

# Money is not everything: experimental evidence that payments do not increase willingness to be vaccinated against COVID-19

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## ABSTRACT

Rapid, large-scale uptake of new vaccines against COVID-19 will be crucial to decrease infections and end the pandemic. In a recent article in this journal, Julian Savulescu argued in favour of monetary incentives to convince more people to be vaccinated once the vaccine becomes available. To evaluate the potential of his suggestion, we conducted an experiment investigating the impact of payments and the communication of individual and prosocial benefits of high vaccination rates on vaccination intentions. Our results revealed that none of these interventions or their combinations increased willingness to be vaccinated shortly after a vaccine becomes available. Consequently, decision makers should be cautious about introducing monetary incentives and instead focus on interventions that increase confidence in vaccine safety first, as this has shown to be an especially important factor regarding the demand for the new COVID-19 vaccines.

The first vaccines against COVID-19 have been approved and it is just a matter of months before they will become globally available.<sup>1</sup> While the rapid, large-scale uptake of vaccines is required to end the pandemic, poll data show that worldwide vaccination intentions are declining.<sup>2</sup> In mid-October 2020, only half of German and UK respondents wanted to be vaccinated in the first 3 months after the vaccine becomes available—not enough to achieve herd immunity and sufficiently control transmission of the disease.<sup>3,4</sup> Various interventions have been discussed to counter COVID-19 vaccine hesitancy specifically and increase vaccination intentions, including mandatory regulations<sup>5</sup>

and educational campaigns to highlight the contributions of individual vaccination to herd immunity and to fight conspiracies.<sup>6</sup> Recently, Julian Savulescu<sup>7</sup> advocated for monetary vaccination incentives. He argued that paying people to be vaccinated against COVID-19 is ethically just (because it is risk-neutral: being paid for an approved, marketed, otherwise unpaid-for vaccination does not increase risk) and economically reasonable (because the financial benefits of higher vaccination rates should outweigh payment costs). While monetary incentives promote certain health behaviours, such as maintaining a healthier diet<sup>8</sup> and quitting smoking,<sup>9</sup> virtually no empirical evidence supports the effect of payments on the uptake of new vaccines. To fill this gap and to provide decision makers with necessary evidence for designing efficient vaccination policies, we conducted a preregistered experiment (see <https://aspredicted.org/yj5n2.pdf>), investigating the effects of payments and communication interventions (highlighting the effects of individual vaccination on infections and herd immunity) on intentions to be vaccinated against COVID-19.

In late November 2020,  $N=1349$  individuals from a German non-probabilistic sample, quota-representative for age  $\times$  gender  $\times$  education, were randomly assigned to a 2 (payment vs no payment condition)  $\times$  2 (communication vs no communication condition) factorial between-subjects design. Participants were 20–74 years old ( $M=47.31$ ,  $SD=14.02$ ), 666 were men and 683 women. Most participants lived alone (31%), with a partner (35%), or with a partner and children (23%). The average monthly net household income was €2835.72 ( $SD=€5438.50$ ). When asked about their financial situation, only 31% reported that they never had financial worries and problems during the last 6 months. At the beginning of the experiment, participants were informed that a vaccine against COVID-19 could be approved shortly. Participants in the

communication condition were also told that a rapid uptake of the vaccine was important to decrease infections, avoid new waves of the pandemic and protect those who could not be vaccinated by achieving herd immunity. Afterwards, all participants were asked to imagine they had the chance to be vaccinated against COVID-19 for free the next month. Seventy-five per cent of the participants (assigned to the payment condition) were also asked to imagine being financially rewarded for vaccination. The amount offered was randomly selected from eight alternatives (€25, €50, €75, €100, €125, €150, €175 and €200). Finally, participants were asked how likely they were to get vaccinated if they had the chance to do so the next month (on a 7-point scale from 1=not at all to 7=very much).

The results revealed an average vaccination intention of  $M=4.43$  ( $SD=2.33$ ). A regression analysis with communication, payment and their interaction predicting vaccination intention revealed no significant effects (table 1). This result did not change after replacing the binary payment factor with the actual amount offered, and when controlling for participants' financial situation (see online supplement).

Our results challenge the suggestion that monetary incentives can foster the willingness to get vaccinated against COVID-19. Communicating the individual and prosocial benefits of high vaccination rates, payments and a combination of both strategies did not increase vaccination intentions. Perhaps the monetary incentives used in this study were too small, but larger payments undermine both economic and ethical justifications. When large sums must be paid to each person to produce a minor increase in vaccination intentions, the costs outweigh the benefits of high uptake. Furthermore, higher payments may offer disproportionate incentives to economically disadvantaged citizens, affecting their vaccination decisions but not addressing basic concerns about the vaccine.

The results should be generalised with caution. They were drawn from a German sample. While we expect similar effects for other Western countries, further studies should assess the effect of payments on vaccination intentions for other populations and cultural backgrounds. Moreover, the fictitious scenario and the assessment of vaccination intentions may not be a perfect representation of real-life vaccine decision-making. Although intention usually predicts behaviour, there may be a gap between the two, especially

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**Table 1** Results of regressing intention to get vaccinated against COVID-19 on communication about the need for high uptake and payments for being vaccinated

Predictor	b	SE	CI-	CI+
(Constant)	4.46	0.18	4.106	4.805
Communication (baseline: no communication)	-0.34	0.25	-0.838	0.152
Payment (baseline: no payment)	0.22	0.21	-0.189	0.619
Communication × Payment	-0.05	0.29	-0.619	0.524

None of the predictors was significant. A priori power analyses revealed a power >0.95 to detect a small effect ( $f^2=0.05$ ).  $R^2=0.01$ , adjusted  $R^2=0.01$ . CI- and CI+ are the lower and upper bounds of the 95% confidence intervals.

as social desirability of getting paid for vaccination may be low. When vaccines against COVID-19 become widely available, the behavioural consequences of monetary incentives should be investigated in field experiments.

While it may be worthwhile to further investigate the positive effects of monetary incentives for specific subgroups such as health professionals, future work should also focus on different interventions to improve vaccination intentions in the public. Other research suggests that current hesitancy about new COVID-19 vaccines is strongly related to a lack of confidence in their safety.<sup>4 10</sup> Thus, educational campaigns addressing the safety of vaccines as we learn more about them may enable undecided people to make educated, informed decisions. Once safety concerns are reduced, monetary incentives could drive vaccine uptake. This should be addressed in future investigations.

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**Data availability statement** Materials, data, and the data analysis script are available at <https://osf.io/89eux/>

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