7.1. *The evidence on migrants is consistent with our interpretation*

Could selective migration of particularly control averse elder East Germans to West Germany impart a substantial upward bias to our estimates of the age effect on the value of autonomy in West Germany? We think this is unlikely for two reasons: first, the number of migrants relative to the population of West Germany is insufficient to severely bias our estimates, and second, those migrating appear not to have been particularly control averse in our experimental measure.

Concerning the first, the 2.21 million East Germans who migrated to West Germany between 1949 and 1961 constituted just 4% of the population of West Germans at the time (our calculations based on [Statista, 2024b,a](#)). Thus, for selective migration to have substantially augmented the level of control aversion among older West Germans in our sample, it would have to had been the case that migration was a) very selective of control averse migrants (favoring the movement of exceptionally control averse people only), and b) much greater in magnitude, and that c) the control averse traits of the mid-century migrants would have been passed on to the next generation (that is, to members of our older West German cohort) by empirically implausible levels of parent-to-child transmission of this psychological trait.²⁶

Concerning the second, that is the degree of selectivity, we find that among the small number of migrants between the two parts of Germany in our experimental data set, an individual's degree of control aversion is similar to their peers from the region of their upbringing but different from their peers in their destination. In particular, older East Germans who migrated to the West are not more control averse than older East Germans who stayed in the country, and, importantly, are substantially less control averse than older non-migrant West Germans (as shown in Appendix F.4). Thus, if this small sample of migrants is informative, the greater control aversion of the older West Germans (compared to younger West Germans) would not be an artifact of selective migration.

²⁶We provide some evidence on the parent to child transmission of psychological traits in Appendix I.

This evidence is also in line with our understanding that one's degree of control aversion is shaped primarily by experiences early in life.

Accordingly, the observed somewhat greater control aversion among older West Germans is unlikely to be driven by selective migration of control averse East Germans to the West before the Iron Curtain was imposed (which is not what we observe). What we do observe, namely that older East-West migrants' control aversion resembles the low levels of control aversion among the older Eastern cohort, implies the opposite. This is that the effect of the East-West migrants (assuming their control aversion would have to some extent been passed on to their children who would be the elder West Germans participating in the experiment) would be to *lower* instead of increase the average control aversion among the older West Germans. This would downward bias the degree of control aversion in the elder West German cohort and hence also downward bias the estimated positive age effect, thereby leading our difference in difference estimate to understate the effect of the institutional shock.

Turning to the East, the possibility that the population of East Germans remaining following the migration to the West is not representative of the pre-partition population of the East seems unlikely to impart a bias to our estimates. To evaluate this concern, keep in mind that virtually all of the migration from East to West took place before the imposition of the Wall on 13 August, 1961 (i.e., before the birth of virtually all of our experimental sample). Thereafter, migration was strictly limited, with a cumulative total between 1962 and 1988 of about 3.4 percent of the population of the East (our calculations based on [Statista, 2024b,a](#)). Moreover, recall that we are not interested in a comparison of the levels of control aversion between the East and West. Our estimates are restricted to the effect of authoritarian and then liberal institutions on the degree of control aversion among the vast majority of the population that remained in the East (roughly 97 percent). Finally, as a check, excluding the few in our sample born during the years of the big migration (before 1962) does not significantly affect our difference in difference estimates of the effect of the institutional shock.

Whatever the strength of this concern for the German case, its status as a substantial confound is less plausible for the countries in the WVS. None of the 8 ex-Communist WVS countries have liberal-democratic neighboring countries speaking the same language and sharing a similar culture, making selective migration of the type suggested unlikely. In the same vein, for our 13 long-standing democracies, we think it is unlikely that they might have received sufficient numbers of highly control averse migrants fleeing from non-contiguous Communist countries to account for our results.

7.2. *Possible selective admission to university of control tolerant older East Germans*

Because admission to higher education in the GDR was controlled by the Communist party (in particular in later years), those attending universities and hence some of the elders in our well-educated data set might have been disproportionately control tolerant, perhaps accounting for the low level of control aversion that we find for the elder East German cohort. Note that this concern is limited to our experimental data and does not arise in the representative samples of our surveys (as presented in Sections 4 and 8, where we find the same pattern of cohort differences in values of autonomy).

The youngest of our elder East German experimental sample allow us to consider this possible source of bias, as they were admitted to university after 1989 and so would not have been subject to selection for being especially control tolerant.

These two subsets of our older East Germans, those who were born before 1970 and came of university age under Communist Party rule, as well as those born in the '70s who were admitted to university after reunification, are both control prone, providing more effort to a principal who imposes control - in contrast to the control averse cohorts raised under liberal institutions (recall Figure 6). Restricting our older East German sample to those born in the '70s (who were not subject to selective admission to university), yields a very small reduction in the estimated effect size of the institutional difference (6 and 1 percent, respectively, for the cases of low and medium control).²⁷ This suggests that selective admission to university (and representation in our sample) of control prone East Germans does not explain the difference in control aversion between the younger and older East Germans in our experimental data.

7.3. *Are our findings due to differences in beliefs, not preferences?*

We have attributed differences in experimentally measured control aversion to differing preferences that are the result of institutional differences experienced by younger and older East Germans. But we need to consider the possibility that our results are explained by beliefs and that preferences in

²⁷The extent of the control prone inclination of the subset of the older East German cohort born in the 1970s tends to be slightly less (average aversion to low and medium control is -0.11 and -0.045) compared to their elders (where average aversion to low and medium control is -0.18 and -0.07), a tendency in line with their lesser years of exposure to authoritarian rule. If we based our estimate on the subset of the older cohort born in the '70s, this would imply that the difference between the younger and older East German cohorts would be reduced by 0.07 (i.e., 6 percent) and 0.025 (i.e., 1 percent) for low and medium control, respectively.

the usual sense are not involved. There are two possibilities that beliefs are involved but preferences are not; both are plausible *prima facie*, though neither is consistent with our data.

First, the agent may take the principal's decision to impose control as a bit of "bad news" about the principal (their distrust of the agent, for example), contributing to a control averse response (Bowles and Polanía-Reyes, 2012). This "bad news about the principal" signal would have greater force if most principals were thought to be trusting instead of controlling. Then, if being subjected to control was more expected by the elder East Germans than the other cohorts, this, instead of the elder East agents' control-tolerant preferences, might explain their less aversive reaction to control.

Consistent with part of this alternative hypothesis, we find that agents who believed that more principals would refrain from imposing control tended to be more control averse, the estimated effect being of substantial size under medium control as shown in Appendix F. However, older East Germans are similar to the other three cohorts in their beliefs about principals' control decisions (see Appendix F.5), so the information content of the "bad news" conveyed by the decision to impose control did not differ among the cohorts, there being nothing distinctive about the older East German cohorts' beliefs in this respect.

Second, agents who believed that others were more "trustworthy" (obviating the need for control) expressed more control aversion, consistent with control averse responses to the already cited "detrimental effects of *unnecessarily close* [...] surveillance or [...] *superfluous* constraints" pointed out by Lepper et al. (1982, p. 62, our italics). Elder East Germans in our data were somewhat less confident in the trustworthiness of their fellow citizens and so may have seen control as more necessary than superfluous, possibly contributing to our result. However, the distinctiveness of older East Germans in their relative lack of control aversion is only slightly reduced when our estimates are conditioned on agents' beliefs about trustworthiness and the fraction of principals likely to impose control. Accordingly, differential beliefs about the trustworthiness of others do not appear to be accounting for our results.

It thus appears unlikely that our results could be accounted for by the confounds we have considered – selective migration of control averse people from the East, selective admission of control tolerant applicants to higher education in the East (and hence to our sample), and differences not in the agents' autonomy preferences but instead in their beliefs about the principal's reasons for imposing control.

7.4. *Convergence of control aversion among students in East and West Germany*

Our second supplementary evidence comes from an additional experiment we conducted with a separate subject pool - students in two localities each in both East and West Germany. We find little East-West differences in control aversion, consistent with our observation of convergence in the younger cohorts, as detailed in Appendix [G](#).

8. COHORT DIFFERENCES IN CONTROL AVERSE RESPONSES TO COVID POLICIES

To complement the findings we have presented so far, we now study the effect of different institutions on control averse responses towards public policies. We apply our reasoning in a different setting: agreement with behavioral changes targeted by anti-COVID-19 policies if strongly advised by the government but voluntary, or instead if enforced and checked. We also use a different data set, a representative online sample of 4,623 German citizens who grew up in either East or West Germany, that we surveyed during the first wave of the pandemic in 2020, described in [Schmelz, 2021](#)).

Here we consider three covid policies that had clear parallels with policies that were enforced in former East, but not West Germany. People brought up in East Germany prior to 1990 were subject to numerous compulsory vaccinations, restrictions on travel, and surveillance. During the pandemic, similar policies related to covid vaccinations, travel restrictions, and a contact tracing app. For example, the survey question on the contact tracing app reads as follows: “We are currently discussing an app that accesses the movement and contact data of mobile phones to inform users anonymously about a possible infection. This app is more useful the more people use it. To what extent do you agree with using this app yourself if: ... using the app is strongly recommended by the government but remains voluntary? ... using the app is compulsory and checked by the government?” Answers were given on a 5-point Likert scale ranging from 0 (“not agree at all”) to 4 (“fully agree”). The questions on the other two domains follow the same scheme, see Appendix [H.1](#). We measure control aversion by the difference between a respondent’s agreement if voluntary and if enforced.

Estimates of the effects of the institutional transition on preferences will be confounded by cohort differences affecting attitudes toward mandated versus voluntary covid policy that are not due to the institution shock. For example, older East Germans could be more control tolerant than younger East Germans not because they were brought up under Communism, but because older people are more likely to be at greater risk of infection and may therefore be more pro-mandates. In our OLS regressions, we therefore control for these potential confounds, namely being at health

risk, total number of infections in a region, trajectory of recent infections in a region, and how late it was in the first wave of the pandemic, as well as trust in public institutions, i.e., in government and media.

Figure 8 shows estimates of the extent of control aversion, averaged across the three covid policies, for our four cohorts of older (born before 1980) and younger (born in the 1980's) East and West Germans. Older East Germans are less control averse than younger East Germans.²⁸ Taking account of age effects by means of our difference in difference estimator, the effect of liberalization on the value of autonomy as reflected by control averse responses to these covid policies, ΔA , is 0.174 ($p = 0.046$). Consistent with our understanding of autonomy preferences as an (for the most part unconscious) adaptation to one's life experiences (rather than more cognitive and deliberate reasoning), we found no apparent effect of institutions on policies concerning mask wearing, with which none of the German cohorts had had any prior experience.

Moreover, restricting our East German sample to those born before 1990 and using age as a continuous variable reveals that the more years they had lived in the GDR, the less control averse are East Germans' responses to covid policies (as shown in Appendix H.3). Consistent with our findings reported earlier in the paper, among the West German survey respondents we observe a modest tendency for the extent of control aversion to increase with age. This provides additional evidence that aging *per se* is unlikely to explain the lesser control aversion of the older Eastern cohort (by comparison to the younger Eastern cohort).

Though based on data collected three decades after the fall of the Wall, using different methods than our experimental evidence or the WVS, and in a novel domain, these results are consistent with those reported above: older East Germans are less control averse. This observation lends some external validity to our experimental results. The survey findings on attitudes towards covid policies are also remarkable as they show that people who experienced an authoritarian institutional environment are, 30 years after its demise, still less averse to government mandated anti-COVID-19 measures that arguably are similar to the controls they had been exposed to in their formative years.

9. THE VALUE OF AUTONOMY AS AN ADAPTATION TO LIBERAL-DEMOCRATIC INSTITUTIONS

On all three of our measures – survey evidence on child rearing values, control averse behavior in experiments, and survey evidence on responses to covid policies – less authoritarian institutions appear to support a greater value of autonomy.

²⁸This suggests that much of the opposition to mandated covid policies in the East came from the younger generation.

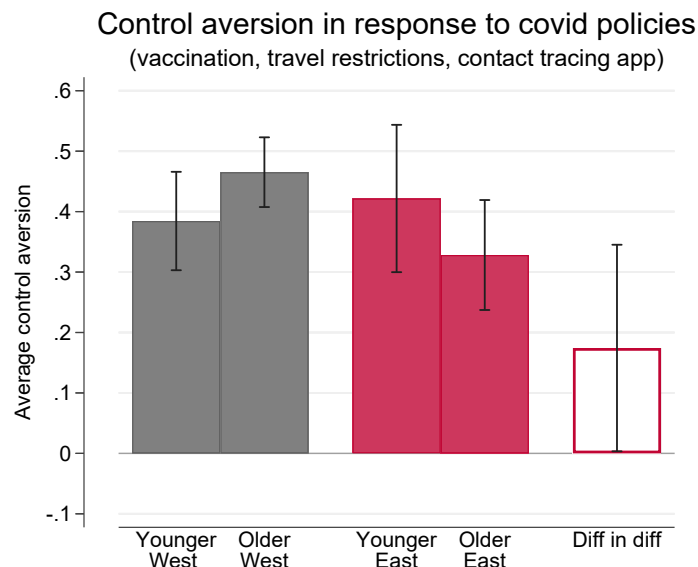


FIGURE 8.—Control aversion with respect to covid policies among East and West German cohorts.

Note: Control aversion is averaged over the three covid policies that had direct parallels with mandated policies in the GDR: vaccination, use of a contact tracing app and travel restrictions. Shown are estimates of average control aversion for the four cohorts and 95% CI, based on OLS regressions with controls for covid-related variables. The full regressions are provided in Appendix H.3. The effect size based on the difference in difference estimate is 0.13 standard deviation units of (measured by control-averse responses to mandated policies).

In this section, we explain our reasoning about why this may be the case. The value of personal autonomy, we have suggested, is an adaptation to the opportunities for autonomy, and correspondingly control tolerance is an adaptation to being controlled, with substantial costs imposed on those who act on autonomous values. Drawing on the literature from psychology and anthropology, we first introduce suggestive evidence for our interpretation that preferences for autonomy may be adaptive in light of the degree of autonomy that people experience in everyday life. We then provide a description of liberal and authoritarian institutions in Germany, environments that could, by this reasoning, have shaped preferences.

9.1. Anthropological and social psychological evidence

Developmental psychology and psychoanalytic theory have tracked the quest for increasing autonomy and self-determination as part of the aging process of children (Erikson, 1950, Helwig, 2006, Palmer et al., 2017, Wehmeyer and Shogren, 2017). Later during adulthood, as people age and

are promoted to positions with greater self-direction (e.g., supervisor rather than supervisee, as in our experimental data set), the value they place on autonomy may be further enhanced as they are both less exposed to control by others and are less subject to penalties if they act in autonomous control-averse ways. This is consistent with what we have found in all our data sets: among those who have experienced continuity of liberal-democratic institutions, on average, older cohorts never value autonomy less than younger cohorts (see both panels of Figure 4, both panels of Figure 6, as well as Figure 8).

By contrast, under authoritarian institutions, a control-tolerant disposition may be adopted as an unconscious means of reducing cognitive dissonance. Leon Festinger (who first developed the cognitive dissonance concept) described the mechanism as follows: “the human organism tries to establish internal harmony, consistency or congruity among his opinions, attitudes, knowledge, and values [...] there is a drive toward consonance among cognitions” (Festinger, 1957, p. 260). Festinger used this reasoning to explain changes in people’s values or attitudes “subsequent to the change in a person’s way of life” (pp. 271-2).

Among East Germans prior to 1990, this unconscious process of cognitive dissonance reduction may have been a mechanism inducing people to value autonomy less. Subsequently, the fall of the Wall and the establishment of a liberal East Germany may have mitigated the need to limit the value they place on autonomy in order to reduce cognitive dissonance.

Brian Barry and his coauthors (1959) asked why “a particular society select[s] child training practices which will tend to produce a particular kind of typical personality?” From a survey of 79 mostly illiterate small-scale societies, they answer their question providing evidence that it is “because this kind of typical personality is functional for the adult life of the society” (p. 51). They observed large differences in child rearing practices – more hierarchical societies valuing compliance over independence – concluding that “knowledge of the economy alone would enable one to predict with considerable accuracy whether a society’s socialization pressures were primarily toward compliance or assertion” (p. 59).²⁹

Kohn and his coauthors (1990) also studied parents’ value of self-determination as opposed to obedience in raising their children. In the U.S., Japan and Poland (while under Communist party rule), they explored the relationship between self-direction in a person’s work – autonomy in the selection and execution of tasks — and how important they as a parent thought self-direction and

²⁹In a similar vein, Doepke and Zilibotti (2017) develop a model and provide supporting evidence from OECD countries showing how economic conditions (degree of inequality, returns to higher education, progressivity of taxation, social safety nets) affect whether parental styles are permissive, authoritative, or authoritarian.

independence were for their children. They concluded that “the experience of occupational self-direction [...] has a profound effect on people’s values, orientation, and cognitive functioning” (p. 967).

We carry over from Kohn’s work the idea that one of the mechanisms by which institutions alter the evolution of preferences is by affecting the extent to which people experience what he termed self-direction. Kohn’s evidence suggests that people may come to value autonomy more as they advance in their careers, consistent with the apparent positive effect of age *per se* on the value of autonomy. For younger employees with little of what Kohn termed “occupational self-direction,” for example, placing a high value on autonomy would not be “functional” as it could lead to disappointment at work or even losing one’s job.

9.2. *Liberal and authoritarian regimes in Germany since 1933*

Analogous reasoning suggests that daily life of citizens in authoritarian East Germany may have constituted a learning environment that discouraged the adoption of a strong preference for personal autonomy. To see how this may have been the case, we now turn to the liberal and authoritarian institutional structures of post World War II Germany and how they shaped the everyday experiences of Germans.

The liberal democratic institutions established in Germany at the end of World War I were swept away following Hitler’s rise to power in 1933. He imposed a policy of massive control and “Gleichschaltung” (literally, putting everyone in the same gear), establishing totalitarian control and coordination over all aspects of the society, including the economy, education, media and culture, enforcing conformity and suspending most civil liberties.

With the end of the allied (Soviet, U.S., UK and French) occupation following World War II in 1949, the Federal Republic of Germany (FRG) in the West and the German Democratic Republic (GDR) in the East were officially founded. In 1990 the two Germanies celebrated their reunification and since then, Germans in all regions have lived under a liberal market-based economy and democracy with common administrative, education, legal and regulatory systems.³⁰

West Germany created a pluralist democracy and a substantially competitive economy. Citizens were able to influence the democratic process, for example by voting independently, debating public issues, or forming pressure groups. Though many worked in hierarchically structured private firms, they could move up career ladders based on their performance and were formally free to

³⁰Unless otherwise referenced, the summary of the two systems is based on [Fulbrook \(2008\)](#).

change occupations, form new enterprises, and introduce innovations. In this pluralistic political system, various ideologies and belief-systems coexisted.

Values of autonomy and individualism were deliberately promoted in West Germany. Pupils were encouraged to develop independent points of view, intellectual curiosity and the skill of debating (Oettingen et al., 1994). At work steps were taken to increase self-direction and to enhance employees' voice, such as by trade unions and owner-worker co-determination in firm governance (Frese et al., 1996). Integral to the political life of the West (and the East since 1990) have been protest movements like the student movement of 1968, strikes led by labor unions, or the rise of the Green Party and the right-wing AfD.

Between 1949 and 1990, the East German regime promoted a starkly contrasting collectivist and economically egalitarian society dedicated to "socialist solidarity" rather than the pursuit of individual objectives. The Communist youth organizations and schools were directed to creating a new generation to carry these objectives forward.

The East German state also created a vast apparatus of surveillance and repression unprecedented in scale and depth. The State Security Police, the *Stasi*, was possibly the most extensive state security service in history.³¹ Restrictions and control invaded all areas of life, including travel, publications, assembly; and those showing insufficient loyalty were denied higher education and positions.

More intrusive techniques included shadowing suspects with bugs or cameras, through telephone and postal surveillance. Torture and intimidation were used to mute dissent, and even death sentences were imposed until 1987. The failure to denounce a fellow citizen was a crime punishable by up to five years imprisonment. Accordingly, people who did not accept control suffered tremendous costs (Jacob and Tyrell, 2010, and references therein). Employees experienced little control over their work, supervision was tight and management responses to initiative were typically negative (Frese et al., 1996).

The East German schools aimed to produce obedient subjects rather than participatory citizens. In addition to altruistic values and solidarity among socialists, conformity and obedience were instilled (as experienced by the first author in her childhood). Educating children to conform to their teachers' opinion was part of the political program. Pupils' performance was not only publicly evaluated in front of the whole class, but even at their parents' workplace, making them responsible

³¹Lichter et al. (2021) show that higher levels of former surveillance (i.e., spy density) resulted in lower levels of social capital (interpersonal and institutional trust) in the Eastern part of post-reunification Germany, was associated with lower self-employment rates after reunification, and those effects still persist.

for their childrens' potential failure or disobedience. Teaching materials and curricula were highly standardized and teachers were required to strictly adhere to them (Oettingen et al., 1994). East German youth gained little experience of genuine debate.

The (apparently few) East Germans who were control averse had exceptionally strong incentives to hide their preferences, and they did. When polled (using a clever design that ensured anonymity) from 1970 until the fall of the Wall in 1989, the fraction of apprentices, young workers and students expressing "strong" identification with Marxism-Leninism or belief in socialism never exceeded half (the other half or more expressing "weak" or "none", as shown in Lohmann, 1994). However, from the brutal repression of the June 1953 uprising to the late 1980s, opposition to these official doctrines did not surface. Instances where citizens risked suffering heavy punishment in order to express their dislike of control and desire for greater freedom were concealed. The rapid cascade of political opposition represented by the Leipzig demonstrations in 1989 "stunned" observers (Lohmann, 1994).

Motivated by this comparison of liberal and authoritarian institutions in Germany, we now provide a model showing how these institutions may have produced substantial differences in the preference for autonomy. The model is broadly applicable to our entire set of longstanding liberal democratic and formerly Communist Party ruled countries. For concreteness, we explain the model drawing on the case of authoritarian and liberal-democratic Germany.

9.3. *Mechanisms governing the evolution of control aversion under different institutions*

While one's social interactions in early life (particularly with parents) appear to be important influences (as in Bisin and Verdier, 2000), the preferences of the members of a particular generation are not simply replicas of the parental generations' preferences. For example, parents may anticipate that the future environments of their grown-up offspring will differ from their own and respond accordingly in raising their children. Alberto Bisin and Thierry Verdier (2000, p. 957) model parents deliberately seeking "to influence the cultural traits of their children, rationally reacting to their children's social environment."

Evidence on parent-offspring similarity on food tastes, aspects of personality, and other individual traits suggests that more than parental cultural transmission shapes how preferences are learned. Belloc and Bowles (2013) show that empirically plausible parent-child cultural transmission alone is not sufficient to sustain observed between-group cultural differences, such as national cuisines (see Appendix I).

To account for other mechanisms by which the preference for autonomy may be endogenous with respect to institutions, we consider control aversion as a trait learned also from one's own

experiences, from others in the previous generation, from peers, and from cultural models like teachers. We consider four possible mechanisms by which institutions could affect preferences: copying the successful, societal socialization, mere exposure, and conformist learning with preference falsification. Appendix J provides a model capturing those four mechanisms.

The first, *copying the successful*, is a process by which people acquire a trait according to its intrinsic value (given by parental socialization, interactions with other elders and peers, and one's own experience). This would favor being more control averse in a liberal society, because the reward to autonomy (rent seeking in innovation or out-of-equilibrium markets, for example) could be considerable. By contrast, as we have seen, placing a high value on self-determination and resisting control in an authoritarian society could be extremely costly to an individual. Importantly, consistent with the reasoning of Bisin and Verdier quoted above, parents who themselves were brought up under authoritarian conditions but know that their children will live under liberal institutions would have less incentive to socialize them to be control-tolerant.

The second mechanism is *societal socialization*: schools and other institutions may inculcate preferences, either, like parents, to develop adults that are functional in that particular society (as in Bowles and Gintis, 1976, Bandiera et al., 2019), or to promote what are regarded as superior values (Friedman et al., 2016, Paglayan, 2022). These functional values would include self-determination to a greater extent in a liberal than in an authoritarian society, in accordance with the contrasting educational systems of the GDR and liberal Germany just reviewed.

The third mechanism is the unconscious positive effect of what psychologists term “*mere exposure*” on preferences: the mere repeated exposure to a stimulus is sufficient to increase an individual's preference for that stimulus (or diminish an individual's aversion if the stimulus is negative), for example to particular cuisines or musical styles, as documented in both humans and non-human animals by the psychologist Robert Zajonc (1968) and the subsequent literature. On the basis of the *mere exposure* effect, we expect that older East Germans would be more inclined to accept control while the other cohorts should show a stronger preference for the absence of control.

The fourth mechanism is *conformist learning* in conjunction with *preference falsification*. Conformist learning is the tendency to adopt more common traits in a population.³² Preference falsification, in our case, takes the form of not revealing control aversion if living under an authoritarian regime (Kuran, 1987). In Section 9.2, we provided evidence that this was common in the GDR,

³²Conformist cultural transmission has been modeled (Bowles, 1998, Boyd and Richerson, 1985, Ross and Nisbett, 1991, Wooders et al., 2006) and documented empirically for humans and other animals (Aplin et al., 2015, Fatas et al., 2018, Goeree and Yariv, 2015, Haun et al., 2013, Morgan and Laland, 2012).

where widespread opposition to the regime was rarely expressed publicly prior to the Leipzig demonstrations in 1989 that contributed to the end of Communist Party rule (Lohmann, 1994). Thus, preference falsification would imply that the share of control averse citizens is underestimated in the population by other citizens. A conformist updating process that favors the adoption of what is perceived as the more common trait would then make the adoption of control-averse preferences less likely.

If these four mechanisms were at work then we would expect to find greater tolerance of control and a lesser value of autonomy among older East Germans and others who grew up under authoritarian rule. For East Germans raised after the fall of the Wall, we would expect that the shift to liberal institutions would have fostered more control-averse and pro-autonomy preferences.

10. DISCUSSION: AUTHORITARIAN AND LIBERAL INSTITUTION-PREFERENCE COMPLEMENTARITY

We now summarize what we have learned, and we return to our concern with the possibly fragile complementarity of liberal democratic institutions and preferences.

Here we have contributed to the empirical literature on endogenous preferences, complementing the recent literature on endogenous political opinions. We explore how the value that people place on autonomy – an aspect of personality – is affected by living under (and especially being brought up under) liberal as opposed to authoritarian institutions.

Our research design has combined two elements. The first is a sharp institutional discontinuity occurring in 1989 in East Germany and 8 other formerly Communist countries, along with a contrasting continuity of institutions in West Germany and 13 other longstanding liberal democracies. The second element is evidence on age cohort differences in both formerly Communist and historically liberal-democratic populations in measures of the value that people place on autonomy – survey responses on independence as opposed to obedience as child rearing objectives, experimentally measured control aversion, and survey responses on opposition to mandated versus voluntary covid policies. For all three of these measures, we find that the experience of living under liberal institutions enhanced the value that people place on autonomy. Moreover, our difference in difference estimates of the relevant effect sizes are substantial.

We have provided evidence not only for the larger phenomenon of endogenous preferences, but also for the hypothesis that liberal and authoritarian institutions both constitute social learning environments that can cultivate and sustain the values that contribute to the workings and sustainability of their respective systems of governance. Both systems thus exhibit the institution-preference complementarity that we posited at the outset as a condition necessary for system stability (but not sufficient, as the events of 1989 showed for the case of Communist rule).

Taking a broader perspective on German history of the 20th century, our evidence and reasoning is consistent with the following speculation. In the early 20th century, conservative values including submission to authority would have been more common than today, and by 1945 all Germans would have experienced over a decade of intrusive Fascist controls. It seems unlikely that control averse or other pro-autonomy behaviors would have been adaptive or widespread under these conditions. Then, under Communist rule after World War II, East Germans may have sustained – or more likely even deepened – their adaptation to the inevitability of being controlled, while West Germans adopted more pro-autonomy preferences under the liberal regime following the end of allied occupation, much as East Germans eventually did after the institutional change in 1990.

The value of autonomy to people who were socialized in liberal Germany and other longstanding liberal democracies that we have documented illustrates a case in which liberal society may indeed cultivate and sustain what Rawls termed “its own supportive moral attitudes.” Our evidence allows for some optimism with respect to at least one facet of the possible fragility of the liberal democratic cultural-institution-preference complementarity raised at the outset.

What we have found, however, provides little basis for complacency about the long-term sustainability of today’s embattled liberal and democratic institutions in the presence of a strong quest for order in response to insecurities arising from substantial economic, technological, ecological, social, and other changes. Each of the four mechanisms that we posited in Section 9.3 may have been at work in cultivating liberal values in the younger cohorts under newly established liberal institutions in the former Communist countries – copying the successful, societal socialization, mere exposure, and conformist learning with preference falsification – may all run in reverse if liberal-democratic institutions suffer substantial backsliding, undermining liberal preferences. Moreover, the speed of the convergence of the younger ex-Communist cohorts to more liberal values following 1990 warns against counting on “cultural inertia” to sustain liberal values in an unfavorable institutional setting.

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