



Psychological ownership interventions increase interest in claiming government benefits

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Each year, eligible individuals forgo billions of dollars in financial assistance in the form of government benefits. To address this participation gap, we identify psychological ownership of government benefits as a factor that significantly influences individuals' interest in applying for government benefits. Psychological ownership refers to how much an individual feels that a target is their own. We propose that the more individuals feel that government benefits are their own, the less likely they are to perceive applying for them as an aversive ask for help, and thus, the more likely they are to pursue them. Three large-scale field experiments among low-income individuals demonstrate that higher psychological ownership framing of government benefits significantly increases participants' pursuit of benefits and outperforms other common psychological interventions. An additional experiment shows that this effect occurs because greater psychological ownership reduces people's general aversion to asking for assistance. Relative to control messages, these psychological ownership interventions increased interest in claiming government benefits by 20% to 128%. These results suggest that psychological ownership framing is an effective tool in the portfolio of potential behavioral science interventions and a simple way to stimulate interest in claiming benefits.

psychological ownership | field experiment | framing | public policy | government benefits

Each year, eligible individuals forgo billions of dollars in financial assistance in the form of government benefits. This is the case for two of the largest US benefits programs in 2020: the Economic Impact Payment (the “stimulus check”) and the Earned Income Tax Credit (EITC). About nine million individuals did not claim the first wave of stimulus checks (1), sacrificing roughly \$10.4 billion. Further, ~20% of eligible individuals do not claim the EITC, forgoing an estimated \$7.3 billion annually (2). This difference between eligibility and uptake in government benefits is commonly referred to as the “benefits participation gap.” Many policymakers are focused on closing this participation gap, as receiving government benefits has been shown to reduce poverty, childhood hunger, and educational gaps, as well as physical and mental illness (3–5).

Existing efforts to close the participation gap have largely focused on addressing individuals' ability to claim government benefits. As such, this work has focused on interventions that increase awareness and knowledge of benefits, reduce the complexity of the process, or minimize logistical barriers (6–8). However, for such efforts to be fruitful, individuals must have a fundamental desire to claim their benefits.

The current work introduces psychological ownership as a factor that significantly influences people's desire to claim government benefits. Psychological ownership is a fundamental human perception (9, 10) and refers to the perception that a target is “mine” (11). Although psychological ownership has primarily been studied with respect to people's feelings toward organizations and products, recent research has demonstrated that

people can experience psychological ownership toward monetary resources and that these perceptions can influence financial decisions (12, 13). However, there have been seemingly no large-scale field investigations designed to directly examine whether psychological ownership impacts societal welfare, and the potential magnitude of its effects. In the present work, we propose that psychological ownership of government benefits is a simple and powerful perception that can enhance individuals' desire to pursue these benefits.

We suggest that applying for government benefits feels like requesting assistance, which can feel aversive and decrease individuals' desire to apply for benefits. Because individuals prefer to feel autonomous and efficacious (14, 15), they tend to avoid opportunities that threaten these self-beliefs, such as asking for help (16). Such assistance resistance has been observed among people in a range of contexts, including those needing mental health services, aging individuals needing support, and even individuals requiring assistance from a help manual (17–19). We propose that increasing psychological ownership of government benefits increases interest in claiming these benefits by reducing individuals' discomfort toward asking for help. Specifically, we suggest that psychological ownership interventions encourage individuals to conceptualize government benefits as their own

Significance

Most government benefits programs exhibit a sizable participation gap, with eligible individuals forgoing billions of dollars in government benefits each year. Many policymakers have focused on addressing this participation gap, as receiving government benefits has been shown to reduce poverty, childhood hunger, educational gaps, and physical and mental illness. The current work presents psychological ownership framing as a behavioral science intervention, and we show that it can help address this benefits participation gap. These interventions are subtle, simple to implement, and cheaper to execute relative to logistical interventions. Moreover, the data show that psychological ownership interventions can be more efficacious than other common psychological interventions such as social norms and urgency.

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money, resulting in the perception that applying for benefits is akin to claiming money that belongs to them. Thus, applying for government benefits should seem less like an uncomfortable “ask for help” and more like a rightful “ask for what is mine.” Indeed, a pilot study ($n = 505$) found that individuals with higher psychological ownership of a government benefit were less likely to perceive the application for that benefit as an uncomfortable ask for help [$B = -0.12$, $SE = 0.039$, $t(332) = 6.72$, $P = 0.010$]. As such, we expect communications that increase psychological ownership of government benefits to heighten individuals’ interest in claiming those benefits.

We test these propositions across four preregistered experiments measuring real behavior. We first report three large-scale field experiments ($n = 60,729$) that test the effectiveness of psychological ownership interventions in increasing the pursuit of the EITC and stimulus checks among low-income individuals deemed eligible for these benefits. In these experiments, we encourage participants to visit websites created to help them access their benefits online, which was the most viable way to access benefits during the global pandemic. Experiment 1 demonstrates that higher psychological ownership framing increases interest in claiming EITC benefits. Experiment 2 demonstrates the generalizability of psychological ownership interventions by showing the effectiveness of higher psychological ownership framing for a different government benefit: the stimulus check. Experiment 3 shows that psychological ownership interventions can be more powerful than other popular interventions that incorporate social norms or a deadline. Finally, Experiment 4 ($n = 810$) provides a full test of the proposed conceptual model utilizing another type of financial assistance (i.e., COVID-19 funds). It demonstrates that increasing psychological ownership of available COVID-19 funds decreases individuals’ discomfort around asking for help, increasing their probability of pursuing those funds. Taken together, we find that psychological ownership interventions encourage individuals to seek government benefits, and to a greater degree than other common psychological interventions.

Results

We preregistered our hypotheses, study designs, and planned analyses (Experiment 1: <https://aspredicted.org/58h6n.pdf>; Experiment 2: <https://aspredicted.org/3hv9x.pdf>; Experiment 3: <https://aspredicted.org/gr8j3.pdf>; Experiment 4: <https://aspredicted.org/hm94k.pdf>). For all field experiments, Code for America, a nonprofit aimed at improving how the government serves the public, randomly generated experiment participants from an internal list of individuals likely to be eligible for the EITC and the government stimulus check. Benefits eligibility was estimated based on participants’ household income and size. Data and preregistrations for all experiments are available on Research Box (Research Box 229; <https://researchbox.org/229>).

Experiment 1. Experiment 1 served as an initial test of our hypothesis that higher psychological ownership framing increases interest in applying for government benefits. We aimed to message a random sample of 10,000 US residents from Code for America’s user base that were likely EITC-eligible. Participants were randomly assigned to one of two message framings (higher psychological ownership [PO] vs. control). A separate online study verified that the message with higher psychological ownership terminology led participants to perceive greater psychological ownership over the EITC funds (*SI Appendix*). Messages were successfully sent to 9,828 participants via email or text. As predicted, binary logistic regressions revealed that participants were more likely to visit the website [PO: 29.9% vs. control: 15.5%; $B = 0.85$, $SE = 0.05$, $\text{Wald } \chi^2(1) = 282.54$, $P < 0.001$] and click “Get Started” on the homepage to begin the

process of claiming the EITC [PO: 11.5% vs. control: 5.1%; $B = 0.90$, $SE = 0.08$, $\text{Wald } \chi^2(1) = 128.92$, $P < 0.001$] in the psychological ownership condition compared to the control condition. All results remained significant regardless of message format. Of note, a posttest revealed that these results cannot be explained by the higher psychological ownership framing increasing participants’ perceptions of their eligibility, increasing the certainty of receiving benefits, decreasing the perceived difficulty of applying, increasing loss aversion, or reducing perceptions of social stigma (see *SI Appendix* for details).

Experiment 2. Experiment 2 expanded the ecological validity of the findings by testing the impact of higher-psychological ownership framing for another benefits program: the first government stimulus check. Code for America queried its recent GetCalFresh applicant pool to generate a list of individuals who reported no earned income. Individuals with no earned income were not required to file taxes and were thus less likely to have received their stimulus check since the Internal Revenue Service (IRS) did not have their information on file. We randomly assigned 50,000 individuals to receive either a higher psychological ownership message or a control message. All messages were delivered via text. Messages were successfully sent to 41,096 participants. As predicted, binary logistic regressions revealed that participants were more likely to visit the website [PO: 17.5% vs. control: 14.0%; $B = 0.26$, $SE = 0.03$, $\text{Wald } \chi^2(1) = 91.52$, $P < 0.001$] and click “Start Filing” on the homepage to begin the process of claiming their stimulus checks [PO: 8.9% vs. Control: 7.4%; $B = 0.20$, $SE = 0.04$, $\text{Wald } \chi^2(1) = 30.80$, $P < 0.001$] in the psychological ownership versus control condition.

Experiment 3. Experiment 3 compared the relative effectiveness of psychological ownership to other popular interventions. Code for America identified 10,000 individuals who were likely to be eligible for the EITC. Participants received an email or text message with one of four messages based on condition. In addition to the control and psychological ownership conditions, we included a social norm condition (“Millions of people like you have filed...”) and a deadline condition (“File before the deadline”). Messages were successfully sent to 9,805 participants. We conducted binary logistic regressions using the four-level categorical independent variable (message framing), comparing each message frame to the psychological ownership frame. The psychological ownership message served as the reference level, and we used dummy coding for the control, social norm, and deadline conditions. Participants were more likely to visit the website in the psychological ownership (36.7%) versus the control (20.7%), social norm (17.4%), and deadline (27.5%) conditions, all $\text{Wald } \chi^2(1) \geq 47.12$, all $P < 0.001$. As in Experiments 1 and 2, participants in the psychological ownership condition were also more likely to begin the benefits claiming process [all $\text{Wald } \chi^2(1) \geq 0000$ 30.61, all $P < 0.001$]. See Fig. 1. Psychological ownership significantly outperformed all other conditions regardless of message format.

Experiment 4. Experiment 4 investigated whether psychological ownership increases interest in benefits by reducing participants’ discomfort toward getting assistance. Eight hundred ten participants on Cloud Research completed this incentive-compatible experiment for a small payment. Participants read either a control or higher psychological ownership message about available COVID-19 funds and indicated if they were interested in receiving more information. As expected, participants’ reported higher psychological ownership over the COVID-19 funds in the higher psychological ownership condition (mean [M] = 5.05, $SD = 2.66$) than in the control condition [$M = 2.97$, $SD = 2.30$, $B = 2.08$, $SE = 0.18$,

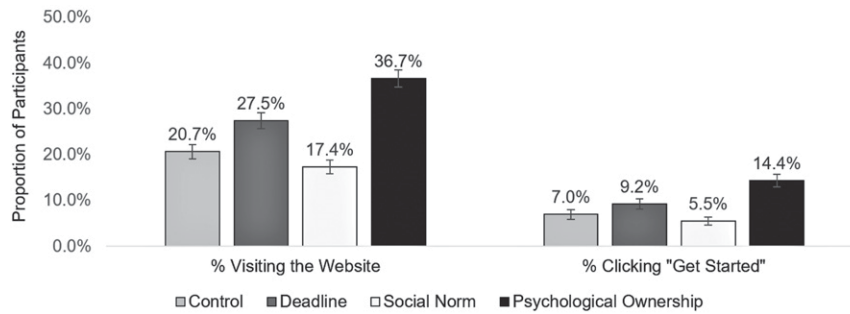


Fig. 1. Results from Experiment 3. Participants were randomly assigned to one of four conditions informing them of the EITC: 1) control, 2) deadline, 3) social norm, and 4) psychological ownership. The graph depicts participants' likelihood of visiting the website and clicking the "Get Started" button on the home page by condition. The results demonstrate that the psychological ownership condition significantly outperformed each of the other conditions. Errors bars represent the 95% CIs.

$t(808) = 11.92, P < 0.001$]. As predicted, a greater proportion of participants chose to receive information about the COVID-19 funds in the psychological ownership condition (68.1%) versus the control condition (53.6%) [$B = 0.62, SE = 0.15, \text{Wald } \chi^2(1) = 17.88, P < 0.001$]. In addition, participants reported lower discomfort around asking for help in the psychological ownership ($M = 4.15, SD = 2.62$) versus control ($M = 4.83, SD = 2.68$) condition [$B = -0.68, SE = 0.19, t(808) = -3.63, P < 0.001$]. Moreover, participants' discomfort around asking for help mediated the effect of message framing on participants' choice (95% CI: 0.017, 0.116; 20,000 resamples). In addition to our preregistered analyses, we also examined real clicks to visit the informational website we created for the available COVID-19 funds. Consistent with the results for the main dependent measure, participants in the psychological ownership (20.5%) condition were more likely to visit the website than were participants in the control (12.6%) condition [$B = 0.58, SE = 0.19, \text{Wald } \chi^2(1) = 9.00, P = 0.003$], and this effect was mediated by participants' discomfort around asking for help (95% CI: 0.009, 0.126; 20,000 bootstrap resamples).

Discussion

This large-scale field investigation systematically examines the effect of psychological ownership interventions, offering higher psychological ownership framing as a promising method to increase interest in applying for government benefits. These interventions can be simpler and cheaper to implement relative to logistical interventions. Using psychological ownership interventions in conjunction with tactics that further reduce application barriers (e.g., ref. 8), policymakers may be better equipped to close the participation gap.

The interventions used in the current work were designed to encourage individuals to think of government benefits as their own. This higher psychological ownership framing is effective at least in part because it decreases people's discomfort around asking for help. As such, our work highlights that the participation gap is not merely a function of people's ability to claim benefits but also their desire to apply for them. Although higher psychological ownership may influence interest in applying for government benefits for many reasons, we find that perceptions of social stigma, benefit eligibility, loss aversion, and certainty of receiving the benefits are unlikely to explain the results (*SI Appendix*). However, the relationship between psychological ownership and these factors should continue to be examined across different contexts in future research.

Across four experiments, psychological ownership interventions using subtle variations in language meaningfully increased interest in government benefits. While we expect that similar effects could manifest in other contexts, we note that the

increase in interest in the current work ranged from 20% to 128%. Future research may investigate whether variation in effectiveness occurs because psychological ownership may be more malleable for some ownership targets than others, and whether some outcomes are more affected by psychological ownership perceptions than others. We suspect that psychological ownership interventions may be more effective when existing ownership perceptions are less certain, and when outcomes are more strongly influenced by factors associated with psychological ownership [e.g., autonomy, efficacy, and identity (11)]. Indeed, the strength of the effects in the current work likely stem from the inherent connection between assistance resistance and feelings of autonomy and efficacy.

More broadly, the current work underscores the need to understand the relative effectiveness of different behavioral science interventions. The current work suggests that in some contexts psychological ownership interventions can be more efficacious than other common interventions informed by behavioral science. In Experiment 3, the psychological ownership intervention outperformed both a deadline intervention and a social norm intervention. In this particular study, the social norm condition garnered fewer clicks than did the control condition. This result, which runs counter to the majority of existing findings on social norms (see ref. 20 for an exception), further highlights the need to understand contextual factors that determine which behavioral interventions will be most effective under different circumstances.

The current research should encourage policymakers to revisit the discourse surrounding government benefits. For example, normalizing discussions of government benefits as money that belongs to eligible individuals rather than as aid to those who require assistance may shift norms and lay beliefs around these benefits, preempting discomfort around applying for benefits. Furthermore, incorporating higher psychological ownership language into marketing materials, websites, application forms, and other touchpoints may reinforce these perceptions. The success of the psychological ownership interventions also suggests that it may be advantageous for benefits programs to consider their standard naming conventions. Relabeling programs with higher psychological ownership terminology may encourage eligible individuals to claim the benefits they are lawfully owed.

Our work adds to growing evidence that psychological ownership influences societal welfare. For example, recent research has shown that psychological ownership can impact consumer borrowing (12) and the stewardship of public goods (21). There are also interventions that may provide convergent evidence for the impact of psychological ownership in the healthcare space. While these interventions likely varied a number of psychological factors (e.g., implied scarcity), their success may have been

driven in part by language variations that could have increased psychological ownership (22, 23). Taken together, our work underscores the importance of psychological ownership as a valuable new tool in the portfolio of potential behavioral science interventions.

Materials and Methods

For all of the field experiments (Experiments 1 to 3) we collected response rates for a period of 7 d after the messages were sent.

Human Subject Protections. Before this project commenced, the field experiments were reviewed and approved by the institutional review board (IRB) of Stanford University. This IRB reviewed and approved a protocol that did not include informed consent and determined that the project was exempt from the regulations at 45 CFR 46 or 21 CFR 56. All laboratory experiments were reviewed and approved by the IRB of Dartmouth College, and all subjects provided informed consent. No identifying information about experiment participants was ever shared with the researchers.

Experiment 1. Code for America randomly generated a pool of 10,000 participants from an internal list of likely EITC-eligible individuals who used one of Code for America's websites (i.e., GetCalFresh). Eligibility was estimated using participants' earned income and household size. Participants who opted into receiving text messages from Code for America received text messages, while the rest received email messages. Accounting for disconnected phone numbers and bounced text and email messages, a total of 9,928 individuals received a message. Specifically, participants received one of two messages that were tailored to include their names and Code for America's dollar estimates of their Federal EITC: 1) control message: "Hi [first name], this is Gwen from GetCalFresh. We believe you may be eligible for a \$[amount] tax credit. It's easy to file! If you haven't filed your taxes yet, you can do it online for free. Visit [website]" or 2) psychological ownership message: "Hi [first name], this is Gwen from GetCalFresh. We believe you have a \$[amount] tax credit that belongs to you. It's easy to file to get your money! If you haven't filed your taxes yet, you can do it online for free. Visit [website]." We validated that the psychological ownership manipulation had its intended effect in a separate online experiment (SI Appendix). One week after the messages were sent, we compared participants' likelihood of visiting the website and beginning the process of claiming their benefits (i.e., clicking "Get Started" on the homepage) by condition. We focused on these two dependent variables as these were the two dependent variables for which Code for America had the most reliable tracking measures. Code for America could not track final IRS filing data for any of the field experiments for several unavoidable reasons (SI Appendix).

Experiment 2. Code for America queried its recent GetCalFresh applicant pool to generate a list of 50,000 individuals who reported no earned income. These individuals were most likely to be eligible for the stimulus but to have not received them automatically. All messages were delivered via text messages. Messages were successfully sent to 41,096 individuals before the tax-filing deadline. Participants received one of two messages: 1) control message: "Hi [first name], this is Gwen from GetCalFresh. If you have not received a stimulus check yet, you should know that you are eligible for a \$1,200 stimulus check from the government. You don't need to file your taxes to receive a check. To get a stimulus check, please visit [website]" or 2) psychological ownership message: "Hi [first name], this is Gwen from GetCalFresh. If you have not received your stimulus check yet, you should know that you have a \$1,200 stimulus check that belongs to you. You don't need to file your taxes to receive your check. To get your stimulus check, please visit [website]." One week after the messages were sent, we compared participants' likelihood of visiting the website and beginning the process of claiming their benefits (i.e., clicking "Start Filing" on the homepage) by condition.

Experiment 3. Code for America queried its recent GetCalFresh applicant list to generate a pool of 10,000 likely EITC-eligible participants. EITC eligibility

was estimated using participants' earned income and household size. As in experiment 1, the delivery method was based on the participants' contact preference. Text or email messages were successfully sent to 9,805 individuals before the tax-filing deadline. Participants randomly received one of four messages that were tailored to include Code for America's estimates of participants' federal EITC: 1) control message: "Hi [first name], this is Gwen from GetCalFresh. We believe you are eligible for a \$[amount] tax credit. It's easy to file. If you haven't filed your taxes yet, you can do it online for free. Visit [website]"; 2) deadline message: "Hi [first name], this is Gwen from GetCalFresh. We believe you are eligible for a \$[amount] tax credit. File before the deadline. It's easy to file. If you haven't filed your taxes yet, you can do it online for free. Visit [website]" (Note: this experiment was conducted within 1 wk of the application deadline); 3) social norm message: "Hi [first name], this is Gwen from GetCalFresh. We believe you are eligible for a \$[amount] tax credit. Millions of people like you have filed their taxes. It's easy to file. If you haven't filed your taxes yet, you can do it online for free. Visit [website]"; or 4) psychological ownership message: "Hi [first name], this is Gwen from GetCalFresh. We believe you have a \$[amount] tax credit that belongs to you. It's easy to file to get your money. If you haven't filed your taxes yet, you can do it online for free. Visit [website]." One week later, we compared participants' likelihood of visiting the website and beginning the process of claiming their benefits (i.e., clicking "Get Started" on the homepage) by condition.

Experiment 4. Experiment 4 was advertised to participants who were negatively affected financially by COVID-19. At the beginning of the experiment, we informed participants that COVID-19 funds were available to affected individuals, and we varied message framing (higher psychological ownership vs. control) by condition. In the control condition, participants read: "Many organizations have COVID funds. These organizations are giving away their COVID funds to people in need. It is not hard to apply for their money. We can provide a link to a website that shows a list of potential COVID funds at the end of the study." In the higher psychological ownership condition, participants read: "You may have COVID funds available to you. Your COVID funds are meant for you to have and use as your own money. It is not hard to apply to get your money. We can provide you a link to a website that shows a list of your potential COVID funds at the end of the study." The dependent measure was whether participants chose to visit the website described at the end of the study to learn more about these COVID funds (a binary yes/no question). Participants then answered three questions designed to measure their discomfort around requesting assistance using a 9-point scale ranging from 1 = not at all, 9 = very much: 1) "To what extent were you hesitant about getting more information about these COVID funds because you felt like you'd be asking for help?"; 2) "To what extent were you reluctant about getting more information about these COVID funds because you felt like you'd be asking for assistance?"; and 3) "As you decided whether to get more information about these COVID funds, to what extent did you feel uncomfortable about asking for assistance?" These questions were combined to form an "assistance resistance" index (Cronbach's $\alpha = 0.94$). Next, participants completed two psychological ownership manipulation check measures using 9-point scales ranging from 1 = completely disagree, 9 = completely agree: 1) "These COVID funds feel like my money" and 2) "These COVID funds feel like they belong to me." These two measures were correlated ($r = 0.92$, $P < 0.001$) and combined to form a single psychological ownership manipulation check measure. Finally, participants answered demographic information. At the study's end, we provided a link to the website we created on which participants could get more information about COVID funds. In addition to our preregistered dependent measure, we also collected actual clicks to visit this website.

Data Availability. Anonymized data and preregistrations for all experiments are available on Research Box (Research Box 229; <https://researchbox.org/229>).

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