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**Selection Benefits of Below-Market Pay in
Social-Mission Organizations: The Effects on
Individual Performance and Team Cooperation**

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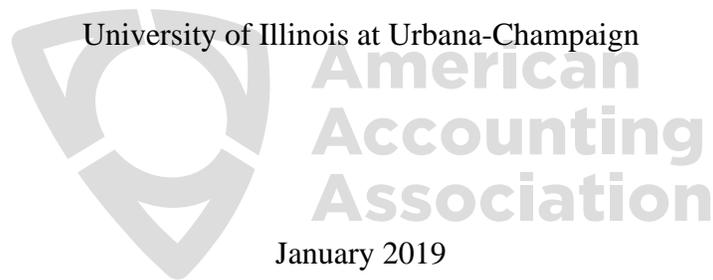
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Selection Benefits of Below-Market Pay in Social-Mission Organizations: Effects on Individual Performance and Team Cooperation

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Selection Benefits of Below-Market Pay in Social-Mission Organizations: Effects on Individual Performance and Team Cooperation

Abstract

Many organizations whose core purpose is to advance a social mission pay employees below-market wages. We investigate two under-appreciated benefits of below-market pay in these social-mission organizations. In a series of experiments, we predict and find that, holding employees' outside opportunities constant, those attracted to social-mission organizations that pay below-market wages perform better individually and cooperate more effectively in teams than those attracted to social-mission organizations that pay higher wages. The individual performance effect arises because below-market pay facilitates the selection of value-congruent employees who are naturally inclined to work hard for the organizational mission. The team cooperation effect arises because employees expect team members who have selected a social-mission job that pays below market to be more value congruent and therefore more cooperative than those who have selected a social-mission job that pays higher wages. Collectively, we demonstrate that in social-mission organizations, offering below-market pay can yield selection benefits.

Keywords: *below-market pay; pay level; employee selection; value congruence; social mission; cooperation*

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I. INTRODUCTION

In addition to nonprofit organizations, which account for 5.4 percent of the U.S. GDP (NCCS 2015), an increasing number of for-profit organizations have adopted social missions as their core organizational purpose (McKinsey & Company 2013). GoldieBlox, for example, a toymaker that designs and manufactures construction and engineering toys for girls, was founded with a mission to “disrupt the pink aisle and inspire future generations of female engineers.”¹ We refer to both nonprofit and for-profit organizations whose core organizational purpose is to advance a clearly articulated social mission as “social-mission organizations.” For these organizations, the pursuit of growth through the day-to-day operations of the organization naturally advances the organizational social mission. One characteristic these social-mission organizations have in common is that they seek employees whose personal values are congruent with their missions because they believe that these employees are naturally inclined to work hard for a social mission they value personally (Whitehurst 2016). It can be challenging, however, to recruit employees who hold values congruent with those of the organization because value congruence is difficult to measure or verify (e.g., Adkins, Russell, and Werbel 1994; Swaney 2014). We examine the effectiveness of below-market pay as a mechanism to facilitate the selection of value-congruent employees and the implications of such selection on individual task performance and team cooperation in social-mission organizations.²

We examine below-market pay as a potential selection mechanism for social-mission organizations because these organizations often pay employees below-market wages. For

¹ <http://www.cnbc.com/2016/03/24/i-wanted-to-disrupt-the-pink-aisle-goldieblox-commentary.html>

² The institutional review board of the authors’ affiliated institution granted approval for the experiments conducted in this study.

example, non-profit organizations typically offer lower pay than for-profit organizations offer for similar positions (Mirvis and Hackett 1983).³ In addition, many for-profit social-mission organizations face resource constraints in the start-up stage of their life cycle, which may prevent them from paying higher wages. Although it is often necessity that drives many social-mission organizations to pay below-market wages, our theory and results highlight two under-appreciated benefits of this constraint.

First, we predict that below-market pay facilitates the selection of value-congruent employees who are more productive than less value-congruent employees on individual tasks that contribute directly to the organizational social mission.⁴ Specifically, we argue that, for a social-mission organization, offering below-market pay provides an effective mechanism for sorting job candidates based on the extent to which they personally value the social mission of the organization. This is because individuals with a relatively high level of value congruence derive considerable personal utility from advancing the social mission of the hiring organization. As a result, when they have the opportunity to choose between a job that advances an important social mission but pays below market and a non-social-mission job that pays market, they are willing to accept below-market pay for the opportunity to advance an important social mission. Those with a lower degree of value congruence do not derive the same personal utility from advancing the social mission and are therefore less willing to accept below-market pay. As a result, below-market pay facilitates the selection of value-congruent employees.

Theories suggest that value congruence should be positively associated with performance

³ Results from prior studies suggest that the wage differential between similar for-profit and non-profit white-collar jobs can be as high as 20% (Preston 1983).

⁴ We conceptualize value congruence as a continuous variable. It is defined as the extent to which an employee personally values the social mission of an organization. For brevity, we refer to those with a relatively high degree of value congruence as *value-congruent* employees.

on tasks that contribute directly to the organizational mission. From an economic theory perspective, agency problems arise when the goals of an organization and those of its employees are misaligned (Jensen and Meckling 1976). However, when employees are value congruent, their goals and incentives naturally align with those of the organization, minimizing agency problems (Van den Steen 2010a, 2010b). Psychological theories suggest that value-congruent employees exhibit identified motivation, which enhances effort and performance (e.g., Ryan and Connell 1989; Gagne and Deci 2005; Adler and Chen 2011).⁵ As a result, holding employees' outside opportunities constant, those attracted to a social-mission organization that pays below market will be more productive on effort-sensitive individual tasks that directly contribute to the organizational mission than those who are attracted to a social-mission organization that pays market or higher wages.

Second, we predict that holding employees' outside opportunities constant, those attracted to a social-mission organization that pays below-market will cooperate more effectively on team-based tasks that directly contribute to the organizational mission than those who are attracted to a social-mission organization that pays at-market or higher wages. We argue that this effect arises because of the attributions employees will make about their team members. Specifically, below-market pay allows a focal employee to attribute his/her team members' job selection to that team member's value congruence; this attribution will help the employee develop an expectation that the team member will cooperate to advance the organizational mission. This expectation will ultimately facilitate actual cooperation (e.g., Fischbacher, Gächter, and Fehr 2001; Coletti, Sedatole and Towey 2005). As such, below-market pay will allow

⁵ Identified motivation is defined as doing an activity due to its alignment with one's own values or goals (Ryan and Connell 1989; Adler and Chen 2011). Identified motivation arises when "a social value or regulation is adopted as one's own or identified with" (Ryan and Connell [1989, p. 750]).

employees to cooperate more effectively on team-based tasks that directly advance the organizational social mission.

We test our predictions by conducting experiments with participants recruited from Amazon's Mechanical Turk platform, a real online labor market. Online labor markets exhibit characteristics of traditional labor markets (e.g., Horton, Rand, and Zeckhauser 2011; Chen and Horton 2016) and have been used by labor economists as field sites to investigate issues related to labor selection and compensation (e.g., Pallais 2014; Chen and Horton 2016; Pallais and Sands 2016). In Experiment 1 and its two supplemental experiments, we investigate the effects of below-market pay on participants' performance on a real effort task. Participants' performance on this task contributes directly to an organizational social mission. In Experiment 2, we study the effects of below-market pay on participants' propensity to cooperate on a decision task modeled after the prisoner's dilemma game. Participants' cooperation on this decision task directly advances an organizational social mission.

In Experiment 1, we first ask all participants to choose between two jobs: a job in which participants' effort contributes directly to a social mission (hereafter, "the social-mission job") and a similar job *without* a social mission (hereafter, "the competing job"). We keep the pay level for the competing job constant at \$1.00 and manipulate the pay level for the social-mission job at two levels: below-market and above-market. In the below-market condition, participants choose between the competing job that pays \$1.00 and a social mission-job that pays \$0.80 (i.e., 20% less than the competing job). In the above-market condition, participants choose between the competing job that pays \$1.00 and a social-mission job that pays \$1.20 (i.e., 20% more than

the competing job).⁶ Given that our research question examines the effect of below-market pay on selection and performance in social-mission organizations (i.e., social-mission jobs only), we compare the performance and value congruence of participants who choose the below-market social-mission job to those who choose the above-market social-mission job.

We find that participants who choose the below-market social-mission job perform better on an individual task that contributes directly to a social mission than those who choose the above-market social-mission job, although this effect is only marginally significant. In addition, we show that those who choose the below-market social-mission job are significantly more value congruent than those who choose the above-market social-mission job, and below-market pay exerts a significant indirect effect on performance through participants' level of value congruence.

We follow up Experiment 1 with two supplemental experiments. In the first supplemental experiment, we randomly assign participants to the \$0.80 social-mission job and the \$1.20 social-mission job. We do not observe a difference in value congruence or performance for participants randomly assigned to the two jobs. These results provide additional evidence that the positive performance and value congruence effects of below-market pay observed in Experiment 1 are driven by employee selection and not by direct effects of the compensation contracts. In the second supplemental experiment, we replicate Experiment 1 with an additional control condition: *at-market*, in which participants choose between the competing job that pays \$1.00 and a social-mission job that pays \$1.00. We find that participants who select the below-market social-mission job perform significantly better and are more value congruent than participants who

⁶ Based on our expectation that participants will spend 10 minutes on the experimental task on average, these pay rates translate to an expected hourly rate of \$6.00, which is comparable to that paid in other studies using Mechanical Turk workers as participants (e.g., Rennekamp 2012; Grenier, Pomeroy, and Stern 2014; Bentley, Bloomfield, Bloomfield, and Lambert 2018).

select the social-mission job in the two control conditions (i.e., *at-market* and *above-market* conditions). Taken together, results from Experiment 1 and the two supplemental experiments show that below-market pay can lead to higher individual performance by selectively attracting more value-congruent employees.

In Experiment 2, we again ask all participants to choose between a social-mission job and a competing job and manipulate the pay level for the social-mission job at three levels: below-market, at-market, and above-market. Participants who have chosen the same job within each condition are randomly paired to work on a decision task modeled after the prisoner's dilemma game. Participants are explicitly informed of their partner's job choice. We find that participants who select the below-market social-mission job cooperate more effectively on the team-based task that contributes directly to an organizational mission than participants who select the social-mission job in the control conditions (i.e., *at-market* and *above-market* conditions). Furthermore, we find that this effect is sequentially mediated by perceived team member value congruence and expected team member cooperation. Interestingly, the results of our supplemental analyses suggest that participants who select the below-market social-mission job also achieve a higher rate of cooperation on a task that does not contribute directly to an organizational mission than participants who select the social-mission job in the control conditions. Taken together, these results suggest that for social-mission organizations, below-market pay helps employees cooperate more effectively on team-based tasks regardless of whether these tasks contribute directly to the organizational mission.

Our study contributes to the literature examining the role of compensation system design in employee selection. This literature has primarily examined how compensation contracts can be designed to screen for employee skill (e.g., Chow 1983; Waller and Chow 1985; Kachelmeier

and Williamson 2010). In today's dynamic work environments, however, characteristics that predispose employees to collaborate effectively, adapt quickly, and persist in times of adversity are as important as, if not more important than, technical skills (Stillman 2014). Our study complements a small number of recent studies (e.g., Dohmen and Falk 2011; Hales, Wang and Williamson 2015) highlighting the important role compensation systems can play in sorting employees based on productivity-enhancing characteristics other than technical skill. A direct implication of our study is that, for social-mission organizations paying below-market wages due to resource constraints (e.g., Preston 1989; Leete 2001), below-market pay may result in unintended selection benefits.

We organize the remainder of the paper as follows. Section II develops our hypotheses. Section III describes the method and results of Experiment 1 and two supplemental experiments. Section IV presents the method and results of Experiment 2. Section V concludes.

II. THEORY AND HYPOTHESES

Background

Social-mission organizations prefer to hire employees whose personal values are aligned with the organizational social missions because they believe that value-congruent employees will naturally work hard to advance a social mission they value personally (Whitehurst 2016). However, selection of value-congruent individuals can be difficult because information asymmetry exists between the organization and its potential employees. Information asymmetry regarding potential employees' level of value congruence exists because: (1) there are substantial variations in potential employees' value congruence prior to hire (Gatewood and Feild 1998; Akerlof and Kranton 2005; Oyer and Schaefer 2011; Sekiguchi and Huber 2011; Murphy 2012);

and (2) personal value is an attribute that is hard to verify *ex ante*.⁷ Because many social-mission organizations pay below-market wages (e.g., Mirvis and Hackett 1983), we examine whether below-market pay in these organizations may unintentionally serve as a natural selection mechanism, and the implications of such selection for social-mission organizations.

The Effect of Below-Market Pay on Employee Performance on an Individual Task

We argue that, for an organization with a unique social mission, offering below-market pay provides a natural selection mechanism to screen out employees who do not personally value the organizational social mission. More specifically, individuals with a relatively high degree of value congruence will derive considerable personal utility from the fact that an important part of their daily job is to advance a social mission that they value personally. As a result, when they have the opportunity to choose between a job that advances a personally valued social mission but pays below market and a non-social-mission job that pays market, they are willing to accept below-market pay for the opportunity to advance a social mission they value personally. In contrast, those who have a lower degree of value congruence do not derive the same personal utility from advancing the organizational social mission and are therefore less willing to accept below-market pay. Below-market pay, when offered with the opportunity to advance a unique social mission as part of one's daily job, will thus selectively attract employees who value the organizational social mission and derive utility from being personally engaged in activities that advance this mission. There is some survey evidence consistent with this theoretical prediction.

A Rutgers survey of 431 students and 1,295 full time employees suggest that 58 percent of

⁷ One approach to recruiting value-congruent employees is the use of screening procedures such as in-person interviews and behavioral tests to screen out applicants whose values are incongruent with those of the organization. However, there is evidence suggesting that in-person interviews and behavioral tests are costly and may not be effective methods for assessing value congruence (e.g., Adkins et al. 1994).

students and 34 percent of workers would choose to give up a 15 percent higher salary to work for an organization whose values they identify with (Zukin and Szeltner 2012).

Both economic and psychological theories suggest that value congruence can lead to greater performance on individual tasks that contribute directly to the organizational mission. Agency theory suggests that agency problems arise when the goals of an organization and those of its employees are misaligned (Jensen and Meckling 1976). As a result, employees whose values and goals are congruent with those of the organization should exhibit less severe agency problems and have a natural inclination to do what is best for the organization (Van den Steen 2010a). These employees should therefore work hard toward the organizational mission even when they have few extrinsic incentives to do so. Furthermore, motivation theory suggests that value-congruent employees likely exhibit identified motivation, which arises when “a social value or regulation is adopted as one’s own or identified with” (Ryan and Connell 1989, 750). Identified motivation promotes effective performance because it increases feelings of self-determination and motivates task engagement (Ryan and Connell 1989; Gagne and Deci 2005; Adler and Chen 2011; Chen, Lill, and Vance 2015).

If below-market pay selectively attracts employees who are more value congruent, the discussion above suggests that these employees will likely work harder to advance the organizational mission. To the extent that greater effort leads to higher performance, employees attracted to social-mission organizations that pay below-market wages will perform better on individual tasks that contribute directly to the organizational social mission than those attracted to social-mission organizations that pay higher wages. Our prediction departs from the predictions and results of the gift exchange literature in accounting and economics. This literature generally suggests that lower (higher) wages likely lead to lower (higher) employee

effort and performance due to negative (positive) reciprocity when effort is not contractible (e.g. Fehr, Gächter, and Kirchsteiger 1997; Hannan, Kagel, and Moser 2002; Hannan 2005; Kuang and Moser 2009; Brown, Martin, Moser, and Weber 2015; Choi 2014). This literature, however, examines the effect of pay level on employee effort in an environment in which utility for social mission does not influence employee effort (i.e., profits from higher effort accrue solely to the employer). In social-mission organizations, employee effort directly benefits an important social mission, and hence, employees who care about the organizational social mission can potentially derive utility from the social mission advanced by their efforts. In this environment, our theory suggests that when we take into consideration the variations in the extent to which job candidates value the organizational social mission, below-market wages may act as a natural screening mechanism to attract a more value-congruent workforce that actually works harder toward the organizational mission. We posit the following hypothesis:

H1: *Individuals who choose to work for a social-mission organization at below-market pay over opportunities at non-social-mission organizations at market pay will perform better on an individual task that contributes directly to the organizational social mission than individuals who choose to work for a social-mission organization at market or higher pay over opportunities at non-social-mission organizations at market pay.*

The Effect of Below-Market Pay on Cooperation on a Team-Based Task

In social-mission organizations, employees often collaborate with their colleagues on a variety of team-based tasks that contribute directly to the organizational mission. We argue that below-market pay can facilitate cooperation on these tasks by allowing a focal employee to attribute his team member's job selection to that team member's value congruence. Specifically, when an organization pays below market, all employees have to make a financial sacrifice to work for the organization. This voluntary financial sacrifice, if known, makes it easier for an

employee to attribute his/her team member's job selection to that team member's value congruence.⁸ The focal employee's perceived team-member value congruence, in turn, will increase the focal employee's expectation that his/her team member will cooperate on a team-based task that directly advances the organizational social mission.

Furthermore, prior experimental research suggests that expected team member cooperation facilitates actual cooperation. Coletti et al. (2005) show that increased trust, defined as an individual's "perceived likelihood that another person will cooperate, absent any economic incentives to do so" (p. 481), increases the level of cooperation among collaborators. Similarly, Fischbacher et al. (2001) show that people's contributions to group endeavors increase to the extent that they anticipate greater contribution by other group members. As a result, a team whose members have individually chosen to work for a social-mission organization at below-market pay will cooperate more effectively than a team whose members have chosen to work for a social mission organization at at-market or higher pay because it is easier for members of the former team to trust that their team members will cooperate. We posit the following hypothesis (H2) and depict the underlying mechanism for H2 in Figure 1.

H2: *Team members who have individually chosen to work for a social-mission organization at below-market pay over opportunities at non-social-mission organizations at market pay will cooperate more effectively on a team-based task that contributes directly to the organizational social mission than team members who have individually chosen to work for a social-mission organization at market or higher pay over opportunities at non-social-mission organizations at market pay.*

We design Experiment 1 and two supplemental experiments to test H1 and its underlying

⁸ It is important to note that our theory does not require complete pay transparency. That is, employees do not have to know the exact amount of their team members' salary to infer value congruence. However, they do have to know that their team members also receive below-market wages. This knowledge can be obtained through channels such as online media like Glassdoor.com and informal conversations with team members. In addition, some social-mission organizations may make salary information publicly available or otherwise acknowledge the financial sacrifices their employees and volunteers make.

theory using an individual-based real effort task. We design Experiment 2 to test H2 using a decision task modeled after the prisoner's dilemma game.

INSERT FIGURE 1 HERE

III. EXPERIMENT 1

Participants

We recruited participants online via Amazon's Mechanical Turk (MTurk) platform. MTurk is an appropriate platform for our study for several reasons. First, Mturk is a real online labor market. Labor economists have shown online labor markets exhibit the characteristics of traditional labor markets such as an upward-sloping labor supply curve (e.g., Horton et al. 2011; Chen and Horton 2016). As a result, they have used online labor markets like Mturk as field sites to investigate issues related to labor selection and compensation (e.g., Pallais 2014; Chen and Horton 2016; Pallais and Sands 2016). Second, prior studies show that Mturk participants respond to monetary incentives in terms of effort and cheating in a manner largely consistent with those predicted by traditional economic theory (e.g., Balasubramanian, Bennett, and Pierce 2017; Farrell, Grenier, and Leiby 2017). At the same time, MTurk participants also exhibit preferences for fairness and honesty that are similar to the preferences exhibited by participants in traditional labor markets (Chen and Horton 2016; Farrell et al. 2017). Third, we conducted a pilot survey of more than 400 MTurk workers that validated the assumption that compensation is a salient factor considered by the MTurk workforce. Out of these respondents, 96 percent indicate that they work on MTurk for money, and 89 percent indicate that the most important

reason they work on MTurk is compensation.⁹

Experimental Design

We manipulate whether a social-mission job pays 20 percent less (*below-market*) or 20 percent more (*above-market*) than a competing job. Participants in the *below-market* [*above-market*] condition read the following prompt:

In this study, you can choose one (and only one) of two jobs to perform. Both jobs include a search task and a short questionnaire.

- *Job A pays \$1.00 to you.*
- *Job B pays \$0.80 [\$1.20] to you plus your work on this job can earn up to \$2.00 for the American Cancer Society.*

These two jobs should take about the same amount of time. Job A is not easier or quicker than Job B and Job B is not easier or quicker than Job A. Whether you choose to work on Job A or Job B, you will be helping us with our research.

Job A represents a competing job (i.e., participants' outside opportunity) that is *not* associated with a social mission. In order to isolate the effect of below-market pay on the selection of value-congruent employees, we hold the outside opportunity constant for all participants by paying the same amount of money for Job A in both conditions.¹⁰ In doing so, we operationalize market pay narrowly as the pay a job candidate is able to get for a similar job without the social mission. We hold market pay constant at \$1.00 for all participants, so participants in both the below-market and above-market conditions have the opportunity to choose this non-social-mission job that pays market wage. However, since our research question

⁹ We asked participants the following two questions: (1) why do you work on Amazon Mechanical Turk tasks? Please select all that apply; (2) why do you work on Amazon Mechanical Turk tasks? Please select the single most important reason. For both questions, participants selected from five choices: to earn money; the tasks are interesting and/or help me learn about myself; to kill time; to help requesters; other (please elaborate).

¹⁰ In the conclusion section, we discuss the implications of our theory and results for social-mission organizations when potential job candidates have heterogeneous outside opportunities.

focuses on the effect of below-market pay on selection and performance in social-mission organizations, our analyses focus on participants who give up Job A for Job B, which we describe below.

Job B represents a social-mission job that is associated with a social mission: donating to the American Cancer Society. We set the compensation for Job B at \$0.80 (20 percent less than the competing job) for participants in the *below-market* condition and 1.20 (20 percent more than the competing job) for participants in the *above-market* condition. Participants who choose Job B could contribute directly to the mission by earning a piece-rate donation for the American Cancer Society. To isolate the effect of pay level on participants' performance in social-mission organizations, we hold the opportunity to contribute to the social mission constant across conditions. More specifically, participants who choose Job B in both conditions are able to earn up to \$2.00 for the American Cancer Society. We compare the performance of participants who select Job B in the below-market condition to those who select Job B in the above-market condition.

We choose donating to the American Cancer Society as the social mission in our experiment for several reasons. First, contributions to this social mission can be quantified by the amount of donations participants earn for the American Cancer Society. As a result, we are able to create an environment in which we clearly establish how participants' performance on the job (i.e., the experimental task) directly contributes to this social mission. Second, the American Cancer Society is one of the largest and best-known charitable organizations in the United States according to the Forbes list of "the 50 largest U.S. Charities" (Barrett and Novack 2015). As a result, participants are likely to have some general knowledge about the main cause of the charity and whether they personally value this cause, which facilitates their job selection decision. Last

but not least, our theory suggests that below-market pay helps to screen out individuals who do not personally value the organization's social mission. As a result, we need a social mission that is valued *only* by a subgroup of our participant pool. The results of a pilot survey show that significant variation exists among MTurk workers on the extent to which they value donating to the American Cancer Society as a social mission. This makes donating to the American Cancer Society an appropriate social mission for the test of our theory.¹¹

Experimental Procedures

After participants accepted our task request on Amazon's Mechanical Turk, they were directed to a Qualtrics website on which all experimental materials were hosted. Qualtrics randomly assigned participants to one of the two pay conditions (*above-market* or *below-market*). Participants then made their job choice. More specifically, participants in the *above-market* condition chose between the above-market social-mission job and the competing job, and participants in the *below-market* condition chose between the below-market social-mission job and the competing job. We then provided participants with information about the experimental task and its minimum performance requirement. Regardless of their assigned condition and job selection, all participants were asked to solve 40 letter-search questions. For each letter-search question, participants were given a 3×18 box of random letters and were asked to determine the number of times a specific letter (i.e., the search letter) appeared in the box. To receive compensation, participants had to answer at least 5 of the 40 letter-search questions correctly, representing a minimum performance threshold. With this minimum performance threshold, all

¹¹ More specifically, in a pilot survey, we asked participants to allocate a hypothetical donation of \$100 among five charities including American Cancer Society. Allocation to the American Cancer Society ranges between \$0 and \$100, has a mean of \$22 and a standard deviation of \$22.

participants were incentivized to answer at least the first five letter-search questions accurately, regardless of whether they cared about donating to the American Cancer Society. As a result, their accuracy on the first five letter-search questions provided a useful benchmark for their letter-search skill.¹²

Participants who selected the social-mission job (Job B) in both conditions were then told how their performance on the experimental task would affect the social mission of supporting the American Cancer Society. More specifically, participants were told, *“As part of the study, we would like to support the mission of the American Cancer Society. As specified by the table below, we will donate to the American Cancer Society at a rate of \$0.05 per each correctly completed letter-search question, up to a maximum of \$2.00 per each participant.”* We use the piece-rate for the donation to the American Cancer Society to create an environment where we clearly establish how participants’ performance on the job (i.e., experimental task) directly contributes to the organization’s social mission. Whether or not this piece-rate is viewed as a separate form of compensation, the effect it has on participants’ effort is expected to depend on their level of value congruence.¹³

After learning about their minimum performance requirement and how exactly their effort contributes to the social mission (for those who selected the social-mission job), participants performed the letter-search task by advancing through a series of eight letter-search

¹² That is, if a participant did not care about donating to the American Cancer Society, he/she would work hard on the first five questions to meet the minimum performance threshold. If a participant cared about donating to the American Cancer Society, he/she would work hard on the first five questions to meet the minimum performance threshold and earn more donation for the American Cancer Society. Assuming participants exert high effort on the first five questions regardless of their level of value congruence, we attribute performance variance on the first five questions to their letter-search skill.

¹³ If participants view this as a separate form of compensation and thus evaluate the piece rate relative to their own salary, the rate for donating to the American Cancer Society may seem comparatively larger for those receiving a salary of \$0.80 (relative to those receiving a salary of \$1.20). This could lead the former to work harder and perform better than the latter. Our first supplemental experiment rules out this alternative explanation.

pages with each page displaying five letter-search questions (i.e., 40 questions in total). After participants correctly completed five letter-search questions, they received a notification at the end of the page. This notification informed them that they had completed five-letter search questions correctly, and thus achieved the minimum performance threshold. For example, we showed a participant who correctly completed the first five letter-search questions the following:

You have completed at least 5 questions correctly, so you will be paid your compensation and you will be given a 100% approval rating from us for your hard work. In addition, you've earned \$0.25 for the American Cancer Society.

*Answering more questions correctly won't affect your compensation, but each additional question you answer correctly will earn an additional \$0.05 in donation for the American Cancer Society.*¹⁴

It is important that we explicitly inform participants that we will approve their work regardless of whether they complete more questions to ensure that participants do not feel that they have to complete all 40 questions to avoid having their work rejected.¹⁵ Then, participants chose whether to continue to the next five letter-search questions or to advance to the post-experimental questionnaire. From this point on, after each letter-search page, participants were asked to choose between advancing to the next five letter-search questions and advancing directly to the post-experimental questionnaire.

Once a participant opted to advance to the end of the study or had completed all eight letter-search pages, he/she completed a post-experimental questionnaire that included demographic questions and questions measuring value congruence as described in more detail in

¹⁴ We showed participants who chose Job A the following message after they correctly completed the first five letter-search questions: “You have completed at least 5 questions correctly, so you will be paid your compensation for your hard work. Answering more questions correctly won’t affect your compensation, but will help us learn more about your performance.” Since our research question examines the effects of below-market pay in social-mission organizations, we did not include participants who chose Job A (the job without a social mission) in our main analyses.

¹⁵ Mturk workers have a strong incentive to avoid having their work rejected by requesters due to low quality because many Mturk requesters screen workers based on their approval rates (Bradley 2014).

the next section. After completing the post-experimental questionnaire, participants who selected the social-mission job learned the amount they had earned for the American Cancer Society. We then paid all participants the amount associated with the job they selected, and we sent the amount earned for the American Cancer Society by our participants directly to the American Cancer Society.

Sample Description and Dependent Variables

We recruited 200 participants from the U.S.; we limited our participants to only those with more than 1000 approved HITs and an approval rating of 95% or higher.¹⁶ We excluded 10 observations with duplicate IP addresses, resulting in a final sample of 190 participants. We randomly assigned 141 participants to the *below-market* condition (i.e. the condition in which participants choose between a social-mission job that pays \$0.80 and a competing job that pays \$1.00) and 49 participants to the *above-market* condition (i.e., the condition in which participants choose between a social-mission job that pays \$1.20 and a competing job that pays \$1.00).¹⁷ Out of the 141 participants assigned to the *below-market* condition, 54 participants (38%) selected the \$0.80 social-mission job over the \$1.00 competing job. The percentage selecting the social-mission job in our below-market condition is similar to the percentage (i.e., 34%) willing to give up a 15 percent higher salary to work for an organization whose values they identify with based on a survey of full-time Rutgers employees (Zukin and Szeltener 2012). Out of the 49

¹⁶ A Human Intelligence Task, or HIT, is a single task that an Mturk worker can work on and collect reward for completing. We require participants to have more than 1000 approved HITs and an approval rating of 95% to ensure that we recruit participants who are likely to take our experimental task seriously. Mean and median duration on the HIT are 11.27 and 9.38 minutes, which translate to mean and median hourly rates of \$5.34 and \$6.40.

¹⁷ Our theory suggests that a significantly higher percentage of participants will select the social-mission job in the above-market condition, relative to the below-market condition. Consequently, we assigned more participants to the below-market condition in an attempt to balance the number of participants selecting the social-mission task across the two conditions.

participants assigned to the *above-market* condition, 41 (84%) selected the \$1.20 social-mission job over the \$1.00 competing job. The smaller percentage of those selecting the \$0.80 social-mission job relative to those selecting the \$1.20 social-mission job (38% vs. 84%) is expected because, on average, participants prefer higher-paying jobs.

Our primary dependent variable is participants' performance on the letter-search task as measured by the number of correctly answered letter-search questions. We also collected a measure of participants' value congruence. Given the mission of the social-mission job is to donate to the American Cancer Society, our goal when measuring value congruence is to capture the extent to which participants personally value this mission (Value Congruence). In our post-experimental questionnaire, participants rate their agreement with the following statements, "Donating to the American Cancer Society is very important to me," "Donating to the American Cancer Society is personal to me," and "I am passionate about donating to the American Cancer Society" using a seven-point Likert scale ranging from "strongly disagree" to "strongly agree." Participants' responses to the three value-congruence statements are highly correlated ($p < 0.001$ for all three correlations). We therefore use the average of these three items to measure participants' value congruence (Value Congruence). Higher scores represent a higher degree of value congruence.

Across our two conditions, participants who selected Job B and worked on the experimental task to earn a donation for the American Cancer Society performed significantly better than participants who selected Job A and worked on the same experimental task without the opportunity to earn a donation for the American Cancer Society (17.89 vs. 7.47, $p < 0.01$, untabulated). However, because our research question examines the effect of pay level on performance in social-mission organizations, we focus our analyses only on participants who

selected Job B, the social-mission job.

Test of H1

H1 posits that relative to above-market pay, below-market pay will attract participants who will perform better on the experimental task. As shown in Panel A of Table 1, participants who selected the social-mission job (Job B) answered 19.06 letter-search questions correctly in the *below-market* condition and 16.36 questions correctly in the *above-market* condition, respectively. In both conditions, participants' average performance is much higher than the minimum performance requirement of five correct letter-search questions.¹⁸

INSERT TABLE 1 HERE

Although participants who selected the below-market social-mission job performed better than those who selected the above-market social mission job, the ANCOVA for the ranked number of letter-search questions correctly answered in Panel B of Table 1 is only marginally significant (one-tailed $p = 0.08$).¹⁹ However, consistent with our theory, participants who selected the below-market social-mission job are more value congruent than those who selected the above-market social-mission job (4.96 vs. 4.41). The ANOVA for participant's value congruence in Panel C of Table 1 is significant (one-tailed $p = 0.03$). More importantly, the 95% confidence interval based on 1,000 bootstrapped samples for the indirect effect of pay level on performance via value congruence is positive and does not include zero ($\beta = 4.57$, $SE = 2.76$, 95% CI = [0.11, 11.04], untabulated), suggesting that below market pay leads to higher task performance indirectly by attracting participants who are on average more value congruent.

¹⁸ In contrast, participants who selected the competing job (Job A) answered, on average, 7.52 ($n = 92$) and 6.38 ($n = 8$) search boxes correctly in the *below-market* and *above-market* conditions, respectively. Their average performance is close to the minimum performance requirement and does not differ significantly between conditions ($p = 0.52$).

¹⁹ Because the Shapiro-Wilk test for normality indicates that the number of correctly completed letter-search questions is not normally distributed ($p < 0.01$, untabulated), we use the ranked number of letter-search questions as the dependent variable (Conover and Inman 1981).

Supplemental Experiments for H1

Supplemental Experiment 1

We conduct a supplemental experiment in which we randomly assign participants to the above-market ($n = 50$) or below-market ($n = 48$) social-mission job.²⁰ More specifically, those who were randomly assigned to the below-market [above-market] social-mission job were told the following:

In this study, you will work on a search task and a short questionnaire.

- *This job pays \$0.80 [\$1.20] to you plus your work on this job can earn up to \$2.00 for the American Cancer Society.*

On average, participants who were randomly assigned to the *below-market* (*above-market*) job completed 16.50 (16.48) (untabulated) letter-search questions correctly. These averages are similar to the average performance of those who selected the above-market job in Experiment 1 (16.36), but are lower than the performance of those who selected the below-market job (19.06). More importantly, neither performance nor value congruence differs between participants who are randomly assigned to the below-market and above-market social-mission job ($p = 0.92$ and 0.69 , untabulated), and below-market pay does not exert an indirect effect on performance through value congruence. These results suggest the performance and value congruence effects of below-market pay that we observe in Experiment 1 are driven by employee selection and not by direct effects of the compensation contracts.

²⁰ We limited our participants to only those with more than 1000 approved HITs, an approval rating of 95% or higher, and those who have not participated in any other experiments reported in this study. We excluded observations with duplicate IP addresses.

Supplemental Experiment 2

The second supplemental experiment is the same as Experiment 1, except that we add a third condition: at-market pay. The purpose of this supplemental experiment is twofold. First, we use above-market pay as the only benchmark in Experiment 1. As a result, we are not able to rule out the possibility that our results are driven by above-market pay attracting less value congruent and less productive employees. Adding the at-market pay condition helps us rule out this alternative explanation. Second, from an external validity perspective, above-market pay is rather rare in social-mission organizations and thus provides a less interesting comparison to below-market pay than at-market pay.²¹

In this experiment, we manipulate the pay of the social-mission job at three levels: 20 percent less than the competing job (below-market), the same as the competing job (at-market), or 20 percent more than the competing job (above-market). Participants in the below-market [at-market, above-market] condition read the following passage when making their job choice:

In this study, you can choose one (and only one) of two jobs to perform. Both jobs include a search task and a short questionnaire.

- *Job A pays \$1.00 to you.*
- *Job B pays \$0.80 [\$1.00, \$1.20] to you plus your work on this job can earn up to \$2.00 for the American Cancer Society.*

These two jobs should take about the same amount of time. Job A is not easier or quicker than Job B and Job B is not easier or quicker than Job A. Whether you choose to work on Job A or Job B, you will be helping us with our research.

Panel A of Table 2 shows that 97 of 239 (41%), 76 of 95 (80%), and 84 of 97 (87%) participants assigned to the below-market, at-market, and above-market conditions, respectively, selected the social-mission job (Job B) and completed 14.54, 11.46, and 10.51 letter-search

²¹ We thank an anonymous reviewer for raising these concerns and recommending this supplemental experiment.

questions correctly.²² Consistent with our theory, Panels C and E of Table 2 show that planned contrasts comparing below-market to the control conditions (i.e., at-market and above market) on ranked performance ($F_{1,253} = 6.43; p < 0.01$) and value congruence ($F_{1,254} = 3.14; p = 0.04$) are significant. However, planned contrasts between the two control conditions on ranked performance ($F_{1,253} = 0.07; p = 0.80$) and value congruence ($F_{1,254} = 0.06; p = 0.80$) are not significant. These results suggest that participants who selected the below-market social-mission job over the competing job performed better and are more value congruent than those who selected the at-market or above-market social mission job over the competing job, providing additional support for H1 and its underlying theory.

INSERT TABLE 2 HERE

IV. EXPERIMENT 2

Participants

For Experiment 2, we again recruited participants online via Amazon's Mechanical Turk platform. MTurk is appropriate for Experiment 2 for the same reasons outlined for Experiment 1. In addition, prior research shows Mturk participants respond similarly to participants in laboratory settings on tasks that are typically used in economics and accounting research, such as prisoners' dilemma and public goods games (Farrell et al. 2017; Horton et al. 2011). Therefore, MTurk participants are particularly well suited for the decision task we utilize in Experiment 2, which is modeled after the prisoners' dilemma game. We screened potential participants using

²² Following Experiment 1, we recruited 450 participants who had not participated in any other experiments reported in this study from the U.S. with more than 1000 approved HITs, and an approval rating of 95% or higher. We excluded 13 observations that did not meet the minimum performance threshold and six observations with duplicate IP addresses, resulting in a final sample of 431 participants. Due to a three-year time lag between this supplemental experiment and Experiment 1, participants' performance is not comparable across studies.

MTurk IDs to ensure that each ID only participates in one of the four experiments reported in this study.

Experimental Design and Procedures

In Experiment 2, we again manipulate the social-mission job pay relative to the competing job at three levels: 20 percent less than (*below-market*), the same as (*at-market*), or 20 percent more than (*above-market*) the competing job. Participants in the *below-market* [*at-market, above-market*] condition read the following when making their job choice:

In this study, you can choose one (and only one) of two jobs to perform. Both jobs include a decision task and a short questionnaire.

- *Job A pays a fixed wage of \$1.00 and a bonus for the decision task.*
- *Job B pays a fixed wage of \$0.80 [\$1.00, \$1.20] and a bonus for the decision task. In addition, your work on Job B will earn between \$0.75 and \$1.50 in donation for the American Cancer Society.*

Job A and Job B have the same bonus opportunity and will take about 10 minutes to complete.

Instead of a real effort task, all participants perform two team-based decision tasks modeled after the prisoner's dilemma game after making their job selection. Participants are randomly paired with a partner who has faced the same job options and has made the same job choice for each decision task. Because our theory suggests that participants will make an inference about their partner's value congruence based on their job choice, we explicitly inform all participants that they will be working with a partner who has made the same job choice. For both decision tasks, participants can choose to cooperate or defect, which we label Action 1 and Action 2, respectively, within the instrument. The mapping of the partners' actions to individual bonuses is shown in Appendix A, with player 1's bonus shown in the lower left corners and player 2's bonus shown in the upper right corners. Regardless of the partner's choice, a

participant earns a larger individual bonus by defecting than by cooperating. Cooperating, however, always leads to higher collective bonus for the team.

For participants selecting the social-mission job (Job B), the first decision task (the social-mission task) also earns a donation for the American Cancer Society as well as bonuses for the individual partners. The donation equals the sum of the partners' individual bonuses and is shown in the lower right corners in Panel A, Appendix A. As such, the first decision task models a team-based task that contributes directly to the organizational social mission, and cooperation is the best strategy for the team collectively and for the mission. After participants completed the first decision task, and before they received feedback about their partner's decision, we randomly pair each participant with a different partner who has chosen the same job and ask them to perform a second decision task (the non-social-mission task). The second decision task is similar to the first decision task and earns bonuses for the individual partners in the same manner as in the first decision task. However, the second decision task does not earn a donation to the American Cancer Society. As such, it models a team-based task that does not contribute directly to the organizational social mission but still requires cooperation to achieve the best collective team outcome. In summary, participants who selected Job B completed a social-mission task followed by a non-social-mission task, and participants who selected Job A completed the non-social-mission task twice.

H2 predicts that relative to at-market or higher pay, below-market pay attracts employees who will cooperate more effectively on the social-mission task, in which cooperation directly advances the organizational social mission. However, in social-mission organizations, in addition to working on tasks that contribute directly to the organizational social mission, employees sometimes have to cooperate on tasks that do not contribute directly to the organizational

mission. The non-social-mission task allows us to explore (in supplemental analysis) whether below-market pay also allows team members to cooperate more effectively on tasks that do not contribute directly to the organizational mission. Participants did not learn their partners' action choices for the two decision tasks until 48 hours after the experiment, at which time we paid all participants their bonuses, informed them of their partners' decision, and informed them of the amount their teams earned for the American Cancer Society. We sent the total donations earned by our participants directly to the American Cancer Society.

Sample Description and Dependent Variables

We recruited 498 participants from the U.S. with more than 1000 approved HITs and an approval rating of 95% or higher.²³ We excluded one observation with duplicate IP addresses, and assigned 296, 101, and 100 to the below-market, at-market, and above-market conditions, respectively. Out of these participants, 115 (39%), 79 (78%), 91 (91%) selected the social mission job over the competing job in the *below-market*, *at-market*, and *above-market* conditions, respectively. As in Experiment 1, since our research question addresses employee selection and cooperation in social-mission organizations, we focus our analyses on the decisions and beliefs of participants selecting Job B (the social-mission job).

Prior research conducted on the MTurk platform utilizing the prisoner's dilemma game demonstrates the importance of using comprehension questions to identify participants who understand the essence of the game (e.g., Horton et al. 2011; Rand 2012). We therefore used a series of five comprehension questions to assess our participants' understanding of the decision task. First, we asked participants to identify which job their assigned teammate had selected. It is

²³ Mean and median duration on our HIT is 12 and 10.61 minutes, which translate to mean and median hourly rates of \$5.00 and \$5.66.

important that participants know that their teammates selected the social-mission job under the same conditions as themselves, because our theory implies that participants will use that information to infer the value-congruence of their teammates. Next, we asked participants to identify the bonus and donation payments for four separate scenarios to test whether or not participants understood the payout structure of the decision tasks. For example, in one of the four payout-structure questions, we asked, “If you choose Action 1 and your partner chooses Action 1, (1) what is your bonus for Decision One and (2) how much will we donate to the American Cancer Society?” In order to test our theory using only participants who understood the decision tasks, we dropped 57 participants who either did not know that their teammates had selected the social-mission job or did not answer at least three of the four payout-comprehension questions correctly.²⁴

Our primary dependent variable is participants’ cooperation on the first decision task, the social-mission task. It is a dichotomous variable in which cooperating (i.e., choosing Action 1) is coded as 1 and defecting (i.e., choosing Action 2) is coded as 0. Across our three conditions, participants who selected Job B and worked on the social-mission task cooperated more effectively than participants who selected Job A and worked on the non-social-mission task for their first decision task (74% vs. 54%, $p < 0.01$, untabulated). As shown in Table 3, Panel A, out of all the participants who selected the social-mission job (Job B) and passed the comprehension check, 82%, 69%, and 70% chose to cooperate on the social-mission task in the *below-market*,

²⁴ We dropped 26, 21 and 10 participants from the *below-market*, *at-market* and *above-market* conditions, respectively, because they failed the comprehension check. Excluding participants who did not answer all five comprehension check questions correctly does not affect our results.

at-market, and *above-market* conditions, respectively.²⁵

INSERT TABLE 3 HERE

Test of H2

H2 predicts that individuals who select the below-market social-mission job (relative to individuals selecting the at-market and above-market social-mission job) will cooperate more effectively on the social-mission task. To test H2, we estimate logistic regressions that contrast the *below-market* condition with the *at-market* and *above-market* conditions jointly and contrast the *at-market* condition with the *above-market* condition. As reported in Panel B of Table 3, the results of the logistic regression model show that participants selecting the below-market social-mission job, relative to participants selecting the at-market and above-market social-mission job (jointly), are more likely to cooperate on the decision task (odds ratio = 1.98; one-tailed $p = 0.02$), which supports H2. Importantly, participants' likelihood of cooperation does not differ between the *at-market* and *above-market* conditions (odds ratio = 1.07; two-tailed $p = 0.86$).

Our theory underlying H2 suggests that below-market pay increases perceived partner value congruence, which increases expected partner cooperation, and therefore facilitates team cooperation on a task that contributes directly to the organizational mission. To provide further support for our theory, in addition to collecting a measure of participants' own value congruence, we collect a measure of participants' perceived partner value congruence and expected partner cooperation in the post-experimental questionnaire. Appendix B presents the composition of these measures, and Table 4, Panel A reports their mean and standard deviation by condition.

²⁵ Out of all the participants who selected Job A and passed the comprehension check, 55% ($n=152$), 53% ($n=15$), and 40% ($n=5$) chose to cooperate on the decision task in the *below-market*, *at-market*, and *above-market* conditions, respectively. No pairwise comparison is significant (all $p > 0.50$).

First, planned contrasts in Panel C of Table 4 show that participants' own value congruence is significantly higher in the *below-market* condition than in the *at-market* and *above-market* conditions ($F_{1, 225} = 13.67, p < 0.01$), and that participants' own value congruence does not significantly differ between the *at-market* and *above-market* conditions ($F_{1, 225} = 0.83, p = 0.36$). These results replicate the selection result we observe in Experiment 1 and the second supplemental experiment. Second, consistent with our theory for H2, planned contrasts in Panel E of Table 4 show that participants selecting below-market pay perceive their partners to be significantly more value congruent than those selecting at-market and above-market pay ($F_{1, 225} = 13.93, p < 0.01$). Importantly, perceived partner value congruence does not significantly differ between participants selecting at-market pay and above-market pay ($F_{1, 225} = 0.00, p = 0.99$). These results suggest that below-market pay affects employees' perception of partner value congruence.

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To provide more direct evidence for our theory, we employ a serial multiple mediator model and test the indirect effect suggested by our theory (i.e., below-market pay → perceived partner value congruence → expected partner cooperation → actual cooperation) using a bootstrapping-based analysis (Hayes 2013). In estimating our model, we combine the at-market and above-market conditions because the results reported in Table 3 and 4 suggest that these two conditions do not differ in the mediating or final outcome variables. We present the model graphically in Panel A of Table 5. In addition to the indirect effect we posit, we also simultaneously estimate, for completeness, all other possible indirect and direct effects in the

model.²⁶ We report our model estimates in Panel A, and the results of the bootstrap tests in Panel B. Our results suggest that the indirect effect suggested by our theory (i.e., below-market pay → perceived partner value congruence → expected partner cooperation → actual cooperation) is positive and significant ($\beta = 0.21$, $SE = 0.09$, 95% $CI = [0.07, 0.39]$). These results provide support for our theory, suggesting that the observed effect of below-market pay on team cooperation is sequentially mediated by perceived partner value congruence and expected partner cooperation.

INSERT TABLE 5 HERE

Supplemental Analyses

Alternative Mediation Model

We estimate an alternative mediation model with two parallel mediators: participants' own value congruence and perceived partner value congruence. Results of this parallel multiple mediator model show that the indirect effect of participants own value congruence is positive but insignificant ($\beta = 0.05$, $SE = 0.12$, 95% $CI = [-0.21, 0.28]$, untabulated), and the indirect effect of perceived partner value congruence is positive and significant ($\beta = 0.28$, $SE = 0.15$, 95% $CI = [0.06, 0.66]$, untabulated). These results suggest that the effect of below-market pay on cooperation is not driven by below-market pay attracting value-congruent employees who are willing to cooperate to advance the organizational social mission regardless of what their team members do.

Non-Social-Mission Task

²⁶ Specifically, our analysis simultaneously estimates the following indirect and direct effects: (1) below-market pay → perceived partner value congruence → expected partner cooperation → actual cooperation, (2) below-market pay → perceived partner value congruence → actual cooperation; (3) below-market pay → expected partner cooperation → actual cooperation, (4) below-market pay → actual cooperation.

In social-mission organizations, in addition to working on tasks that contribute directly to the organizational social mission, employees sometimes have to cooperate on tasks that do not contribute directly to the organizational mission. We explore whether below-market pay also allows team members to cooperate more effectively on a non-social-mission task. Untabulated results find that 75%, 59%, and 59% of participants who chose Job B cooperated on the non-social-mission task in the *below-market*, *at-market*, and *above-market* conditions, respectively. Participants selecting the below-market social-mission job are significantly more likely to cooperate on the non-social-mission task than those in the other two conditions (odds ratio = 2.21; one-tailed $p < 0.01$, untabulated), and participants' likelihood of cooperation does not significantly differ between the *at-market* and *above-market* conditions ($p = 0.76$, untabulated). These results suggest that perceived partner value congruence driven by below-market pay may also increase expected partner cooperation on tasks that do not directly contribute to the organization's social mission. Since the organizational mission is *social* by nature, employees are likely to consider their value-congruent partners to be prosocial, and therefore expect their prosocial partner to cooperate on team-based tasks in general, regardless of whether these tasks contribute directly to the organizational mission (e.g., Balakrishnan, Sprinkle, and Williamson 2011). Consistent with this conjecture, our results suggest that the indirect effect we document for the social-mission task in Table 5 (i.e., below-market pay \rightarrow perceived partner value congruence \rightarrow expected partner cooperation \rightarrow actual cooperation) is also significant for the non-social-mission task ($\beta = 0.13$, $SE = 0.06$, 95% $CI = [0.04, 0.29]$, untabulated).

V. CONCLUSION

Results of our experiments suggest that offering below-market pay in social-mission

organizations can have two under-appreciated productivity-enhancing selection benefits: individuals attracted to a social-mission organization that pays below-market wages perform better individually and cooperate more effectively in teams than those attracted to a social-mission organization that pays higher wages. We contribute to the compensation selection literature (e.g., Chow 1983; Waller and Chow 1985; Kachelmeier and Williamson 2010) by highlighting the important role compensation can play in sorting employees based on productivity-enhancing characteristics other than technical skills. A direct implication of our study is that if a social-mission organization pays below-market wages due to resource constraints, it may not necessarily lead to a less productive workforce. To the contrary, below-market pay may facilitate the selection of employees who perform better individually and cooperate more effectively in teams.

Relatedly, this study contributes to accounting research examining the role of cultural controls in organizations (e.g., Ouchi 1979; Langfield-Smith 1995; Simons 1995; Malmi and Brown 2008; Van den Steen 2010a, 2010b). This literature argues that cultural controls use organizational values to influence organizational members' behavior and are an integral part of management control systems. It also suggests that selectively hiring value-congruent employees is an efficient way to build effective cultural controls (e.g., Ouchi 1979; Langfield-Smith 1995; Malmi and Brown 2008). By showing that formal management controls, such as employee compensation and reward systems, can facilitate the selection of value-congruent employees, our results demonstrate that formal management controls can enhance the effectiveness of cultural controls.

Our theory and results focus on unintended selection benefits of paying employees below-market wages due to resource constraints faced by many social-mission organizations.

Our study should not be interpreted as prescriptive in nature because there are costs to offering below-market pay. One such cost is that it may take longer to fill a job vacancy. A second potential cost is that below-market pay may attract low-skilled candidates with fewer outside opportunities (Dal Bó, Finan and Rossi 2013). This may not be a significant problem for social-mission organizations in which skill is not an important component of the production function or the required skills can be developed on the job relatively quickly. However, it is important for other social-mission organizations paying below-market wages to implement mechanisms that screen out low-skilled applicants with fewer outside opportunities (e.g., education and/or experience requirements) if there is not an urgent need to fill the vacancy.²⁷ A third potential cost is employee turnover. In theory, below-market pay will not necessarily lead to higher turnover as long as value congruent employees continue to obtain utility from advancing a personally valued social mission by working alone or collaborating with like-minded colleagues. As such, social-mission organizations paying below-market wages could benefit from informal controls that emphasize how employees' individual and team efforts contribute to the organizational social mission.

A potential boundary condition may exist for the effect we demonstrate. We use a setting where most participants are able to give up a portion of their compensation for a more meaningful job (i.e., most Mturkers are able to give up 20% of their pay on a single HIT). However, employees in many professions do not have the luxury to trade off pay for meaning since each dollar they earn goes toward satisfying basic needs such as food and shelter for their

²⁷ If the required skill for a job is not verifiable, a low skill level should not influence a candidates' outside opportunities. By this logic, skills that influence a job candidate's outside opportunities have to be verifiable, at least by some organizations in the job market. Therefore, in practice, organizations can alleviate the concern that below-market pay may attract low-skilled job candidates by screening out low-skilled candidates with fewer outside opportunities.

family. Kahneman and Deaton (2010) show that emotional well-being is positively correlated with income for an annual income below \$75,000. However, income increases beyond \$75,000 do not necessarily increase happiness. Assuming that \$75,000 is the point at which basic needs can be comfortably satisfied for most people, then employees are more likely to trade off compensation for meaning if they make above \$75,000. That is, low-paying jobs (i.e., jobs that pay well below \$75,000) are less likely to benefit from the productivity-enhancing selection effects of below-market pay. Future study can test this boundary condition with field or survey data.

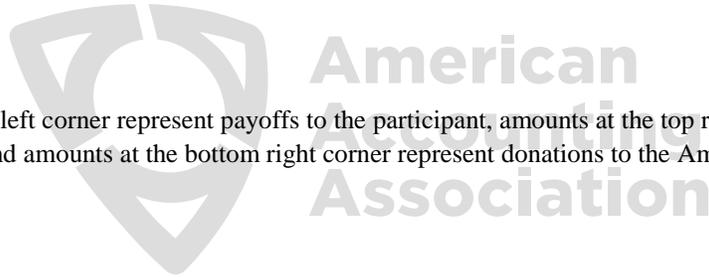
Finally, it is important to highlight that we focus on a narrower setting than the settings often examined in the corporate social responsibility literature (see Moser and Martin 2012 for a review). Therefore, it is unlikely that our results will generalize to companies that engage in corporate social responsibility (CSR) activities despite findings from prior research suggesting that CSR activities can facilitate trust and motivate worker productivity (e.g. Balakrishnan, Sprinkle, and Williamson 2011). As stated earlier, one of the criteria for our theory is that the organizational social mission is embedded in the employees' daily job. That is, the pursuit of growth through the day-to-day operations of the organization naturally advances the organizational social mission. This criterion is unlikely to be satisfied at companies that engage in CSR activities when these activities do not define the organization's core purpose.

Appendix A

Payoff table for Experiment 2^a

		Your Partner's Choice			
		Action 1		Action 2	
Your Choice	Action 1	\$1.50	\$2.00	\$1.50	\$2.00
	Action 2	\$0.00	\$0.75	\$2.00	\$1.50

^a Amounts at the bottom left corner represent payoffs to the participant, amounts at the top right corner represent payoffs to the partner, and amounts at the bottom right corner represent donations to the American Cancer Society.



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Appendix B

Own Value Congruence^a

Please rate the extent to which you agree with the following statements:

- (1) Donating to the American Cancer Society is important to me.
- (2) I am passionate about donating to the American Cancer Society.
- (3) Donating to the American Cancer Society is personal to me.
- (4) I identify with the mission of the American Cancer Society.

Perceived Partner Value Congruence^b

Please rate the likelihood that the following statements are descriptive of your partners^c:

- (1) Donating to the American Cancer Society is important to my partners.
- (2) My partners are passionate about donating to the American Cancer Society.
- (3) Donating to the American Cancer Society is personal to my partners.
- (4) My partners identify with the mission of the American Cancer Society.

Expected Partner Cooperation for the Social-Mission Task^d

How likely do you think your partner for Decision One chose (if he/she has already completed the study) or will choose (if he/she is yet to complete the study) Action 1?

Expected Partner Cooperation for the Non-Social-Mission Task^d

How likely do you think your partner for Decision Two chose (if he/she has already completed the study) or will choose (if he/she is yet to complete the study) Action 1?

^a Participants respond to the four statements on a seven-point Likert scale ranging from “strongly disagree” to “strongly agree.” Responses to the four statements are highly correlated ($p < 0.001$ for all four correlations). We therefore use the average of these four items to measure participants’ own value congruence.

^b Participants respond to the four statements on a seven-point Likert scale ranging from “extremely unlikely” to “extremely likely.” Responses to the four statements are highly correlated ($p < 0.001$ for all four correlations). We therefore use the average of these four items to measure participants’ beliefs about the value congruence of their partners.

^c Participants were randomly matched with two partners in Experiment 2: one for the social-social mission task and one for the non-social-mission task. Since participants do not receive feedback about their partners’ decisions until 48 hours after the completion of the experiment, they had no way to distinguish the two partners. As result, we use a single scale to capture perceived partner value congruence for both partners.

^d Participants respond to the question on a seven-point Likert scale ranging from “extremely unlikely” to “extremely likely.” They had access to the relevant payoff table when answering these questions.

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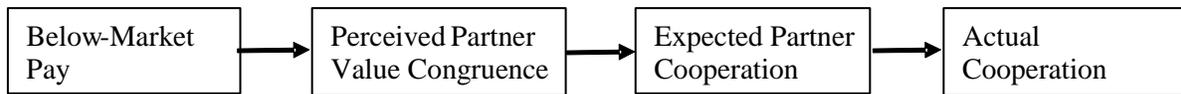
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Figure 1
Experiment 2 – Underlying Mechanism for H2



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Table 1

Experiment 1 - The Effects of Below-Market Pay on Employee Selection and Task Performance
(Below-Market Pay vs. Above-Market Pay)

Panel A: Descriptive statistics: mean (standard deviation)

Condition ^a	<i>n</i>	Individual Performance ^b	Value Congruence ^c
Below-Market Pay	54	19.06 (12.93)	4.96 (1.30)
Above-Market Pay	41	16.36 (12.62)	4.41 (1.56)

Panel B: Analysis of Variance for Ranked Performance^d

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	1	1424.89	1.92	0.08
Skill	1	1094.89	1.47	0.23
Error	92	742.80		

Panel C: Analysis of Variance for Value Congruence

Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	1	7.01	3.56	0.03
Error	93	1.97		

- ^a Condition is manipulated at two levels. Participants in the below-market (above-market) condition are given the opportunity to choose between the social-mission job that pays 20% less (more) than the competing job that pays \$1.00. Participants included in this analysis are those who have chosen the social-mission job over the competing job. Participants who have chosen the competing job are excluded from this analysis.
- ^b The number of search boxes participants correctly counted.
- ^c Participants' average response to the following three statements on a seven-point Likert scale: "Donating to the American Cancer Society is very important to me," "Donating to the American Cancer Society is personal to me," and "I am passionate about donating to the American Cancer Society."
- ^d We rank transform participants' raw performance score.
- ^e The number of correctly answered letter-search questions out of the first five questions.
- ^f Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.

Table 2

Supplemental Experiment to Experiment 1 - The Effects of Below-Market Pay on Employee Selection and Performance (Below-Market Pay vs. At-Market and Above-Market Pay)

Panel A: Descriptive statistics: mean (standard deviation)				
Condition ^a	<i>n</i>	Individual Performance ^b	Value Congruence ^c	
Below-Market Pay	97	14.54 (10.90)	5.01 (1.30)	
Above-Market Pay	76	11.46 (9.27)	4.66 (1.33)	
Above-Market Pay	84	10.51 (8.52)	4.71 (1.62)	

Panel B: Analysis of Covariance for Ranked Performance				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	2	17153.85	3.27	0.04
Skill	1	1893.74	0.36	0.55
Error	253	5247.58		

Panel C : Planned Contrasts for Ranked Performance				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Below-Market > At-Market and Above Market	1	33758.71	6.43	< 0.01
At-Market vs. Above-Market	1	341.20	0.07	0.80

Panel D: Analysis of Variance for Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	2	3.21	1.59	0.21
Error	254	2.02		

Panel E: Planned Contrasts for Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Below-Market > At-Market and Above Market	1	6.34	3.14	0.04
At-Market vs. Above-Market	1	0.12	0.06	0.80

- a Condition is manipulated at three levels. Participants in the below-market (at-market, above--market) condition are given the opportunity to choose between the social-mission job that pays 20% less than (the same as, 20% more than) the competing job that pays \$1.00. Participants included in this analysis are those who have chosen the social-mission job over the competing job. Participants who have chosen the competing job are excluded from this analysis.
 - b The number of search boxes participants correctly counted.
 - c Participants' average response to the following three statements on a seven-point Likert scale: "Donating to the American Cancer Society is very important to me," "Donating to the American Cancer Society is personal to me," and "I am passionate about donating to the American Cancer Society."
 - d We rank transform participants' raw performance score.
 - e The number of correctly answered letter-search questions out of the first five questions.
 - f Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.
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Table 3
 Experiment 2 - The Effect of Below-Market Pay on Team Cooperation
 on a Social-Mission Task

Panel A: Cooperation Rate by Condition

Condition ^a	<i>n</i>	Cooperation Rate
Below-Market Pay	89	82%
At-Market Pay	58	69%
Above-Market Pay	81	70%

Panel B: Contrasts based on Logistic Regressions of Whether Participants Cooperate

Source	<i>Odds Ratio</i>	<i>p-value</i> ^b
Below-Market > At-Market and Above-Market	1.98	0.02
At-Market vs. Above-Market	1.07	0.86

^a Condition is manipulated at three levels. Participants in the below-market (at-market, above--market) condition are given the opportunity to choose between the social-mission job that pays 20% less than (the same as, 20% more than) the competing job that pays \$1.00. Participants included in this analysis are those who have chosen the social-mission job over the competing job. Participants who have chosen the competing job are excluded from this analysis.

^b Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.

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Table 4

Experiment 2 - The Effect of Below-Market Pay on Participants' Own Value Congruence and Perceived Partner Value Congruence

Panel A: Descriptive Statistics: mean (standard deviation)				
Condition ^a	<i>n</i>	Participants' Own Value Congruence ^b	Perceived Partner Value Congruence ^c	Expected Partner Cooperation ^d
Below-Market Pay	89	5.17 (1.15)	5.26 (0.99)	5.54 (1.47)
At-Market Pay	58	4.40 (1.32)	4.73 (0.88)	4.97 (1.77)
Above-Market Pay	81	4.61 (1.48)	4.73 (1.20)	5.22 (1.44)

Panel B: Analysis of Variance for Participants' Own Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	2	12.18	6.97	<0.01
	22			
Error	5	1.75		

Panel C : Planned Contrasts for Participants' Own Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Below-Market > At-Market and Above Market	1	23.87	13.67	<0.01
At-Market vs. Above-Market	1	1.45	0.83	0.36

Panel D: Analysis of Variance for Perceived Partner Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Condition ^a	2	7.70	7.04	<0.01
	22			
Error	5	1.09		

Panel E : Planned Contrasts for Perceived Partner Value Congruence				
Source	<i>df</i>	<i>MS</i>	<i>F</i>	<i>P-value</i> ^e
Below-Market > At-Market and Above Market	1	15.24	13.93	<0.01
At-Market vs. Above-Market	1	0.00	0.00	0.99

^a Condition was manipulated at three levels: the *below-market pay* mission-driven job pays 20% less than the competing job, the *at-market pay* social-mission job pays the same as the competing job, the *above-market pay* mission-driven job pays 20% more than the competing job.

- ^b Participants' average response to the following four statements on a seven-point Likert scale: "Donating to the American Cancer Society is very important to me," "Donating to the American Cancer Society is personal to me," and "I am passionate about donating to the American Cancer Society," and "I identify with the mission of the American Cancer Society."
 - ^c Participants' average descriptiveness rating of the following four statements on a seven-point Likert scale: "Donating to the American Cancer Society is very important to my partners," "Donating to the American Cancer Society is personal to partners," and "My partners are passionate about donating to the American Cancer Society," and "My partners identify with the mission of the American Cancer Society."
 - ^d Participants' rating of the likelihood that their partner will cooperate on a seven-point Likert scale.
 - ^e Reported significance tests for directional predictions are one-tailed and are indicated by **bold** face.
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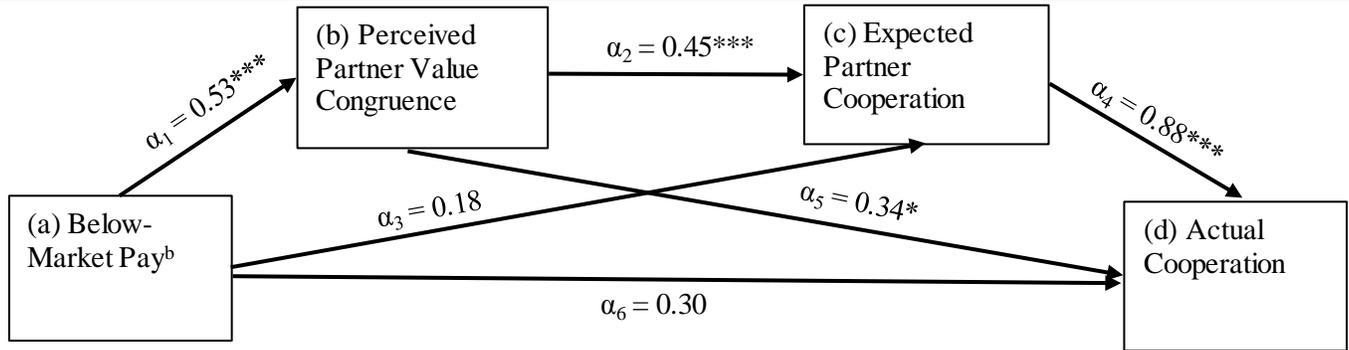
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Table 5
Experiment 2 - Mediation Test

Panel A: Serial Mediation Model^a



Panel B: Bootstrap Results

	Effect	Boot SE	Lower 95% CI	Upper 95% CI
Indirect effect 1 ($\alpha_1 \times \alpha_2 \times \alpha_4$)	0.21	0.09	0.07	0.40
Indirect effect 2 ($\alpha_1 \times \alpha_5$)	0.18	0.13	-0.03	0.50
Indirect effect 3 ($\alpha_3 \times \alpha_4$)	0.16	0.19	-0.22	0.55
Direct effect (α_6)	0.30	0.42	-0.52	1.11

^a The numbers on the arrows represent estimated coefficients from the following system of equations:

(1) Perceived Partner Value Congruence = α_1 Below-Market Pay + ϵ_1

(2) Expected Partner Cooperation = α_2 Perceived Partner Value Congruence + α_3 Below-Market Pay + ϵ_2

(3) Actual Cooperation = α_4 Expected Partner Cooperation + α_5 Perceived Partner Value Congruence + α_6 Below-Market Pay + ϵ_3

^b Below-Market Pay is set to 1 for the Below-Market condition, and 0 for the At-Market and Above-Market conditions.

***, ** denote two-tailed significance at 10%, 5%, and 1%, respectively.

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