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When Are Signing Bonuses More than Just "Pay to Play"? An Experimental
Investigation

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Investigation

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An abstract of
A dissertation submitted to the Faculty of the
James T. Laney School of Graduate Studies of Emory University
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Abstract

When Are Signing Bonuses More than Just "Pay to Play"? An Experimental
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By Jongwoon Choi

I investigate the conditions under which offering a signing bonus positively
affects worker effort. Extant research highlights the potential for trust to function as a
mechanism by which a signing bonus offer can positively affect effort. However, the
efficacy of trust serving this role hinges on workers' attributions for the signing bonus
offer. I posit that labor market competition – whether there is an excess demand for labor
or an excess supply of labor – affects these attributions. Specifically, I predict and find
that offering a signing bonus more positively affects both workers' beliefs regarding the
employer's trust in them as well as their effort when there is excess supply than when
there is excess demand. However, I also find that the benefits of offering a signing bonus
are short-lived due to the higher effort expectations that accompany a signing bonus offer
when there is an excess supply of labor, and the lower propensity for workers receiving a
signing bonus when there is excess supply to fulfill those expectations relative to workers
not receiving a signing bonus or workers receiving a signing bonus when there is excess
demand.

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IV. APPENDIX

1. Introduction

Signing bonuses have become a popular component of compensation contracts (Uchitelle 1998; WorldatWork 2009). The use of these bonuses is commonplace in a wide range of industries at many levels of the organizational hierarchy (Hansen 2005; WorldatWork 2009). Such prevalence is puzzling, as signing bonuses seemingly run counter to the pay-for-performance compensation schemes frequently espoused by scholars and practitioners. Signing bonuses are paid early in a worker's tenure, and payment is conditional on the worker agreeing to join the firm and not on *ex post* performance indicators.

A popular explanation for the use of signing bonuses is that they improve worker recruitment (e.g., Poe 1999; WorldatWork 2000). However, employers can also attract workers to their firm without incurring upfront labor costs, e.g., by offering higher salaries and/or fringe benefits. The prevalence of both signing bonuses and these alternative (and potentially superior) means of attracting workers suggest that improved worker recruitment is unlikely to be the only benefit of offering a signing bonus. In this study, I go beyond this oft-cited benefit and explore the potential for signing bonus offers to generate benefits after workers join the firm. Specifically, I investigate the conditions under which offering a signing bonus positively affects worker effort.

I draw upon extant research on trust in developing my hypotheses. Trust plays a key role in shaping economic outcomes, increasing the mutual gains that are extracted from employment and other exchange relationships (e.g., Fehr and Gächter 1998). Underlying these effects is reciprocity. When trusted by another party, the trusted party often seeks to repay that trust by taking actions that benefit the trusting party, even at a

personal cost (Berg et al. 1995; Bacharach et al. 2007). For instance, workers who believe that the employer trusts them often seek to honor the employer's trust by exerting costly effort (e.g., Salamon and Robinson 2008).

A signing bonus offer can positively affect worker effort by appealing to the worker's reciprocity. Trust leads to actions that put the trusting party (i.e., the employer) at risk of being harmed by the trusted party (i.e., the worker). Offering a signing bonus is risky because the bonus is an accelerated payment of compensation that would otherwise be paid in the future, resulting in workers receiving more pay at the outset of the employment relationship when a signing bonus is offered than when it is not (Poe 1999; Arya et al. 2003). Thus, if the employment relationship is shorter than what the employer expected when the worker was hired, then an employer who offered the bonus will incur greater costs than an employer who did not offer one. If workers view a signing bonus offer as reflecting an employer's trust, then they will reciprocate that trust by exerting greater effort than if the employer did not offer the bonus.

Ultimately, a positive effect of a signing bonus offer on effort hinges on workers believing that the employer trusts them to a greater extent when the bonus is offered than when it is not. I posit that the extent to which this occurs depends on labor market competition, i.e., whether there is an excess demand for labor or an excess supply of labor. Competition is a prominent feature of many market settings, and a notable effect of competition is the tendency for market participants to engage in a bidding war in response to competitive pressures (Roth et al. 1991). Employers often respond to such pressures by offering signing bonuses (e.g., Goolsby and Unmuth 2008; Miller 2008).

Thus, workers are more likely to receive signing bonus offers when there is excess demand than when there is excess supply.

Importantly, the increased likelihood for the bonus to be offered when there is an excess demand for labor facilitates attributions for a signing bonus offer that also vary with labor market competition. Specifically, workers more likely attribute the signing bonus offer to the employer's desire to avoid getting shut out of the market when there is excess demand than when there is excess supply. The discounting principle of attribution theory suggests that individuals are less likely to attribute others' behavior to any single cause when multiple plausible causes exist (Kelley 1973). Therefore, I posit that workers are less likely to attribute the signing bonus offer to the employer's trust in them when there is excess demand than when there is excess supply. Insofar as individuals rely on their attributions to determine their own beliefs and behaviors (Rabin 1993; Falk et al. 2008), I hypothesize that a signing bonus offer more positively affects both workers' beliefs regarding the employer's trust in them and their effort when there is an excess supply of labor than when there is an excess demand for labor.

To test the hypotheses, I conduct a 2 x 2 fully crossed computer-based experiment in which participants assume the role of either the employer or the worker, and anonymously interact in three-person labor markets. I manipulate the first factor, labor market competition, by varying whether labor markets include two employers and one worker (excess demand) or one employer and two workers (excess supply). I also manipulate a second factor, contract choice constraint, at two levels. When contract choices are not constrained, employers opting to offer a contract have the option to include a signing bonus in the contract offer. In contrast, when contract choices are

constrained, employers choosing to offer a contract have no such option and a signing bonus cannot be offered. Though contract choice constraint is not a construct of interest in my study, the conditions in which employers' contract choices are constrained serve as benchmarks against which the effects of offering a signing bonus can be compared. Specifically, when testing the hypotheses, I compare the situation in which employers with the option to offer a signing bonus and choose to do so (from the unconstrained contract choice conditions) to the situation in which employers do not have such an option (the constrained contract choice conditions).

In the experiment, employers hire a single worker to provide effort for up to two periods. After the worker exerts effort in the first period, employers observe the worker's effort, and then decide whether to retain the worker. Retained workers then exert effort in the second period. To operationalize the risk associated with offering a signing bonus, I structure the contracts such that workers earn more compensation before the employer's retention decision if the bonus is offered than if it is not. Thus, if the worker is fired (presumably due to lower than expected effort), then employers who offered a signing bonus earn lower payoffs than those who did not offer the bonus, *ceteris paribus*. Using data from all four conditions, I test my hypotheses and conduct supplemental analyses on employers' retention decisions and workers' second period effort choices.

Consistent with the hypotheses, I find that offering a signing bonus more positively affects both workers' beliefs regarding the employer's trust in them as well as their effort when there is an excess supply of labor. Path analysis further corroborates the hypothesized interaction between signing bonus offers and labor market competition. However, supplemental analyses on employers' retention decisions and workers' second

period effort choices reveal that the effects are short-lived due to more positive effort expectations that accompany a signing bonus when there is an excess supply of labor. While a signing bonus offer more positively affects effort when there is excess labor supply, workers receiving a signing bonus when there is excess supply are less likely to fulfill their employer's effort expectations than workers not receiving a signing bonus or workers receiving a signing bonus when there is excess demand. Consequently, workers receiving a signing bonus when there is excess supply are less likely to be retained than workers in the other three signing bonus offer scenarios.

This study contributes to the literature by increasing understanding of pay schemes that do not fit the pay-for-performance paradigm (Lambert and Larcker 1985; Yermack 2006). Specifically, it highlights the potential for signing bonuses to generate benefits after workers join the firm, and identifies the conditions under which those benefits are likely to materialize. In doing so, the current study also emphasizes the moderating effects of the contextual environment on the link between compensation contracts and worker behavior (Sen 1997; Bowles 1998; Falk et al. 2006; Kuang and Moser 2009). Further, by showing the role of trust and reciprocity in the signing bonus-effort relationship, the current study complements extant research exploring alternate mechanisms by which a signing bonus offer can increase worker effort (Arya et al. 2003; Van Wesep, forthcoming).

The remainder of the paper proceeds as follows. Theory and hypotheses are developed in Section 2. Section 3 outlines the experiment. Results are reported in Section 4, and Section 5 concludes.

2. Theory and Hypotheses

2.1 Background

Compensation contracts frequently include multiple forms of pay. In addition to the base salary, contracts include performance-based compensation, severance pay, and/or fringe benefits. Signing bonuses have also recently become a popular component of compensation contracts (Uchitelle 1998; Poe 1999; WorldatWork 2009). Signing bonuses are payments to workers for agreeing to join the firm, and are predominately paid in cash. These bonuses are generally paid early in the worker's tenure with the firm, e.g., by the worker's first paycheck (Allen 1997; WorldatWork 2009; Van Wesep, forthcoming). Importantly, signing bonuses represent an accelerated payment of compensation that would otherwise be paid in the future, e.g., via higher salaries (Allen 1997; Poe 1999; Arya et al. 2003; WorldatWork 2007; Van Wesep, forthcoming). Thus, a contract that includes a signing bonus pays the worker more compensation at the outset of the employment relationship than a contract without a signing bonus.

Although signing bonuses are perhaps better known for being offered to professional athletes and senior executives, the use of these bonuses has become commonplace in a wide range of industries at many levels of the organizational hierarchy. Signing bonuses are offered in industries such as public accounting, engineering, utilities, and education (Uchitelle 1998; Hansen 2005; National Association of Colleges and Employers 2008). Furthermore, employers offer signing bonuses not only to workers applying for upper management positions, but also to those applying for middle management, technical staff, and clerical staff positions (WorldatWork 2005, 2009).

A popular explanation for the use of signing bonuses is that they improve worker recruitment (Uchitelle 1998; Poe 1999; WorldatWork 2007).[1] In a recent survey, 88 percent of employers who offer signing bonuses report that such bonuses help them attract workers to their firm (WorldatWork 2000). Signing bonuses can make a contract offer stand out and persuade the worker to join the firm (Poe 1999). However, employers can also attract workers to their firm without incurring upfront labor costs. For example, employers can offer higher salaries and/or fringe benefits such as medical benefits, daycare services, gym memberships, and other perks. The prevalence of both signing bonuses and these alternative (and potentially superior) means of attracting workers suggest that improved worker recruitment is unlikely to be the only benefit of offering a signing bonus. As I discuss next, extant research on trust suggests that offering a signing bonus can also positively affect worker effort, thus generating benefits after the worker has joined the firm.

2.2 Signing Bonus Offers, Worker Effort, and Trust

Prior analytic research demonstrates that signing bonus offers can increase worker effort. Arya et al. (2003) examine a principal-agent model where both the agent's human capital and effort affect firm production, which in turn determines the agent's compensation. The relationship between human capital and effort in Arya et al.'s model is complementary in that greater human capital increases the marginal productivity of the agent's effort. The authors show that paying a signing bonus commits the principal to a

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[1] Agency theory highlights the importance of worker recruitment. In the agency model, the principal's task is to design a contract that motivates the agent to take desirable actions (the IC constraint) while ensuring that it offers an expected level of utility at least as great as the agent's reservation utility (the IR constraint).

course of action that encourages the agent to obtain human capital, and thus, indirectly increases the agent's effort.

Van Wesep (forthcoming) examines a principal-agent model where the principal has better information than the agent about the quality of fit between the principal and the agent.[2] Quality of fit affects the marginal productivity of effort through factors like firm resources, technology, and relationships with co-workers and supervisors. The agent observes a noisy signal of the quality of fit after accepting the contract offer and then decides whether to continue the employment relationship. The model has a separating equilibrium in which a principal assessing a high quality of fit with the agent offers a signing bonus, and an agent receiving a signing bonus exerts more effort than an agent not receiving the bonus.

In contrast, I consider whether a signing bonus offer can positively affect effort through trust. Consistent with prior studies (Mayer et al. 1995; Rousseau et al. 1998; Sobel 2002), I define trust as the willingness to be vulnerable to the actions of another party based on positive expectations of that party's intentions and/or behavior. This definition highlights two features central to the notion of trust. First, trust pertains to relational risk, i.e., susceptibility to being harmed by others (Berg et al. 1995; Rousseau et al. 1998; Das and Teng 2001; Cox 2004). Second, the willingness to be exposed to relational risk stems from the trusting party's positive expectations of the trusted party. These expectations broadly reflect a belief that the trusted party, when faced with the opportunity to either benefit or harm the trusting party, will choose the beneficial actions. In the employer-worker context, these positive expectations can include an employer's

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[2] Relative to workers, employers can have superior information regarding the operationalization of strategy throughout the firm (Lambert 2001) and/or factors that affect the productivity of workers' actions (e.g., firm technology) (Beaudry 1994; Inderst 2001; Chen et al., forthcoming).

belief that the worker will not shirk, even absent the ability to monitor or control how much effort the worker exerts.

Trust plays a central role in economic exchange. As Arrow (1972) notes, "Virtually every commercial transaction has within itself an element of trust" (357). Extant literature finds that trust has a major impact on the outcomes that can be achieved in economic transactions (see Fehr 2009), increasing the mutual gains that can be extracted from exchange relationships, such as that between employers and workers (Arrow 1970; Fehr et al. 1993; Berg et al. 1995; Fehr and Gächter 1998; McCabe et al. 2003; Hannan 2005; Kuang and Moser 2009). Underlying these effects is reciprocity. When trusted by another party, the trusted party seeks to repay that trust with trustworthy behavior, even at a personal cost (Berg et al. 1995; Das and Teng 1998; Gintis 2000; Sobel 2005; Dohmen et al. 2009).[3]

The investment game, originally studied by Berg et al. (1995), provides a useful setting for illustrating the impact of both trust and reciprocity on economic outcomes. This two-person, sequential move game begins with each player receiving an initial endowment, and the first mover choosing how much of his/her endowment to send to the second mover. This amount is tripled and then transferred to the second mover, who decides how much to return to the first mover. The first mover's payoff includes the initial endowment, less the amount sent to the second mover, plus the amount returned by the second mover. The second mover's payoff includes the initial endowment, plus the tripled amount sent by the first mover, less the amount returned to the first mover.

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[3] Berg et al. (1995) characterize trust as an economic primitive that guides behavior in new situations. Likewise, scholars describe reciprocity as a human universal, a trait present in all individuals, societies, and cultures (Brown 1991; Hoffman et al. 1998).

Trust leads to actions that put the trusting party at risk of being harmed by the trusted party. In the investment game, trust leads first movers to send a positive amount to the second mover, which is risky because the amounts sent to the second mover reduce the first mover's payoff and the second mover may return nothing. Similarly, reciprocity leads to trustworthy actions that benefit the trusting party. In the investment game, reciprocity leads second movers to return an amount greater than that originally sent by the first mover, which increases the first mover's payoff. Evidence from investment game experiments indicates the presence of both trust and reciprocity (e.g., Berg et al. 1995; Ortmann et al. 2000; McCabe et al. 2003; Cox 2004; Bacharach et al. 2007). These behaviors are in contrast to those predicted by standard economic theory.[4] In the investment game, economic theory predicts that second movers will return nothing to the first mover. Anticipating this, first movers will send nothing to the second mover.

Evidence from experimental labor markets also supports the notion that trust and reciprocity play key roles in shaping individual behavior and economic outcomes (Fehr et al. 2009). In these experiments, participants act as either employers or workers. Employers offer contracts that stipulate a wage level, and workers decide whether to accept or reject the contract. Hired workers then choose an effort level. The employer's payoff is equal to the returns generated by the worker's effort (greater effort yields greater returns) less the wage payment. The worker's payoff is equal to the wage less the cost of effort. Economic theory predicts that workers will exert minimal effort, as effort above the minimum level is increasingly costly. Anticipating this, employers will offer the lowest possible wage. In contrast, trust leads employers to offer wages exceeding the

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[4] Throughout the paper, I use the term "economic theory" to refer to the neoclassical model of self-interest, in which preferences are assumed to be defined solely over wealth and leisure.

lowest possible wage. Similarly, reciprocity leads workers to choose effort levels generating a greater payoff for the employer than if the employer had offered the lowest possible wage. Studies show that many employers and workers in these markets behave in ways that reflect trust and reciprocity, respectively (e.g., Fehr et al. 1993, 1998; Hannan 2005; Kuang and Moser 2009).

Collectively, evidence from the investment game and experimental labor markets highlights the potential for a signing bonus offer to positively affect worker effort. In the setting examined in this study, trust leads employers to take a gamble by offering a signing bonus. The increased risk of a signing bonus offer arises because the bonus is an accelerated payment of future compensation. To illustrate, suppose that an employment relationship ends earlier than the employer expected when the worker was hired. This could occur either because the worker quit soon after being hired, or because the worker's performance was below expectations, prompting the employer to fire the worker. If the employment relationship ends earlier than expected, then the employer who offered a signing bonus incurs greater costs than an employer who did not offer the bonus since the bonus is paid at the outset of the employment relationship.[5] With respect to worker effort, reciprocity leads to trustworthy behaviors and leads to greater worker effort than if the bonus was not offered (Salamon and Robinson 2008).

Ultimately, a positive effect of a signing bonus offer on effort hinges on workers believing that the employer trusts them to a greater extent when they are offered a signing

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[5] To mitigate some of the risk associated with offering a signing bonus, some employers attach provisions requiring workers to repay the bonus (or a pro-rated portion) if they quit or are fired for cause before some pre-specified period of time (Uchitelle 1998; Poe 1999; WorldatWork 2009). Generally, however, workers need to be employed for only a short period of time (e.g., 6 months or 1 year) before these repayment provisions expire. Thus, if the employer expects the employment relationship to last even a modest length of time, then offering a signing bonus, even with provisions, carries at least some risk.

bonus than when they are not. Whether this occurs, however, depends on workers' attributions; the greater the degree to which workers attribute the signing bonus offer to the employer's trust in them, the more likely it is that workers believe that the employer trusts them, and the more likely it is that the signing bonus offer positively affects effort. In this study, I investigate how an important environmental factor – labor market competition – affects workers' attributions for a signing bonus offer. In the following subsection, I discuss the relevant literature on attributions, and develop hypotheses regarding the influence of labor market competition on the link between signing bonus offers and worker effort.

2.3 Workers' Attributions and Labor Market Competition

When seeking to explain the behavior of others, individuals routinely make attributions of beliefs and intentions. They rely on these attributions to determine their own beliefs and behavior (Rabin 1993; Blount 1995; Brandts and Solà 2001; Nelson 2002; McCabe et al. 2003; Falk et al. 2003, 2008; Dufwenberg and Kirchsteiger 2004; Falk and Fischbacher 2006).

I examine whether labor market competition reflected in an excess demand for labor or an excess supply of labor influences workers' attributions for a signing bonus offer. Competition is a ubiquitous feature of markets, and has a considerable impact on behavior. One notable effect of market competition is the tendency for market participants to engage in a bidding war in response to competitive pressures (Roth et al. 1991; Fehr and Falk 1999; Fischbacher et al. 2009; Brown et al., forthcoming). For example, Roth et al. (1991) study how competition affects behavior in the ultimatum

game by manipulating whether first movers compete with other first movers to have their

proposals accepted by a single second mover.[6] They find that first movers propose

divisions corresponding roughly to an equal split of a fixed amount of money when they

do not face any competition from other first movers. However, when first movers

compete with other first movers, they propose divisions that transfer nearly the entire sum

to the second mover.

When there is an excess demand for labor, employers often respond by offering

signing bonuses (Allen 1997; Uchitelle 1998; Poe 1999; Liu et al. 2004; WorldatWork

2007; Goolsby and Unmuth 2008; Miller 2008). So, workers are more likely to receive

signing bonus offers when there is excess demand than when there is excess supply.

Importantly, the increased likelihood for the bonus to be offered when there is an excess

demand for labor facilitates attributions for a signing bonus offer that also vary with labor

market competition. While workers may attribute a signing bonus offer to the employer's

trust in them regardless of labor market competition conditions, workers may also

attribute the signing bonus offer to the employer's desire to avoid getting shut out of the

market when there is an excess demand for labor (Bauernschuster et al. 2010). In

contrast, workers are unlikely to view the signing bonus offer as a response to

competitive pressures by the employer when there is an excess supply of labor.

Therefore, more attributions for the signing bonus offer are possible when there is excess

demand than when there is excess supply. The discounting principle of attribution theory

asserts that individuals are less likely to attribute others' behavior to any single cause

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[6] The ultimatum game is a two-person, sequential move game in which the first mover proposes a division
of a fixed amount of money, and the second mover decides whether to accept the first mover's proposal. If
the proposal is accepted, then each player earns a payoff corresponding to the accepted proposal. If the
proposal is rejected, then both players earn their reservation payoffs (usually zero).

when multiple plausible causes for the observed behavior exist (Heider 1958; Kelley 1973; Kelley and Michela 1980). Per the discounting principle, I posit that workers are less likely to attribute the signing bonus offer to the employer's trust in them when there is excess demand than when there is excess supply. Thus, insofar as individuals base their own beliefs and behaviors on their attributions, I expect that the positive effects of offering a signing bonus on workers' beliefs regarding the employer's trust in them as well as their effort will be muted when there is an excess demand for labor than when there is an excess supply of labor.

In summary, I predict that the effects of offering a signing bonus will depend on labor market competition.[7] The predictions are captured in the two hypotheses below (both stated in alternative form) and graphically presented in Figure 1:

H1: Offering a signing bonus more positively affects workers' beliefs regarding the employer's trust in them when there is an excess supply of labor than when there is an excess demand for labor.

H2: Offering a signing bonus more positively affects worker effort when there is an excess supply of labor than when there is an excess demand for labor.

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[7] Brandts and Charness (2004) examine the effects of labor market competition on wage offers and effort using experimental labor markets similar to those discussed earlier. They find only modest evidence of higher wage offers when there is excess demand (vs. when there is excess supply) and no differences in effort across competition conditions. However, the authors use reservation payoffs that discourage employers from bidding up wages (and in fact, discourage them from making wage offers at all). Consequently, employers do not face any competitive pressure from other employers even when there is excess demand, and workers are unlikely to make differential attributions for wage offers across labor market competition conditions. As discussed in Section 3, I address this limitation of the Brandts and Charness study by employing payoff parameters that induce competition among employers when there is an excess demand for labor.

3. Method

3.1 Overview

To test the hypotheses, I conduct experimental labor markets in which employers hire a single worker to provide effort. Participants are randomly assigned to the role of either the employer or the worker, and maintain their roles throughout the experimental session. Employers decide whether or not to offer workers a contract, and workers decide whether or not to accept contract offers made to them. Hired workers then provide effort for up to two periods. Exerting effort positively affects the employer's payoffs, but is costly to the worker. After the worker exerts effort in the first period, the employer observes the worker's effort, and then decides whether to retain the worker. Retained workers then exert effort in the second period. All interactions take place anonymously via computer. Employers' and workers' decisions affect their payoffs, which are measured in *Lira*, an experimental currency. At the end of the experiment, the *Lira* that participants earn during the experimental session is converted to U.S. dollars at a rate of 20 *Lira* per $1 and paid to participants. Participants also receive a $5 show-up payment. The steps of the experiment as well as the nature of the contracts that can be offered are discussed in greater detail in the "Procedures" subsection below.

Testing the hypotheses involves comparing the situation when the signing bonus is offered to the situation when it is not across the two labor market competition environments. To generate the necessary data, I employ a 2 x 2 fully crossed experimental design. I manipulate the first factor, labor market competition, by varying whether labor markets include two employers and one worker (excess demand) or one

employer and two workers (excess supply).[8] I also manipulate a second factor, contract choice constraint, at two levels. When contract choices are not constrained, employers choosing to offer a contract have the option to include a signing bonus in the contract offer. In contrast, when contract choices are constrained, employers choosing to offer a contract have no such option and a signing bonus cannot be offered.

Fully crossing the two factors above yields four conditions: (1) excess demand/contract choice not constrained; (2) excess supply/contract choice not constrained; (3) excess demand/contract choice constrained; and (4) excess supply/contract choice constrained. Hereafter, I refer to these conditions as the *Excess Demand*, *Excess Supply*, *Constrained Excess Demand*, and *Constrained Excess Supply* conditions, respectively. It is important to note that contract choice constraint is not a construct of interest in the current study. However, the *Constrained Excess Demand* and *Constrained Excess Supply* conditions serve as benchmarks against which the effects of offering a signing bonus on workers' trust beliefs and their effort can be compared across the two labor market competition environments. Specifically, in the hypothesis tests, I use data from hired workers in the *Excess Demand* and *Excess Supply* conditions receiving a signing bonus to reflect the situation when the bonus is offered, and use data from hired workers in the *Constrained Excess Demand* and *Constrained Excess Supply* conditions to represent the situation when the bonus is not offered.

An alternate approach for testing the hypotheses involves using data solely from the *Excess Demand* and *Excess Supply* conditions. Under this approach, I would rely on

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[8] I use three person labor markets to minimize the number of participants needed to create an observation, and not to operationalize a monopoly or monopsony labor market setting. Given the payoff parameters that I use in my experiment, I expect participants' behavior in the labor market phase of my experiment to mirror behavior in labor markets with multiple employers and workers.

observations of the two signing bonus offer scenarios (offered and not offered) across the

labor market competition environments emerging endogenously. In testing the

hypotheses, I use the former approach and not the latter. I do so for two reasons.

First, I expect all employers in the *Excess Demand* condition to respond to the

competitive pressures in the labor market by offering the bonus.[9] Second, using data

from the *Constrained Excess Demand* and *Constrained Excess Supply* conditions

constitutes a more conservative approach for testing the hypotheses. Any lack of trust

signaled by the choice to not offer a signing bonus is dependent on employers making

that choice (Blount 1995, Charness 2004, Christ 2010, Christ et al. 2010). For example,

Christ et al. (2010) conduct an experiment in which employers decide whether to impose

a control on the worker. The experiment also includes a baseline condition in which

employers cannot impose a control and no control is implemented. Christ et al. find that

the effects of no control being implemented on workers' trust beliefs are muted in the

baseline condition relative to when the employer chooses to not impose a control. This

suggests that in my setting, both workers' beliefs regarding the employer's trust and their

effort will be lower when employers choose to not offer a signing bonus (as in the *Excess

Demand* and *Excess Supply* conditions) than when the experiment imposes that no

signing bonus can be offered (as in the *Constrained Excess Demand* and *Constrained

Excess Supply* conditions).[10] Thus, the approach that I adopt makes it more difficult to

find support for the hypotheses.

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[9] I report analysis on employers' contract choices in Section 4.

[10] Consistent with this premise, beliefs regarding the employer's trust are marginally higher for hired workers in the *Constrained Excess Supply* condition than for hired workers in the *Excess Supply* condition not receiving a signing bonus ($p = 0.07$, one-tailed). Effort levels across these two sets of workers are in the expected direction, but not statistically different ($p = 0.37$, one-tailed).

3.2 Procedures

Each labor market begins with employers deciding whether to offer a contract. Employers in the *Excess Demand* and *Excess Supply* conditions choosing to offer a contract can offer one of two contracts. One contract specifies a 175 *Lira* salary to be paid at the end of each period, while the other contract specifies a 145 *Lira* salary to be paid at the end of each period and a 60 *Lira* signing bonus, which is paid at the beginning of the first period (i.e., when the worker is hired). In the *Excess Demand* condition, each of the two employers in the labor market makes a contract offer decision at the same time as the other employer without knowledge of that employer's decision. In contrast, in the *Excess Supply* condition, the employer's contract offer is a public offer in that it is presented to both workers in the labor market.[11] Employers may also choose to not offer a contract. The *Constrained Excess Demand* and *Constrained Excess Supply* conditions are identical to the *Excess Demand* and *Excess Supply* conditions except that employers in the former two conditions choosing to offer a contract can only offer the 175 *Lira* salary contract. Further, the 145 *Lira* salary and 60 *Lira* signing bonus contract is not mentioned to participants in these two conditions.

Regarding the two contracts, a few issues are worth noting. First, the total amount of compensation (over both periods) is held constant at 350 *Lira*. Thus, any evidence of a positive effect of signing bonuses on effort is not driven by employers' choices to pay workers more total compensation. Second, offering the signing bonus entails paying the worker more compensation up front (145 *Lira* salary + 60 *Lira* signing

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[11] If employers can choose which of the two workers in the labor market receives the contract offer, then a worker may attribute a signing bonus offer to the employer's trust in that particular worker ("the employer trusts *me*"), which can increase the likelihood of observing reciprocal behavior (Slonim and Garbarino 2008). Requiring the employer's contract offer to be a public offer in the *Excess Supply* and *Constrained Excess Supply* conditions makes it more difficult to find support for the hypotheses.

bonus = 205 *Lira*) than not offering the signing bonus (175 *Lira* salary). Consequently,

employers offering the signing bonus incur greater labor costs if the employment

relationship only lasts one period. Finally, to better attribute any differences in effort

across conditions to my independent variable, I employ contracts that do not include

performance-based pay.

After employers make their decisions, workers view the contract offers on the

computer screen and decide whether to accept them. In the *Excess Demand* and

Constrained Excess Demand conditions, the worker views the contract offers from both

employers simultaneously and selects one contract offer. In the *Excess Supply* and

Constrained Excess Supply conditions, the two workers in the labor market are shown the

employer's contract choice, and they simultaneously and independently decide whether

to accept the contract offer. If only one worker accepts the contract, then that worker is

hired. If both workers accept the contract offer, then one worker is randomly selected to

be hired.

Hired workers then choose an effort level for the first period. Consistent with

prior experimental research on labor markets (e.g., Fehr et al. 1993, 1998; Hannan 2005;

Kuang and Moser 2009), exerting effort entails selecting an effort level from a set of

possible effort levels. As Table 1 shows, the lowest (highest) possible effort level that

can be chosen is one (ten). Moreover, effort above the minimum level is costly for the

worker, with these costs increasing in the level of effort. Operationalizing effort as a

costly choice is consistent with prior accounting research (Hannan et al. 2008; Hecht et al.

2010; Sprinkle 2000; Tafkov 2010).[12]

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[12] Economic theory assumes that workers incur increasing marginal disutility from exerting effort. To
simplify the decisions that workers must make, I use a cost of effort function that holds marginal disutility

After the worker chooses an effort level for the first period, the employer observes the worker's effort choice and then decides whether to retain the worker. A worker who is retained then selects effort for the second period. Allowing employers to choose whether to retain the worker helps operationalize the risk associated with offering a signing bonus. Furthermore, creating an environment in which the duration of the employment relationship is endogenously determined allows me to explore whether trust exhibits any self-reinforcing properties. Related supplemental analysis is presented in Section 4.

3.3 Payoff Parameters

In all four conditions, reservation payoffs equal 0 *Lira*. So, employers earn a payoff of zero if they either do not offer a contract or if no workers accept their contract offers. Similarly, workers not accepting a contract offer or not receiving a contract offer earn 0 *Lira*. Otherwise, participants' payoffs are calculated as follows:[13]

$$\text{Employer's Payoff} = \textit{300} - \textit{Signing Bonus} - \sum_{i=1}^{2} \textit{Salary in Period}_i + \textit{60} * \sum_{i=1}^{2} \textit{Effort in Period}_i$$

$$\text{Worker's Payoff} = \textit{Signing Bonus} + \sum_{i=1}^{2} \textit{Salary in Period}_i - \sum_{i=1}^{2} \textit{Cost of Effort in Period}_i$$

Several features of the payoffs parameters are crucial. First, setting reservation payoffs to zero (instead of a positive value) decreases the likelihood that employers will

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constant. Importantly, my operationalization of effort satisfies the criteria for a measure of effort outlined by Baiman (1982): exerting effort is a choice, is costly, and is positively related to performance.

[13] I give participants a comprehensive payoff chart detailing their payoffs for all contract-effort combinations. Participants can refer to this chart throughout the experiment.

not offer contracts or that workers will not accept offered contracts; both of these scenarios make it difficult to test my hypotheses. Second, the 300 *Lira* term in the employer's payoff function eliminates any effects of loss aversion on employers' behavior. Prior research notes that individuals behave differently when losses can or will occur (e.g., Tversky and Kahneman 1991). In my setting, the possibility of losses may leave employers reluctant to offer the contract that includes the signing bonus, making it difficult to test my hypotheses. Third, similar to prior research on experimental labor markets, reciprocity leads workers to choose effort levels that generate payoffs for employers that are greater than that predicted under the assumption of preferences solely over wealth. Given the payoff parameters and the cost of effort schedule shown in Table 1, reciprocity leads workers to exert effort above the minimum level.[14]

3.4 Session Timeline

Participants were first randomly assigned to one of the four experimental conditions. Participants next read instructions and completed a short quiz to ensure understanding of the instructions, including the calculation of both employers' and workers' payoffs. Next, participants were informed of their randomly assigned roles, and interacted with each other via computer, as described above. Finally, participants completed a questionnaire designed to elicit demographic and additional process-related information and received payment.

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[14] Recent studies suggest that inequity aversion can also influence worker's effort choices (Fehr and Schmidt 1999; Bolton and Ockenfels 2000). In this study, the payoff parameters are chosen such that inequity aversion leads workers to minimal effort, allowing effort choices above the minimum level to better reflect workers' desire to honor trust.

4. Results

Participants were 201 students recruited from undergraduate business courses at a highly ranked business school in the United States. On average, participants were 20.9 years old, and 55 percent were male. Participants acting as employers (workers) earned an average of $17.86 ($12.66).

4.1 Economic Theory Predictions

Before presenting the results, I outline the behavioral predictions from economic theory, which are obtained using backward induction. In the second period, hired workers in all four conditions will always shirk, exerting minimal effort. Anticipating this, employers will always fire the worker after the first period. Thus, when determining an effort level in the first period, workers will anticipate employers' firing decision and exert the lowest possible effort. When making their contract choice, employers in the *Excess Supply* condition will expect the behavior outlined above and offer the 175 *Lira* salary contract, as doing so minimizes their labor costs. In contrast, employers in the *Excess Demand* condition will respond to the competitive pressures in the labor market by offering the 145 *Lira* salary and 60 *Lira* signing bonus contract. Finally, employers in the two constrained conditions will offer the 175 *Lira* salary contract. Note that even if workers exert minimal effort and the employment relationship lasts only one period, the employer is always better off by offering a contract and hiring the worker (155 *Lira* in the *Excess Demand* condition and 185 *Lira* in the other three conditions) than not offering a contract at all (0 *Lira*).

4.2 Employers' Contract Offer and Workers' Contract Offer Acceptance Decisions

Table 2 reports data pertaining to participants' behavior in the labor market phase of the experiment. Beginning with employers' contract offer decisions, Table 2, Panel A, shows that all employers in each of the four conditions opted to offer a contract. This is not surprising, as employers earn 0 *Lira* if they do not offer a contract. Consistent with economic theory, every employer in the *Excess Demand* condition offered the 145 *Lira* salary and 60 *Lira* signing bonus contract. Such behavior is also consistent with anecdotal evidence that employers often respond to competitive pressures by offering a signing bonus (Goolsby and Unmuth 2008; Miller 2008). In contrast, employers' contract offer decisions in the *Excess Supply* condition are inconsistent with economic theory, as 54 percent of employers in that condition offer a signing bonus.[15]

Workers' contract offer acceptance decisions are reported in Table 2, Panel B. Much like employers, all workers in each of the four conditions accepted a contract offer. Additionally, the pattern of workers' contract offer acceptance decisions mirrors that of employers' contract offer decisions.

4.3 Hypothesis 1

Hypothesis 1 predicts that offering a signing bonus more positively affects workers' beliefs regarding the employer's trust in them when there is excess supply than when there is excess demand. To test this hypothesis, I ask workers the following

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[15] Given the contract choice constraint manipulation, all employers in the *Constrained Excess Demand* and *Constrained Excess Supply* conditions offered the 175 *Lira* salary contract.

question: "To what extent do you believe that the employer trusts you?"[16] Responses to

this question are captured using a 101-point Likert scale, where 0 = "Not at all" and 100

= "A great deal." Mean responses to this question are reported in Table 3, and

graphically depicted in Figure 2. A comparison of the predicted pattern of results in

Figure 1 with the actual results for workers' trust beliefs in Figure 2 shows that the two

patterns are similar.

H1 predicts an ordinal interaction, such that the effect of offering a signing bonus

on workers' beliefs is greater when there is excess supply than when there is excess

demand. Accordingly, I test H1 using a planned contrast (Buckless and Ravenscroft

1990).[17] I use contrast weights of +3 for the *Excess Supply* condition, +1 for the *Excess

Demand* condition, and -2 for both the *Constrained Excess Demand* and *Constrained

Excess Supply* conditions. Rosnow and Rosenthal (1995) identify these as appropriate

weights for the ordinal interaction predicted by H1.[18]

As shown in Table 4, Panel A, workers' beliefs regarding the employer's trust in

them are consistent with the pattern hypothesized by H1 ($F_{1,51} = 23.90$, $p < 0.01$). Thus,

H1 is supported. Simple effect tests (untabulated) indicate that within both labor market

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[16] Since I am interested in capturing workers' beliefs in response to (not) receiving a signing bonus offer, workers answer the trust question after they learn that they have been hired. Asking this question during the course of the experiment likely raises concerns that doing so affects workers' first period effort choices. Recent studies examining this issue (Guerra and Zizzo 2004; Zizzo 2010) suggest that eliciting feelings and beliefs of being trusted by others does not influence subsequent behavior. In addition, I counterbalance whether workers answer the trust question before or after selecting an effort level. Results are unaffected by the order in which workers' responses and effort choices are elicited.

[17] I do not rely on the interaction term from the traditional ANOVA model as the primary test of the hypothesized ordinal interaction because the ANOVA model misallocates the variance attributable to the ordinal interaction between the main and interaction effects (Buckless and Ravenscroft 1990). Results from the ANOVA model are inferentially identical to those based on the planned contrast.

[18] This set of contrast weights reflects the potential for a signing bonus offer to positively affect workers' beliefs and effort even when there is excess demand. However, the absence of such effects when there is excess demand would still be consistent with H1 so long as signing bonus offers positively affect workers' beliefs when there is excess supply. Thus, I also conduct my hypothesis tests and supplemental analyses using contrast weights of +3 in the *Excess Supply* condition and -1 in the other three conditions. My inferences are identical when using this alternative set of contrast weights.

competition environments, offering a signing bonus positively affects workers' beliefs, though only marginally so when there is excess demand (excess demand: p = 0.09, one-tailed; excess supply: p < 0.01, one-tailed). Simple effects tests comparing across labor market competition environments reveal that trust beliefs are greater for workers receiving a signing bonus when there is an excess supply of labor than for those receiving a signing bonus when there is an excess demand for labor (p < 0.01, one-tailed). For workers in the two constrained conditions, trust beliefs are not statistically different (p = 0.76, two-tailed). These results suggest that offering a signing bonus positively affects workers' beliefs about being trusted by the employer, with this effect being greater when there is excess supply than when there is excess demand.

4.4 Hypothesis 2

Hypothesis 2 predicts that offering a signing bonus more positively affects worker effort when there is excess supply than when there is excess demand. To test this hypothesis, I compare workers' first period effort choices across conditions. Since H2 is concerned with workers' effort choices in response to being offered a signing bonus, I focus on first period effort choices and not effort across both periods, as second period effort choices likely reflect employers' decision to not fire the worker.[19] Mean effort levels are reported in Table 3, and graphically depicted in Figure 3. Comparing the predicted pattern of results in Figure 1 with the actual results for effort in Figure 3 shows that the two patterns are similar.

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[19] I also test H2 using effort over both periods as the dependent variable. In these tests, I measure effort in three ways: (1) replacing fired workers' missing second period effort choice with effort level 0; (2) replacing fired workers' missing second period effort choice with effort level one; and (3) using only retained workers. Results are inferentially similar to those of my main analysis for all three measures.

Similar to H1, H2 predicts an ordinal interaction, such that the effect of offering a signing bonus on effort is greater when there is an excess supply of labor than when there is an excess demand for labor (see Figure 2). Thus, I also test H2 using a planned contrast, and utilize the same set of contrast weights as those used to test H1.

Table 4, Panel B shows that the pattern of worker effort is consistent with that predicted by H2 ($F_{1, 51} = 6.91$, $p = 0.01$). Thus, H2 is supported. Simple effect tests (untabulated) indicate that when there is an excess demand for labor, offering a signing bonus does not positively affect worker effort ($p = 0.38$, one-tailed). In contrast, when there is an excess supply of labor, offering a signing bonus does positively affect worker effort ($p < 0.01$, one-tailed). Simple effects tests comparing across labor market competition environments reveal that workers receiving a signing bonus when there is an excess supply of labor exert greater effort than those receiving a signing bonus when there is an excess demand for labor ($p = 0.03$, one-tailed). For workers in the two constrained conditions, effort is not statistically different ($p = 0.68$, two-tailed).

Collectively, the results of the hypothesis tests support the notion that offering a signing bonus will more positively affect worker effort when there is an excess supply of labor than when there is an excess demand for labor. Moreover, driving this effect is the impact of signing bonus offers on the workers' beliefs regarding the employer's trust in them.

4.5 Path Analysis

To further corroborate the hypothesized interaction between signing bonus offers and labor market competition, I conduct a path analysis (using AMOS software)

estimating the links among signing bonus offers, workers' trust beliefs, and effort. The model and the results of the path analysis are presented in Figure 4. Although all links are estimated simultaneously, I employ multi-group analysis and report separate estimates of the link between offering a signing bonus and workers' trust beliefs for the two labor market competition environments. Since I do not expect the link between workers' trust beliefs and effort to be differentially affected by whether there is excess demand or excess supply, I restrict the estimate of this link to be identical across labor market competition conditions.[20]

As expected, there is a strong positive statistical association between workers' beliefs regarding the employer's trust in them and their effort (0.495, $p < 0.01$, one-tailed). Analysis of the estimates of the link between offering a signing bonus and workers' trust beliefs across labor market competition conditions is also consistent with expectations. Results of the path analysis indicate that when there is excess supply, there is a strong positive association between offering a signing bonus and workers' trust beliefs (0.729, $p < 0.01$, one-tailed). Interestingly, when there is excess demand, offering a signing bonus has no statistical association with workers' beliefs (0.225, $p = 0.12$, one-tailed).

To confirm the interaction suggested by the path analysis results for the link between offering a signing bonus and workers' beliefs across the two labor market competition conditions, I conduct a χ^2 difference test. The null hypothesis of this test is that the effects of offering a signing bonus on workers' trust beliefs does not depend on

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[20] A χ^2 test confirms the model's goodness of fit ($\chi^2_3 = 2.04$, $p = 0.56$). The model's fit is further confirmed by the χ^2/degrees of freedom (0.68), which is less than the recommended maximum of 5, the comparative fit index (1.00), which exceeds the recommended minimum of 0.95, and the root mean square effort of approximation (0.00), which is below the recommended maximum of 0.05 (Byrne 2001; Fan et al. 1999; Hu and Bentler 1999).

labor market competition (i.e., that there is no interaction); the alternative hypothesis is that there is an interaction between signing bonus offers and labor market competition.[21] Based on the results of the χ^2 difference test, I reject the null in favor of the alternative ($\chi^2_1 = 4.572$, p = 0.03). As a whole, the path analysis results corroborate the findings of my hypothesis tests; offering a signing bonus positively affects worker effort, with this effect being greater when there is excess supply than when there is excess demand. Further, driving this effect is the impact of signing bonus offers on workers' beliefs regarding the employer's trust in them; workers attribute a signing bonus offer to the employer's trust in them to a greater extent when there is an excess supply of labor than when there is an excess demand for labor.

4.6 Employer and Worker Welfare

As discussed in Section 2, trust can increase the mutual gains that can be extracted from employment and other exchange relationships, with reciprocity underlying these effects (e.g., Berg et al. 1995). To ascertain whether such effects arise in my experimental setting, I compare welfare levels in the *Excess Supply* condition to those predicted by economic theory. I focus the analysis on the *Excess Supply* condition because employers' and workers' behaviors more clearly reflect trust and reciprocity in that condition than in the other three conditions. The economic theory predictions serve

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[21] To be more specific, the χ^2 difference test is used to determine whether the model used in the multi-group path analysis fits the data better than an alternative model in which the estimate of the link between offering a signing bonus and workers' trust beliefs is restricted to be identical across the two labor market competition environments. The null hypothesis is that the two models fit the data equally well, and the alternative hypothesis is that the model used in the path analysis fits the data better than the alternative model.

as the benchmark in the analysis because they represent welfare levels absent trusting and reciprocal behaviors.

In the *Excess Supply* condition, the presence of trust and reciprocity should generate welfare levels that are greater than those predicted by economic theory. Table 5 shows that both employers' and workers' welfare are indeed greater than the economic theory predictions (employers: 424.29 *Lira* vs. 185 *Lira*, $p < 0.01$, two-tailed; workers: 252.86 vs. 175, $p < 0.01$, two-tailed). Furthermore, the combined welfare of employers and workers is significantly greater than that predicted by economic theory (677.14 *Lira* vs. 360 *Lira*, $p < 0.01$, two-tailed). Collectively, these results corroborate the findings of prior studies that trust increases the mutual gains that can be extracted from exchange relationships, such as that between employers and workers.

4.7 Self-Reinforcing Properties of Trust

In addition to increasing the mutual gains that can be extracted from exchange relationships, prior research suggests that trust exhibits self-reinforcing properties (Brown et al. 2004, forthcoming; Coletti et al. 2005; Putnam 1993). Trust encourages trustworthy behaviors by appealing to the trusted party's reciprocity. In turn, those behaviors lead to greater levels of trust and risk-taking by the trusting party, inducing even more trustworthy behaviors. Brown et al. (2004) report evidence of the interdependence between trusting and trustworthy behaviors using the experimental labor markets described in Section II. Recall that in these markets, employers offer contracts specifying a wage, and hired workers determine an effort level. Brown et al. find that when an employer offers wages above the minimum level and the hired worker responds with

effort levels generating greater returns than if the employer had offered the lowest possible wage, the employer rehires that worker and offers even higher wages. In turn, the worker responds with even greater effort. This evidence suggests that trust can facilitate the endogenous emergence of long-term employment relationships, magnifying the mutual gains that can be extracted from the employment relationship.

Brown et al.'s results suggest that the self-reinforcing properties of trust will manifest themselves in my experimental setting in employers' retention decisions, and workers' subsequent beliefs and effort choices. Specifically, the patterns of employers' retention decisions, workers' second period trust beliefs and effort should mirror the ordinal form hypothesized in H1 and H2.

Data on employers' retention decisions are presented in Table 6. Recall that I use data from the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions to represent the situation when the signing bonus is (not) offered. As shown in Panel A, at least 50% of the hired workers in each condition are retained for the second period, with the proportions ranging from 54 to 71percent. However, the results of a planned contrast suggest that employers' retention decisions do not exhibit the expected ordinal form ($\chi^2_1 = 0.24$, p $= 0.62$).

Workers' second period beliefs regarding the employer's trust in them are also inconsistent with the expected ordinal pattern. After workers learn that they were retained for the second period, workers answer the same question described earlier that I use to measure workers' beliefs in the first period.[22] Mean responses are reported in

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[22] Similar to the first period, I counterbalance whether workers answer this question before or after choosing their second period effort. Results are unaffected by the order in which workers' second period responses and effort choices are elicited.

Table 3, and graphically depicted in Figure 5. As Figure 5 shows, the pattern of workers' trust beliefs does not exhibit the expected ordinal form, and the planned contrast is not statistically significant ($F_{1, 31} = 1.12$, $p = 0.30$). A similar pattern is evident for workers' second period effort choices. Mean effort levels are presented in Table 3, and graphically depicted in Figure 6. Much like the results for employers' retention decisions and workers' second period trust beliefs, the planned contrast for workers' second period effort choices is not statistically significant ($F_{1, 31} = 0.69$, $p = 0.42$).

Taken together, the evidence above does not support the presence of the self-reinforcing characteristics of trust in my experimental setting. A possible explanation for these results involves employers' expectations of their worker's first period effort. Offering a signing bonus is a trusting action grounded in employers' positive expectations of worker effort. So, employers who offer a signing bonus likely expect higher worker effort than employers not offering the bonus. Further, to the extent that employers anticipate that workers will be less likely to attribute a signing bonus offer to the employer's trust in them when there is excess demand than when there is excess supply, the pattern of employers' effort expectations will conform to the ordinal form predicted in H1 and H2. If true, then the lack of self-reinforcing trust may arise because workers receiving a signing bonus are less likely to fulfill their employer's effort expectations when there is an excess supply of labor. Further, such effects could occur even though the signing bonus offer positively affects worker effort to a greater degree when there is excess supply.

To explore this possibility, I analyze the link between employers' expectations of workers' first period effort and workers' actual first period effort choice, and how this

relation affects employers' retention decisions. Descriptive statistics on employers' effort expectations are reported in Table 7, Panel A. Before employers learn their worker's first period effort choice, they indicate the effort level they expect the worker will select.[23] Panel A shows that on average, employers in all four conditions expect their workers to choose effort above the minimum level. More importantly, I find that employers in the *Excess Supply* condition expect much greater effort from their workers than employers in the other three conditions ($F_{3, 51} = 47.62$, $p < 0.01$).[24] This suggests that when the signing bonus is offered, employers expect a substantially larger return on their investment (i.e., the signing bonus) when there is an excess supply of labor than when there is an excess demand for labor. Indeed, given the payoff parameters in the experiment, employers in the *Excess Supply* condition expect a return on their investment nearly three times greater than that expected by employers in the *Excess Demand* condition.[25]

A comparison of employers' mean effort expectations to workers' mean first period effort choices in the first period (see Table 3) suggests that, on average, workers receiving a signing bonus are less likely to fulfill their employer's effort expectations when there is an excess supply of labor. As shown in Table 7, Panel B and confirmed by a chi-square test, this was indeed the case; the proportion of workers meeting or exceeding their employer's expectations is lower in the *Excess Supply* condition than in

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[23] These expectations were not communicated to the employer's worker.

[24] The expectations of employers in the *Excess Demand*, *Constrained Excess Demand*, and *Constrained Excess Supply* conditions did not differ from each other.

[25] This difference in effort expectations could be driven by unrealistic expectations of worker reciprocity by employers in the *Excess Supply* condition and/or by extreme discounting of worker reciprocity by employers in the *Excess Demand* condition due to competitive pressures. A comparison of employers' effort expectations to workers' first period effort choices, however, suggests that former explanation is unlikely. Employers in the *Excess Supply* condition expect an effort level of 6, on average, while workers choose an average effort level of 5.5.

the other three conditions ($\chi^2_3 = 18.51$, $p < 0.01$). Panel B also shows that a key driver of employers' retention decisions is whether their effort expectations were fulfilled. Across all four conditions, a majority of workers meeting or exceeding employers' expectations were retained for the second period ($\chi^2_3 = 6.33$, $p = 0.01$). These results suggest that the lack of evidence supporting the self-reinforcing properties of trust reported earlier stem from two countervailing forces. First, the lower propensity for workers in the *Excess Supply* condition to fulfill their employer's effort expectations decreased the likelihood that a signing bonus offer would lead to the self-reinforcing properties of trust in that condition. Second, the lower expectations of employers in the other three conditions made it much more likely that those expectations would be fulfilled, increasing the chances that interdependent trusting and trustworthy behaviors would emerge.

In sum, the results indicate that offering a signing bonus can generate benefits after the worker has joined the firm. Specifically, a signing bonus offer more positively affects worker effort when there is an excess supply of labor than when there is an excess demand for labor. Moreover, driving the effect of offering a signing bonus on effort are workers' attributions for the signing bonus offer. However, the evidence also suggests that the benefits of offering a signing bonus are short-lived due to the higher effort expectations that accompany a signing bonus offer when there is an excess supply of labor, and the lower propensity for workers in that scenario to fulfill those expectations relative to workers in the other three scenarios.

5. Conclusion

In this study, I investigate the conditions under which offering a signing bonus positively affects worker effort. I find that such an effect is greater when there is an excess supply of labor than when there is an excess demand for labor. Moreover, I find that the impact of signing bonus offers on effort flows through workers' beliefs regarding the employer's trust in them. However, I also find that the effects of signing bonus offers are short-lived due to the more positive effort expectations that accompany a signing bonus offer when there is an excess supply of labor.

By identifying the conditions under which a signing bonus offer generates benefits after the worker is hired, this study furthers understanding of pay schemes that do not fit the pay-for-performance paradigm frequently espoused by scholars and practitioners (Lambert and Larcker 1985; Yermack 2006). Relatedly, the current study also highlights the moderating effects of the contextual environment on the link between compensation contracts and worker behavior (Sen 1997; Bowles 1998; Falk et al. 2006; Kuang and Moser 2009). In addition, by providing evidence of trust serving as a mechanism by which signing bonus offers can positively affect worker effort, the current study complements extant research exploring alternate mechanisms by which a signing bonus can increase worker effort (e.g., Arya et al. 2003; Van Wesep, forthcoming).

Several limitations of the current can be address by future research. In my experiment, payback provisions could not be attached to signing bonus offers, and contracts did not include performance-based pay. Future research could examine how attaching such provisions affect workers' trust beliefs and their effort. Moreover, future studies could investigate how the choice to offer a signing bonus affects the decision to

include incentive pay as well as the weight placed on performance measures. Finally, future research could explore the effects of information asymmetry on the signing bonus-effort relationship. Employers often have better information about a worker's standing relative to other workers in the labor market. When a signing bonus is offered, workers may attribute the offer to the employer's information, and view themselves to be of high relative standing. Research suggests that these attributions will positively affect the worker's intrinsic motivation, leading to an even greater effect of a signing bonus offer on worker effort (Rosenfeld et al. 1980; Sansone 1986). Future research could investigate this signaling role of signing bonus offers.

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Figure 1
Predicted Effects of Offering a Signing Bonus and Labor Market Competition on
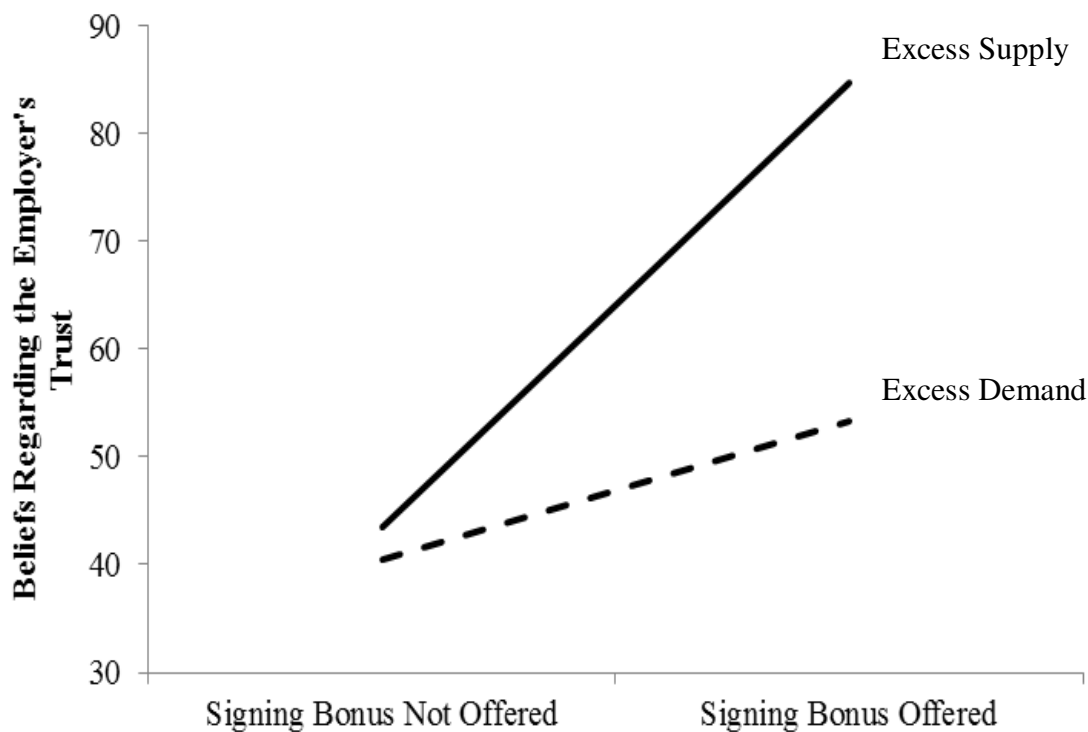**Workers' Beliefs Regarding the Employer's Trust in Them (H1) and Effort (H2)**
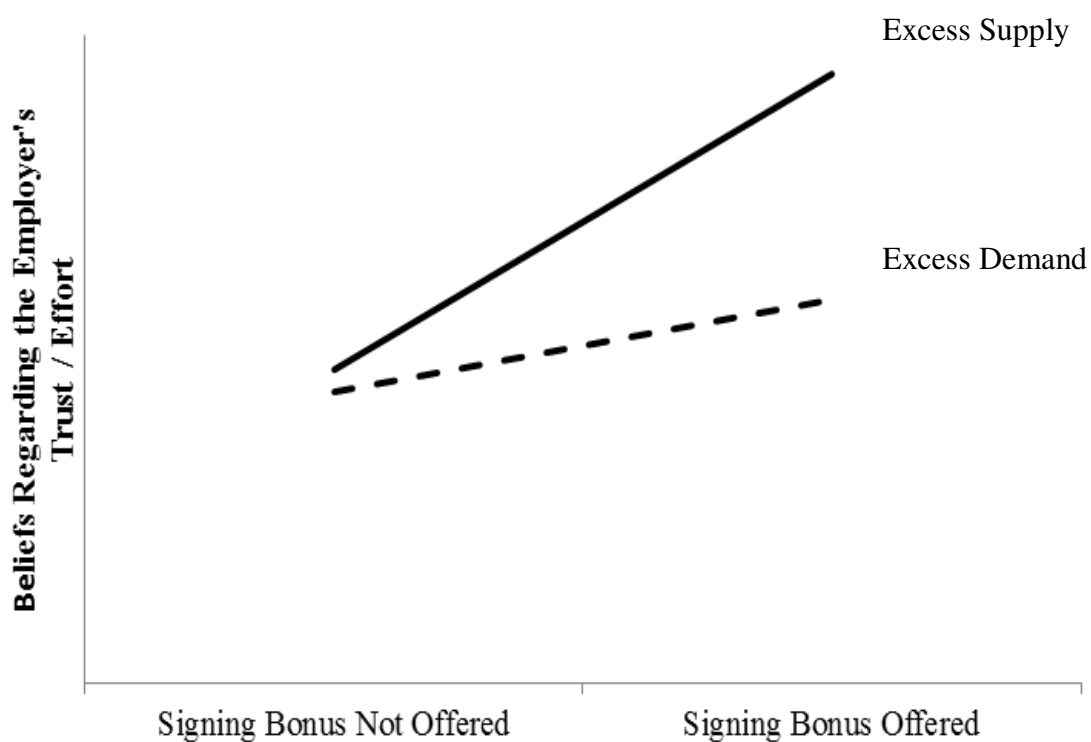
This figure depicts the hypothesized pattern of workers' beliefs regarding the employer's trust in them and worker effort.

Per Hypothesis 1, the effect of offering a signing bonus on workers' beliefs regarding the employer's trust in them is greater when there is an excess supply of labor than when there is an excess demand for labor.

Per Hypothesis 2, the effect of offering a signing bonus on worker effort is greater when there is an excess supply of labor than when there is an excess demand for labor.

Figure 2
Effects of Offering a Signing Bonus[a] and Labor Market Competition[b] on Workers' First Period Trust Beliefs[c] (H1)


[a] Signing bonus is measured at two levels, offered and not offered. Data reflecting the situation in which the signing bonus is (not) offered comes from the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[b] Labor market competition is manipulated as a between-subjects factor at two levels, excess demand and excess supply. Labor markets characterized by excess demand (excess supply) consist of 2 employers (1 employer) and 1 worker (2 workers).

[c] Trust is measured using hired workers' responses to the following question: "To what extent do you believe that the employer trusts you?" Responses to this question are captured using a 101-point Likert scale, where 0 = "Not at all" and 100 = "A great deal." Hired workers answer this question after being hired, either before or after choosing their first period effort (counterbalanced in each condition).

Figure 3
Effects of Offering a Signing Bonus[a] and Labor Market Competition[b] on Workers' First Period Effort[c] (H2)
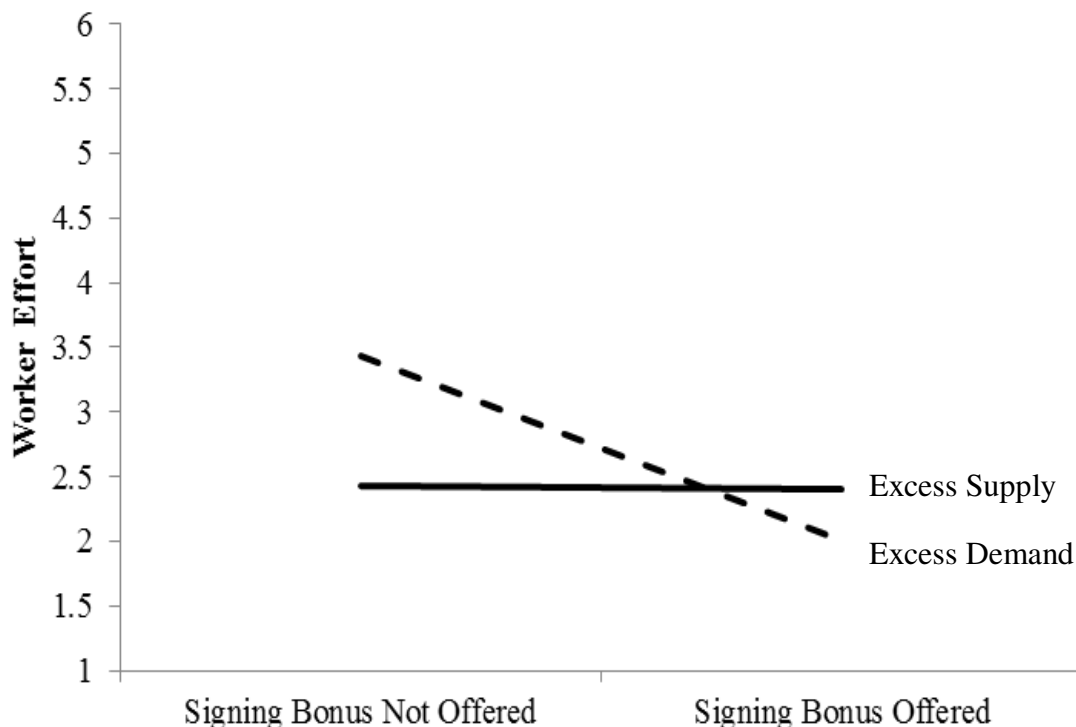

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[a] Signing bonus is measured at two levels, offered and not offered. Data reflecting the situation in which the signing bonus is (not) offered comes from the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[b] Labor market competition is manipulated as a between-subjects factor at two levels, excess demand and excess supply. Labor markets characterized by excess demand (excess supply) consist of 2 employers (1 employer) and 1 worker (2 workers).

[c] Effort captures hired workers' selected effort level from a set of possible effort levels. The lowest possible effort level is 1, and the highest possible effort level is 10. Effort above the minimum level is costly for the worker, with these costs increasing in the level of effort chosen (see Table 1).

Figure 4
Path Analysis Results of Estimated Links Among Theoretical Constructs
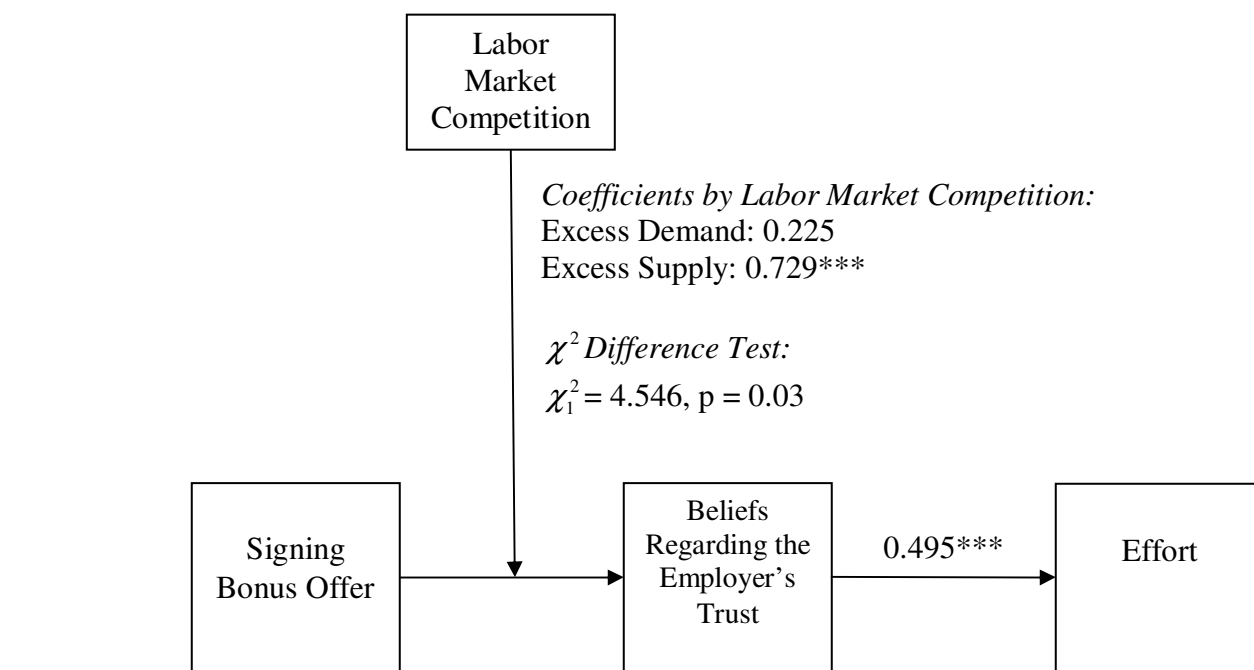
This figure reports the results of a multi-group path analysis estimating the links among signing bonus offers, workers' beliefs regarding the employer's trust in them, and effort. The standardized path coefficients and corresponding one-tailed significance are shown for each path. Goodness of fit is evaluated with a χ^2 test ($\chi^2 = 2.04$, p = 0.56), and confirmed with three other goodness-of-fit measures: the χ^2/degrees of freedom (χ^2/df = 0.68; values < 5 are considered adequate fit), the comparative fit index (CFI = 1.00; values > 0.95 are considered adequate fit), and the root mean error of approximation (RMSEA = 0.00; values < 0.05 are considered adequate fit).

*** indicates significance at a level of 0.01 (one-tailed).

Figure 5
Effects of Offering a Signing Bonus[a] and Labor Market Competition[b] on
Workers' Second Period Trust Beliefs[c]

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[a] Signing bonus is measured at two levels, offered and not offered. Data reflecting the situation in which the signing bonus is (not) offered comes from the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[b] Labor market competition is manipulated as a between-subjects factor at two levels, excess demand and excess supply. Labor markets characterized by excess demand (excess supply) consist of 2 employers (1 employer) and 1 worker (2 workers).

[c] Trust is measured using hired workers' responses to the following question: "To what extent do you believe that the employer trusts you?" Responses to this question are captured using a 101-point Likert scale, where 0 = "Not at all" and 100 = "A great deal." Hired workers answer this question after being hired, either before or after choosing their second period effort (counterbalanced in each condition).

Figure 6
Effects of Offering a Signing Bonus[a] and Labor Market Competition[b] on Workers' Second Period Effort[c]

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[a] Signing bonus is measured at two levels, offered and not offered. Data reflecting the situation in which the signing bonus is (not) offered comes from the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[b] Labor market competition is manipulated as a between-subjects factor at two levels, excess demand and excess supply. Labor markets characterized by excess demand (excess supply) consist of 2 employers (1 employer) and 1 worker (2 workers).

[c] Effort captures hired workers' selected effort level from a set of possible effort levels. The lowest possible effort level is 1, and the highest possible effort level is 10. Effort above the minimum level is costly for the worker, with these costs increasing in the level of effort chosen (see Table 1).

Table 1
Cost of Effort Schedule

Effort Level	1	2	3	4	5	6	7	8	9	10
Cost of Effort (in *Lira*)	0	10	20	30	40	50	60	70	80	90

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This table presents the set of possible effort levels and the associated costs of effort. In each work period, workers select an effort level, and the corresponding cost of effort is deducted from the workers' payoffs. The level of effort chosen by the worker is multiplied by 60 *Lira* and transferred to the worker's employer (e.g., an effort level of 1 generates payoffs of 60 x 1 = 60 *Lira* for the employer, an effort level of 2 generates payoffs of 60 x 2 = 120 *Lira* for the employer, etc.).

Table 2
Employers' Contract Offer and Workers' Contract Acceptance Decisions

Panel A: Employers' Contract Offer Choices

Condition	Total # of Labor Markets	Total # of Employers	# of Employers Offering Contracts (% of Total)	# of Employers Offering 175 *Lira* Salary Contract (% of Employers Offering Contracts)	# of Employers Offering 145 *Lira* Salary and 60 *Lira* Signing Bonus Contract (% of Employers Offering Contracts)
Excess Demand[a]	15	30	30 (100%)	0 (0%)	30 (100%)
Excess Supply[b]	26	26	26 (100%)	12 (46%)	14 (54%)
Constrained Excess Demand[c]	13	26	26 (100%)	26 (100%)	0 (0%)
Constrained Excess Supply[d]	13	13	13 (100%)	13 (100%)	0 (0%)

Panel B: Workers' Contract Offer Acceptance Decisions

Condition	Total # of Labor Markets	Total # of Workers	# of Workers Accepting Contract Offers (% of total)	# of Workers Accepting 175 *Lira* Salary Contract (% of Workers Accepting Contracts)	# of Workers Accepting 145 *Lira* Salary and 60 *Lira* Signing Bonus Contract (% of Workers Accepting Contracts)
Excess Demand[a]	15	15	15 (100%)	0 (%)	15 (100%)
Excess Supply[b]	26	52	52 (100%)	24 (46%)	28 (54%)
Constrained Excess Demand[c]	13	13	13 (100%)	13 (100%)	0 (0%)
Constrained Excess Supply[d]	13	26	26 (100%)	26 (100%)	0 (0%)

Table 2 (Continued)

[a] In the *Excess Demand* condition, each labor market consists of 2 employers and 1 worker. Employers can choose to offer the worker either a contract specifying a 175 *Lira* salary to be paid at the end of each work period or a contract specifying a 145 *Lira* salary and a 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. Employers make their contract offer decisions simultaneously and independently of each other. The worker views the contract offers from both employers simultaneously and selects one contract offer. Workers may also choose to not accept any contract offers.

[b] In the *Excess Supply* condition, each labor market consists of 1 employer and 2 workers. Employers can choose to offer the workers either a contract specifying a 175 *Lira* salary to be paid at the end of each work period or a contract specifying a 145 *Lira* salary to be paid at the end of each work period and a 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. In each labor market, the employer's contract offer is a "public" offer; the employer's contract offer is presented to both workers in the labor market. Employers can also choose to not offer a contract. In each labor market, the two workers are shown the employer's contract offer, and they simultaneously and independently decide whether to accept the contract offer. If only one worker accepts the contract, then that worker is hired. If both workers accept the contact offer, then one worker is randomly selected to be hired. Workers may also choose to not accept any contract offers.

[c] The *Constrained Excess Demand* condition is identical to the *Excess Demand* condition, except that employers choosing to offer a contract can only offer the 175 *Lira* salary contract.

[d] The *Constrained Excess Supply* condition is identical to the *Excess Supply* condition, except that employers choosing to offer a contract can only offer the 175 *Lira* salary contract.

Table 3
Descriptive Statistics
Mean (Standard Deviation) [n]

Experimental Condition[a]	Theory-Level Scenario Represented by Experimental Condition[b]	First Period Trust[c]	First Period Effort[d]	Second Period Trust[c]	Second Period Effort[d]
Excess Demand	Signing Bonus Offered - Excess Demand	53.27 (29.14) [15]	4.07 (2.09) [15]	60.22 (30.39) [9]	2.00 (2.35) [9]
Excess Supply	Signing Bonus Offered - Excess Supply	84.79 (12.83) [14]	5.50 (1.74) [14]	66.80 (16.57) [10]	2.40 (1.59) [10]
Constrained Excess Demand	Signing Bonus Not Offered - Excess Demand	40.54 (27.89) [13]	3.85 (2.27) [13]	58.11 (31.01) [9]	3.44 (2.83) [9]
Constrained Excess Supply	Signing Bonus Not Offered - Excess Supply	43.54 (25.76) [13]	3.54 (1.45) [13]	52.14 (27.21) [7]	2.43 (1.51) [7]

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Table 3 (Continued)

[a] In the *Excess Demand* condition, labor markets consist of 2 employers and 1 worker. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. Employers make their contract offer decisions simultaneously and independently of each other. The worker views the contract offers from both employers simultaneously and selects one contract offer. Workers may also choose to not accept any contract offers. In the *Excess Supply* condition, labor markets consist of 1 employer and 2 workers. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. In each labor market, the employer's contract offer is a "public" offer; the employer's contract offer is presented to both workers in the labor market. Employers can also choose to not offer a contract. In each labor market, the two workers are shown the employer's contract offer, and they simultaneously and independently decide whether to accept the contract offer. If only one worker accepts the contract, then that worker is hired. If both workers accept the contact offer, then one worker is randomly selected to be hired. Workers may also choose to not accept any contract offers. The *Constrained Excess Demand* (*Constrained Excess Supply*) condition is identical to the *Excess Demand* (*Excess Supply*) condition, except that employers can only offer the 175 *Lira* salary contract.

[b] To capture the situation when the signing bonus is (not) offered across the two labor market competition environments, I use data from hired workers accepting the 145 *Lira* salary and 60 *Lira* signing bonus (175 *Lira* salary) contract in the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[c] Trust is measured using hired workers' responses to the following question: "To what extent do you believe that the employer trusts you?" Responses to this question are captured using a 101-point Likert scale, where 0 = "Not at all" and 100 = "A great deal." Hired workers answer this question after being hired, either before or after choosing their first period effort (counterbalanced in each condition).

[d] Effort captures hired workers' selected effort level from a set of possible effort levels. The lowest possible effort level is 1, and the highest possible effort level is 10. Effort above the minimum level is costly for the worker, with these costs increasing in the level of effort chosen (see Table 1).

Table 4
Planned Contrast Results

Panel A: Hypothesis 1 – First Period Trust

Source of Variation	df	MS	F	P-Value (Two-Tailed)
Model Contrast[a]	1	14,681.67	23.90	<0.01
Error	51	614.23		

Panel B: Hypothesis 2 – First Period Effort

Source of Variation	df	MS	F	P-Value (Two-Tailed)
Model Contrast[a]	1	25.37	6.91	0.01
Error	51	3.67		

Panel C: Second Period Trust

Source of Variation	df	MS	F	P-Value (Two-Tailed)
Model Contrast[a]	1	793.87	1.12	0.30
Error	31	709.51		

Panel D: Second Period Effort

Source of Variation	df	MS	F	P-Value (Two-Tailed)
Model Contrast[a]	1	3.20	0.69	0.42
Error	31	4.66		

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[a] Contrast coefficients are -2 for both the *Constrained Excess Demand* and *Constrained Excess Supply* conditions, +1 for the *Excess Demand* condition, and +3 for the *Excess Supply* condition.

Table 5
Employers' and Workers' Welfare

Experimental Condition[a]	Theory-Level Scenario Represented by Experimental Condition[b]	Mean (Standard Deviation)			Economic Theory Prediction		
		Worker Welfare[c]	Employer Welfare[c]	Total Welfare[c]	Worker Welfare[c]	Employer Welfare[c]	Total Welfare[c]
Excess Demand	Signing Bonus Offered - Excess Demand	255.33*** (72.81)	324.00*** (196.11)	579.33*** (178.74)	205	155	360
Excess Supply	Signing Bonus Offered - Excess Supply	252.86*** (72.90)	424.29*** (147.03)	677.14*** (117.11)	175	185	360
Constrained Excess Demand	Signing Bonus Not Offered - Excess Demand	205.77*** (78.63)	377.69*** (257.19)	628.46*** (240.48)	175	185	360
Constrained Excess Supply	Signing Bonus Not Offered - Excess Supply	249.09*** (74.32)	361.64*** (186.29)	610.73*** (174.93)	175	185	360

Table 5 (Continued)

[a] In the *Excess Demand* condition, labor markets consist of 2 employers and 1 worker. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. Employers make their contract offer decisions simultaneously and independently of each other. The worker views the contract offers from both employers simultaneously and selects one contract offer. Workers may also choose to not accept any contract offers. In the *Excess Supply* condition, labor markets consist of 1 employer and 2 workers. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. In each labor market, the employer's contract offer is a "public" offer; the employer's contract offer is presented to both workers in the labor market. Employers can also choose to not offer a contract. In each labor market, the two workers are shown the employer's contract offer, and they simultaneously and independently decide whether to accept the contract offer. If only one worker accepts the contract, then that worker is hired. If both workers accept the contact offer, then one worker is randomly selected to be hired. Workers may also choose to not accept any contract offers. The *Constrained Excess Demand* (*Constrained Excess Supply*) condition is identical to the *Excess Demand* (*Excess Supply*) condition, except that employers can only offer the 175 *Lira* salary contract.

[b] To capture the situation when the signing bonus is (not) offered across the two labor market competition environments, I use data from hired workers accepting the 145 *Lira* salary and 60 *Lira* signing bonus (175 *Lira* salary) contract in the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[c] Welfare is reported only for hired workers and their employers, and is calculated as follows:

$$\text{Employer Welfare} = 300 - \text{Signing Bonus} - \sum_{i=1}^{2} \text{Salary in Period}_i + 60 * \sum_{i=1}^{2} \text{Effort in Period}_i$$

$$\text{Worker Welfare} = \text{Signing Bonus} + \sum_{i=1}^{2} \text{Salary in Period}_i - \sum_{i=1}^{2} \text{Cost of Effort in Period}_i$$

Total Welfare = Employer Welfare + Worker Welfare

*** indicates means are significantly different from economic theory prediction at a level of 0.01 (two-tailed).

Table 6
Employers' Retention Decisions

Panel A: Descriptive Statistics

Experimental Condition[a]	Theory-Level Scenario Represented by Experimental Condition[b]	# of Employment Relationships Initiated	# of Workers Retained for Second Period (% of Initiated)
Excess Demand	Signing Bonus Offered - Excess Demand	15	9 (60%)
Excess Supply	Signing Bonus Offered - Excess Supply	14	10 (71%)
Constrained Excess Demand	Signing Bonus Not Offered - Excess Demand	13	9 (69%)
Constrained Excess Supply	Signing Bonus Not Offered - Excess Supply	13	7 (54%)

Panel B: Planned Contrast

Source of Variation	df	MS	χ^2	P-Value (Two-Tailed)
Model Contrast[c]	1	0.06	0.24	0.62
Error	51	0.24		

Table 6 (Continued)

[a] In the *Excess Demand* condition, labor markets consist of 2 employers and 1 worker. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. Employers make their contract offer decisions simultaneously and independently of each other. The worker views the contract offers from both employers simultaneously and selects one contract offer. Workers may also choose to not accept any contract offers. In the *Excess Supply* condition, labor markets consist of 1 employer and 2 workers. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. In each labor market, the employer's contract offer is a "public" offer; the employer's contract offer is presented to both workers in the labor market. Employers can also choose to not offer a contract. In each labor market, the two workers are shown the employer's contract offer, and they simultaneously and independently decide whether to accept the contract offer. If only one worker accepts the contract, then that worker is hired. If both workers accept the contact offer, then one worker is randomly selected to be hired. Workers may also choose to not accept any contract offers. The *Constrained Excess Demand* (*Constrained Excess Supply*) condition is identical to the *Excess Demand* (*Excess Supply*) condition, except that employers can only offer the 175 *Lira* salary contract.

[b] To capture the situation when the signing bonus is (not) offered across the two labor market competition environments, I use data from hired workers accepting the 145 *Lira* salary and 60 *Lira* signing bonus (175 *Lira* salary) contract in the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

[c] Contrast coefficients are -2 for both the *Constrained Excess Demand* and *Constrained Excess Supply* conditions, +1 for the *Excess Demand* condition, and +3 for the *Excess Supply* condition.

Table 7
Employers' First Period Effort Expectations

Panel A: Descriptive Statistics – Mean (Standard Deviation)

Experimental Condition[a]	Theory-Level Scenario Represented by Experimental Condition[b]	Mean (Standard Deviation)
Excess Demand	Signing Bonus Offered - Excess Demand	2.53 (1.46)***
Excess Supply	Signing Bonus Offered - Excess Supply	6.00 (1.62)***
Constrained Excess Demand	Signing Bonus Not Offered - Excess Demand	2.38 (1.39)***
Constrained Excess Supply	Signing Bonus Not Offered - Excess Supply	2.62 (2.02)***

Panel B: Fulfilling Employers' Expectations and Employers' Retention Decisions

Experimental Condition[a]	Theory-Level Scenario Represented by Experimental Condition[b]	% of Workers Fulfilling Employer's Effort Expectations	% of Workers Retained (Conditional on Fulfilling Employer's Effort Expectations)
Excess Demand	Signing Bonus Offered - Excess Demand	87%	69%
Excess Supply	Signing Bonus Offered - Excess Supply	50%	86%
Constrained Excess Demand	Signing Bonus Not Offered - Excess Demand	85%	73%
Constrained Excess Supply	Signing Bonus Not Offered - Excess Supply	77%	70%

Table 7 (Continued)

[a] In the *Excess Demand* condition, labor markets consist of 2 employers and 1 worker. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. Employers make their contract offer decisions simultaneously and independently of each other. The worker views the contract offers from both employers simultaneously and selects one contract offer. Workers may also choose to not accept any contract offers. In the *Excess Supply* condition, labor markets consist of 1 employer and 2 workers. Employers can offer a contract specifying either a 175 *Lira* salary or a 145 *Lira* salary and an upfront 60 *Lira* signing bonus, which is paid at the beginning of the first work period (i.e., when the worker is hired). Employers can also choose to not offer a contract. In each labor market, the employer's contract offer is a "public" offer; the employer's contract offer is presented to both workers in the labor market. Employers can also choose to not offer a contract. In each labor market, the two workers are shown the employer's contract offer, and they simultaneously and independently decide whether to accept the contract offer. If only one worker accepts the contract, then that worker is hired. If both workers accept the contact offer, then one worker is randomly selected to be hired. Workers may also choose to not accept any contract offers. The *Constrained Excess Demand* (*Constrained Excess Supply*) condition is identical to the *Excess Demand* (*Excess Supply*) condition, except that employers can only offer the 175 *Lira* salary contract.

[b] To capture the situation when the signing bonus is (not) offered across the two labor market competition environments, I use data from hired workers accepting the 145 *Lira* salary and 60 *Lira* signing bonus (175 *Lira* salary) contract in the (*Constrained*) *Excess Demand* and (*Constrained*) *Excess Supply* conditions.

*** indicates means are significantly different from zero at a level of 0.01 (two-tailed).

APPENDIX

INSTRUCTIONS

Note: Please raise your hand when you are finished reading. The administrator will give you a short quiz to check your understanding of the instructions.

GENERAL

Thank you for choosing to participate in this decision-making study!

Please read these instructions carefully. You will need to understand these instructions in order to make money today. Also, you will be required to complete a quiz to demonstrate that you understand these instructions. You will not be able to continue until you accurately complete the quiz, so please pay close attention.

During today's session, you will have the opportunity to earn compensation, which is affected by decisions made by you and other participants in today's session. You will earn compensation in an experimental currency called *Lira*. At the conclusion of today's session, the *Lira* you have earned will be converted to dollars at a rate of 20 *Lira* per $1. You will also be paid an additional $5 for participating in this study. The resulting amount will be paid to you in cash.

Please do not talk with other participants during the session. If you have a question, you may raise your hand, and the administrator will answer the question privately.

Today's session will take approximately 60 minutes, during which time you will be making decisions and answering questions.

OVERVIEW

This decision-making study involves a setting in which employers hire workers to make production decisions, and consists of two stages:

⇒ In the <u>labor market stage</u>, employers can make job offers to workers, and workers can choose whether to accept those offers. Included in a job offer is an employment contract specifying what the employer will pay the worker to make production decisions.

⇒ In the <u>employment stage</u>, hired workers make production decisions for their employer for at least one work period, and for up to two work periods. Whether the second work period takes place will depend on the employer. That is, after the first work period, the employer decides whether to employ the worker for the second work period.

You will assume the role of either an employer or a worker, and will remain in the same role throughout the entire session. You will learn which role you will assume after you read the instructions and complete the quiz. You will not be told which role other participants in today's session will assume either during or after the study.

The following instructions will describe in detail the decisions made by employers and workers. All decisions will be made using the computer. Since you do not yet know which role you will assume, it is important for you to pay close attention to information pertaining to both roles. Further, the quiz that follows these instructions will test your understanding of the instructions pertaining to both employers and workers.

LABOR MARKET STAGE (*Excess Demand condition only*)

Today's session will begin with employers and workers interacting with each other in a three-person labor market. In the labor market, employers can make job offers to workers, and workers can choose whether to accept those offers.

The labor market consists of 2 employers and 1 worker. To form the labor market, the computer will randomly match 2 employers and 1 worker. The matching is anonymous. You will not be told who you are matched with either during or after the study.

The labor market begins with each of the two employers deciding whether to offer a job to the worker. Employers will make this decision independently of each other.

A job offer includes an employment contract specifying what the employer will pay the worker to make productions decisions. **Employers can choose one of the following two employment contract options:**

Employment Contract Option #1:   The employer will pay the worker a salary of 175 *Lira* in each work period.

Employment Contract Option #2:   The employer will pay the worker a salary of 145 *Lira* in each work period and a signing bonus of 60 *Lira*.

The salary is paid at the end of each work period. The signing bonus, if offered, is one-time compensation paid at the beginning of the first work period (Work Period #1).

After both employers make their job offer decisions, the worker will view any job offers that have been made, and decide whether to accept. The worker will view both employers' job offer decisions at the same time. If the worker accepts an employer's job offer, then the worker has been hired by that employer. Both employers will learn the worker's decision after it has been made.

Note: The worker can accept at most one (1) job offer. So, if both employers offer a job to the worker, then the worker cannot accept both job offers.

LABOR MARKET STAGE (*Excess Supply condition only*)

Today's session will begin with employers and workers interacting with each other in a three-person labor market. In the labor market, employers can make job offers to workers, and workers can choose whether to accept those offers.

The labor market consists of 1 employer and 2 workers. To form the labor market, the computer will randomly match 1 employer and 2 workers. The matching is anonymous. You will not be told who you are matched with either during or after the study.

The labor market begins with the employer deciding whether to offer a job to the workers.

A job offer includes an employment contract specifying what the employer will pay the worker to make productions decisions. **The employer can choose one of the following two employment contract options:**

Employment Contract Option #1:   The employer will pay the worker a salary of 175 *Lira* in each work period.

   Employment Contract Option #2:   The employer will pay the worker a salary of 145 *Lira* in each work period and a signing bonus of 60 *Lira*.

The salary is paid at the end of each work period. The signing bonus, if offered, is one-time compensation paid at the beginning of the first work period (Work Period #1).

After the employer makes a job offer decision, the workers will view any job offer that has been made, and decide whether to accept. Workers will make this decision independently of each other. If the employer makes a job offer and only one worker accepts, then that worker has been hired by the employer. If the employer makes a job offer and both workers accept, then one worker will be randomly chosen by the computer to be hired by the employer. After all labor market decisions have been made, the employer and both workers will learn which worker, if any, has been hired.

Note: The employer can hire at most one (1) worker. That is, the employer cannot hire both workers in the labor market.

LABOR MARKET STAGE (*Constrained Excess Demand condition only*)

Today's session will begin with employers and workers interacting with each other in a three-person labor market. In the labor market, employers can make job offers to workers, and workers can choose whether to accept those offers.

The labor market consists of 2 employers and 1 worker. To form the labor market, the computer will randomly match 2 employers and 1 worker. The matching is anonymous. You will not be told who you are matched with either during or after the study.

The labor market begins with each of the two employers deciding whether to offer a job to the worker. Employers will make this decision independently of each other.

A job offer includes an employment contract specifying what the employer will pay the worker to make productions decisions. **The following employment contract is included in a job offer:**

Employment Contract: The employer will pay the worker a salary of 175 *Lira* in
each work period.

After both employers make their job offer decisions, the worker will view any job offers that have been made, and decide whether to accept. The worker will view both employers' job offer decisions at the same time. If the worker accepts an employer's job offer, then the worker has been hired by that employer. Both employers will learn the worker's decision after it has been made.

Note: The worker can accept at most one (1) job offer. So, if both employers offer a job to the worker, then the worker cannot accept both job offers.

LABOR MARKET STAGE (*Constrained Excess Supply condition only*)

Today's session will begin with employers and workers interacting with each other in a three-person labor market. In the labor market, employers can make job offers to workers, and workers can choose whether to accept those offers.

The labor market consists of 1 employer and 2 workers. To form the labor market, the computer will randomly match 1 employer and 2 workers. The matching is anonymous. You will not be told who you are matched with either during or after the study.

The labor market begins with the employer deciding whether to offer a job to the workers.

A job offer includes an employment contract specifying what the employer will pay the worker to make productions decisions. **The following employment contract is included in a job offer:**

Employment Contract: The employer will pay the worker a salary of 175 *Lira* in each work period.

After the employer makes a job offer decision, the workers will view any job offer that has been made, and decide whether to accept. Workers will make this decision independently of each other. If the employer makes a job offer and only one worker accepts, then that worker has been hired by the employer. If the employer makes a job offer and both workers accept, then one worker will be randomly chosen by the computer to be hired by the employer. After all labor market decisions have been made, the employer and both workers will learn which worker, if any, has been hired.

Note: The employer can hire at most one (1) worker. That is, the employer cannot hire both workers in the labor market.

EMPLOYMENT STAGE – WORK PERIOD #1

Upon accepting a job offer, the hired worker then proceeds to Work Period #1. In this work period, the worker makes a production decision for a single product, *Product Q*. That is, the worker decides how many units of *Product Q* to produce. To make a production decision, the worker chooses a number between 1 and 10.

Note: 1 is the smallest number of units of *Product Q* that can be produced, 2 is a slightly larger number of units that can be produced, and so on up to 10, the largest number of units that can be produced.

Each unit of *Product Q* that is produced generates revenues of 60 *Lira* for the employer. At the end of the work period, the employer receives any revenues that are generated in the work period. The larger the number of units produced, the greater the revenues generated and received by the employer.

For example, if the worker produces 6 units of *Product Q*, then the employer receives revenues of 60 x 6 = 360 *Lira* at the end of that work period. If the worker produces 8 units of *Product Q*, then the employer receives revenues of 60 x 8 = 480 *Lira* at the end of that work period.

The production of *Product Q* also generates production costs. At the end of the work period, the worker incurs any production costs that are generated in the work period. The larger the number of units produced, the greater the production costs generated and incurred by the worker. The chart below shows the level of production costs corresponding to each level of production:

Number of Units Produced	1	2	3	4	5	6	7	8	9	10
Production Costs (in Lira)	0	10	20	30	40	50	60	70	80	90

For example, if the worker produces 6 units of *Product Q*, then the worker incurs production costs of 50 *Lira* at the end of that work period. If the worker produces 8 units of *Product Q*, then the worker incurs production costs of 70 *Lira* at the end of that work period.

Work Period #1 ends after the worker makes a production decision for that period.

EMPLOYMENT STAGE – CONTINUING EMPLOYMENT & WORK PERIOD #2 (*Excess Demand and Excess Supply conditions only*)

At the end of Work Period #1, the worker's employer will learn the worker's production decision, and will decide whether or not to employ the worker for Work Period #2. The worker will learn the employer's decision after it has been made.

If the employer decides to not employ the worker for Work Period #2, then the employment contract is canceled. The worker does not make a production decision for Work Period #2, and no additional revenues or production costs are generated. The worker is not paid a salary for Work Period #2. However, the worker keeps the net amount of compensation (that is, the signing bonus and/or salary less production costs) earned as of the end of Work Period #1.

If the employer decides to employ the worker for Work Period #2, then the worker proceeds to Work Period #2. The second work period is identical to Work Period #1:

- The worker decides how many units of *Product Q* to produce by choosing a number between 1 and 10. Just like Work Period #1, the smallest number of units that can be produced is 1, and the largest number of units that can be produced is 10.

- Each unit of *Product Q* that is produced generates revenues of 60 *Lira* for the employer. At the end of the work period, the employer receives any revenues that are generated in the work period.

- The production of *Product Q* also generates productions costs. At the end of the work period, the worker incurs any production costs that are generated in the work period (see the chart on the previous page for the level of production costs corresponding to each level of production).

Work Period #2 ends after the worker makes a production decision for that period.

EMPLOYMENT STAGE – CONTINUING EMPLOYMENT & WORK PERIOD
#2 (*Constrained Excess Demand and Constrained Excess Supply conditions only*)

At the end of Work Period #1, the worker's employer will learn the worker's production decision, and will decide whether or not to employ the worker for Work Period #2. The worker will learn the employer's decision after it has been made.

<u>If the employer decides to not employ the worker for Work Period #2, then the employment contract is canceled.</u> The worker does not make a production decision for Work Period #2, and no additional revenues or production costs are generated. The worker is not paid a salary for Work Period #2. However, the worker keeps the net amount of compensation (that is, the salary less production costs) earned as of the end of Work Period #1.

<u>If the employer decides to employ the worker for Work Period #2, then the worker proceeds to Work Period #2.</u> The second work period is identical to Work Period #1:

- The worker decides how many units of *Product Q* to produce by choosing a number between 1 and 10. Just like Work Period #1, the smallest number of units that can be produced is 1, and the largest number of units that can be produced is 10.

- Each unit of *Product Q* that is produced generates revenues of 60 *Lira* for the employer. At the end of the work period, the employer receives any revenues that are generated in the work period.

- The production of *Product Q* also generates productions costs. At the end of the work period, the worker incurs any production costs that are generated in the work period (see the chart on the previous page for the level of production costs corresponding to each level of production).

Work Period #2 ends after the worker makes a production decision for that period.

COMPENSATION (*Excess Demand and Excess Supply conditions only*)

If you assume the role of **employer**, your compensation will be 0 *Lira* if <u>either</u> of the following is true:

> 1. You do not make a job offer during the labor market stage.
>
> 2. You make a job offer during the labor market stage, but it is not accepted.

<u>Otherwise, your compensation will be calculated using the following formula:</u>

> **300 *Lira* Base Compensation**
> **– Signing Bonus**
> **– Work Period #1 Salary**
> **+ Work Period #1 Revenues**
> **– Work Period #2 Salary**
> **+ <u>Work Period #2 Revenues</u>**
> **= Employer's Compensation**

<u>The 300 *Lira* Base Compensation included in the formula above is one-time compensation paid at the beginning of Work Period #1.</u>

If the employer decides to not employ the worker for Work Period #2, then the employer does not pay the worker a salary for Work Period #2, and does not receive any revenues for Work Period #2. However, the employer keeps the net amount of compensation (that is, the Base Compensation and revenues less the signing bonus and/or salary) earned as of the end of Work Period #1.

If you assume the role of **worker**, your compensation will be 0 *Lira* if <u>either</u> of the following is true:

1. You do not receive any job offers during the labor market stage.

2. You do not accept any job offers that are made during the labor market stage.

<u>Otherwise, your compensation will be calculated using the following formula:</u>

> **Signing Bonus**
> **+ Work Period #1 Salary**
> **− Work Period #1 Production Costs**
> **+ Work Period #2 Salary**
> **<u>− Work Period #2 Production Costs</u>**
> **= Worker's Compensation**

Also, regardless of whether you assume the role of employer or worker, you will be provided with a comprehensive chart that displays the amount of compensation that can be earned at each stage of the study. You may reference this chart at any point during the study.

COMPENSATION (*Constrained Excess Demand and Constrained Excess Supply conditions only*)

If you assume the role of **employer**, your compensation will be 0 *Lira* if <u>either</u> of the following is true:

3. You do not make a job offer during the labor market stage.

4. You make a job offer during the labor market stage, but it is not accepted.

<u>Otherwise, your compensation will be calculated using the following formula:</u>

> **300 *Lira* Base Compensation**
> **− Work Period #1 Salary**
> **+ Work Period #1 Revenues**
> **− Work Period #2 Salary**
> **+ Work Period #2 Revenues**
> **= Employer's Compensation**

<u>The 300 *Lira* Base Compensation included in the formula above is one-time compensation paid at the beginning of Work Period #1.</u>

If the employer decides to not employ the worker for Work Period #2, then the employer does not pay the worker a salary for Work Period #2, and does not receive any revenues for Work Period #2. However, the employer keeps the net amount of compensation (that is, the Base Compensation and revenues less the signing bonus and/or salary) earned as of the end of Work Period #1.

If you assume the role of **worker**, your compensation will be 0 *Lira* if <u>either</u> of the following is true:

      3. You do not receive any job offers during the labor market stage.

      4. You do not accept any job offers that are made during the labor market stage.

<u>Otherwise, your compensation will be calculated using the following formula:</u>

> **Work Period #1 Salary**
> **– Work Period #1 Production Costs**
> **+ Work Period #2 Salary**
> **<u>– Work Period #2 Production Costs</u>**
> **= Worker's Compensation**

Also, regardless of whether you assume the role of employer or worker, you will be provided with a comprehensive chart that displays the amount of compensation that can be earned at each stage of the study. You may reference this chart at any point during the study.

COMPENSATION CALCULATION EXAMPLE #1 (*Excess Demand and Excess Supply conditions only*)

The following two pages contain examples illustrating the application of the two compensation formulas shown on the previous page.

Example #1: A hired worker accepted a job offer that includes an employment contract stipulating that the employer will pay the worker a salary of 175 *Lira* in each work period. In Work Period #1, the worker decides to produce 3 units of *Product Q*. The employer decides to employ the worker for Work Period #2. In Work Period #2, the worker decides to produce 2 units of *Product Q*.

In this example, the **employer's compensation** is calculated as follows:

- At the beginning of Work Period #1, the employer earns:

	Base Compensation	300
−	Signing Bonus	0
=	Total Compensation	300 *Lira*

- At the end of Work Period #1, the employer earns:

	Base Compensation	300
−	Signing Bonus	0
−	Work Period #1 Salary	175
+	Work Period #1 Revenues	180 (= 60 *Lira*/unit x 3 units)
=	Total Compensation	305 *Lira*

- At the end of Work Period #2, the employer earns:

	Base Compensation	300
−	Signing Bonus	0
−	Work Period #1 Salary	175
+	Work Period #1 Revenues	180 (= 60 *Lira*/unit x 3 units)
−	Work Period #2 Salary	175
+	Work Period #2 Revenues	120 (= 60 *Lira*/unit x 2 units)
=	Total Compensation	250 *Lira*

In this example, the **worker's compensation** is calculated as follows:

- At the beginning of Work Period #1, the worker earns:

	Signing Bonus	0
=	Total Compensation	0 *Lira*

- At the end of Work Period #1, the worker earns:

	Signing Bonus	0
+	Work Period #1 Salary	175
−	Work Period #1 Production Costs	20
=	Total Compensation	155 *Lira*

- At the end of Work Period #2, the worker earns:

	Signing Bonus	0
+	Work Period #1 Salary	175
−	Work Period #1 Production Costs	20
+	Work Period #2 Salary	175
−	Work Period #2 Production Costs	10
=	Total Compensation	320 *Lira*

COMPENSATION CALCULATION EXAMPLE #1 (*Constrained Excess Demand and Constrained Excess Supply conditions only*)

The following two pages contain examples illustrating the application of the two compensation formulas shown on the previous page.

Example #1: A hired worker accepted a job offer that includes an employment contract stipulating that the employer will pay the worker a salary of 175 *Lira* in each work period. In Work Period #1, the worker decides to produce 3 units of *Product Q*. The employer decides to employ the worker for Work Period #2. In Work Period #2, the worker decides to produce 2 units of *Product Q*.

In this example, the **employer's compensation** is calculated as follows:

- At the beginning of Work Period #1, the employer earns:

	Base Compensation	300
=	Total Compensation	300 *Lira*

- At the end of Work Period #1, the employer earns:

	Base Compensation	300
−	Work Period #1 Salary	175
+	Work Period #1 Revenues	180 (= 60 *Lira*/unit x 3 units)
=	Total Compensation	305 *Lira*

- At the end of Work Period #2, the employer earns:

	Base Compensation	300
−	Work Period #1 Salary	175
+	Work Period #1 Revenues	180 (= 60 *Lira*/unit x 3 units)
−	Work Period #2 Salary	175
+	Work Period #2 Revenues	120 (= 60 *Lira*/unit x 2 units)
=	Total Compensation	250 *Lira*

In this example, the **worker's compensation** is calculated as follows:

- At the beginning of Work Period #1, the worker earns 0 *Lira*.

- At the end of Work Period #1, the worker earns:

	Work Period #1 Salary	175
−	Work Period #1 Production Costs	20
=	Total Compensation	155 *Lira*

- At the end of Work Period #2, the worker earns:

	Work Period #1 Salary	175
−	Work Period #1 Production Costs	20
+	Work Period #2 Salary	175
−	Work Period #2 Production Costs	10
=	Total Compensation	320 *Lira*

COMPENSATION CALCULATION EXAMPLE #2 (*Excess Demand and Excess Supply conditions only*)

Example #2: A hired worker accepted a job offer that includes an employment contract stipulating that the employer will pay the worker a salary of 145 *Lira* in each work period and a signing bonus of 60 *Lira*. In Work Period #1, the worker decides to produce 2 units of *Product Q*. The employer decides to not employ the worker for Work Period #2.

In this example, the **employer's compensation** is calculated as follows:

- At the beginning of Work Period #1, the employer earns:

Base Compensation	300
− Signing Bonus	60
= Total Compensation	240 *Lira*

- At the end of Work Period #1, the employer earns:

Base Compensation	300
− Signing Bonus	60
− Work Period #1 Salary	145
+ Work Period #1 Revenues	120 (= 60 *Lira*/unit x 2 units)
= Total Compensation	215 *Lira*

- Since the employer decided to not employer the worker for Work Period #2 in this example, the employer does not pay the worker's Work Period #2 salary or receive any Work Period #2 revenues. Thus, total compensation for the employer remains at 215 *Lira*.

In this example, the **worker's compensation** is calculated as follows:

- At the beginning of Work Period #1, the worker earns:

	Signing Bonus	60
=	Total Compensation	60 *Lira*

- At the end of Work Period #1, the worker earns:

	Signing Bonus	60
+	Work Period #1 Salary	145
−	Work Period #1 Production Costs	10
=	Total Compensation	195 *Lira*

- Since the employer decided to not employ the worker for Work Period #2 in this example, the worker does not receive the Work Period #2 salary or incur any production costs for Work Period #2. Thus, total compensation for the worker remains at 195 *Lira*.

COMPENSATION CALCULATION EXAMPLE #2 (*Constrained Excess Demand and Constrained Excess Supply conditions only*)

Example #2: A hired worker accepted a job offer that includes an employment contract stipulating that the employer will pay the worker a salary of 175 *Lira* in each work period. In Work Period #1, the worker decides to produce 2 units of *Product Q*. The employer decides to not employ the worker for Work Period #2.

In this example, the **employer's compensation** is calculated as follows:

- At the beginning of Work Period #1, the employer earns:

	Base Compensation	300
=	Total Compensation	300 *Lira*

- At the end of Work Period #1, the employer earns:

	Base Compensation	300
−	Work Period #1 Salary	175
+	Work Period #1 Revenues	120 (= 60 *Lira*/unit x 2 units)
=	Total Compensation	245 *Lira*

- Since the employer decided to not employer the worker for Work Period #2 in this example, the employer does not pay the worker's Work Period #2 salary or receive any Work Period #2 revenues. Thus, total compensation for the employer remains at 245 *Lira*.

In this example, the **worker's compensation** is calculated as follows:

- At the beginning of Work Period #1, the worker earns 0 *Lira*.

- At the end of Work Period #1, the worker earns:

	Work Period #1 Salary	175
−	Work Period #1 Production Costs	10
=	Total Compensation	165 *Lira*

- Since the employer decided to not employ the worker for Work Period #2 in this example, the worker does not receive the Work Period #2 salary or incur any production costs for Work Period #2. Thus, total compensation for the worker remains at 165 *Lira*.

QUIZ

Please raise your hand when you are finished, and the administrator will check your answers. You may look back at the instructions while completing this quiz.

_____

_____

Please fill in the blank:

1. The labor market consists of _____ employer(s) and _____ worker(s).

2. In a work period, the smallest number of units of *Product Q* that can be produced is _____, and the largest number of units of *Product Q* that can be produced is _____.

_____

Please circle True or False:

True / False   (*Excess Demand and Excess Supply conditions only*) The 60 *Lira* signing bonus, if included in the job offer, is paid at the beginning of Work Period #1.

True / False   An employment contract specifying that the employer will pay the worker a salary of 175 *Lira* in each work period is the only employment contract that can be included in a job offer.

True / False   If an employer hires a worker, then that employer receives Base Compensation of 300 *Lira* at the beginning of Work Period #1.

True / False   Each unit of *Product Q* that is produced generates revenues of 65 *Lira* for the employer.

True / False   If the employer decides to not employ the worker for Work Period #2, then the worker must return to the employer any compensation that was paid as of the end of Work Period #1.

True / False   In a given work period, if the worker produces 4 units of *Product Q*, then that worker incurs production costs of 50 *Lira*.

True / False   Employers whose job offer is not accepted during the labor market stage receive 150 *Lira*.

True / False   Workers who do not accept any job offers during the labor market stage receive 0 *Lira*.

Read each scenario and then circle an answer for each question.

Scenario #1 (*Excess Demand and Excess Supply conditions only*)

The hired worker accepts a job offer including an employment contract specifying that the employer will pay the worker a 145 *Lira* salary in each work period and a 60 *Lira* signing bonus. In Work Period #1, the worker produces 3 units of *Product Q*. The employer decides to employ the worker for Work Period #2. In Work Period #2, the worker produces 1 unit of *Product Q*.

1. How much total compensation has the <u>employer</u> earned at the <u>beginning</u> of Work Period #1?

      a. 300 *Lira*

      b. 145 *Lira*

      c. 240 *Lira*

2. How much total compensation has the <u>worker</u> earned at the <u>end</u> of Work Period #1?

      a. 175 *Lira*

      b. 215 *Lira*

      c. 185 *Lira*

Scenario #1 (*Constrained Excess Demand and Constrained Excess Supply conditions only*)

The hired worker accepts a job offer including an employment contract specifying that the employer will pay the worker a 175 *Lira* salary in each work period. In Work Period #1, the worker produces 3 units of *Product Q*. The employer decides to employ the worker for Work Period #2. In Work Period #2, the worker produces 1 unit of *Product Q*.

1. How much total compensation has the <u>employer</u> earned at the <u>beginning</u> of Work Period #1?

    a. 300 *Lira*

    b. 145 *Lira*

    c. 240 *Lira*

2. How much total compensation has the <u>worker</u> earned at the <u>end</u> of Work Period #1?

    a. 175 *Lira*

    b. 215 *Lira*

    c. 155 *Lira*

Scenario #2

The hired worker accepts a job offer including an employment contract specifying that the employer will pay the worker a 175 *Lira* salary in each work period. In Work Period #1, the worker produces 4 units of *Product Q*. The employer decides to employ the worker for Work Period #2. In Work Period #2, the worker produces 5 units of *Product Q*.

1. How much total compensation has the <u>worker</u> earned at the <u>end</u> of Work Period #1?

    a. 175 *Lira*

    b. 145 *Lira*

    c. 135 *Lira*

2. How much total compensation has the <u>employer</u> earned at the <u>end</u> of Work Period #2?

    a. 490 *Lira*

    b. 375 *Lira*

    c. 100 *Lira*

	Compensation Earned at Beginning of Work Period #1 (in *Lira*)
	Employer Compensation = Base Compensation - Signing Bonus
	Worker Compensation = Signing Bonus

Employer Compensation	300
Worker Compensation	0

Compensation Chart When Accepted Job Offer Includes 175 *Lira* Salary Employment Contract

---

Cumulative <u>Employer</u> Compensation Calculated as Follows:

   Base Compensation
– Signing Bonus
– Work Period #1 Salary
+ Work Period #1 Revenues
– Work Period #2 Salary
+ Work Period #2 Revenues

Compensation Earned in Work Period #1 (in *Lira*)
Employer Compensation = Work Period #1 Revenues - Work Period #1 Salary
Worker Compensation = Work Period #1 Salary - Work Period #1 Production Costs

	Work Period #1 Production Decision									
	1	2	3	4	5	6	7	8	9	10
Employer Compensation	-115	-55	5	65	125	185	245	305	365	425
Worker Compensation	175	165	155	145	135	125	115	105	95	85

Cumulative <u>Worker</u> Compensation Calculated as Follows:

   Signing Bonus
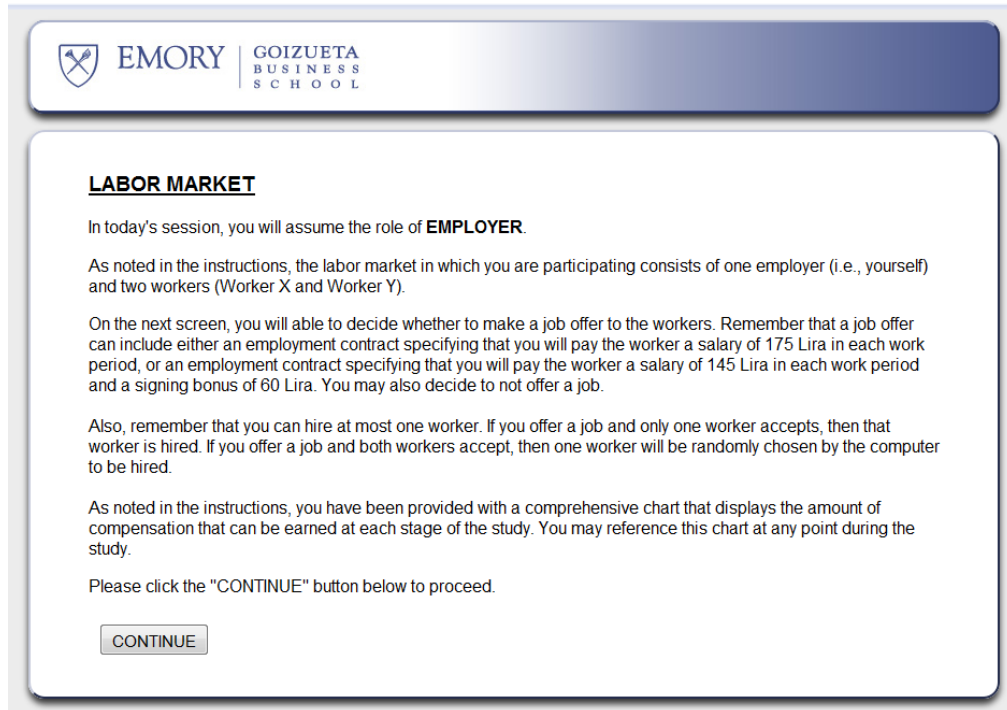+ Work Period #1 Salary
– Work Period #1 Production Costs
+ Work Period #2 Salary
– Work Period #2 Production Costs

Compensation Earned in Work Period #2 (in *Lira*)
Employer Compensation = Work Period #2 Revenues - Work Period #2 Salary
Worker Compensation = Work Period #2 Salary - Work Period #2 Production Costs

	Work Period #2 Production Decision									
	1	2	3	4	5	6	7	8	9	10
Employer Compensation	-115	-55	5	65	125	185	245	305	365	425
Worker Compensation	175	165	155	145	135	125	115	105	95	85

Compensation Chart When Accepted Job Offer Includes 145 *Lira* Salary and 60 *Lira* Signing Bonus Employment Contract

Compensation Earned at Beginning of Work Period #1 (in *Lira*) Employer Compensation = Base Compensation - Signing Bonus Worker Compensation = Signing Bonus

Employer Compensation	240
Worker Compensation	60

Cumulative <u>Employer</u> Compensation Calculated as Follows:

  Base Compensation
– Signing Bonus
– Work Period #1 Salary
+ Work Period #1 Revenues
– Work Period #2 Salary
+ Work Period #2 Revenues

Compensation Earned in Work Period #1 (in *Lira*) Employer Compensation = Work Period #1 Revenues - Work Period #1 Salary Worker Compensation = Work Period #1 Salary - Work Period #1 Production Costs

	Work Period #1 Production Decision									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Employer Compensation	-85	-25	35	95	155	215	275	335	395	455
Worker Compensation	145	135	125	115	105	95	85	75	65	55

Cumulative <u>Worker</u> Compensation Calculated as Follows:

  Signing Bonus
+ Work Period #1 Salary
– Work Period #1 Production Costs
+ Work Period #2 Salary
– Work Period #2 Production Costs

Compensation Earned in Work Period #2 (in *Lira*) Employer Compensation = Work Period #2 Revenues - Work Period #2 Salary Worker Compensation = Work Period #2 Salary - Work Period #2 Production Costs

	Work Period #2 Production Decision									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Employer Compensation	-85	-25	35	95	155	215	275	335	395	455
Worker Compensation	145	135	125	115	105	95	85	75	65	55

Compensation Chart When Accepted Job Offer Includes 175 *Lira* Salary Employment Contract

Compensation Earned at Beginning of Work Period #1 (in *Lira*) Employer Compensation = Base Compensation Worker Compensation = 0	
Employer Compensation	300
Worker Compensation	0

Cumulative <u>Employer</u> Compensation Calculated as Follows:

   Base Compensation
− Work Period #1 Salary
+ Work Period #1 Revenues
− Work Period #2 Salary
+ Work Period #2 Revenues

Compensation Earned in Work Period #1 (in *Lira*)
Employer Compensation = Work Period #1 Revenues - Work Period #1 Salary
Worker Compensation = Work Period #1 Salary - Work Period #1 Production Costs

	Work Period #1 Production Decision									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Employer Compensation	-115	-55	5	65	125	185	245	305	365	425
Worker Compensation	175	165	155	145	135	125	115	105	95	85

Cumulative <u>Worker</u> Compensation Calculated as Follows:

   Work Period #1 Salary
− Work Period #1 Production Costs
+ Work Period #2 Salary
− Work Period #2 Production Costs

Compensation Earned in Work Period #2 (in *Lira*)
Employer Compensation = Work Period #2 Revenues - Work Period #2 Salary
Worker Compensation = Work Period #2 Salary - Work Period #2 Production Costs

	Work Period #2 Production Decision									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Employer Compensation	-115	-55	5	65	125	185	245	305	365	425
Worker Compensation	175	165	155	145	135	125	115	105	95	85

Representative Screenshots for Employers

LABOR MARKET

In today's session, you will assume the role of **EMPLOYER**.

As noted in the instructions, the labor market in which you are participating consists of one employer (i.e., yourself) and two workers (Worker X and Worker Y).

On the next screen, you will able to decide whether to make a job offer to the workers. Remember that a job offer can include either an employment contract specifying that you will pay the worker a salary of 175 Lira in each work period, or an employment contract specifying that you will pay the worker a salary of 145 Lira in each work period and a signing bonus of 60 Lira. You may also decide to not offer a job.

Also, remember that you can hire at most one worker. If you offer a job and only one worker accepts, then that worker is hired. If you offer a job and both workers accept, then one worker will be randomly chosen by the computer to be hired.

As noted in the instructions, you have been provided with a comprehensive chart that displays the amount of compensation that can be earned at each stage of the study. You may reference this chart at any point during the study.

Please click the "CONTINUE" button below to proceed.

[CONTINUE]

Note: This screen is presented to employers participating in labor markets characterized by an excess supply of labor (the *Excess Supply* and *Constrained Excess Supply* conditions). In the *Constrained Excess Supply* condition, the 175 *Lira* salary contract is not mentioned to employers.

LABOR MARKET

In today's session, you will assume the role of **EMPLOYER X**.

As noted in the instructions, the labor market in which you are participating consists of two employers (yourself and Employer Y) and one worker.

On the next screen, you will able to decide whether to make a job offer to the worker. Remember that a job offer can include either an employment contract specifying that you will pay the worker a salary of 175 Lira in each work period, or an employment contract specifying that you will pay the worker a salary of 145 Lira in each work period and a signing bonus of 60 Lira. You may also decide to not offer a job.

Also, remember that the worker will view simultaneously any job offers that have been made, and can accept at most one job offer.

As noted in the instructions, you have been provided with a comprehensive chart that displays the amount of compensation that can be earned at each stage of the study. You may reference this chart at any point during the study.

Please click the "CONTINUE" button below to proceed.

CONTINUE

Note: This screen is presented to employers participating in labor markets characterized by an excess demand for labor (the *Excess Demand* and *Constrained Excess Demand* conditions). In these conditions, participants assigned to the role of employer assume the role of either Employer X or Employer Y (randomly assigned). In the *Constrained Excess Demand* condition, the 175 *Lira* salary contract is not mentioned to employers.

YOUR JOB OFFER DECISION

Please make your job offer decision by selecting one of the options below:

○ Offer a job with the 175 Lira salary employment contract
○ Offer a job with the 145 Lira salary and 60 Lira signing bonus employment contract
○ Do not offer a job

Please click the "SUBMIT" button below to finalize your job offer.

[SUBMIT]

Note: Employers in the *Constrained Excess Demand* and *Constrained Excess Supply* conditions do not have the option to offer the 175 *Lira* salary contract.

Note: After making their contract offers, employers whose contract offer is accepted are presented with the screen above. Otherwise, employers are presented with the screen shown on page 93.

EMORY | GOIZUETA BUSINESS SCHOOL

LABOR MARKET SUMMARY

You have not hired the worker.

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: After making their contract offers, employers whose contract offer is not accepted are presented with the screen above, and then proceed to the post-experimental questionnaire. Otherwise, employers are presented with the screen shown on page 92.

ENTERING WORK PERIOD #1
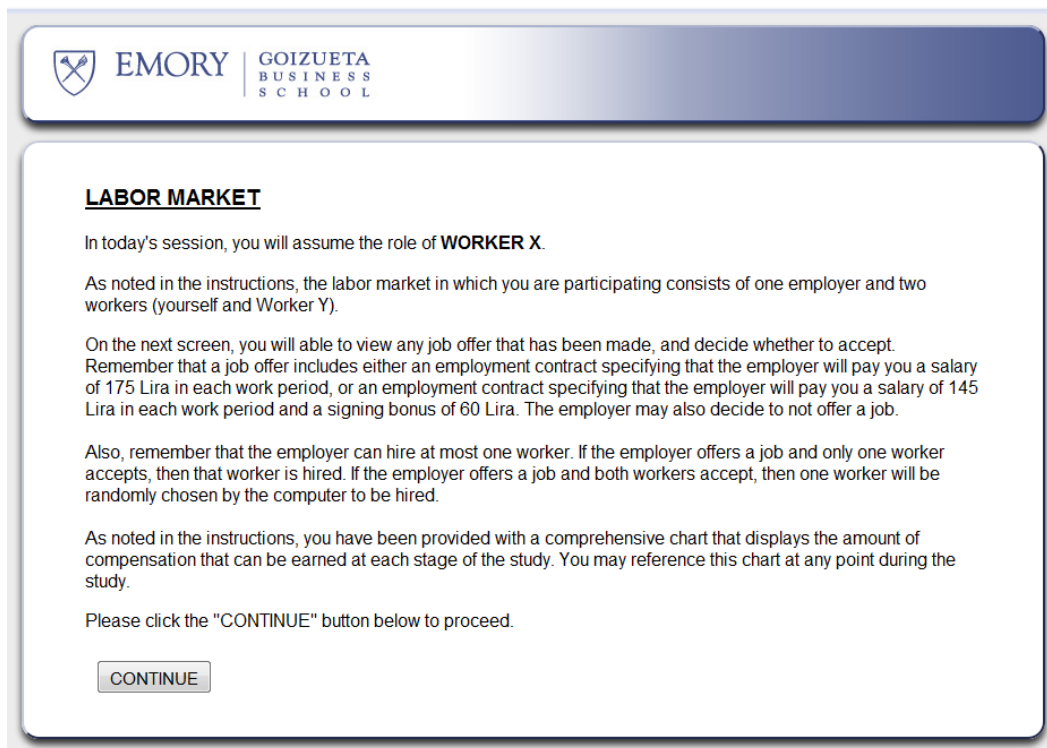
You are about to enter Work Period #1.

Base Compensation:	300
Signing Bonus:	60
Work Period #1 Salary for Worker:	
Work Period #1 Revenues:	
Work Period #2 Salary for Worker:	
Work Period #2 Revenues:	
Total:	240

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: The signing bonus line item is presented only to employers in the *Excess Demand* and *Excess Supply* conditions.

EMORY | **GOIZUETA BUSINESS SCHOOL**

WORK PERIOD #1

Using the scale below, please indicate the number of units of *Product Q* that you expect the worker to produce in Work Period #1. Remember that 1 is the smallest number of units that can be produced, and 10 is the largest number of units that can be produced.

1

Once you have submitted your response, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

WORK PERIOD #1 SUMMARY

Worker's Production Decision in Work Period #1:   1

Below is a summary of the *Lira* you have accumulated so far:

Base Compensation:	300
Signing Bonus:	60
Work Period #1 Salary for Worker:	145
Work Period #1 Revenues:	60
Work Period #2 Salary for Worker:	
Work Period #2 Revenues:	
Total:	155

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: The signing bonus line item is presented only to employers in the *Excess Demand* and *Excess Supply* conditions.

EMORY | GOIZUETA BUSINESS SCHOOL

YOUR CONTINUING EMPLOYMENT DECISION

Worker's Production Decision in Work Period #1:   1

Do you wish to employ the worker for Work Period #2?

○ YES ○ NO

Please click the "SUBMIT" button below to finalize your decision.

SUBMIT

ENTERING WORK PERIOD #2

You are about to enter Work Period #2.

Below is a summary of the *Lira* you have accumulated so far:

Base Compensation:	300
Signing Bonus:	60
Work Period #1 Salary for Worker:	145
Work Period #1 Revenues:	60
Work Period #2 Salary for Worker:	
Work Period #2 Revenues:	
Total:	**155**

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: The signing bonus line item is presented only to employers in the *Excess Demand* and *Excess Supply* conditions.

EMORY | **GOIZUETA BUSINESS SCHOOL**

WORK PERIOD #2

Using the scale below, please indicate the number of units of *Product Q* you expect the worker to produce in Work Period #2. Remember that 1 is the smallest number of units that can be produced, and 10 is the largest number of units that can be produced.

1

Once you have submitted your response, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

WORK PERIOD #2 SUMMARY

Worker's Production Decision in Work Period #2:   1

Below is a summary of the *Lira* you have accumulated so far:

Base Compensation:	300
Signing Bonus:	60
Work Period #1 Salary for Worker:	145
Work Period #1 Revenues:	60
Work Period #2 Salary for Worker:	145
Work Period #2 Revenues:	60
Total:	70

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

Note: The signing bonus line item is presented only to employers in the *Excess Demand* and *Excess Supply* conditions.

Representative Screens for Workers

Note: This screen is presented to workers participating in labor markets characterized by an excess supply of labor (the *Excess Supply* and *Constrained Excess Supply* conditions). In these conditions, participants assigned to the role of worker assume the role of either Worker X or Worker Y (randomly assigned). In the *Constrained Excess Supply* condition, the 175 *Lira* salary contract is not mentioned to worker.

LABOR MARKET

In today's session, you will assume the role of **WORKER**.

As noted in the instructions, the labor market in which you are participating consists of two employers (Employer X and Employer Y) and one worker (i.e., yourself).

On the next screen, you will able to view simultaneously any job offers that have been made, and decide whether to accept a job offer. Remember that a job offer can include either an employment contract specifying that the employer will pay you a salary of 175 Lira in each work period, or an employment contract specifying that the employer will pay you a salary of 145 Lira in each work period and a signing bonus of 60 Lira. An employer may also decide to not offer a job.

Also, remember that you can accept at most one job offer.

As noted in the instructions, you have been provided with a comprehensive chart that displays the amount of compensation that can be earned at each stage of the study. You may reference this chart at any point during the study.

Please click the "CONTINUE" button below to proceed.

[CONTINUE]

Note: This screen is presented to workers participating in labor markets characterized by an excess demand for labor (the *Excess Demand* and *Constrained Excess Demand* conditions). In the *Constrained Excess Demand* condition, the 175 *Lira* salary contract is not mentioned to workers.

YOUR JOB OFFER ACCEPTANCE DECISION

Here are the job offers that have been made:

Employer X: job offer with 175 Lira salary employment contract

Employer Y: job offer with 175 Lira salary employment contract

_____

Please make your job offer acceptance decision by selecting one of the options below:

○ Accept Employer X's Job Offer
○ Accept Employer Y's Job Offer
○ Do Not Accept Any Job Offers

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

Note: Worker are shown all contract offers that have been made in the labor market. Workers are also informed whether employers have opted to not offer a contract.

Note: Workers who are hired by an employer are presented with the screen above. Otherwise, workers are presented with the screen shown on page 105.

LABOR MARKET SUMMARY

You have not been hired by the Employer.

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: Workers who are hired by an employer are presented with the screen above, and then proceed to the post-experimental questionnaire. Otherwise, workers are presented with the screen shown on page 104.

Note: The signing bonus line item is presented only to workers in the *Excess Demand* and *Excess Supply* conditions.

WORK PERIOD #1

Using the scale below, please answer the following question. Note that a response of 0 = Not at all, and a response of 100 = A great deal.

To what extent do you believe that the employer trusts you?

0

Once you have submitted your response, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

Note: In all conditions, I counterbalance whether hired workers answer this question before or after making their first period effort choice (described as a production decision, see page 107).

EMORY | **GOIZUETA BUSINESS SCHOOL**

YOUR WORK PERIOD #1 PRODUCTION DECISION

Using the scale below, please indicate the number of units of *Product Q* to produce in Work Period #1. Remember that 1 is the smallest number of units that can be produced, and 10 is the largest number of units that can be produced.

1

Once you have made your production decision, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

Note: The signing bonus line item is presented only to workers in the *Excess Demand* and *Excess Supply* conditions.

Note: Workers who are retained for the second period are presented with the screen above. Otherwise, workers are presented with the screen shown on page 111.

Note: Workers who are not retained for the second period are presented with the screen above, and then proceed to the post-experimental questionnaire. Otherwise, workers are presented with the screen shown on page 110.

EMORY | **GOIZUETA BUSINESS SCHOOL**

ENTERING WORK PERIOD #2

You are about to enter Work Period #2.

Below is a summary of the *Lira* you have accumulated so far:

Signing Bonus:	60
Work Period #1 Salary:	145
Work Period #1 Production Costs:	0
Work Period #2 Salary:	
Work Period #2 Production Costs:	
Total:	**205**

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

Note: The signing bonus line item is presented only to workers in the *Excess Demand* and *Excess Supply* conditions.

WORK PERIOD #2

Using the scale below, please answer the following question. Note that a response of 0 = Not at all, and a response of 100 = A great deal.

To what extent do you believe that the employer trusts you?

0

Once you have submitted your response, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

Note: In all conditions, I counterbalance whether hired workers answer this question before or after making their second period effort choice (described as a production decision, see page 114).

EMORY | **GOIZUETA BUSINESS SCHOOL**

YOUR WORK PERIOD #2 PRODUCTION DECISION

Using the scale below, please indicate the number of units of *Product Q* to produce in Work Period #2. Remember that 1 is the smallest number of units that can be produced, and 10 is the largest number of units that can be produced.

1

Once you have made your production decision, please click the 'CONTINUE' button below to proceed.

SUBMIT   CONTINUE

Note: The signing bonus line item is presented only to workers in the *Excess Demand* and *Excess Supply* conditions.

Post-Experimental Questionnaire
Hiring Employers

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

The decision-making phase of today's session has now ended. To help me better understand your decisions, please respond to the following questions. Recall that your identity will remain anonymous, and your responses will be kept confidential.

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please describe your strategy, if any, during the labor market stage:

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

During the labor market stage, to what extent did you feel competitive pressure?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

  Please describe your strategy, if any, when deciding whether to employ the worker for Work Period #2:

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

  To what extent did the worker's production decision in Work Period #1 influence your decision whether to employ the worker for Work Period #2?

| 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How difficult did you find your tasks?

|_____| 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How interesting did you find your tasks?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How complex did you find the compensation method?

[   ] 0
0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

QUESTIONNAIRE

Gender: ○ Male ○ Female

Age: _____

Current Grade Status: ○ Freshman ○ Sophomore ○ Junior ○ Senior ○ MBA ○ Other

Academic Major: _____

Have you ever participated in an experiment in this lab: ○ No ○ Yes

Years of Work Experience: _____

Do you have any work experience in HR? ○ No ○ Yes

Please indicate the number of courses you have taken in the following subject areas, including those that you are currently taking:

Accounting: _____

Economics: _____

Finance: _____

Marketing: _____

Organizational Behavior: _____

Human Resources: _____

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

EMORY | **GOIZUETA BUSINESS SCHOOL**

THANK YOU FOR YOUR PARTICIPATION!

Your compensation for participating in today's session is: **$8.5**

Please raise your hand to inform the administrator that you have completed the study.

Again, thank you for participating in today's session! Since other individuals will be participating in this study over the next few days, please do not discuss this study with other individuals.

Post-Experimental Questionnaire
Non-Hiring Employers

QUESTIONNAIRE

The decision-making phase of today's session has now ended. To help me better understand your decisions, please respond to the following questions. Recall that your identity will remain anonymous, and your responses will be kept confidential.

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

Please describe your strategy, if any, during the labor market stage:

Please click the 'CONTINUE' button below to proceed.

CONTINUE

QUESTIONNAIRE

During the labor market stage, to what extent did you feel competitive pressure?

| | 0 |

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How difficult did you find your tasks?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How interesting did you find your tasks?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How complex did you find the compensation method?

|_____| 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Gender: ○ Male ○ Female

Age: [_____]

Current Grade Status:
○ Freshman ○ Sophomore ○ Junior ○ Senior ○ MBA ○ Other

Academic Major: [_____]

Have you ever participated in an experiment in this lab: ○ No ○ Yes

Years of Work Experience: [_____]

Do you have any work experience in HR? ○ No ○ Yes

Please indicate the number of courses you have taken in the following subject areas, including those that you are currently taking:

Accounting: [_____]

Economics: [_____]

Finance: [_____]

Marketing: [_____]

Organizational Behavior: [_____]

Human Resources: [_____]

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

EMORY | GOIZUETA BUSINESS SCHOOL

THANK YOU FOR YOUR PARTICIPATION!

Your compensation for participating in today's session is: **$8.5**

Please raise your hand to inform the administrator that you have completed the study.

Again, thank you for participating in today's session! Since other individuals will be participating in this study over the next few days, please do not discuss this study with other individuals.

Post-Experimental Questionnaire
Hired Workers

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

The decision-making phase of today's session has now ended. To help me better understand your decisions, please respond to the following questions. Recall that your identity will remain anonymous, and your responses will be kept confidential.

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please describe your strategy, if any, during the labor market stage:

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

  Please rate the fairness of the job offer you accepted (Enter a response of "0" if 1) No jobs were offered during the labor market stage, or 2) You did not accept any job offers that were made during the labor market stage)

[slider] 0

0=Extremely Unfair   100=Extremely Fair

Please click the 'CONTINUE' button below to proceed.

CONTINUE

QUESTIONNAIRE

Please rate the relative fairness of the two employers' job offer decisions:

| | 0 |

0 = Employer X's job offer decision relatively much more fair
100 = Employer Y's job offer decision relatively much more fair
50 = Employers' job offer decisions equally fair

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: Only workers in the *Excess Demand* and *Constrained Excess Demand* conditions were asked to respond to this question.

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

During the labor market stage, to what extent did you feel competitive pressure?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

  To what extent do you believe that the employer felt competitive pressure during the labor market stage?

| 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please describe your strategy, if any, when making your production decision in Work Period #1

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

To what extent was your production decision in Work Period #1 influenced by the employer's pending decision regarding whether to employ you for Work Period #2?

|_____ 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please rate the fairness of the employer's decision regarding whether to employ you for Work Period #2

| 0 |

0=Extremely Unfair   100=Extremely Fair

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please describe your strategy, if any, when making your production decision in Work Period #2 (Type N/A if you were not employed for Work Period #2):

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How difficult did you find your tasks?

| | 0 |

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

How interesting did you find your tasks?

| | 0
0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

How complex did you find the compensation method?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Gender: ○ Male ○ Female

Age: [　　　　　　]

Current Grade Status: ○ Freshman ○ Sophomore ○ Junior ○ Senior ○ MBA ○ Other

Academic Major: [　　　　　　]

Have you ever participated in an experiment in this lab: ○ No ○ Yes

Years of Work Experience: [　　　　　　]

Do you have any work experience in HR? ○ No ○ Yes

Please indicate the number of courses you have taken in the following subject areas, including those that you are currently taking:

Accounting: [　　　　　　]

Economics: [　　　　　　]

Finance: [　　　　　　]

Marketing: [　　　　　　]

Organizational Behavior: [　　　　　　]

Human Resources: [　　　　　　]

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

THANK YOU FOR YOUR PARTICIPATION!

Your compensation for participating in today's session is: **$5**

Please raise your hand to inform the administrator that you have completed the study.

Again, thank you for participating in today's session! Since other individuals will be participating in this study over the next few days, please do not discuss this study with other individuals.

Post-Experimental Questionnaire
Non-Hired Workers

QUESTIONNAIRE

The decision-making phase of today's session has now ended. To help me better understand your decisions, please respond to the following questions. Recall that your identity will remain anonymous, and your responses will be kept confidential.

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Please describe your strategy, if any, during the labor market stage:

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | GOIZUETA BUSINESS SCHOOL

QUESTIONNAIRE

Please rate the fairness of the job offer you accepted (Enter a response of "0" if 1) No jobs were offered during the labor market stage, or 2) You did not accept any job offers that were made during the labor market stage)

|_____| 0

0=Extremely Unfair   100=Extremely Fair

Please click the 'CONTINUE' button below to proceed.

CONTINUE

Note: Only workers in the *Excess Demand* and *Constrained Excess Demand* conditions were asked to respond to this question.

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

During the labor market stage, to what extent did you feel competitive pressure?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

To what extent do you believe that the employer felt competitive pressure during the labor market stage?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

QUESTIONNAIRE

How difficult did you find your tasks?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How interesting did you find your tasks?

|—————————————| 0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

How complex did you find the compensation method?

0

0=Not at all   100=A great deal

Please click the 'CONTINUE' button below to proceed.

CONTINUE

EMORY | **GOIZUETA BUSINESS SCHOOL**

QUESTIONNAIRE

Gender: ○ Male ○ Female

Age: [_____]

Current Grade Status: ○ Freshman ○ Sophomore ○ Junior ○ Senior ○ MBA ○ Other

Academic Major: [_____]

Have you ever participated in an experiment in this lab: ○ No ○ Yes

Years of Work Experience: [_____]

Do you have any work experience in HR? ○ No ○ Yes

Please indicate the number of courses you have taken in the following subject areas, including those that you are currently taking:

Accounting: [_____]

Economics: [_____]

Finance: [_____]

Marketing: [_____]

Organizational Behavior: [_____]

Human Resources: [_____]

Please click the 'CONTINUE' button below to proceed.

[CONTINUE]

EMORY | GOIZUETA BUSINESS SCHOOL

THANK YOU FOR YOUR PARTICIPATION!

Your compensation for participating in today's session is: **$5**

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Again, thank you for participating in today's session! Since other individuals will be participating in this study over the next few days, please do not discuss this study with other individuals.