94 Impact of COVID-19 on forest visits in the early 2020 COVID-19 pandemic: Evidence from Switzerland

Anne C. Wunderlich, **Boris Salak**, **Marcel Hunziker**, **Tessa Hegetschweiler**, **Nicole Bauer**,
Swiss Federal Research Institute WSL, Switzerland

On March 11 2020, the World Health Organization (WHO) declared COVID-19 as a pandemic and stated that "If countries detect, test, treat, isolate, trace, and mobilize their people in the response, those with a handful of cases can prevent those cases becoming clusters, and those clusters becoming community transmission." (World Health Organization (WHO), 2020). Thereupon many countries issued restrictions on public life to reduce the transmission of COVID-19. Most countries closed shops, restaurants, bars and leisure facilities. Social gatherings were forbidden, the number of people allowed to attend private events was limited. To reduce contact, many employees were sent to the home office. On March 14, Spain and Italy imposed strictest restrictions and even prohibited going outside for leisure activities so no one could visit urban green spaces (Ugolini et al. (2020)). In other countries social distancing and restrictions on public life lead to a visitor boom of green spaces and forests: Geng et al. (2021) analyze the impact of COVID-19 on urban park visitation with help of data from Google's Community Mobility Reports and Oxford Coronavirus Government Response Tracker to track government policies and restrictions at different stages. They use data from 16th of February to 26th of May for 48 regions in Italy, Spain, South Korea, United Kingdom, Denmark, Canada and Japan and conclude that social gathering restrictions as well as public information campaigns have had a significant positive influence on park visits and increased in each country of their sample park visits with one exception: Italy. Although later in May park visits increased in Italy as well. Ugoloini et al. (2020) conclude in their study with respondents from Croatia, Israel, Italy, Lithuania, Slovenia and Spain that motivation to visit urban green spaces changed during the lockdown period. Reductions in visitation were a consequence of less social gatherings in nature. Physical exercise on the opposite was one of the main reasons for respondents to visit a green space.

Many surveys were conducted in the beginning of the lockdown to analyze changed behavior of respondents. So far, no study was able to analyze the behavior of the same cohort of respondents before the lockdown and during the lockdown. We profit from a unique data set: In March - right before the COVID-19 induced lockdown - a Swiss wide online survey on forest visits and attitudes towards forests was conducted (n = 8064 respondents). This survey ended on March 9th 2020. On the 17th of March, the Swiss government implemented the lockdown due to increasing COVID-19 cases. To study the impacts of the lockdown, a second wave of the survey with 1085 respondents was held from March 2nd 2020 to April 9th 2020. Therefore, we are able to study the impacts of the policy induced lockdown and its implication on the working environment (such as home office and short-time work) and rising COVID-19 incidences on forest visits within the same cohort.

The 1085 respondents in the second wave of the survey were randomly chosen from a bigger sample of 8065 respondents who were surveyed in the first wave. Already the sample of the 8065 respondents was not a representative sample. LINK (a market research institute in Switzerland) administrators computed the survey weights based on the base weights accounting for probabilities of selecting into the sample and by post-stratification weights which were in line with benchmark distributions from Switzerland Census Population Surveys from 2019.

We estimate the effects of the rising COVID-19 cases and the associated changes in the professional environment – namely home office and short-time work or job loss - in Switzerland on the frequency of a forest visit in the time before and during the policy induced lockdown (number of forest visits per week) as well as the duration of forest visits pre- and during lockdown. We control for a series of socio-demographic factors and predictor variables that are likely to influence the frequency of

forest visits (e.g. Hunziker et al., 2012), e.g. activities during the forest visits, motives of the forest visits, travel time, extent of feeling disturbed during the visits. To measure the impacts, the following specification is used:

$$\Delta Y_{ist} = \beta_0 + \beta_1 \Delta W_{it} + \beta_2 \Delta C_{st} + \beta_3 X_i + \mu_{is}$$

where i is the individual in wave t. ΛW is the change in the individual working situation and ΛC are changes in COVID-19 cantonal incidence proportions. Furthermore, we use a model with first differences as a robustness check.

Respondents resided across all 26 of Switzerland's cantons and a higher share of the sample is located in highly populated cantons in Switzerland, like Zurich. Furthermore, the sample consists of 47% of males (53% of females respectively) and had an average age of 55 years. 21% of the respondents live in an urban area whilst 79% of respondents in an urbanized area or city.

In our sample, 628 of the respondents visit the forest on a regular base in the period from spring to autumn before the lockdown as well as during the lockdown. The mean visitation rate per week in this group increased in the phase of the lockdown from 1.9 days per week to 2.4 days per week. The 95% confidence interval for the mean changes of those variables does not include 0, and the estimated mean change is negative. This suggests that on average, regular forest visitors experienced a significant incline in mean days of visits per week. On the opposite mean duration of visits during the lockdown significantly declines from 76 minutes at the beginning of March to 64 minutes during the lockdown.

Results of our estimation specification show that the frequency of visitation during the lockdown is significantly driven by the individual working situation: Respondents working from home visit forests significantly more often during the lockdown period. Changes in cantonal COVID-19 incidence proportions do not directly influence visitation rates. Similarly, the change in the situation at the workplace (being in home office) has a significant and negative influence on the length of the stay in the forest.

Refrences

Ugolini et al. 2020. https://doi.org/10.1016/j.ufug.2020.126888. Geng et al. 2021. https://doi.org/10.1007/s11676-020-01249-w. Hunziker et al. 2012.