

## Trust issues? How being socialised in an autocracy shapes vaccine uptake

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Berlin Social Science Center



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Abstract

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How Being Socialised in an Autocracy Shapes Vaccine Uptake**

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The COVID-19 pandemic increased pressure on the relationship between governments and the public, making cooperation between both actors more critical than ever. Surprisingly, there is significant variation in public compliance with health policies, especially regarding vaccine uptake across different countries. Based on this finding, we seek to understand why vaccination hesitancy varies between countries. Instead of focusing solely on government trust and satisfaction, this research examines the impact of individuals' experiences having lived in autocratic countries on vaccine hesitancy. We derive a formal model of how autocratic experience and the subsequent distrust in health policies affect the individual calculus on vaccine uptake, and test the propositions of our model in a sample of 33 European countries on the micro-level. We find that autocratic experience gravely impacts individual vaccine hesitancy. Our findings shed light on the prolonged impact of autocratic rule on societal processes and on the roots of vaccine hesitancy, which is not rooted in general distrust but rather a highly specific form of scepticism towards government action.

Keywords: Autocracy, COVID-19, Pandemic, Vaccination, Public Health

# Trust Issues?

## How Being Socialised in an Autocracy Shapes Vaccine Uptake\*

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This version: October 24, 2023

### Abstract

The COVID-19 pandemic increased pressure on the relationship between governments and the public, making cooperation between both actors more critical than ever. Surprisingly, there is significant variation in public compliance with health policies, especially regarding vaccine uptake across different countries. Based on this finding, we seek to understand why vaccination hesitancy varies between countries. Instead of focusing solely on government trust and satisfaction, this research examines the impact of individuals' experiences having lived in autocratic countries on vaccine hesitancy. We derive a formal model of how autocratic experience and the subsequent distrust in health policies affect the individual calculus on vaccine uptake, and test the propositions of our model in a sample of 33 European countries on the micro-level. We find that autocratic experience gravely impacts individual vaccine hesitancy. Our findings shed light on the prolonged impact of autocratic rule on societal processes and on the roots of vaccine hesitancy, which is not rooted in general distrust but rather a highly specific form of scepticism towards government action.

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# 1 Introduction

Health crises like the COVID-19 pandemic can only be contained through cooperation between the public and governments. Over the course of the pandemic, within various countries different levels of cooperation between the public and governments were observed (see, e.g., Bargain and Aminjonov, 2020; Brouard et al., 2020; Nivette et al., 2021). Significant differences between government policies and citizen behavior are particularly pronounced when it comes to vaccine uptake by the population (see Salomoni et al., 2021). Looking at this variance in vaccine uptake, we can already discern crucial differences in European countries, with Germany (70.47%) and Norway (71.88%) showing a moderate vaccine uptake, Poland (55.68%) exhibiting rather low vaccination rates, and Portugal (84.17%) having one of the highest vaccination rates.<sup>1</sup> This leads us to our question: *Why does vaccination hesitancy vary between countries?*

The answer we propose is that having experienced life under an authoritarian government is a crucial but previously overlooked factor in determining citizen compliance with government health policies and vaccinations in particular. Our main argument is that this individual autocratic experience makes citizens (and former citizens of such countries) distrustful of government policies that infringe civil liberties, especially when it comes to health policies, which often play a crucial role in autocracies (see, e.g., Schäfer, 2005; Xu and Jin, 2018). Having spent more time in a democratic system, however, people build trust in their democratic governments and believe health policies are only in place to avert dangers and not to deceive, or even harm, citizens.

Previous contributions have already addressed the difference in the pandemic response of autocratic and democratic regimes (e.g. Alon et al., 2020; Cepaluni et al., 2020; Stasavage, 2020) as well as populist and non-populist governments (e.g. Bayerlein et al., 2021; Bayerlein and Gyöngyösi, 2020; McKee et al., 2020; Williams et al., 2020). Related research that focused on public behavior found that citizens are affected by messaging from politicians over the course of the pandemic (e.g. Barrios and Hochberg, 2020; Bayerlein et al., 2021; Gollwitzer et al., 2020). Surprisingly, what is still missing is research on the question as to why some citizens comply with the policies of *their* government while others do not, especially when it comes to vaccinations. The few existing studies focus solely on the perception of government risk communication (e.g. Thanh et al., 2021), address single cases (e.g. Dunn and Laterzo, 2021) or analyse general levels of trust (e.g. Goldstein and Wiedemann, 2020).

Although trust is an important component in explaining public compliance with health policies and vaccine hesitancy, it is essential to first understand the determinants of trust. Arguably, the autocratic past of an individual constitutes one such crucial component (e.g. Newton et al., 2018; Tabellini, 2008; Xu and Jin, 2018). A mistrust of state policies lingers in this context, and even when there is a change in the political system, an experience of autocracy, influences individuals' perceptions and trust in government. An autocratic past might therefore be an important but previously overlooked determinant of vaccine uptake.

In addressing this research gap and answering our question, we make two important contributions. First, in focusing on a measure of individual autocratic experience, we analyze a

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<sup>1</sup>Vaccination rates as of December 31, 2021. Rates include share of people with a complete initial protocol. The data comes from OWID (Hannah Ritchie et al., 2020).

previously overlooked determinant of public compliance with public health policies, such as vaccine roll-outs. Second, by finding a positive association between autocratic past and lack of compliance, we can draw inferences on how governments can take into account the autocratic experiences of citizens in communicating and implementing health policies. We analyze the correlation between autocratic past and citizen compliance in a sample of 33 developed and developing European countries in the summer of 2021. We proceed by first reviewing the relevant literature, followed by a presentation of our formal model and an empirical assessment of the propositions from this model. We close with a discussion of our results and the conclusion.

## 2 Literature Review

Since the onset of the COVID-19 pandemic, research has explored how different regime types influence the severity of the virus' outbreak. Studies focused on this question often emphasize that autocratic regimes tend to respond quickly to immediate threats (Alon et al., 2020; Cepaluni et al., 2020; Stasavage, 2020). However, when considering the effectiveness and speed of government responses, research consistently reveals that death rates are significantly lower in democracies (Karabulut et al., 2021).

The differences in pandemic performance between autocratic and democratic regimes can usually be attributed to healthcare quality and high levels of public health in democracies (Besley and Kudamatsu, 2006; Hall and Jones, 2007; Patterson and Veenstra, 2016; Wigley and Akkoyunlu-Wigley, 2017). In contrast, autocracies often disregard public goods, health spending, and access to adequate healthcare (Deacon, 2009; Justesen, 2012; V-Dem, 2022). Moreover, dictatorships tend to subordinate health and medical science to the regime's ideology, leading to unfathomably inhumane consequences (Alexander, 1949; Schäfer, 2005). Even in cases where autocratic regimes emphasize public health, such as in the German Democratic Republic and Cuba, trade barriers and a lack of collaboration with medical advances in competing systems often lead to supply shortages and the absence of high-quality medical technology and innovation (Bettin, 2016; Cooper et al., 2006; Garfield and Santana, 1997; Schochow and Steger, 2020).

The causal relationship between public health in general and pandemic performance in particular, however, is not uni-directional. Instead, the interaction between the public and the government is a crucial predictor in determining public health outcomes and pandemic severity (Bayerlein et al., 2021). Previous research focused on this interaction has highlighted that general trust in government and the specific evaluation of the government's response to the COVID-19 pandemic are important components in determining the cooperation between the public and governments (Altiparmakis et al., 2021; Borisova et al., 2022; Han et al., 2021; Kofanov et al., 2023; Pak et al., 2021; Shanka and Menebo, 2022; Zaki et al., 2022). A particularly noteworthy strand of research centers on trust as a determinant of vaccine uptake (Allington et al., 2023; Borisova et al., n.d.; Ebrahimi et al., 2021; Jennings et al., 2021; Jennings et al., 2023; Kricorian et al., 2022; Petersen et al., 2021; Toshkov, 2023; Troiano and Nardi, 2021; Willis et al., 2021).

The importance of trust in the interaction between the public and the government during the pandemic, as outlined by previous contributions, is also connected to individual experiences



with different regime types rather than limited to the existing political structure. Studies have already pointed out that individual autocratic experiences shape people’s trust in their current government (Newton et al., 2018; Tabellini, 2008; Xu and Jin, 2018). With respect to health policies, this trust becomes especially important, as individuals rely heavily on the government for adequate healthcare as well as accurate and trustworthy information on diseases, pharmaceuticals, therapies, and vaccinations.

Research examining the trustworthiness of public health recommendations or information in authoritarian systems tends either to downplay serious diseases or deceptions of the public about miracle cures (Bosha et al., 2019; del Arco Blanco, 2021; Lin et al., 2022; Ludwig, 2020). Such behavior is often rooted in autocracies’ poor health outcomes for the public (Ross, 2006; V-Dem Institute, 2021; Wang et al., 2019). Additionally, autocracies frequently manipulate official statistics to gloss over their damaging public health performance (Morrison and Boese, 2022). These findings are also observed in research concerning countries experiencing the erosion of democratic institutions during the pandemic (Clark and Patty, 2021; McKee et al., 2020; Smith, 2020).

The literature review indicates that individuals’ autocratic experiences, trust in government action, and compliance with public health policies are seemingly interconnected. Given this finding, it is all the more surprising that no research has yet provided a comprehensive approach to linking individual autocratic experiences to distrust, especially concerning health policies and the ways in which this lack of trust again relates to vaccine hesitancy. We address this research gap by providing and empirically testing a formal model of how an individual evaluates whether or not to receive the vaccine while taking into account the individual’s autocratic experiences.

### 3 Theory

Getting vaccinated involves making choices under uncertainty, as no vaccine is completely devoid of possible side effects. Therefore, an individual must weigh the risk of potential side effects against the risk of infection with the virus. The earlier COVID-19 variants were particularly serious, carrying a high risk of severe illness and even death. As a result, we would expect a risk-neutral, or perhaps even a risk-averse, individual to opt into getting vaccinated. The individual decision-making process would involve a cost-benefit analysis associated with risk (for further insights into the topics, see Wagstaff, Layard and Glaister (1994)). Essentially, we can formulate an expected utility function for a representative individual, which would take the following form:

$$U = \pi(V)U^H + (1 - \pi(V))U^L - C(V) \quad (1)$$

where  $U$  reflects expected utility, and  $U^H$  and  $U^L$  represent utilities when healthy and ill (with COVID-19). The probability ( $\pi$ ) of remaining well increases with the uptake of the vaccine,  $V$ , but there may be some costs (perceived or real side effects) associated with vaccine uptake,  $C$ . Maximising (1) with respect to  $V$  we obtain (subscripts denote partial derivatives):

$$\pi_V(U^H - U^L) = C_V \quad (2)$$

The left-hand side of (2) represents the marginal benefit of taking the vaccine, which is positive as long as the utility of a COVID-free healthy state is preferred to contracting the disease. Furthermore, for the 'homo economicus,' or rational person, the marginal benefit of avoiding COVID-19 as compared to the side effects of the vaccine is strictly positive. However, some individuals may still reject the vaccine if the overall costs of vaccination, including psychological costs, are high:

$$\pi_V(U^H - U^L) < C_V \quad (3)$$

Nevertheless, there are other factors attributed to vaccine rejection, even when the rational calculus for its uptake is compelling, as described above, and the inequality sign in (2) is reversed. For vaccine uptake to occur, the message from the authorities ( $\mu$ ) regarding its efficacy must be credible. This decision may also depend upon the type of individual and his or her ability to process the message. Individuals are also exposed to other messages, many of which deny vaccine efficacy, and some of which even promote conspiracy theories about the vaccine. Ascertaining the true informational content of the government's message compared to other potentially misleading messages could be costly.

Following Murshed (2011), we postulate that society ( $i$ ) is composed of two types of individuals: one type has a high cost of message verification ( $h$ ), and another type of individual who has a low ( $l$ ) cost of checking the truthfulness and credibility of messages. The general form of the individual vaccination decision may be described as:

$$U_i = y_i - \phi\mu_i(z) - z(i) \quad \dots i = h, l \quad (4)$$

Here,  $y_i$  represents the expected utility calculation of (1). The second term,  $\phi\mu_i(z)$ , refers to the value of the message informing the public about vaccine efficacy. It consists of the parameter  $\phi$  representing the belief or probability that the message,  $\mu$ , is reliable, which is also a function of a search cost,  $z$ . If  $\phi = 1$ , the message is entirely reliable, and a complete lie if it is 0, with several intermediate possibilities between 0 and 1. The last term on the right-hand side of (3) represents search costs depending on the inherent type of the individual. The evolution of  $\phi$  will follow a Bayesian pattern of updating priors, where history matters, particularly the heritage of the state as to the reliability of its announcements. The formula for Bayesian updating is:

$$\frac{\phi}{\phi + (1 - \phi)\mu} \quad (5)$$

Thus, the current belief or estimation will also depend upon the history of prior subjective probabilities. In general, the maximization of (3) with respect to the search ( $z$ ) of message veracity permits us to derive two conditions:

$$\phi\mu_{hz} < z_h \quad \text{and} \quad \phi\mu_{lz} > z_l \quad (6)$$

The first inequality in (5) is due to higher marginal search costs ( $\phi\mu_{hz} < z_h$ ) relative to utility derived from the message for the low-cost individual. The low-cost individual may also assign a lower probability that state messaging is veracious. As a result, they are likely to opt out of the vaccine. In contrast, the second inequality in (5) indicates that search costs are lower, and the credibility of the message on vaccine efficacy is greater for the low-cost individual ( $\phi\mu_{lz} > z_l$ ). However, even this type of individual may reject the vaccine for sufficiently low values of the parameter  $\phi$ , and if the inequality in (2) applies to them. In summary, vaccine hesitancy is more likely if:

1.  $\pi_V(U^H - U^L) < C_V$ . The marginal physical and psychological costs of the vaccine are greater than the marginal benefits.
2.  $\frac{1}{2} \geq \phi \geq 0$ . The probability of the government's message being true lies along the interval between 0 and a  $\frac{1}{2}$ , implying that the individual treats the vaccine efficacy message as a lie or randomizes with an equal chance of vaccine rejection.
3.  $\phi\mu_{hz} < z_h$ . The individual in question experiences high costs of message verification and separating noise from signals.

The last component of our theoretical model is the autocratic experience, which factors into the credibility of the government's message and thereby greatly impacts the above-derived calculus. Trust in government is strongly influenced by an individual's autocratic experiences, which not only shape political trust and thereby trust in the government but also extend to social trust and other societal institutions (Newton et al., 2018; Tabellini, 2008; Xu and Jin, 2018). In the context of health policies, this is especially concerning due to two factors: First, citizens are strongly dependent on the government to receive adequate health care. Second, autocracies tend to present themselves as good providers for the people through a legitimating narrative, which causes them to downplay serious diseases or promote false cures (Bosha et al., 2019; del Arco Blanco, 2021; Lin et al., 2022; Ludwig, 2020). Further, autocracies lead to worse health outcomes for the public (Ross, 2006; V-Dem Institute, 2021; Wang et al., 2019), leading to frequent manipulation or misclassification of official statistics (Morrison and Boese, 2022). Based on this, we argue that vaccine hesitancy should be impacted by an individual's autocratic experience via persisting distrust in government messages, particularly regarding healthcare issues.

To summarize from the theoretical model presented above, we derive three empirical expectations, which are outlined in the following hypotheses:

- H1:** *Autocratic experience increases the probability of distrust in the current government of an individual.*
- H2:** *Distrust in the current government increases the probability of vaccine hesitancy of an individual.*

Based on these two hypotheses, we derive a third and final expectation:

**H3:** *Autocratic experience increases the probability of vaccine hesitancy of an individual.*

## 4 Data

We test these propositions with a cross-sectional analysis in a sample of 33 developed and developing democratic European countries in July 2021. Due to the historical German division, we treated the former territories of the German Democratic Republic (GDR) and the Federal Republic of Germany (FRG) as separate countries in our analysis. We restrict the data to democratic countries due to the low quality of data associated with non-democratic countries (Hollyer et al., 2011; Morrison and Boese, 2022). Our sample is further limited by the availability of survey data. Our primary variables of interest are vaccine hesitancy, an individual's autocratic experience, and distrust in government. In the following sections, we introduce our sample, data, operationalization, and provide descriptive insights into the relationship formulated in our model.

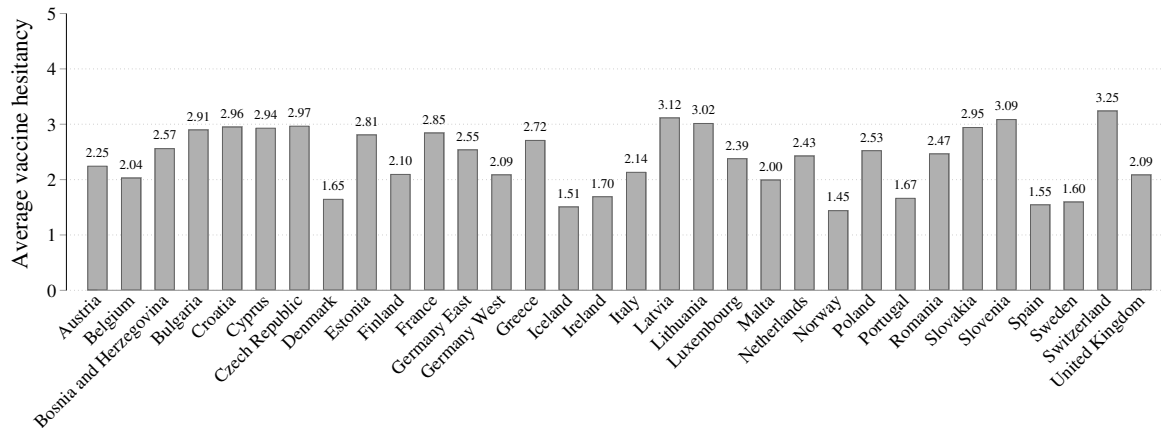
### 4.1 Vaccine Hesitancy

Our main variable of interest is the vaccine hesitancy of individuals. Barring delays in the rollout of vaccines, the vaccine uptake of individuals is mostly hindered by individual vaccine hesitancy. The World Health Organization's Strategic Advisory Group of Experts (SAGE) on immunization describes vaccine hesitancy as the "delay in acceptance or refusal of vaccination despite the availability of vaccination services" (MacDonald et al., 2015, p. 4161).

To measure vaccine hesitancy at the individual level in our sample of 33 countries, we draw on data from the Eurobarometer 95.3 . The survey was conducted in June and July 2021 and posed the question: "When would you like to get vaccinated against COVID-19 (coronavirus)?" with the possible answers "I have already been vaccinated", "As soon as possible", "Some time in 2021", "Later", and "Never". The responses are coded from 1 (indicating that a person is already vaccinated) to 5 (indicating that a person never wants to be vaccinated). Based on this coding, we treat the variable as continuous with higher values indicating higher vaccine hesitancy. However, while the steps from 2 (as soon as possible) to 5 (never) follow a logical order, the step from 1 (already vaccinated) to 2 (as soon as possible) is rather an expression of vaccination policy and availability than personal hesitancy. In order to avoid any distortions from this, we exclude respondents that have already been vaccinated and recode to variable to range from 1 (as soon as possible) to 4 (never). The sample average is 2.49 with a standard deviation of 1.16. To provide further details, Figure 1 plots the average vaccine hesitancy in our sample countries.

The figure illustrates considerable variance between the 33 countries. Several countries, in Eastern Europe in particular, stand out with high levels of population-wide vaccine hesitancy. Similarly, certain Southern European countries, such as Greece and Cyprus, show comparatively high levels of vaccine hesitancy. In contrast, Northern European countries, including Iceland,

**Figure 1: Average vaccine hesitancy by countries**



**Notes:** The figure shows the average vaccine hesitancy in our 33 sample countries. The data on vaccine hesitancy comes from the Eurobarometer 95.3. The variable ranges from 1 (a respondent wanting to be vaccinated as soon as possible) to 4 (a respondent never wanting to be vaccinated). We calculate the simple mean by country.

Denmark, and Sweden, display very low levels of vaccine hesitancy. The case of Sweden is particularly interesting as the Swedish government mostly relied on citizens simply adhering to public health recommendations (see Ohrling et al., 2020; Sjödin et al., 2020). Additionally, we also identify an interesting split within Germany. While we find an average vaccine hesitancy of 2.55 in Eastern Germany, vaccine hesitancy is significantly lower in Western Germany at an average of 1.69. Building on these findings, the following sections introduce explanatory variables and provide descriptive insights into their correlation with vaccine hesitancy.

## 4.2 Autocratic Experience

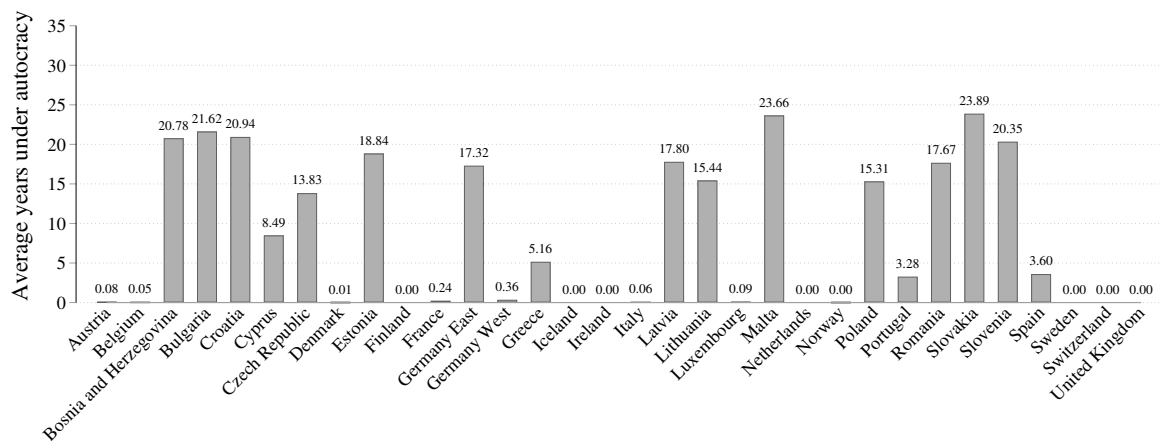
Our primary explanatory variable is the autocratic experience of an individual, which we determine in three steps: First, we rely on the regime type coding from Lührmann et al., 2018 to code the most recent change from a closed autocracy or electoral autocracy to at least an electoral democracy, without a reversion to a closed autocracy or electoral autocracy. Second, we exclude all individuals who were not born in the country in which they currently reside, and calculate the number of years they lived under autocratic rule based on their date of birth. Third, we account for any intermediate democratic spells in the respective countries.

Using this approach, we can estimate the years an individual has lived under autocratic rule. This approach assumes that an individual has not lived abroad and that the impact of living under autocratic rule is consistent across different age groups. We also address the effect across age groups in the robustness checks. Given the historical context of the German division and autocratic rule in Eastern Germany, we split the German sample and code the autocratic experience for people born and residing in Eastern Germany accordingly.

Based on our coding, we estimate an average autocratic experience of 11.01 years in our sample, with a standard deviation of 14.32 and a median of 2 with an interquartile range of 20. From this distribution, we can already conclude that our sample is marked by a large variance in

autocratic experiences, with more than half of the respondents in our sample having experienced autocratic rule. Figure 2 underscores this first impression by displaying the average years of autocratic experience by country. Naturally, we can identify clusters of autocratic experience on the country-level, as citizens from some countries have experienced longer and more recent autocratic spells than others, based solely on their countries of origin.

**Figure 2:** Average years of autocratic experience by countries

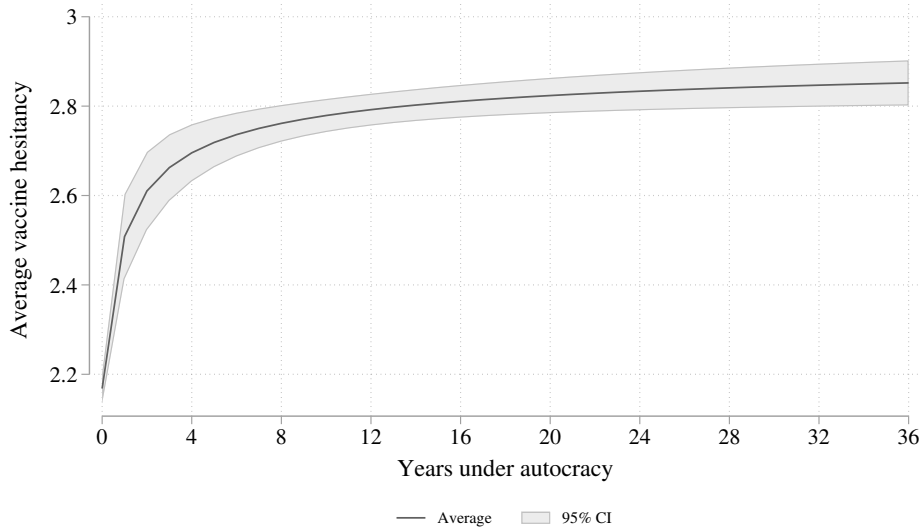


**Notes:** The figure shows the average years of autocratic experience in our 33 sample countries. The data on regimes types comes from Lührmann et al., 2018. The individual autocratic experience is coded by estimating the years an individual has lived under autocratic rule in a given country by excluding migrants and intermediate democratic spells.

Having provided some descriptive insights on the distribution of autocratic experiences within our sample and between countries, we now analyze the correlation between autocratic experiences and vaccine hesitancy. In order to do so, we plot the average vaccine hesitancy (from 1 to 4) against the autocratic experience of individuals measured in years lived under autocratic rule between the 10th and 90th percentile of the distribution. We introduce a polynomial function to uncover a possible non-linear relationship. The results are displayed in Figure 3. The figure shows a clear and statistically significant correlation between both variables across different years of autocratic experience. The figure also reveals a particularly stark increase in the correlation within the first 4 years of autocratic experience, with the steepest correlation between 0 and 1 year. This indicates that it is rather a question of having lived under autocratic rule or not than a question of the duration of the autocratic experience.

The descriptive insights provided in this section already shed some first light on the mechanism worked out in our formal model. Most importantly, we find descriptive support for our main proposition on the correlation between autocratic experience and vaccine hesitancy. Further, we also find strong evidence that the relationship is guided by an individual having lived under autocratic rule or not and not by the duration of living under autocratic rule. Moving forward, the next section dives deeper into the mechanism and provides insights as to how the relationship between autocratic experiences and vaccine hesitancy runs via trust in government and specific evaluations of a country’s health system.

**Figure 3:** Correlation between autocratic experience and vaccine hesitancy



**Notes:** The figure shows the correlation between vaccine hesitancy and average years of autocratic experience in our 33 sample countries. The data on regimes types comes from Lührmann et al., 2018/the V-Dem dataset v11. The individual autocratic experience is coded by estimating the years an individual has lived under autocratic rule in a given country by excluding migrants and intermediate democratic spells. The data on vaccine hesitancy comes from the Eurobarometer 95.3 . The variable ranges from 1 (a respondent wanting to be vaccinated as soon as possible) to 4 (a respondent never wanting to be vaccinated).

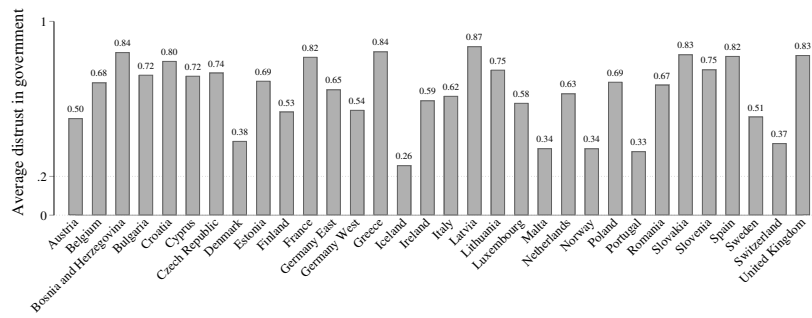
### 4.3 Distrust in Government

The main component of our mechanism that links autocratic experiences to vaccine hesitancy is individual trust. Trust, as described by Uslaner (2018, p. 4), refers to “confidence in institutions such as the executive, the legislature, the judiciary, the bureaucracy, and the police.” While previous research has shown that various forms of trust are impacted by autocratic experiences (see, e.g., Newton et al., 2018; Tabellini, 2008; Xu and Jin, 2018), our model places a particular emphasis on trust in governments. While other forms of distrust might also be relevant, our approach focuses exclusively on trust in government.

In order to determine the trust of an individual we again use the Eurobarometer 95.3 survey. The survey asked the respondents the following question: “How much trust do you have in certain institutions? For each of the following institutions, do you tend to trust it or tend not to trust it?” Focus on “The (NATIONALITY) Government”. The answer is binary and re-coded by us to 0 indicating no distrust and 1 indicating distrust. The average distrust in our sample is 0.67 with a standard deviation of 0.47 and a median of 1. The average distrust in government by country is plotted in Figure 4. We again find considerable variance between countries with particularly high numbers in the Eastern European sub-sample, in addition to France and the United Kingdom.

Using the previously introduced data on vaccine hesitancy and autocratic experience, we plot the relationship between these two variables and distrust in government. The results are displayed in Figure 5. The left panel shows the average vaccine hesitancy by groups of people who indicated that they have no distrust (left) and distrust in the government (right). The figure

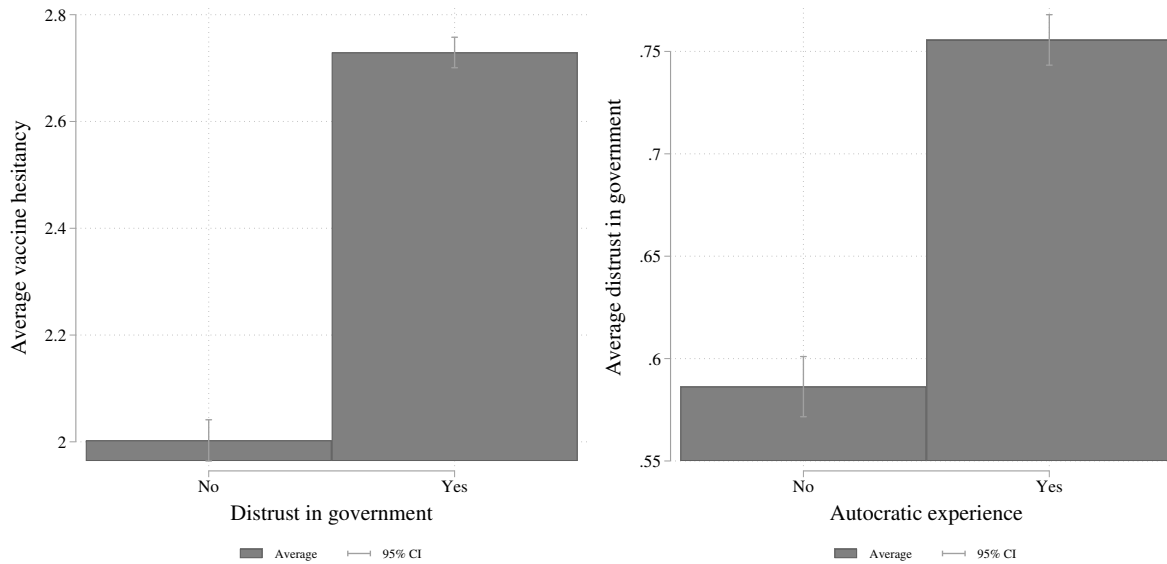
**Figure 4: Average distrust in government by countries**



**Notes:** The figure shows the average distrust in government in our 33 sample countries. The data on trust in government comes from the Eurobarometer 95.3 . The variable ranges from 0 (tend not to distrust government) to 1 (tend to distrust government). We calculate the simple mean by country.

clearly shows that people who distrust the government are also significantly more hesitant to vaccine uptake. Moving to the right panel and the correlation between autocratic experience and distrust in government, we find a similar correlation. In this figure we grouped all respondents with autocratic experience in one category (yes), and all respondents without any experience of autocratic rule in the other category (no). The figure demonstrates that distrust in government is significantly higher in people with autocratic experiences.

**Figure 5: Average vaccine hesitancy and distrust with autocratic experience**



**Notes:** The figure shows the correlation between the average vaccine hesitancy, distrust in government as well as autocratic experience in our 33 sample countries. The data on trust in government comes from the Eurobarometer 95.3 . The variable ranges from 0 (tend not to distrust government) to 1 (tend to distrust government). The data on regimes types comes from Lührmann et al., 2018/the V-Dem dataset v11. The data on vaccine hesitancy comes from the Eurobarometer 95.3 . The variable ranges from 1 (a respondent wanting to be vaccinated as soon as possible) to 4 (a respondent never wanting to be vaccinated).

In conclusion, we find a strong correlation between autocratic experience and distrust in government, as well as a robust correlation between distrust in government and vaccine hesitancy.



These findings support our propositions and align with the assumed micro-foundation of the previously established correlation between autocratic experience and vaccine hesitancy. As a last step, we now aim to investigate whether autocratic experience does not only impact distrust in government in general but also has a specific impact on the trust in the health care system.

#### 4.4 Trust in Health Care

In this final data section, we provide insights into a specific form of trust: trust in health care. In the preceding sections, we presented descriptive evidence on the correlation between autocratic experience and vaccine hesitancy, which is rooted in a lack of trust in government. However, in line with previous research, we argue that it is not only trust in government in general but also distrust in healthcare services provided by the state. Unfortunately, the Eurobarometer 95.3 does not include a question specifically related to trust in healthcare. Therefore, we draw on the data from the Gallup World Poll (GWP), which contains the following question: “In (this country), do you have confidence in each of the following, or not? How about health care?” with the possible answers “yes” and “no” as well as the possibilities to refuse or answer “don’t know”. We use this question on confidence in the health care system as a proxy for trust and recode the answers to 1 indicating distrust and 0 indicating no distrust.<sup>2</sup>

Using the question from the GWP, we find an average distrust in the health care system of 0.33 with a standard deviation of 0.47 and a median of 0. The average distrust ranges from 0.09 in Belgium to a staggering 0.73 in Lithuania. Figure 6 plots the average distrust in the health care system in our 33 sample countries, although data is missing for Bulgaria and Croatia. The figure further underscores considerable variance in our sample, with some countries displaying considerable levels of distrust, while other countries exhibit virtually no distrust.

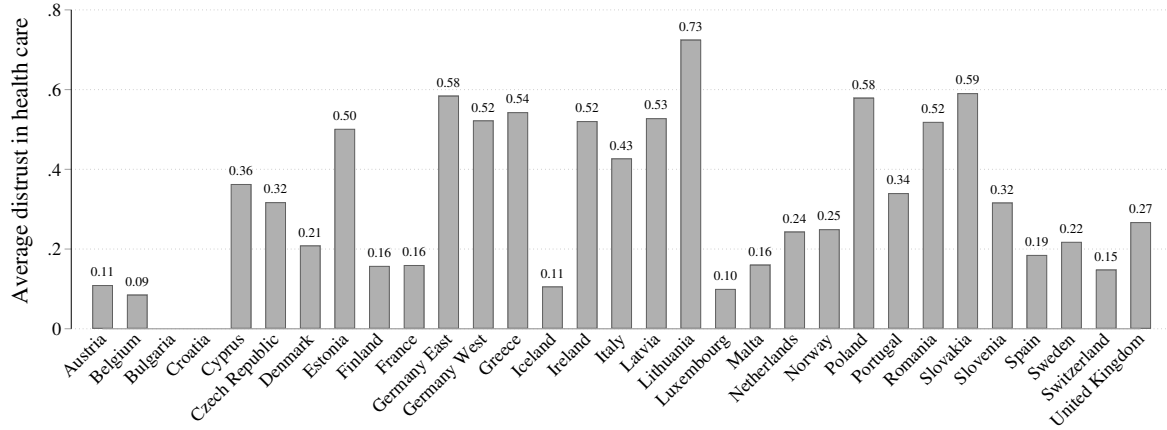
After identifying the variance in distrust in the health care system, we again seek to explore whether autocratic experiences are correlated with this specific form of distrust. In order to analyze this correlation, we group the respondents according to those who have lived under autocratic rule and those who have never lived in an autocracy. Unfortunately, the GWP does not contain a question on the place of birth. Therefore, we cannot exclude respondents who moved to the country they are residing in at the time of the survey. While we estimate that this should not substantially bias our data, we acknowledge this imprecision in our analysis. Using the same coding approach for autocratic experiences as previously described based on the regime type changes from the V-Dem dataset, the results are presented in Figure 7.

The figure shows that the average distrust in the healthcare system is significantly and substantially larger in the group of respondents with autocratic experiences than in the group of respondents without any autocratic experiences. This finding is in line with the descriptive evidence provided in the previous sections and supports the specific pathway through which autocratic experiences relate to vaccine hesitancy.

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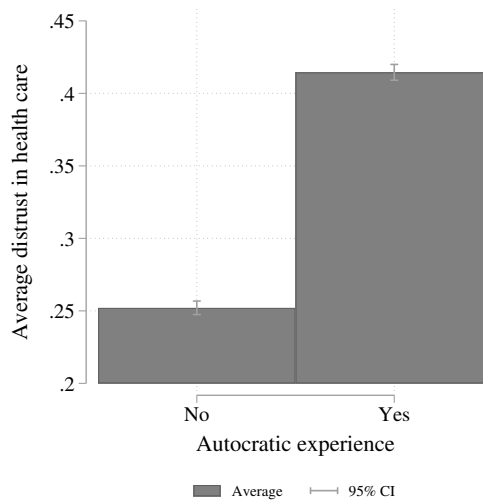
<sup>2</sup>The question was asked at different points in time in our sample countries. 2010: Austria, Portugal; 2009: Cyprus, Denmark, France, Germany East, Germany West, Ireland, Italy, Luxembourg, Malta, Poland, Romania, Slovenia, Spain, Sweden, Switzerland, United Kingdom; 2008: Belgium, Estonia, Finland, Iceland, Latvia, Lithuania, Netherlands, Norway; 2007: Czech Republic, Greece; 2006: Slovakia.

**Figure 6: Average distrust in health care by countries**



**Notes:** The figure shows the average distrust in health care in our 33 sample countries. The data on trust in health care comes from the Gallup World Poll (GWP) . The variable ranges from 0 (no distrust in health care) to 1 (distrust in health care). We calculate the simple mean by country.

**Figure 7: Average distrust in health care with autocratic experience**



**Notes:** The figure shows the correlation between the average distrust in health care and autocratic experience in our 33 sample countries. The data on trust in health care comes from the Gallup World Poll (GWP) . The variable ranges from 0 (no distrust in health care) to 1 (distrust in health care). The data on regimes types comes from Lüthmann et al., 2018/the V-Dem dataset v11.

In conclusion, the descriptive evidence presented in this section supports the hypotheses derived from our formal model. Specifically, using the Eurobarometer survey, we find a substantial correlation between autocratic experiences and vaccine hesitancy at the individual level. This correlation is primarily mediated by a lack of trust in government, which is rooted in the autocratic experience and is in turn correlated with vaccine hesitancy. Using the GWP survey data further allowed us to show that respondents with autocratic experiences also hold substantial distrust in their respective healthcare systems. This finding further supports our formal model and the specific argument that autocratic experiences impact not only trust in government in general but also trust in health care systems in particular.

## 5 Estimation

Having established initial descriptive insights into the data, we now proceed to a more robust analysis of the three hypotheses derived above. Our analysis focused on three main variables: vaccine hesitancy, autocratic experience, and distrust in government. Using these three variables, our analysis is split into two sections. In the main section, we test three hypotheses with three models that regress vaccine uptake on autocratic experience, and also regress distrust in government on autocratic experience and vaccine uptake, respectively. In the robustness check section, we take an exploratory perspective and investigate the specific types of autocratic experience, i.e., age at the time of making the autocratic experience and duration of the autocratic experience, in order to identify possible drivers of our results. The following sections describe our variables as well as estimation methods in greater detail.

### 5.1 Variables

The main variable of interest in our analysis is individual vaccine hesitancy. As described above, in the Eurobarometer dataset, the variable runs from 1 (indicating that a person is already vaccinated) to 5 (indicating that a person never wants to be vaccinated). In order to avoid any distortions from this, in our robustness checks, we exclude respondents who have already been vaccinated. The second variable of interest is distrust in government. It is essential to note that the Eurobarometer provides two possible answers to the question on trust in the government: "tend to trust" and "tend not to trust". In this study, we label the latter response as "distrust." The third and final variable central to our analysis is individual autocratic experience. In our analysis, we simply divide respondents into two groups: 1) Respondents with an autocratic experience and 2) respondents without an autocratic experience. This approach does not distinguish between different age cohorts or the duration of autocratic experience. Nonetheless, in the second section of the analysis, we also run regressions that use the actual number of years lived under autocracy and create different groups based on age cohorts.

In addition to these three main variables, we include several individual-level control variables from the Eurobarometer that may be correlated with distrust, autocratic experience, and vaccine hesitancy. These control variables can be categorized into three groups. First, we include *demographic* variables, namely age in years, a dummy variable on gender (in which 1 represents

respondents who self-identify as female), and education in years. Second, we introduce variables related to the perception of an individual’s *socio-economic status*. These are variables on life satisfaction (1 very satisfied, 2 fairly satisfied, 3 not very satisfied, 4 not at all satisfied), economic well-being (1 most of the time, 2 from time to time, 3 almost never/never), as well as social class (1 working, 2 lower middle, 3 middle, 4 upper middle, 5 higher), and individual left-right self-placement from 1 (left) to 10 (right) on a general policy dimension.

On the country-level, we control for vaccine availability with a dummy variable indicating whether the vaccine was available for a majority of the population. We do so by using the vaccination availability data from the Oxford COVID-19 Government Response Tracker (OxCGRT) (Hale et al., 2022). The OxCGRT ranks the availability of vaccinations from 0 (no population groups receive vaccinations) over 1 (vaccines are available to some) and 2 (vaccines are available to anyone over the age of 16) to 3 (vaccines are additionally available to infants). Based on this variable, we introduce a *vaccine availability* dummy, with a 0 indicating no availability for the general population (OxCGRT coding 0 and 1) and availability to the entire population (OxCGRT coding 2 and 3). Additionally, we include a *populist government* dummy variable to account for possible negative effects of populist messaging on citizen compliance with public health recommendations (Bayerlein et al., 2021). The coding is based on Bayerlein et al. (2021) and forwarded to 2021 by following the ideational approach to populism and the definition by Cas Mudde (2004) that populists share anti-establishment orientations (anti-elitism), and claim to speak for the people against the elites (people centrism).

## 5.2 Method

Our main focus is on three correlations: distrust in government as a function of individual autocratic experience, vaccine hesitancy as a function of distrust in government, and vaccine hesitancy as a function of individual autocratic experience. Due to the binary coding of the distrust variable, the first of our models employs a logistic regression. The vaccine hesitancy variable can take multiple values that can be put in an order; although the gaps between the values are not necessarily equally spaced, we treat the variable as continuous in order to run a linear regression in the second and third models. Due to the heterogeneous nature of the sample, all of our models include robust standard errors clustered at the country-level. The first model on distrust on government and autocratic experience is defined by:

$$\text{Ln}\left(\frac{\text{Distrust}_{i,c}}{1 - \text{Distrust}_{i,c}}\right) = \alpha + \pi \text{AutExp}_{i,c} + \beta \chi_{i,c}^j + \varepsilon, \quad (7)$$

where *Distrust* describes the distrust in government of an individual *i* in a country *c* that is regressed the individual autocratic experience (*AutExp*). Further,  $\chi$  describes a vector of the control variables (*j*) outlined above.

In the second and third models, the vaccine hesitancy variable is regressed on the distrust in government and the individual autocratic experience, respectively. We use an OLS regression on the assumption of linearity. The baseline model for both explanatory variables (distrust in government and autocratic experience) is defined by:

$$Hesitancy_{i,c} = \alpha + \pi X_{i,c}^{Distrust, AutExp} + \beta \chi_{i,c}^j + \varepsilon, \quad (8)$$

where *Hesitancy*<sub>*i,c*</sub> describes the indicated vaccine hesitancy of an individual *i* in a country *c* that is regressed on the respective explanatory variable, i.e., the distrust in government of an individual (*Distrust*) and the individual autocratic experience (*AutExp*). Further,  $\chi$  describes a vector of the control variables (*j*) outlined above.

### 5.3 Results

The first regression analysis explores the correlation between an individual's autocratic experience and their distrust in the government. The results of the analysis are displayed in Table 1. Model 1 only reports the coefficient of the autocratic experience dummy variable. The coefficient is found to be positive and statistically significant. This indicates a positive and statistically significant correlation between an individual's autocratic experience and their likelihood of distrusting their current government. In Model 2, we introduce the first set of control variables concerned with demographic variables, i.e., age, gender, and education. Introducing these control variables increases the size of the coefficient slightly, but has no impact on the statistical significance.

In Model 3, we proceed by introducing the next set of control variables, which are related to socio-economic variables. Including these variables marginally reduces the size of the coefficient, but it remains statistically significant. Interestingly and in support of our model, declining life satisfaction shows a statistically significant correlation with the likelihood of government distrust. Proceeding to Model 4, we introduce two variables that control for the country-specific context: the availability of vaccines to the population and a dummy variable on populist governance. Again, the autocratic experience coefficient is positive and statistically significant. The last model reintroduces all three sets of control variables, but their inclusion has no substantial effect on the coefficient of the autocratic experience variable, which remains positive and statistically significant.

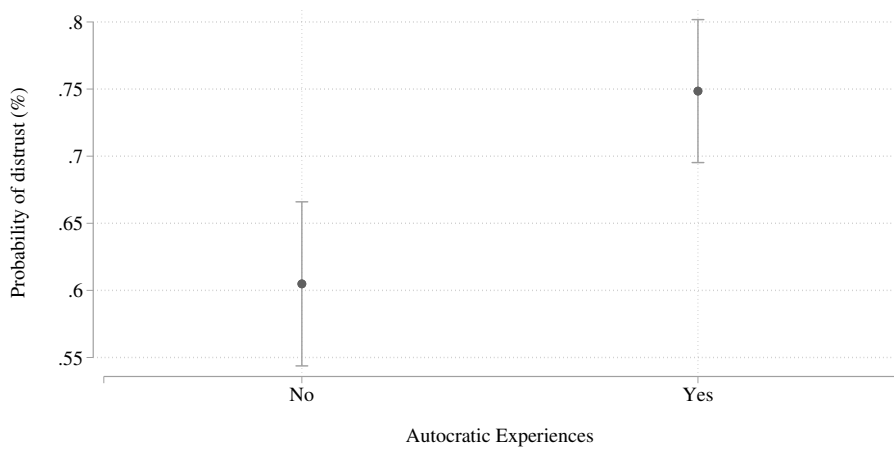
To move beyond mere analysis of the statistical significance of the correlation between autocratic experience and distrust in government, we calculate the marginal effects for the predicted probability of government distrust, depending on an individual's autocratic experience based on Model 5. As for the dummy variables, we calculate the predicted probability for men (i.e. variable *Woman*=0) in non-populist governed countries (i.e. variable *PopGov*=0). The results of the analysis are displayed in Figure 8. The figure shows that the predicted probability of an individual with an autocratic experience distrusting the government is substantially higher than for a person without an autocratic experience. In substantial terms, the predicted probability for an individual without an autocratic experience is about 51%, while the predicted probability of government distrust for an individual with autocratic experience is around 64%, i.e. 13 percentage points higher, which corresponds with around 0.3 standard deviations. Based on this, we conclude that our empirical analysis supports the first hypothesis in that an autocratic experience increases an individual's probability of distrusting their government in general.

**Table 1: Autocratic Experience as a Determinant of Distrust**

VARIABLES	(1) Distrust	(2) Distrust	(3) Distrust	(4) Distrust	(5) Distrust
AutExp	0.780*** (0.17)	0.834*** (0.17)	0.637*** (0.17)	0.747*** (0.16)	0.690*** (0.17)
LifeSatis			0.514*** (0.07)		0.528*** (0.06)
EconWell			-0.109 (0.08)		-0.099 (0.08)
SocialClass			-0.083 (0.08)		-0.076 (0.08)
LeftRight			-0.005 (0.04)		-0.007 (0.04)
Age		-0.007** (0.00)			-0.008** (0.00)
Woman		-0.104 (0.07)			-0.105 (0.07)
Education		-0.021** (0.01)			-0.010 (0.01)
VaccAvail				-0.016 (0.21)	-0.049 (0.21)
PopGov				0.228 (0.22)	0.247 (0.22)
Constant	0.349** (0.15)	1.112*** (0.32)	-0.092 (0.47)	0.340* (0.19)	0.448 (0.60)
Observations	8,999	8,999	8,999	8,999	8,999
Pseudo R-squared		0.03	0.05	0.03	0.06

Robust standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Figure 8: Marginal effects: Autocratic experience and distrust**



In the next step, we analyze distrust as a determinant of vaccine hesitancy, the results of which are presented in Table 2. The first model only reports the bivariate analysis, in which the 4-point vaccine hesitancy scale variable is regressed on the government distrust variable. The coefficient is positive and statistically significant. In the next model, we introduce the first set of control variables and find a statistically significant coefficient of the distrust variable. Additionally and according to the model, decreasing age as well as increasing education decreases the vaccine hesitancy of individuals. This finding contradicts previous research on vaccine hesitancy in younger people but is in line with the impact of education (Fisher et al., 2020; Kreps et al., 2020; Reiter et al., 2020). The slight contradiction might be explained by the roll-out of vaccines and the exclusion of already vaccinated individuals, who tend to be older. Subsequent models gradually introduce the additional sets of control variables, with the last model utilizing a combination of all control variables. Throughout these specifications, the coefficient of the distrust variable remains statistically significant and relatively stable.

**Table 2:** Distrust as Determinants of Vaccine Hesitancy

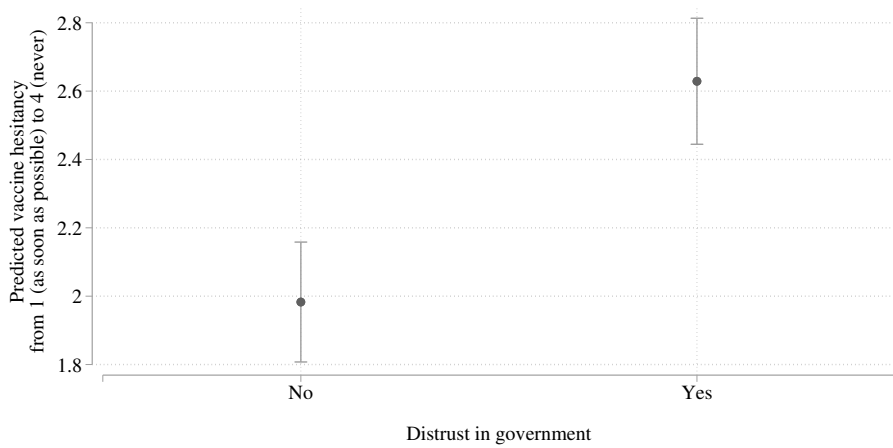
VARIABLES	(1) Hesitancy	(2) Hesitancy	(3) Hesitancy	(4) Hesitancy	(5) Hesitancy
Distrust	0.727*** (0.08)	0.704*** (0.07)	0.671*** (0.08)	0.699*** (0.07)	0.646*** (0.07)
LifeSatis			0.117** (0.04)		0.074* (0.04)
EconWell			-0.080* (0.04)		-0.105*** (0.04)
SocialClass			-0.041 (0.03)		-0.008 (0.03)
LeftRight			0.025 (0.02)		0.024 (0.01)
Age		0.007*** (0.00)			0.006*** (0.00)
Woman		0.074** (0.03)			0.060* (0.03)
Education		-0.019** (0.01)			-0.012* (0.01)
VaccAvail				0.338** (0.16)	0.299* (0.15)
PopGov				0.288 (0.22)	0.283 (0.20)
Constant	2.003*** (0.10)	2.028*** (0.21)	1.967*** (0.20)	1.827*** (0.14)	1.852*** (0.29)
Observations	8,999	8,999	8,999	8,999	8,999
R-squared	0.09	0.10	0.10	0.11	0.13

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Turning to the substantial relevance of the results, we again calculated the marginal effects of the predicted vaccine hesitancy based on Model 5, with the model specification of a man (i.e. variable Woman=0) in a non-populist governed country (i.e. variable PopGov=0). The predicted marginal effects for individuals who have trust in their governments and those who distrust their governments are displayed in Figure 9. The figure illustrates a considerable difference between these two groups. While the average vaccine hesitancy of trusting individuals is 2, the average hesitancy of distrusting individuals is roughly 2.6, representing a difference of about 0.5 standard deviations.

The third regression analysis displayed in Table 3 focuses on autocratic experience as a determinant of vaccine hesitancy. In this analysis, we regress vaccine hesitancy on the autocratic experience dummy variable in a bivariate regression. The coefficient of the variable, reported in Model 1, is positive and statistically significant. The second and third models introduce the previously described sets of control variables and similar correlations with vaccine hesitancy as

**Figure 9: Marginal effects: Distrust and vaccine uptake**



described above are observed. In the final model combining all sets of control variables, the coefficient decreases in size and shows statistical significance.

**Table 3: Autocratic Experience as a Determinant of Vaccine Hesitancy**

VARIABLES	(1) Hesitancy	(2) Hesitancy	(3) Hesitancy	(4) Hesitancy	(5) Hesitancy
AutExp	0.625*** (0.12)	0.594*** (0.13)	0.569*** (0.13)	0.548*** (0.11)	0.476*** (0.13)
LifeSatis			0.125*** (0.04)		0.116*** (0.04)
EconWell			-0.092** (0.04)		-0.102** (0.04)
SocialClass			-0.035 (0.03)		-0.017 (0.03)
LeftRight			0.018 (0.02)		0.018 (0.02)
Age		0.000 (0.00)			-0.000 (0.00)
Woman		0.039 (0.03)			0.037 (0.03)
Education		-0.016** (0.01)			-0.011* (0.01)
VaccAvail				0.232 (0.14)	0.223 (0.14)
PopGov				0.160 (0.18)	0.185 (0.19)
Constant	2.168*** (0.12)	2.484*** (0.18)	2.164*** (0.21)	2.080*** (0.14)	2.282*** (0.30)
Observations	8,999	8,999	8,999	8,999	8,999
R-squared	0.07	0.08	0.09	0.08	0.10

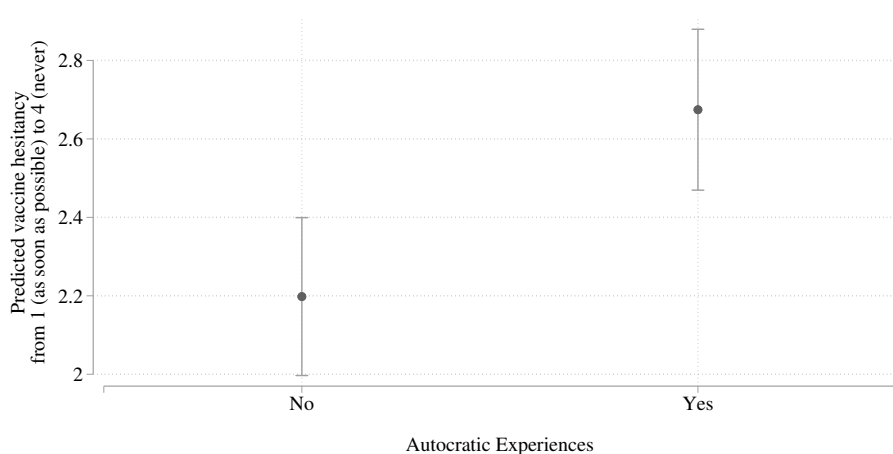
Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

To interpret the findings in substantial terms, we again provide the marginal effects of the predicted vaccine hesitancy based on Model 5, assuming a scenario of men (i.e. variable Woman=0) in non-populist governed countries (i.e. variable PopGov=0). The results are displayed in Figure 10. According to the figure, the predicted vaccine hesitancy on average increases by 0.5 from around 2.2 to 2.7, when moving from a scenario of an individual with no autocratic experience to an individual with autocratic experience in their lifetime. This change in predicted vaccine hesitancy corresponds to an increase of about 0.43 standard deviations.

In conclusion, our empirical analysis provides considerable support for the three hypotheses derived above. We established positive and statistically significant correlations between autocratic experiences and distrust in government, as well as between distrust in government and vaccine hesitancy. Lastly, we also found a positive and statistically significant correlation between



**Figure 10:** Marginal effects: Vaccine uptake and autocratic experience



autocratic experience and vaccine hesitancy. With respect to the substantial relevance of our results, the predicted effects showed a considerable and meaningful size.

#### 5.4 Robustness Checks

Our findings are also robust against alternative operationalizations of the main variables. First, we subdivided the autocratic experience variable into four different cohorts (children, youths, adults, and seniors) with the reference category being people without an autocratic experience. The results are displayed in Table A1. The table reports, as expected, a statistically significant correlation between autocratic experience and vaccine hesitancy for youths and adults. However, the coefficient for the cohort that experienced autocratic rule as children is also statistically significant and only marginally smaller than the one of the other two cohorts. This finding again underscores the previously mentioned long shadow of autocratic rule since value formation only takes place in the later stages of childhood development (Pöge, 2020).

Hence, the correlation suggests that older generations pass down their autocratic experience to younger generations in the form of intergenerational trauma (Connolly, 2011). Interestingly, the coefficient for seniors is negative and statistically significant, indicating a negative correlation with vaccine hesitancy. We can only speculate about the theoretical implications but propose that this is the case because senior citizens have a different threat perception due to their age and, therefore have a higher expected utility from the vaccine. Additionally, a large number of seniors have already been excluded due to their early eligibility to receive the vaccine.

Additionally, we operationalize the autocratic experience variable as the real number of years lived under autocratic rule. Based on the descriptive evidence, we already know that the correlation does not change much after the first 4 years. Nonetheless, the coefficient displayed in Table A2 is positive and statistically significant, indicating a positive relationship between the duration of the autocratic experience and the degree of vaccine hesitancy. Lastly, Table A3 reports the results for the regression analysis of the alternative vaccine hesitancy variable, i.e. the variable that includes the category "I have already been vaccinated". Using this alternative

variable has no effect on the size or statistical significance of the coefficient, as the correlation between autocratic experience and vaccine hesitancy remains positive and statistically significant.

## 6 Conclusion

This article explores the relationship between vaccine hesitancy and individuals' autocratic experience with a focus on individual distrust in governments. This investigation was conducted against the backdrop of understanding the vast variations in vaccination rates between countries. To address this question, we developed a theoretical model of the ways in which autocratic experience shapes individual distrust and ultimately influences vaccine hesitancy. In detail, we argued that the utility function of an individual for vaccine uptake is strongly dependent on information search costs and the probability that the government's vaccine efficacy message is truthful. In evaluating the efficacy of governmental vaccine messaging, considerations regarding the history of a state and its reputation matter greatly for the individual utility function. Arguably, autocratic regimes are more prone to deceiving the public and, on average, to creating a long-lasting spell of distrust towards government messages. From our formal model, we derive three hypotheses: (1) Autocratic experience increases the probability of distrust in the government. (2) Distrust in the government increases the probability of vaccine hesitancy. (3) Autocratic experience increases the probability of vaccine hesitancy.

We tested the empirical implications of our formal model in a sample of 33 developed and developing democratic European countries, using individual-level data from June and July 2021. The main variables of interest are individual vaccine hesitancy, autocratic experience, and distrust in the current government. Based on descriptive evidence, we were able to show that there is considerable variance in vaccine hesitancy between countries. Within the context of autocratic experience, we find a strong relationship between vaccine hesitancy and the number of years an individual has lived under autocratic rule. This relationship is especially pronounced in the first four years of autocratic experience and only marginally increases with additional years. This relationship is in line with considerations that a shorter autocratic experience will not have a substantially lesser impact on an individual than a long one. In addition, we also established that distrust in the current government is stronger in individuals with autocratic experiences and is associated with higher vaccine hesitancy on average. Furthermore, we demonstrated that autocratic experience is associated with distrust in health care, which additionally supports our proposed mechanism. Moving beyond the descriptive evidence, we ran several regression models to test the three hypotheses. The results largely supported our empirical expectations, with the calculated marginal effects indicating a substantial correlation between autocratic experience and predicted vaccine hesitancy.

While our preliminary findings offer valuable insights, additional analysis must be conducted to overcome empirical shortcomings. As a first example, we were only able to capture the relationship between vaccine hesitancy and autocratic experience over two months in the summer of 2021. A more robust analysis could be generated using panel survey data across several weeks of the vaccination rollout. Secondly, a number of variables in our analysis are

correlated with the country level, as an individual's autocratic experience strongly depends on their country of residence. Similarly, a recent autocratic spell is likely to impact the public health infrastructure and quality, possibly also affecting individual distrust in health care and thereby hindering vaccine uptake. Further analysis should, therefore, employ a generalized structural equation model (GSEM) to overcome the outlined issues. Nonetheless, our results provide an understanding of the factors influencing vaccine hesitancy. Comprehending the specific reasons for this reluctance is crucial in understanding the mechanisms that lead to vaccine hesitancy and building trust in government messages in future public health emergencies.

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## Appendix

**Table A1: Autocratic Experience as a Determinant of Vaccine Hesitancy (Age Cohorts)**

VARIABLES	(1) Hesitancy	(2) Hesitancy	(3) Hesitancy	(4) Hesitancy	(5) Hesitancy
Children (0-14)	0.573*** (0.13)	0.553*** (0.12)	0.537*** (0.12)	0.499*** (0.12)	0.447*** (0.12)
Youths (15-24)	0.638*** (0.12)	0.625*** (0.13)	0.584*** (0.12)	0.561*** (0.10)	0.504*** (0.12)
Adults (25-65)	0.676*** (0.13)	0.681*** (0.16)	0.604*** (0.14)	0.597*** (0.11)	0.543*** (0.16)
Seniors (65+)	-1.168*** (0.12)	-1.022*** (0.22)	-1.083*** (0.13)	-1.238*** (0.18)	-1.066*** (0.30)
LifeSatis			0.120*** (0.04)		0.113*** (0.04)
EconWell			-0.094** (0.04)		-0.103** (0.04)
SocialClass			-0.033 (0.03)		-0.015 (0.03)
LeftRight			0.018 (0.02)		0.018 (0.02)
Age		-0.002 (0.00)			-0.001 (0.00)
Woman		0.040 (0.03)			0.038 (0.03)
Education		-0.016** (0.01)			-0.011* (0.01)
VaccAvail				0.234* (0.14)	0.227 (0.14)
PopGov				0.159 (0.18)	0.180 (0.19)
Constant	2.168*** (0.12)	2.549*** (0.17)	2.171*** (0.21)	2.079*** (0.13)	2.335*** (0.30)
Observations	8,974	8,974	8,974	8,974	8,974
R-squared	0.07	0.08	0.09	0.08	0.10

Robust standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A2: Autocratic Experience as a Determinant of Vaccine Hesitancy (Real Duration)**

VARIABLES	(1) Hesitancy	(2) Hesitancy	(3) Hesitancy	(4) Hesitancy	(5) Hesitancy
AutYears	0.018*** (0.00)	0.021*** (0.01)	0.016*** (0.00)	0.015*** (0.00)	0.016*** (0.01)
LifeSatis			0.132*** (0.04)		0.123*** (0.04)
EconWell			-0.105** (0.04)		-0.113** (0.04)
SocialClass			-0.029 (0.03)		-0.009 (0.03)
LeftRight			0.024 (0.02)		0.023 (0.02)
Age		-0.006 (0.00)			-0.005 (0.00)
Woman		0.047 (0.03)			0.041 (0.03)
Education		-0.017** (0.01)			-0.011* (0.01)
VaccAvail				0.282* (0.15)	0.268* (0.15)
PopGov				0.243 (0.20)	0.245 (0.20)
Constant	2.295*** (0.11)	2.841*** (0.21)	2.252*** (0.22)	2.162*** (0.14)	2.499*** (0.36)
Observations	8,999	8,999	8,999	8,999	8,999
R-squared	0.05	0.06	0.07	0.07	0.09

Robust standard errors in parentheses  
 \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table A3: Autocratic Experience as a Determinant of Vaccine Hesitancy (Alt. Hesitancy Coding)**

VARIABLES	(1) HesitancyAlt	(2) HesitancyAlt	(3) HesitancyAlt	(4) HesitancyAlt	(5) HesitancyAlt
AutExp	0.625*** (0.12)	0.594*** (0.13)	0.569*** (0.13)	0.548*** (0.11)	0.476*** (0.13)
LifeSatis			0.125*** (0.04)		0.116*** (0.04)
EconWell			-0.092** (0.04)		-0.102** (0.04)
SocialClass			-0.035 (0.03)		-0.017 (0.03)
LeftRight			0.018 (0.02)		0.018 (0.02)
Age		0.000 (0.00)			-0.000 (0.00)
Woman		0.039 (0.03)			0.037 (0.03)
Education		-0.016** (0.01)			-0.011* (0.01)
VaccAvail				0.232 (0.14)	0.223 (0.14)
PopGov				0.160 (0.18)	0.185 (0.19)
Constant	3.168*** (0.12)	3.484*** (0.18)	3.164*** (0.21)	3.080*** (0.14)	3.282*** (0.30)
Observations	8,999	8,999	8,999	8,999	8,999
R-squared	0.07	0.08	0.09	0.08	0.10

Robust standard errors in parentheses  
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1