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AN EXPERIMENTAL INVESTIGATION OF RECIPROCITY AND FORMAL CONTROLS WITH LABOR MARKET COMPETITION

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ABSTRACT

Most experimental research related to agency settings, such as participative budgeting, has examined how formal controls, such as audits and reviews, influence the behavior of managers. Alternatively, a growing literature in managerial accounting examines the effects of using informal social controls. Some of these studies have examined the ability of the gift-exchange model from economics, founded on reciprocity, to function as a suitable control. Within the social context of an experimental labor market, I examine the relationship between the type of control employers implement (i.e., reviews, a formal control versus reciprocity, an informal control) and the amount of budget slack created by managers. Participants in the market make all hiring and control implementation decisions, thereby providing an environment conducive for reciprocity. I manipulate the labor market conditions at two levels – excess demand and excess supply. I predict and find that the labor market conditions influence the type of control implemented by employers. Employers appear to rely upon reciprocity more heavily when excess supply exists in the labor market. However, managers fail to reciprocate under either labor market condition to employer's attempt to engage in a gift-exchange. The implications of these findings with regard to both organizations and the academic literature are discussed.

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CHAPTER 1

INTRODUCTION

The purpose of control systems is to align the behavior of the manager with employers' objectives given the potential for agency problems. Employers face difficult decisions regarding what controls to implement within the organization based on needs and budget constraints. Formal controls can be effective but require the development of procedures, maintenance, and the use of resources. Also, employers may consider the fit of controls within the culture of the organization and the possibility that formal controls could be perceived as intrusive or a challenge to autonomy (Christ et al. 2008). In addition to the formal controls at employers' disposal, employers can also rely on social norms such as reciprocity.

In the economics literature the norm of reciprocity has been used to establish the gift-exchange model which suggests employers can invoke behavior consistent with the goals of the organization, including increased effort and decreased opportunistic behavior, by offering higher than expected compensation (Akerlof 1982). Subsequent research in the managerial accounting literature suggests that the gift-exchange model can effectively function as a control (e.g., Hannan 2005; Zhang 2008; Kuang and Moser 2009; Kuang and Moser 2011; Chen and Sandino 2012). However, these studies have focused on the gift-exchange model in isolation, ignoring formal controls that employers typically implement. Thus, an important, unanswered question is how reciprocity fits in the broader context of organizations' formal control systems.

The gift-exchange model, founded on reciprocity, is primarily concerned with compensation. The importance of compensation in the gift-exchange model creates the need to understand how the most important contextual variable in the setting of compensation, i.e., labor market competition, affects how reciprocity will fit within broader control systems. In a tight labor market, the agency dynamic may change. In tight labor markets a gift-exchange becomes comparatively more expensive and reciprocity can become more difficult to establish. The purpose of this study is to examine the use and effectiveness of reciprocity as a control within varying levels of labor market competition and when other formal controls are available to the employer.

I divide the examination of my research question between the decisions of the employers ("use" of reciprocity/formal control) and the subsequent behavior of the managers ("effectiveness" of reciprocity/formal control). I base my predictions on a proposition that suggests reciprocity is easier to establish when there is excess supply in the labor market compared to excess demand in the labor market. Based on this proposition I predict that "gift" salaries will be offered with more regularity and formal controls implemented with less regularity under excess supply compared to excess demand. In short, I suggest the use of reciprocity and formal controls is affected by labor market competition. I then make separate predictions for the effectiveness of each type of control, reciprocity and formal controls. I develop my hypotheses based on the gift-exchange model, founded on reciprocity, as well as prior findings related to formal controls. In accordance with the gift-exchange model, I predict lower levels of opportunistic behavior when managers receive higher salaries. I also predict based on prior findings that implementation and presence of formal controls will lead to lower

levels of opportunistic behavior. The hypotheses related to effectiveness can then be

analyzed to examine how reciprocity fits alongside formal controls.

Participants were recruited for a participative budgeting task in an experimental

setting consisting of employers and managers based on the trust game used in Evans et al.

(2001). Across multiple rounds employers hire managers who actively search for

available positions in a labor market with either excess demand (5 employers and 3

managers) or excess supply (3 employers and 5 managers). Consistent with the

requirements for reciprocity, the employer is given sufficient flexibility over the wage to

allow for the offering of a "gift" wage.   In the budget task, managers submit a budget for

a project to be funded by the employer for which only the manager knows the actual cost.

This provides the manager with the ability to act opportunistically and build slack into the

budget or reciprocate any gift wage with a more accurate budget. Prior to the budget

task and upon clearing of the labor market, employers are allowed the choice to

implement a formal control in which the employer reviews the project budget prior to

funding the project. Alternatively, the employer can choose to rely on trust and

reciprocity by funding projects budgeted within reasonable cost constraints.

I find evidence that the form of the control system employers develop for

managers is heavily influenced by the labor market condition. Under excess demand,

employers pay significantly higher salaries and implement the formal control with more

regularity as predicted. Conversely, under excess supply, employers pay significantly

lower salaries, but offer larger gifts and implement the control less frequently, consistent

with my prediction that employers will rely more heavily on reciprocity under excess

supply. Results show that the implementation of the formal control represented by the

review is equally effective across conditions in decreasing the level of slack. These results suggest that identical controls with the same effectiveness and same cost may not be implemented with the same regularity across employers depending on labor market conditions. The most influential variable on slack taken is the decision to implement the formal control, which significantly reduces slack taken and leads to increased profitability for employers regardless of market condition. The gift was found to have no effect on managers' decisions to create slack, contrary to the predictions of the gift-exchange model.

This study contributes to the current discussion over the relationship between formal and informal controls. Currently in the managerial accounting and organizational behavior literature there has been debate over the place of informal controls in organizations. Some support an increased reliance on informal controls such as trust and reciprocity (e.g., Das and Teng 2001; Christ et al. 2008). The gift-exchange model represents one such means of relying on social norms (reciprocity); however we do not yet know how reciprocity fits with other controls. My study provides empirical data regarding the use and effectiveness of the gift-exchange model as a control when other formal controls are at the employer's disposal.

This study also contributes to the compensation and participative budgeting literatures. This study expands our knowledge related to environmental factors outlined in Dunk and Nouri (1998) by introducing a new relationship between labor market competition and budget slack under different control systems into their theoretical framework for participative budgeting. Currently, the environmental factors section of the framework is notable for its brevity. In this study, the labor market is found to

influence the agency setting. Results of this study will also provide assistance to firms in their approach towards compensation and the use of formal controls. Given the dependence on and competition for human capital, organizations are constantly aware of the competition they face in the labor market. Despite the effectiveness of the formal control, the findings suggest that consideration of the labor environment may lead to implementation of formal controls with varying levels of frequency.

The remainder of the paper is organized as followed. Section II presents background and states the proposition of the study. Section III describes the setting and outlines the hypotheses of the study. Section IV details the experimental design used to examine the predictions of the study. Section V presents the analysis and a discussion of the results. Section VI provides a conclusion that includes implications and limitations and future directions for research.

CHAPTER 2

BACKGROUND

2.1 THE GIFT-EXCHANGE MODEL AND RECIPROCITY

Our Akerlof (1982) outlined a model of gift-exchange that was established on the principle of reciprocity. Reciprocity is an in-kind response to friendly or hostile acts (Dohmen et al. 2009).[1] Aklerlof (1982) suggested that through use of reciprocity, employers can influence the behavior of managers through the level at which they set the wage.[2] In the gift-exchange model, managers are perceived to act more kindly towards employers, in response to receiving what is perceived as high compensation for the task, by taking actions consistent with employers' preferences to provide higher performance.

Recent studies in the management accounting literature provide empirical data regarding the validity of the gift-exchange model. Central to the premise of the gift-exchange model, Hannan (2005) found that participants who were paid higher wages reciprocated by providing greater effort. Kuang and Moser (2009) experimentally compare an agency contract with a gift-exchange contract and find that effort is higher under the gift-exchange contract when managers are aware employers had a choice between the two contracts. This is consistent with reciprocity, in that managers reward their employers when they perceive the employer has made a kind choice and suggests

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[1] While studies define reciprocity as an in-kind response (both positive and negative), references to the *norm* of reciprocity have typically referred to positive reciprocity and rewarding kindness with equivalent levels of kindness (Gouldner 1960).

[2] For the purposes of this study the typical language of agency theory, principal and agent will be substituted with employer and manager respectively. When it appears in this paper, manager should be read as synonymous with employee not employer.

that employers must be able to make the decision. Also, managers punish employers when managers perceive the employer has made an unkind choice. Zhang (2008) further examines the gift-exchange model as a form of control in a whistle-blowing setting, finding that the gift-exchange model is applicable beyond simple effort settings. The results of the above studies suggest that in isolation a reliance on a gift-exchange model, founded on reciprocity, can potentially serve as an effective control in agency settings.

Chen and Sandino (2012) use archival data and find results consistent with the theory that higher wages increase the honesty of employees, measured by employers' incurrence of cash shortages and inventory shrinkage. However, no variable is included in the model to allow for an understanding of reciprocity's relationship with formal controls. As with the experimental studies, Chen and Sandino (2012) provide evidence only for the relationship between compensation and behavior. While the gift-exchange model appears valid, its effectiveness within an organization's broader control system among the other forms of control is still not known.

When designing control systems, organizations must consider effectiveness, cost and fit within the organization. Formal controls can be effective but they can also be costly. Formal controls require the use of organizational resources beyond monetary expenditures and the development and maintenance of procedures. It has also been argued that formal controls can have qualitative costs. Christ et al. (2008) find that controls can be perceived as intrusive and reduce managers' perceptions of how well they are trusted. They contend that formal controls can lead to decreased job satisfaction and performance. While some argue that relying on adherence to social norms can replace the need for formal controls, it may be the case that a gift-exchange makes formal

controls more tolerable, making the two forms of control compliments rather than substitutes.

2.2 LABOR MARKET COMPETITION AS AN ENVIRONMENTAL FACTOR

Compensation is central to the gift-exchange model. A major determining factor of compensation is the labor market. A perfectly competitive labor market for managers would consist of: 1) numerous employers, 2) numerous homogenous managers 3) "wage-taking" behavior on the part of employers and managers[3] and 4) perfect, costless information and labor mobility (McConnell et al. 2009). However, in the modern economy perfectly competitive labor markets are the exception, not the rule (Manning 2011). Violation of any of the above characteristics contributes to market disequilibrium and results in imperfect competition. Labor market competition in such cases can be dichotomized between excess labor demand and excess labor supply. Manning (2011) argues that in imperfect labor markets rents become prevalent.[4]

Economic models assume that in conditions of excess labor demand the compensation provided to managers will be higher than when there is excess supply. That is, managers are assumed to extract rent under conditions of excess demand in the labor market. Conversely, employers rather than managers consume the rent under conditions of excess supply in the labor market. The distribution of rents under conditions of excess demand and excess supply in the labor market is associated with the

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[3] In a perfectly competitive market wages are set at the equilibrium wage. Based on the assumption of numerous employers and managers "wage-taking" implies that no single employer or manager can cause a movement in the equilibrium wage (Ehrenberg and Smith 2000).

[4] In a market with excess demand, managers consume rent equal to the surplus over the minimum wage that would be accepted to perform the task equivalent to the reservation wage, or opportunity cost in a perfectly competitive labor market, for the manager (Ehrenberg and Smith 2000). This is consistent with the definition of rent used by Milgrom and Roberts (1992).

degree of exchange vulnerability (i.e. number and/or quality of alternatives available to the other party) employers and managers have in the labor market.

In summary, labor markets with excess demand or excess supply create different expectations regarding compensation. Thus, it is anticipated that these expectations will create different reservations wages across markets. A reservation wage is the lowest wage rate at which one would decide to accept employment. Specifically, based on exchange vulnerability and expectations, I set forth the following proposition with regards to managers in the labor market as a basis for my hypotheses to follow:

> Proposition: Reservation wages will be higher when there is excess demand in the labor market compared to when there is excess supply in the labor market.

This proposition becomes important when viewed in terms of the gift-exchange model. The higher the reservation wage, the more costly and potentially difficult it is for employers to establish reciprocity.

CHAPTER 3

SETTING AND HYPOTHESES

3.1 PARTICIPATIVE BUDGETING

Participative budgeting allows firms to take advantage of the private information of managers when planning and allocating resources by involving managers in the budgeting process. Compared to employers, managers are assumed to possess relevant information regarding such things as competitor positioning, customer preferences and resource needs based on proximity to the operations that is not possessed by employers (Chow et al. 1988; Fisher et al. 2002; Hannan et al. 2006). Additionally, managers are often more specialized in the area of production and would be expected to have superior budget pertinent knowledge as a result of the acquisition of skill or experience on the job or through training. This information asymmetry makes managers valuable participants in the budgeting process with the objective of efficient and effective resource allocation. However, this information asymmetry allows for opportunistic behavior on the part of managers in the form of budget slack.

Budget slack occurs when targets are deliberately set lower than the "best-guess forecast" (Merchant and Van der Stede 2012). [5] Conceptually, budget slack is a rent extracted by the manager in that slack increases the wealth of self-interested managers at

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[5] Budget slack is not necessarily limited to opportunistic behavior. Budget slack can also be used as a guard against uncertainty (Merchant and Manzoni 1989). Dunk and Nouri (1998) identify slack as any intentional underestimation of production capabilities or overestimation of costs. By holding uncertainty constant in this study slack represents a rent and can be considered opportunistic behavior consist with the definition of Dunk and Nouri (1998).

the expense of employers. The typical treatment of slack in experimental research has been to consider slack as available income for managers that comes at the expense of employers (e.g., Evans et al. 2001; Fisher et al. 2006; Rankin et al. 2008; Schatzberg and Stevens 2008; Hannan et al. 2010). This treatment clearly classifies budget slack as opportunistic and self-interested.

Agency theory provides the benchmark model for opportunistic behavior within participative budgeting settings (Brown et al. 2009). Agency theory assumes self-interested, opportunistic behavior and that parties will always take advantage of other's exchange vulnerabilities (Baiman 1990). Behavior is opportunistic to the extent that it takes advantage of another's exchange vulnerabilities (Barney and Hansen 1994). The opportunistic behavior most associated with participative budgeting is the creation of budget slack (Dunk and Nouri 1998). Particularly when compensation is linked to budgets, agency models predict that managers will build slack into the budget creating a need for controls. Controls can take the form of either formal controls or reliance on social norms, including reciprocity. The current lack of consensus on the prescribed way to mitigate slack makes participative budgeting an interesting setting for examining my research question. The ability of managers to act both kindly (by reporting honestly) or unkindly (by creating slack) make the participative budgeting setting appropriate for examining my research question.

3.2 "USE" HYPOTHESES

My research question consists of two dimensions. I will begin by discussing my predictions related to the "use" dimension of my research question. "Use" refers to the

decisions of the employer regarding composition of the control systems when employers are free to both use formal controls and/or engage in a gift-exchange with regards to the compensation level. This is a more sophisticated analysis of reciprocity than prior studies and better reflects the actual context in which a gift-exchange will be used.

Prior research in both accounting and economics has found that employers attempt to engage in a gift-exchange when given authority over the salary (e.g., Charness 2004; Kuang and Moser 2009). This suggests that employers acknowledge the potential of higher compensation to act as a control. The gift offered by employers is a forfeiture of rents that could otherwise be extracted by the employer. Standard labor economics theory predicts higher compensation levels when there is excess demand in the labor market compared to when there is excess supply in the labor market. Under excess demand, managers expect to receive rents, while employers extract rent under excess supply. Therefore, under excess supply employers have a larger reserve from which to make gifts. The higher cost and smaller pool of rents for employers under excess demand compared to excess supply is likely to lead to less effort at engaging in a gift-exchange in labor markets with excess demand. From the manager's perspective, higher base salaries under excess demand make the same nominal gift as offered under excess supply less motivating because the proportion of compensation that is a gift is lower under excess demand.

The theory of reciprocity provides further, perhaps stronger, justification for predicting the use behavior of employers under varying labor market conditions. As outlined in the proposition of this study, and consistent with expectations based on standard labor economic theory, reservations wages of managers is assumed higher under

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excess demand than excess supply. This suggests not only a greater cost to offering a gift

under excess demand, but greater difficulty in communicating the gift as well.

For reciprocity to be invoked, managers must perceive the compensation offered

as consisting of a gift (Falk and Fischbaucher 2006). When competition is introduced the

ability to communicate the gift becomes more difficult. The tighter the labor market, the

more competitive salary offers must be. It is likely then that managers will fail to

interpret high compensation offers as a gift, instead attributing the level of compensation

entirely to the competition in the labor market. Conversely, under excess supply,

managers' expectation is for low compensation. Any compensation offered above the

expected amount would be perceived as a gift by the manager and invoke a responsibility

to reciprocate. Therefore, both cost concerns and the theory of reciprocity give the same

directional prediction.

> H1:   "Gift" offers will be higher when there is excess
> supply in the labor market than when there is excess
> demand in the labor market.

For this discussion it is important to keep in mind that a gift is a distinct construct

from compensation itself. The gift represents the surplus of compensation above the

amount necessary to attract the manager to the position. In essence the gift is employers

relinquishing part of the rent expected to be received. H1 predicts that employers in labor

markets with excess supply are more likely to attempt to engage in a gift-exchange with

managers because these employers can more easily convey the gift and invoke

reciprocity. The theory of sequential reciprocity argues that subsequent actions can either

act to undo or strengthen the compulsion to reciprocate to an initially kind act

(Dufwenberg and Kirchsteiger 2004).

Considering the perceptions of managers that formal controls impair autonomy, imply distrust, and are intrusive, implementation of the formal control is more likely to undo rather strengthen managers' compulsion to reciprocate. This suggests, in accordance with the theory of sequential reciprocity, that the formal control will be implemented less frequently in labor markets with excess demand compared to labor markets with excess supply. Employers can then rely upon the reciprocity that has been established without concern for undoing the perceptions of kindness and trust associated with the higher gift offers under excess supply.

> H2: A formal control will be implemented with less frequency when there is excess supply in the labor market than when there is excess demand in the labor market.

Taken together H1 and H2 examine the employers' decisions regarding the composition of the control system under varying labor market conditions. The interrelated nature of H1 and H2, suggest that the effect predicted by H2 is mediated by the size of the gift offer. Support for both these hypotheses, and evidence of mediation, provides strong support for a greater attempt by employers to rely upon reciprocity under excess supply.

3.3 "EFFECTIVENESS" HYPOTHESES

Next, I discuss the predictions related to the effectiveness dimension of my research question. "Effectiveness" refers to the behavior of managers within the agency setting. In a participative budgeting setting, an effective control is one that reduces slack creation. Managers' behavior is a reaction to the control decisions related to employers'

use of reciprocity and formal controls. I formulate predictions of behavior under both types of control and then provide a discussion of the interpretation of the possible results.

In a participative budgeting setting, slack is opportunistic behavior on the part of managers who take advantage of their private information. The goal of the organization in incorporating the manager into the budgeting process is to receive accurate reporting. Slack represents an "unkind" action, while honest, accurate reporting represents a "kind" action consistent with the goals of the organization. According to reciprocity a manager responds kindly to a kind act from the employer.

Consistent with the gift-exchange model, founded on reciprocity, offering a gift to managers in the form of higher compensation (a kind act by the employer) will lead to behavior consistent with the goals of the organization (a kind act by manager). In compensation offers, the gift is a kind act by the employer intended to invoke reciprocity from the manager. If the gift-exchange model is an effective control, in a budget context, then slack will be reduced when employers engage in the gift-exchange. Consistent with prior literature and after controlling for the salary differences across levels of labor market competition, I predict:

> H3: The amount of slack created by managers will be inversely related to the size of the "gift" offer made by employers.

The purpose of formal controls is to reduce opportunistic behavior and align behavior of the managers with the goals of the organization. Unlike the gift-exchange model that relies on conformity to social norms, formal controls can assume opportunistic behavior will occur but attempts to curb such behavior through elimination of the opportunity, reducing economic incentives, or punishment of the action. Related to the

first method, eliminating opportunity, prior literature has found that formal controls such as reviews and probabilistic audits have been successful in deterring opportunistic behavior in participative budgeting settings. Employer scrutiny is a common control in budget settings. For example, a manager may be given freedom to spend or budget within an allowable range, such as a hurdle rate. On the other hand, an employer may expand the formal controls and the manager may be required to submit all spending and budget requests for review. I expect the latter case to result in lower slack. While a range may imply flexibility and leniency, a specific review implies a demand for accuracy. Requirement to report a definitive, accurate cost requires the manager to knowingly act dishonestly. Prior literature has found that individuals experience disutility from being dishonest (Evans et al. 2001; Rankin et al. 2008). In addition, managers must always fear rejection of their budget (Rankin et al. 2008). The combination of these effects lead to the expectation of lower slack in the presence of a formal control such as a review.

> H4: The amount of slack created by managers will be lower when formal controls are implemented compared to when the employer chooses to forego the implementation of the formal controls.

Taken together H3 and H4 examine the effectiveness of reciprocity as a control when other formal controls are also at the employer's disposal. If H3 is supported it suggests that the observed effect from prior studies that reciprocity can function as a control holds. When examined together, if both H3 and H4 are supported it would suggest that reciprocity and formal controls can be used complimentarily. If H3 is supported and H4 is not supported, it would suggest that reciprocity serves as a superior

alternative to formal controls. If H3 is not supported while H4 is supported, it would suggest that reciprocity does not maintain the ability to function as a suitable control when in the presence of other formal controls such as a review.

CHAPTER 4

METHOD

4.1 OVERVIEW

In order to test my hypotheses, I develop an experimental labor market in which

managers seek employment and employers make offers to managers. Hence, I am able to

create employer/manager relationships capable of facilitating reciprocity. After a wage

offer is accepted, employers decide whether to implement an additional costly control in

the form of final authority over the budget submitted by the manager. The basic task

closely follows the trust game developed in Evans et al. (2001). The experiment was

administered using the Z-Tree software (Fischbacher 2007).

Participants are seated at individual computer stations and randomly assigned to

the role of either a manager or employer. Participants maintain the same role for the

duration of the session and are not identifiable to other participants eliminating the

creation of reputation concerns. Participants retain anonymity for the duration of the

session and are instructed not to communicate outside of the requirements of the study

and are not able to reveal identifying characteristics during the study.

Each session consists of ten rounds.[6] Each round consists of a labor market used

to establish the employer/manager relationship, followed by performance of the basic

project budget task. Upon completion of the round, managers and employers are

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[6] Technical issues with one of the excess supply sessions resulted in only seven rounds being conducted. These observations are included in all analysis. Inclusion of these sessions does not strengthen any of the results in the study.

presented with their respective earnings from the round. Upon completion of the tenth

round, participants complete a post-experimental questionnaire consisting of

demographic questions, manipulation checks and process measures. Participants are

provided compensation consisting of $5 for showing up and the compensation earned

from one randomly selected round with an exchange rate of $1 for every fifty Lira (the

experimental currency in the study).[7] A session lasts between 70 and 80 minutes.

Participants in the study were paid an average of $16.83.

4.2 MANIPULATED VARIABLE

Labor market competition is manipulated between-subjects at two levels, excess

demand or excess supply. In the excess labor demand (*supply*) condition, three

participants are assigned as managers (*employers*) and five participants are assigned as

employers (*managers*).

4.3 MEASURED VARIABLES

Two measured variables function as dependent measures for the testing of H1 and

H2 and the independent variables in the testing of H3 and H4. The first measured

variable is the size of the gift offered by employers. Employers make new offers in each

round. The size of the offer made is at the discretion of the employers. Managers then

chose to accept or reject any offers at their discretion. The following equation gives the

formula for the "gift" calculation: $Gift\ Proportion = \frac{(\sum_{k=1}^{n} offer_{ik})/n - Reservation\ Wage_l}{Reservation\ Wage_l}$,

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[7] Participants also received extra credit for recruiting purposes for attendance in addition to the $5 show-up
fee.

where k is the round, n equals the number of rounds in the session[8], i is the individual employer and l is the labor market (either Excess Demand or Excess Supply).

The second measured variable, implementation of an additional formal control, is endogenously determined by employers who decide to either implement or forgo a costly additional control. If the employer chooses to implement the control, the employer reviewed the budget submitted by the manager (at a cost to both the manager and the employer) and is the option to not fund the project. If the employer chooses to forego the control, the manager is constrained to submit a budget within the range of possible costs determined by the existing control system, but the employer cannot review the budget and the project was automatically funded.

4.4 DEPENDENT MEASURES

The primary dependent measure of interest in this study (*slack taken*) is the amount of slack creation by managers and serves as the dependent variable in the tests of H3 and H4. Rankin et al. (2008) argue that requiring a factual assertion as done in this study allows for the interpretation of any slack as a form of dishonesty, thereby representing opportunism. The dependent measure takes the following form:

$Slack\ Taken = \frac{Budget\ Slack}{Available\ Slack}$.[9] Budget slack is the difference between the budget submitted by each manager and the actual cost of the project. The available slack is the difference between the highest cost in the range of possible costs known by the employer (from the existing control system) and the actual cost known by the manager. For

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[8] The multiple rounds in the design of the study require the use of repeated measures analysis for all variables.

[9] This measure is consistent with the dependent measure used in Rankin et al. (2008) and is the complement of the honesty measure used in other studies.

example, if the actual cost is 4,600, and the highest cost in the range of possible costs is 5,000, the available slack is 400.

4.5 DESIGN

Each round within a session consists of two sequential phases. The first phase is a contracting phase designed to elicit the "use" dimension of the research question and presented the labor market conditions to the participants.[10] The second phase is a budgeting phase and is designed to examine the "effectiveness" dimension of the research question. Figure 4.1 provides a summary of the decision tree and payoff structure related to Phase 2 of the study.

Employers are endowed with 500 Lira to begin each round. All salaries are paid to managers from the initial endowment of the employer.[11] Employers make offers sequentially to each manager until a manager accepts the offer or no new managers remain to receive offers. All offers are made in a random sequence that is predetermined. Managers and employers vary in their position within the order of offers to be made and received each round, with the possibility that some managers under excess supply do not receive offers and some employers under excess demand do not have their offers distributed in a given market.[12] Once an offer is accepted the manager and employer left

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[10] Participants remain in the same condition (i.e., excess demand or excess supply) for all rounds of the session.

[11] This adaptation to the Evans et al. (2001) design is consistent with Douthit and Stevens (2012) who argue that it captures the idea that managers rarely have exact knowledge of employer's wealth and alleviates concerns of equal-split fairness.

[12] For example, assume five employers and three managers (excess demand). The round will begin with the first employer makes an offer to the first manager, the second employer makes an offer to the second manager and the third employer makes an offer to the third manager. If the first and third manager accept the offers, but the second manager declines, then the second employer will be out of the market and the second manager will receive an offer from the fourth and then fifth employer until the second manager has accepted an offer from one of the employers or rejected all offers.

the market and progress to the second phase of the round. Managers receive

compensation of 200 Lira and sit idle for the duration of the round if they do not receive

or accept any employer's offer.[13] Employers receive 350 Lira from their initial

endowment if their offer was not accepted.

Following the establishment of the salary and the acceptance of an offer by

managers, employers decide whether to implement an additional costly control in the

form of a review before the start of the second phase. Specifically, if employers choose

to implement the control, employers are charged 125 Lira and review the budget

submitted by the manager before deciding to fund the project. In the event the control is

implemented, managers are charged 25 Lira. Employers communicate the control

decision to the manager through one of two statements: For the implement option, "You

will be responsible for submitting a budget that is within the possible range of costs. I

have decided your budget will require my approval once submitted." For the forego

option, "You will be responsible for submitting a budget that is within the possible range

of costs.   I have decided your budget will require no further approval once submitted."

The second phase of the round is a budgeting phase. In this phase the manager

submits the project budget to the employer. The cost of the project is known to be

between 4,000 Lira and 5,500 Lira according to the employer's existing control system.

The actual cost is randomly predetermined and is revealed only to the manager who is

responsible for submitting the budget to the employer.[14] The employer is only aware of

the possible cost range (from 4,000 Lira to 5,500 Lira). The revenue is set at 5,800 Lira

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[13] The 200 Lira represents the suggested reservation wage. In keeping with the proposition of the paper, the reservation wage is not binding as in prior studies (e.g., Brandts and Charness 2004), allowing for participants to develop their own personal reservation wage.
[14] Three sets of actual costs were randomly selected using a random number generator in excel to avoid and control for potential order effects.

in every round. Because there is no uncertainty in the actual cost for the manager,

budgets submitted constitute a factual assertion.

If a control is implemented, the employer subsequently makes the decision

whether or not to fund the project after receiving the manager's budget, otherwise, if no

control is in place the project is funded automatically upon submission of the budget. If

the project is funded, then the manager receives the full amount of the budget including

any slack as compensation. The employer receives the revenue amount minus the

submitted budget amount plus any remaining funds from the initial endowment not

offered to the manager for salary. The manager keeps as earnings any slack (i.e., the

difference between the budget and the actual cost). These earnings come at the direct

expense of the employer. If the project is not funded, the manager receives the salary

minus the cost of the review and the employer kept any endowment minus salary plus

225 Lira (the 350 Lira revenue minus the 125 Lira review cost).

4.6 PARTICIPANTS

Ninety-six participants were recruited from upper-level accounting courses and all

had at least completed an introduction to managerial accounting course.[15] Given the

simplified nature of the budget task upper-level students possess sufficient capabilities to

perform the task. Thirty-nine percent of the sample was male and the average age was

21.18 years. The use of this participant pool is consistent with the pool used in previous

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[15] Of these 96 observations, only 88 are included in the analysis. One session of the excess supply condition was forced to end after only four rounds were completed because of a problem with the network. A second excess supply condition was forced to end after completing seven rounds based on a network problem but these observations remain in the analysis.

studies in participative budgeting (e.g., Fisher et al. 2006; Rankin et al. 2008; Hannan et al. 2010; Douthit and Stevens 2012).
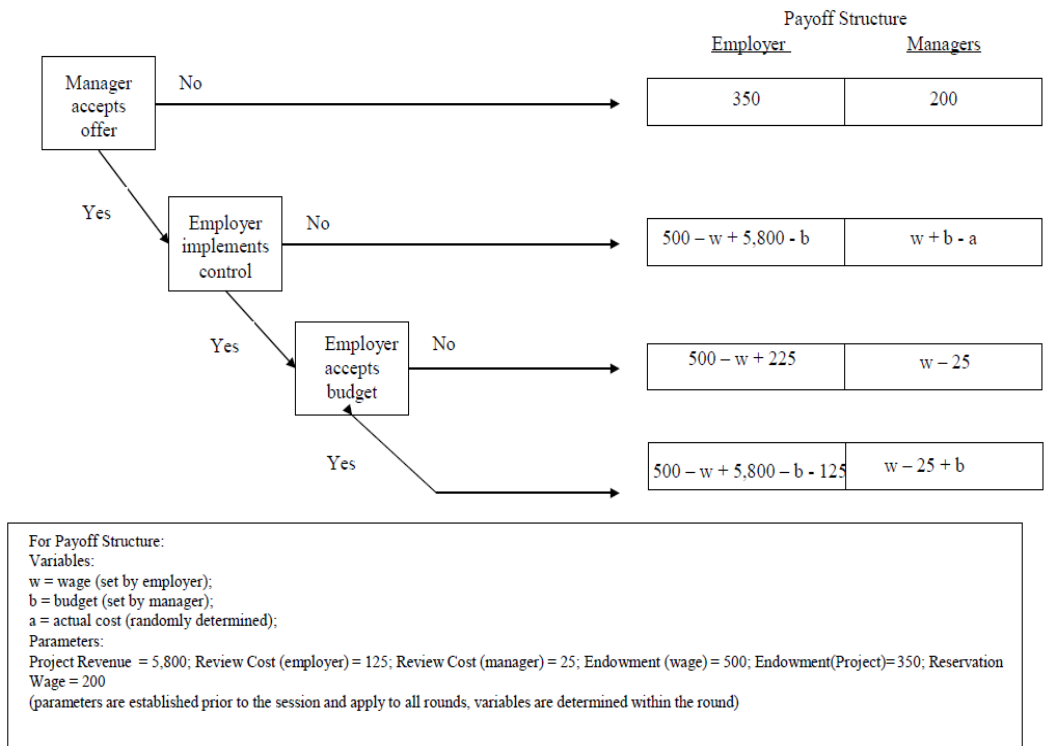
Payoff Structure

	Employer	Managers
Manager accepts offer — No	350	200
Employer implements control — No	500 – w + 5,800 - b	w + b - a
Employer accepts budget — No	500 – w + 225	w – 25
Employer accepts budget — Yes	500 – w + 5,800 – b - 125	w – 25 + b

For Payoff Structure:
Variables:
w = wage (set by employer);
b = budget (set by manager);
a = actual cost (randomly determined);
Parameters:
Project Revenue = 5,800; Review Cost (employer) = 125; Review Cost (manager) = 25; Endowment (wage) = 500; Endowment(Project)=350; Reservation Wage = 200
(parameters are established prior to the session and apply to all rounds, variables are determined within the round)

FIGURE 4.1 – EXPERIMENTAL PROCEDURE

CHAPTER 5

ANALYSIS

The first three hypotheses in this study relate to the employer's decision over the

control system. Figure 5.1 and Figure 5.2 provide graphical summaries of the decisions.

As can be seen, there is a noticeable divergence between the average accepted salary

across conditions, as well as a noticeable disparity in the frequency with which the formal

control was implemented by employers. This provides initial support for the argument

that control systems will in part be shaped by the conditions in the labor market.

Additionally, Figure 5.3 shows the level of slack taken based on the control decision

within labor market conditions. Table 5.1 provides summary descriptive statistics.

Consistent with the proposition of the study, the reservation wage varied

significantly based on labor market condition. As part of the post-experimental

questionnaire managers in both markets were asked the lowest salary they would have

accepted. The consolation earnings of 200 Lira in the experimental design acted as a

baseline for the reservation wage. In the excess supply condition the average reservation

wage of participants was 199.833. In the excess demand condition the average

reservation wage of participants was 332.778. Using a t-test this difference is statistically

significant (P-value < 0.0001). The reservation wage under excess supply is not

statistically distinguishable from the baseline reservation wage (P-Value = 0.9435).

However, under excess demand the reservation wage varies significantly from the

baseline reservation (P-Value < 0.0001). Thus, the proposition of the study, that

reservation wages are higher under excess demand, is supported. Next, I analyze the predictions of the hypotheses.

5.1 TEST OF HYPOTHESES – "USE"

As shown in Figure 5.1, the average salary varied significantly between market conditions as predicted by standard economic theory. In excess supply the average accepted salary was 276.61 while in the excess demand condition the average accepted salary was 409.06 (P-value < 0.0001). The "gift" portion of the salary constitutes the difference between the offer and the minimum salary that would be accepted by the manager. The minimum offer, as discussed in the analysis of the proposition, varied significantly across conditions. H1 predicts that the gift offered by employers will be higher under excess supply than excess demand. To measure the "gift" a proportion is used. The average reservation wage as established by the process measures was subtracted from the average offer made by the employers over the course of the session and this difference was divided by the reservation wage to form a proportion. The following equation gives the formula used:

$$Gift\ Proportion = \frac{(\sum_{k=1}^{n} offer_{ik})/n - Reservation\ Wage_l}{Reservation\ Wage_l},$$ where k is the round, n equals the

number of rounds in the session, i is the individual employer and l is the labor market (either Excess Demand or Excess Supply). Table 5.2 provides descriptive statistics of the gift measure. Under excess supply the gift proportion is significantly higher under excess supply (mean $= 0.375$) than excess demand (mean $= 0.153$) (P-Value $= 0.0061$, one-tailed). Thus, H1 is supported. Managers receive a higher proportion of their salary in the form of a gift under excess supply compared to excess demand.

H2 predicts that the labor market will affect the employer's decision to implement the formal control. Given the categorical nature of the dependent variable, a repeated measures logistic regression was performed. The dependent variable is *Control*, which takes the value of 1 if the formal control is implemented and 0 if the formal control is not implemented. Because the relationship between the labor market and the control decision is predicted to be mediated by the gift I conduct a mediation analysis consistent with Baron and Kenny (1986). The models and results of the tests are provided in Table 5.3 – 5.5. First, I test the main effect for H2 using the labor market as the independent variable.[16] I use a dummy variable taking the value of 1 for excess demand and 0 for excess supply. As predicted, employers under excess supply implement the control less frequently than under excess demand (P-value = 0.0014, two-tailed), supporting H2.

To test the mediation, I conduct additional tests. Figure 5.4 presents the model of the mediation. As already observed in the discussion of H1 the relationship between labor market competition and the gift is significant. I next test the relationship between the gift and the control decision and find that in fact an inverse relationship is present. The higher the gift proportion the less likely the formal control will be implemented (P-Value = 0.0001). This result holds regardless of condition. Under excess demand the P-value is 0.0201 and under excess supply the P-value is 0.0162. In order to demonstrate mediation, the paths must all be significant, and when the mediating variable is introduced into the model, the main effect must disappear. Since the mediation paths are significant as observed in Table 5.1 and Table 5.4, I compare the results of Table 5.3 and 5.5. In the final model (shown in Table 5.5), both market condition and gift proportion

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[16] Period was included as a control variable in all tests related to the mediation. No significant period effect was found in any test and therefore the variable is left untabulated and is not discussed.

are included in the model and the market condition loses significant (P-value = 0.2336, two-tailed). This provides further support for H2 and demonstrates that the effect of the labor market on the control decision is mediated by the gift.

5.2 SUMMARY – "USE"

In both markets (excess supply and excess demand) managers seem to attempt to engage in a gift-exchange, because in both markets wages significantly exceed managers' reservation wages. However, the gift proportion is significantly higher in the excess supply condition as predicted based on greater ability to invoke reciprocity. Consistent with the ability to invoke reciprocity more easily under excess supply, I find support that employer reliance upon the gift-exchange model does appear higher in excess supply compared to excess demand. The support for H2 and the mediation process suggests that employers did believe that offering higher salary required less need for the formal control and that employers did attempt to engage in a gift-exchange.

5.3 TEST OF HYPOTHESES – "EFFECTIVENESS"

H4 and H5 examine the behavior of managers within the given control system used by employers analyzed in the previous section. To test these hypotheses, I use a repeated measures mixed model. Table 5.5 provides the results of the test. To be consistent with prior literature the actual cost was included as a control variable. Given the multiple rounds, period was also included as a control variable.[17]

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[17] In untabulated results, period was included in the model and periods 1and 10 were significant at the .05 significance level. Removing these periods from the data and running only the remaining seven rounds maintains the significance effects on the variables of interest while cost goes from a P-value of 0.0937 to 0.3017. Models including interactions between the gift proportion and control decision were conducted,

Based on the gift-exchange model, H4 predicts that larger gifts paid by employers will lead to lower levels of slack creation by managers. However, there is no support for such a relationship between the gift and the amount of slack taken (P=0.9252). In fact, when analyzing the correlation between conditions, a positive relationship is actually found between gift and the level of slack created in the excess demand market (0.314, P-value < 0.0001). No correlation is found between the salary and the level of slack created in the excess supply market (0.065, P-value $= 0.4528$). Therefore, H4 is not supported by the data.

H5 explores the other component of the control system, the formal control decision. H5 predicts that the presence of the formal control will reduce the creation of slack by managers. Again, control decision is used as a categorical variable taking the value 1 when the formal control is implemented and 0 when the formal control is not implemented. This time control is the independent variable in the model with slack taken as the dependent measure. I find that control is significantly related to the amount of slack taken (P-Value < 0.0001). Thus, H5 is supported. Figure 4 shows the effectiveness of the formal control across conditions. There is no evidence that the formal control is more or less effective in either labor market condition.

5.4 SUMMARY – "EFFECTIVENESS"

The support for H5 and lack of support for H4 suggests that the effectiveness of the gift-exchange model and reciprocity as a control is diminished when incorporated into a broader control system that features the ability to implement formal controls. There is

but no significant interaction was observed and the models performed comparatively worse to the model used in this discussion.

no evidence that managers attempt to reciprocate higher salaries with lower opportunism. In fact, under excess demand higher salaries seem to encourage greater opportunism. The finding for H4 is a direct contradiction of the predictions of the gift-exchange model. However, previous studies related to the gift-exchange model have made compensation the only control component of the control system. Additionally, the observed correlation under excess demand lends credibility to the argument that managers' are more opportunistic under excess demand. As in prior studies the formal control effectively reduces slack below levels observed in the absence of the formal control.
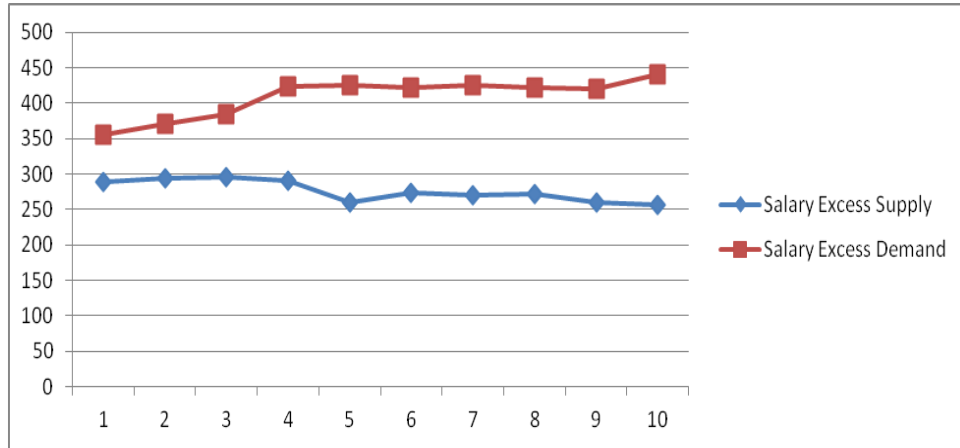
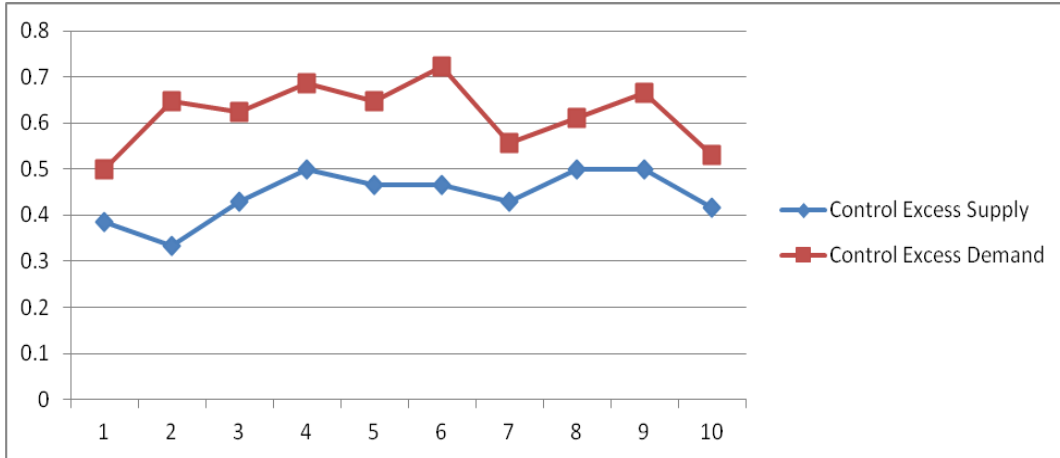FIGURE 5.1 – AVERAGE ACCEPTED SALARY BY ROUND

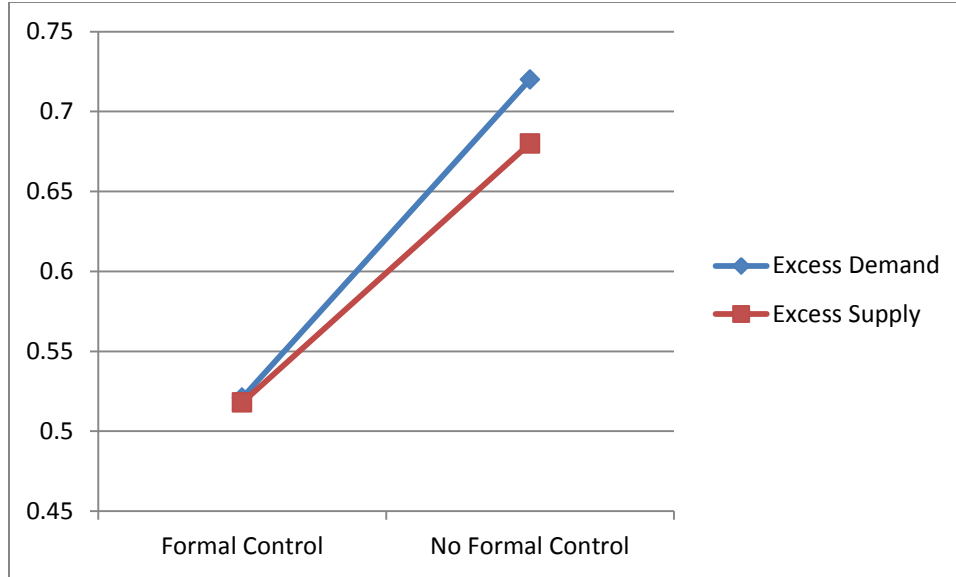FIGURE 5.2 – FREQUENCY OF IMPLEMENTATION OF THE FORMAL CONTROL BY ROUND

FIGURE 5.3 – AVERAGE SLACK TAKEN ACROSS CONDITIONS

		Control System	
		Formal Control	**No Formal Control**
Market	**Excess Demand**	**0.521**	**0.72**
	Excess Supply	**0.518**	**0.68**
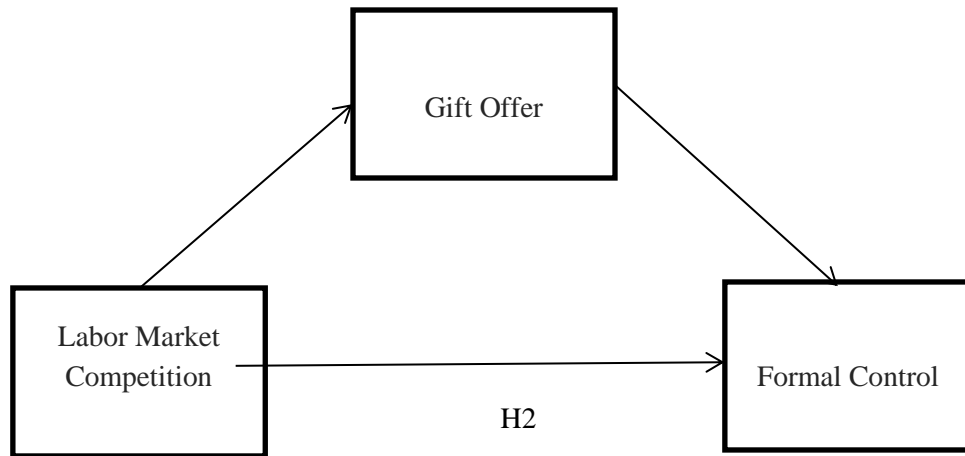
FIGURE 5.4 – MODEL OF "USE" DIMENSION

TABLE 5.1 – DESCRIPTIVE STATISTICS

	Excess Supply	Excess Demand
Number of Employers	**15**	**30**
Number of Managers	**25**	**18**
Average Salary Accepted	**276.61 (87.94)**	**409.06 (70.56)**
Frequency of Formal Control	**44.12%**	**61.85%**
Average Slack Created	**0.606 (0.347)**	**0.597 (0.329)**
Reservation Wage	**199.833 (49.99)**	**332.778 (78.87)**
Gift Proportion	**0.375 (.378)**	**0.153 (0.193)**

Mean (standard deviation)
Total observations for repeated measures variables (n= 309)

TABLE 5.2 – SUMMARY OF GIFT PROPORTION ACROSS CONDITIONS

	Excess Supply	Excess Demand
Number	15	30
Mean	0.375	0.153
Standard Deviation	0.378	0.193
Minimum	-0.042	-0.193
Maximum	1.209	0.466

t-test = 6.86, P-Value = 0.0061

TABLE 5.3 – FREQUENCY OF IMPLEMENTATION OF THE FORMAL CONTROL (MAIN EFFECT)

Variable	Estimate	Standard Error	χ^2	P-Value
Intercept	0.5567	0.0935	35.47	<0.0001
Excess Supply	-0.1786	0.0560	10.18	0.0014
Excess Demand	0.0000	.	.	.

TABLE 5.4 – FREQUENCY OF IMPLEMENTATION OF THE FORMAL CONTROL (MEDIATOR)

Variable	Estimate	Standard Error	Z	P-Value
Intercept	0.7007	0.1388	5.05	<0.0001
Gift Proportion	-0.5329	0.2292	-2.32	0.0201

TABLE 5.5 – FREQUENCY OF IMPLEMENTATION OF THE FORMAL CONTROL (FULL MODEL)

Variable	Estimate	Standard Error	Z	P-Value
Intercept	0.6369	0.0942	6.76	<0.0001
Excess Supply	-0.1271	0.1067	-1.19	0.2336
Excess Demand	0.0000	.	.	.
Gift Proportion	-0.3330	0.1097	-3.03	0.0024

TABLE 5.6 – THE EFFECTIVENESS OF CONTROLS ON SLACK CREATION

Effect	Estimate	Standard Error	DF	t Value	P-Value
Intercept	-0.02989	0.3351	41	-0.09	0.9294
Excess Supply	-0.03038	0.03724	41	-0.82	0.4193
Excess Demand	0.00000	.	.	.	.
Gift Proportion	0.07341	0.05575	254	1.32	0.1891
Cost	0.00011	0.00007	254	1.68	0.0937
No Control	0.1849	0.03769	39	4.91	<0.0001
Control	0.00000	.	.	.	.

CHAPTER 6

CONCLUSION

The study examines an environmental factor that confronts all organizations – labor market competition. In this study employers are given complete control over the agency contract they wished to implement within a competitive labor market environment. The results of this study appear to contradict the prevailing findings in the literature suggesting that reciprocity is an effective means of control. However, this study allowed for a more expansive test of the effectiveness of relying on reciprocity in two important ways. First, employers were forced to compete in a competitive labor market in which employers and manager had to actively search to form the agency relationship. Second, employers were provided with control options that have been demonstrated as effective (Rankin et al. 2008; Stevens and Schatzberg 2008). These two variations from prior gift-exchange studies are likely to have affected the behavior of managers.

The results suggest that while employers appear to attempt to engage in a gift-exchange, managers are not responsive. The inverse relationship between salary and frequency of implementation of the formal control is consistent with a reciprocity framework. The fact that employers that already incur the greater cost (i.e., employers competing in labor markets with excess labor demand) are more likely to implement the costly formal control supports the idea that employers tried to engage in a gift-exchange rather than conserve on cost. Managers however are significantly more opportunistic

when the formal control is absent and do not display any reciprocity to increased compensation levels.

The findings of this study have potential implications across a broad number of research areas in management accounting, including the literature on controls, effort, honesty, negotiation, and performance. Future research can apply the constructs and conclusions of the present study to determine what attributes generalize beyond the participative budgeting literature and what attributes are specific to the budgeting setting. Within the participative budgeting literature, this study expands the theoretical framework proposed by Dunk and Nouri (1998).

While the use of experimental methods in this study potentially limits the generalizability of results, the use of a controlled experiment allows for greater validity related to the relationships of the construct of interest. The task selected in the current study has been externally validated by use in prior research and allows for reasonably analogous setting to that faced by managers. The task selected in the current study also allows for upper-level accounting students to serve as reliable participants. As in any experiment, caution must be made when attempting to generalize beyond the participant pool of the study.

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