Under the Radar: User Anonymity in the Design of Organizational Platforms

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ABSTRACT

Organizational exchange platforms enable efficient allocation and exchange of members' resources like information, advice or help within organizations. Yet, employee engagement remains a challenge for the success of these platforms. Focusing on the resource seeker-side, we argue that individuals' seeking behavior is influenced by (a) intangible, psychological costs, and (b) tangible, economic considerations, and suggest that both types of costs are linked to the provision of information on seekers' identity. By conducting a lab experiment, we alter participants' costs when seeking resources on a platform. We find that both type of costs reduce individuals' seeking behavior. While men are chiefly discouraged by economic consequences, females place relatively more emphasis on psychological costs. Our results highlight the facilitating role of user anonymity on platform engagement.

Key words: organizational exchange platforms; resource seeking; anonymity; platform member engagement; lab experiment

1. INTRODUCTION

How can organizations foster exchange of resources among their members? Efficient exchange of resources can help individuals be effective in their tasks (Halbesleben et al., 2014; Lim et al., 2020) and boost organizational performance (Collins & Smith, 2006). Especially for intangible resources like knowledge and information (Haskel & Westlake, 2018), resource exchange within organizations is increasingly mediated by digital platforms (Loebbecke & Myers, 2017; Thomas et al., 2014). Such platforms are designed to efficiently match resource seekers and contributors by bringing together dispersed members of the organization that may not have connected otherwise (Purvis et al., 2001; McIntyre & Srinivasan, 2017).

Yet, despite all their potential, member engagement on organizational exchange platforms often remains low, which limits their usefulness given the (positive) cross-network effects between the two sides (i.e. seekers and contributors) (Parker & Van Alstyne, 2005; Gawer, 2014; Boudreau & Jeppesen, 2015). Clearly, both resource contributors and seekers must actively participate, thus making user engagement a key requisite for platform success.

Two key features make designing effective organizational resource exchange platforms challenging. First, since membership on these platforms is inherently bound to organizational affiliation, platform size *per se* is restricted. This makes user adoption and the network effects from *joining* (Afuah, 2013; Cennamo & Santaló, 2013; McIntyre & Srinivasan, 2017; Rietveld & Eggers, 2018; Kretschmer et al., 2020) less relevant, and existing member *engagement* key for platform success (Claussen et al., 2013). Organizational platform owners thus face a challenge: While in *open platforms* low engagement and inactive membership can be compensated by attracting additional (more active) platform users, this solution is not available in *closed* organizational settings. Accordingly, the initial challenge in these contexts is to *generate proactive searches* to which resource owners can respond, since resources are offered only in response to articulated demand. Strategies to overcome this dilemma in organizational

exchange platform contexts thus start by nurturing *seeking* behavior in particular. Second, platform members are part of the same organizational and social system. Therefore, publicly soliciting resources on organizational resource exchange platforms exposes seeker's identity, characteristics, and competencies to other members. Given that the platform owner typically is the employer and platform members are work peers, an employee's resource seeking behavior can trigger tangible and intangible costs for the individual in her workplace.[1] Prior work on open platforms has highlighted the role of managing pecuniary costs on user adoption and sustained participation (Hagiu, 2005; Rochet & Tirole, 2006; Cennamo & Santaló, 2013; McIntyre & Srinivasan, 2017). Yet, we know much less about user engagement on closed platforms where non-pecuniary costs also matter. We explore this topic in more depth by asking: *What are barriers to active resource seeking on organizational exchange platforms*? *How do these barriers impact members differently?*

Theoretically, we argue that resource seeking on platforms can trigger (a) intangible, social psychological costs (e.g. shame in front of other members), as well as (b) tangible, economic consequences (e.g. career disadvantages due to reputational losses in front of managers and peers). Both stem from (expected) negative judgements by others. While the former describes the psychological disutility of this judgement, the latter focuses on individuals' expected payoffs from tangible outcomes such as future promotions. These costs are salient when seekers' identities are observable and behavior on the platform is public. Concealing seekers' identity may mute those costs. Hence, we study the effect of each cost type on resource seeking by varying the level of personal information provided to other members on the platform. Further, since platform members may value the display of

[1] Resource seeking behavior can also confer benefits beyond merely accessing the resource. Asking questions may raise one's profile in the firm and display a general level of expertise. As we are focusing on the barriers of resource seeking, we abstract from these benefits in our paper.

identifiable user information and privacy differently (Dogruel et al., 2017; Peukert et al., 2020), we explore potential heterogeneous effects of anonymity on resource seeking by gender.

We run a lab experiment in which we model an organizational resource exchange platform on which (factual) knowledge (the resource) can be exchanged. Subjects deal with a set of tasks which they can either solve themselves or seek additional resources on the platform. We build three treatments. The first discloses information on participants' identity and therefore triggers the full costs (i.e. intangible and tangible) of resource seeking. In the second, individuals are anonymous, muting both types of costs from seeking resources on the platform. The third treatment mutes tangible economic costs while allowing for intangible costs by displaying personal information but abstracting from economic consequences. We find that both tangible and intangible costs reduce members' resource seeking on the platform. Hence, muting costs through anonymity can increase engagement on organizational platforms. Further, women are more sensitive to psychological costs, while men react more strongly to economic costs.

We contribute to the literature on platform strategy (Cennamo & Santaló, 2013; McIntyre & Srinivasan, 2017; Zhu & Liu, 2018; Kretschmer et al., 2020) by studying the causal effect of a simple intervention by the platform owner to manage engagement on one side of the platform. While public information provision on platform members has not been studied extensively so far (Gal-Or et al., 2018), we suggest that it could be a powerful strategy to steer participation and engagement of resource seekers through soft incentives – especially on organizational platforms. We also inform work on digital transformation and organization design (Brynjolfsson & McAfee, 2014; Kretschmer & Khashabi, 2020; Raj & Seamans, 2019) by highlighting conditions for efficient resource allocation in digital (exchange) platform contexts. We also add to work on privacy in digital settings (Acquisti et al., 2016; Peukert et al., 2020; Schenk & Guittard, 2011; Kummer & Schulte, 2019). Our results imply that revealing

personal information can pose an implicit cost on individuals for using a platform (Dimakopoulos & Sudaric, 2018). Finally, we highlight the role of gender on (organizational) platforms. The heterogeneous effects of anonymization across women and men suggest that strategic levers for stimulating engagement on organizational platforms may differ by subgroup.

2. RESOURCE SEEKING ON ORGANIZATIONAL EXCHANGE PLATFORMS: A COST PERSPECTIVE

We now introduce the theoretical forces that shape members' resource seeking on organizational platforms. We first define the concept of *resource* and *organizational resource exchange platforms* as central elements of our phenomenological background.

Resources comprise anything perceived helpful by organizational members to complete their tasks and attain their (work) goals (Halbesleben et al., 2014). Examples include feedback, information, advice or help in solving a problem (Lim et al., 2020). Organizational resource exchange platforms are technological architectures that facilitate and simplify intra-organizational exchange between seekers and contributors of resources that could otherwise not transact as easily (Gawer, 2014; Thomas et al., 2014). Organizational exchange platforms thus resemble firm-internal "market-makers" that connect two sides (resource seekers and contributors) (Evans, 2003). Further, as resource seekers' benefits depend on the size of active contributors and vice versa, there are (indirect) network effects (Armstrong, 2006).

We focus on the cost side to study member engagement (i.e. seeking behavior) in organizational resource platform contexts. This cost perspective fits our setting, and differs from common cost drivers explained in the literature on platform adoption and user behavior because the closed and distinct nature of organizational platforms render the conventional design instruments and costs-based strategies that (open) platform owners use to boost engagement (Rochet & Tirole, 2006; Cennamo & Santaló, 2013) less useful. For instance,

pecuniary price and subsidy instruments on different sides of the market (Rochet and Triole, 2006) are hard to implement on such platforms, as are instruments based on stimulating more competitive complements on the platform to reduce search and transaction costs (Cennamo & Santalo, 2013). Moreover, as intra-organizational platforms are typically imposed top-down and membership is mandated or regulated, multihoming (Hagiu, 2009) or strategies based on platform openness and ease of joining (Gawer, 2014) lack leverage in these settings. Instead, we propose drawing on organizational and individual-level studies (Gross & McMullen, 1983; Ashford, 1986; Lee, 2002), to identify levers of user engagement in these closed organizational platform contexts. Based on existing literature, we categorize two broad groups of costs present when seeking resources from others on organizational platforms: psychological (intangible) and economic (tangible) costs[2] to analyze how these costs play out when members seek resources on these platforms.

Social Psychological Costs

Social psychological costs arise in interpersonal relationships and are driven by others' perception of oneself. Examples of individuals' perceived social costs when seeking resources from others include feelings of inferiority, guilt or shame (Gouldner, 1960; Ames & Lau, 1982; Wills & DePaulo, 1991; Lee, 2002). Intangible, social psychological costs have been studied in a variety of settings and contexts, such as in consumption decisions (Allen-O'Donnell et al., 2011; Goldfarb et al., 2015), advice- (Brooks et al., 2015), feedback- (Ashford, 1986) and help-seeking behavior (Rosette et al., 2015). Since psychological costs originate from a process involving both cognitive and affective evaluation by the individual, (anticipatory) emotions matter for individual resource-seeking (Ames, 1983; Hofmann et al., 2009).

[2] Costs can be categorized in other ways, e.g. reputational or status-related costs (Borgatti & Cross, 2003; Devers et al., 2009). Yet, we believe that all costs incurred when seeking resources can fundamentally be attributed to either one of the two cost categories we present.

Affective factors that shape decision-making in whether or not to post an active request on a platform include the fear of appearing incompetent (Brooks et al., 2015), embarrassment (Shapiro, 1983; Suzuki & Calzo, 2004), shame, and fear of experiencing stigma (Chandrasekhar et al., 2018). We discuss the latter two in more detail.

Shame. Shame is triggered by an individual's experience of failure relative to a standard (one's own or other individuals') (Lewis, 1992). We distinguish between shame and embarrassment by the degree of public exposure underlying each state (Edelmann, 1981). Only shame, but not embarrassment, can be felt when being alone. Especially in organizational contexts in which competence, superiority, and independence are important to one's self-esteem and own standards, feelings of shame can become prohibitive, and individuals are less likely to seek for resources even if needed and available in principle (Lee, 2002).

Stigma. Stigma is an attribution contrary to a norm of a social unit (Goffman, 1963). Stigmatized individuals possess (or are believed to possess) characteristics that signal an inferior social identity in a particular context (Crocker et al., 1998). Since stigma results from an active labeling process by a group of individuals other than the self, it comes with considerable *social* psychological costs for the individual. Further, when deciding on whether or not to seek resources from others, individuals fearing stigmatization will not only bear social costs but also economic, tangible considerations as we discuss below. Figure 1 shows the relationship of anticipated emotions and perceived costs in the context of resource seeking.

INSERT FIGURE 1 ABOUT HERE

Economic considerations

Economic considerations refer to (potential) tangible outcomes and losses affecting the individual. In organizational settings, this could be losses and disadvantages related to (future) promotions, team and project assignments, salary raises etc. These costs also stem from

negative judgements by others, specifically managers and work peers. While we label these costs as economic considerations, it is worth clarifying that what we consider in our framework is the *expectation* of such tangible economic outcomes. Organizational members in our setting assess potential tangible losses related to their resource seeking behavior. If expected losses exceed potential gains, they should refrain from seeking resources in this way.

Stigma and negative judgement in organizational settings can trigger tangible consequences through the risk of economic sanctions (Devers et al., 2009) by peers and managers, resulting in poor bargaining positions for promotions, absence of bonuses, lack of (strategic) collaboration with partners and so on. Economists have long discussed the frictions and losses generated by the disclosure of agents' information in market exchange settings. In a series of studies, Roth argues that exchange markets and their matching mechanisms would not function well if agents (individuals) are penalized for revealing their type – labeled *unsafe* markets in Roth's terminology (Roth, 2008 & 2018). When publicly seeking resources from others within an organization, individuals reveal information about themselves, which might lead to penalties. For instance, seeking certain types of resources would expose (or signal) an organizational member's lack of ability, competence, experience, or skill to her peers and middle and top managers. Seekers of resources might be concerned that such exposure may influence their career within the organization, which would come with tangible (economic) implications. This would inhibit resource seeking and result in less demand for resources overall, which ultimately means that a portion of firm resources remain underused or dormant.

Salience of costs across gender

Existing literature has found significant differences in male and female behavior when seeking resources from others in unmediated, interpersonal contexts (Gilligan, 1982; Cross & Madson, 1997; Sully de Luque & Sommer, 2000; Lee, 2002). Yet, research on the topic so far remains inconclusive and has found opposing results on gender and resource seeking. The first strand

of literature reports men seeking less than women and builds on the argument that men have been socialized to value competence, independence, and "one-up-ness", while women have been brought up to value relational closeness and interdependence (Gilligan, 1982; Acker, 2006). These engrained values become an integral part of how men and women perceive themselves – especially in the workplace. Being competent, superior and self-sufficient accordingly is more important to male self-perception than to female (Cross & Madson, 1997; Lee, 2002). Other work calls this view into question and finds a reverse effect of gender on seeking behavior, in that men seek more than their female counterparts (Miller & Karakowsky, 2005). Since existing research has not yet identified the underlying mechanisms driving these results (Heikensten & Isaksson, 2019), a differentiated view on seeking costs may add to the understanding of individual behavior in searching for specific resources.

Given the inconclusive findings regarding gender-specific heterogeneity in resource seeking, we explore this issue in our experiment and investigate how male and female platform members react to different types of costs in technologically mediated contexts of resource exchange.

3. DATA AND METHODS

We designed a computerized experiment to hone in on some key elements of public resource seeking on organizational exchange platforms and the economic and psychological costs involved. The experiment was incentivized and we did not use deception. In three treatments, we systematically varied intangible social psychological as well as tangible economic consequences of individuals' seeking resources in the form of knowledge on the platform. By varying the baseline probability of actually receiving an answer when seeking knowledge in a fourth treatment, we further explored whether subjects' seeking behavior is sensitive to its expected benefits. We applied a between-subject design in which each experimental subject

was randomly allocated to participate in one of the treatments. We first describe the basic setup of the experiment common to all treatments and then explain the treatment-specific differences.

3.1. Basic Setup of the Experiment

In the first stage of the experiment, subjects are asked to solve 15 general knowledge questions with multiple-choice answers. The set of questions is different for every subject and the selection process ensures that every subject is confronted with questions of varying difficulty and the average difficulty of each question set is similar across subjects.[3] For every correct answer, subjects earn 1.25 EUR. Crucially, for every question subjects have the option to seek help on the platform. If they seek, the resource contribution, i.e. the "knowledge" given, is computerized and the computer finds the correct answer with a certain probability *p* (*p*=0.8 for our three main treatments).[4] With probability *(1-p)*, subjects do not acquire any knowledge and their own initial answers to the question count (i.e. the computerized advisor never gives a wrong answer). Seeking is explicitly costly (reflecting effort costs for posting a question on a platform) in that subjects have to pay 0.10 EUR. Incentive structures are such that, in the absence of any other cost considerations (intangible, psychological costs or risk of economic consequences from reputation loss), subjects should seek knowledge even if they have a high subjective belief (but not perfect knowledge) of knowing the answer themselves.[5] Also note

[3] The exact procedure for the assignment of questions to subjects was as follows: Questions were selected from different online sources on general knowledge quiz websites. The question difficulty was then pretested with subjects from a well-established German laboratory subject pool. For this, we recruited 36 subjects and asked them to answer a set of 160 questions (for each correct answer a subject earned 0.12 EUR). Doing so, we collected 12 answers per question and classified questions by their inherent difficulty. For our main experiment, we created 18 different question sets each of which contained four "easy" questions (correctly answered by at least nine subjects in the pre-test), seven "moderate" questions (correctly answered by at least six subjects and up to eight subjects in our pre-test), and four "difficult" questions (correctly answered by up to five subjects in the pre-test). Within difficulty categories, the questions were randomly assigned to a question set. Each subject in a session was randomly assigned one of the question sets and no other subject in the session received the same set. This procedure ensures that all subjects in the experiment receive different questions (i.e. no question is asked twice within a session) with varying difficulty, the difficulty of the questions and the question sets are similar across subjects, and – within a difficulty category – questions are randomly assigned to a subject.

[4] In our treatment ANONYMOUS40, the probability of getting the correct answer is p=0.4.

[5] In treatments in which individuals get the correct answer with p=0.8, risk neutral money maximizing individuals are indifferent between resource seeking and abstaining from doing so if they think that they are able to solve the question themselves with probability 0.9 (for lower probabilities they would seek). For the treatment in which

that with the computerized contribution, we eliminate behavioral differences in knowledge providers' behavior and respective uncertainty of expected benefits of seeking resources on the platform. This lets us draw causal inferences of cost-side differences on the seekers' side without having to control for differences in (expectations on) contributing behavior.

After deciding whether or not to seek knowledge for each of the 15 questions, subjects have to answer the full set of questions, i.e. even those questions for which subjects sought additional resources as a "back-up" if no computerized contribution was given. Subjects only learn at the end of the experiment whether seeking was successful. This mirrors the fact that in organizations individuals who do not receive valuable contributions on resource exchange platforms usually have to proceed based on their own assessment.

Following the decision on whether or not to seek knowledge on the platform and answering the quiz questions, all subjects' seeking behavior is made public. Hence, all subjects of the session learn about the number of questions a subject sought knowledge for and the respective content of the questions. This reflects the public posting of questions or requests on organizational resource exchange platforms.[6]

Our general setup captures crucial elements of individual resource seeking on organizational platforms. As is typical also for work environments, subjects are confronted with a multidimensional task reflected by a number of diverse questions. We asked general knowledge questions since for our generic laboratory subject pool not tied to any specific profession, admitting a lack of knowledge on general knowledge questions creates similar considerations on psychological costs and economic consequences as admitting a lack of capabilities or resources on skill-related professional tasks for members of an organization. Further, as with participation on organizational resource exchange platforms, subjects in our laboratory

individuals get the correct answer with p=0.4, individuals are indifferent with a subjective belief being able to answer the question themselves of 0.8.

[6] Instructions provided as well as the user interface displayed to participants in our experimental setup are in Appendix A.

experiment expose their lack of knowledge resources to others in exchange for increasing the probability of receiving correct answers or helpful contributions.

As explained in section 2, exposing one's lack of certain resources to others may trigger intangible, psychological costs and the risk of tangible, economic consequences. Yet, platform design as well as organizational culture may vary the extent to which publicly seeking resources on organizational platforms affects these costs. This is reflected in our treatments.

3.2. Experimental Treatments

***ECONOMICCONSEQUENCES*.** In our ECONOMICCONSEQUENCES treatment, we study resource seeking in the presence of *both* social psychological costs and economic consequences. This treatment most closely reflects the case of organizational resource exchange platforms frequently found in professional contexts in which seekers are fully identifiable and seeking behavior is visible to other members of the platform. In these situations, resource seekers are arguably concerned that others may infer from their seeking behavior that they lack certain abilities and skill levels and feel ashamed of not living up to individual and organizational standards. Seekers may also fear (especially when asking easy questions) that their behavior leads to reputation loss and negative future economic consequences.

To emphasize the shame component of resource seeking, in ECONOMICCONSEQUENCES, public disclosure of seeking is accompanied by a profile picture and the first name of the seeker. This profile picture was taken on a computer terminal prior to the experiment. With the profile picture and first name, seeking-behavior can be traced back to a person. Consequently, all other subjects in the session can form an opinion about the person's seeking behavior and arguably her skills and abilities.

To introduce potential economic consequences of seeking resources on the platform, the first stage of solving the task of answering the questions (and ask for knowledge if needed) is followed by another multiple-choice general knowledge quiz. In this second stage, subjects

answer another set of 10 questions and earn money for every correctly solved question. Here, no additional seeking is possible. Importantly, individual bonuses for this quiz are chosen by a judge – a randomly chosen subject who does not actively participate in the first stage of the experiment. Her task is as follows: The judge is shown the resource seeking behavior of each subject in the session and decides whether an individual shall receive a low, medium or high bonus for correct answers in the second stage quiz.[7] The judge assigns low bonuses to 1/3 of the session subjects, medium bonuses to 1/3 of the subjects and high bonuses to 1/3 of the subjects. Subjects are informed about this stage and all details of the procedure (including information about individual's resource seeking behavior provided to the judge and incentives of the judge) at the beginning of the experiment. Hence, participants may consider the consequences of their first stage behavior on the platform for the second stage of the experiment. When posting questions on the platform in the first stage to seek additional knowledge, a subject may fear losing reputation in the eyes of the judge and receive lower second stage bonuses. The judge receives a payment equal to 20 percent of each individual's second stage earnings. Hence, her incentives are to assign high bonuses to individuals with high expected performance and low bonuses to individuals with low expected performance.

This treatment closely reflects resource seeking on many organizational resource exchange platforms with possible future economic consequences due to others' inferences of ability based on individuals' seeking behavior. While individuals' reputation may lead to follow-on economic consequences in a broad range of situations, the closest analogy to our stylized setting can arguably be found in promotion decisions by superiors.

NON-ANONYMOUS. In the NON-ANONYMOUS treatment, the provision of personal information on individual seekers is similar to our ECONOMICCONSEQUENCES treatment.

[7] A low bonus is 0.25 EUR per correctly solved questions, a medium bonus is 1.00 EUR per correctly solved question and a high bonus is 1.75 EUR per correctly solved question. Since we are interested in the fear of reputation loss due to seeking help and not due to other influences based on personal characteristics, the judge decides based on anonymous public knowledge seeking and is presented neither profile pictures nor names.

Accordingly, resource seeking behavior of all participants are disclosed to the other subjects together with a profile picture and a first name. However, unlike in ECONOMICCONSEQUENCES, there is no second stage quiz and subjects do not have to consider explicit pecuniary consequences of a potential reputation loss. Hence, while keeping the risk of reputation loss in front of others and the associated shame component constant (i.e. the intangible, social psychological costs), we mute the possibility of negative economic consequences. In the simplest real world analogy one can think of an organizational platform in which resource seekers are identifiable, but those who could affect subjects economically are not active on the platform (e.g. hierarchically higher members of the organization who promote individuals or assign bonuses). Importantly, by comparing behavior in the NON-ANONYMOUS treatment with behavior under ECONOMICCONSEQUENCES, we can isolate the impact of economic cost considerations due to reputation losses beyond the impact of intangible, psychological costs.

ANONYMOUS. In ANONYMOUS, seeking behavior of participants cannot be traced back to individuals since posting requests on the platform is neither connected to a profile picture nor a name. There is no second stage, in which reputation losses could matter economically, either. Hence, in our ANONYMOUS treatment, both tangible and intangible considerations stemming from judgements of other participants are muted. Deviations from expected behavior (i.e. resource seeking on the platform) in this case can be explained solely by referring to the existence of an individuals' aversion to seeking external help in solving the task of answering the questions (as no one learns about individuals' seeking behavior). Comparing behavior in the ANONYMOUS treatment with behavior in the NON-ANONYMOUS treatment helps us understand whether psychological costs associated with providing personal information to other platform members affect resource seeking behavior and platform engagement accordingly.

ANONYMOUS40. The setup in ANONYMOUS40 is exactly as in ANONYMOUS with the exception that the probability of receiving a correct answer in case of seeking resources on the platform is lower (ANONYMOUS: p=0.8 vs. ANONYMOUS40: p=0.4). By analyzing behavioral differences between ANONYMOUS and ANONYMOUS40, we can investigate whether resource seeking on the platform is sensitive to the probability of receiving helpful contributions.

3.3. Post-Experimental Stage

After each session, subjects answered a short questionnaire including questions on socio-demographics, risk attitudes and general social image concerns. Finally, participants learned about their payoff and to what extent the payoff was attributed to their own correct answers and the received knowledge respectively. Prior to leaving the laboratory, subjects privately received their payment in cash. Table 1 summarizes the stages and the treatment differences.

INSERT TABLE 1 ABOUT HERE

3.4. Measures

Dependent variable. We measure participants' seeking behavior across treatments and per question as a binary variable (knowledge sought/not sought). Since we propose our dependent variable to be a function of individuals' simultaneous cost and benefits, in our main treatment groups (ECONOMICCONSEQUENCES, NON-ANONYMOUS, ANONYMOUS) we keep the latter (benefits) constant. Doing so, we can assess the effect of different cost types on individual resource-seeking behavior on an organizational resource exchange platform.

Independent variables. We systematically vary social psychological costs and economic consequences across treatments. ECONOMICCONSEQUENCES is set up as the most cost-intensive setting and includes both types of costs. Since we assume that individual decision making in organizational reality most commonly includes the full range of proposed cost considerations, we use ECONOMICCONSEQUENCES as the baseline setting. In NON-ANONYMOUS, we stimulate

participants' feelings of shame and fear of social stigma, while ANONYMOUS is the least costly treatment. Since it is reasonable to assume *ceteris paribus* that resource-seeking also depends on participants' expectations on the probability to get a useful reply, we introduce an extension to our experimental design (ANONYMOUS40) by systematically varying the probability of receiving contributions (and communicating this information to participants) to gain additional insights on the relative importance of individuals' perceived benefits[8] versus costs. We also include control variables to capture participants' gender, age, as well as the difficulty of questions asked. Moreover, to help us identify the mechanisms at play, we asked participants about the importance they attach to the opinion of others on a Likert scale from 1 to 5.[9]

3.5. Sample Description

The experiment was conducted at a well-established German laboratory[10] in 2019. We used z-Tree (Fischbacher, 2007) for programming. A total of 318 participants were recruited from the lab's subject pool using the recruitment software ORSEE (Greiner, 2015). 82.8% of the subjects were students from a large variety of disciplines. On average, the subjects were 26.9 years old, 53.8% being female. We ran 18 sessions, with 15 to 19 subjects per session. Participation in the experiment lasted about 75 minutes. On average, subjects received a payment of 20.7 EUR (equivalent to 23.3 USD at the time of the experiment), including a show-up fee of 6 EUR.

4. RESULTS

We first present results on the effect of costs and then analyze the role of benefits on individuals' seeking behavior on the platform. Table 2 shows a summary of our main variables.

INSERT TABLE 2 ABOUT HERE

[8] Individuals' benefits are a function of (a) the probability of an answer, and (b) the quality of the reply. Since (b) is constant across treatments, we can link changes in benefits to changes in the probability of receiving an answer.
[9] This question is only available on a subset of the data, which results in smaller sample size of these analyses.
[10] The exact location and name of the laboratory are not mentioned to preserve author anonymity.

The dependent variable throughout all our analyses is seeking behavior. Models are estimated at the question-level. In a robustness test, we aggregate seeking behavior to participants and run individual-level analyses, with very similar result (discussed below). Unless specified otherwise, the reported p-values for the bar chart results correspond to t-tests for equality of means, and the p-values for regression results report the t-test of statistical difference from zero (or the baseline).[11]

Before discussing the treatment effects, and to check the validity of our design, we show how question difficulty is associated with seeking patterns. Figure 2 shows average seeking behavior per category of question difficulty.

INSERT FIGURE 2 ABOUT HERE

Resource seeking is higher for difficult questions (64% for the category of 'tough' question, 33% for the 'easy' category). Seeking behavior across categories is significantly different at $p<0.01$, which supports our experimental design choices regarding the question set.

Main Treatments

We test whether different types of costs affect individuals' seeking behavior on the platform. We focus on the three main treatment groups (ECONOMICCONSEQUENCES, NON-ANONYMOUS, ANONYMOUS), which all offer identical benefits, but different costs of seeking resources on the platform. Figure 3 presents average seeking behavior across these three treatment groups.

INSERT FIGURE 3 AROUND HERE

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[11] Below, we present the Mann–Whitney U test p-values and show that our results are robust.

The lowest seeking behavior is for ECONOMICCONSEQUENCES (=0.38), our baseline setting—which comprises both tangible and intangible costs. By muting economic costs, seeking increases by 29% ($p<0.01$) in the NON-ANONYMOUS treatment group (=0.49). Subjects in the ANONYMOUS treatment group –with minimal economic or social psychological costs—show a 45% increase in seeking behavior ($p<0.01$) compared to the ECONOMICCONSEQUENCES treatment. This is 12% ($p<0.05$) higher than the NON-ANONYMOUS treatment (=0.55).

To control for subjects' characteristics and test for statistical differences between seeking behavior across treatment groups, Table 3 reports Logit regression results with resource seeking behavior as dependent variable. Again, ECONOMICCONSEQUENCES is the baseline treatment group. All specifications use robust standard errors clustered around individuals.[12]

INSERT TABLE 3 ABOUT HERE

Column 1 in Table 3 reports the effect of treatments on individual seeking behavior on the platform without controls. Seeking behavior in the NON-ANONYMOUS treatment group significantly increases with respect to the baseline ($\beta=0.463$; $p<0.01$). In addition, the ANONYMOUS treatment group shows an even higher seeking behavior compared to the baseline ($\beta=0.702$, $p<0.01$). Seeking behavior in ANONYMOUS is also significantly higher than in the NON-ANONYMOUS treatment group ($p=.035$). In Columns 2 and 3, we control for participant gender and age. The effect of the treatment groups stays robust, while estimates show that older participants have significantly lower seeking behavior. Male participants seek less on the platform, but the effect is (borderline) insignificant (lowest p-value=0.107 in Column 3). Additionally, we control for experience of individuals in participating in experiments and whether the participant is German (since the experiment questions were in German). The

[12] Given that each participant only takes part in a single treatment session, individual fixed effects are multicollinear to the treatments. Therefore, we do not include them in these specifications.

results are robust to inclusion of these controls. In the full specification in Column 5, ANONYMOUS shows a significantly higher seeking behavior than NON-ANONYMOUS (p=0.031), and both are significantly higher than the ECONOMICCONSEQUENCES treatment group (p<0.01 for both).

Heterogeneous Effects

Social Image Concerns. The main results presented above show that resource seeking on the platform increases significantly when economic and social psychological costs decline in our treatment groups. To provide more confidence that the observed pattern is indeed due to the inferred cost, we use a split-sample post-hoc analysis and investigate seeking behavior across two samples with low/high *social image concerns*, split at the median of our post-experimental survey question on the importance of others' opinions.

INSERT FIGURE 4 ABOUT HERE

Figure 4 shows seeking behavior for low vs. high image concern participants across the three treatment groups. For the low image concern sample, muting social psychological costs (from the NON-ANONYMOUS to the ANONYMOUS treatment group) does not change individual seeking behavior. This implies that participants in this sample are not sensitive to social psychological costs. However, in the high image concern sample, moving from the NON-ANONYMOUS to the ANONYMOUS treatment group is associated with an almost 24% increase in seeking resources on the platform (p<0.01). In line with the visual results, Columns 1-2 in Table 4 report Logit regression estimates for the split-sample analysis between low vs. high image concern samples.

INSERT TABLE 4 ABOUT HERE

The specification is similar to column 5 in Table 3 (i.e. the full model). Column 1 reports the effect of treatments for the high image concern sample. The results are similar to the full sample, and show that participants in the NON-ANONYMOUS treatment group seek resources on the platform significantly less than the ANONYMOUS group ($p<0.05$). This pattern is absent in the low image concern sample (Column 2). Moving from the baseline (ECONOMICCONSEQUENCES) to NON-ANONYMOUS and ANONYMOUS significantly increases seeking, but there is no statistically significant difference between seeking behavior in the NON-ANONYMOUS and ANONYMOUS treatments ($p=0.55$) suggesting that social psychological costs do not discourage individuals with low social image concern from seeking resources on the platform. This serves as a mechanism test and lends confidence to our theoretical arguments and experimental design.

Gender. We split our sample across participants' gender to capture heterogeneous effects. Figure 5 shows average seeking behavior for female and male participants across treatments.

INSERT FIGURE 5 ABOUT HERE

The treatment effects in the *female* subsample are similar to the main results. For participating women, moving from the baseline (ECONOMICCONSEQUENCES) to NON-ANONYMOUS, seeking significantly increases by 17% ($p<0.1$) and increases by another 19% in the ANONYMOUS treatment group ($p<0.05$). The pattern is quite different for *males*. Male participants' seeking behavior increase by 43% when economic consequences are muted. However, as Figure 5 suggests, social psychological costs do not significantly discourage male participants from seeking resources on the platform (the difference between mean seeking behavior across NON-ANONYMOUS and ANONYMOUS is insignificant; $p=0.82$).

Columns 3 and 4 of Table 4 show the Logit results for the gender split-sample analysis. The results are consistent with the bar charts in Figure 5. Muting costs associated with economic

consequences (from ECONOMICCONSEQUENCES to NON-ANONYMOUS) significantly increases resource seeking for male ($p<0.01$) and female ($p<0.05$) participants. However, social psychological costs (from NON-ANONYMOUS to ANONYMOUS) appear to discourage female participants ($p=0.01$), while their effect on male participants is insignificant ($p=0.71$).

Manipulating the Benefits of Resource Seeking

Above, we analyzed treatment effects based on varying costs, with constant benefits. We now check the validity of our design and complement the analysis by investigating the effect of (changing) benefits on seeking behavior, keeping costs constant. We compare seeking behavior across two treatment groups: ANONYMOUS and ANONYMOUS40, with probabilities of receiving a (correct) contribution in case of seeking being 80% for ANONYMOUS and 40% for ANONYMOUS40, respectively.

INSERT FIGURE 6 ABOUT HERE

Figure 6 illustrates average seeking behavior across the ANONYMOUS and ANONYMOUS40 treatment groups. Participants in the ANONYMOUS treatment group post requests on the platform more frequently compared to those in the ANONYMOUS40 group (14%, $p<0.1$). To control for other factors and to check for significant differences across treatments, we estimate Logit regressions using ANONYMOUS as the baseline treatment, reported in Table 5.

INSERT TABLE 5 ABOUT HERE

Column 1 shows the effect of a reduction in benefits without controls. Seeking behavior in the ANONYMOUS40 treatment group is lower than under ANONYMOUS, as expected. However, compared to estimates in Table 3, the differences from changing the benefits are of lower magnitude and significance than our cost treatments.

Alternative Specifications

In this section, we discuss the robustness of our results to alternative specifications. In the previous section, we presented *question-level* analyses to show the effects of costs (and benefits) on individual seeking behavior on the platform. We now report *individual-level* analyses with participants' seeking behavior as the dependent variable.

We first start with the Mann–Whitney U (Wilcoxon) non-parametric test to investigate the difference between seeking behavior across treatment samples. This test comes with the advantage that it does not require any distributional assumptions. Starting with the main treatment results, the test shows that (individual) seeking is significantly higher in the NON-ANONYMOUS treatment group compared to the ECONOMICCONSEQUENCES (p=0.00, two-sided Mann–Whitney U test). In addition, our results consistently show that seeking happens more often among participants in the ANONYMOUS treatment compared to the NON-ANONYMOUS treatment group (p-value=0.05, two-sided Mann–Whitney U test). Finally, similar to the t-test results, we find that seeking resources on the platform is lower in the ANONYMOUS40 than the ANONYMOUS treatment group (p-value=0.04, two-sided Mann–Whitney U test).

Next, we discuss the robustness of the individual-level regression results (available on request). Given that the dependent variable (i.e. number of requests posted on the platform; mean=7.08; sd=3.29) is not overdispersed, we use a Poisson model with robust standard errors. The results of the Poisson model are consistent with the Logit estimates in Table 2. Regarding the benefit treatments - ANONYMOUS vs. ANONYMOUS40 - we estimate a Poisson individual-level analysis. The results are consistent with our estimates in Table 4. Finally, estimating individual-level OLS models (available upon request) yield very similar results.

5. DISCUSSION

In the wake of digitization, many companies and organizations are using digital solutions for activities previously conducted physically. We study digital platforms dedicated to

organizational resource exchange, an increasingly common solution for firms to reap and allocate resources within their boundaries and to increase the scalability of a firm's resource bundle (Giustiziero et al., 2021). We focus on user engagement on these platforms, as a key challenge which has thus far significantly limited their potential. This issue is especially worth investigating as the array of well-established instruments of platform strategy like pricing, hard and soft participation incentives, multihoming or platform openness cannot address the core issue on organizational platforms of low engagement by a group of members signed up on the platform by default.

In the absence of common platform design instruments, we investigate if anonymity, as an easily implementable design feature on digital mediums, can reduce participation obstacles on organizational platforms and restore member engagement. We further investigate how this alternative instrument differentially impacts male and female users on organizational platforms.

Our results underscore the potential of granting anonymity as a strategy to raise user engagement on organizational platforms. Our experimental setting lets us isolate the effects of tangible and intangible costs, mitigated through different levels of anonymity, on resource-seeking behavior of members. We identify gender differences in reacting to each type of costs, highlighting how psychological costs may discourage female members from participating on organizational platforms.

Our simple but clean experiment lets us interpret our results in terms of the mechanisms at play. While "more information can be a bad thing" in the sense that the more is known about a seeker (and the more consequential this knowledge is), the less likely she is to seek resources on the platform in the first place, we can pinpoint the mechanism for this result. Muting economic consequences has proven to be of some effect on participants' seeking behavior in our experiment, but individuals still seem care about their image when deciding to seek

resources publicly. This is supported by our results for individuals with high concern for others' impression, where our results are amplified. Second, by masking the benefit side to resource seeking (and muting the supply side of resource providers through computerized answers), we find that there are "real" costs to *engaging* on a resource exchange platform even if platform *membership* is costless. From our treatment on the benefit side (i.e. changing the probability of receiving an answer), we also find indicative evidence that the qualitative changes in social and economic costs have a stronger effect than the reduction of expected benefits by 50%.

By drawing attention to the differential effect of anonymity by gender, the implications of our work go beyond suggesting a potential strategy to boost engagement. We show how different shades of anonymity can support resource seeking – and eventually resource access – by female employees in organizations. Improving resource access by female members would likely be beneficial, as female knowledge workers and entrepreneurs are more likely to produce distinct outputs (Nielsen et al. 2017; Koning et al., 2020), which the organization would miss out on otherwise. Generalizing our gender results, anonymity may benefit groups that are discouraged from interacting publicly on platforms and are thus marginalized in organizations.

Our results have important implications for practice: Instead of proposing ways to stimulate benefits (e.g. through monetary incentives) it could be more effective to reduce social and economic costs in digitized organizational exchange settings. Again, since individual decision making in organizational reality most likely includes both economic and psychological costs, there are different ways to achieve higher levels of resource seeking behavior and consequently higher participation rates. While anonymous participation of members on the seeking side might be a cost-effective and relatively easy-to-implement tool in stimulating member engagement and boost resource exchange, our findings do also allow for the identification of further, alternative solutions to reduce individuals perceived costs in seeking resources. Exemplarily, we will shortly discuss two potential options in particular.

First, stimulating changes in organizational culture might lower both economic consequences and psychological costs perceived by resource seekers, thus mitigating the problem of low levels of user engagement on organizational platforms in the long run. This, however, takes time and considerable resources since culture is hard to change. Second, organizations might rethink existing structures – especially when it comes to digitally enabled resource exchange processes. Since especially economic consequences experienced when seeking resources from others in the organization are linked to (expected) career disadvantages (e.g. due to reputational losses in front of managers and peers), implied costs of seeking might be lowered if firms create sub-communities of homogenous hierarchical layers.

Our research design also has some limitations. First, our setup deliberately shuts down the supply side of resource seeking to isolate the role of individuals' fear of stigma/shame and possible economic consequences. However, for a resource-seeking platform, indirect network effects imply that seeking behavior is affected by the presence and composition of resource owners (contributors). For instance, anonymity of resource seeking participants may generate side effects such as diminished engagement rates of (non-anonymized) contributors. Exploring the interaction between the supply and demand sides would be interesting for future work, especially to study if the mechanisms we identified are amplified or muted in the presence of possible resource providers. Second, our question tasks and the student subject pool reflect a platform on general knowledge exchange rather than the specialized resource often exchanged on intra-organizational platforms. We would expect the effects to be even more pronounced on real organizational platforms because the economic consequences and reputational effects are likely to be stronger among a group of close work peers. Further, we do not directly observe and measure feelings of shame among participants or alter the costs associated to self-image violations (personal psychological costs). Both of these would require a different setup, possibly with ways of measuring the physiological reactions of individuals. However, the

disadvantages of recreating a real-life organizational context in the lab have to be weighed up against the advantages of being able to manipulate individual variables precisely, and without typical real-world noises and contaminations.

There are a number of potentially fruitful extensions of our work, e.g. incorporating a more sophisticated supply side, a field study with more pronounced economic and psychological consequences, or a study with different types of resource contributions (knowledge, advice, time etc.). We hope that our work will lay the foundation for follow-up work to a better understanding of the strategic design of organizational platforms.

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Figures and Tables

Table 1. Overview on specifics of treatment stages

		Treatments			
		ECONOMIC CONSEQUENCES	NON-ANONYMOUS	ANONYMOUS	ANONYMOUS40
		Both tangible & intangible costs	*Only* intangible costs	*Neither* tangible *nor* intangible costs	*Neither* tangible *nor* intangible costs
Stage	**Sub-stages**				
Preparatory stage	Taking photos	Yes	Yes	No	No
	Instructions	All Yes			
Stage 1 - Resource Seeking and Quiz 1	Presentation of 15 quiz questions	All Yes			
	Indication for which question a subject asks for help				
	Answering of quiz 1 questions				
	Belief elicitation				
	Public disclosure of resource seeking	with profile picture and first name	with profile picture and first name	anonymous	anonymous
Stage 2 - Quiz 2	Judge decides on subjects' incentives for quiz 2	Yes	No	No	No
	Subjects learn incentives for quiz 2	Yes	No	No	No
	Answering of quiz 2 questions	Yes	No	No	No
Post-experimental stage	Questionnaire	All Yes			
	Learning about individual success and received help				
	Payment				

Table 2. Summary statistics of variables

Treatment	Variable	Observations	Mean	Std. Dev.	Min	Max
ECONOMIC CONSEQUENCES	*Resource Seeking*	1,275	0.38	0.48	0	1
	Age	1,275	26.78	8.87	18	63
	Gender	1,275	1.51	0.50	1	2
	German	1,275	0.74	0.44	0	1
	Experience	1,275	3.54	2.17	0	6
NON-ANONYMOUS	*Resource Seeking*	1,350	0.49	0.50	0	1
	Age	1,350	26.18	8.23	18	63
	Gender	1,350	1.54	0.50	1	2
	German	1,350	0.80	0.40	0	1
	Experience	1,350	3.52	2.19	0	6
ANONYMOUS	*Resource Seeking*	1,320	0.55	0.50	0	1
	Age	1,320	27.91	10.53	18	63
	Gender	1,320	1.33	0.47	1	2
	German	1,320	0.84	0.37	0	1
	Experience	1,320	3.19	2.22	0	6
ANONYMOUS40	*Resource Seeking*	750	0.47	0.50	0	1
	Age	750	27.22	10.04	19	64
	Gender	750	1.44	0.50	1	2
	German	750	0.84	0.37	0	1
	Experience	750	2.86	2.16	0	6

Table 3. Logit estimations for the main treatment effects

Logit Regressions Dep. Var.:	(1) *Seeking behavior*	(2) *Seeking behavior*	(3) *Seeking behavior*	(4) *Seeking behavior*	(5) *Seeking behavior*
Baseline: ECONOMIC-CONSEQUENCES					
Treatment: NON-ANONYMOUS	0.463*** (0.120)	0.470*** (0.120)	0.463*** (0.119)	0.476*** (0.120)	0.475*** (0.120)
Treatment: ANONYMOUS	0.702*** (0.129)	0.678*** (0.130)	0.699*** (0.127)	0.720*** (0.127)	0.743*** (0.128)
Gender		-0.144 (0.102)	-0.163 (0.101)	-0.155 (0.101)	-0.128 (0.103)
Age			-0.017*** (0.005)	-0.017*** (0.005)	-0.017*** (0.005)
German				-0.193 (0.127)	-0.173 (0.126)
Experience					0.051** (0.023)
Constant	-0.508*** (0.086)	-0.292 (0.183)	0.195 (0.247)	0.311 (0.251)	0.083 (0.283)
Observations	3,945	3,945	3,945	3,945	3,945

Note: Robust standard errors are in parentheses and clustered around individuals *** p<0.01, ** p<0.05, *p<0.1.

Table 4. Logit estimations for the main treatment effects across image concern and gender subsamples

	Social Image Concerns		Gender	
	High	*Low*	*Male*	*Female*
Logit Regression	(1)	(2)	(3)	(4)
Dep. Var.:	*Seeking behavior*	*Seeking behavior*	*Seeking behavior*	*Seeking behavior*
Baseline: ECONOMIC-CONSEQUENCES				
Treatment: NON-ANONYMOUS	0.394**	0.715***	0.589***	0.444**
	(0.166)	(0.185)	(0.166)	(0.178)
Treatment: ANONYMOUS	0.883***	0.589***	0.658***	0.836***
	(0.183)	(0.194)	(0.170)	(0.179)
Age	-0.008	-0.029***	-0.029***	-0.007
	(0.006)	(0.008)	(0.008)	(0.006)
Gender	-0.191	-0.131	-	-
	(0.145)	(0.170)		
German	-0.251	-0.063	0.148	-0.405**
	(0.182)	(0.184)	(0.182)	(0.167)
Experience	0.087***	-0.020	-0.023	0.118***
	(0.031)	(0.033)	(0.034)	(0.029)
Observations	2,280	1,665	1,815	2,130

Note: Robust standard errors are in parentheses and clustered around individuals *** p<0.01, ** p<0.05, * p<0.1.

Table 5. Logit estimations for the benefit-varying treatments ANONYMOUS vs. ANONYMOUS40

Logistic Regressions Dep.Var.:	(1) *Seeking behavior*	(2) *Seeking behavior*	(3) *Seeking behavior*	(4) *Seeking behavior*	(5) *Seeking behavior*
Baseline: ANONYMOUS					
Treatment: ANONYMOUS40	-0.307* (0.166)	-0.286* (0.166)	-0.301* (0.163)	-0.304* (0.164)	-0.285* (0.163)
Gender		-0.197 (0.159)	-0.237 (0.151)	-0.208 (0.157)	-0.202 (0.159)
Age			-0.024*** (0.008)	-0.023*** (0.009)	-0.022** (0.009)
German				-0.211 (0.216)	-0.209 (0.208)
Experience					0.0642* (0.035)
Constant	0.195** (0.097)	0.457* (0.242)	1.166*** (0.340)	1.280*** (0.348)	1.045*** (0.386)
Observations	2,070	2,070	2,070	2,070	2,070

Note: Robust standard errors are in parentheses and clustered around individuals *** p<0.01, ** p<0.05, * p<0.1

Figure 1. Emotions in seeking resources and pertaining individual costs

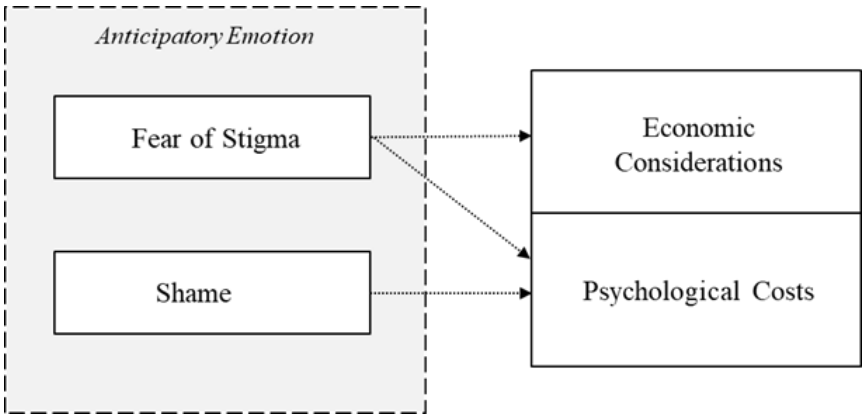

Figure 2. Average seeking behavior across the question difficulty categories.
The illustrated confidence intervals are calculated at 90% level.

Figure 3. Average seeking behavior across the three main treatment groups. The illustrated confidence intervals are calculated at 90% level.

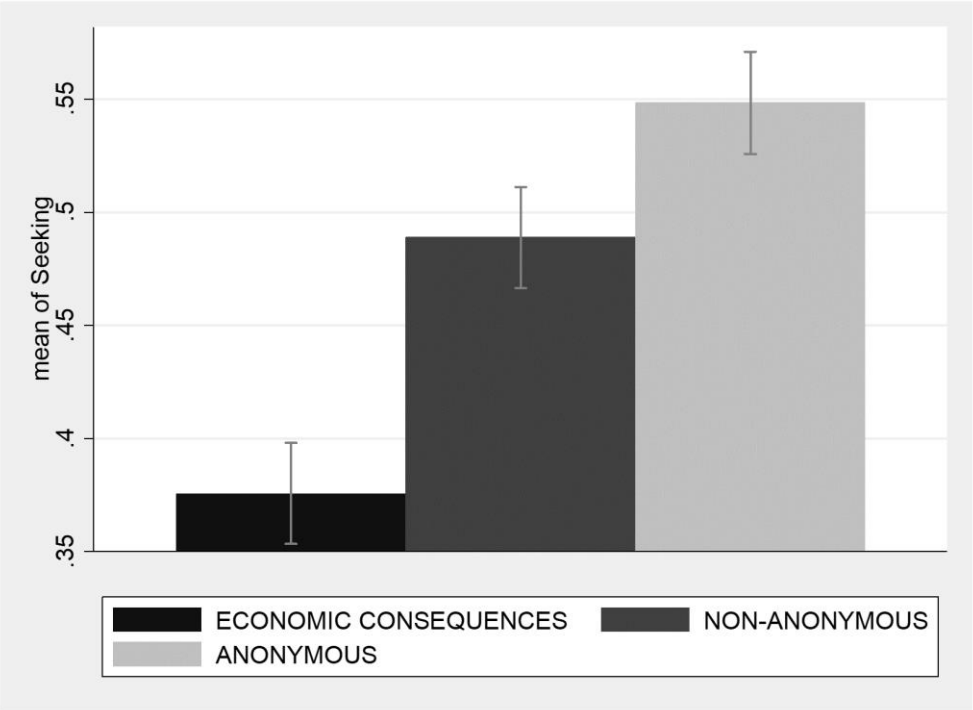

Figure 4. Average seeking behavior for low/high image concern participants across the three main treatment groups. The illustrated confidence intervals are calculated at 90% level.

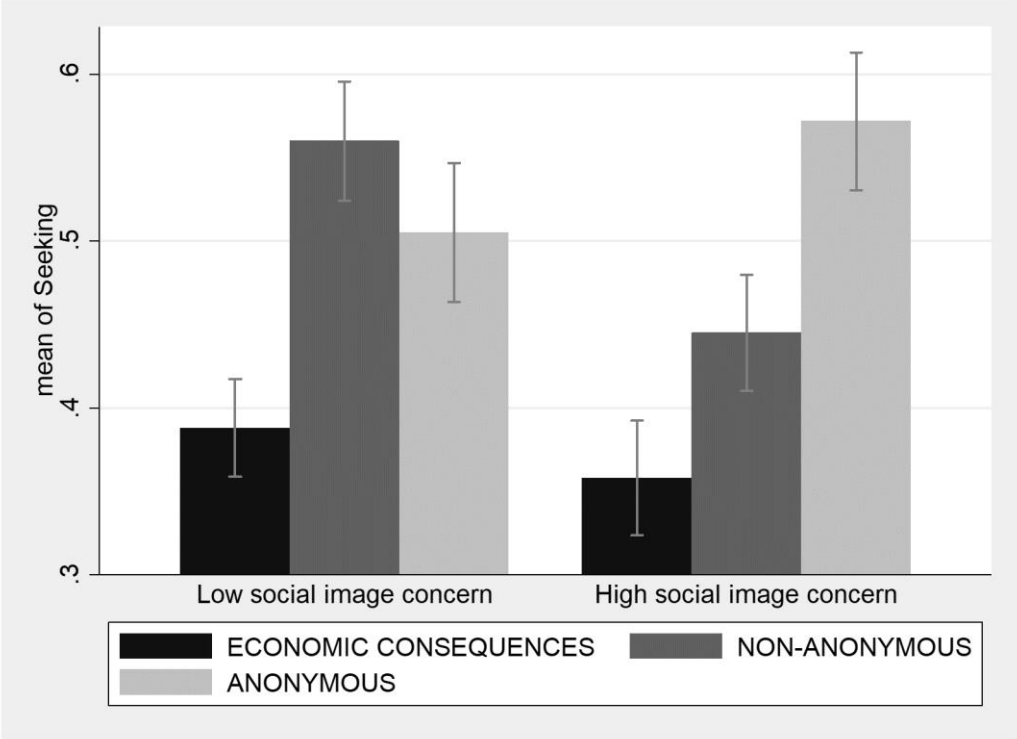

Figure 5. Average seeking behavior for female/male participants across the three main treatment groups. The illustrated confidence intervals are calculated at 90% level.

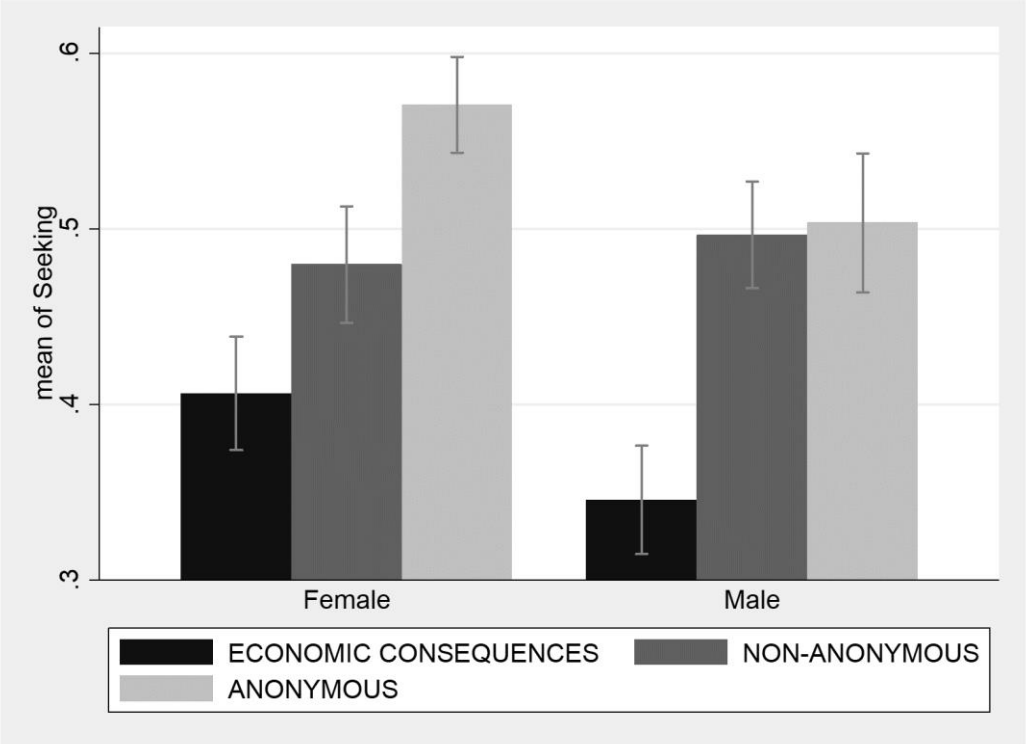

Figure 6. Average seeking behavior across the benefit-varying treatment groups. The illustrated confidence intervals are calculated at 90% level.