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The Impact of Corona Populism: Empirical Evidence from Austria and Theory

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Abstract

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Keywords: pandemic, covid-19, sars-cov2, heterogeneous mixing, sir model, economic epidemiology, political polarization

JEL-Codes: H12, H75, I12, I18

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I study the impact of opposition politics aimed at downplaying the threat of Covid-19. Exploiting a policy U-turn of a major Austrian right-wing party (FPÖ), I first show that beliefs regarding the health risks of Covid-19 of FPÖ voters vs. others diverged after the turn using a difference-in-differences approach. Using aggregate-level data, I study whether weekly Covid-19 deaths per capita are significantly positively correlated with support for the FPÖ on the regional level. By linking aggregate- and individual-level data, I show that imputed regional beliefs about the economic and health impact of Covid-19 have a significant effect on cases and deaths per capita. Paradoxically, the FPÖ vote share is significantly positively correlated with deaths per capita after the turn, but not with the reported number of infections. I hypothesize that this can be traced back to a self-selection bias in testing, which causes a correlation between the number of "corona skeptics" and the share of unreported cases after the turn. I find empirical support for this hypothesis in individual-level data from a Covid-19 prevalence study that involves information about participants' true vs. reported infection status. I finally study a simple heterogeneous mixing epidemiological model and show that a testing bias can indeed explain the apparent paradox of an increase in deaths without an increase in reported cases.

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1 Introduction

Following Acemoglu et al. (2013) and applying it to the case of the corona pandemic, populism can be defined as an anti-elitist view that receives significant support, but ultimately has adverse effects for the majority of the population.[1] Situations in which costs are mainly external and/or difficult to comprehend seem to be particularly susceptible to such populism. This is neither news for scholars who study views on (policies against) climate change, nor for epidemiologists who witness seemingly ever-growing doubt against vaccines, e.g. in the case of the measles.

The Covid-19 pandemic, however, has put a spotlight on these views as an imminent danger for society, as health care systems around the world had been brought to the brink of collapse. In such a situation, governments must rely on compliance with containment efforts, as well as more or less on voluntary social distancing. Corona populism is, more succinctly, politics aimed at downplaying the threat of COVID-19.

If the level of support for such populist views is too high, a democracy has difficulties to implement policies that internalize these externalities effectively – witness the yellow vest protests against the carbon tax in France and, e.g., the protests of "Querdenken" against Covid-19 containment policies in Germany (Lange and Monscheuer 2021). Unfortunately, relying on individual responsibility to reduce the level of negative externalities seems to be particularly hopeless in such situations. As the dangers caused by corona populism grew apparent, it has received scholarly attention across scientific disciplines (Alashoor et al. 2020; Brubaker 2020; Eberl et al. 2021; Lasco 2020; Pevehouse 2020).

We can hypothesize that a) supporters of political parties which adopted corona populism are more likely to underestimate the threat posed by COVID-19, as experimental evidence suggests that voters are more likely to adhere to the policy stance of their own party (Grewenig et al. 2020), a view that has been long supported by political scientists (e.g. Campbell et al. 1960; Kam 2005; Bechtel et al. 2015)[2] and b) that these beliefs translate into

[1] While I find this concise definition to be most useful for my purpose, it is certainly not the only correct or useful definition, see e.g. Hawkins and Rovira Kaltwasser (2018) for a more nuanced definition of populism.
[2] Adding to this literature, Aaroe (2012) finds that citizens are less likely to adhere to a policy stance advocated by a party that they do not like.

behavioral differences between supporters of corona populist parties and the rest of the population, i.e. lower compliance with containment measures and less social distancing as shown by e.g. Allcott et al. (2020) for the American case. If this is true, the support for corona populist parties in a given community can help to predict the size of its COVID-19 outbreak.

In this paper, I study whether the policy stance of the Austrian right-wing populist freedom party (FPÖ) had an effect on the regional differentiation of the pandemic in Austria with regard to the FPÖ vote share. The FPÖ was the first political party to demand that the Austrian government should take drastic measures against COVID-19 (APA OTS 2020a). By the end of April, however, the FPÖ made a U-turn and demanded to "end the Corona madness" (APA OTS 2020b) by which they meant the containment measures taken by the government. In the end of November 2020, one representative of the party even went so far as to advise people not to participate in a mass testing program announced by the Austrian government to be held before Christmas because testing positive would mean that you would have to spend Christmas home alone (APA OTS 2020c). On January 31st 2021, three MPs of the FPÖ participated at a banned demonstration against the lockdown (APA OTS 2021a). Later on, leading FPÖ politicians argued against the introduction of the "green pass" (APA OTS 2021b), as well as against vaccinating teenagers (APA OTS 2021c) and against compulsory vaccinations (APA OTS 2021d).

The case of the FPÖ is particularly interesting for two reasons: First, the party, its predecessor VdU and various splinter groups have won seats in every parliamentary election since 1949, when most former members of the Nazi party were allowed to vote again, and participated in five coalition governments. It has thus a longer and more stable tradition than other right-wing parties in Europe. At the same time, the party could never hope to achieve a majority in parliament on its own and it is thus not as established as the Republican party of the US. Second, its clear policy stance subject to a U-turn at the end of the first wave of infections is a natural experiment that allows for a prime opportunity to identify the effects of partisan policy specifically compared to confounding factors that are merely correlated with partisan support.

Previous research on the effects of political polarization and populism on beliefs, behavior, and public health outcomes during the pandemic has mainly concentrated on the US. Allcott et al. (2020) show using mobile phone data on the county level that democratic counties exercise more social distancing (also confirmed by, e.g., Baradaran Motie and Biolsi 2021), but also record more cases and deaths per capita than republican counties. Controlling for a large number of covariates, Gollwitzer et al. (2020) however find that Trump-leaning counties do not only exercise less social distancing, but that this is also linked to higher growth rates in the number of cases and fatalities.

Allcott et al. (2020) also confirm that individual beliefs about the severity of Covid-19 are linked to self-reported social distancing using data from an online survey with US participants. Further investigating what drives these differences, Fan et al. (2020) document that there are partisan differences in social distancing behavior and beliefs, which also depend on differences in news consumption using data from an online survey. Wu and Huber (2021) use a regression analysis of survey data to show that partisan differences in self-reported social distancing disappear once they control for beliefs and social norms.

Bisbee and Lee (2020) show that Republican-leaning counties were more likely to practice social distancing when Trump emphasized the risks of Covid-19 on his Twitter profile. As seen in their analysis, however, Trump sent at best a mixed message about the severity of Covid-19, making causal analysis difficult.

Research on other countries than the US is sparser. Barbieri and Bonini (2021) show that a higher vote share for the Italian right-wing party Lega is associated with lower social distancing using regional mobility data. Like Trump's course, the Lega's policy was characterized by a zig-zag course: first downplaying the pandemic, then agreeing to a lockdown, followed by a call for a fast re-opening. In February 2021, the party entered into a "national unity" coalition government. Eberl et al. (2021) show that "populist" attitudes – which they define as being anti-elitist, people-centered and having a "Manichean outlook" (following Hawkins and Rovira Kaltwasser 2018) – are positively correlated with Covid-19 conspiracy theories in Austria using data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021). Eberl et al. (2021) emphasize, however, that such views are to be found everywhere in the left-right spectrum and not tied to voters of the FPÖ specifically. Charron et al. (2022) show that excess mortality is higher in European regions where elite polarization is stronger in the dimension of European integration, which they argue proxies the strength of populism.

With this paper, I aim to contribute to our understanding of human behavior in the spread of infectious diseases. My research is mainly related to two strands of the scientific literature:

First, I contribute to the empirical research about the effects of politics on behavioral responses to the pandemic (e.g. Allcott et al. 2020; Fan et al. 2020; Gollwitzer et al. 2020; Milosh et al. 2021), which is dealt with in a part of a broader body of literature on the causes and effects of behavioral differences in the pandemic (e.g. Bai and Brauer 2021; Barrios et al. 2020; Brzezinski et al. 2020; Bursztyn et al. 2020; Chernozhukov et al. 2020; Jung et al. 2020; Papageorge et al. 2020; Wright et al. 2020).

I add to this literature by a) exploiting a clear policy U-turn of an opposition party that helps to identify the effects of partisan policy in contrast to other factors that are merely correlated with support for populist parties. My analysis suggests that the turn had an impact on the micro-level (i.e. beliefs of FPÖ voters vs. non-FPÖ voters), as well as on the meso-level (infections and deaths in districts with a high FPÖ vote share vs. low FPÖ vote share) with likely implications on the macro-level.

I further add to this literature by b) linking individual-level data on beliefs with district-level data on infections and deaths using demographic characteristics of the respondents and the districts. My analysis is complementary to individual-level evidence on the role of beliefs and self-reported social distancing (Allcott et al. 2020; Fan et al. 2020; Wu and Huber 2021) and shows that imputed beliefs regarding the health and economic impact of Covid-19 have a significant impact on the distribution of cases and deaths per capita. More precisely, beliefs in a high health risk are associated with a lower number of cases, whereas beliefs in high risks to the economy are associated with a higher number of cases and deaths per capita. I argue that this relationship has been fostered by framing containment policy as a trade-off between economy and public health. Hence, people who are particularly concerned about the economy may be more skeptical about containment policies.

Finally, I add to the empirical literature by c) showing that “corona skepticism” is significantly correlated with the share of undetected cases, i.e. the dark figure, in Austria using an individual-level data source that includes information about policy views and true infection status determined by highly specific tests. This result suggests that estimates regarding the true number of infections (in contrast to the reported number of infections) must be corrected for political factors. This in particular has important implications on policy that uses a “traffic light” approach to regionally vary containment stringency based on data on reported infections as it has been in use, e.g., in Austria and Germany.

The second strand of the literature that I aim to contribute to is concerned with understanding the implications of heterogeneous mixing and heterogeneous behavior on the evolution of the pandemic in a theoretical framework (e.g. Acemoglu et al. 2021; Britton et al. 2020; Ellison 2020; Bursztyn et al. 2020) building on the classical SIR-framework (Kermack and McKendrick 1927). Another stream of literature studying heterogeneous mixing considers agent-based and network models (e.g. Basurto et al. 2021; Delli Gatti and Reissl 2022; Mellacher 2020).

My stylized model is populated with two types of agents who behave differently: the corona skeptics and the majority. Corona skeptics are less inclined to get tested once they develop symptoms than the majority, may practice less social distancing, and mixing between the two types of agents may be more or less homophilic, i.e. corona skeptics may be more likely to interact with other corona skeptics than with the majority or not. I add to this literature by a) demonstrating that such a model can explain the Austrian pattern, and b) exploring the implications of behavioral differences, group sizes, and the degree of homophily on public health outcomes of the two groups, as well as the total population, where several factors prove to exert a nonlinear influence. My results suggest that heterogeneity in testing indeed has crucial implications on the spread of a virus.

The next section discusses the Austrian empirics, i.e. focuses on the first contribution. The third section is devoted to the extended SIRD model and its implications, i.e. the second contribution. The fourth section concludes.

2 Empirics

This section is split in three parts. In the first part, I use panel survey data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021) to investigate the impact of the policy turn on the beliefs of FPÖ voters regarding the danger posed by Covid-19 vis-à-vis non-FPÖ voters using a difference-in-differences approach. In the second part, I use aggregate-level administrative data on infections and deaths to investigate the impact of the turn on the regional differentiation of the pandemic in Austria. Finally, I use data from the Austrian Covid-19 prevalence study conducted in November 2020 to study the reported and true infection status of “corona skeptics” and non-skeptics. This data source includes information about the true and reported infection status, as well as information about the reported policy stance towards government policy, hence allowing me to connect beliefs with epidemiological characteristics on an individual level.

2.1.1 Individual-level panel survey evidence: Data & Method

In this subsection, I use data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021) to explore how the policy switch affected individual beliefs of people who responded that they voted for the FPÖ (the treatment group) versus people who responded that they are enfranchised, but did not vote for the FPÖ (the control group). This data source includes information about partisan affiliation, demographic factors and a wide array of questions on beliefs and perceptions from, hence providing a comprehensive overview of the evolution of beliefs on the Covid-19 pandemic in Austria. While the panel is not balanced, i.e. not every respondent participated in every survey "wave", new respondents are filled in to match the demographic and political characteristics of those who have to be replaced. Every wave includes approximately 1500 survey respondents. In my analysis, I use data from waves 1-28, omitting wave 5, as it was conducted during the policy switch of the FPÖ on the 27th of April 2020.

I focus on five survey questions that are initially coded as five-point Likert scales. These questions focus on the appropriateness of current government containment policies, as well as about the perceptions about the danger that Covid-19 poses to the private and public health and economic situation. The same questions were asked in every wave analyzed. I recoded the Likert scales to create 10 dummy variables which are 1 for initial values for 1,2 (such as low public health danger) or 4,5 (such as high danger to personal economic situation). This recoding exercise helps to a) account for potential different behavior at the lower and upper end of the distribution, and b) facilitate the statistical analysis with the help of probit regressions.

Figure 1 shows the evolution of beliefs of declared FPÖ voters (respondents who declared that they voted for the FPÖ in the last national elections) vs. non-FPÖ voters (all other respondents) according to this data, omitting one wave that was conducted during the FPÖ policy switch.

A quick graphical analysis suggests that health perceptions were closely aligned between the two groups before the switch, but diverged after the policy switch in the sense that FPÖ voters were more likely to believe that Covid-19 poses i) a low danger to public health and ii) own personal health. Furthermore, FPÖ voters seemed to have been less likely to believe that it poses a high danger only after the policy switch.

On the other hand, there are pre-existing differences between the two groups with regard to their beliefs about the economic impact of the crisis and their policy views. FPÖ voters seemed to have been more likely to believe in a stronger impact on the personal economic situation (and less likely in a weaker impact) even before the policy switch and these differences persists after the switch. Curiously, FPÖ voters have been more likely to oppose government policy on Covid-19 in both directions, i.e. they were more likely to believe that government action against Covid-19 is exaggerated *and* that it was too lax than other survey respondents. However, the policy switch seemed to have had a coordinating effect in this matter, as the support among FPÖ voters for the view that the measures are exaggerated increased drastically after the switch, while the support for the opposing view diminished to a point where FPÖ voters were less likely to hold that view than the rest of the population.

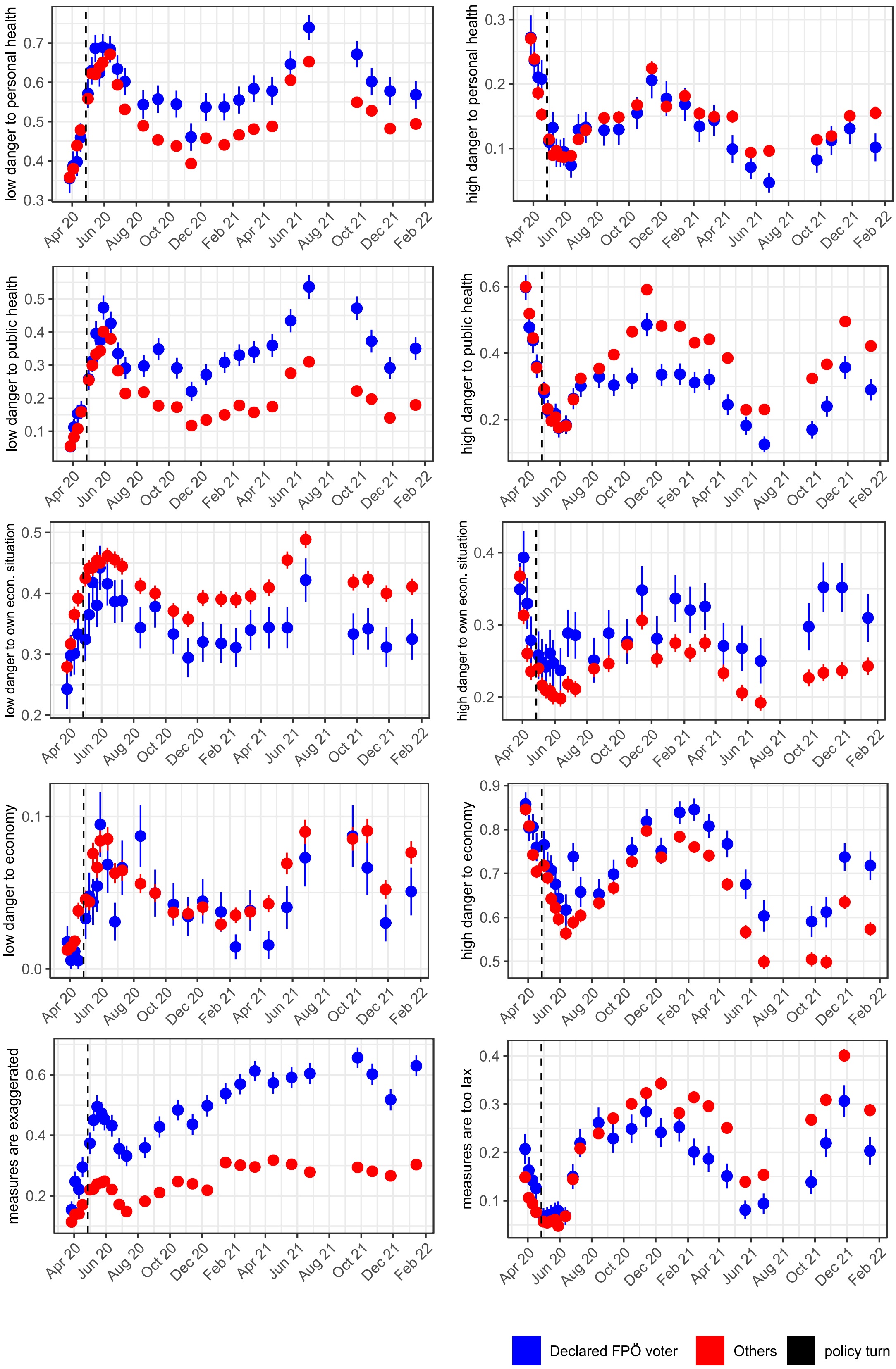

Figure 1: The evolution of beliefs of FPÖ voters vs. non-FPÖ voters based on data from the Austrian Corona Panel Project (Kittel et al. 2021)

I then proceed to an econometric analysis based on a difference-in-differences approach using probit regressions and controlling for potentially confounding factors such as age and gender. More precisely, I estimate the following model:

Where is the respective (binary) dependent variable, is the intercept, is a vector of (dummy) control variables, a dummy variable which is 0 for survey participants who declared to have voted for the FPÖ at the last national elections, a dummy variable for policy switch, which is 0 before the 27th of April (i.e. waves 1-4) and 1 afterwards, is another vector of (dummy) control variables, which accounts for potential differential impact of socio-demographic variables before and after the policy switch (i.e. potential endogeneity, because the demographic characteristics are themselves correlated with support for the FPÖ), are time (=wave) fixed effects and is an error term. I am particularly interested in the coefficient , as it aims to evaluate whether the policy switch had an effect on the beliefs of FPÖ voters vis-à-vis non-FPÖ voters in a particular dimension.

Table 1 shows the first series of regression results regarding beliefs about government policy using different models. All regressions were conducted with the fixest package (Bergé 2018) for the programming language R (R Core Team 2020). The regression tables were prepared with the modelsummary package (Arel-Bundock 2022a). The standard errors are clustered for waves and respondents.

Simple and more sophisticated specifications agree with the graphical intuition on the following main insights: First, before the policy switch, declared FPÖ voters were both more likely to believe that government action against Covid-19 is exaggerated *and* that government action is too lax. Hence, beliefs about whether government action is appropriate were more polarized than those of respondents who were not declared FPÖ voters. Second, the switch seemed to have put an end to the disagreement among FPÖ-voters about *why* government policy should be opposed: On the one hand, the difference in the share of FPÖ voters vs. non-FPÖ voters who believed that government response against Covid-19 is exaggerated increased significantly after the switch. On the other hand, the support for the view that government policy is too lax after the switch among FPÖ voters declined up to a point where they were less likely to hold that view than the rest of the population.[3] Hence, the policy U-turn reduced the level of polarization regarding the appropriate level of containment policies among FPÖ voters.

Models (1) and (6) are specified in a very simple way by excluding any additional control variables. Models (2) and (7) include gender-, age- and education-specific dummy variables that show that: First, men were more likely to think that the containment strategy is exaggerated, but that the difference between men and women became smaller after the policy switch. This effect could be driven by gender differences in risk perceptions (Gustafsod 1998) and in the willingness to take risks (Charness and Gneezy 2012).

Second, young people below the age of 25, as well as (only after the switch) people above the age of 64 were less likely to think that government policy is exaggerated than the reference group (i.e. those between 25 and 64). Furthermore, people above 64 were less likely to think that the government response is too lax before the switch, but this age-specific effect reversed after the switch. This result may be driven by the different nature of the infection waves in Austria. As I will show in the next subsection, only very few people died during the first wave of infections (i.e. before the policy switch), which was rather well-contained whereas the second wave in autumn of 2020 was particularly deadly. Hence, the experience with a less-contained spread of the virus may have caused men and people who are at risk due to their age to realize the necessity for (some) virus containment policies. The result that the youth has been less critical about government policy is at first glance counterintuitive, as they are at least risk from Covid-19. However, previous research from has shown that pro-social motives are more powerful in encouraging social distancing behavior than personal ones (Jordan et al. 2021). Hence, young people may be more inclined to comply with social distancing, as they are convinced that they are staying at home for others.

Finally, education matters: University graduates were overall less critical towards government policy than the reference group (i.e. people who finished at maximum compulsory education), although the share of university graduates who believed that government response is too lax increased significantly after the policy switch relative to the reference group. Furthermore,

[3] Due to the opposite signs of the coefficients, I computed the conditional marginal effect with the marginaleffects package (Arel-Bundock 2022b) for R in order to verify this statement.

people who completed at most an apprenticeship were less likely to believe that government policy is exaggerated before the switch, but more likely to do so after the switch. Education is a proxy for two different factors: First, their type of job may influence their exposure to the virus and the crisis both with regard to health and the economy (i.e. more or less "rational" factors which may be counteractive). Second, a higher level of education was shown by Eberl et al. (2021) to decrease the level of science skepticism and the belief in conspiracy theories (i.e. "irrational" factors).

Finally, models (3), (4), (7) and (8) incorporate the beliefs about the danger that Covid-19 poses to personal and public health, as well as to the own economic situation and the economy as a whole. Expectedly, respondents who believe that Covid-19 poses a high risk to personal or public health are more likely to believe that government policy is too lax. Conversely, beliefs in low health risks are associated with the belief that government response is exaggerated. The opposite relationship can be observed for respondents who believe that Covid-19 poses a high danger to their personal economic situation or to the economy as a whole, as they were more likely to think that the government response was exaggerated and, in the case of the belief in a high danger to the economy, less likely to think that it was too lax. The opposite is true for respondents who believe that Covid-19 poses a low danger to their personal economic situation. This result may be explained by the fact the public and scholarly discourse often portrays containment policy as a trade-off between economic and public health outcomes (e.g. Mendoza et al. 2020), even though this view has not been shared unanimously among the scientific community (e.g. Bethune and Korinek 2020). Hence, people who fear the economic fallout of the Covid-19 crisis in particular may be more inclined to be skeptical about containment policies.

Table 1: Opinion on government policy

	Government response is exaggerated				**Government response is too lax**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.338***	0.299***	0.287***	0.285***	0.254***	0.228**	0.250***	0.272***
	(0.076)	(0.074)	(0.072)	(0.076)	(0.072)	(0.076)	(0.075)	(0.077)
FPÖ voter x Policy switch	0.339***	0.350***	0.289***	0.319***	-0.415***	-0.378***	-0.312***	-0.357***
	(0.070)	(0.069)	(0.070)	(0.070)	(0.081)	(0.083)	(0.079)	(0.081)
Male		0.275***	0.200***	0.210***		0.031	0.081	0.116*
		(0.048)	(0.046)	(0.053)		(0.055)	(0.054)	(0.054)
Male x Policy switch		-0.165***	-0.164***	-0.120**		0.011	0.026	-0.004

Table 1: Opinion on government policy

	Government response is exaggerated				**Government response is too lax**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
		(0.037)	(0.035)	(0.043)		(0.053)	(0.052)	(0.052)
Below the age of 25		-0.165	-0.254**	-0.169		-0.013	0.072	0.090
		(0.093)	(0.097)	(0.094)		(0.102)	(0.102)	(0.107)
Below the age of 25 x Policy switch		-0.019	0.112	0.031		0.033	-0.045	-0.061
		(0.078)	(0.086)	(0.082)		(0.098)	(0.098)	(0.104)
Above the age of 64		-0.018	0.118	0.078		-0.156*	-0.195**	-0.232**
		(0.069)	(0.068)	(0.065)		(0.071)	(0.071)	(0.073)
Above the age of 64 x Policy switch		-0.227***	-0.257***	-0.241***		0.298***	0.326***	0.346***
		(0.050)	(0.057)	(0.043)		(0.064)	(0.064)	(0.065)
Highest education: Apprenticeship		-0.120	-0.145	-0.132		-0.012	-0.025	-0.017
		(0.099)	(0.093)	(0.099)		(0.086)	(0.091)	(0.097)
Highest education: Apprenticeship x Policy switch		0.197*	0.250**	0.196*		-0.030	-0.037	-0.032
		(0.082)	(0.083)	(0.087)		(0.076)	(0.085)	(0.089)
Highest education: Secondary education		-0.007	-0.038	-0.042		-0.083	-0.079	-0.056
		(0.099)	(0.105)	(0.105)		(0.105)	(0.107)	(0.115)
Highest education: Secondary education x Policy switch		0.030	0.015	0.030		0.145	0.154	0.139
		(0.081)	(0.094)	(0.093)		(0.096)	(0.101)	(0.109)
Highest education: University degree		-0.040	-0.122	-0.129		-0.214	-0.182	-0.119
		(0.102)	(0.104)	(0.099)		(0.124)	(0.133)	(0.132)
Highest education: University degree x Policy switch		-0.001	0.077	0.031		0.285*	0.260*	0.244
		(0.078)	(0.087)	(0.079)		(0.118)	(0.128)	(0.126)
Covid poses a low danger to personal health			0.483***				-0.349***	
			(0.042)				(0.032)	

Table 1: Opinion on government policy

	Government response is exaggerated				**Government response is too lax**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
Covid poses a low danger to public health			1.172***				-0.785***	
			(0.055)				(0.067)	
Covid poses a low danger to personal economic situation			-0.376***				0.064	
			(0.034)				(0.036)	
Covid poses a low danger to economy			-0.051				0.032	
			(0.055)				(0.069)	
Covid poses a high danger to personal health				-0.385***				0.360***
				(0.059)				(0.042)
Covid poses a high danger to public health				-1.152***				0.762***
				(0.048)				(0.044)
Covid poses a high danger to personal economic situation				0.342***				-0.015
				(0.038)				(0.037)
Covid poses a high danger to economy				0.355***				-0.100**
				(0.039)				(0.031)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.046	0.053	0.211	0.171	0.075	0.078	0.131	0.156
AIC	45215.1	44880.4	37421.8	39327.1	37344.1	37275.2	35123.7	34131.5
BIC	45465.2	45234.0	37809.9	39715.1	37594.1	37628.7	35511.7	34519.6
Log.Lik.	-22578.553	-22399.215	-18665.923	-19618.550	-18643.038	-18596.581	-17516.844	-17020.775
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

In table 2, I show probit regressions with different dependent variables, namely beliefs connected to a low danger to health and economy. The simple model (1), as well as the model involving socio-demographic control variables (2) agree that FPÖ voters did not differ significantly from non-FPÖ voters with regard to the belief that Covid-19 poses a low danger to personal health before the policy switch. After the switch, however, FPÖ voters were more likely to adhere to this belief.

Both the simple model (3) and the model (4) controlling for socio-demographic characteristics agree that FPÖ voters did not significantly differ from others in their belief that Covid-19 poses little danger to public health. Again, FPÖ voters are more likely to hold that belief after the switch in both models.

Models (5) and (6) show that FPÖ voters have been less likely to believe that Covid-19 poses little danger to their personal economic situation even before the switch and suggest that the policy switch did not have an impact in this regard. Finally, models (7) and (8) suggest that FPÖ voters did not differ with regard to the belief that Covid poses a low danger to the economy as a whole before or after the switch.

Men were more likely to believe that Covid poses a low danger in all dimensions, whereas young people were more likely to believe in a low personal danger. Curiously, respondents above the age of 64 were more likely to believe that Covid-19 poses little danger to them personally after the switch than the reference group (i.e. people aged 25-64). This counterintuitive effect may stem from three causes: 1.) this group is usually retired and hence arguable more able to practice social distancing, 2.) it had sooner access to vaccines[4], 3.) potential psychological reasons such as denial. People above the retirement age were also more likely to believe that Covid hat little impact on their personal economic situation, most probably because they are almost all of them are retired and believed that the crisis would not have an impact on their pensions.

[4] A more detailed analysis shows that people aged above 64 believed in low personal risks in the summer of 2020, i.e. when the incidence was low, as well as after every person in this group had the chance to become vaccinated (i.e. from the summer of 2021), but not during the deadly autumn and winter of 2020.

Finally, university graduates were more likely to believe in a low danger to personal health than the reference group before the switch, but the differences disappeared afterwards. The initial effect may be driven by the differing teleworking capabilities.

Table 2: Low danger

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	-0.084	-0.004	0.085	0.055	-0.133*	-0.121	-0.337	-0.339
	(0.069)	(0.073)	(0.091)	(0.088)	(0.065)	(0.065)	(0.185)	(0.195)
FPÖ voter x Policy switch	0.243***	0.165**	0.271**	0.283**	-0.035	-0.060	0.247	0.241
	(0.056)	(0.060)	(0.089)	(0.088)	(0.045)	(0.048)	(0.190)	(0.199)
Male		0.215***		0.310***		0.134**		0.211*
		(0.041)		(0.059)		(0.043)		(0.087)
Male x Policy switch		-0.043		-0.066		0.066*		0.015
		(0.035)		(0.054)		(0.033)		(0.088)
Below the age of 25		0.600***		-0.077		0.175**		-0.002
		(0.090)		(0.087)		(0.065)		(0.127)
Above the age of 64		-0.169**		-0.132		0.359***		-0.260
		(0.059)		(0.074)		(0.055)		(0.169)
Above the age of 64 x Policy switch		0.297***		-0.102		0.116**		0.023
		(0.054)		(0.055)		(0.040)		(0.179)
Highest education: Apprenticeship		-0.035		-0.051		-0.113		-0.104
		(0.075)		(0.110)		(0.068)		(0.125)
Highest education: Apprenticeship x Policy switch		-0.004		0.008		0.005		0.061
		(0.068)		(0.098)		(0.051)		(0.115)
Highest education: Secondary education		0.082		0.048		0.051		0.001
		(0.092)		(0.098)		(0.072)		(0.173)
Highest education: Secondary education x Policy switch		-0.050		0.017		-0.097		-0.038
		(0.087)		(0.085)		(0.054)		(0.163)
Highest education:		0.224**		0.086		0.085		-0.046

Table 2: Low danger

	Covid poses a low danger to personal health		**Covid poses a low danger to public health**		**Covid poses a low danger to personal economic situation**		**Covid poses a low danger to economy**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
University degree								
		(0.086)		(0.110)		(0.080)		(0.136)
Highest education: University degree x Policy switch		-0.184*		-0.076		0.016		-0.052
		(0.077)		(0.098)		(0.058)		(0.125)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.025	0.033	0.051	0.063	0.008	0.025	0.028	0.042
AIC	55497.8	55021.2	41549.7	41053.0	54918.0	53976.7	16317.0	16108.0
BIC	55765.1	55392.0	41817.0	41423.8	55185.3	54347.4	16584.3	16478.8
Log.Lik.	-27717.875	-27467.623	-20743.860	-20483.498	-27428.005	-26945.328	-8127.480	-8011.021
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Finally, table 3 computes regressions regarding the beliefs that Covid-19 poses a high danger to health or economy. Again, FPÖ voters did not differ regarding their health perceptions before the switch. While only the simple model (1) suggests that the policy switch caused FPÖ voters to believe less likely in a high danger to *personal* health, both models (3) and (4) suggest that this is the case for the high danger to *public* health. While FPÖ voters did not significantly differ with regard to their beliefs in a high danger to their personal economic situation (see models 5 and 6), they have been more likely to believe that Covid poses a high danger to the economy as a whole throughout the observation period (see models 7 and 8). The results regarding gender, age and education mostly mirror the results from table 2.

Table 3: High danger

	Covid poses a high danger to personal health		**Covid poses a high danger to public health**		**Covid poses a high danger to personal economic situation**		**Covid poses a high danger to economy**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.119	0.016	0.004	0.022	0.141	0.086	0.147*	0.155*
	(0.081)	(0.088)	(0.062)	(0.062)	(0.081)	(0.082)	(0.067)	(0.068)
FPÖ voter x Policy switch	-0.158*	-0.073	-0.220***	-0.226***	0.024	0.078	0.026	0.032
	(0.074)	(0.079)	(0.062)	(0.063)	(0.070)	(0.074)	(0.060)	(0.060)
Male		-0.093*		-0.288***		-0.028		-0.181**
		(0.046)		(0.057)		(0.039)		(0.055)
Male x Policy switch		-0.008		0.075		-0.085**		-0.074
		(0.040)		(0.054)		(0.030)		(0.049)
Below the age of 25		-0.625***		0.002		-0.360***		-0.023
		(0.092)		(0.060)		(0.068)		(0.062)
Above the age of 64		0.315***		0.081		-0.354***		0.183***
		(0.069)		(0.059)		(0.066)		(0.045)
Above the age of 64 x Policy switch		-0.335***		0.067		-0.103		-0.159***
		(0.069)		(0.054)		(0.057)		(0.043)
Highest education: Apprenticeship		0.042		0.043		0.095		0.110
		(0.079)		(0.082)		(0.076)		(0.081)
Highest education: Apprenticeship x Policy switch		-0.083		0.015		0.052		0.068
		(0.071)		(0.079)		(0.061)		(0.071)
Highest education: Secondary education		-0.123		-0.051		-0.117		0.058
		(0.090)		(0.081)		(0.091)		(0.094)
Highest education: Secondary education x Policy switch		0.052		0.052		0.194*		0.068
		(0.083)		(0.077)		(0.078)		(0.085)
Highest education: University degree		-0.431***		-0.132		-0.068		0.039
		(0.107)		(0.082)		(0.084)		(0.079)
Highest education: University		0.259*		0.056		0.085		0.050

Table 3: High danger

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
degree x Policy switch								
		(0.110)		(0.079)		(0.065)		(0.060)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.023	0.034	0.050	0.058	0.008	0.022	0.030	0.039
AIC	32964.9	32629.1	50967.3	50550.3	45927.3	45292.4	50411.5	49995.3
BIC	33232.2	32999.9	51234.6	50921.1	46194.6	45663.1	50678.8	50366.0
Log.Lik.	-16451.464	-16271.564	-25452.643	-25232.157	-22932.658	-22603.185	-25174.756	-24954.635
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

2.1.2 Individual-level panel survey evidence: robustness checks

Appendix A explores whether these results change if we introduce declared voting intentions for other parties or being a declared non- or invalid voter as control variables. This is helpful for two reasons: First, by including another party, the reference group against which the FPÖ voters are compared changes. For instance, if we include ÖVP (the major conservative governmental party) voter as an additional control variable, the FPÖ voters are compared with survey respondents who are neither declared FPÖ voters, nor declared ÖVP voters. Second, this analysis can help to uncover whether the results for the FPÖ are mirrored by another party.

My main results are robust in each model. My analysis suggests that the policy switch:

1.) Increased the likelihood that FPÖ voters believed that government response against Covid-19 is exaggerated. This is not true for any other party.
2.) Reduced the likelihood that FPÖ voters believed that government response against Covid-19 is too lax. This is not true for any other party.

3.) Increased the likelihood that FPÖ voters believed that Covid-19 poses a low danger to their personal health after the policy switch. This is also true for SPÖ (the social democratic party) voters, although it is important to note that SPÖ voters are the only political group that have been less likely to believe in a low danger to their personal health before the policy switch. Thus, the reduction for SPÖ voters represented a move to the mean belief, whereas the reduction for FPÖ voters represented a move away from the mean belief.
4.) Increased the likelihood that FPÖ voters believed that Covid-19 poses a low danger to public health after the policy switch. This is not true for any other party.
5.) Reduced the likelihood that FPÖ voters believed that Covid-19 poses a high danger to public health after the policy switch. This is also true for SPÖ voters – but again, SPÖ voters are the only political group that had been significantly more likely to hold this belief before the switch. Hence, this effect could also be driven by a regression to the mean belief.

2.1.3 Individual-level panel survey evidence: Summary

My difference-in-differences analysis of the panel survey data from the Austrian Corona Panel Project (ACPP) (Kittel et al. 2020, 2021) suggests that the FPÖ policy switch affected the beliefs of FPÖ voters vis-à-vis others with regard to i) health perceptions, and ii) policy views, but did not significantly affect their perceptions regarding the economic consequences of the crisis which also play a role in explaining policy views.

My main analysis relies on probit regressions that control for time fixed effects and various socio-demographic factors (age, gender, education) and allows the control variables to have a changing effect that over time suggests that the policy switch affected the beliefs and perceptions of FPÖ voters vs. non-FPÖ voters regarding health risks and government policy.

2.2.1 Aggregate-level evidence: Data & Method

In my second study, I investigate, whether the policy stance of the FPÖ had an effect on the regional differentiation of the evolution of the pandemic in Austria. In order to do so, I draw on district-level data on the number of infections and deaths, which are available for a daily basis (BMSGPK 2022a). Studying county-level data is a standard approach followed by e.g. Allcott et al. (2020), Fan et al. (2020) and Gollwitzer et al. (2020) to study the impact of polarization on the spread of the virus in the US and districts are the Austrian counterpart for counties.

To get a first graphical intuition of the evolution of the pandemic in communities with a low or a high FPÖ vote share, I split the time series dataset into two groups, one for districts with a FPÖ vote share below or equal to and one above the median share of this party. Figure 1 shows the mean and standard deviation of the cumulated number of infections per 1,000 inhabitants and deaths per 100,000 inhabitants over time. This exercise suggests that districts, in which the FPÖ fared relatively well at the last national elections received slightly lower damage in the first wave of infections, reporting lower numbers of cases and deaths. In the second infection wave starting in autumn 2020, however, the cumulated death toll in these districts surpasses the total number of deaths in the other districts, indicating that the second wave hit districts with a high FPÖ vote share much harder. The differences between the two groups then seem to be stable until the autumn of 2021, when the “Delta” variant hit Austria. However, we do not observe the same clear trend in the cumulative number of reported cases per capita, as districts with a low FPÖ vote share continued to have a higher number of cumulative cases until the beginning of 2021, when there was already a clear difference with regard to mortality (see fig. 1). Even afterwards, districts with a high FPÖ vote share only had a small and potentially not statistically significant edge in terms of infections.

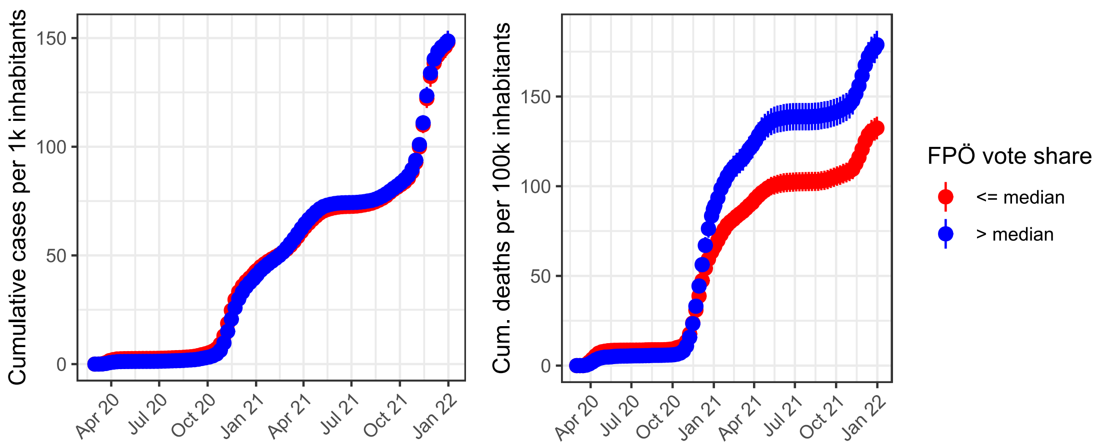

Figure 2: Cumulative cases per 1k inhabitants (left) and cumulative deaths per 100k inhabitants (right).

While the result regarding the number of deaths would indeed suggest that the FPÖ U-turn had an impact on the regional differentiation of the pandemic, the result regarding the number of cases is counterintuitive: after all, nobody can die from Covid-19 without contracting it. I develop an explanation for this phenomenon subsequently.

In order to confirm whether this graphical intuition is also statistically significant, especially when considering district-specific characteristics which may drive this pattern such as, e.g., the age structure of the population, I then turned to panel regression analysis.

In order to do so, I first create a balanced panel data set of weekly data on infections and deaths based on the daily data. The FPÖ campaign against the containment measures started on the 27th of April 2020, i.e. calendar week 18. I thus created a dummy variable which is 1 beginning with the 18th calendar week of 2020 and 0 before.[5] The data analyzed in this paper range until 31st of December 2021, which corresponds to the end of the infection wave surrounding the "Delta" variant.

I then merged the dataset on infections and deaths with data on the results of the last national elections (2019) on the district level as a proxy for the influence of the FPÖ as well as regional data about vaccinations (BMSGPK 2022b, 2022c). Finally, my analysis in the preceding subsection, which utilizes data from the Austrian Corona Panel Project (ACPP) (Kittel et al. 2020, 2021) shows that FPÖ voters a) have differed from non-FPÖ voters before and after the switch with regard to perceptions about the danger to the economy and personal economic situation, and b) that some beliefs regarding health and economy changed after the policy switch for some socio-demographic characteristics.

This result suggests that a two-way fixed effects estimator may be prone to an endogeneity problem, as some of these characteristics are correlated with the support for the FPÖ (such as, e.g., the level of education). In order to address this issue, I imputed district-specific beliefs by linking the individual-level survey data to the aggregate-level administrative data according to three observable characteristics: gender, age, education. It is important to note that this exercise will inevitably also account for some of the impact of corona populism and hence

[5] It is reasonable to assume that the campaign did not immediately translate into an increase, as we have to take into account, e.g., the time from infection to the start of the symptomatic phase, as well as a potential delay due to testing. However, my results are insensitive to reasonable adjustments in the timing of this dummy variable.

tend to underestimate the effect of the FPÖ policy switch exactly due to the correlation of the FPÖ vote share with these characteristics. Nevertheless, this exercise is important to help to establish a "lower bound" of the impact of the FPÖ policy switch.

In order to impute the regional belief indices, I first split the survey respondents into eight different demographic groups and computed mean values for the perceptions in each of the 10 dimensions used in the analysis in the preceding subsection for each group and wave. These criteria were chosen based on a) their relevance as explanatory factors of beliefs and perceptions as shown in the previous subsection, and b) data quality, as i) district-specific Austrian data does not allow us to fully disentangle age, gender and highest education and ii) young people likely did not complete their education yet, which would distort the meaning of, e.g., the category "highest education: compulsory schooling".

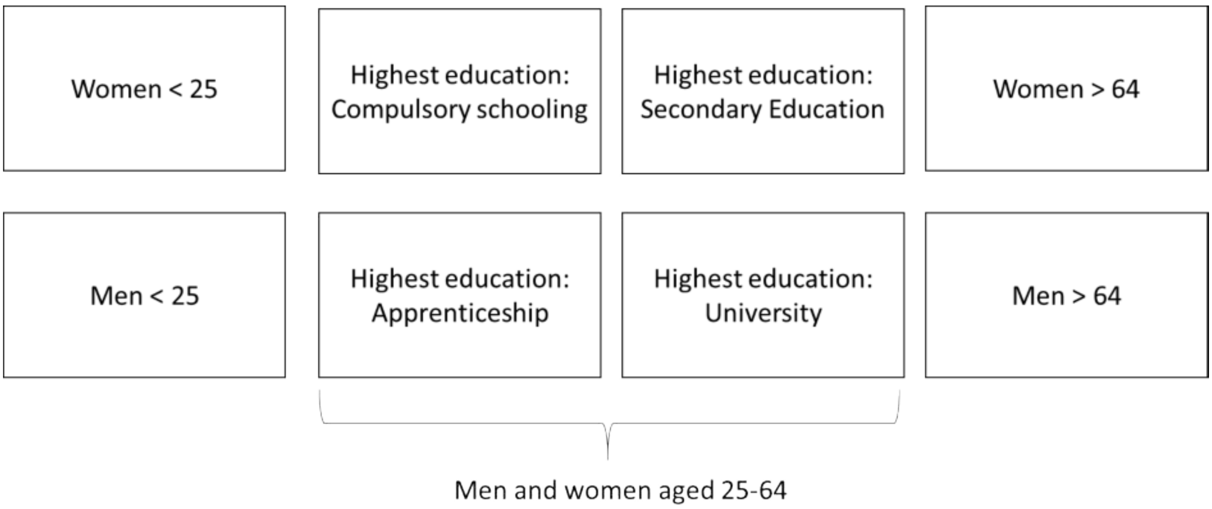

Figure 3: Demographic groups that are used to link data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021) to the district-level dataset

If the mean belief for group with regard to dimension in week is and the share of group in district is , then the imputed belief with regard to dimension d is determined according to equation 2[6]:

[6] Since the data on infections and deaths is weekly, but the surveys from the ACPP were not collected on a weekly basis, I linked the two datasets by assuming that the beliefs in a given week that lies between waves X and X+1 are equal to those of wave X, if the date of this week's Sunday is closer to the start date of wave X than to the start date of wave X+1, and equal to the beliefs of wave X+1 otherwise.

Using the combined dataset, I then estimate two-way fixed effects models of the following type, again using the fixest package (Bergé 2018) for the programming language R (R Core Team 2020):

Where is the dependent variable, either the number of deaths per 100k inhabitants or the number of reported cases per 1k inhabitants, a vector of control variables, a dummy indicating the policy switch, i.e. 1 after the FPÖ policy switch and 0 before, the FPÖ vote share in the specific district. District fixed effects are denoted with and time fixed effects with . , , and are coefficients, and is a vector of coefficients. Finally, is the error term.

In all models, I am interested in the coefficient , as it tells us whether the FPÖ vote share conditional on the corona populist turn of the FPÖ has an impact on the dependent variable, i.e. cases or deaths. It is important to note that this model does not allow an interpretation about whether increased support for the FPÖ predicts an increase in cases or deaths *in total*, as the time-invariant effect of the FPÖ-vote share is dummied out.[7]

2.2.2 Aggregate-level results

This subsection presents the results of the models on the number of i) cases per 1k inhabitants, and ii) deaths per 100k inhabitants.

Table 1 shows the results of the regressions predicting the number of cases per 1,000 inhabitants for different models. The standard errors are clustered by weeks and districts. The coefficient of interest, i.e. the effect of the interaction term between the policy switch dummy and the FPÖ vote share, is not statistically significant in any model. Naturally, the lagged

[7] Table E3 and E4 in the online appendix are set up without time fixed effects and suggest that there is no significant effect of the FPÖ vote share prior to the policy switch.

dependent variable is positive and significant in any model, as Covid-19 cases produce new Covid-19 cases.

The first model includes the lagged cumulative number of cases per 1k inhabitants, as well as the lagged number of deaths as control variables. The lagged number of deaths is significant and negative, which suggests that people react to an increased perceived danger posed by Covid-19 by changing their behavior, i.e. by practicing social distancing. Unexpectedly, we do not find a "herd immunity" effect from the (lagged) number of cumulated previous cases in this model.

Models (2) and (3) introduce time-varying district-specific belief indices as imputed by linking the district-data with survey data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021) based on demographic characteristics as described above. Two indices are significant: the imputed belief that Covid-19 poses a high danger to public health reduces the number of deaths, whereas the imputed belief that Covid-19 poses a high danger to the economy increases the number of fatalities. The first coefficient reflects the interplay of two counteractive tendencies: on the one hand side, people who are more exposed to the virus may rationally believe that they are more at risk, hence increasing the number of infections. On the other hand, people who are more risk-aware may be more inclined to practice social distancing, wear masks, get vaccinated etc. It is obvious from the regression results that the second effect prevails with regard to the number of cases. The second finding, i.e. that the belief that Covid-19 poses a high danger to the economy increases the number of cases, is less obvious, but also in line with the expectations based on the results and reasoning introduced in the previous subsection. As pandemic policy is often portrayed as a trade-off between saving the economy and saving lives, the belief that Covid-19 poses exceptionally high economic costs is related to the belief that government policy puts too much emphasis on containment policy.

Models (4)-(7) then also account for vaccinations, which have played a role in Austria since the beginning of 2021. Model (4) includes the cumulative number of second dose vaccinations (which is only available on the state-level as a time series). As expected, the respective coefficient is significant and negative due to an increase in herd immunity. Models (5)-(7) differ from model (4) by imputing a district-level vaccination timeline that is created based on cross-sectional data on the district-level distribution of vaccinations from the 21st of February

2022 and assuming that this share stays constant, thus matching it with the state-level time series readily available. While this imputation does not come without costs, as the relative distribution of vaccines may have changed over time, this imputation increases the significance and absolute value of the respective coefficient, hence providing credibility to the mechanism. Interestingly, the expected herd immunity effect from the cumulative number of previous cases is significant once we account for vaccinations. Again, this effect is stronger for the imputed district-level vaccination timeline, lending credibility to the imputation procedure.

Models (6) and (7) then also control for the imputed belief indices. While there are no notable changes for model (7), a belief in high risks for the economy as a whole is not significant anymore in model (6), whereas a belief in high risks for the personal economic situation becomes significant. This result suggests that, as one might have expected, the impact of corona "skepticism" is partly transmitted through the channel of vaccination rates.

Table 4: Cases per 1k inhabitants

	Without vaccinations				**With vaccinations**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
lag(Cases per 1k, 1)	0.790***	0.786***	0.790***	0.781***	0.767***	0.763***	0.766***
	(0.071)	(0.071)	(0.071)	(0.070)	(0.069)	(0.069)	(0.068)
lag(Deaths per 100k, 1)	-0.016**	-0.016**	-0.016**	-0.016**	-0.015**	-0.015**	-0.015**
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
FPÖ vote share x Policy switch	0.008	0.005	0.004	0.007	0.004	0.002	-0.001
	(0.007)	(0.008)	(0.008)	(0.007)	(0.007)	(0.008)	(0.008)
lag(cumulative number of cases per 1k inhabitants, 4)	-0.003	-0.004	-0.003	-0.005*	-0.008***	-0.009***	-0.008***
	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)
lag(State-level second-dose vaccinations per 1k, 4)				-0.003*			
				(0.001)			
lag(Imputed district-level second-dose vaccinations per 1k, 4)					-0.005***	-0.005***	-0.005***
					(0.001)	(0.001)	(0.001)
Index: government measures are too lax		-2.408				-1.094	
		(1.628)				(1.065)	
Index: Covid-19 poses a high danger to personal health		1.321				0.321	
		(2.023)				(2.120)	

Table 4: Cases per 1k inhabitants

	Without vaccinations				With vaccinations		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Index: Covid-19 poses a high danger to public health		-16.092***				-14.940***	
		(4.695)				(4.375)	
Index: Covid-19 poses a high danger to personal economic situation		1.043				10.732*	
		(6.177)				(5.216)	
Index: Covid-19 poses a high danger to the economy		12.243**				6.898	
		(4.095)				(3.718)	
Index: Government measures are exaggerated			3.661				4.047
			(3.905)				(3.749)
Index: Covid-19 poses a low danger to personal health			0.650				2.437
			(3.101)				(3.099)
Index: Covid-19 poses a low danger to public health			9.084				7.322
			(4.884)				(4.733)
Index: Covid-19 poses a low danger to personal economic situation			-2.269				-8.620
			(5.075)				(5.066)
Index: Covid-19 poses a low danger to the economy			-8.095				-3.211
			(7.913)				(6.562)
Num.Obs.	9212	9212	9212	9212	9212	9212	9212
R2	0.929	0.929	0.929	0.929	0.930	0.930	0.930
R2 Adj.	0.927	0.927	0.927	0.927	0.928	0.928	0.928
R2 Within	0.603	0.604	0.603	0.605	0.609	0.611	0.610
R2 Pseudo							
AIC	19015.0	18989.7	19016.2	18958.0	18871.1	18845.2	18869.2
BIC	20405.0	20415.3	20441.9	20355.1	20268.2	20277.9	20302.0
Log.Lik.	-9312.500	-9294.849	-9308.120	-9282.993	-9239.526	-9221.582	-9233.611
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X	X
FE: time	X	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table 5 shows the results of the panel regressions predicting the number of deaths per 100,000 inhabitants. The coefficient of interest, i.e. the effect of the interaction term between the policy switch dummy and the FPÖ vote share, is positive and statistically significant at the 0.1% level for any model. This result suggests that the corona populist turn of the FPÖ did have an impact on the regional distribution of deaths in Austria in the sense that the number of Covid-19 deaths per capita after the policy switch are correlated with the district-level support for the FPÖ.

Every model also includes the lagged dependent variable (i.e. the number of deaths per 100k inhabitants in the previous week), which is significant and positive. While deaths do not necessarily produce new deaths (save for a Zombie apocalypse), the lagged dependent variable is a proxy for other important factors with regard to the evolution of the pandemic such as infections, ICU capacities etc.

Models (2) and (3) also feature the imputed belief indices as described above. Only one index is significant, namely the belief that Covid-19 poses a high danger to the personal economic situation. This belief can be seen as a proxy for a certain type of skepticism (as reasoned above), and accordingly increases the number of deaths.

The fact that the vote share of the FPÖ is strongly correlated with deaths after the policy switch, but not with cases per capita, seems at first glance to be paradoxical and to sow doubt on the hypothesis that the corona populist turn of the FPÖ contributed to the spread of the virus. However, Covid-19 tests have largely been conducted on individuals who self-reported their symptoms or who are named as being close contacts. Thus, they have in one way or another often been voluntary, in particular before the introduction of compulsory tests needed for certain activities in the beginning of February 2021, which means that there may have been a self-selection bias in testing.[8]

We can hypothesize that people who underestimate the virus (the “corona skeptics”) or even deny the existence of the virus (the “corona deniers”) are less likely to report an infection and

[8]From the beginning of February 2021 to the beginning of March 2022, either Covid-19 tests or a “green pass”, i.e. proof of testing, vaccination or immunity due to a previous infection, were required for a varying number of activities. However, much of the testing regime relied on the use of self-tests that a) offer relatively low sensitivity and b) that can easily be manipulated. Furthermore, the largest relative increase in mortality with regard to the FPÖ vote share seems to have happened before February 2021, as can be seen in fig. 2.

to name contacts. In this case, the number of deaths per infection in such communities would be higher.

In order to conduct a first test on this hypothesis, models (4)-(6) also control for the number of cases per capita in the two preceding weeks. Holding cases constant, the mortality rate may diverge for two reasons: first, due to a higher true infection fatality rate, given by, e.g., different age structures of the population (or, more precisely, the infected share of the population), and second due to a higher *perceived* infection fatality rate given by a higher share of undetected cases (i.e. a higher dark figure). It is interesting to see that the coefficient of interest only changed marginally. Since the age structure of the population did not change during the policy switch, this result hints to the fact that the policy switch indeed increased the share of undetected cases, i.e. the dark figure. This result would also explain the non-result regarding an impact on the number of cases: While the policy switch did not have an impact on the number of *reported* cases, there is reason to believe that it did have an impact on the *true* number of cases.

I further explore the existence of such a testing bias empirically in subsection 2.3, and explore whether such a testing-bias is indeed able to explain the puzzling result that I do find a significant impact of the policy switch on the regional distribution of deaths, but not reported cases, in a stylized epidemiological model in section 3.

Table 5: Deaths per 100k inhabitants

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(Deaths per 100k, 1)	0.398***	0.396***	0.397***	0.329***	0.326***	0.328***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.100***	0.090**	0.093***	0.094***	0.086***	0.093***
	(0.020)	(0.027)	(0.022)	(0.018)	(0.025)	(0.020)
cases per 1k inhabitants in the weeks t-1 and t-2				0.265***	0.269***	0.266***
				(0.047)	(0.046)	(0.047)
Index: government measures are too lax		5.585			11.649	
		(14.037)			(12.991)	
Index: Covid-19 poses a high danger to personal health		-19.431			-23.450*	
		(10.693)			(11.635)	

Table 5: Deaths per 100k inhabitants

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Index: Covid-19 poses a high danger to public health		17.117			37.882*	
		(16.238)			(16.518)	
Index: Covid-19 poses a high danger to personal economic situation		43.436**			33.241*	
		(16.222)			(16.106)	
Index: Covid-19 poses a high danger to the economy		12.057			-3.105	
		(11.715)			(10.890)	
Index: Government measures are exaggerated			-9.796			-1.492
			(8.748)			(8.546)
Index: Covid-19 poses a low danger to personal health			13.115			6.124
			(8.967)			(9.092)
Index: Covid-19 poses a low danger to public health			-0.355			-14.594
			(13.067)			(11.944)
Index: Covid-19 poses a low danger to personal economic situation			-5.995			8.898
			(16.347)			(17.120)
Index: Covid-19 poses a low danger to the economy			-40.947			-34.331
			(24.569)			(23.173)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.549	0.550	0.549	0.571	0.572	0.571
R2 Adj.	0.539	0.540	0.539	0.561	0.562	0.561
R2 Within	0.154	0.156	0.155	0.195	0.197	0.196
R2 Pseudo						
AIC	41586.8	41579.3	41591.0	41131.4	41120.0	41136.1
BIC	42962.5	42990.7	43002.4	42514.2	42538.5	42554.6
Log.Lik.	-20600.390	-20591.641	-20597.501	-20371.679	-20360.982	-20369.031
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

2.2.3 Aggregate-level robustness checks

Appendices B-E show the results of several robustness checks. The first robustness check concerns a potential endogeneity due to heterogeneous evolution of the pandemic prior to the policy switch. The overview of cases and deaths shown in figure 2 suggests that those 50% of the districts, in which the FPÖ achieved its strongest outcomes recorded less deaths during the first, but more deaths in particular during the second wave. Thus, one could hypothesize that the underlying mechanism driving the results is in fact not a political, but an epidemiological one: if more people became infected and/or died during the first wave, the subsequent waves could be milder either due to herd immunity or due to increased awareness of the danger of the virus, and the FPÖ vote share could merely correlate with this underlying mechanism. I explore this hypothesis in appendix B and show that my results are robust to including an interaction term of the intervention with either the number of deaths or the number of cases before the intervention as an additional control variable, even though such a counteractive effect indeed exists. In a related concern, the social share of the population affected by the coronavirus may differ between the first and the subsequent waves, e.g. the second wave may have hit more elders than the first wave, thus increasing the case fatality rate. I thus include interaction terms between various demographic groups and the policy switch to explicitly account for this potential demographic endogeneity instead of relying on the belief indices. My results are robust to such an inclusion, although the population above the age of 64 seems to have been hit harder in the infection waves following the first one (i.e. after the policy switch).

In the second type of robustness checks, presented in appendix C, I check whether the results change when I include interaction terms between the policy switch and the vote share of other parties. All results are robust to the inclusion of interaction terms with any other party. Only a few additional results are significant for the number of deaths per 100k inhabitants, namely the interaction term between the policy switch and the vote share of a) the social democratic party (SPÖ), where it is positive, b) the major governmental party (ÖVP), where it is negative, as well as c) the combined vote share of minor parties, where it is positive in some models. It is important to note, however, that these results are not robust to the robustness checks introduced in appendix B and thus are likely an artifact of epidemiological considerations.

Alashoor et al. (2020) study social distancing behavior in the United States using a survey and show that, for their respondents, not partisanship, but their vote in the presidential elections 2016 mattered for compliance with social distancing measures. Respondents who voted for Trump in 2016 were less likely to follow social distancing rules, if their attitude towards social distancing was negative. The last Austrian presidential elections before the Covid-19 crisis were also held in 2016, where the candidate of the FPÖ, Norbert Hofer, lost in the run-off against the candidate of the Greens, Alexander van der Bellen. In the third robustness check, I hence test whether including an interaction term between the vote share for Norbert Hofer and the policy switch influenced the results. Interestingly, this exercise even increases the effect size for the interaction term of the FPÖ and the policy switch with regard to the number of deaths, whereas the coefficient for the new interaction term is not significant.

In the final robustness check, presented in appendix E, I use alternative model specifications in order to explore the robustness of my results in the face of the dynamic panel bias (Nickell 1981), which comes into play for fixed effects models that include an autoregressive term where the underlying data has a small t and large n. Since t>n in my panel, the bias should not be of a great concern. Nevertheless, I estimate i) static panel models (tables E1 and E2), i.e. models without an autoregressive term, as well as ii) pooled models without any fixed effects, but including the autoregressive term. This procedure is suggested by the literature (see e.g. Angrist and Pischke 2009) because it helps to establish boundaries of the true effect, since static panel models will overestimate the coefficient, whereas pooled models will underestimate it.

My results are found in all but two models that do not account for fixed effects or the number of cases, but do include the belief indices as derived from the Austrian Corona Panel Project. This is not a reason for great concern, as a) this estimator aims to provide a lower bound to the true level of the coefficient, b) introducing the beliefs will also underestimate the true effect size, as the FPÖ switch had affected beliefs in crucial dimensions and the demographic characteristics used to link the two data sources are correlated with the FPÖ vote share (as argued above), and c) this model specification is not very sophisticated as it omits not only time-invariant characteristics of the districts, such as the age structure, but also time-variant characteristics of the epidemic such as lockdowns, mutations etc. My results regarding an increase in the dark figure (i.e. positive effect on the number of deaths when holding the number of cases in the previous two periods constant), however, even hold in those settings.

2.3 Individual-level evidence from the Covid-19 prevalence study in November 2020

The aggregate-level evidence provides a puzzling result, as it suggests that the FPÖ policy switch has affected the regional distribution of deaths, but not of cases per capita. I hypothesized that this is due to a self-selection bias in testing that causes a correlation between the FPÖ vote share and the share of undetected cases, and found some evidence for this hypothesis in the aggregate-level data. This subsection now aims to establish a link between "Corona skepticism" and the true infection status, as well as the dark figure, on the individual level.

While there is no Austrian individual-level data source that combines partisan affiliation with infection status, the Covid-19 prevalence study conducted in November 2020 (Paškvan et al. 2021) provides information about the individuals' stance on Covid-19 containment policy, true infection status (determined with a PCR test), past infection status (determined with an antibody neutralization test) and reported infection status. This study was conducted by the Austrian statistical office (Statistik Austria) and its participants were randomly chosen to form a statistically representative sample.

These data thus allow to test the hypotheses that "corona skeptics", i.e. people who are opposed to containment policies, are more likely to contract Covid-19 and less likely to test themselves.

In order to conduct this analysis, I first transform the 5-point Likert scale answer on a question related to the individual's policy stance to the binary variable "corona skeptical", where a 1 covers the views that the policy measures against Covid-19 are "definitely exaggerated" or "rather exaggerated", whereas 0 implies that the individual thinks that the measures are "suitable", "rather insufficient" or "definitely insufficient".

I then investigate the relationship between corona skepticism and four variables: a) reported infection (i.e. was officially known to be Covid-19 positive at or prior to the time of the survey), b) PCR test positive (i.e. tested positive for Covid-19 during this survey), c) antibody test positive (i.e. a blood test revealed a neutralizing level of antibodies), d) unreported current infections (i.e. the PCR test was positive during this survey, but the infection was not officially known at that time). I only analyze individuals for which at least a PCR test result (n=2290) and a policy stance (2283 out of the 2290) are available.

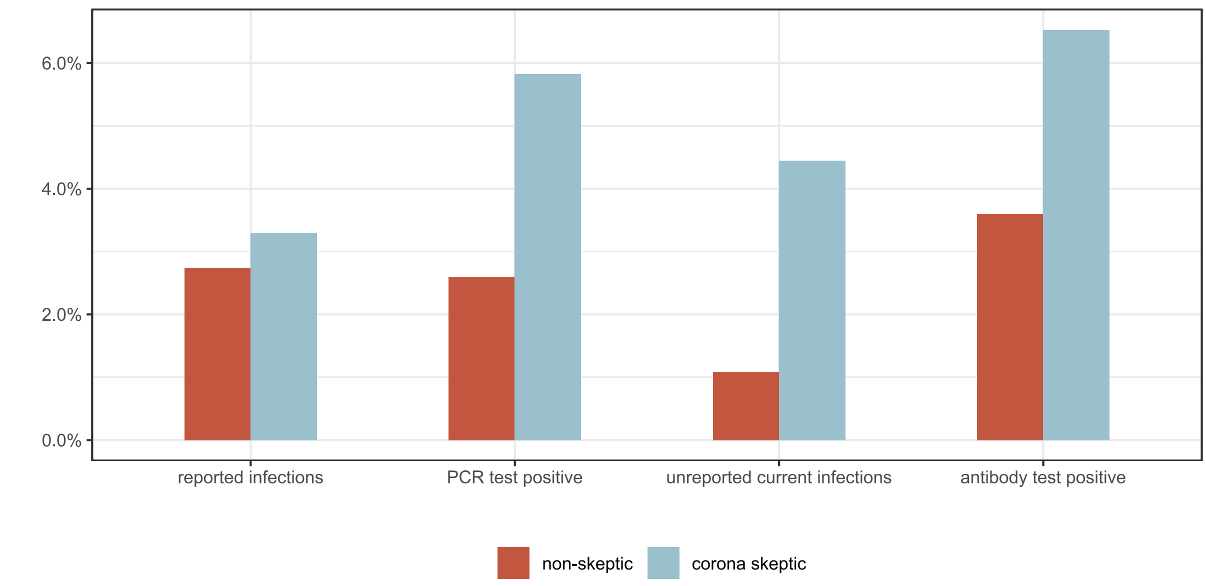

Figure 4: Epidemiological state for corona skeptics and non-skeptics in November 2020

Figure 4 suggests that there is no large difference between corona skeptics and non-skeptics with regard to the reported infections, but a large gap with regard to unreported infections. These results are fully in line with the self-selection bias hypothesis.

In order to test whether the graphical intuition holds, I estimate the following model using probit regressions:

Where is a binary variable describing whether a) a positive PCR/antibody test has been conducted or b) individuals were already known to be infected prior to the study, is a binary variable describing whether an individual is "corona skeptical" or not as discussed above, is the coefficient of interest and is an error term.

Table 6 shows the results. The first model suggests that corona skepticism has increased the chances to test positive at the 1% significance level within the whole population (i.e. also including people who are officially known to be infected). The second model shows that corona skepticism had an even larger impact on the chances to test positive within the subpopulation that only includes people who are not officially known to be infected, i.e. corona skepticism is indeed positively correlated with the dark figure. The third model shows that corona skepticism does not predict a significant increase in the official infection status. Finally, the fourth model shows that corona skeptical individuals were more likely to have gone through a past infection. Again, all of these results support the self-selection bias hypothesis. Furthermore, the fact that there is no significant difference between regarding reported infections seems to mirror the aggregate-level results.

Table 6: Individual-level evidence from the Covid prevalence study in November (Probit)

	PCR test positive		Reported infection	Antibody test positive
	(1) All individuals	(2) Only unreported	(3) All individuals	(4) All individuals
Corona skeptical	0.374**	0.595***	0.079	0.288*
	(0.118)	(0.140)	(0.136)	(0.113)
(Intercept)	-1.944***	-2.296***	-1.918***	-1.800***
	(0.061)	(0.084)	(0.059)	(0.055)
Num.Obs.	2283	2225	2283	2219
AIC	634.0	363.8	594.5	757.4
BIC	645.5	375.2	605.9	768.8
Log.Lik.	-314.995	-179.883	-295.228	-376.689
F	10.041	17.940	0.334	6.438
RMSE	0.53	0.40	0.51	0.58

* p < 0.05, ** p < 0.01, *** p < 0.001

3 Theory: Insights from a heterogeneous mixing SIR model

This section is devoted to understanding whether the proposed solution to the puzzling aggregate-level result from the empirical section, namely that the FPÖ policy switch increased deaths, but not necessarily reported cases due to biased testing, holds in a simple theoretical epidemiological framework. In order to do so, I extend the classical SIRD model (Kermack and McKendrick 1927) in a twofold way:

1.) I add a quarantined compartment denoted by Q that only includes detected active cases. A certain fraction of infected is assumed to test themself upon infection and is then quarantined, i.e. their social contacts are set to 0. I further assume that all critical cases are detected, since they seek medical attention and get tested for showing symptoms of Covid-19. Accordingly, only people in the quarantine compartment may die. Holding constant the fraction of infected who will eventually die (i.e. the true infection fatality rate), the fraction of quarantined who die (i.e. the reported infection fatality rate) depends on the fraction of non-critical cases who opt to get tested voluntarily, i.e. on the fraction of critical cases in the quarantine compartment.

2.) I split the compartments governing the susceptible, the infected and the quarantined to incorporate two different groups: one group showing low compliance (the corona skeptics) and another showing high compliance (the majority). I consider differences in a) social distancing, and b) the propensity to get tested. I also consider the case of homophilic mixing, i.e. that individuals of a certain group are more likely to get into contact with members of their own group than members of the other group (which is why I need two different compartments for the infected).

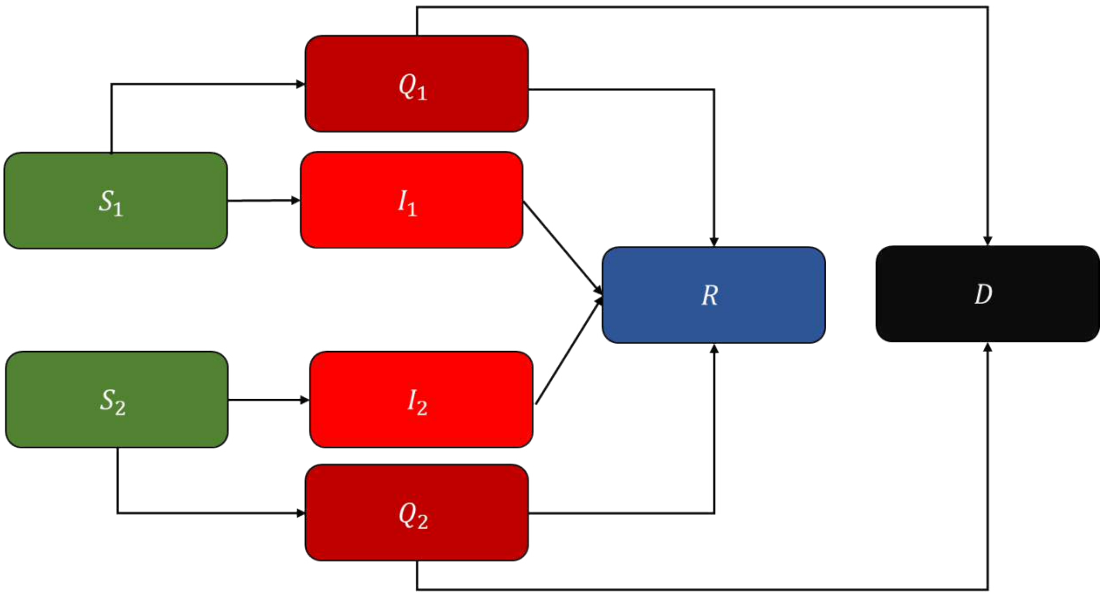

Figure 5: Depiction of the compartments

In setting up the laws of motion between the different compartments (see fig. 5), I largely follow the preferred mixing model described by Brauer (2008), which in turn largely follows

Nold (1980).[9] In contrast to comparable models such as the homophilic mixing model proposed by Ellison (2020), the model used in my paper is able to replicate the standard homogenous mixing model as a special case if the behavior of the two types of agents (especially the basic reproduction numbers and respectively) is equal. The model is most closely related to the one proposed by Bai and Brauer (2021), who also study a SEIR model populated by two types of agents who differ in their basic reproduction number and add a quarantined compartment. In contrast to their model, however, my model also considers differences in testing between the two groups (to account for the Austrian empirics), as well as the case of homophilic mixing. Their model, on the other hand, also features an exposed compartment in order to capture pre-symptomatic infections.

The laws of motion between the different compartments in my model are given as follows, where denotes the susceptibles of group i, the infectious, the quarantined, the size of group i at period 0, the number of infectious contacts from a member of group i, the homophily of social contacts, the propensity to get tested, the basic reproduction number of group i, − the duration the illness, and the fraction of detected cases who eventually die:

[9] Brauer (2008) considers the fraction that each group *currently* makes up as part of the total population. I refrained from implementing this logic in order to retain the classical SIR outcome as a special case.

Where

In order to better disentangle the effects of behavioral differences of the two groups, I make the following practical assumption: Individuals of both groups are equally likely to die as a result of an infection with a probability of . We can thus set the probability that a quarantined person dies at — and set a lower boundary for , as I assumed previously that at least all critical cases are tested, i.e. .

3.1 Homogenous mixing

Let us first consider the case of homogenous mixing, i.e. and . In this case, we can immediately see that — . Thus, if we normalize the population to 1, i.e. , the dynamic governing the susceptibles collapses to the dynamic of the classical one-group SIR framework, i.e.:

In such a case, differentiating between two infectious compartments is unnecessary (see proposition 1).

Proposition 1: Suppose two groups who mix homogeneously and only differ with regard to their propensity to get tested. Such a difference can only affect both groups equally (relative to their share) in terms of deaths or the sum of infected and quarantined.

Proof: Differentiating eq. (5) with regard to I1 and I2 yields the same results, hence the relative share of as part of the total infected does not have an impact on the evolution of :

Nevertheless, we could use a homogenous mixing framework to consider differences in the propensity to get tested (and subsequently get quarantined), i.e. a different evolution of and .

As is common in this stream of literature (e.g. Acemoglu et al. 2020), I support my arguments using numerical simulations and sensitivity analyses. The basic reproduction number of the SARS-CoV-2 virus causing Covid-19 is typically estimated to range from 2.5-3.5 (e.g. Zhao et al. 2020). To capture political reasons for differences in social distancing, I concentrate on a time when social distancing is at least encouraged. Thus, I will concentrate on values of between 3 and 1 (where the number of infected could not grow exponentially). While the choice of plays a crucial role in predicting the spread of the virus and determining an optimal containment policy (Bar-On et al. 2020), it is not important in this stylized model that only seeks to explain certain features of the pandemic. For simplicity, I assume that , implying that infected recover or die on average in one week. I further set and , in line with the empirical data from Austria as presented in subsection 2.3. By setting , we get the cumulative number of deaths and reported infections (after 500 periods) in this stylized model (which importantly does not take any endogenous social distancing measures into account and assumes a fixed mortality rate). The results are shown in fig. 6, and synthesized in result 1.

Result 1: Suppose two groups 1 and 2 who mix homogeneously and only differ with regard to their propensity to get tested, and subsequently isolated ( ). Then an increase in the share of group 2 has a monotonically increasing effect on the cumulative number of deaths (see fig. 6, right), while it may simultaneously b) decrease the cumulative number of reported infections. More precisely, I find a monotonic decrease in the number of reported infections if is high enough, and a monotonic increase if is low enough. There is a non-linear relationship between the size of and the reported infections for intermediate levels of .

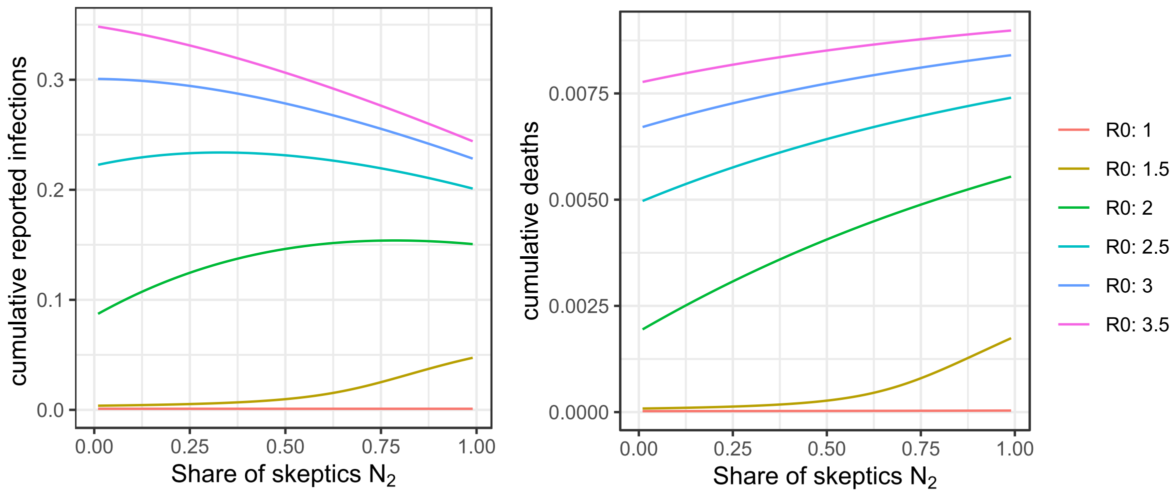

Figure 6: Cumulative number of reported infections (left) and deaths (right) after 500 periods. Each line in this figure shows the results of 100 distinct numerical simulations.

While result 1 shows that a self-selection bias in testing can indeed be sufficient to explain the aggregate-level phenomenon even in a simple homogenous mixing framework, this model has two apparent problems: First, proposition 1 shows that the total share of infected people cannot differ between the two groups *within* a given population (e.g. within a district), i.e. skeptics could not be affected in a different way than non-skeptics in a given district, which seems to be questionable. Second, this model assumes that there are no behavioral differences between the two groups except for the different testing behaviors. In order to address these issues, I extend my model to heterogeneous mixing in the following two subsections.

3.2 Proportionate mixing

As soon as the two subpopulations engage in different activity patterns, i.e. , homogenous mixing is implausible. If, for instance, group 1 only has one infectious contact per day, whereas group 2 has five, members of group 2 cannot on average have 2.5 infectious contacts with members of group 1, if the two groups are equal-sized. The specification by Brauer (2008), which provides the basis of my model, accounts for this fact. If activity patterns differ, but mixing is not homophilic, it is proportionate, i.e. members of a specific group meet members of another specific group according to their relative population shares and basic reproduction numbers as specified above. As a result, outcomes for both groups cannot be used interchangeably anymore. Instead, we must trace and separately.

Result 2: Suppose two groups 1 and 2 who mix proportionately and only differ with regard to their basic reproduction number ( ). Then an increase in a) the basic reproduction number of 2 or b) the share of group 2 increases the cumulative number of infected for both groups, but the increase (relative to their group size) is stronger for group 2.

The underlying simulations for result 2 are depicted in figure 5, which shows the share of susceptibles left in each subpopulation after 500 simulation periods (approximating the steady-state equilibrium). The top part shows the impact of a varying share of corona skeptics ( ) in the population for 4 different levels of . The simulations here are initialized with , (with the other parameters again set at , , and , as in the homogenous mixing model).

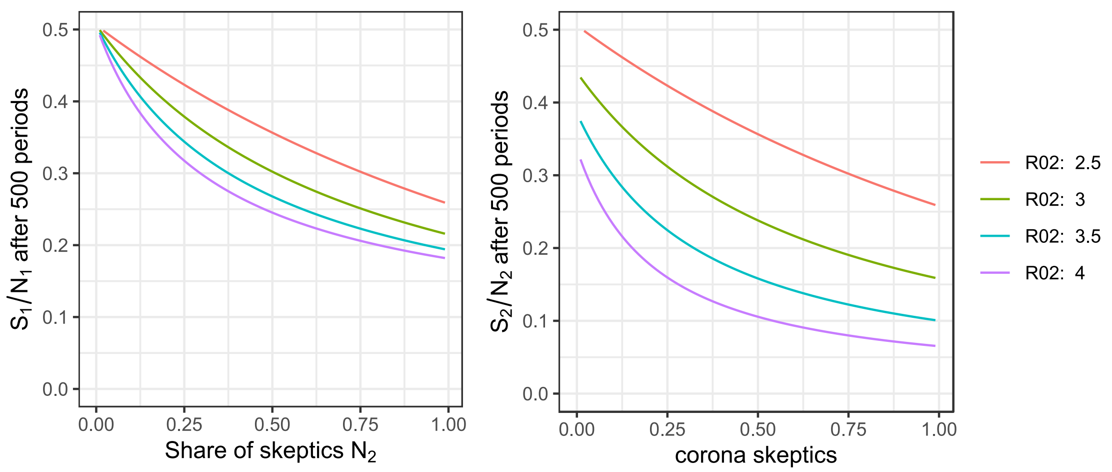

Figure 7: Susceptibles left of the non-skeptics (left) and the skeptics (right) divided by their initial share for and varying and a varying share of corona skeptics under proportionate mixing

3.3 Homophilic mixing

Finally, I consider the case of homophilic mixing ( ), i.e., when “corona skeptics” are even more likely to meet each other than given by their relative basic reproduction numbers. Such a homophily in mixing could be created, for instance, by the anti-lockdown protests, which were frequently held in Austria. These settings are of particular interest, as they surely also increase the number of social contacts of the group of skeptics. Figure 8 shows simulation results for two different types of basic reproduction numbers for skeptics and a varying degree of homophily. Result 3 synthesizes the findings.

Result 3: Suppose two groups 1 and 2 who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves ( ) and who engage in homophilic mixing ( ). Let be a function of the cumulative number of reported cases and a function of the cumulative number of deaths in the steady state. Then an increase in reduces the absolute value of —— and —— up to a point where it —— —— for , i.e. —— and —— are constant. While —— , —— may be positive, negative or zero.

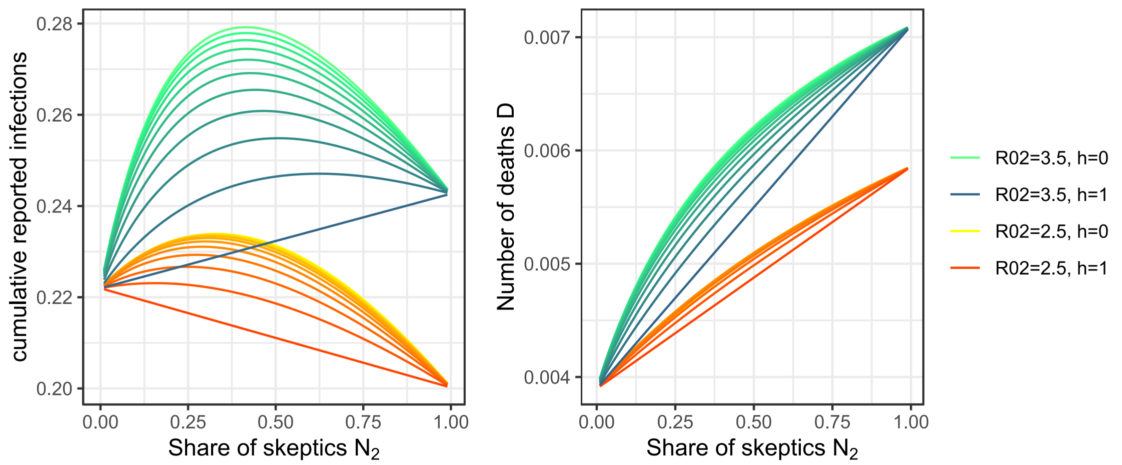

Figure 8: Cumulative reported infections (left) and deaths (right) after 500 periods for and varying homophily as well as a varying number of corona skeptics ( ).

It is obvious from result 3 that a situation in which the reported number of cases do not increase with can only be true in special cases, namely if and —— . However, the simulation results suggest that a multitude of parameter settings exist for which we will not find a (linear) statistically significant relationship, in particular if we only observe a fraction of the possible values of , as it seems to be true for the Austrian case.

4 Conclusion

In this paper, I first described corona populism as a political position which is "skeptical" of the danger posed by the virus and the need for containment measures. Following Acemoglu et al. (2013), I characterized this policy stance as populist, since it receives significant public support, although its adoption would at the same time cause adverse effects on the majority of the population.

I then studied a natural experiment given by a policy U-turn made by the Austrian major right-wing party FPÖ on a) individual-level beliefs and perceptions of FPÖ voters vs. others using a difference-in-differences approach with data from the Austrian Corona Panel Project (Kittel et al. 2020, 2021), and b) aggregate-level outcomes with regard to weekly reported Covid-19 infections and deaths on the district-level using two-way fixed effects panel models. The policy stance of the FPÖ was characterized by a U-turn: at the beginning of the first wave of infections in March 2020, the FPÖ followed a strict pro-lockdown course. At the end of April 2020, however, the party switched to demanding "an end of the corona madness", i.e. the containment measures, thereby downplaying the threat posed by the virus and adopting a corona populist attitude.

Before the policy switch, declared FPÖ voters did not exhibit statistically significant differences with regard to their beliefs about personal or public health impact of the Covid-19 crisis. They were, however, significantly more likely to believe that it poses a high danger to the economy. FPÖ voters were furthermore more likely opposed against government policy even before the policy switch, although their opposition was stronger in both dimensions, i.e. they were more likely to believe that government policy was exaggerated and more likely to believe that it was too lax. While the finding that partisan policy has an effect on voter beliefs is in line with previous findings on other policy views (e.g. Bechtel et al. 2015, Grewenig et al. 2020), my current findings are nevertheless significant, as a Covid-19 infection will amount to a life vs. death situation for some of those voters themselves. Hence, the adoption of a corona skeptical party line is potentially associated with much graver consequences.

I further showed that the belief that Covid-19 poses a high danger to the economy is linked to the belief that government policy against Covid-19 is exaggerated. I argued that this result stems from the fact that containment policy is often conceived as a trade-off between economic and health outcomes. Hence, people who are particularly concerned about the economic fallout of the crisis may tend to believe that the government puts too much emphasis on saving lives in their design of containment policy.

I then investigated whether the FPÖ policy switch could have had an effect on the regional distribution of infections and deaths in Austria based on the district-level support for the FPÖ at the last national elections using two-way fixed effects models with different specifications and a wide array of robustness checks.

My regression analysis suggests that the policy switch had a significant impact on the regional distribution of Covid-19 related deaths, but not of the regional distribution of (reported) infections. This result is puzzling, as nobody can die from Covid-19 without contracting it first. I hypothesized that the solution to this puzzle can be found in a self-selection bias inherent to the Austrian containment policies, in particular before the introduction of mandatory testing in February 2021: The policy stance of the FPÖ caused their voter base to take the virus less seriously, who then did not only practice less social distancing, but also reported their symptoms less often, which means that they were less likely tested. Hence, the true infection rate among FPÖ voters could be higher than those among others due to an increased share of unreported cases, i.e. dark figure. I found some evidence in favor of this hypothesis by an increase in the case fatality rate, and I further explored this hypothesis using a different data source, as well as a theoretical framework later on in the paper.

In a subset of models, I combined the aggregate-level dataset with the individual-level data from the Austrian Corona Panel Project to impute regional beliefs about the Covid-19 pandemic and to account for a potential endogeneity with regard to “skeptical” beliefs. I showed that both imputed health perceptions and beliefs about the economic fallout are significantly correlated with Covid-19 cases and deaths per capita. While the belief that Covid-19 poses a high risk to public health is associated with a decrease in the number of cases, but an increase in the case fatality rate (which suggests some degree of rationality in perceptions and behavior), beliefs in high economic risks are associated with an increase in the number of cases, deaths and in the case fatality rate, suggesting that this belief is indeed a proxy for at least some kind of “corona skepticism”.

In order to further explore the self-selection testing bias hypothesis, I then turned to individual-level data from the Austrian Covid-19 prevalence study conducted in November 2020 (Paškvan et al. 2021) and found that "corona skeptics", i.e. people who think that the containment measures are exaggerated, are more likely to test positive for Covid-19, more likely to be an undetected prior and current case, but not significantly more likely to be an officially known case. All of these findings support the self-selection bias hypothesis.

Finally, I tested whether the proposed mechanism, i.e. the testing bias, can indeed explain the aggregate-level outcomes in a simple theoretical framework. In order to do so, I extended the classical SIRD to incorporate testing (with corresponding quarantine), heterogeneous behavior and heterogeneous mixing. This model is populated with two groups who may behave differently: the corona skeptics and the majority, where the former group has a lower propensity to get tested (which is empirically calibrated using the data from the Austrian Covid-19 prevalence study) and may have a higher basic reproduction number. I explored the properties of this model for three cases: a) homogenous mixing, b) proportionate mixing, and c) homophilic mixing.

My analysis showed that even a simple homogenous mixing setting allows for a situation in which an increase in the share of skeptics increases deaths, but has a non-linear inverted U-curve shaped impact on reported infections (i.e. increases them for lower shares of skeptics, but decreases them for higher ones). I further showed that homophily in mixing reduces the degree of non-linearity of the impact of an increase in the number of "skeptics" on cases and deaths. Homophily in mixing seems to be plausible, as a) Austrian government policy had a special focus on reducing the transmission in situations where homophily can be expected to be low (e.g. compulsory mask-wearing in shops, public transport and schools etc.), whereas b) large-scale protests organized by "corona skeptics" may have significantly increased the number of social contacts in particular among "skeptics" (see Lange and Monscheuer 2021 for an analysis of the German case).

Perfect homophily in mixing hence enables an increase in deaths without a change in reported cases in a special case. However, the simulations also show that the parameter space that allows for a relationship that may be indistinguishable from the special case is much larger, in particular if the empirical distribution of cases is noisy. This result suggests that this mechanism is relevant beyond the special cases. Hence, a testing bias as it can be found in individual-level data can indeed explain the apparent aggregate-level paradox that the corona populist turn of the FPÖ seemed to have influenced the regional distributions of deaths (as the FPÖ vote share is correlated with deaths per capita after the policy switch), but not reported cases (as there is no statistically significant relationship with the FPÖ vote share).

The research presented in this paper can be extended in numerous ways. In particular, it seems promising to study corona populism and skepticism in a more complex model. One way to go would be to increase the complexity within the SIR framework. For instance, one could investigate the effects of dynamic policies depending on the number of infected, similar to what is proposed by Neuwirth et al. (2020), or even study optimal policies (e.g. Acemoglu et al. 2021; Alvarez et al. 2020; Bethune and Korinek 2020; Piguillem and Shi 2020) in the face of a non-compliant fraction of the population.

Another option would be to turn to a new class of models. Agent-based models such as the COVID-Town model (Mellacher 2020) are capable of modeling the spread of the virus via social networks and explicitly modeled heterogeneous agents, who can follow sophisticated behavioral rules. This level of analysis can be expected to be highly useful to better understand the impact and evolution of corona skepticism. For instance, it may make a big difference whether a corona skeptic faces many customers or is introverted and unemployed. However, this method can also help to better understand the emergence and dynamics of corona skepticism, e.g. by modeling heterogeneous risk perceptions, willingness to take risks, or even opinion dynamics of corona skepticism or corona populism. I hope to be able to study some of these questions in the future.

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Appendix A: Robustness check: Evolution of opinions controlling for other parties

In order to save space, I do not state the coefficients of the control variables explicitly in this section.

Table A1: Opinion on government policy controlling for ÖVP

	Government response is exaggerated				Government response is too lax			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.283***	0.242**	0.239**	0.233**	0.216**	0.189*	0.208**	0.227**
	(0.077)	(0.076)	(0.075)	(0.077)	(0.075)	(0.080)	(0.079)	(0.084)
FPÖ voter x Policy switch	0.310***	0.319***	0.253***	0.292***	-0.423***	-0.387***	-0.324***	-0.371***
	(0.071)	(0.071)	(0.073)	(0.071)	(0.085)	(0.089)	(0.085)	(0.089)
ÖVP voter	-0.224***	-0.221***	-0.188**	-0.206***	-0.151*	-0.151*	-0.165*	-0.173*
	(0.060)	(0.060)	(0.061)	(0.061)	(0.067)	(0.072)	(0.071)	(0.077)
ÖVP voter x Policy switch	-0.105*	-0.111**	-0.135***	-0.098*	-0.022	-0.025	-0.034	-0.042
	(0.042)	(0.042)	(0.040)	(0.042)	(0.070)	(0.074)	(0.073)	(0.079)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.053	0.060	0.217	0.176	0.078	0.080	0.134	0.159
AIC	44872.1	44538.2	37150.3	39074.2	37258.2	37187.1	35018.9	34011.3
BIC	45139.4	44909.0	37555.6	39479.5	37525.5	37557.9	35424.1	34416.6
Log.Lik.	-22405.028	-22226.109	-18528.156	-19490.093	-18598.105	-18550.562	-17462.432	-16958.660
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X	X	X		X	X	X
low danger			X				X	
high danger				X				X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A2: Low danger controlling for ÖVP

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	-0.046	0.046	0.086	0.064	-0.075	-0.057	-0.237	-0.222
	(0.067)	(0.070)	(0.084)	(0.082)	(0.066)	(0.065)	(0.177)	(0.188)

Table A2: Low danger controlling for ÖVP

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter x Policy switch	0.223***	0.139*	0.258**	0.268***	-0.036	-0.062	0.160	0.148
	(0.054)	(0.056)	(0.082)	(0.079)	(0.046)	(0.048)	(0.182)	(0.193)
ÖVP voter	-0.038	0.016	-0.084	-0.068	0.186***	0.194***	0.160*	0.182**
	(0.052)	(0.053)	(0.062)	(0.062)	(0.050)	(0.052)	(0.063)	(0.063)
ÖVP voter x Policy switch	0.050	0.004	-0.028	-0.031	0.033	0.017	-0.148**	-0.141**
	(0.045)	(0.045)	(0.053)	(0.052)	(0.041)	(0.042)	(0.053)	(0.054)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.024	0.032	0.051	0.063	0.011	0.028	0.028	0.042
AIC	55555.2	55069.1	41539.9	41056.3	54715.1	53786.5	16330.2	16117.1
BIC	55822.5	55439.9	41807.2	41427.1	54982.4	54157.3	16597.5	16487.9
Log.Lik.	-27746.609	-27491.561	-20738.931	-20485.172	-27326.530	-26850.264	-8134.076	-8015.546
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A3: High danger controlling for ÖVP

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	0.086	-0.024	-0.021	-0.013	0.107	0.050	0.108	0.107
	(0.078)	(0.083)	(0.063)	(0.063)	(0.081)	(0.083)	(0.066)	(0.067)
FPÖ voter x Policy switch	-0.139*	-0.053	-0.181**	-0.183**	0.000	0.051	0.047	0.054
	(0.071)	(0.073)	(0.063)	(0.063)	(0.070)	(0.074)	(0.058)	(0.057)
ÖVP voter	0.059	0.002	0.031	0.015	-0.074	-0.087	-0.038	-0.060
	(0.057)	(0.058)	(0.048)	(0.049)	(0.050)	(0.051)	(0.051)	(0.051)
ÖVP voter x Policy switch	-0.037	0.004	0.054	0.056	-0.134***	-0.120**	-0.015	-0.013
	(0.049)	(0.049)	(0.043)	(0.044)	(0.040)	(0.042)	(0.045)	(0.045)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056

Table A3: High danger controlling for ÖVP

	Covid poses a high danger to personal health		**Covid poses a high danger to public health**		**Covid poses a high danger to personal economic situation**		**Covid poses a high danger to economy**	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.021	0.032	0.050	0.058	0.011	0.025	0.030	0.039
AIC	33013.6	32664.2	50968.8	50562.7	45795.8	45165.3	50413.9	49987.0
BIC	33280.9	33035.0	51236.1	50933.5	46063.1	45536.1	50681.2	50357.7
Log.Lik.	-16475.789	-16289.098	-25453.404	-25238.368	-22866.912	-22539.665	-25175.943	-24950.478
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A4: Opinion on government policy controlling for SPÖ

	Government response is exaggerated				**Government response is too lax**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.334***	0.289***	0.292***	0.287***	0.290***	0.269***	0.286***	0.304***
	(0.080)	(0.078)	(0.077)	(0.078)	(0.073)	(0.078)	(0.078)	(0.081)
FPÖ voter x Policy switch	0.350***	0.364***	0.303***	0.328***	-0.412***	-0.374***	-0.306***	-0.345***
	(0.073)	(0.072)	(0.074)	(0.072)	(0.082)	(0.085)	(0.081)	(0.083)
SPÖ voter	-0.027	-0.051	0.025	0.009	0.202**	0.207**	0.178*	0.158*
	(0.076)	(0.074)	(0.076)	(0.071)	(0.067)	(0.071)	(0.075)	(0.079)
SPÖ voter x Policy switch	0.068	0.076	0.075	0.046	0.021	0.025	0.034	0.065
	(0.057)	(0.052)	(0.058)	(0.052)	(0.068)	(0.071)	(0.076)	(0.079)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.046	0.053	0.211	0.171	0.078	0.081	0.134	0.158
AIC	45215.0	44882.3	37406.6	39325.1	37232.6	37158.9	35033.6	34035.7
BIC	45482.3	45253.1	37811.9	39730.4	37499.9	37529.7	35438.9	34440.9
Log.Lik.	-22576.503	-22398.141	-18656.320	-19615.565	-18585.312	-18536.450	-17469.802	-16970.827
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X

Table A4: Opinion on government policy controlling for SPÖ

	Government response is exaggerated				Government response is too lax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
gender, age, education		X	X	X		X	X	X
low danger			X				X	
high danger				X				X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A5: Low danger controlling for SPÖ

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	-0.084	-0.004	0.085	0.055	-0.133*	-0.121	-0.337	-0.339
	(0.069)	(0.073)	(0.091)	(0.088)	(0.065)	(0.065)	(0.185)	(0.195)
FPÖ voter x Policy switch	0.243***	0.165**	0.271**	0.283**	-0.035	-0.060	0.247	0.241
	(0.056)	(0.060)	(0.089)	(0.088)	(0.045)	(0.048)	(0.190)	(0.199)
SPÖ voter	-0.302***	-0.252***	-0.149	-0.158	-0.041	-0.041	-0.480**	-0.478**
	(0.066)	(0.068)	(0.097)	(0.099)	(0.070)	(0.072)	(0.153)	(0.157)
SPÖ voter x Policy switch	0.218***	0.158**	0.038	0.040	0.068	0.041	0.414**	0.415**
	(0.059)	(0.059)	(0.086)	(0.088)	(0.055)	(0.056)	(0.152)	(0.158)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.025	0.033	0.051	0.063	0.008	0.025	0.028	0.042
AIC	55497.8	55021.2	41549.7	41053.0	54918.0	53976.7	16317.0	16108.0
BIC	55765.1	55392.0	41817.0	41423.8	55185.3	54347.4	16584.3	16478.8
Log.Lik.	-27717.875	-27467.623	-20743.860	-20483.498	-27428.005	-26945.328	-8127.480	-8011.021
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A6: High danger controlling for SPÖ

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.119	0.016	0.004	0.022	0.141	0.086	0.147*	0.155*
	(0.081)	(0.088)	(0.062)	(0.062)	(0.081)	(0.082)	(0.067)	(0.068)
FPÖ voter x Policy switch	-0.158*	-0.073	-0.220***	-0.226***	0.024	0.078	0.026	0.032
	(0.074)	(0.079)	(0.062)	(0.063)	(0.070)	(0.074)	(0.060)	(0.060)
SPÖ voter	0.273***	0.202**	0.204***	0.212***	0.086	0.067	0.187**	0.180**
	(0.071)	(0.071)	(0.061)	(0.062)	(0.061)	(0.064)	(0.062)	(0.063)
SPÖ voter x Policy switch	-0.160*	-0.093	-0.144**	-0.148**	-0.066	-0.030	-0.169**	-0.153**
	(0.063)	(0.061)	(0.056)	(0.056)	(0.045)	(0.047)	(0.052)	(0.053)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.023	0.034	0.050	0.058	0.008	0.022	0.030	0.039
AIC	32964.9	32629.1	50967.3	50550.3	45927.3	45292.4	50411.5	49995.3
BIC	33232.2	32999.9	51234.6	50921.1	46194.6	45663.1	50678.8	50366.0
Log.Lik.	-16451.464	-16271.564	-25452.643	-25232.157	-22932.658	-22603.185	-25174.756	-24954.635
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A7: Opinion on government policy controlling for Greens

	Government response is exaggerated				Government response is too lax			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.301***	0.272***	0.259***	0.258**	0.243**	0.222**	0.246**	0.267***
	(0.077)	(0.075)	(0.074)	(0.079)	(0.074)	(0.077)	(0.076)	(0.077)
FPÖ voter x Policy switch	0.334***	0.345***	0.289***	0.318***	-0.360***	-0.338***	-0.277***	-0.320***
	(0.071)	(0.069)	(0.071)	(0.074)	(0.082)	(0.083)	(0.080)	(0.080)
Greens voter	-0.366***	-0.359**	-0.385**	-0.375**	-0.092	-0.066	-0.043	-0.050
	(0.105)	(0.111)	(0.118)	(0.137)	(0.119)	(0.120)	(0.123)	(0.122)
Greens voter x Policy switch	-0.032	-0.016	0.042	0.040	0.417***	0.387***	0.341**	0.359**

Table A7: Opinion on government policy controlling for Greens

	Government response is exaggerated				Government response is too lax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.075)	(0.080)	(0.094)	(0.115)	(0.114)	(0.114)	(0.117)	(0.116)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.051	0.058	0.214	0.174	0.080	0.082	0.134	0.159
AIC	44955.3	44657.2	37259.0	39166.6	37171.2	37114.2	34994.0	33994.1
BIC	45222.6	45028.0	37664.3	39571.9	37438.5	37485.0	35399.3	34399.4
Log.Lik.	-22446.626	-22285.601	-18582.500	-19536.314	-18554.591	-18514.114	-17450.023	-16950.063
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X	X	X		X	X	X
low danger			X				X	
high danger				X				X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A8: Low danger controlling for Greens

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	-0.001	0.058	0.100	0.076	-0.091	-0.090	-0.305	-0.295
	(0.068)	(0.071)	(0.084)	(0.081)	(0.065)	(0.064)	(0.181)	(0.189)
FPÖ voter x Policy switch	0.171**	0.116*	0.253**	0.265***	-0.063	-0.075	0.229	0.211
	(0.054)	(0.057)	(0.081)	(0.079)	(0.044)	(0.047)	(0.185)	(0.193)
Greens voter	0.280***	0.191**	-0.058	-0.068	0.273***	0.256***	-0.189	-0.213
	(0.075)	(0.074)	(0.068)	(0.071)	(0.068)	(0.070)	(0.129)	(0.147)
Greens voter x Policy switch	-0.306***	-0.233***	-0.122*	-0.121*	-0.127*	-0.099	0.220	0.236
	(0.064)	(0.062)	(0.054)	(0.054)	(0.053)	(0.055)	(0.133)	(0.150)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.024	0.033	0.051	0.063	0.009	0.026	0.027	0.041
AIC	55526.6	55054.9	41529.3	41032.8	54850.2	53906.5	16331.0	16121.0
BIC	55793.9	55425.7	41796.6	41403.6	55117.5	54277.3	16598.3	16491.8
Log.Lik.	-27732.301	-27484.474	-20733.650	-20473.389	-27394.085	-26910.238	-8134.505	-8017.524

Table A8: Low danger controlling for Greens

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A9: High danger controlling for Greens

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	0.031	-0.043	-0.029	-0.016	0.071	0.037	0.115	0.123
	(0.078)	(0.083)	(0.062)	(0.062)	(0.078)	(0.078)	(0.070)	(0.069)
FPÖ voter x Policy switch	-0.102	-0.043	-0.181**	-0.186**	0.061	0.098	0.046	0.053
	(0.069)	(0.073)	(0.061)	(0.062)	(0.068)	(0.070)	(0.062)	(0.062)
Greens voter	-0.372***	-0.244**	0.003	0.018	-0.526***	-0.485***	-0.027	-0.013
	(0.084)	(0.084)	(0.083)	(0.084)	(0.080)	(0.081)	(0.069)	(0.070)
Greens voter x Policy switch	0.267***	0.170*	0.125	0.125	0.272***	0.234**	-0.044	-0.055
	(0.079)	(0.080)	(0.075)	(0.077)	(0.078)	(0.078)	(0.057)	(0.060)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.023	0.033	0.050	0.059	0.012	0.026	0.030	0.039
AIC	32969.3	32645.0	50963.7	50542.3	45754.6	45141.5	50414.7	49999.6
BIC	33236.6	33015.8	51231.0	50913.1	46021.9	45512.3	50682.0	50370.4
Log.Lik.	-16453.670	-16279.507	-25450.845	-25228.150	-22846.292	-22527.760	-25176.371	-24956.809
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A10: Opinion on government policy controlling for NEOS

	Government response is exaggerated				Government response is too lax			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	0.338***	0.297***	0.286***	0.281***	0.242***	0.219**	0.242**	0.266***
	(0.077)	(0.075)	(0.074)	(0.077)	(0.072)	(0.076)	(0.075)	(0.077)
FPÖ voter x Policy switch	0.341***	0.354***	0.291***	0.321***	-0.414***	-0.380***	-0.314***	-0.359***
	(0.071)	(0.070)	(0.071)	(0.072)	(0.081)	(0.083)	(0.079)	(0.081)
NEOS voter	0.000	-0.033	-0.034	-0.083	-0.245*	-0.230	-0.215	-0.157
	(0.125)	(0.132)	(0.151)	(0.162)	(0.122)	(0.122)	(0.125)	(0.138)
NEOS voter x Policy switch	0.026	0.066	0.050	0.044	0.058	0.020	0.022	0.005
	(0.114)	(0.120)	(0.147)	(0.151)	(0.119)	(0.118)	(0.120)	(0.128)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.046	0.053	0.211	0.171	0.076	0.079	0.132	0.156
AIC	45218.5	44883.3	37425.5	39329.2	37317.0	37242.4	35098.1	34118.1
BIC	45485.8	45254.1	37830.8	39734.4	37584.3	37613.2	35503.4	34523.4
Log.Lik.	-22578.227	-22398.654	-18665.767	-19617.586	-18627.493	-18578.190	-17502.045	-17012.048
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X	X	X		X	X	X
low danger			X				X	
high danger				X				X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A11: Low danger controlling for NEOS

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**
FPÖ voter	-0.024	0.046	0.112	0.083	-0.118	-0.110	-0.277	-0.273
	(0.068)	(0.072)	(0.085)	(0.083)	(0.064)	(0.064)	(0.182)	(0.190)
FPÖ voter x Policy switch	0.208***	0.140*	0.265**	0.277***	-0.048	-0.068	0.190	0.178
	(0.055)	(0.059)	(0.084)	(0.081)	(0.043)	(0.047)	(0.186)	(0.194)
NEOS voter	0.226*	0.110	0.079	0.019	0.138	0.083	0.140	0.102
	(0.112)	(0.115)	(0.113)	(0.110)	(0.094)	(0.094)	(0.190)	(0.188)
NEOS voter x	-0.050	0.032	-0.022	-0.003	-0.050	-0.031	-0.269	-0.275

Table A11: Low danger controlling for NEOS

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Policy switch								
	(0.107)	(0.109)	(0.110)	(0.108)	(0.046)	(0.050)	(0.198)	(0.196)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.024	0.033	0.050	0.062	0.008	0.025	0.028	0.042
AIC	55514.6	55047.7	41576.6	41086.2	54909.1	53973.4	16326.9	16112.5
BIC	55781.9	55418.5	41843.9	41457.0	55176.4	54344.2	16594.2	16483.3
Log.Lik.	-27726.314	-27480.863	-20757.320	-20500.110	-27423.567	-26943.694	-8132.444	-8013.248
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A12: High danger controlling for NEOS

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	0.053	-0.034	-0.041	-0.024	0.121	0.072	0.120	0.127
	(0.077)	(0.082)	(0.063)	(0.063)	(0.076)	(0.077)	(0.067)	(0.067)
FPÖ voter x Policy switch	-0.125	-0.054	-0.200**	-0.203**	0.038	0.084	0.047	0.055
	(0.068)	(0.072)	(0.062)	(0.063)	(0.065)	(0.068)	(0.059)	(0.059)
NEOS voter	-0.371**	-0.241	-0.210*	-0.145	-0.099	-0.044	0.041	0.079
	(0.128)	(0.131)	(0.088)	(0.087)	(0.109)	(0.109)	(0.088)	(0.089)
NEOS voter x Policy switch	0.134	0.046	-0.049	-0.065	0.069	0.031	-0.080	-0.073
	(0.107)	(0.107)	(0.081)	(0.077)	(0.098)	(0.099)	(0.073)	(0.076)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.023	0.033	0.051	0.059	0.008	0.022	0.030	0.039
AIC	32967.9	32636.5	50924.2	50536.1	45929.1	45296.7	50422.9	50007.4

Table A12: High danger controlling for NEOS

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
BIC	33235.2	33007.2	51191.5	50906.9	46196.4	45667.4	50690.2	50378.1
Log.Lik.	-16452.931	-16275.234	-25431.081	-25225.073	-22933.527	-22605.326	- 25180.464	- 24960.685
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A13: Opinion on government policy controlling for non or invalid

	Government response is exaggerated				Government response is too lax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	0.392***	0.360***	0.333***	0.345***	0.247***	0.218**	0.244**	0.266***
	(0.073)	(0.071)	(0.069)	(0.073)	(0.072)	(0.076)	(0.076)	(0.078)
FPÖ voter x Policy switch	0.335***	0.341***	0.283***	0.310***	-0.422***	-0.381***	-0.311***	-0.360***
	(0.067)	(0.065)	(0.066)	(0.067)	(0.082)	(0.083)	(0.080)	(0.081)
non or invalid voter	0.477***	0.477***	0.369***	0.463***	-0.071	-0.099	-0.058	-0.066
	(0.091)	(0.094)	(0.094)	(0.095)	(0.082)	(0.084)	(0.082)	(0.081)
non or invalid voter x Policy switch	0.004	-0.018	-0.021	-0.019	-0.081	-0.034	0.008	-0.034
	(0.079)	(0.083)	(0.084)	(0.082)	(0.082)	(0.084)	(0.084)	(0.080)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.054	0.061	0.215	0.177	0.076	0.078	0.131	0.156
AIC	44819.5	44523.9	37249.3	39031.5	37321.4	37258.4	35124.7	34125.2
BIC	45086.9	44894.7	37654.6	39436.7	37588.7	37629.2	35529.9	34530.5
Log.Lik.	-22378.774	-22218.946	-18577.675	-19468.734	-18629.698	-18586.206	-17515.334	-17015.594
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X	X	X		X	X	X
low danger			X				X	
high danger				X				X

Table A13: Opinion on government policy controlling for non or invalid

	Government response is exaggerated				Government response is too lax			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A14: Low danger controlling for non or invalid

	Covid poses a low danger to personal health		Covid poses a low danger to public health		Covid poses a low danger to personal economic situation		Covid poses a low danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	-0.029	0.055	0.150	0.131	-0.135*	-0.120	-0.270	-0.261
	(0.068)	(0.072)	(0.082)	(0.079)	(0.066)	(0.066)	(0.170)	(0.179)
FPÖ voter x Policy switch	0.217***	0.143*	0.262**	0.269***	-0.045	-0.065	0.198	0.182
	(0.055)	(0.059)	(0.081)	(0.078)	(0.046)	(0.050)	(0.175)	(0.184)
non or invalid voter	0.083	0.128	0.383***	0.386***	-0.104	-0.066	0.144	0.144
	(0.080)	(0.080)	(0.103)	(0.104)	(0.092)	(0.092)	(0.137)	(0.133)
non or invalid voter x Policy switch	0.089	0.064	-0.011	-0.019	0.019	0.017	-0.062	-0.078
	(0.071)	(0.071)	(0.097)	(0.098)	(0.072)	(0.074)	(0.151)	(0.147)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.024	0.034	0.055	0.067	0.008	0.025	0.028	0.042
AIC	55508.4	55009.9	41355.0	40872.9	54906.5	53972.5	16328.2	16120.0
BIC	55775.8	55380.7	41622.3	41243.6	55173.8	54343.2	16595.5	16490.8
Log.Lik.	-27723.223	-27461.962	-20646.523	-20393.426	-27422.251	-26943.231	-8133.122	-8016.988
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table A15: High danger controlling for non or invalid

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
FPÖ voter	0.064	-0.036	-0.043	-0.033	0.131	0.073	0.110	0.115

Table A15: High danger controlling for non or invalid

	Covid poses a high danger to personal health		Covid poses a high danger to public health		Covid poses a high danger to personal economic situation		Covid poses a high danger to economy	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	(0.075)	(0.080)	(0.062)	(0.062)	(0.075)	(0.075)	(0.066)	(0.066)
FPÖ voter x Policy switch	-0.132*	-0.054	-0.196**	-0.197**	0.030	0.081	0.067	0.076
	(0.067)	(0.070)	(0.062)	(0.063)	(0.065)	(0.067)	(0.059)	(0.059)
non or invalid voter	-0.069	-0.117	-0.144	-0.153*	0.047	-0.006	-0.085	-0.080
	(0.092)	(0.091)	(0.073)	(0.073)	(0.090)	(0.092)	(0.077)	(0.077)
non or invalid voter x Policy switch	-0.033	-0.005	0.000	0.009	-0.049	-0.027	0.163**	0.165**
	(0.085)	(0.087)	(0.065)	(0.065)	(0.071)	(0.076)	(0.058)	(0.056)
Num.Obs.	41056	41056	41056	41056	41056	41056	41056	41056
R2								
R2 Adj.								
R2 Within								
R2 Pseudo	0.022	0.033	0.050	0.059	0.008	0.022	0.030	0.039
AIC	33005.8	32647.7	50959.7	50544.8	45930.8	45295.7	50414.0	49996.3
BIC	33273.1	33018.5	51227.0	50915.6	46198.1	45666.4	50681.3	50367.0
Log.Lik.	-16471.896	-16280.862	-25448.863	-25229.398	-22934.399	-22604.834	-25176.008	-24955.136
Std.Errors	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid	by: wave & respid
FE: wave	X	X	X	X	X	X	X	X
gender, age, education		X		X		X		X

* p < 0.05, ** p < 0.01, *** p < 0.001

Appendix B: Robustness Check 1 (number of deaths / infections before the intervention)

Appendix B explores whether controlling for the number of cases/deaths per capita before the policy switch influences the results by introducing an interaction term between the cumulative number of cases per 1k/deaths per 100k inhabitants prior to the switch and the policy switch variable. While neither new interaction term has a significant impact on the number of cases per 1k inhabitants, they reduce the coefficient of interest (which is significant nevertheless) with regard to the number of deaths per 100k inhabitants. An increase in the number of deaths prior to the policy switch predicts a decrease in the deaths after the switch, which could possibly be traced back to increased awareness or herd immunity. If we do not account for the number of cases in the two previous periods, this relationship also holds for the number of cases: A higher cumulative number of cases per 1k inhabitants prior to the policy switch predicts a decrease in the deaths after the switch.

Table B1: Deaths per 100k inhabitants controlling for deaths or cases before the policy switch

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.396***	0.394***	0.395***	0.327***	0.325***	0.327***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.067***	0.049*	0.057***	0.068***	0.059**	0.067***
	(0.015)	(0.020)	(0.013)	(0.018)	(0.023)	(0.017)
cumulative number of cases per 1k inhabitants prior to the policy switch x Policy switch	-0.133*	-0.144*	-0.131*	-0.105	-0.096	-0.097
	(0.057)	(0.059)	(0.055)	(0.062)	(0.060)	(0.060)
cases per 1k inhabitants in the weeks t-1 and t-2				0.264***	0.267***	0.265***
				(0.046)	(0.046)	(0.047)
Index: government measures are too lax		-0.646			7.466	
		(13.550)			(12.526)	
Index: Covid-19 poses a high danger to personal health		-21.695*			-24.924*	
		(10.124)			(11.168)	
Index: Covid-19 poses a high danger to public health		14.671			36.104*	
		(16.330)			(16.643)	
Index: Covid-19 poses a high danger to personal economic situation		44.210**			33.831*	
		(15.971)			(15.947)	
Index: Covid-19 poses a high danger to the economy		14.755			-1.201	
		(11.939)			(11.071)	
Index: government measures are exaggerated			-4.266			2.565
			(8.089)			(7.790)
Index: Covid-19 poses a low danger to personal health			13.397			6.370
			(8.981)			(8.938)
Index: Covid-19 poses a low danger to public health			2.003			-12.770
			(12.525)			(11.544)
Index: Covid-19 poses a low danger to personal economic situation			-12.815			3.760
			(15.680)			(16.820)

Table B1: Deaths per 100k inhabitants controlling for deaths or cases before the policy switch

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Index: Covid-19 poses a low danger to the economy			-36.932			-31.388
			(24.551)			(23.179)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.549	0.550	0.550	0.571	0.572	0.571
R2 Adj.	0.540	0.541	0.540	0.562	0.563	0.562
R2 Within	0.155	0.157	0.156	0.196	0.198	0.196
R2 Pseudo						
AIC	41575.4	41566.4	41580.7	41124.7	41115.1	41131.0
BIC	42958.3	42985.0	42999.2	42514.7	42540.8	42556.6
Log.Lik.	-20593.715	-20584.217	-20591.356	-20367.336	-20357.553	-20365.486
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B2: Deaths per 100k inhabitants controlling for deaths or cases before the policy switch

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.393***	0.391***	0.392***	0.324***	0.321***	0.323***
	(0.036)	(0.036)	(0.036)	(0.037)	(0.037)	(0.037)
FPÖ vote share x Policy switch	0.066***	0.050***	0.055***	0.061***	0.048**	0.057***
	(0.002)	(0.011)	(0.007)	(0.008)	(0.015)	(0.011)
cumulative number of cases per 1k inhabitants prior to the policy switch x Policy switch	-0.064**	-0.067**	-0.064**	-0.062**	-0.062**	-0.062**
	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)	(0.021)
cases per 1k inhabitants in the weeks t-1 and t-2				0.265***	0.267***	0.265***
				(0.046)	(0.046)	(0.046)
Index: government measures are too lax		0.858			7.216	
		(13.288)			(12.288)	
Index: Covid-19 poses a high danger to personal health		-22.042*			-25.859*	
		(9.002)			(10.153)	
Index: Covid-19 poses a high danger to public health		15.518			36.282*	
		(16.262)			(16.517)	
Index: Covid-19 poses a high danger to personal economic situation		46.202**			35.871*	
		(15.712)			(15.701)	

Table B2: Deaths per 100k inhabitants controlling for deaths or cases before the policy switch

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
Index: Covid-19 poses a high danger to the economy		14.402			-0.841	
		(11.806)			(10.896)	
Index: government measures are exaggerated			-2.688			5.345
			(8.584)			(8.117)
Index: Covid-19 poses a low danger to personal health			13.267			6.289
			(8.519)			(8.220)
Index: Covid-19 poses a low danger to public health			1.779			-12.499
			(12.366)			(11.235)
Index: Covid-19 poses a low danger to personal economic situation			-13.138			1.967
			(15.753)			(16.813)
Index: Covid-19 poses a low danger to the economy			-37.792			-31.303
			(24.741)			(23.319)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.551	0.551	0.551	0.572	0.573	0.572
R2 Adj.	0.541	0.542	0.541	0.563	0.564	0.563
R2 Within	0.157	0.159	0.158	0.198	0.200	0.198
R2 Pseudo						
AIC	41553.9	41543.9	41559.1	41098.5	41087.9	41104.9
BIC	42936.7	42962.4	42977.6	42488.5	42513.6	42530.6
Log.Lik.	-20582.932	-20572.957	-20580.559	-20354.241	-20343.963	-20352.455
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table B3: Cases per 1k inhabitants and deaths per 100k inhabitants controlling for potential demographic endogeneity

	Cases without vaccinations	Cases with vaccinations		Deaths	Deaths with cases
	(1)	**(2)**	**(3)**	**(4)**	**(5)**
lag(cases per 1k, 1)	0.789***	0.780***	0.767***		
	(0.071)	(0.070)	(0.069)		
lag(deaths per 100k, 1)	-0.016**	-0.016**	-0.015**	0.397***	0.327***
	(0.005)	(0.005)	(0.005)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.009	0.006	0.003	0.110***	0.102***

Table B3: Cases per 1k inhabitants and deaths per 100k inhabitants controlling for potential demographic endogeneity

	Cases without vaccinations	Cases with vaccinations		Deaths	Deaths with cases
	(1)	(2)	(3)	(4)	(5)
	(0.010)	(0.010)	(0.010)	(0.028)	(0.026)
Share of population above 64 x Policy switch	-0.007	-0.008	-0.010	0.094**	0.112***
	(0.010)	(0.010)	(0.011)	(0.029)	(0.026)
Share of population below 25 x Policy switch	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Share of women x Policy switch	-0.016	-0.018	-0.016	-0.160	-0.135
	(0.027)	(0.028)	(0.031)	(0.124)	(0.117)
Share of maximum education: apprenticeship x Policy switch	0.002	-0.001	0.000	-0.055*	-0.064**
	(0.006)	(0.006)	(0.006)	(0.026)	(0.024)
Share of maximum education: secondary education x Policy switch	-0.043**	-0.036*	-0.034*	-0.069	-0.008
	(0.015)	(0.016)	(0.016)	(0.054)	(0.047)
Share of maximum education: university x Policy switch	0.014	0.005	0.005	0.004	-0.021
	(0.008)	(0.009)	(0.009)	(0.056)	(0.053)
lag(Cumulative number of cases per 1k inhabitants, 4)	-0.003	-0.005*	-0.008***		
	(0.003)	(0.002)	(0.002)		
lag(State-level second-dose vaccinations per 1k, 4)		-0.003*			
		(0.001)			
lag(Imputed district-level second-dose vaccinations per 1k, 4)			-0.005***		
			(0.001)		
Cases per 1k inhabitants in the weeks t-1 and t-2					0.267***
					(0.047)
Num.Obs.	9212	9212	9212	9212	9212
R2	0.929	0.929	0.930	0.549	0.571
R2 Adj.	0.927	0.927	0.928	0.539	0.562
R2 Within	0.603	0.606	0.609	0.155	0.196
R2 Pseudo					
AIC	19019.8	18963.8	18876.6	41589.6	41128.3
BIC	20452.6	20403.7	20316.5	43008.1	42554.0
Log.Lik.	-9308.911	-9279.913	-9236.291	-20595.795	-20364.153
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X
FE: time	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Appendix C: Robustness Check 2 (other political parties)

I tested whether introducing an interaction term between the vote share of one of the other parties (the conservative ÖVP, the greens, the social democratic SPÖ, the liberal NEOS, as well as the combined vote share of minor parties such as the FPÖ splinter group BZÖ) and the policy switch changes the results in order to investigate whether the observed relationships could merely be correlated with opposition to the ÖVP-greens government, as one of the reviewers of a previous version of this paper suggested. My results are robust in all 65 models. In order to keep this paper within a reasonable length, however, I only report the results tables where the interaction term of the intervention and the vote share of the other party is statistically significant (p<0.05).

Table C1: Deaths per 100k inhabitants controlling for the SPÖ vote share

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.397***	0.395***	0.396***	0.327***	0.325***	0.327***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.085***	0.075**	0.080***	0.077***	0.070**	0.078***
	(0.019)	(0.024)	(0.020)	(0.017)	(0.022)	(0.018)
SPÖ vote share x Policy switch	0.036**	0.040**	0.034**	0.045***	0.041**	0.042***
	(0.013)	(0.013)	(0.013)	(0.012)	(0.013)	(0.012)
cases per 1k inhabitants in the weeks t-1 and t-2				0.267***	0.269***	0.267***
				(0.047)	(0.046)	(0.047)
Index: government measures are too lax		1.745			7.720	
		(13.657)			(12.554)	
Index: Covid-19 poses a high danger to personal health		-17.339			-21.309	
		(10.161)			(10.979)	
Index: Covid-19 poses a high danger to public health		14.391			35.100*	
		(15.992)			(16.262)	
Index: Covid-19 poses a high danger to personal economic situation		45.198**			35.040*	
		(15.781)			(15.698)	
Index: Covid-19 poses a high danger to the economy		13.946			-1.178	
		(11.782)			(10.888)	
Index: government measures are exaggerated			-5.723			3.639

Table C1: Deaths per 100k inhabitants controlling for the SPÖ vote share

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
			(8.698)			(8.381)
Index: Covid-19 poses a low danger to personal health			10.402			2.700
			(9.210)			(8.862)
Index: Covid-19 poses a low danger to public health			1.799			-11.960
			(12.339)			(11.064)
Index: Covid-19 poses a low danger to personal economic situation			-10.994			2.707
			(15.884)			(16.669)
Index: Covid-19 poses a low danger to the economy			-36.344			-28.544
			(24.898)			(23.484)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.549	0.550	0.549	0.571	0.572	0.571
R2 Adj.	0.540	0.540	0.540	0.562	0.563	0.562
R2 Within	0.155	0.157	0.155	0.196	0.198	0.196
R2 Pseudo						
AIC	41581.0	41572.5	41586.9	41121.2	41112.3	41128.0
BIC	42963.9	42991.1	43005.4	42511.2	42538.0	42553.7
Log.Lik.	-20596.522	-20587.265	-20594.443	-20365.579	-20356.156	-20364.005
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table C2: Deaths per 100k inhabitants controlling for the ÖVP vote share

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.397***	0.395***	0.396***	0.328***	0.325***	0.327***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.093***	0.059**	0.073***	0.087***	0.055*	0.074***
	(0.018)	(0.023)	(0.018)	(0.016)	(0.022)	(0.017)
ÖVP vote share x Policy switch	-0.025*	-0.040**	-0.030*	-0.028*	-0.040**	-0.031*
	(0.012)	(0.014)	(0.013)	(0.012)	(0.013)	(0.012)

Table C2: Deaths per 100k inhabitants controlling for the ÖVP vote share

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
cases per 1k inhabitants in the weeks t-1 and t-2				0.266***	0.268***	0.266***
				(0.047)	(0.046)	(0.047)
Index: government measures are too lax		-0.585			5.505	
		(13.559)			(12.415)	
Index: Covid-19 poses a high danger to personal health		-35.445***			-39.394***	
		(10.320)			(11.088)	
Index: Covid-19 poses a high danger to public health		19.531			40.283*	
		(15.788)			(15.978)	
Index: Covid-19 poses a high danger to personal economic situation		49.627**			39.406*	
		(15.865)			(15.778)	
Index: Covid-19 poses a high danger to the economy		14.387			-0.784	
		(11.638)			(10.683)	
Index: government measures are exaggerated			-0.641			7.781
			(9.184)			(8.983)
Index: Covid-19 poses a low danger to personal health			20.665*			13.768
			(9.436)			(9.336)
Index: Covid-19 poses a low danger to public health			-0.264			-14.505
			(12.767)			(11.628)
Index: Covid-19 poses a low danger to personal economic situation			-14.343			0.447
			(15.529)			(16.247)
Index: Covid-19 poses a low danger to the economy			-42.509			-35.911
			(24.678)			(23.422)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.549	0.550	0.549	0.571	0.572	0.571
R2 Adj.	0.539	0.540	0.540	0.562	0.563	0.562
R2 Within	0.155	0.157	0.155	0.196	0.198	0.196
R2 Pseudo						
AIC	41583.1	41569.5	41586.1	41126.0	41109.7	41130.6
BIC	42966.0	42988.0	43004.6	42516.0	42535.3	42556.2
Log.Lik.	-20597.559	-20585.746	-20594.035	-20368.004	-20354.838	-20365.295
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table C3: Deaths per 100k inhabitants controlling for the vote share of other (minor) parties

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.398***	0.395***	0.397***	0.328***	0.325***	0.328***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.107***	0.091***	0.096***	0.103***	0.087***	0.097***
	(0.022)	(0.026)	(0.022)	(0.020)	(0.024)	(0.020)
combined vote share of minor parties x Policy switch	0.311	0.508*	0.378	0.363	0.544**	0.386*
	(0.200)	(0.202)	(0.196)	(0.200)	(0.199)	(0.191)
cases per 1k inhabitants in the weeks t-1 and t-2				0.266***	0.269***	0.266***
				(0.047)	(0.046)	(0.047)
Index: government measures are too lax		2.865			8.744	
		(14.127)			(13.087)	
Index: Covid-19 poses a high danger to personal health		-28.550**			-33.207**	
		(10.329)			(11.085)	
Index: Covid-19 poses a high danger to public health		19.293			40.227*	
		(15.949)			(16.218)	
Index: Covid-19 poses a high danger to personal economic situation		46.928**			36.967*	
		(16.418)			(16.314)	
Index: Covid-19 poses a high danger to the economy		12.839			-2.283	
		(11.543)			(10.647)	
Index: government measures are exaggerated			-5.600			2.791
			(9.042)			(8.851)
Index: Covid-19 poses a low danger to personal health			17.671			10.772
			(9.189)			(9.071)
Index: Covid-19 poses a low danger to public health			-0.485			-14.729
			(12.969)			(11.845)
Index: Covid-19 poses a low danger to personal economic situation			-10.233			4.576
			(15.941)			(16.737)
Index: Covid-19 poses a low danger to the economy			-42.501			-35.915
			(24.678)			(23.338)
Num.Obs.	9212	9212	9212	9212	9212	9212

Table C3: Deaths per 100k inhabitants controlling for the vote share of other (minor) parties

	Without controlling for cases			Controlling for cases		
	(1)	(2)	(3)	(4)	(5)	(6)
R2	0.549	0.550	0.549	0.571	0.572	0.571
R2 Adj.	0.539	0.540	0.539	0.562	0.563	0.562
R2 Within	0.154	0.156	0.155	0.195	0.198	0.196
R2 Pseudo						
AIC	41586.5	41576.0	41590.0	41130.1	41115.6	41134.8
BIC	42969.4	42994.6	43008.6	42520.1	42541.3	42560.5
Log.Lik.	-20599.248	-20589.015	-20596.016	-20370.045	-20357.823	-20367.405
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Robustness Check D: Results of the presidential elections 2016

Table D1: Cases per 1k inhabitants controlling for the vote share of FPÖ presidential candidate Norbert Hofer in the runoff 2016

	Without vaccinations			With vaccinations			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
lag(cases per 1k, 1)	0.787***	0.785***	0.787***	0.784***	0.780***	0.778***	0.780***
	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.065)	(0.064)
lag(deaths per 100k, 1)	-0.016**	-0.015**	-0.016**	-0.015**	-0.015**	-0.014*	-0.015**
	(0.006)	(0.006)	(0.006)	(0.005)	(0.005)	(0.006)	(0.006)
FPÖ vote share x Policy switch	0.017	0.013	0.018	0.011	0.009	0.005	0.009
	(0.010)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Share of FPÖ presidential candidate Norbert Hofer in the runoff 2016 x Policy switch	-0.005*	-0.005	-0.010*	-0.003	-0.002	-0.002	-0.007
	(0.002)	(0.003)	(0.004)	(0.003)	(0.003)	(0.004)	(0.004)
cumulative number of cases per 1k inhabitants	0.000	0.000	0.000	-0.001	-0.004	-0.005	-0.004
	(0.003)	(0.003)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
lag(State-level second-dose vaccinations per 1k, 4)				-0.003*			
				(0.001)			
lag(Imputed district-level second-dose vaccinations per 1k, 4)					-0.004**	-0.004**	-0.004**
					(0.001)	(0.001)	(0.001)
Index: government measures are too lax		-0.549				0.552	

Table D1: Cases per 1k inhabitants controlling for the vote share of FPÖ presidential candidate Norbert Hofer in the runoff 2016

	Without vaccinations				With vaccinations		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
		(1.419)				(0.986)	
Index: Covid-19 poses a high danger to personal health		-0.917				-0.724	
		(2.421)				(2.569)	
Index: Covid-19 poses a high danger to public health		-14.534**				-13.984**	
		(4.519)				(4.271)	
Index: Covid-19 poses a high danger to personal economic situation		1.800				9.846	
		(6.299)				(5.372)	
Index: Covid-19 poses a high danger to the economy		10.850**				6.331	
		(3.936)				(3.636)	
Index: government measures are exaggerated			4.542				4.427
			(3.844)				(3.783)
Index: Covid-19 poses a low danger to personal health			4.121				4.965
			(3.653)				(3.588)
Index: Covid-19 poses a low danger to public health			5.295				3.989
			(4.771)				(4.587)
Index: Covid-19 poses a low danger to personal economic situation			-1.617				-6.838
			(5.137)				(5.051)
Index: Covid-19 poses a low danger to the economy			-9.150				-4.547
			(8.035)				(6.844)
Num.Obs.	9212	9212	9212	9212	9212	9212	9212
R2	0.928	0.929	0.929	0.929	0.929	0.929	0.929
R2 Adj.	0.927	0.927	0.927	0.927	0.928	0.928	0.928
R2 Within	0.602	0.604	0.603	0.604	0.607	0.608	0.607
R2 Pseudo							
AIC	19026.7	19009.7	19029.2	18987.2	18926.6	18907.9	18928.3
BIC	20423.8	20442.5	20462.0	20391.4	20330.8	20347.9	20368.2
Log.Lik.	-9317.351	-9303.866	-9313.615	-9296.585	-9266.275	-9251.972	-9262.135
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X	X
FE: time	X	X	X	X	X	X	X

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table D2: Deaths per 100k inhabitants controlling for the vote share of FPÖ presidential candidate Norbert Hofer in the runoff 2016

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.398***	0.396***	0.397***	0.329***	0.326***	0.328***
	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)	(0.036)
FPÖ vote share x Policy switch	0.124**	0.138***	0.132***	0.099**	0.123**	0.106**
	(0.038)	(0.041)	(0.040)	(0.036)	(0.037)	(0.037)
Share of FPÖ presidential candidate Norbert Hofer in the runoff 2016 x Policy switch	-0.014	-0.033	-0.026	-0.003	-0.026	-0.009
	(0.015)	(0.018)	(0.017)	(0.016)	(0.017)	(0.017)
cases per 1k inhabitants in the weeks t-1 and t-2				0.265***	0.268***	0.266***
				(0.047)	(0.046)	(0.047)
Index: government measures are too lax		5.319			11.436	
		(13.925)			(12.887)	
Index: Covid-19 poses a high danger to personal health		-30.702**			-32.119**	
		(10.907)			(11.884)	
Index: Covid-19 poses a high danger to public health		21.001			40.843*	
		(15.763)			(16.117)	
Index: Covid-19 poses a high danger to personal economic situation		46.400**			35.537*	
		(16.173)			(15.987)	
Index: Covid-19 poses a high danger to the economy		12.119			-3.036	
		(11.678)			(10.836)	
Index: government measures are exaggerated			-6.445			-0.396
			(8.690)			(8.671)
Index: Covid-19 poses a low danger to personal health			19.889*			8.367
			(9.737)			(9.023)
Index: Covid-19 poses a low danger to public health			-1.989			-15.117
			(13.056)			(11.943)
Index: Covid-19 poses a low danger to personal economic situation			-7.953			8.235
			(15.911)			(16.583)
Index: Covid-19 poses a low danger to the economy			-45.935			-35.984
			(25.548)			(24.173)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.549	0.550	0.549	0.571	0.572	0.571
R2 Adj.	0.539	0.540	0.539	0.561	0.562	0.561
R2 Within	0.154	0.156	0.155	0.195	0.197	0.196
R2 Pseudo						

Table D2: Deaths per 100k inhabitants controlling for the vote share of FPÖ presidential candidate Norbert Hofer in the runoff 2016

	Without controlling for cases			**Controlling for cases**		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
AIC	41588.0	41577.8	41590.7	41133.3	41119.8	41137.8
BIC	42970.9	42996.3	43009.2	42523.3	42545.4	42563.5
Log.Lik.	-20600.002	-20589.878	-20596.349	-20371.661	-20359.885	-20368.899
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Robustness check E: Static panel model and model without fixed effects

Table E1: Cases per 1k inhabitants as a static panel model

	Without vaccinations			**With vaccinations**			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
FPÖ vote share x Policy switch	0.025	0.023	0.012	0.022	0.019	0.017	0.004
	(0.017)	(0.021)	(0.021)	(0.017)	(0.016)	(0.021)	(0.021)
cumulative number of cases per 1k inhabitants	0.034**	0.033**	0.034**	0.030**	0.025**	0.024**	0.026**
	(0.011)	(0.011)	(0.011)	(0.010)	(0.009)	(0.009)	(0.009)
lag(State-level second-dose vaccinations per 1k, 4)				-0.006*			
				(0.002)			
lag(Imputed district-level second-dose vaccinations per 1k, 4)					-0.007**	-0.008***	-0.008**
					(0.002)	(0.002)	(0.002)
Index: government measures are too lax		13.124				14.962	
		(10.524)				(10.390)	
Index: Covid-19 poses a high danger to personal health		-2.134				-3.712	
		(5.409)				(5.175)	
Index: Covid-19 poses a high danger to public health		-28.673**				-26.576*	
		(11.053)				(10.648)	
Index: Covid-19 poses a high danger to personal economic situation		20.207				36.099*	
		(15.294)				(14.680)	

Table E1: Cases per 1k inhabitants as a static panel model

	Without vaccinations			With vaccinations			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Index: Covid-19 poses a high danger to the economy		15.051				6.178	
		(11.542)				(11.350)	
Index: government measures are exaggerated			-10.447				-9.824
			(12.140)				(11.850)
Index: Covid-19 poses a low danger to personal health			21.442*				24.095*
			(10.656)				(10.452)
Index: Covid-19 poses a low danger to public health			-11.939				-14.437
			(12.928)				(12.452)
Index: Covid-19 poses a low danger to personal economic situation			-2.440				-12.531
			(13.766)				(13.902)
Index: Covid-19 poses a low danger to the economy			-9.265				-1.761
			(17.470)				(16.607)
Num.Obs.	9212	9212	9212	9212	9212	9212	9212
R2	0.838	0.839	0.839	0.839	0.841	0.842	0.841
R2 Adj.	0.835	0.835	0.835	0.836	0.837	0.838	0.838
R2 Within	0.100	0.104	0.103	0.107	0.115	0.121	0.119
R2 Pseudo							
AIC	26548.6	26510.7	26524.9	26472.7	26391.4	26337.3	26367.3
BIC	27924.4	27922.1	27936.3	27855.6	27774.3	27755.8	27785.8
Log.Lik.	-13081.305	-13057.348	-13064.470	-13042.360	-13001.719	-12969.631	-12984.649
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X	X
FE: time	X	X	X	X	X	X	X

* p < 0.05, ** p < 0.01, *** p < 0.001

Table E2: Deaths per 100k inhabitants as a static panel model

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
FPÖ vote share x Policy switch	0.165***	0.152***	0.157***	0.140***	0.130***	0.142***

Table E2: Deaths per 100k inhabitants as a static panel model

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
	(0.036)	(0.045)	(0.038)	(0.029)	(0.036)	(0.030)
cases per 1k inhabitants in the weeks t-1 and t-2				0.391***	0.395***	0.392***
				(0.067)	(0.067)	(0.067)
Index: government measures are too lax		-1.547			9.228	
		(23.244)			(18.642)	
Index: Covid-19 poses a high danger to personal health		-26.559			-30.617	
		(15.677)			(15.828)	
Index: Covid-19 poses a high danger to public health		36.093			61.701*	
		(27.609)			(25.760)	
Index: Covid-19 poses a high danger to personal economic situation		66.423*			45.448*	
		(26.469)			(22.773)	
Index: Covid-19 poses a high danger to the economy		6.689			-14.218	
		(19.645)			(16.929)	
Index: government measures are exaggerated			-18.023			-3.684
			(13.335)			(12.137)
Index: Covid-19 poses a low danger to personal health			17.598			6.152
			(12.988)			(12.257)
Index: Covid-19 poses a low danger to public health			2.515			-19.195
			(20.219)			(16.818)
Index: Covid-19 poses a low danger to personal economic situation			-13.485			10.371
			(24.683)			(23.282)
Index: Covid-19 poses a low danger to the economy			-57.083			-43.204
			(33.824)			(29.059)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.469	0.470	0.469	0.521	0.523	0.522
R2 Adj.	0.457	0.459	0.458	0.511	0.513	0.511
R2 Within	0.004	0.007	0.005	0.103	0.107	0.104
R2 Pseudo						
AIC	43090.7	43069.3	43090.1	42129.0	42100.8	42131.0
BIC	44459.4	44473.6	44494.4	43504.7	43512.2	43542.3
Log.Lik.	-21353.364	-21337.657	-21348.044	-20871.481	-20852.377	-20867.475
Std.Errors	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time	by: GKZ & time
FE: GKZ	X	X	X	X	X	X
FE: time	X	X	X	X	X	X

Table E2: Deaths per 100k inhabitants as a static panel model

	Without controlling for cases			Controlling for cases		
	(1)	(2)	(3)	(4)	(5)	(6)
* p < 0.05, ** p < 0.01, *** p < 0.001						

Table E3: Cases per 1k inhabitants without fixed effects

	Without vaccinations				With vaccinations		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
lag(cases per 1k, 1)	0.947***	0.946***	0.947***	0.946***	0.946***	0.945***	0.946***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
lag(deaths per 100k, 1)	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***	-0.066***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
FPÖ vote share x Policy switch	0.012	0.009	0.007	0.011	0.010	0.008	0.006
	(0.012)	(0.013)	(0.012)	(0.012)	(0.012)	(0.013)	(0.012)
FPÖ vote share	-0.005	-0.004	-0.003	-0.005	-0.005	-0.005	-0.004
	(0.011)	(0.012)	(0.012)	(0.011)	(0.011)	(0.012)	(0.012)
Policy switch	0.031	0.087	0.115	0.047	0.072	0.105	0.142
	(0.204)	(0.223)	(0.213)	(0.204)	(0.204)	(0.223)	(0.213)
cumulative number of cases per 1k inhabitants	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
lag(State-level second-dose vaccinations per 1k, 4)				-0.001*			
				(0.001)			
lag(Imputed district-level second-dose vaccinations per 1k, 4)					-0.001***	-0.001**	-0.001***
					(0.000)	(0.000)	(0.000)
Index: government measures are too lax		-1.122				0.961	
		(4.250)				(4.296)	
Index: Covid-19 poses a high danger to personal health		-1.541				-1.345	
		(4.614)				(4.612)	
Index: Covid-19 poses a high danger to public health		-5.502				-4.959	
		(5.438)				(5.438)	
Index: Covid-19 poses a high danger to personal economic situation		4.225				3.721	
		(4.621)				(4.621)	
Index: Covid-19 poses a high danger to the economy		4.891				3.996	
		(3.994)				(4.001)	
Index: government measures are exaggerated			4.143				4.215
			(3.839)				(3.836)

Table E3: Cases per 1k inhabitants without fixed effects

	Without vaccinations			With vaccinations			
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**
Index: Covid-19 poses a low danger to personal health			2.659				2.332
			(4.398)				(4.397)
Index: Covid-19 poses a low danger to public health			0.805				-0.417
			(6.099)				(6.107)
Index: Covid-19 poses a low danger to personal economic situation			-2.658				-1.412
			(3.190)				(3.210)
Index: Covid-19 poses a low danger to the economy			0.875				0.317
			(10.097)				(10.093)
Num.Obs.	9212	9212	9212	9212	9212	9212	9212
R2	0.821	0.821	0.821	0.821	0.821	0.821	0.821
R2 Adj.	0.821	0.821	0.821	0.821	0.821	0.821	0.821
AIC	27117.6	27121.8	27123.3	27114.9	27106.6	27113.3	27113.9
BIC	27174.6	27214.5	27216.0	27179.1	27170.7	27213.1	27213.7
Log.Lik.	-13550.805	-13547.898	-13548.642	-13548.465	-13544.284	-13542.649	-13542.945
F	7022.035	3831.065	3830.312	6021.960	6028.623	3516.307	3516.031
RMSE	1.05	1.05	1.05	1.05	1.05	1.05	1.05

* p < 0.05, ** p < 0.01, *** p < 0.001

Table E4: Deaths per 100k inhabitants without fixed effects

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
lag(deaths per 100k, 1)	0.656***	0.655***	0.655***	0.531***	0.527***	0.528***
	(0.008)	(0.008)	(0.008)	(0.009)	(0.009)	(0.009)
FPÖ vote share x Policy switch	0.057*	0.050	0.044	0.067*	0.063*	0.061*
	(0.028)	(0.031)	(0.030)	(0.027)	(0.030)	(0.028)
FPÖ vote share	-0.018	-0.016	-0.007	-0.017	-0.014	-0.010
	(0.027)	(0.030)	(0.028)	(0.026)	(0.029)	(0.027)
Policy switch	-0.623	-0.492	-0.391	-1.166*	-1.103*	-1.082*
	(0.491)	(0.538)	(0.513)	(0.469)	(0.514)	(0.490)
cases per 1k inhabitants in the weeks t-1 and t-2				0.180***	0.183***	0.183***
				(0.006)	(0.006)	(0.006)
Index: government measures are too lax		6.745			15.484	
		(10.237)			(9.771)	
Index: Covid-19 poses a high danger to personal health		-10.832			-11.989	

Table E4: Deaths per 100k inhabitants without fixed effects

	Without controlling for cases			Controlling for cases		
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**
		(11.139)			(10.627)	
Index: Covid-19 poses a high danger to public health		4.122			16.689	
		(13.121)			(12.525)	
Index: Covid-19 poses a high danger to personal economic situation		7.732			-6.118	
		(11.129)			(10.628)	
Index: Covid-19 poses a high danger to the economy		9.099			4.982	
		(9.640)			(9.198)	
Index: government measures are exaggerated			-0.869			0.810
			(9.263)			(8.837)
Index: Covid-19 poses a low danger to personal health			16.065			6.488
			(10.614)			(10.130)
Index: Covid-19 poses a low danger to public health			-5.017			-5.734
			(14.720)			(14.042)
Index: Covid-19 poses a low danger to personal economic situation			-2.428			14.468*
			(7.670)			(7.339)
Index: Covid-19 poses a low danger to the economy			-23.517			-31.463
			(24.373)			(23.253)
Num.Obs.	9212	9212	9212	9212	9212	9212
R2	0.431	0.431	0.431	0.481	0.482	0.482
R2 Adj.	0.430	0.431	0.430	0.481	0.482	0.482
AIC	43354.9	43357.0	43359.2	42505.9	42491.0	42492.2
BIC	43397.6	43435.4	43437.6	42555.8	42576.5	42577.7
Log.Lik.	-21671.435	-21667.509	-21668.612	-21245.970	-21233.478	-21234.088
F	1741.405	775.069	774.639	1705.952	857.327	857.091
RMSE	2.54	2.54	2.54	2.43	2.43	2.43

* p < 0.05, ** p < 0.01, *** p < 0.001

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The Impact of Corona Populism: Empirical Evidence from Austria and Theory

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Abstract

I study the impact of opposition politics aimed at downplaying the threat of Covid-19. Exploiting a policy U-turn of a major Austrian right-wing party (FPÖ), I show that Covid-19 deaths per capita are significantly positively correlated with support for the FPÖ only after the turn using panel regressions. Paradoxically, there is no statistically significant correlation with the reported number of infections. I hypothesize that this can be traced back to a self-selection bias in testing, which causes a higher dark figure in FPÖ strongholds. I find empirical support for this hypothesis in individual-level data from a Covid-19 prevalence study showing a much higher share of (undetected) cases among "corona skeptics". I finally extend the classical SIRD model to incorporate conditional quarantine and heterogeneous mixing of two groups of agents with behavioral differences and explore its partly non-trivial properties using thousands of numerical simulations. This model can explain the puzzling empirics: if the behavioral differences between the two groups are sufficiently different, an increase in the share of "corona skeptics" can cause an increase in the number of deaths without increasing the number of reported infections.

Keywords: pandemic, covid-19, sars-cov2, heterogeneous mixing, sir model, economic epidemiology, political polarization

JEL-Codes: H12, H75, I12, I18

1 Introduction

Following Acemoglu et al. (2013) and applying it to the case of the corona pandemic, populism can be defined as an anti-elitist view that receives significant support, but ultimately has adverse effects for the majority of the population.[1] Situations in which costs are mainly external and/or difficult to comprehend seem to be particularly susceptible to such populism. This is neither news for scholars who study views on (policies against) climate change, nor for epidemiologists who witness seemingly ever-growing doubt against vaccines, e.g. in the case of the measles.

The Covid-19 pandemic, however, put a spotlight on these views as an imminent danger for society, as it put health care systems around the world on the brink of collapse. In this situation, governments must rely on compliance with their containment efforts, as well as more or less on voluntary social distancing. Corona populism is, more succinctly, politics aimed at downplaying the threat of COVID-19.

If the level of support for such populist views is too high, a democracy has difficulties to implement policies that internalize these externalities effectively – witness the yellow vest protests against the carbon tax in France and e.g. the protests of the "corona rebels" in Germany (Lange and Monscheuer 2021). Unfortunately, relying on individual responsibility to reduce the level of negative externalities seems to be particularly hopeless in such situations. As the dangers caused by corona populism grew apparent, it has received scholarly attention across scientific disciplines (Alashoor et al. 2020; Brubaker 2020; Eberl et al. 2020; Lasco 2020; Pevehouse 2020).

We can hypothesize that a) supporters of political parties which adopted corona populism are more likely to underestimate the threat posed by COVID-19, as experimental evidence suggests that voters are more likely to adhere to the policy stance of their own party (Grewenig et al. 2020), a view that has been long supported by political scientists (e.g. Campbell et al. 1960; Kam 2005; Bechtel et al. 2015)[2] and b) that these beliefs translate into

[1] While I find this concise definition to be most useful for my purpose, I do not claim that it is the only correct definition of populism.
[2] Adding to this literature, Aaroe (2012) finds that citizens are less likely to adhere to a policy stance advocated by a party that they do not like.

behavioral differences between supporters of corona populist parties and the rest of the population, i.e. lower compliance with containment measures and less social distancing as shown by e.g. Allcott et al. (2020) for the American case. If this is true, the support for corona populist parties in a given community can help to predict the size of the COVID-19 outbreak.

In this paper, I study whether the policy stance of the Austrian right-wing populist freedom party (FPÖ) had an effect on the evolution of the pandemic in communities in which they can rely on a larger voter base. The FPÖ were the first party to demand that the Austrian government should take drastic measures against COVID-19. By the end of April, however, the FPÖ made a U-turn and demanded to "end the Corona madness" (APA OTS 2020a) by which they meant the containment measures taken by the government. In the end of November 2020, one representative of the party even went so far as to advise people not to participate in a mass testing program announced by the Austrian government to be held before Christmas because testing positive would mean that you would have to spend Christmas home alone (APA OTS 2020b). On January 31st 2021, three MPs of the FPÖ participated at a banned demonstration against the lockdown (APA OTS 2021).

The case of the FPÖ is particularly interesting due to two reasons: First, the party, its predecessor VdU and various splinter groups have won seats in every parliamentary election since 1949, when most former members of the Nazi party were allowed to vote again, and participated in five coalition governments. It has thus a longer and more stable tradition than other right-wing parties in Europe. At the same time, the party could never hope to achieve a majority in parliament on its own and it is thus not as established as the Republican party of the US. Second, its clear policy stance subject to a U-turn at the end of the first wave of infections helps to identify the effects of corona populism specifically compared to confounding factors that are merely correlated with support for the FPÖ.

Previous research on the effects of political polarization and populism on beliefs, behavior, and public health outcomes during the pandemic has mainly concentrated on the US. Allcott et al. (2020) show using mobile phone data on the county level that democratic counties exercise more social distancing (also confirmed by e.g. Baradaran Motie and Biolsi 2020), but also record more cases and deaths per capita than republican counties. Controlling for a large number of covariates, Gollwitzer et al. (2020) however find that Trump-leaning counties do not only exercise less social distancing, but that this is also linked to higher growth rates in the number of cases and fatalities.

Allcott et al. (2020) also confirm that individual beliefs about the severity Covid-19 are linked to self-reported social distancing using data from an online survey with US participants. Further investigating what drives these differences, Fan et al. (2020) document that there are partisan differences in social distancing behavior and beliefs, which also depend on differences in news consumption using data from an online survey.

Bisbee and Lee (2020) show that Republican-leaning counties were more likely to practice social distancing when Trump voiced emphasized the risks of Covid-19 on his Twitter profile. As seen in their analysis, however, Trump sent at best a mixed message about the severity of Covid-19.

Research on other countries than the US is much more sparse. Barbieri and Bonini (2020) show that a higher vote share for the Italian right-wing party Lega is associated with lower social distancing using regional mobility data. Like Trump's course, the Lega's policy was characterized by a zig-zag: first downplaying the pandemic, then agreeing to a lockdown, followed by a call for a fast re-opening. Eberl et al. (2020) show that "populist" attitudes – which they define as being anti-elitist, people-centred and having a "Manichean outlook" (following Hawkins and Rovira Kaltwasser 2018) – are positively correlated with Covid-19 conspiracy theories in Austria using data from a panel survey. They emphasize, however, that such views are to be found everywhere in the left-right spectrum and not tied to voters of the FPÖ specifically. Charron et al. (2020) show that excess mortality is higher in European regions where elite polarization is stronger in the dimension of European integration, which they argue proxies the strength of populism.

The main contribution of this paper is twofold:

First, I contribute to the literature on the effects of politics on behavioral responses to the pandemic (e.g. Allcott et al. 2020; Fan et al. 2020; Gollwitzer et al. 2020; Milosh et al. 2020), which is part of a broader body of literature on the causes and effects of behavioral differences in the pandemic (e.g. Barrios et al. 2020; Brzezinski et al. 2020; Bursztyn et al. 2020; Chernozhukov et al. 2020; Jung et al. 2020; Papageorge et al. 2020; Wright et al. 2020). I add to this literature by a) exploiting a clear policy U-turn of an opposition party that enables me to dissect the effects of partisan policy from other factors that are merely correlated with support for populist parties, and b) showing that "corona skepticism" increases the share of undetected cases, i.e. the dark figure. Thus, estimates regarding the true number of infections (in contrast to the reported number of infections) must be corrected for political factors. This in particular has important implications on policy that uses a "traffic light" approach to regionally vary containment stringency based on data on reported infections as it has been in use e.g. in Austria and Germany.

Second, I contribute to the literature on the implications of heterogeneous behavior and heterogeneous mixing on the evolution of the pandemic (e.g. Acemoglu et al. 2020; Britton et al. 2020; Ellison 2020; Bursztyn et al. 2020) building on the classical SIR-framework (Kermack and McKendrick 1927). My stylized model is populated with two types of agents, who behave differently: the corona skeptics and the majority. Corona skeptics practice less social distancing, are less inclined to get tested once they develop symptoms than the majority, and mixing between the two types of agents is more or less homophilic, i.e. corona skeptics are more likely to interact with other corona skeptics than with the majority or not. I add to this literature by a) showing that such a model can explain the Austrian pattern, if mixing is sufficiently homophilic, and b) exploring the implications of behavioral differences, group sizes, and the degree of homophily on public health outcomes of the two groups, as well as the total population, where the degree of homophily proves to exert a nonlinear influence.

The next section discusses the Austrian empirics, i.e. focuses on the first contribution. The third section is devoted to the extended SIRD model and its implications, i.e. the second contribution. The fourth section concludes.

2 Empirics

Aggregate-level evidence: Data & Method

In order to investigate, whether the policy stance of the FPÖ had an effect on the evolution of the pandemic in Austria, I draw on district-level data on the number of infections and deaths, which are available for a daily basis (BMSGPK 2020). Studying county-level data is a standard approach followed by e.g. Allcott et al. (2020), Fan et al. (2020) and Gollwitzer et al. (2020) to study the impact of polarization on the spread of the virus in the US and districts are the Austrian counterpart for counties.

To get a first graphical intuition of the evolution of the pandemic in communities with a low or a high FPÖ vote share, I split the time series dataset into two groups, one for districts with a FPÖ vote share below or equal to and one above the median share of this party. Figure 1 shows a local regression (loess) of the cumulated number of infections per 1,000 inhabitants and deaths per 100,000 inhabitants over time. This exercise suggests that districts, in which the FPÖ fared relatively well at the last national elections received relatively little damage in the first wave of infections, reporting lower numbers of cases and deaths. In the second infection wave starting in autumn 2020, however, the cumulated death toll in these districts surpasses the total number of deaths in the other districts, indicating that the second wave hit districts with a high FPÖ vote share much harder. We do not observe the same clear trend in the cumulative number of cases per capita, as districts with a low FPÖ vote share continued to have a higher number of cumulative cases, even though the difference seems to become smaller in the beginning of February 2021 (see fig. 1).

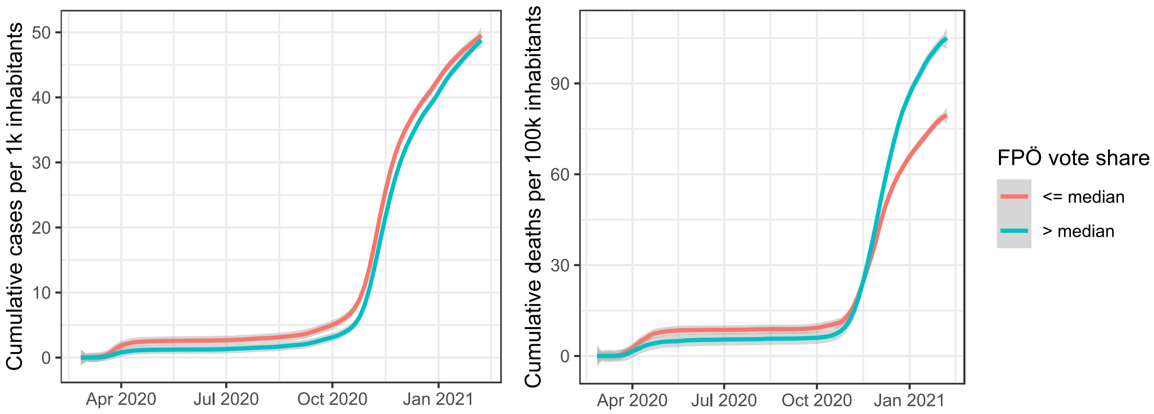

Figure 1: Cumulative cases per 1k inhabitants (left) and cumulative deaths per 100k inhabitants (right).

In order to confirm whether this graphical intuition is also statistically significant, especially when considering district-specific characteristics which may drive this pattern such as e.g. the age structure of the population, I then turned to panel regression analysis.

In the first step, I created a balanced panel data set of weekly data on infections and deaths based on the daily data. In order to identify the effect of the FPÖ-policy switch, the time lag between a social interaction causing an infection, the onset of symptoms, the reporting of the test result and eventual death has to be considered. Therefore, the launch of the FPÖ campaign against the containment measures on the 27th of April cannot have had an immediate impact on cases or deaths. I thus chose the 11th of May as the date of the intervention. However, the main findings are insensitive to reasonable changes in this date and thus also hold if we chose e.g. the 27th of April instead. The data analyzed in this paper ranges until 7th of February 2021, i.e. the end of the third "strict" Austrian lockdown. This date was chosen as a cut-off date due to a) a different testing strategy aimed at mass screening programs in schools and "entry tests" to access the newly-opened service industry, and b) the beginning of serious vaccination efforts. In order to account for these differences and to show that my results are robust to them, I present a robustness check using two-way fixed effects models on data until the 5th of June 2021 in appendix E.

I then merged the dataset on infections and deaths with data on the results of the last national elections (2019) on the district level as a proxy for the influence of the FPÖ. I then apply three types of panel data models to this dataset: 1.) pooled OLS model, 2.) fixed effects model, and 3.) system generalized method of moments (GMM) estimator (Blundell and Bond 1998).

The GMM estimator is used to account for the fact that fixed effects autoregressive panel models suffer from what is known as the dynamic panel bias, i.e. the autoregressive coefficient is downward biased if t is finite, and especially if n is large and t is small (Nickell 1981). Even though t is not very small compared to n in the dataset used in this paper, the system GMM estimator is a useful robustness check. I also show the results of the difference GMM estimator (Arellano and Bond 1991) in the appendix. As it can be seen, difference GMM estimates the autoregressive coefficient lower than the fixed effects model. As the fixed effects model is already downward biased, this result indicates that the difference GMM estimator is seriously biased and may suffer from a weak instruments problem. One solution to this problem is to use the system GMM estimator, which does not only estimate the model in first differences, but also in levels. Since autoregressive coefficient estimated via system GMM lies between the pooled OLS estimator (which is upward biased) and the fixed effects model (which is downward biased), its use seems sensible (Bond et al. 2001).

The models estimated by the fixed effects model and the system GMM estimator incorporate district heterogeneity via district-level fixed effects. In order to explicitly account for observable district-level specificities in the pooled OLS model, I used district-level data on population density (Statistik Austria 2020a), age composition and nationality (Statistik Austria 2020b), gross wages, employment status, the number of commuters and education (WKO 2020). This analysis is on the one hand helpful in uncovering other drivers of the pandemic, but on the other hand cannot account for unobservable district heterogeneity.

In order to identify the effect of the FPÖ policy switch, the models include both a dummy for the intervention, which is 0 for periods up to and 1 after the intervention, as well as an interaction term of the intervention and the FPÖ vote share. I also added dummy variables to account for the effects of the three "strict" and two "soft" lockdowns in place in Austria during the periods observed.

The models estimated are thus given as follows:

1. The pooled OLS model:

Where is the dependent variable, either the number of deaths per 100k inhabitants or the number of reported cases per 1k inhabitants, a vector of district-specific control variables (as well as the constant), a vector of period-specific control variables (the various lockdowns), a dummy indicating the intervention, i.e. 1 after the FPÖ policy switch and 0 before, the FPÖ vote share in the specific district. , , and are coefficients, and is a vector of coefficients. Finally, is the error term. In the first pooled OLS model per regression table, only includes the constant in order to evaluate the system GMM estimator (Bond et al. 2001).

2. The fixed effects model and the system GMM estimator:

In this case, the district-specific control variables, the FPÖ vote share, as well as the intercept, are replaced by district-specific fixed effects which are denoted by . In the system GMM estimator, and, for the two-step estimator on the number of cases also , serve as instruments.

In all cases, I am interested in the coefficient , as it tells us whether the FPÖ vote share conditional on the corona populist turn of the FPÖ has an impact on the dependent variable, i.e. cases or deaths. It is important to note that the fixed effects model and GMM estimators does not allow an interpretation about whether increased support for the FPÖ predicts an increase in cases or deaths *in total*, as the time-invariant FPÖ-vote share is dummied out.

I computed all regressions using the plm package (Croissant and Millo 2008) for the programming language R (R Core Team 2020). The tables were created using the stargazer package (Hlavac 2018).

Aggregate-level results

This section presents the results of the three models on the number of i) deaths per 100k inhabitants, ii) the number of cases per 1k, and iii) number of deaths per 100k inhabitants when accounting for the number of cases.

Table 1 shows the results of the panel regressions predicting the number of deaths per 100,000 inhabitants. The coefficient of interest, i.e. the effect of the interaction term between the policy switch dummy and the FPÖ vote share, is positive and statistically significant at the 1% or 5% level for any model. This analysis suggests that the corona populist turn of the FPÖ did have an impact on the evolution of the pandemic in Austria in the sense that it increased the number of deaths in those communities, in which the FPÖ is stronger.

Table 1: Deaths per 100,000

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step system GMM (4)	Two-Step system GMM (5)
Intervention	-1.705^{***}	-1.746^{***}	-1.814^{***}	-1.234^{***}	-1.220^{***}
	(0.509)	(0.508)	(0.509)	(0.215)	(0.265)
FPÖ vote share	-0.027	-0.033			
	(0.026)	(0.029)			
lockdown I	0.542^{***}	0.549^{***}	0.562^{***}	0.557^{***}	0.554^{***}
	(0.158)	(0.158)	(0.158)	(0.076)	(0.075)
lockdown II	5.097^{***}	5.187^{***}	5.338^{***}	5.094^{***}	4.968^{***}
	(0.190)	(0.190)	(0.191)	(0.420)	(0.515)
lockdown light	3.748^{***}	3.786^{***}	3.848^{***}	3.747^{***}	3.646^{***}
	(0.197)	(0.196)	(0.197)	(0.321)	(0.353)
lockdown light II	3.106^{***}	3.211^{***}	3.384^{***}	3.103^{***}	3.054^{***}

	(0.225)	(0.225)	(0.227)	(0.507)	(0.556)
lockdown III	1.048***	1.089***	1.158***	1.047***	1.031***
	(0.116)	(0.116)	(0.117)	(0.140)	(0.150)
lag(deaths per 100k inhabitants, 1)	0.496***	0.485***	0.466***	0.496***	0.495***
	(0.013)	(0.013)	(0.013)	(0.032)	(0.034)
Intervention x FPÖ vote share	0.109***	0.112***	0.116***	0.083***	0.082***
	(0.029)	(0.029)	(0.029)	(0.012)	(0.015)
Constant	0.470	-4.389**			
	(0.449)	(2.122)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.601	0.604	0.594		
Adjusted R^2	0.600	0.602	0.585		
F Statistic	783.492*** (df = 9; 4690) (p = 0.000)	339.283*** (df = 21; 4678) (p = 0.000)	839.452*** (df = 8; 4598) (p = 0.000)		
Sargan-Hansen Test				(p = 0.80916)	(p = 0.85836)
Autocorrelation Test (1)				(p = 0.00201)	(p = 0.00017)
Autocorrelation Test (2)				(p = 0.36279)	(p = 0.21761)
Note:					*p<0.1; **p<0.05; ***p<0.01

If we look at the number of reported infections (i.e. cases), however, we do not find a statistically significant relationship with the FPÖ vote share (see table 2).

Table 2: Cases per 1k inhabitants

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step system GMM (4)	Two-Step system GMM (5)
intervention	0.077	0.075	0.074	0.155***	0.154***
	(0.129)	(0.129)	(0.129)	(0.028)	(0.031)
FPÖ vote share in 2019 in %	-0.004	-0.003			
	(0.006)	(0.007)			
lockdown I	0.016	0.019	0.021	0.034***	0.034***
	(0.040)	(0.040)	(0.040)	(0.006)	(0.006)
lockdown II	-0.431***	-0.394***	-0.355***	-0.433***	-0.431***
	(0.064)	(0.065)	(0.067)	(0.107)	(0.112)
lockdown light	1.589***	1.624***	1.660***	1.588***	1.583***
	(0.067)	(0.068)	(0.069)	(0.129)	(0.134)
lockdown light II	-0.347***	-0.329***	-0.309***	-0.348***	-0.350***
	(0.055)	(0.055)	(0.056)	(0.069)	(0.070)
lockdown III	-0.064**	-0.055*	-0.046	-0.065***	-0.065**
	(0.030)	(0.030)	(0.030)	(0.025)	(0.026)

		(0.003)			
lag(cases per 1k inhabitants, 1)	0.851***	0.843***	0.835***	0.852***	0.852***
	(0.011)	(0.011)	(0.011)	(0.016)	(0.017)
intervention x FPÖ vote share 2019 in %	0.005	0.006	0.006	0.002	0.002
	(0.007)	(0.007)	(0.007)	(0.002)	(0.002)
Constant	0.078	0.272			
	(0.114)	(0.486)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.851	0.852	0.848		
Adjusted R^2	0.851	0.851	0.845		
F Statistic	2,984.114*** (df = 9; 4690) (p = 0.000)	1,343.486*** (df = 20; 4679) (p = 0.000)	3,208.529*** (df = 8; 4598) (p = 0.000)		
Sargan-Hansen Test				(p = 0.75062)	(p = 0.9999)
Autocorrelation Test (1)				(p = 0.00014)	(p = 0.0000)
Autocorrelation Test (2)				(p = 0.73903)	(p = 0.7636)
Note:					*p<0.1; **p<0.05; ***p<0.01

The fact that the vote share of the FPÖ is strongly correlated with deaths, but not with cases per capita seems at first glance to be paradoxical and to sow doubt on the hypothesis that the corona populist turn of the FPÖ contributed to the spread of the virus.

However, COVID-19 tests are in Austria usually conducted on individuals who self-report their symptoms or who are named as being close contacts. Thus, they are in one way or another voluntary, which means that there may be a self-selection bias. We can hypothesize that people who underestimate the virus (the “corona skeptics”) are less likely to report an infection and to name contacts. In this case, the number of deaths per infection in such communities would be higher.

In order to conduct a first test on this hypothesis, table 3 presents panel regressions on deaths including the number of reported cases as control variable. It shows that the negative effect of the interaction term between the FPÖ vote share and the intervention on the number of deaths persists, i.e. districts with a larger FPÖ vote share indeed have recorded a higher number of deaths per reported infection.

Table 3: Deaths per 100,000 incl. cases

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step system GMM (4)	Two-Step system GMM (5)
intervention	-1.857***	-1.902***	-1.976***	-1.630***	-1.558***
	(0.508)	(0.515)	(0.515)	(0.257)	(0.318)
FPÖ vote share in 2019 in %	-0.007	-0.018			
	(0.026)	(0.029)			
lockdown I		0.355**	0.357**	0.378***	0.374***
		(0.164)	(0.164)	(0.076)	(0.076)
lockdown II		1.213***	1.145***	1.289**	1.058*
		(0.278)	(0.284)	(0.518)	(0.563)
lockdown light		0.804***	0.704***	0.887**	0.753*
		(0.247)	(0.250)	(0.359)	(0.405)
lockdown light II		1.500***	1.577***	1.476***	1.290***
		(0.237)	(0.239)	(0.452)	(0.471)
lockdown III		0.260**	0.282**	0.256*	0.222
		(0.121)	(0.122)	(0.138)	(0.141)
lag(deaths per 100k inhabitants, 1)	0.414***	0.382***	0.359***	0.396***	0.396***
	(0.012)	(0.013)	(0.014)	(0.038)	(0.042)
number of cases per 1k inhabitants in t-1 + t-2	0.553***	0.480***	0.506***	0.461***	0.463***
	(0.015)	(0.025)	(0.026)	(0.055)	(0.057)
intervention x FPÖ vote share 2019 in %	0.099***	0.110***	0.113***	0.095***	0.091***
	(0.029)	(0.029)	(0.029)	(0.015)	(0.018)
Constant	0.304	-7.016***			
	(0.452)	(2.093)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.624	0.631	0.623		
Adjusted R^2	0.623	0.630	0.615		
F Statistic	1,523.935*** (df = 5; 4600) (p = 0.000)	356.668*** (df = 22; 4583) (p = 0.000)	828.374*** (df = 9; 4503) (p = 0.000)		
Sargan-Hansen Test				(p = 0.8517)	(p = 0.9259)
Autocorrelation Test (1)				(p = 0.0032)	(p = 0.0020)
Autocorrelation Test (2)				(p = 0.6328)	(p = 0.5945)
Note:					*p<0.1; **p<0.05; ***p<0.01

Aggregate-level robustness checks

The local regression results shown in figure 1 suggest that those 50% of the districts, in which the FPÖ achieved its strongest outcomes recorded less deaths during the first, but more deaths during the second wave. Thus, one could hypothesize that the underlying mechanism driving the results is in fact not a political, but an epidemiological one: if more people became infected and/or died during the first wave, the second wave could be milder either due to herd immunity or due to increased awareness of the danger of the virus. The FPÖ vote share could merely correlate with this underlying mechanism. I explore this hypothesis in appendix B and show that my results are robust to including an interaction term of the intervention with either the number of deaths or the number of cases before the intervention as an additional control variable.

In the second robustness check, presented in appendix C, I check whether the results change when I include an interaction terms between the intervention and the vote share of other parliamentary parties. All results are robust to the inclusion of interaction terms with any other party. Due to length considerations, I only report tables showing a relationship with another party which is significant at least at the 5% significance level. This is true for a) the system GMM estimators predicting the number of cases for the main governmental party (the conservative ÖVP), where it predicts an increase and the main opposition party (the SPÖ), where it predicts a decrease and b) all models but the two-step GMM estimator predicting an increase in the number of deaths controlling for the number of cases for the interaction term between the SPÖ vote share and the intervention. It has to be noted, however, that the OLS model controlling for socio-economic and demographic variables (namely the age structure and the number of medical buildings per capita) predicts at the same time a time-invariant decrease for the SPÖ vote share which more than offsets the increase after the intervention. Thus, no other party but the FPÖ shows the pattern described in this paper.

I also check whether the main insight, i.e. that the interaction term predicts a statistically significant increase in deaths after controlling for cases, survives in a static panel model, i.e. a model without autoregressive term. In this case, we avoid the dynamic panel bias and do not need to rely on the system GMM estimator. I show that my results are robust in OLS and FE models under varying specifications and that these models are able to explain a comparable amount of the variance, in appendix D. Finally, I estimate two-way fixed effects models (i.e. fixed effects for districts and weeks) for data until the 5th of June 2021 and show that my results are robust using this method, as well as a longer timeframe.

Individual-level evidence

While there is no individual-level data that combines partisan affiliation with infection status, the Covid-19 prevalence study conducted in November 2020 (Paškvan et al. 2021) provides information about the individuals' stance on Covid-19 containment policy, true infection status (determined with a PCR test), past infection status (determined with an antibody neutralization test) and reported infection status. This study was conducted by the Austrian statistical office (Statistik Austria) and its participants were randomly chosen to form a statistically representative sample.

This data thus allows to test the hypotheses that “corona skeptics”, i.e. people who are opposed to containment policies, are more likely to contract Covid-19 and less likely to test themselves.

In order to conduct this analysis, I first transform the 5-point Likert scale on policy stance to the binary variable “corona skeptical”, where a 1 covers the views that the policy measures against Covid-19 are “definitely exaggerated” or “rather exaggerated”, whereas 0 implies that the individual thinks that the measures are “suitable”, “rather insufficient” or “definitely insufficient”.

I then investigate the relationship between corona skepticism and four variables: a) reported infection (i.e. was officially known to be Covid-19 positive at or prior to the time of the survey), b) PCR test positive (i.e. tested positive for Covid-19 during this survey), c) antibody test positive (i.e. a blood test revealed a neutralizing level of antibodies), d) unreported current infections (i.e. the PCR test was positive during this survey, but the infection was not officially known at that time). I only analyze individuals for which at least a PCR test result (n=2290) and a policy stance (2283 out of the 2290) are available.

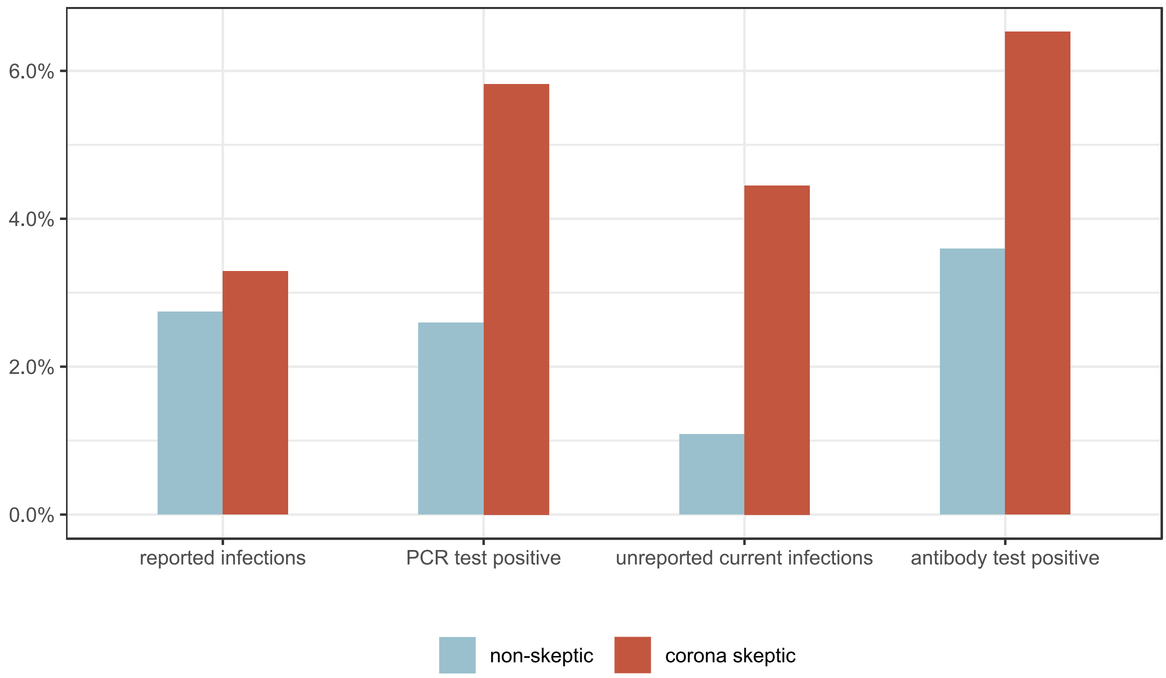

Figure 2: Epidemiological state for corona skeptics and non-skeptics in November 2020

Figure 2 suggests that there is no large difference between corona skeptics and non-skeptics with regard to the reported infections, but a large gap with regard to unreported infections. These results are fully in line with the self-selection bias hypothesis.

In order to test whether the graphical intuition holds, I estimate the following model:

Where is a binary variable describing whether a) a positive PCR/antibody test has been conducted or b) individuals were already known to be infected prior to the study, is a binary variable describing whether an individual is “corona skeptical” or not as discussed above, is the coefficient of interest and is an error term.

Table 4 shows the results. The first model suggests that corona skepticism increases the chances to test positive at the 1% significance level within the whole population (i.e. also including people who are officially known to be infected). The second model shows that corona skepticism has an even larger impact on the chances to test positive within the subpopulation that only includes people who are not officially known to be infected, i.e. corona skepticism indeed increases the dark figure. Finally, the third model shows that corona skepticism does not predict a significant increase in the official infection status. Again, all of these results support the self-selection bias hypothesis. Furthermore, the fact that there is no significant difference between regarding reported infections seems to mirror the aggregate-level results.

Table 4: Individual-level evidence from the Covid prevalence study in November (Probit)

	Dependent variable:			
	PCR test positive		Reported infection	Antibody test positive
	All individuals	Only unreported	All individuals	All individuals
	(1)	(2)	(3)	(4)
corona_skeptical	0.374^{***}	0.595^{***}	0.079	0.288^{**}
	(0.118)	(0.140)	(0.136)	(0.113)
Constant	-1.944^{***}	-2.296^{***}	-1.918^{***}	-1.800^{***}
	(0.061)	(0.084)	(0.059)	(0.055)
Observations	2,283	2,225	2,283	2,219
Log Likelihood	-314.995	-179.883	-295.228	-376.689
Akaike Inf. Crit.	633.990	363.766	594.455	757.379
Residual Deviance	629.990 (df = 2281)	359.766 (df = 2223)	590.455 (df = 2281)	753.379 (df = 2217)
Null Deviance	639.453 (df = 2282)	376.529 (df = 2224)	590.783 (df = 2282)	759.515 (df = 2218)
Note:				$^{*}p<0.1$; $^{**}p<0.05$; $^{***}p<0.01$

2 Theory: Insights from a heterogeneous mixing SIR model

I finally investigate a) whether and under which conditions the self-selection bias at the individual level can produce the observed aggregate outcomes and b) what impact a low-compliant fraction of the population more generally have on the spread of the virus in a simple theoretical setting. In order to do so, I extend the classical SIRD model (Kermack and McKendrick 1927) in a twofold way:

1.) I add a quarantined compartment denoted by Q that only includes detected active cases. A certain fraction of infected is assumed to test themself upon infection and is then quarantined, i.e. their social contacts are set to 0. I further assume that all critical cases are detected, since they seek medical attention and get tested for showing symptoms of Covid-19. Followingly, only people in the quarantine compartment may die. Holding constant the fraction of infected who will eventually die, the fraction of quarantined who die depends on the fraction of non-critical cases who opt to get tested voluntarily, i.e. on the fraction of critical cases in the quarantine compartment.

2.) I split the compartments governing the susceptible, the infected and the quarantined to incorporate two different groups: one group showing low compliance (the corona skeptics) and another showing high compliance (the majority). I consider differences in a) social distancing, and b) the propensity to get tested. I also consider the case of homophilic mixing, i.e. that individuals of a certain group are more likely to get into contact with members of their own group than members of the other group (which is why I need two different compartments for the infected).

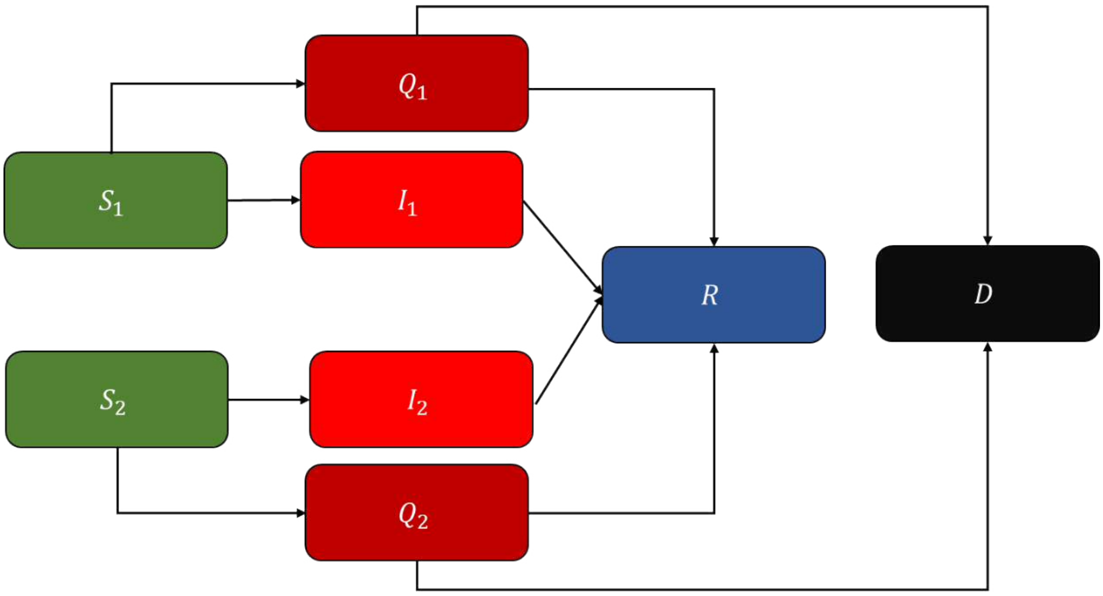

Figure 3: Depiction of the compartments

In setting up the laws of motion between the different compartments (see fig. 2), I largely follow the preferred mixing model described by Brauer (2008), which in turn largely follows Nold (1980).[3] In contrast to comparable models such as the homophilic mixing model proposed by Ellison (2020), the model used in my paper is able to replicate the standard homogenous mixing model as a special case if the behavior of the two types of agents (especially the basic reproduction numbers and respectively) is equal. The laws of motion between the different compartments are given as follows, where denotes the

[3] Brauer (2008) considers the fraction that each group *currently* makes up as part of the total population. I refrained from implementing this logic in order to retain the classical SIR outcome as a special case.

susceptibles of group i, the infectious, the quarantined, the size of group i at period 0, the number of infectious contacts from a member of group j to a member of group i, the homophily of social contacts, the propensity to get tested, the basic reproduction number of group i, – the duration the illness, and the fraction of detected cases who eventually die:

Where

In order to better disentangle the effects of behavioral differences of the two groups, I make the following practical assumption: Individuals of both groups are equally likely to die as a result of an infection with a probability of . We can thus set the probability that a quarantined person dies at — and set a lower boundary for , as I assumed previously that at least all critical cases are tested, i.e. .

Homogenous mixing

Let us first consider the case of homogenous mixing, i.e. and . In this case, we can immediately see that —— . Thus, if we normalize the population to 1, i.e. , the dynamic governing the susceptibles collapses to the dynamic of the classical one-group SIR framework, i.e.:

In such a case, differentiating between two infectious compartments is unnecessary. Nevertheless, we could consider differences in the propensity to get tested (and subsequently get quarantined), i.e. a different evolution of and .

Proposition 1: Suppose two groups who mix homogeneously and only differ with regard to their propensity to get tested. Such a difference can only affect both groups equally (relative to their share) in terms of deaths or the sum of infected and quarantined.

Proof: This result follows easily from above formula, as the relative share of as part of the total infected does not have an impact on the evolution of .

As is common in this stream of literature (e.g. Acemoglu et al. 2020), I support my arguments using numerical simulations and sensitivity analyses. The basic reproduction number of the SARS-CoV-2 virus causing Covid-19 is typically estimated to range from 2.5-3.5 (e.g. Zhao et al. 2020). To capture political reasons for differences in social distancing, I concentrate on a time when social distancing is at least encouraged. Thus, I will concentrate on values of between 3 and 1 (where the number of infected could not grow exponentially). While the choice of plays a crucial role in predicting the spread of the virus and determining an optimal containment policy (Bar-On et al. 2020), it is not important in this stylized model that only seeks to explain certain features of the pandemic. For simplicity, I assume that , implying that infected recover on average in one week.

Setting , , , and and varying , we find that the detection rate has a large impact on "flattening the curve", but also on reducing the cumulative number of infected (see fig. 3).

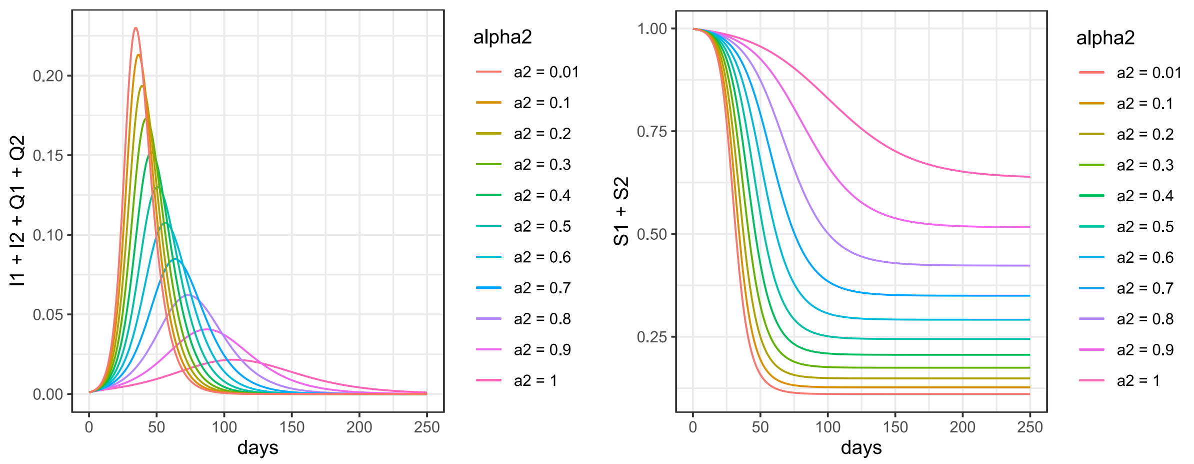

Figure 4: Evolution of total infected including quarantined (left) and total susceptibles (right).

Proportionate mixing

As soon as the two subpopulations engage in different activity patterns, i.e. , homogenous mixing is implausible. If, for instance, group 1 only has one infectious contact per day, whereas group 2 has five, members of group 2 cannot on average have 2.5 infectious contacts with members of group 1, if the two groups are equal-sized. The specification by Brauer (2008), which provides the basis of my model, accounts for this fact. If activity patterns differ, but mixing is not homophilic, it is proportionate, i.e. members of a specific group meet members of another specific group according to their relative population shares and basic reproduction numbers as specified above. As a result, outcomes for both groups cannot be used interchangeably anymore. Instead, we must trace and separately.

Proposition 2: Suppose two groups 1 and 2 who mix proportionately and only differ with regard to their basic reproduction number ( ). Then an increase in a) the basic reproduction number of 2 or b) the share of group 2 increase the cumulative number of infected for both groups, but the increase (relative to their group size) is stronger for group 2.

This proposition is verified in figure 5, which shows the share of susceptibles left in each subpopulation after 500 simulation periods (approximating the equilibrium). The top part shows the impact of a varying share of corona skeptics ( ) in the population for 7 different levels of . The simulations here are initialized with , and and . Each part of this figure shows the results of 700 distinct numerical simulations.

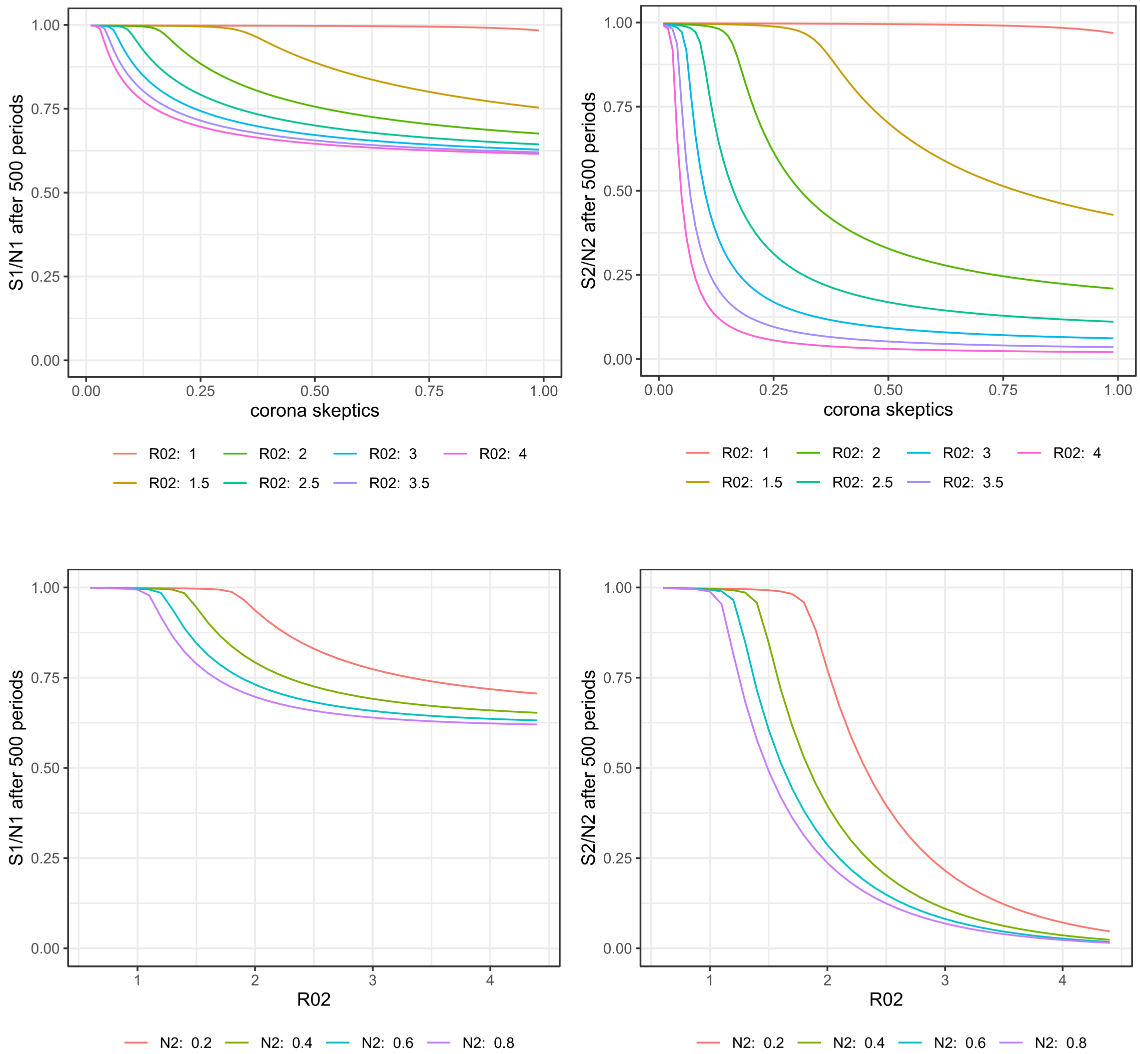

Figure 5: Susceptibles left of the non-skeptics (left) and the skeptics (right) divided by their initial share for and varying and a varying share of corona skeptics under proportionate mixing

Proposition 3: Suppose two groups 1 and 2 who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves ( ). Then an increase in the share of corona skeptics ( ) causes an increase in the cumulative number of deaths (+) during the epidemic. If , this growth is first quasi-constant, then followed by an exponential, and finally again a quasi-constant increase in deaths. If is large enough, this pattern follows a tilted S-shape.

This proposition is verified by the simulations presented in fig. 6.

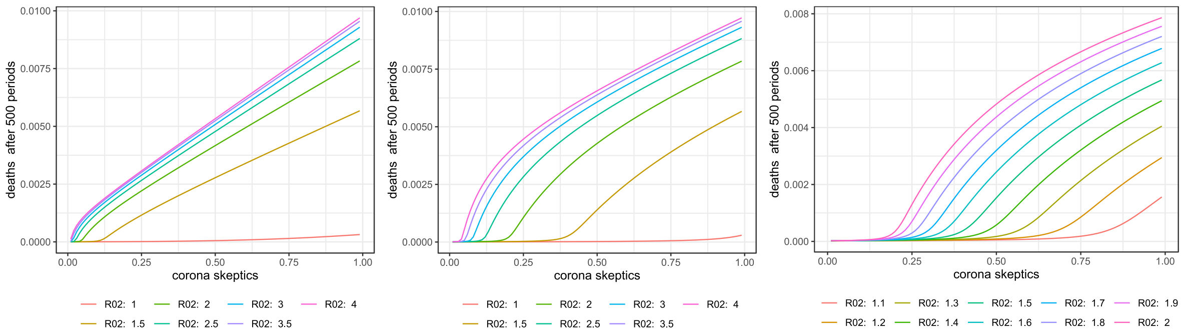

Figure 6: Cumulative deaths after 500 periods for (left), (center) and (right) and varying as well as a varying number of corona skeptics ( ) under proportionate mixing

Proposition 4: Suppose two groups 1 and 2 who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves ( ). Then an increase in the basic reproduction number of the skeptic group ( ) increases the cumulative number of deaths (+) during the epidemic. However, an increase in the basic reproduction number of the non-skeptic group ( ) generally has a U-shaped impact on the cumulative number of deaths (+) during the epidemic, if is held constant: the cumulative number of deaths first *decreases* with an increase in deaths and only increases again if is high enough.

The first part of proposition is verified by the simulations presented in fig. 6. The simulations verifying the – counterintuitive – second part are shown in fig. 7.

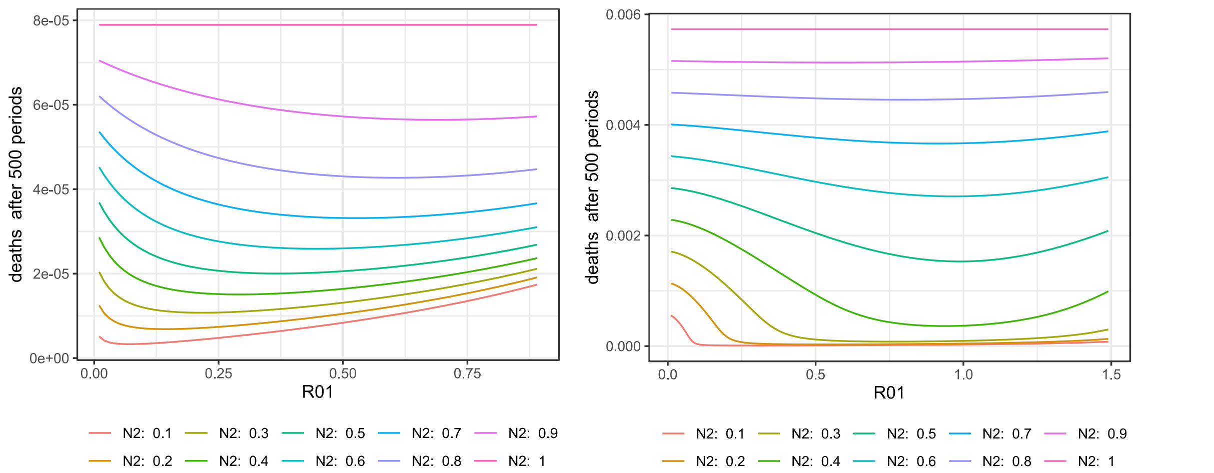

Figure 7: Cumulative deaths after 500 periods for (left), (right) and a varying as well as a varying number of corona skeptics ( ) under proportionate mixing

Proposition 5: Suppose two groups 1 and j who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves ( ) under proportionate mixing. Then the impact of an increase in the share of corona skeptics ( ) has an inverted U-curve shape on the number of reported infections. It first *increases* the number of reported infections and then decreases it, if the share of corona skeptics is sufficiently high. The turning point is reached more quickly, if increases or decreases.

This proposition is verified by the simulations presented in fig. 8.

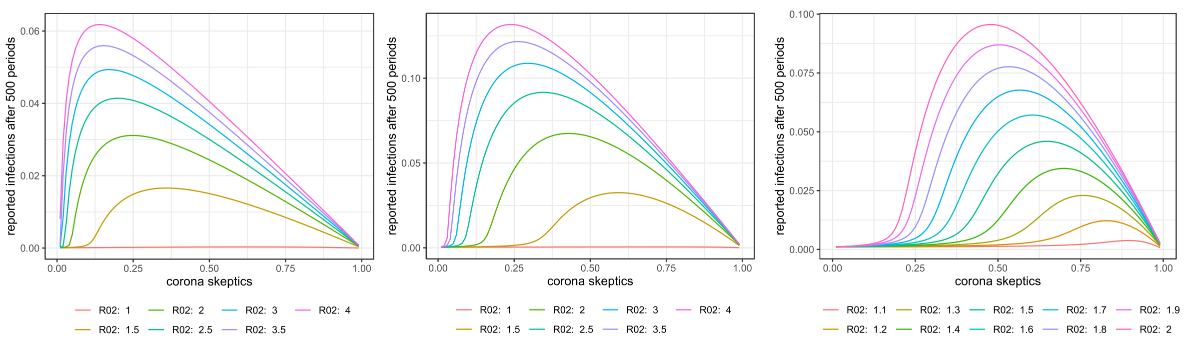

Figure 8: Cumulative reported infections after 500 periods for (left), (center) and (right) and varying as well as a varying number of corona skeptics ( ) under proportionate mixing. These are the same simulations as those shown in fig. 6.

From proposition 4 and 6 it is clear that the Austrian result, i.e. that an increase in the share of corona skeptics causes an increase in deaths without an increase in reported infections can under proportionate mixing only be reproduced under a constrained set of parameters. If we compare communities A and B, where the share of corona skeptics in B is higher than in A, community B may only have more deaths and a lower (or equal) number of reported infections, if the number of corona skeptics in A and the difference in the respective basic reproduction numbers are sufficiently high.

Homophilic mixing

Finally, I consider the case of homophilic mixing, i.e. .

Proposition 6: Suppose two groups 1 and 2 who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves ( ). Then an increase in the share of corona skeptics ( ) causes an increase in the cumulative number of deaths (+) during the epidemic. If and , this growth is first quasi-constant, then followed by an exponential, and finally again a quasi-constant increase in deaths. An increase in the homophily of mixing brings the increase closer to a constant growth path, which is reached for .

This proposition is verified by the simulations presented in fig. 9.

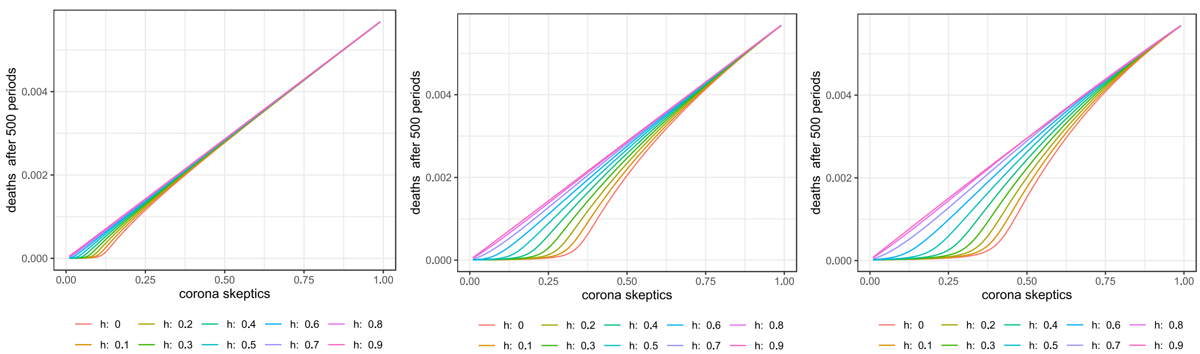

Figure 9: Cumulative deaths after 500 periods for (left), (center) and (right) and varying homophily as well as a varying number of corona skeptics ( ) under homophilic mixing.

Proposition 7: Suppose two groups 1 and 2 who differ with regard to a) their respective basic reproduction number ( ) and b) their propensity to test themselves (

) under proportionate mixing. Then the impact of an increase in the share of corona skeptics ( ) has an inverted U-curve shape on the number of reported infections. An increase in homophily decreases the "peak", i.e. the maximum cumulative reported infections for a given and and moves the peak to the left, i.e. the number of cumulative reported infection declines starting at a lower share of corona skeptics.

This proposition is verified by the simulations presented in fig. 10.

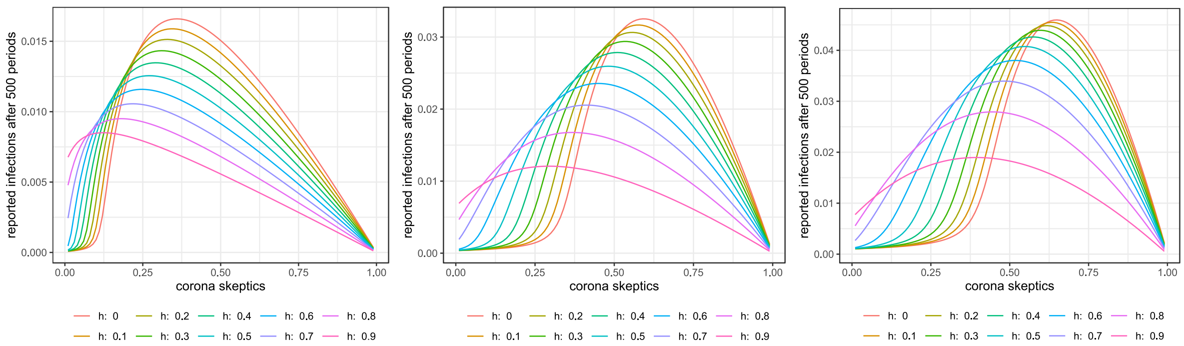

Figure 10: Cumulative reported infections after 500 periods for (left), (center) and (right) and varying homophily as well as a varying number of corona skeptics ( ) under homophilic mixing.

From proposition 6 and 7 follows that homophily in mixing significantly contributes to widening the parameter space that allows a reproduction of the Austrian empirics: Under homophilic mixing, an increase in the share of corona skeptics can cause a simultaneous increase in the number of deaths and decrease in the number of reported infections starting from a lower baseline of corona skeptics.

4 Conclusion

In this paper, I first described corona populism as a political position which is "skeptical" of the danger posed by the virus and the need for containment measures. Following Acemoglu et al. (2013), I characterized this policy stance as populist, since it receives significant public support, although its adoption would at the same time cause adverse effects on the majority of the population.

I then investigated whether the strength and policy stance of the Austrian right-wing freedom party (FPÖ) on the coronavirus crisis had an effect on public health outcomes in communities in which they received large support in the last national elections. The policy stance of the FPÖ was characterized by a U-turn: until the end of the first wave of infections, the FPÖ followed a strict pro-lockdown course. At the end of April, however, the party switched to demanding "an end of the corona madness", i.e. the containment measures, thereby downplaying the threat posed by the virus and adopting a corona populist attitude.

I used three types of panel regression analysis (OLS, fixed effects model, and system GMM) to study the correlation between support for the FPÖ and public health outcomes in two dimensions: the number of reported infections and the number of deaths. Using the election result of the national elections 2019 as a proxy for support for the FPÖ, I showed that an increased FPÖ election result predicts an increase in fatalities after the policy switch, but no statistically significant effect on (reported) infections. The regressions also showed a significant effect on deaths controlling for the number of reported cases, i.e. the case fatality ratio is higher in districts in which the FPÖ is stronger. I presented additional epidemiological and political control variables, as well as the use of static panel models, as robustness checks in the appendix and thereby also showed that such a pattern cannot be found for any Austrian political party and cannot be attributed to differences in achieved herd immunity before the policy switch.

The finding that the FPÖ vote share predicts an increase in the number of deaths, but not in reported cases, seemed inconclusive and paradoxical. I hypothesized that it originates from a self-selection bias inherent to the Austrian containment policies: The policy stance of the FPÖ caused their voter base to take the virus less seriously, who then did not only practice less social distancing, but also reported their symptoms less often, which means that they were less likely tested. This would explain the differences found in the case fatality rate.

I then turned to individual-level data from the Austrian Covid-19 prevalence study conducted in November 2020 (Paškvan et al. 2021) and found that "corona skeptics", i.e. people who think that the containment measures are exaggerated, are more likely to test positive for Covid-19, more likely to be an undetected prior and current case, but not significantly more likely to be an officially known case. All of these findings support the self-selection bias hypothesis.

In order to explore whether these individual-level behavioral differences can produce the observed aggregate-level outcomes, I extended the classical SIRD to incorporate quarantine, heterogeneous behavior and heterogeneous mixing. This model is populated with corona skeptics and the majority, and the corona skeptics have a higher basic reproduction number and a lower propensity to get tested. I rigorously explored the properties of such a model using several thousand numerical simulations and found several non-linear and partly non-trivial relationships within the theoretical model, such as an inverted U-curve relationship between the share of corona skeptics and the number of reported cases and a U-curve relationship between the basic reproduction number of the non-skeptic group and the number of deaths.

I finally showed that this theoretical is able to reproduce the Austrian dynamics in a stylized way, if the behavioral differences between the two groups are large enough. A (qualitative) reproduction of the empirics is more likely, if mixing is homophilic, i.e. if corona skeptics are much more likely to meet other corona skeptics. This assumption seems to be plausible, as Austrian government policy had a special focus on reducing the transmission in situations where homophily can be expected to be low (e.g. compulsory mask-wearing in shops, public transport and schools etc.).

The research presented in this paper can be extended in numerous ways. First, it would be interesting to study the cross-national impact of corona populism. Does its effect depend on factors which are constant in Austria, but vary internationally, such as the governmental coalition, the overall success of containment policies during the first wave etc.?

Second, it would be interesting to study corona populism and skepticism in a more complex model. One way to go would be to increase the complexity within the SIR framework. For instance, one could investigate the effects of dynamic policies depending on the number of infected, similar to what is proposed by Neuwirth et al. (2020), or even study optimal policies (e.g. Acemoglu et al. 2020; Alvarez et al. 2020; Bethune and Korinek 2020; Piguillem and Shi 2020) in the face of a non-compliant fraction of the population.

Another option would be to turn to a new class of models. Agent-based models such as the COVID-Town model (Mellacher 2020) are capable of modeling the spread of the virus via social networks and explicitly modeled heterogeneous agents, who can follow sophisticated behavioral rules. This level of analysis can be expected to be highly useful to better understand the impact and evolution of corona skepticism. For instance, it may make a big difference whether a corona skeptic faces many customers or is introverted and unemployed. However, this method can also help to better understand the emergence and dynamics of corona skepticism, e.g. by modeling heterogeneous risk preferences or even opinion dynamics of corona skepticism or corona populism. I hope to be able to study some of these questions in the future.

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Appendix A: Data analyzed

Table A1: Variables

Statistic	N	Mean	St. Dev.	Min	Max
cases per 1k inhabitants	4,794	0.963	1.650	0	14
deaths per 100k inhabitants	4,794	1.807	3.968	0	39
population density	4,794	478.066	843.008	54.112	5,962.410
FPÖ vote share 2019 in %	4,794	16.959	3.079	10.572	24.037
greens vote share 2019 in %	4,794	11.136	4.093	5.818	26.774
SPÖ vote share 2019 in %	4,794	20.399	6.074	8.878	35.609
ÖVP vote share 2019 in %	4,794	40.398	7.492	23.346	56.518
NEOS vote share 2019 in %	4,794	7.128	2.131	3.669	14.548
intervention	4,794	0.765	0.424	0	1
total cases per 1k inhabitants before the intervention	4,794	1.897	2.302	0.000	21.088
total deaths per 100k inhabitants before the intervention	4,794	6.670	7.669	0	39
lockdown I	4,794	0.118	0.322	0	1
lockdown light	4,794	0.039	0.194	0	1
lockdown II	4,794	0.059	0.235	0	1
lockdown light II	4,794	0.039	0.194	0	1
lockdown III	4,794	0.157	0.364	0	1
no intervention	4,794	0.235	0.424	0	1
born in Austria in %	4,794	86.430	6.974	63.287	97.030

born in Turkey in %	4,794	1.147	1.229	0.000	6.307
population aged 85+ in %	4,794	2.837	0.548	2.037	5.202
population aged 65-84 in %	4,794	17.524	1.922	14.024	22.227
average gross income of workers in 2018	4,794	33,012.628	2,807.433	26,529	44,010
highest education: compulsory education in %	4,794	16.500	3.701	9.772	29.888
highest education: university in %	4,794	11.662	5.048	5.964	31.582
commuters in %	4,794	31.197	7.409	6.803	40.384
employees in %	4,794	40.909	3.402	34.733	54.806
unemployed in %	4,794	3.402	1.149	1.066	6.608
community buildings per 10k inhabitants	4,794	7.192	2.796	2.427	16.067
hotels per 10k inhabitants	4,794	65.730	66.286	7.503	357.545
cultural and medical buildings per 10k inhabitants	4,794	46.019	14.768	12.432	95.787

Appendix B: Robustness Check 1 (number of deaths / infections before the intervention)

Table B1: Deaths per 100,000 (Robustness Check 1)

	OLS (1)	OLS (2)	Fixed Effects (3)	Fixed Effects (4)	Two-Step System GMM (5)	Two-Step System GMM (6)
intervention	-1.590***	-1.650***	-1.221**	-1.009*	-1.227***	-1.220***
	(0.531)	(0.519)	(0.567)	(0.544)	(0.275)	(0.267)
FPÖ vote share 2019 in %	-0.033	-0.032				
	(0.029)	(0.029)				
lockdown I	0.550***	0.550***	0.564***	0.566***	0.551***	0.554***
	(0.158)	(0.158)	(0.158)	(0.158)	(0.074)	(0.075)
lockdown II	5.190***	5.189***	5.353***	5.381***	4.968***	4.984***
	(0.190)	(0.190)	(0.191)	(0.191)	(0.510)	(0.516)
lockdown light	3.787***	3.786***	3.854***	3.866***	3.637***	3.664***
	(0.196)	(0.196)	(0.197)	(0.197)	(0.355)	(0.354)
lockdown light II	3.214***	3.213***	3.401***	3.434***	3.050***	3.065***
	(0.225)	(0.225)	(0.227)	(0.227)	(0.555)	(0.561)
lockdown III	1.090***	1.090***	1.164***	1.177***	1.032***	1.035***
	(0.116)	(0.116)	(0.117)	(0.117)	(0.150)	(0.150)
lag(deaths per 100k inhabitants, 1)	0.484***	0.484***	0.464***	0.461***	0.495***	0.494***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.034)	(0.034)
intervention x total cases per 1k inhabitants before the intervention	-0.026		-0.098**		0.002	
	(0.025)		(0.041)		(0.014)	
intervention x total deaths per 100k inhabitants before the intervention		-0.006		-0.050***		-0.001

		(0.006)		(0.012)		(0.005)
intervention x FPÖ vote share 2019 in %	0.105***	0.108***	0.092***	0.088***	0.082***	0.082***
	(0.030)	(0.029)	(0.031)	(0.030)	(0.015)	(0.015)
Constant	-4.845**	-4.651**				
	(2.169)	(2.141)				
District Controls	Yes	Yes				
District Fixed Effects			Yes		Yes	Yes
Observations	4,700	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.604	0.604	0.594	0.595		
Adjusted R^2	0.602	0.602	0.585	0.586		
F Statistic	323.911*** (df = 22; 4677) (p = 0.000)	323.890*** (df = 22; 4677) (p = 0.000)	747.557*** (df = 9; 4597) (p = 0.000)	750.736*** (df = 9; 4597) (p = 0.000)		
Note:						*p<0.1; **p<0.05; ***p<0.01

Table B2: Cases per 100,000 (Robustness Check 1)

	OLS (1)	OLS (2)	Fixed Effects (3)	Fixed Effects (4)	Two-Step System GMM (5)	Two-Step System GMM (6)
intervention	0.134	0.103	0.150	0.121	0.140***	0.158***
	(0.135)	(0.131)	(0.145)	(0.139)	(0.037)	(0.035)
FPÖ vote share 2019 in %	-0.003	-0.003				
	(0.007)	(0.007)				
lockdown I	0.019	0.019	0.021	0.021	0.034***	0.034***
	(0.040)	(0.040)	(0.040)	(0.040)	(0.006)	(0.006)
lockdown II	-0.388***	-0.391***	-0.350***	-0.352***	-0.431***	-0.429***
	(0.065)	(0.065)	(0.067)	(0.067)	(0.112)	(0.113)
lockdown light	1.629***	1.627***	1.665***	1.663***	1.583***	1.585***
	(0.068)	(0.068)	(0.069)	(0.069)	(0.134)	(0.135)
lockdown light II	-0.326***	-0.327***	-0.307***	-0.308***	-0.350***	-0.349***
	(0.055)	(0.055)	(0.056)	(0.056)	(0.070)	(0.070)
lockdown III	-0.054*	-0.054*	-0.044	-0.045	-0.064**	-0.064**
	(0.030)	(0.030)	(0.030)	(0.030)	(0.026)	(0.026)
	(0.003)	(0.003)				
commuters in %	0.842***	0.843***	0.834***	0.834***	0.852***	0.852***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.017)	(0.017)
lag(deaths per 100k inhabitants, 1)	-0.010		-0.012		0.002	
	(0.007)		(0.011)		(0.003)	
intervention x total cases per 1k inhabitants before the intervention		-0.002		-0.003		-0.0002

		(0.002)		(0.003)		(0.001)
intervention x total deaths per 100k inhabitants before the intervention	0.003	0.005	0.003	0.004	0.002	0.002
	(0.008)	(0.007)	(0.008)	(0.008)	(0.002)	(0.002)
intervention x FPÖ vote share 2019 in %	0.086	0.231				
	(0.503)	(0.487)				
Observations	4,700	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.852	0.852	0.848	0.848		
Adjusted R^2	0.851	0.851	0.845	0.845		
F Statistic	1,279.909*** (df = 21; 4678) (p = 0.000)	1,279.585*** (df = 21; 4678) (p = 0.000)	2,852.438*** (df = 9; 4597) (p = 0.000)	2,852.036*** (df = 9; 4597) (p = 0.000)		
Note:						*p<0.1; **p<0.05; ***p<0.01

Table B3: Deaths per 100,000 incl cases (Robustness Check 1)

	OLS (1)	OLS (2)	Fixed Effects (3)	Fixed Effects (4)	Two-Step System GMM (5)	Two-Step System GMM (6)
intervention	-1.920***	-1.907***	-1.683***	-1.242**	-1.499***	-1.613***
	(0.511)	(0.499)	(0.545)	(0.523)	(0.341)	(0.333)
FPÖ vote share 2019 in %	-0.017	-0.017				
	(0.028)	(0.028)				
lockdown I	0.360**	0.360**	0.364**	0.367**	0.377***	0.375***
	(0.152)	(0.152)	(0.152)	(0.152)	(0.074)	(0.077)
lockdown II	1.209***	1.209***	1.171***	1.207***	1.045*	1.105**
	(0.276)	(0.276)	(0.282)	(0.281)	(0.554)	(0.558)
lockdown light	0.802***	0.802***	0.723***	0.740***	0.752*	0.775*
	(0.244)	(0.244)	(0.248)	(0.247)	(0.404)	(0.403)
lockdown light II	1.497***	1.497***	1.590***	1.628***	1.299***	1.322***
	(0.235)	(0.235)	(0.237)	(0.237)	(0.456)	(0.467)
lockdown III	0.258**	0.259**	0.288**	0.303**	0.216	0.238*
	(0.120)	(0.120)	(0.121)	(0.121)	(0.140)	(0.140)
	(0.012)	(0.012)				
number of cases per 1k inhabitants in t-1 + t-2	0.480***	0.480***	0.503***	0.502***	0.467***	0.465***
	(0.025)	(0.025)	(0.026)	(0.026)	(0.057)	(0.058)
lag(deaths per 100k inhabitants, 1)	0.383***	0.383***	0.359***	0.355***	0.394***	0.394***
	(0.013)	(0.013)	(0.014)	(0.014)	(0.041)	(0.042)
intervention x total cases per 1k inhabitants before the intervention	0.007		-0.044		-0.015	

	(0.024)		(0.040)		(0.025)	
intervention x total deaths per 100k inhabitants before the intervention		0.002		-0.044***		0.001
intervention x total cases per 1k inhabitants before the intervention		(0.006)		(0.012)		(0.006)
intervention x FPÖ vote share 2019 in %	0.110***	0.110***	0.101***	0.088***	0.089***	0.094***
	(0.029)	(0.028)	(0.030)	(0.029)	(0.019)	(0.019)
Constant	-6.768***	-6.812***				
	(2.091)	(2.064)				
Observations	4,700	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.633	0.633	0.625	0.626		
Adjusted R^2	0.631	0.631	0.617	0.618		
F Statistic	350.375*** (df = 23; 4676) (p = 0.000)	350.375*** (df = 23; 4676) (p = 0.000)	767.003*** (df = 10; 4596) (p = 0.000)	770.515*** (df = 10; 4596) (p = 0.000)		
Note:						*p<0.1; **p<0.05; ***p<0.01

Appendix C: Robustness Check 2 (other political parties)

I tested whether introducing an interaction term between the vote share of one of the other parliamentary parties (the conservative ÖVP, the greens, the social democratic SPÖ and the liberal NEOS) and the intervention changes the results in order to investigate whether the observed relationships could merely be correlated with opposition to the ÖVP-greens government, as one of the reviewers of a previous version of this paper suggested. My results are robust in all 60 models. In order to keep this paper within a reasonable length, however, I only report the results tables where the interaction term of the intervention and the vote share of the other party is statistically significant (p<0.05).

Table C1: Cases per 1,000 inhabitants incl. ÖVP

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step system GMM (4)	Two-Step system GMM (5)
intervention	0.057	0.055	0.054	0.066	0.066
	(0.188)	(0.188)	(0.189)	(0.045)	(0.053)
FPÖ vote share 2019 in %	-0.003	-0.003			

	(0.007)	(0.007)			
ÖVP vote share 2019 in %	0.002	-0.0005			
	(0.003)	(0.003)			
lockdown I	0.017	0.019	0.021	0.034***	0.034***
	(0.040)	(0.040)	(0.040)	(0.006)	(0.006)
lockdown II	-0.426***	-0.394***	-0.355***	-0.429***	-0.428***
	(0.064)	(0.065)	(0.067)	(0.107)	(0.116)
lockdown light	1.595***	1.624***	1.660***	1.592***	1.584***
	(0.067)	(0.068)	(0.069)	(0.129)	(0.140)
lockdown light II	-0.345***	-0.329***	-0.309***	-0.346***	-0.349***
	(0.055)	(0.055)	(0.056)	(0.068)	(0.071)
lockdown III	-0.063**	-0.055*	-0.046	-0.064***	-0.064**
	(0.030)	(0.030)	(0.030)	(0.025)	(0.026)
lag(cases per 1k inhabitants, 1)	0.850***	0.843***	0.835***	0.851***	0.851***
	(0.011)	(0.011)	(0.011)	(0.016)	(0.018)
intervention x ÖVP vote share 2019 in %	0.0005	0.0004	0.0004	0.002**	0.002**
	(0.003)	(0.003)	(0.003)	(0.001)	(0.001)
intervention x FPÖ vote share 2019 in %	0.006	0.006	0.006	0.002	0.002
	(0.007)	(0.007)	(0.007)	(0.002)	(0.002)
Constant	0.009	0.294			
	(0.166)	(0.513)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.851	0.852	0.848		
Adjusted R^2	0.851	0.851	0.845		
F Statistic	2,441.897*** (df = 11; 4688) (p = 0.000)	1,220.836*** (df = 22; 4677) (p = 0.000)	2,851.421*** (df = 9; 4597) (p = 0.000)		
Note:					*p<0.1; **p<0.05; ***p<0.01

Table C2: Cases per 1,000 inhabitants incl. SPÖ

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step system GMM (4)	Two-Step system GMM (5)
intervention	0.092	0.091	0.090	0.194***	0.193***
	(0.139)	(0.139)	(0.140)	(0.029)	(0.034)
FPÖ vote share 2019 in %	-0.003	-0.003			
	(0.007)	(0.007)			
SPÖ vote share 2019 in %	-0.002	0.001			
	(0.003)	(0.004)			

lockdown I	0.017	0.019	0.021	0.035***	0.034***
	(0.040)	(0.040)	(0.040)	(0.006)	(0.006)
lockdown II	-0.423***	-0.394***	-0.355***	-0.426***	-0.424***
	(0.064)	(0.065)	(0.067)	(0.107)	(0.112)
lockdown light	1.597***	1.624***	1.660***	1.594***	1.589***
	(0.067)	(0.068)	(0.069)	(0.129)	(0.137)
lockdown light II	-0.343***	-0.329***	-0.309***	-0.345***	-0.347***
	(0.055)	(0.055)	(0.056)	(0.068)	(0.069)
lockdown III	-0.062**	-0.055*	-0.046	-0.063**	-0.063**
	(0.030)	(0.030)	(0.030)	(0.025)	(0.026)
lag(cases per 1k inhabitants, 1)	0.850***	0.843***	0.835***	0.850***	0.850***
	(0.011)	(0.011)	(0.011)	(0.016)	(0.017)
intervention x SPÖ vote share 2019 in %	-0.001	-0.001	-0.001	-0.003***	-0.003***
	(0.004)	(0.004)	(0.004)	(0.001)	(0.001)
intervention x FPÖ vote share 2019 in %	0.006	0.006	0.006	0.003*	0.003
	(0.007)	(0.007)	(0.008)	(0.002)	(0.002)
Constant	0.102	0.297			
	(0.123)	(0.516)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.851	0.852	0.848		
Adjusted R^2	0.851	0.851	0.845		
F Statistic	2,442.172*** (df = 11; 4688) (p = 0.000)	1,220.873*** (df = 22; 4677) (p = 0.000)	2,851.478*** (df = 9; 4597) (p = 0.000)		
Note:					*p<0.1; **p<0.05; ***p<0.01

Table C3: Deaths per 100,000 incl. cases and SPÖ

	OLS (1)	OLS (2)	Fixed Effects (3)	One-Step System GMM (4)	Two-Step System GMM (5)
intervention	-2.282***	-2.331***	-2.418***	-1.922***	-1.841***
	(0.529)	(0.528)	(0.528)	(0.283)	(0.360)
FPÖ vote share 2019 in %	-0.007	-0.012			
	(0.025)	(0.028)			
SPÖ vote share 2019 in %	-0.011	-0.044***			
	(0.013)	(0.015)			
lockdown I	0.359**	0.360**	0.362**	0.375***	0.370***
	(0.153)	(0.152)	(0.152)	(0.076)	(0.077)
lockdown II	1.237***	1.195***	1.142***	1.225**	0.964*
	(0.272)	(0.275)	(0.281)	(0.516)	(0.532)

lockdown light	0.845***	0.788***	0.701***	0.837**	0.712*
	(0.242)	(0.244)	(0.247)	(0.359)	(0.390)
lockdown light II	1.462***	1.500***	1.580***	1.454***	1.274***
	(0.233)	(0.234)	(0.236)	(0.453)	(0.458)
lockdown III	0.249**	0.259**	0.283**	0.245*	0.197
	(0.119)	(0.120)	(0.120)	(0.138)	(0.135)
lag(deaths per 100k inhabitants, 1)	0.393***	0.380***	0.358***	0.393***	0.389***
	(0.013)	(0.013)	(0.014)	(0.038)	(0.041)
number of cases per 1k inhabitants in t-1 + t-2	0.469***	0.483***	0.506***	0.470***	0.476***
	(0.024)	(0.025)	(0.026)	(0.055)	(0.054)
intervention x SPÖ vote share 2019 in %	0.032**	0.033**	0.034**	0.021**	0.019*
	(0.014)	(0.014)	(0.014)	(0.010)	(0.010)
intervention x FPÖ vote share 2019 in %	0.094***	0.096***	0.099***	0.088***	0.084***
	(0.029)	(0.028)	(0.028)	(0.015)	(0.019)
Constant	0.360	-7.021***			
	(0.467)	(2.067)			
District Controls		Yes			
District Fixed Effects			Yes	Yes	Yes
Observations	4,700	4,700	4,700	n = 94 t = 51	n = 94 t = 51
R^2	0.630	0.633	0.626		
Adjusted R^2	0.629	0.632	0.617		
F Statistic	664.701*** (df = 12; 4687) (p = 0.000)	336.634*** (df = 24; 4675) (p = 0.000)	768.164*** (df = 10; 4596) (p = 0.000)		
Note:					*p<0.1; **p<0.05; ***p<0.01

Appendix D: Robustness Check 3 (static panel model)

Table D1: Deaths per 100,000 (static panel models)

	(1) Pooled OLS	(2) Pooled OLS	(3) Pooled OLS	(4) Pooled OLS	(5) Pooled OLS	(6) FE Model	(7) FE Model	(8) FE Model
intervention	-3.190***	-3.182***	-3.253***	-3.240***	-3.182***	-3.174***	-2.714***	-1.954***
	(0.562)	(0.556)	(0.580)	(0.567)	(0.556)	(0.550)	(0.614)	(0.588)
fpoe_percent19	-0.021	-0.030	-0.030	-0.030	-0.030			

	(0.028)	(0.032)	(0.032)	(0.032)	(0.032)			
lockdown I	0.455**	0.448**	0.447**	0.447**	0.448**	0.441**	0.443**	0.446**
	(0.179)	(0.178)	(0.178)	(0.178)	(0.178)	(0.176)	(0.176)	(0.175)
lockdown II	1.621***	1.479***	1.470***	1.470***	1.479***	1.353***	1.393***	1.451***
	(0.298)	(0.302)	(0.302)	(0.302)	(0.302)	(0.305)	(0.306)	(0.304)
lockdown light	0.231	0.133	0.127	0.126	0.133	0.045	0.074	0.114
	(0.266)	(0.266)	(0.267)	(0.266)	(0.266)	(0.267)	(0.267)	(0.266)
lockdown light II	3.574***	3.495***	3.490***	3.490***	3.495***	3.425***	3.448***	3.480***
	(0.245)	(0.245)	(0.245)	(0.245)	(0.245)	(0.245)	(0.245)	(0.244)
lockdown III	0.991***	0.955***	0.953***	0.953***	0.955***	0.924***	0.934***	0.948***
	(0.129)	(0.128)	(0.129)	(0.128)	(0.128)	(0.128)	(0.128)	(0.128)
number of cases per 1k inhabitants in t-1 + t-2	0.747***	0.762***	0.762***	0.762***	0.762***	0.774***	0.770***	0.764***
	(0.025)	(0.025)	(0.025)	(0.025)	(0.025)	(0.026)	(0.026)	(0.025)
intervention x total cases per 1k inhabitants before the intervention			0.012				-0.075*	
			(0.027)				(0.045)	
intervention x total deaths per 100k inhabitants before the intervention				0.004				-0.074***
				(0.007)				(0.013)
intervention x FPÖ vote share 2019 in %	0.177***	0.176***	0.179***	0.178***	0.176***	0.175***	0.157***	0.133***
	(0.032)	(0.032)	(0.032)	(0.032)	(0.032)	(0.031)	(0.033)	(0.032)
Constant	0.474	-11.285***	-11.076***	-11.128***	-11.285***			
	(0.503)	(2.263)	(2.313)	(2.282)	(2.263)			
District Controls		Yes	Yes	Yes				
District Fixed Effects						Yes	Yes	Yes
Observations	4,606	4,606	4,606	4,606	4,606	4,606	4,606	4,606
R^2	0.557	0.567	0.567	0.567	0.567	0.567	0.567	0.570
Adjusted R^2	0.556	0.565	0.565	0.565	0.565	0.557	0.557	0.560
F Statistic	641.334*** (df = 9; 4596) (p = 0.000)	285.494*** (df = 21; 4584) (p = 0.000)	272.477*** (df = 22; 4583) (p = 0.000)	272.486*** (df = 22; 4583) (p = 0.000)	285.494*** (df = 21; 4584) (p = 0.000)	735.798*** (df = 8; 4504) (p = 0.000)	654.630*** (df = 9; 4503) (p = 0.000)	662.362*** (df = 9; 4503) (p = 0.000)
Note:								*p<0.1; **p<0.05; ***p<0.01

Table E: Robustness Check 4 (Two-Way Fixed Effects model until 5th of June 2021)

Table E1 shows the results of two-way fixed effects models using data until the 5th of June 2021. The first three models are robustness checks to tables 1-3. The fourth model is a static panel model as an additional robustness check (as in robustness check 3 which is presented in appendix D). Note that R^2 only captures the variance not explained by the fixed effects!

Table E1: Two-Way Fixed Effects (until 5th of June 2021)

	Dependent variable:			
	deaths per 100k inhabitants	cases_per_1000	deaths per 100k inhabitants	
	(1)	(2)	(3)	(4)
number of cases per 1k inhabitants in t-1 + t-2			0.529***	0.759***
			(0.024)	(0.023)
lag(deaths per 100k inhabitants, 1)	0.416***		0.316***	
	(0.012)		(0.012)	
lag(cases per 1k inhabitants, 1)		0.742***		
		(0.009)		
intervention x FPÖ vote share 2019 in %	0.115***	0.009*	0.099***	0.143***
	(0.027)	(0.005)	(0.026)	(0.026)
District FE	Yes	Yes	Yes	Yes
Week FE	Yes	Yes	Yes	Yes
Observations	6,298	6,298	6,298	6,392
R^2	0.179	0.552	0.241	0.156
Adjusted R^2	0.157	0.540	0.221	0.134
F Statistic	668.430*** (df = 2; 6136) (p = 0.000)	3,775.396*** (df = 2; 6136) (p = 0.000)	649.710*** (df = 3; 6135) (p = 0.000)	575.973*** (df = 2; 6229) (p = 0.000)

Note: *p<0.1; **p<0.05; ***p<0.01
R² only captures the variance not explained by the fixed effects

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