

Survey Participation in the Long-Lasting Time of Corona:
A Replication of the COVID-19-Pandemic Effect on Survey Participation

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Abstract

By comparing the outcomes of two surveys conducted in May/June 2018 and 2020 in the context of an established probability-based multi-wave panel study, it is found that the public shutdown imposed by the Swiss government against the spread of the coronavirus resulted in an increased response rate. The latency for taking part in the survey was also shorter in this pandemic period than two years previously. However, one might suspect the effect of this non-pharmacological intervention, lasting from 16 March until 10 May 2020, to be a random result or even a methodological artefact. First, it could be result of the response behaviour of a selective sample that survived across each of the panel waves. Second, the effect of this non-pharmacological intervention on response behaviour might only be specific for this target population, consisting of Swiss youths born around 1997 and living in German-speaking cantons in Switzerland. Third, the potential impact of the COVID-19 pandemic, including the consequences regarding the survey participation, was not observed for the non-respondents. Therefore, the analysis is replicated by taking a more recent survey into account that was conducted one year later during the same period. In sum, the results clearly indicate that the temporary public shutdown in spring 2020 indeed boosted the panellists' participation at the initial stage of the survey.

Keywords

Coronavirus pandemic; COVID-19; event history analysis; non-pharmacological intervention; online survey; opportunity cost; panel data; paradata; replication

1 Introduction

The impact of the COVID-19 pandemic on survey participation in a multi-wave panel study is reanalysed. The survey, the outcome of which is to be replicated, took place in May/June 2020 in the context of a probability-based panel study that has been running since 2012 (Becker, Glauser, & Möser, 2020). The initial random sample of this panel consists of youths enrolled in public schools in German-speaking cantons of Switzerland. It has been found for these panellists, born around 1997, that the response rate was significantly higher during the period of a *public shutdown* as an official non-pharmacological intervention (NPI) than during other periods (Becker *et al.*, 2022).¹ This NPI was imposed by the Swiss government on 13 March 2020. All private and public events starting on or after March 16 were banned. After the end of the shutdown period on 10 May 2020, i.e. 11 days after the start of the survey, the response rate decreased rapidly. By controlling for the pandemic dynamics, apart from other exogenous influences (e.g. weather situation) and invitees' characteristics (e.g. education, social origin, language proficiency), it has been concluded that the NPI contributed to shorter latencies compared to a survey conducted two years earlier over the same months. The various NPIs—such as stay-home or shelter-in-place orders, rules for physical distancing, closure of schools, business closures and compulsory home office—“restrict people’s everyday lives and not only affect their behaviour, but also their attitudes and values” (Kohler, 2020, p. 93). In our case, the surprising consequence of these NPIs on the response rate might be based on the *decrease in the subjectively expected opportunity costs of a response*, which outweighed the negative impacts of the pandemic on the panellists’ everyday life and their decision to take part in the survey. Thus, as a *benefit in the invitees’ view*, the survey participation seemed to be a welcome distraction during the hard times of “corona” (Becker *et al.*, 2022).

The motivation of our reanalysis relates to the fact that many research projects faced challenges in the context of the COVID-19 pandemic (Will, Becker, & Weigand, 2020, p. 247). Negative effects of the pandemic as well as associated consequences on the performance and outcomes of social-scientific surveys have been reported (e.g. Blom *et al.*, 2020; Gummer *et al.*, 2020; Kohler, 2020; Sakshaug, 2020; Schaurer & Weiß, 2020). Therefore, it has to be reanalysed whether the positive effect of the NPI on survey participation was a random exception or just an artefact. First, the result that the NPI boosted the panellists’ participation at the initial stage of the survey may be related to the response behaviour of a “panelised” sample that survived across each of the panel waves. Second, it may be valid that our finding is singular for a special target population. It is possible that another target population might have responded quite differently. Third, the impact of the pandemic on survey participation caused by infection could not be observed directly for the non-respondents. Regardless of these issues, the design of our panel study allows us to reanalyse our finding by including information on participation in the subsequent survey conducted exactly one year later (May/June 2021). In contrast to the previous wave, the most restrictive NPI had ended just before the start of the most recent survey. Therefore, it is possible to test, using a very similar design, whether the COVID-19-related NPI in 2020 indeed resulted in an optimal exhaustion of the target sample.

¹ In Switzerland, the first contagious case of COVID-19 was detected on 25 February 2020 and the first fatality due to the disease caused by the potentially lethal SARS-CoV-2 (coronavirus) was reported on 5 March 2020. On 11 March 2020, the World Health Organization (WHO) classified the outbreak of COVID-19 as a pandemic. As a consequence, the first *public shutdown* was imposed in Switzerland and lasted until 10 May 2020. Since 18 October 2020, the second wave of the coronavirus pandemic led to the limitation of civil rights by the government again. It was strengthened on 29 October and the universities had to offer virtual lessons from 2 November 2020. In December 2020, the business of restaurants was limited until 7 o’clock in the evening. These NPIs were tightened in January 2021 and were then reduced at the start of March 2021. After 14 April 2021, the most restrictive NPIs were relaxed, and the second shutdown finished before the survey launch.

Against the implicit theoretical and empirical background of survey participation (for details, see Becker *et al.*, 2022; Singer, 2011; Schnell, 1997, p. 157–165), it is supposed that the *response rate* (indicated by the number of completed questionnaires versus the invitees’ non-response across the fieldwork period) as well as the *response speed* (indicated by the latency between invitation and response) was significantly higher during the overlap of the fieldwork period with the NPI in May 2020 than in May 2021, which did not experience this unique overlap. However, it has to be emphasised that the features of the coronavirus pandemic were much more severe in the most recent wave. To give an example, the incidence rate (i.e. the number of infections per 100,000 citizens across seven days) was much higher in the initial stage of the most recent survey (161 cases at survey launch and 114 cases after two weeks) than in the previous survey during the period of the public shutdown (14 cases at survey launch and about one case two weeks later) (corona-in-zahlen.de/weltweit/schweiz, 2022). In order to crystallise the “*public shutdown effect*” for the survey in 2020, the different characteristics of the coronavirus pandemic in Switzerland are therefore taken systematically into account in the multivariate reanalysis. In this respect, by considering the more serious circumstances of the pandemic in May 2021, the design of the replication is a strict retest of our previous finding.

The remainder of the replication is organised as follows. In the next section, the data, variables and statistical procedures are discussed. The empirical findings are presented in the third section. First, the time-related patterns of survey participation are described in order to indicate the effect of the NPI. Second, the multivariate analysis seeks to test our hypothesis to a greater extent. Third and finally, the fourth section summarises the results and provides a conclusion.

2 Data, variables and statistical procedures

Data

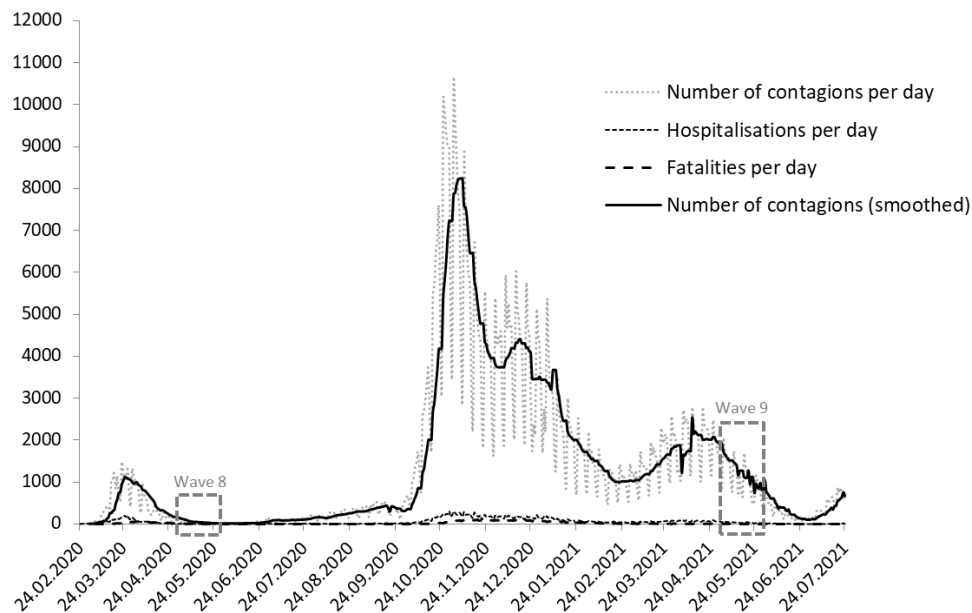
The replication is based on paradata gathered in the course of the fieldwork of the DAB Panel Study (2022). These paradata are linked with information on the surveys and individuals. The target population are youths who were born around 1997 and enrolled in regular public schools in German-speaking cantons of Switzerland during their compulsory schooling. The random sample was drawn in 2012 (Glauser, 2015, p. 126–128). Since then, nine waves have been realised. The total average response rate is about 80 per cent for each of the waves (Becker, Glauser & Möser, 2020, p. 130; Becker, 2022a, p. 269). In the first wave, the gross sample consisted of 3,815 individuals. Across consecutive waves, it declined to 2,493 panellists contacted in Wave 8 (May and June 2020). They were invited to take part in a self-administered online questionnaire; after 12 days, a computer-assisted telephone interview (CATI) was offered to the non-respondents (Becker, 2022a, p. 265). In Wave 9, which took place over the same months one year later, 2,313 panellists were eligible to be contacted. In this wave, for cost reasons, only the online questionnaire was offered since too few invitees had taken part in the CATI during the previous wave (Becker, 2022a, p. 271, 273). About 82 per cent of the invitees responded to the online survey in May and June 2021. The same total response rate was realised in Wave 8. For the sake of comparison in our reanalysis, only the responses of the online mode within the first 28 days of the start of the fieldwork are considered in both surveys (Becker *et al.*, 2022). It is worth noting that the invitees received a prepaid monetary incentive (10 Swiss Francs) from Wave 7 onwards.

Dependent and independent variables

The *dependent variable* is a panellist’s *survey response* (i.e. completion of the online questionnaire). For each of the panel waves considered in the analysis, the response rate is

defined as the ratio of eligible units and their response in terms of starting and completing the online questionnaire (RR1; AAPOR, 2016, p. 61).

The impact of the *coronavirus pandemic* in Switzerland on the panellists' response behaviour is indicated by the *absolute number of contagions, hospitalisations and fatalities per day* (see *Figure 1*). Since the survey launch at the end of April 2020, the number of contagions decreased from 120 cases per day to 20 cases at the end of May 2020. Over the same time, the fatalities decreased from 16 cases per day to two cases per day and the hospitalisations decreased from 11 cases per day to three cases per day. The incidence rate (i.e. the number of contagions per 100,000 inhabitants across seven days) decreased continuously from 13 cases at the end of April 2020 to five cases at the end of the public shutdown (10 May 2020) to one case per day at the end of May 2020 (Corona-in-Zahlen.de/weltweit/schweiz, 2022). In 2021, however, there were 1,721 infections, 63 fatalities and eight hospitalisations per day at the time of survey launch (29 April 2021). These numbers decreased until the end of May 2021 (about 500–700 contagions, 20 fatalities and two hospitalisations per day). The seven-day incidence was about 168 cases at the end of April, which decreased continuously to about 79 cases at the end of May.



Source: Federal Office of Public Health (FOPH, 2022); Our World in Data (2022)—own compilation

Finally, different *sociodemographic characteristics* of the panellists have been considered, such as the *gender* (Becker 2022b, p. 4), *social class origin* (Erikson & Goldthorpe, 1992, p. 38–39), the *education* (Groves & Couper, 1998, p. 128) and the *language proficiency* (in lingua franca) of a target person (Wenz, Al Baghal, & Gaia, 2021, p. 75). These time-constant covariates control for the social heterogeneity of the invitees.

Statistical procedures

For the longitudinal data analysis, statistical procedures of the *survival and event history analysis* are applied (Aalen, Børgan, & Gjessing, 2008; Blossfeld, Rohwer, & Schneider, 2019). This provides statistical methods for analysing stochastic processes with discrete states, such as survey response, and continuous time, such as latency in the fieldwork period since survey launch across different situations of the coronavirus pandemic. According to the time dependency of survey participation (Becker, 2022a, p. 267; Becker, 2021, p. 30), the panellists' propensity for response is specified parametrically to analyse how the transition

rate depends on a set of time-constant covariates—such as gender, education or social origin—and time-varying covariates, namely the dynamics of the pandemic.

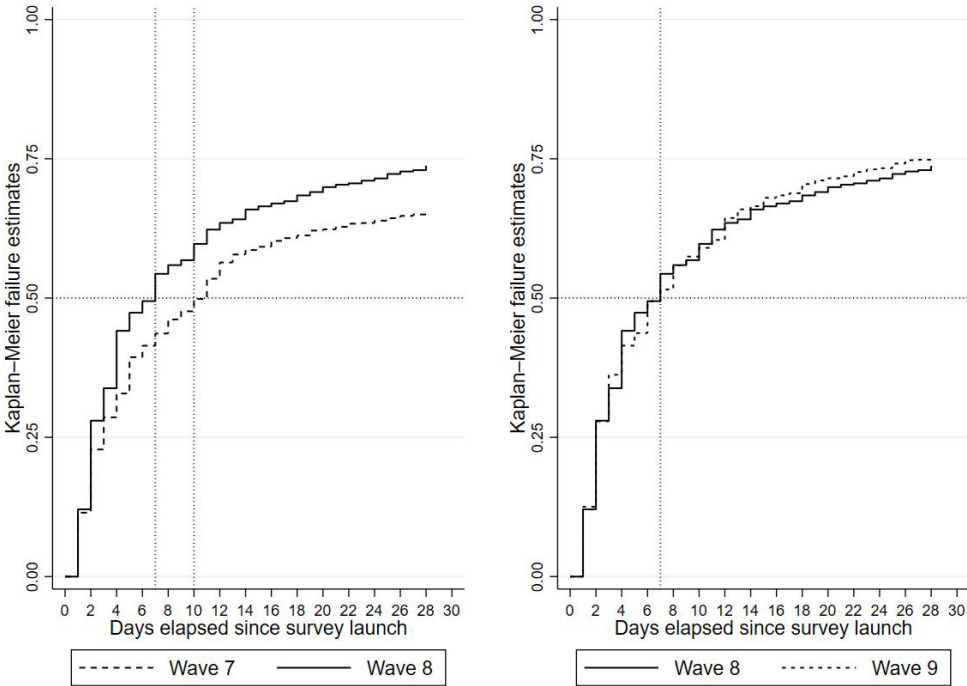
In order to consider the impact of time-varying covariates—i.e. the development of the COVID-19 pandemic and the NPI—on the individuals’ propensity to complete the online questionnaire, the transition rate $r(t)$ will be estimated on the basis of an *exponential distribution*: $r(t|x(t)) = \exp(\beta'x(t))$, whereby $x(t)$ is the time-dependent vector of exogenous variables whose unknown coefficients β have to be estimated. To account for time-varying covariates in the logic of time, the technique of *episode splitting* is used: the initial process time is split into sub-episodes on a daily basis (Blossfeld, Rohwer & Schneider, 2019, p. 155). The non-respondents become right-censored cases, with a maximum latency of 28 days (i.e. a maximum number of 28 sub-episodes). For each of these sub-episodes, the time-varying features of the pandemic and the NPI are merged. The *exponential model* is then able to model step functions, displaying the empirically observed hazard function for the entire process until participation depends on the running pandemic and on the current invitees’ decision to take part in the survey.

Finally, by means of non-parametrical procedures such as the discrete-time *survival analysis* and the *Kaplan–Meier method* of estimating *failure rates*, the pattern of participation across the time that has elapsed since the invitation to the current wave are described on the basis of relative prevalence across the fieldwork period. By calculating indices, such as the median, it is possible to show how long it takes a number of panellists to start filling out the questionnaire, and how many of the panellists have not responded at different points in time.

3 Empirical findings

Description of the survey participation

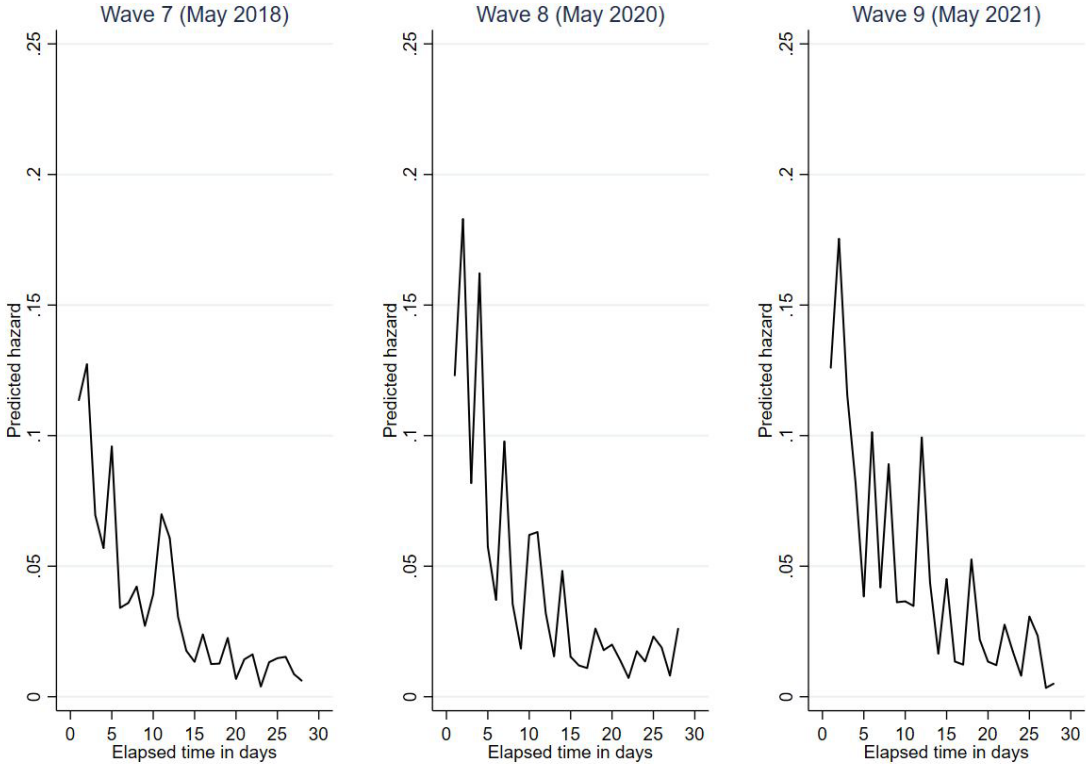
Figure 2: Failure estimates for Waves 7 and 8 (left panel) and for Waves 8 and 9 (right panel)



Overall, the response rates (74 per cent in Wave 8 and 75 per cent in Wave 9) and the median values of latencies (seven days: see the dotted vertical and horizontal lines in the *right panel* in *Figure 2*) are identical in the observation window of 28 days. Each test of both survival curves—the log-rank test, the Cox test, the Wilcoxon–Breslow–Gehan test, the Tarone–Ware test and the Peto–Peto–Prentice test—is insignificant. Thus, the development of responses, indicated by the failure estimates, is identical in both of the most recent waves (Waves 8 and 9).

The comparative analysis on Waves 7 and 8, however, reveals remarkable differences (*left panel* in *Figure 2*). Considering the completion of the online questionnaire only, the response rate of Wave 7 was 64 per cent and the median value was significantly higher, amounting to 10 days (regardless of the survey mode chosen by the invitees) (see Becker, 2022a, p. 269 for details). Each test of the failure curves for the different waves indicates significant differences at each stage across the fieldwork period.

Figure 3: Period-specific hazard rates in Waves 7, 8 and 9



These differences become more obvious visually by estimating the hazard rates for each point in time at which responses took place (*Figure 3*). Focusing on the initial stage of the surveys, it is shown that the rate and speed of responses were higher in Wave 8 (*middle panel*) than in Wave 7 (*left panel*) and in Wave 9 (*right panel*). In sum, the results indicate that it is plausible to assume that the *public shutdown* (until 10 May 2020) can be addressed as a major cause for these differences in the features of the fieldwork periods.

Fine-grained multivariate reanalysis of the survey participation

In order to substantiate this preliminary conclusion based on univariate hazard rates, multivariate models are estimated by taking time-varying covariates on the COVID-19 pandemic into account (*Table 1*). The effects of the panellists' characteristics are not interpreted, since they serve as a control (see Becker *et al.*, 2022).

Table 1: Impact of the pandemic on survey participation in Wave 8 (May 2020) and Wave 9 (May 2021)

Wave Model	Waves 8 and 9		Wave 8	Wave 9
	1	2	3	4
<i>Time-varying covariates on different levels</i>				
<i>Micro: Wave 8 (vs Wave 9)</i>				
<i>Meso: Public shutdown (vs other periods)</i>	0.711 (0.080)***	0.534 (0.081)***	0.306 (0.099)**	
<i>Macro: Cases of illness per day/100</i>	0.007 (0.001)***	0.006 (0.001)***	0.011 (0.002)***	0.034 (0.011)**
<i>Macro: Hospitalisations per day</i>	0.019 (0.001)***	0.029 (0.002)***	0.148 (0.019)***	0.021 (0.004)***
<i>Macro: Number of deaths per day</i>	0.075 (0.007)***	0.072 (0.007)***	0.026 (0.015)	0.089 (0.013)***
<i>Social origin (Ref.: missing value)</i>				
Upper service class	0.186 (0.065)**	0.187 (0.065)**	0.238 (0.090)**	0.127 (0.094)
Lower service class	0.193 (0.062)**	0.194 (0.062)**	0.222 (0.086)**	0.157 (0.088)
Routine non-manual employee	0.206 (0.059)***	0.203 (0.059)***	0.214 (0.082)**	0.187 (0.085)*
Farmer or small proprietor	0.155 (0.082)	0.160 (0.082)	0.232 (0.114)*	0.079 (0.118)
Foreman or skilled manual worker	0.053 (0.065)	0.055 (0.065)	0.106 (0.091)	-0.002 (0.094)
Semi-skilled or unskilled manual worker	0.083 (0.089)	0.085 (0.089)	0.128 (0.124)	0.033 (0.128)
<i>School type (Ref.: miscellaneous type)</i>				
Basic requirements	-0.312 (0.064)***	-0.310 (0.064)***	-0.321 (0.089)***	-0.292 (0.092)**
Intermediate requirements	0.142 (0.057)*	0.140 (0.057)*	0.127 (0.079)	0.154 (0.082)
Baccalaureate schools	0.539 (0.061)***	0.535 (0.061)***	0.582 (0.086)***	0.481 (0.088)***
<i>Individual characteristics</i>				
Language proficiency	0.085 (0.019)***	0.086 (0.019)***	0.109 (0.027)***	0.060 (0.027)*
Female (vs male)	0.220 (0.034)***	0.218 (0.034)***	0.232 (0.048)***	0.200 (0.049)***
Constant	-4.523 (0.078)***	-5.075 (0.113)***	-4.601 (0.110)***	-5.116 (0.140)***
Number of sub-episodes	56,906	56,906	29,737	27,169
Number of cases	4,806	4,806	2,493	2,313
Number of events	3,573	3,573	1,839	1,734
LR chi ² (d.f.)	1812.94 (15)	1864.20 (16)	1150.58 (15)	769.11 (14)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; β -coefficients, estimated by exponential model (in parentheses: robust standard error).

As a first step, the survey participation is analysed for both waves. By considering the features of the pandemic, it is revealed that the response rate was highest in the *period of public shutdown* (Model 1). Even when the pandemic was worse, its characteristics—indicated by the number of contagions, hospitalisations and fatalities per day—did not compromise the extraordinary response rate during the period of public shutdown (Models 1 and 2). This finding remains constant when the most recent wave is considered as a reference category (Model 2). When the pandemic development and the NPI period are taken into account, it is

found that the time-related response rate in general and the response speed in particular were significantly higher in Wave 8 than during the most recent wave. This is especially true for the initial stage of Wave 8, which took place during the *public shutdown period*. The propensity for survey participation was about $[(\exp(0.711) - 1) \cdot 100\% =]$ 64 per cent (Model 1) or 100 per cent (Model 2) higher during the shutdown period (11 days) compared to the other fieldwork periods (45 days in total). In sum, controlling for measures indicating different pandemic trajectories in 2020 and 2021, the *effect of public shutdown on survey participation in May 2020* remains significant.

Of course, one could assume that different developments of the pandemic might result in different features of the invitees' response across the waves. Therefore, as a second step, the panellists' propensity for survey participation is estimated separately for Waves 8 and 9 (Models 3 and 4). It is found that the dynamics of the pandemic provide positive effects on the survey participation in each wave. This is particularly true for Wave 9 (Model 4). It is concluded that survey participation is positively correlated with the signals sent out by the manifestation of the COVID-19 disease among the Swiss population. The higher the number of infections, hospitalisations and fatalities, the more likely it is that the invitees would start completing the questionnaire. Finally, the survey participation patterns in Wave 8 confirm that the *public shutdown* had a unique and positive impact on the response rate of the fieldwork period (Model 3). Within this Wave 8, the likelihood of response was about $[(\exp(0.306) - 1) \cdot 100\% =]$ 36 per cent higher during the shutdown period (11 days) than during the subsequent periods of the fieldwork in this survey (17 days) that have been considered for the replication. Overall, these findings clearly replicate our previous analysis on the positive effect of the NPI on the panellists' response (Becker *et al.*, 2022).

4 Conclusion

The aim of this brief contribution has been to replicate a surprising outcome—a positive effect of a *public shutdown* (an NPI imposed by the Swiss government in 2020)—on participation in a survey launched close to the end of this long-lasting NPI (Becker *et al.*, 2022). By comparing the rate and timing of responses in a previous survey taking place in May 2018 with the outcome of the survey conducted at a time of corona in May 2020, it is found that this public shutdown, which ended 11 days after survey launch, boosted the response rate as well as the speed of response. In order to reveal an assumed artefact for panellists in an established multi-wave panel study or a random singularity as a consequence of this NPI, the pattern of survey participation in May 2020 is compared with the invitees' propensity for participation in the most recent survey wave, conducted a year later in May 2021. By this design, the possible effect of the long-lasting time of “corona” on the life and behaviour of the panellists is taken into account.²

Overall, the previous finding is replicated successfully. The NPI in spring 2020 pushed panellists to take part in the initial stage of the survey. The magnitude of the *public shutdown effect* on the invitees' survey participation is identical when all surveys considered for this reanalysis are compared to each other (see Models 2–4 in *Table A.1* in the *Appendix*). The

² Meanwhile, reliable research results document that, at present, COVID-19 is fundamentally shaking the life course of many people (Settersten *et al.*, 2020, p. 2). For example, Grätz and Lipps (2021) report a significant reduction of studying time during the closure of schools and universities in Switzerland. For the period of public shutdown in Switzerland, Bolli *et al.* (2021) find a decrease in the quality of occupational competences among juveniles in vocational education and training. Kuhn *et al.* (2021) reveal, based on data from the Swiss Household Panel, that there was no general change in life satisfaction and a small decrease in stress levels during the first pandemic wave. However, young adults have reported a decrease in life satisfaction while stress levels have decreased most strongly among the highly educated juveniles. In particular, young people with a low socioeconomic status and low education have had the greatest burden to bear since the outbreak of the pandemic. The same social–structural regularities are found for the survey participation in the DAB panel study regarding the panellists' education, language proficiency and social origin (Becker *et al.*, 2022; Becker, 2021; Becker, Möser, & Glauser, 2019).

likelihood of response was about $[(\exp(1.258) - 1) \cdot 100\% =]$ 2.5 times (Model 2) higher during the shutdown period (11 days) than during the other fieldwork periods of each of the three surveys (73 days in total) that have been considered specially for the replication analysis. In our view, the positive and significant effect of the public shutdown on survey participation is obviously a real fact.

In a theoretical respect, it is assumed that, in the view of the panellists, a significant decrease of *opportunity costs* for survey participation and increased entertainment *benefits* during the hard times of “corona” might explain this phenomenon (Becker *et al.*, 2022). After the end of the rigid NPI, the opportunity costs for survey participation might have increased again. Whether this assumption is valid cannot be proved yet due to missing information about the invitees’ attitudes and values or cost–benefit assessment regarding their decision to participate in the survey (see also Kohler, 2020). Without any mechanism-based identification of the panellists’ decision-making process and other unobserved circumstances in their everyday life, the findings *might* be interpreted for the present in line with the “wide” version of rational choice theory (Becker, 2021; Singer, 2011; Schnell, 1997). Finally, although the effects of the pandemic and the NPI are positive for the response rate, the question is still open whether our finding is an exception among other cross-sectional surveys or longitudinal studies (Blom *et al.*, 2020; Kühne *et al.*, 2020). It would be interesting, therefore, to find out whether the current pandemic and the various NPIs have had different impacts on different target populations in terms of survey participation and response pattern across the fieldwork period (Goodman-Bacon & Markus, 2020, p. 153; Lillard, 2020). Cumulative findings might contribute to in-depth knowledge regarding the impact of pandemics on survey participation and the quality of the data gathered during these extraordinary periods. In view of experience from the “Spanish flu”, the deadly pandemic of 100 years ago (Spinney, 2017), it cannot be ruled out that the current coronavirus pandemic will last for a few more years longer.

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Appendix

Table A.1: NPI and survey participation in Wave 7 (May 2018), Wave 8 (May 2020) and 9 (May 2021)

<i>Waves Models</i>	<i>Waves 7, 8 & 9</i>		<i>Waves 7 & 8</i>	<i>Waves 8 & 9</i>
	1	2	3	4
<i>Time-varying covariates at different levels</i>				
<i>Micro: Wave 7 (vs Wave 8)</i>			-0.588 (0.059)***	
<i>Micro: Wave 7 (vs Wave 9)</i>	-0.255 (0.035)***	-0.258 (0.035)***		
<i>Micro: Wave 8 (vs Wave 9)</i>	0.020 (0.034)	-0.850 (0.059)***		-0.861 (0.059)***
<i>Meso: Public shutdown</i>		1.258 (0.060)***	1.251 (0.060)***	1.268 (0.060)***
<i>Social origin (Ref.: missing value)</i>				
Upper service class	0.229 (0.054)***	0.220 (0.054)***	0.258 (0.066)***	0.210 (0.065)**
Lower service class	0.229 (0.051)***	0.225 (0.051)***	0.252 (0.063)***	0.215 (0.062)***
Routine non-manual employee	0.230 (0.049)***	0.219 (0.049)***	0.208 (0.060)***	0.240 (0.059)***
Farmer and small proprietor	0.216 (0.069)**	0.194 (0.069)**	0.241 (0.084)**	0.177 (0.082)*
Foreman and skilled manual worker	0.060 (0.054)	0.060 (0.054)	0.097 (0.067)	0.058 (0.065)
Semi-skilled and unskilled manual worker	0.095 (0.074)	0.089 (0.074)	0.107 (0.091)	0.098 (0.089)
<i>School type (Ref.: miscellaneous type)</i>				
Basic requirements	-0.324 (0.053)***	-0.311 (0.053)***	-0.298 (0.066)***	-0.338 (0.064)***
Intermediate requirements	0.241 (0.048)***	0.224 (0.048)***	0.243 (0.059)***	0.161 (0.057)**
Baccalaureate schools	0.766 (0.051)***	0.701 (0.051)***	0.744 (0.063)***	0.629 (0.061)***
<i>Individual characteristics</i>				
Language proficiency	0.134 (0.016)***	0.126 (0.016)***	0.154 (0.019)***	0.095 (0.019)***
Female (vs male)	0.290 (0.028)***	0.279 (0.028)***	0.299 (0.035)***	0.247 (0.034)***
Constant	-3.244 (0.054)***	-3.466 (0.053)***	-3.519 (0.063)***	-3.135 (0.062)***
Number of sub-episodes	90,674	90,674	63,505	56,906
Number of cases	7,299	7,299	4,986	4,806
Number of events	5,183	5,183	3,449	3,573
LR chi ² (d.f.)	1123.90 (13)	1679.12 (14)	1410.70 (13)	1216.82 (13)

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$; β -coefficients, estimated by exponential model (in parentheses: robust standard error).

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The data for the first eight waves of the panel study are available as Scientific Use Files at *SWISSUbase* in Lausanne (DOI: [10.48573/cf4p-6s72](https://doi.org/10.48573/cf4p-6s72)), and can be found in the online catalogue under reference number 10773 (<https://www.swissubase.ch/en/catalogue/studies/10773/17907/overview>).

The data for the most recent Wave 9 will be deposited in 2022 in this data storage. They include the paradata for each of the waves. The macro indicators and the Stata syntax used for this contribution are available from the corresponding author.

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