Shirking and Motivations in Firms: Survey Evidence on Worker Attitudes

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Abstract: A framework on worker motivations is tested with an extensive U.S. survey. 82.7% of the respondents report that they are very likely to keep an agreement to work hard, even if it was almost impossible for their employer to monitor them. Based on mean responses, the rank order of motivations is: moral, intrinsic, peer-pressure, and positive incentives. Respondents also report that fairness considerations are important and that they are especially likely to keep agreements with honest employers. Logit analysis indicates that increases in moral and intrinsic motivations increase the likelihood of keeping agreements to provide effort. The evidence suggests that we might need to re-examine a foundational assumption underlying the theory of the firm.

Keywords: Shirking, incentives, moral, intrinsic, fairness.

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1. <u>Introduction</u>

The theory of the firm is important because asking "why firms?" is inextricably linked to asking "why not markets?" Coase's (1937) central insight was that markets carry certain transaction costs that can sometimes be reduced inside of firms. The theory of the firm has evolved, with worker shirking now playing a central role. Since workers favor leisure to effort and are thus predisposed to shirking, firms exist in large part to provide the proper incentives to assure worker performance when information on performance is costly.[2] The underlying, fundamental assumption is that workers will shirk in the absence of sufficient incentives. Surprisingly, however, this assumption has received little empirical scrutiny.[3] The veracity of the incentive assumption needs confirmation because the existence of any of four different motivations, intrinsic, moral, peer-pressure or fairness, could substitute for incentives. That is, *incentives might not be necessary* to assure the provision of effort. The question is not whether workers would work harder if the firm knew how hard each worker was working, but rather would workers shirk if the firm did not know how hard each was working. If workers would

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[2] This information problem could result from team production (Alchian and Demsetz 1972), costly measuring (Calvo and Wellisz 1978), unobservability of worker performance (Holmstrom 1982), or any host of production, demand, or technological uncertainties (see, for instance, Hart and Holmstrom 1987). The twin problems of worker behavior and information asymmetries induce the suggested remedies of monitoring, contracts, and wage incentives, all of which become the essence of the firm. The principal-agent literature finds that agent risk-aversion complicates optimal contracting considerably because the best incentive contract imposes the most risk on workers and the least risky contract provides the least incentives. Sometimes signals correlated with actions can help to reduce the amount of risk that agents must bear. If the information problem is especially severe, deriving from bounded rationality, and if asset owners are especially prone to the ex post contractual hazards from the limited re-deployability of their specific assets, then the transaction cost literature posits that a potential solution to opportunistic behavior is common ownership under the rubric of a hierarchical firm (Klein, Crawford, Alchian 1978; Williamson 1985; Grossman and Hart 1986).

[3] Prendergast (1999) cites evidence that piece rate payment schemes can boost salaries and productivity in windshield installation, Canadian tree planting, and, on an aggregate level, in Chinese agriculture. Prendergast notes that this limited evidence covers only "simple jobs," ones where good performance measures are available. Such evidence is the kind least relevant for the theory of the firm. When labor service providers can be compensated according to their contributions, we usually expect markets, not firms to coordinate their activity. Prendergast further notes that contrary to the literature the vast majority of employers do not use pay-for-performance incentive schemes; instead they opt for subjective performance evaluations to determine pay, promotion, and training.

not shirk even absent the proper incentive controls, then our understanding of both firms and markets would need reexamination. Related evidence comes from the experimental economics literature.

A plethora of experimental evidence indicates that people often act contrary to their material self-interest, often for reasons of fairness or morality. Frey and Bohnet (1995) distinguish two different kinds of experiments: natural and laboratory. In the first, representative samples are surveyed about real-life dilemmas. This literature finds that fairness values can affect behavior, from consumption decisions related to market clearing to the propensity to provide effort in the workplace, to the willingness to support and comply with tax policies.[4] As for prisoner dilemma and public good laboratory experiments, subjects are placed in social dilemma situations such that they get more money by defecting, no matter what their partners do, but collectively get more money if all or some significant percentage cooperate. Because of the underlying assumption of instrumental rationality, the behavior predicted by economic theory is straightforward: people will play their dominant strategy and defect, especially if the game is played only once. It is consistently found, however, that a significant percentage of people choose cooperation as their strategy.[5] The effect of pre-play communication is even more surprising. Because participants generally do not know one another, and because any agreements made would not be binding, economists posit that any commitments resulting from pre-play communication is "cheap-talk," and should be discounted accordingly. But that is not the reasoning that experimental participants themselves seem to adopt. An empirical regularity of the literature finds that pre-play communication increases cooperation rates, and that unenforceable promises do matter.[6]

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[4] See Kahneman, Knetsch, and Thaler (1986); Frey and Bohnet (1995); Konow (1996); and Andreoni, Erard, and Feinstein (1998, section 8).

[5] Sally (1995) provides a meta-analysis of 37 different studies consisting of 130 experiments and finds a mean cooperation rate of 47.4%. Also see Marwell and Ames (1981); Schneider and Pommerehne (1981); Kahneman, Knetsch, and Thaler (1986); Caporael, Dawes, Orbell, and van de Kragt (1989); Dawes, van de Kragt, and Orbell (1990); Davis and Holt (1993); Frey and Bohnet (1995) and Ledyard (1995). Related findings occur in ultimatum and dictator games (Frey and Bohnet, 1995). In contrast, Nalbantian and Schotter (1997) do find that incentives can reduce shirking in a laboratory experimental setting amongst anonymous students without communication.

[6] Sally (1995, p.78) estimates that "a 100 round prisoners' dilemma with discussion before each round would have 40% more cooperation than the same game with no discussion, and about 36% more cooperation than the same game with discussion every 10 trials." Moreover, (non-credible) promises to cooperate elicited by the experimenter increase cooperation by 12-30%, depending on the regression model. Bohnet and Frey (1999) use prisoner's dilemma games in which there is one way identification to show that increased cooperation rates with

Some recent work has empirically investigated different motivations within organizations. Frey and Jegen (2001) review the literature on intrinsic motivations and find that the evidence does suggest that incentives sometimes do "crowd-out" intrinsic motivations (this notion will be discussed shortly). As for peer-pressure, Fehr and Gachter (2000) provide experimental evidence for subjects engaging in costly punishment of free-riders in public goods games. Though subjects are anonymous and no communication is permitted, the authors believe the results to be consistent with the role of peer-pressure as a deterrent to shirking in the workplace. In contrast to the other motivations, a significant amount of work has been done on fairness motivations, particularly by organizational theorists in psychology and management. In their meta-analysis of 190 laboratory and field studies, Cohen-Charash and Specter (2001) find that work performance is highly correlated with procedural fairness. In contrast, economists typically focus on fairness as reciprocity. Ernst Ferh and his colleagues have been especially active in documenting the importance of individuals' desire to reciprocate in organizations (Fehr and Falk, 2002; Fehr and List, 2002). To my knowledge, until now there have been no attempts by economists to empirically assess the extent of truly moral motivations in the workplace.

The purpose of this paper is to contribute to this emerging literature in the following ways. First, instead of considering just incentives versus intrinsic motivations, or incentives versus fairness motivations, etc., a general framework is provided that includes all five motivations. Second, the concept of moral motivation is introduced to explain some possible workplace behavior. Lastly and most importantly, a novel survey instrument is used to assess the importance of each motivation on the propensity to shirk. The evidence on behavior presented here suggests that respondents do not present themselves likely to shirk if they have agreed not to, and that moral, intrinsic, peer-pressure and positive incentives (in order of descending importance) are the reasons why. Logit analysis is also performed in order to provide a more differentiated picture of people's motivations than the one offered by the importance ratings. Both types of evidence corroborate and extend that of the recent empirical literature, but does so by including the possibility of all motivations and also by using a different kind of methodology.

Before continuing, it is important to address the use of survey methodology in industrial organization. Its chief advantage is that the methodology can elicit detailed information from large samples that would otherwise be difficult or impossible to obtain. For this paper that means we can obtain information on the propensity to shirk, attitudes underlying alternative motivations and commitments, and the existence of workplace agreements. Such information in

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communication cannot be solely the result of expected reciprocity. Also see Isaac and Walker (1988 and 1991), and Ledyard (1995).

turn allows us to delve into previously unasked research questions. The survey data in this study represents a "middle way," much like contingent valuation studies in environmental economics (Mitcell and Carson, 1989), because of the way the questions are structured. That puts it in between the strictly "objective" data generated in surveys like the Decennial Census and the Current Population Survey, and the strictly "subjective" data found in the economics of happiness literature (Oswald, 1997).

The advantage of survey methodology has sometimes led researchers to favor it over (a) case studies and their limited scope, (b) experimental methods with their selection bias and problem of contextual relevancy, and (c) standard data collection techniques that simply cannot obtain the necessary information on a large scale. On the last, it's just not clear how the relative importance of different workplace motivations could be teased out of a large data set on wages, say, especially when wages are typically determined by subjective performance evaluations in conjunction with other forms of compensation, all in complex team settings. Moreover, industrial economists do use survey data. Examples include assessing the importance of entry deterring strategies (Smiley, 1988), the attitudes of IO economists about the field (Aiginger, Mueller and Weiss, 1998), executive compensation in agency contexts (Brunello, Graziano, and Parigi, 2001), and to improve the accuracy of manufacturing output growth forecasts (Mitchell, Smith, and Weale, 2002).

The most common complaints against survey methodology center on selection and measurement problems ("how do we know respondents are telling the truth?"). The former is not a problem for the data set used here because it comes from a national random sample. The measurement problem is sometimes seen as a decisive blow by the skeptics. Consider three responses. First, a well-constructed survey minimizes the possibility of measurement error. Bertrand and Mullainathan (2001) identify three possible sources: (a) improperly worded questions, (b) social desirability bias, and (c) respondent attitudes that are unstable, absent, or just wrong. Problem (a) is minimized in the analysis here because the survey was developed in association with and administered by a professional survey organization that employed a variety of techniques to reduce the possibility of that (and other) measurement error. Social desirability bias, problem (b), is explicitly addressed with demographic controls. Problem (c) is at least partly mitigated because the context is so familiar to respondents that they have well-rehearsed beliefs and attitudes. Second, it is certainly arguable that at least some of economists' bias against survey methodology is misplaced. Charles Manski investigated the scientific basis and the historical roots of economists' skepticism (he calls it "hostility") toward subjective data on preferences and expectations and finds the evidence to be "meager" (Manski, 2000). He further laments that as a result of economists' biases, "[i]n the absence of data on preferences and expectations, economists have compensated *by imposing assumptions*" (p. 131, emphasis

added). Finally, to the extent that even well constructed surveys cannot eliminate all possible measurement error, caution requires overstating results. Ultimately, the results reported here imply that the concern about the veracity of the incentive assumption is warranted, but in need of further confirmation and study.

The paper is organized as follows. The next section discusses potential determinants of worker performance, and incorporates them into a simple behavioral framework to generate the hypotheses to be tested with the survey instrument. Section 3 describes the data and presents the rank-ordering of motivations and regression results. Controls for possible sources of measurement error are incorporated into this section. Section 4 provides concluding comments.

2. Determinants of Worker Performance

In this section each motivation (incentives, intrinsic, peer-pressure, moral, and fairness) is considered in depth and a simple behavioral framework is employed to incorporate the key insights of each idea and to generate the hypotheses to be tested with the survey. To keep the exposition brief, and because each motivation is added iteritavely, the expanded maximand will sometimes be placed into footnotes.

a. Incentives and shirking

To see the importance of the incentive assumption and its implications, consider the simple model offered by Calvo and Wellisz (1978). The problem they analyze is one of costly measurement where it is assumed that it is less costly to monitor employees' effort than it is to measure their marginal product. The authors start with an employee utility function incorporating disutility conferring effort, e, and consumption, c, of the form:

$$U= u(c) - v(e), \text{ where } c \geq 0, 0 \leq e \leq 1, \qquad (1)$$

where u' ≥ 0, v' ≥ 0, u" ≤ 0, v" ≥ 0. If $e=1$, the worker is providing full effort; it is 0 if the worker is idle.

The monitoring scheme is as follows. If the employee is not checked, he is presumed to have provided full effort ($e=1$) and is paid a wage of w. The monitor checks the employee's effort with probability π, and, if checked, compensates the employee with w·e. If the employee provides full effort, he gets w, if he shirks he gets w·e, which implies a penalty of (1-e)·w. Assuming that $c=$w·e, the worker chooses e to maximize expected utility:

$$Z = \pi[u(we) - v(e)] + (1-\pi)[u(w) - v(e)]. \qquad (2)$$

Note that the construction of (2) implies that if the worker knew $\pi=0$, then $e^*=0$.[7] Assuming the existence of a unique e^*, it follows that:

$$\partial e^*/\partial\pi \geq 0 \qquad (3a)$$

$$\partial e^*/\partial w \geq 0, \text{ or} \qquad (3b)$$
$$\partial e^*/\partial w \leq 0$$

The principal's first incentive option is negative: the firm can increase monitoring to increase the probability (π) of imposing the penalty on a shirking worker, thereby increasing the choice of optimal effort. The sign of $\partial e^*/\partial w$ is indeterminate. A negative sign is akin to a backward bending supply of labor. A positive sign is more relevant for analyses that emphasize incentives. Wage increases could act as a positive incentive by increasing the expected (consumption) reward of effort provision for any given monitoring probability. If the incentive effect is bigger than the income effect associated with a backward bending labor supply curve, the sign is positive. Finally, note that if e^* is concave in π, for given w, then e^* approaches its minimum as π goes to 0, and approaches its maximum as π goes to 1.

Having outlined the fundamental issues surrounding incentives and shirking, we are led to the following two hypotheses.

Hypothesis 1. In the absence of monitoring, workers will shirk (or provide minimal effort).

Hypothesis 2. Incentives are important, and worker effort increases with increases in (a) the negative incentive of monitoring, and (b) positive incentives like wage increases or promotions (provided that the incentive effect dominates the income effect).

The term "important" in Hypothesis 2 (and those to follow) has a precise meaning in the context of the survey used in this paper. In the survey, respondents are asked to numerically score motivations according to their importance on a 0-10 scale. Respondents commonly judge

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[7] Of course if the *firm* knew the worker knew $\pi=0$, it would infer $e^*=0$ and would respond with w=0. The model is not equipped to deal with this type of strategic behavior, but it does not need to to generate the basic incentive hypotheses of the theory of the firm.

5 to be the anchor on that scale, which means that the motivation is "neither important nor unimportant." If mean responses statistically differ from the anchor, a judgement can be rendered about the importance of the motivation.

b. Intrinsic Motivation

Social psychologists suggest that some people possess a work ethic and choose to do good work for its own sake (Deci and Ryan, 1985). So does common experience. Such people are said to be intrinsically motivated. Frey (1997) notes that high intrinsic work motivation derives from work that is interesting, involves the trust and loyalty of personal (as opposed to anonymous) relationships, and is participatory. Under certain conditions, however, intrinsic motivation can be surprisingly diminished, or "crowded-out" by external interventions like monitoring or pay-for-performance incentive schemes. The idea is that if "external rewards are given for an intrinsically motivated activity, the person perceives that the locus of control or the knowledge or feeling of personal causation shifts to an external source, leading him to become 'a pawn' to the source of external rewards. Similarly, …. external rewards affect the person's concept of why he is working and his attitude toward the work" (Deci, 1971, p.105). Accordingly, Frey (1997) suggests that an intervention can be seen as either controlling or informative. In the former, an agent sees the principal as determining his behavior. The rational agent responds by changing what he has control over, that is, reducing his intrinsic motivation. In contrast, an informative intervention like positive feedback leaves intrinsic motivation unchanged or may even increase it. Frey further suggests that it matters whether the external intervention is in the form of a command or a reward. Commands are most controlling in the sense that they wrest self-determination from the agent, whereas rewards might still permit autonomy of action. Promotions believed to be an acknowledgement of general competence may even increase intrinsic motivation. But if the reward is closely linked to the performance set by the principal and contingent on specific performance, it can be seen as controlling with a resulting decrease in intrinsic motivation.

Even if external interventions do decrease intrinsic motivation, the real question from an economist's perspective is what happens to effort. Can the decrease in intrinsic motivation more than offset the disciplining (controlling) effects of external interventions? Using the notation from the last section, Frey (1997, p. 429) frames the tradeoff as follows. The benefits and costs of effort, denoted as B and C, depend on effort, e, and external interventions (exogenous to the agent), E, in this case the probability of being monitored, π, and performance based wage bonuses, w (that is, E=π,w). For any given E, the agent chooses e such that $\partial B/\partial e = \partial C/\partial e$. That means that the sign of $\partial e^*/\partial E$ depends on the relationship between B_{eE}, the crowding out

effect of intrinsic motivation (if $B_{eE} < 0$), and C_{eE}, the disciplining effect of the external intervention.[8] If the crowding-out effect exceeds the disciplining effect, $B_{eE} - C_{eE} < 0$, then $\partial e^*/\partial E < 0$. In other words, if monitoring or performance-based wage bonuses reduce a worker's intrinsic motivation more than they discipline the worker or induce him to perform, optimal effort will decrease, reversing the signs of (3a) and (3b) above to:

$$\partial e^*/\partial \pi \leq 0 \tag{3a'}$$
$$\partial e^*/\partial w \leq 0. \tag{3b'}$$

Thus, crowding-out of intrinsic motivation provides a stark contrast to the implications of the incentive theory, and leads to the following hypothesis.

Hypothesis 3. Intrinsic motivations are important. Workers who enjoy their work are intrinsically motivated, but negative and positive incentives may crowd out intrinsic motivations and reduce effort, at least over some range.

c. Peer-Pressure

Workers who care about the views of other workers are subject to peer-pressure. In that case, workers who perceive that a co-worker has under-performed can use social sanctions to affect the shirker's behavior. Kandel and Lazear (1992) argue that peer-pressure most likely surfaces in organizations that use profit-sharing, like partnerships, because each worker's effort tangibly affects all other workers' incomes. More generally, we could expect that the potential for peer-pressure exists whenever a worker's non-performance affects the well-being of other workers (e.g., when a shirker's loafing necessitates increased effort from others). Why would social sanctions by one's peers affect the shirker's behavior? Kandel and Lazear identify guilt and shame as possible explanations. Shame exists when others observe non-performance and then exert external pressure. In contrast, guilt arises as internal pressure even when one's actions are unobservable. If the firm succeeds in instilling loyalty and team spirit in its workers, then external sanctions for non-performance are less necessary because shirkers would suffer

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[8]   If $B_{eE} > 0$ there is a crowding-in effect, for example, when individuals perceive external interventions as recognizing their high work morale. Frey is more concerned with the crowding out effect as a contrast to the usual implications of the principal-agent literature. Osterloh and Frey (2000) believe the preponderance of evidence suggests the crowding-out effect to be the most prominent.

an internal cost, guilt, from letting down their co-workers. Of course peer-pressure could also decrease effort, especially in organizations characterized by contentious labor relations. The direction of peer-pressure on effort could also be influenced by the way compensation is structured (e.g., the use of fixed wages, piece rates, tournaments, and/or team bonuses). This paper follows Kandel and Lazear's argumentation because it aims to explicate the possible *alternatives* to incentives.

If guilt can be manipulated, the next question is *who* can manipulate? The authors posit that workers are most likely to feel guilty toward co-workers, but not shareholders or their agents (i.e., managers). The idea is that even though corporate shareholders are also harmed by shirking behavior, workers are less likely to feel empathy toward them. Instead, they are more likely to feel empathy towards those with whom they share common or similar experiences. Recognizing this, firms may promote quality circles, team meetings, inter-company softball leagues, company picnics, and the like, in order to foster the formation of groups whose members can identify and empathize with one another.

To model the effects of peer-pressure, Kandel and Lazear simply add a peer-pressure function to the worker's utility maximization problem. The peer-pressure function is given by:

$$P = P(e_i; e_j,\ldots, e_N, a_i, a_j, \ldots, a_N). \tag{4}$$

The peer-pressure worker i experiences depends on his own effort, that of his peer group, and on the other actions, a, that he and the group may take. Here, we suppose that a=0, so no one is monitoring or exerting external social sanctions on worker i. In this case, $\partial P/\partial e_i \leq 0$ means that the worker feels increasing internal guilt from decreasing effort. By incorporating P into (2) we get a new maximand, Z^P.[9] If the worker chooses *e* to maximize Z^P holding the effort of his peer group constant, the resulting *e** is greater than the one that solves (2) because P increases the utility of effort (or decreases the disutility of effort). Moreover, by adding a shift parameter p to P which renders the worker more sensitive to peer-pressure (and suppress $(e_j,\ldots, e_N)$), such that P=P(*e*,p) where $P_p \geq 0$ and $P_{ep} \leq 0$, it follows that:

$$\partial e^*/\partial p \geq 0. \tag{5}$$

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[9] Explicitly, $Z^P = \pi[u(we) - v(e) - P(e; e_j,\ldots, e_N)] + (1-\pi)[u(w) - v(e) - P(e; e_j,\ldots, e_N)]$.

A worker's optimal effort increases with increases in peer-pressure induced guilt. Effective peer-pressure thus performs the same function as successful incentive schemes, and generates the following hypothesis.

Hypothesis 4. Peer-pressure is important, and worker effort increases with increases in peer-pressure.

d. Moral Motivations

People sometimes behave morally if they believe it is their responsibility to do so. Moral agents may believe that their responsibility derives from the importance of promoting the common good, following the dictates of a divine entity or the moral precepts of religious doctrine, or from some rationally based sense of duty. Moral behavior is taught in and valued by major social institutions like family, religion, and education. One result is the widely held acceptance of the message that lying is wrong under normal circumstances, regardless of the consequences to one's own welfare. Since moral motivations can sometimes conflict with instrumental rationality, we will consider them more closely.

Sen (1978) was among the first to introduce economists to the idea that personal ethics could influence choice, and that such a link could pose significant economic implications. One could be motivated by sympathy, in which case one acts to reduce feelings like guilt or revulsion. But commitment or duty could also motivate moral action. Famously, Sen notes that if an agent sees an act as a moral duty, a wedge is driven between personal choice and personal welfare because choice is independent of welfare considerations. An elusive but crucial point is that guilt is not necessary to motivate moral action. Dowell, Goldfarb, and Griffith (1998) offer a more recent attempt to include moral motivations in economic decision-making. They observe that some moral values cannot be traded off at the margin against other values or goods. One is either honest or dishonest, and thus small continuous units of honesty cannot be traded off against the economic benefits conferred. Minkler and Miceli (2004) borrow from the moral philosophy literature to invoke integrity as a reason for moral action. Integrity can be seen as identity-conferring commitments to moral principles (like honesty). Thus, to violate one's own moral principles is to risk rendering one's own identity incoherent -- a loss of the most significant kind.[10] It turns out that the existence of integrity influences both the propensity to make promises and then the likelihood of keeping them. In contrast to traditional game theory

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[10] Piaget and later Kohlberg's cognitive development theories provide the primary psychological foundations for integrity (see Colby and Kohlberg, 1987; Wren, 1991).

where non-credible talk is "cheap," but consistent with the evidence in the experimental literature, the existence of integrity implies that some will keep their word even if doing so is contrary to their material incentives. In the workplace, the existence of integrity means that some will work hard *if they had agreed to* irrespective of the external incentive mechanisms in place. In that instance, to shirk is to lie, and at least some people recognize that lying is wrong according to their own moral principles.

The literature on moral motivation suggests that workers may provide effort if they see doing so as a moral duty. To capture the role of moral motivation in effort provision, we can adduce a moral preference for honesty, and assume that shirking is analogous to dishonesty because the worker has agreed not to shirk. Let $H(e)$ denote this preference, with $H' \geq 0$ and $H'' \leq 0$. By adding this moral preference to (2), we get a new worker utility maximand, Z^H.[11] If we again add a shift parameter h to H, where an increasing h indicates a greater preference for honesty, then $H = H(e,h)$, $H_h \geq 0$ and $H_{eh} \geq 0$, we find:

$$\partial e^*/\partial h \geq 0. \tag{6}$$

Put simply, the worker provides more effort the more honest he is, provided that he sees hard work as a moral duty. This section leads to the following hypothesis.

Hypothesis 5. Moral motivations are important, and worker effort increases with increases in moral motivation.

e. Fairness

While there are many notions of fairness, the one most germane to the context of worker effort centers on reciprocity.[12] In particular, Rabin (1993) considers both altruism towards the altruistic *and* harm to the harmful fair.   To model this notion, Rabin focuses on the beliefs and intent of one's partner. If one believes the other's intent is to cheat, the appropriate response is also to cheat. Outcomes reflecting these motivations are called fairness equilibria.

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[11]   Explicitly, $Z^H = \pi[u(we) - v(e) - P(e,p) + H(e)] + (1-\pi)[u(w) - v(e) - P(e,p) + H(e)]$.

[12]   Related notions include favoring: not exploiting fortuitous circumstances (Kahneman, Knetch, and Thaler, 1986), equal division of gifts (Frey and Bohnet, 1995), allocations varying in proportion to one's contribution (Konow, 1996), equitable distributions (Fehr and Schmidt, 1999), and procedural fairness (Cohen-Charash and Spector, 2001).

Fehr and Falk (2000) similarly focus on the desire to reciprocate and the desire to avoid social disapproval. In the workplace context, reciprocity means that a fair worker will be honest with an honest employer and dishonest (shirk) with an intentionally dishonest employer (e.g., one that fails to provide a promised working environment).

Note that this notion of fairness is conceptually distinct from moral motivations discussed above. There, behavior was determined primarily by one's own moral principles, not the behavior of others. People who value honesty for its own sake generally do not lie even to liars. Rather, they will seek to teach truth-telling, or punish liars in other ways that do not require the violation of internal moral principles, by exiting or terminating relationships if necessary (Bok 1978).

To incorporate the reciprocity notion of fairness, $F(e)$ is added to the worker's utility function. This time, however, the first derivative depends on the worker's belief about his employer's honesty. If the worker believes his employer to be honest, fairness implies $F' \geq 0$. If, however, the worker believes his employer to be dishonest, or intending to be dishonest in the future, then fairness dictates $F' \leq 0$, and the fair worker shirks to punish the employer. Denote the worker's complete utility function Z^F.[13] An increasing disposition to fairness, given by f, means that if the worker sees his employer as (a) honest, then $F = F(e,f)$, such that $F_f \geq 0$ and $F_{ef} \geq 0$, or, if the employer is seen as (b) dishonest, $F_f \leq 0$ and $F_{ef} \leq 0$. Then,

$$\partial e^*/\partial f \geq 0 \text{ if (a)} \qquad\qquad (7a)$$
$$\partial e^*/\partial f \leq 0 \text{ if (b).} \qquad\qquad (7b)$$

We now arrive at the final hypothesis to be tested.

Hypothesis 6. Fairness is important, and effort increases with increases in employer honesty, and decreases with decreases in employer honesty.

3. Survey and Results

To test the hypotheses, the Center for Survey Research and Analysis (CSRA) at the University of Connecticut was commissioned to conduct a U.S. national telephone survey. The survey questions were evaluated and modified by survey researchers at CSRA, and went through several iterations in focus groups, as well as pre-testing on both telephone respondents and undergraduate economics principles students. The survey was conducted over a two week

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[13] Explicitly, $Z^F = \pi[u(we) - v(e) - P(e,p) + H(e,h), + F(e)] + (1-\pi)[u(w) - v(e) - P(e,p) + H(e,h), + F(e)]$.

period in January 2000. 1,698 randomly chosen adults were screened to determine if they were eligible for inclusion in the survey. The large random sample minimized the possibility of selection error. Respondents were included if they worked full or part time, or if they were unemployed and looking for work. A total of 1005 interviews were completed with adult members of the workforce in the contiguous United States. Table 1 gives the sample respondents' characteristics.

a. Propensity to Shirk

Hypothesis 1 and the theory of the firm suggests that workers will shirk if they know they will not be monitored, regardless of any agreements or representations they may have made. Therefore, in order to gauge workers' commitment to provide high effort two elements are necessary: (a) the opportunity to shirk, and (b) a belief that a workplace agreement exists requiring them not to shirk. To capture both conditions, the following question was asked.

Q. Suppose that it is almost impossible for your employer to check up on you. Would you say that you are very likely, somewhat likely, somewhat unlikely, or very unlikely to work hard if you agreed to?

82.7% of the respondents answered "very likely," 12.1% "somewhat likely," 1.9% "somewhat unlikely," and 1.6% "very unlikely." Surveyors sometimes group the first two and the second two categories, resulting in 94.8% of the respondents being likely to work hard, and 3.5% not (the remaining 1.7% either did not know or did not answer). Based on respondents' responses, the results fail to support Hypothesis 1.

Since the workplace context is one most familiar, the question above did not refer to abstract notions. Instead, respondents were likely to have well-rehearsed views about the subject matter based upon their own experiences. Nevertheless, the question included three possible groups of respondents. The first group met both conditions mentioned above, that is, they had both the opportunity to shirk and also a belief that their workplace agreement obligates them not to do so. For this first group the wording of the question was intended to maximize the probability of a truthful report of actual actions. In contrast, for the second group, condition (a) but not condition (b) is relevant. Since they do not believe that a binding workplace agreement exists, for them the question was more hypothetical and their responses represented an attitude. About 1/3 of the respondents fall into this group (their importance will be considered in section 3d). The final group would include also those that never had the

opportunity to shirk. For them, the question would be entirely hypothetical and their response would also represent an attitude.

b. Rank-Ordering of Motivations

If the respondents answered "very likely" or "somewhat likely" to the question above, they were asked to provide scores on the importance of possible motivations by using a 0-10 scale. That kind of scale allows respondents to register the intensity of their attitudes, reducing the possibility of one source of measurement error. Surveyors use a 0-10 scale because respondents commonly judge 5 to be the anchor meaning "neither important nor unimportant." To minimize the possibility of another source of measurement error, the following question was asked with the reasons given in *random* order by the interviewer.

Q. Now we want to ask why you would be likely to work hard. On a scale of 0 to 10, with 0 being not important at all, and 10 being very important, how important is each of the following in determining why it is likely you would work hard?

9.10	i.	It is the morally right thing to do. (5)
8.59	ii.	I enjoy my work. (3)
6.95	iii.	I wouldn't want to let down my co-workers or get them mad at me. (4)
6.69	iv.	I may get a raise or promotion if I do a good job. (2b)
3.08	v.	My employer might catch me. (2a)
2.37	vi.	My employer has convinced me to feel guilty if I don't work hard. (4)

The number on the left gives the mean response, the number on the right the related hypothesis. A simple rank ordering suggests that moral motivations are the most important, followed by positive intrinsic motivations, peer-pressure, and positive incentives.[14] Moreover, all of these motivations are significantly different from the anchor, 5, indicating that respondents judge each to be "important" motivators.[15] Negative incentives and employer instilled peer pressure ("firm-pressure") were judged to be unimportant by respondents, again each being significantly different from the anchor. Negative incentives and firm-pressure have a correlation coefficient of .474, the only pair greater than .30.

Those who answered that they were either "somewhat unlikely" or "very unlikely" to work hard were given the following choices.

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[14] The z value associated with the difference in means between (i) and (ii) is 5.66, indicating that the means are statistically different at the 0.01 level.

[15] The t values range from 15.4 for positive incentives, to 71.9 for moral motivations.

Q. Now we want to ask why you would be unlikely to work hard. On a scale of 0 to 10, with 0 being not important at all, and 10 being very important, how important is each of the following in determining why it is unlikely you would work hard?

> 5.26   No one else works hard. (4)
> 5.24   I dislike my work. (3)
> 5.03   I only need to do the bare minimum to keep the job. (2a)
> 4.42   There's not much of a chance of getting caught. (2a)
> 4.12   It is morally okay not to work hard. (5)
> 3.56   To get back at dishonest employers. (6)

34 people (out of 1005) answered this question. The response scores indicate that the available choices did a poor job in identifying the reasons that respondents would not work hard. Only the last reason on reciprocal punishment is significantly different from the anchor. The limited evidence here does not support the negative side of the fairness hypothesis, that is, one should act dishonestly with dishonest employers.

The particular kind of fairness that interests economists made it difficult to find wording that permitted its inclusion in the list of reasons for keeping agreements. So a series of three separate questions were asked instead (mean responses follow).

Q1. On a scale of 0 to 10, with 0 being very dishonest and 10 being very honest, how honest would you say today's employers are?   5.94

Q2. On a scale of 0 to 10, with 0 not being important at all and 10 being very important, how important is it that your employer be honest?   9.62

Q3. On a scale of 0 to 10, with 0 being not likely at all and 10 being very likely, how likely is it that you would keep an agreement to do a good job if you know your employer to be honest? 9.69

While the respondents didn't overwhelmingly endorse employer honesty, they do claim its importance. Moreover, the mean response to Q3 suggests support for the positive side of the fairness hypothesis, that is, the tendency to be honest with honest employers.

c. Regression Analysis

While there was not much variation between the *groups* that were likely versus unlikely to work hard because so few respondents chose the latter, there was variation in the "likely" group itself. The normal usage of language suggests that those who chose the response "very likely" to the question about keeping their agreement to work hard possess relatively strong commitment. In contrast, those who chose "somewhat likely" possess weaker commitment. The strength of commitment, in turn, may be conditional on attitudinal factors. In order to assess the variation in responses on the likelihood of working hard, logit analysis was performed in order

to provide a more differentiated picture of people's motivations than the one offered by the importance ratings. The dependent variable takes the value 1 if the respondent chose "very likely" and 0 if they chose "somewhat likely." The attitudes i-vi and Q1 were the independent variables. The estimated coefficients, standard errors, and odds ratio estimates (for a comparison of size effects) are reported in column 1 of Table 2.[16]

The moral and intrinsic motivation coefficients are of the predicted signs and significant at the 1% level. The higher is the respondent's moral and intrinsic motivation, the more likely he is to choose "very likely" to work hard. The peer-pressure coefficient has the predicted sign, but is not significant. This result could be at least partly due to the fact that most of the respondents are not working in settings characterized by profit-sharing. The positive incentive coefficient has the opposite sign predicted by incentive theory, but the correct one predicted by intrinsic motivation theory provided that the crowding-out effect dominates the disciplining effect. But it is not significant. The negative incentive coefficient has the opposite sign predicted by incentive theory, but the one predicted by intrinsic motivation (again, provided that the crowding-out effect dominates the disciplining effect), and it is significant at the 1% level. The firm-pressure coefficient is negative and significant at the 1% level, meaning that the more sensitive is the respondent to employer induced guilt, the less likely they are to work hard if they agreed to. The prediction for the honesty variable, Q1, is that the more (less) respondents see employers as honest, the more (less) likely they would be to keep their agreement. The coefficient has the predicted sign, but is not significant.

d. Further Controls for Measurement Error

This section considers two further sources of potential measurement error: social desirability bias, and the inclusion of workers who do not believe in the obligation not to shirk.

i. Social Desirability Bias

Survey researchers have attempted to study the extent to which social desirability bias is responsible for misrepresentation. The authoritative source is DeMaio (1984). Social desirability bias is present when questionnaire answers:

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[16] The relevant statistics on the model's fit: chi-square for global null hypothesis for Beta=0: 75.69; association of predicted probabilities and observed responses: percent concordant 73.5. Standardized estimates give another comparison of size effects: moral (.1530), intrinsic motivation (.1999), peer-pressure (.0953), positive incentive (-.0654), negative incentive (-.2566), firm-pressure (-.1570), and fairness (.0210).

reflect an attempt to enhance some socially desirable characteristics or minimize the presence of some socially undesirable characteristics. Sources of the expectations or values influencing answers can be the person himself (ego threatening), the perception of the interviewer, or society as a whole. (DeMaio, p. 257, quoting from the U.S. Department of Health, Education and Welfare)

Social desirability bias occurs when respondents tailor their responses to draw a favorable picture of themselves at the cost of providing truthful answers.

One question for researchers on social desirability bias centers on whether the bias, to the extent it exists, arises from the respondents' personalities, or from the survey questions themselves. The evidence on the origins of the bias is mixed. Some studies show that women, non-minority, higher income, and older people are more subject to social desirability bias. Other studies find that these demographic factors are not important (DeMaio, pp. 262; 272-3). In any case, it is noteworthy that after examining all of the evidence, DeMaio (p. 279) closes her review article by saying "to the extent that our actions as well as our responses to survey questions are influenced by what we see as socially desirable, perhaps the problem is not as overwhelming as it appears to be." For the present study, that means the respondents most subject to social desirability bias in their survey responses are also those most likely to be subject to its effects in firms. If the norm is to work hard in their firm, those most likely to overstate their propensity to work hard because of social desirability bias would also be those most likely to conform to the norm.

Several measures were taken to minimize the potential effects of social desirability bias. As already mentioned, the survey instrument was subjected to scrutiny by focus groups, professional survey researchers, and pre-tested in an attempt to word the questions in a way that minimized value-laden language and maximized the possibility of truthful responses. Additionally, the polling was conducted by an independent professional survey organization, thereby separating the researcher from subjects. Any remaining social desirability bias might be correlated with demographic characteristics of respondents. So six demographic variables were included in the logit analysis as added controls: sex, age, race, education, income and occupation.[17]

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[17] The first two control variables are of additional interest because they concern hypotheses related to this study. Some evidence suggests that women are more social -- moral and cooperative -- than men (Eckel and Grossman, 1998). In the employment context, that might mean that women would be more likely than men to keep an agreement to work hard, regardless of preferences to the contrary. In a somewhat different vein, some social commentators have suggested that the "new economy" has brought with it a general decline in the work ethic. Globalization, increased competition, and advances in information technology have all helped to increase worker and firm mobility and to reduce the duration of employment relations. Consequently, there is less

These demographic effects were checked by adding variables on sex (1=female, 0=male) and age. In addition, race (1 if non-white, 0 otherwise), education, income and occupation variables were added to the logit analysis. The education variable took the following values for highest level attained: 0 if 0-8 years of education, 1 if 9-11 years, 2 if high school graduate, 3 if some college, 4 if college graduate, and 5 if some post-graduate education. Since the survey data included only income categories, the income variable took the value 0 for incomes less than $40k annually, and 1 for values greater than $40k. The occupation variable took a value of 0 if respondents reported themselves to be a manager, 1 otherwise (another trial combined managers and professionals, with no appreciable difference). Column 2 in Table 2 includes those variables in the first regression that were significant at the 5% level plus the six control variables (one effect of which was eliminating a variable, negative incentive, that was highly co-linear with one on intrinsic motivation).[18] The coefficients on sex and age are positive and significant. Women and older workers are more likely to report that they honor an agreement if they said they would. The positive coefficient on the education variable is significant at the 10% level; the coefficients on the race, income and occupation variables are negative and insignificant. Most notably, the coefficients on moral and intrinsic motivations retain their significance after adding all six control variables.

ii. Mutual Deceit and the Absence of a Workplace Agreement

Mutual deceit occurs when one believes it morally permissible to lie, perhaps because the lie causes no harm or lying is known to be acceptable (Bok, 1978). Examples include compassionately lying to one's spouse to make them feel better, and bluffing in card games (and, by extension perhaps, oligopoly blustering about post-entry behavior towards a potential entrant). In the context of this survey, some respondents might have believed that while workplace agreements exist, they do not believe them important to honor because of mutual deceit. Those respondents might lie to employers to keep an agreement to work hard (though they still might choose to work hard for other reasons). To check the extent to which respondents feel workplace agreements exist and are important to honor, the following question was asked.

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loyalty and mutual commitment between workers and firms (Sennett, 1998). If there is less loyalty and commitment, there is less non-binding, informal pressure to keep agreements to work hard. Since this process accompanied the "new economy," the hypothesis is that younger workers would be less likely to keep an agreement to work hard.

[18] The relevant statistics on the model's fit: chi-square for global null hypothesis for Beta=0: 88.0; association of predicted probabilities and observed responses: percent concordant 77.1.

Q. Some people think that employers agree to provide a good working environment, and employees agree to work hard. Which of the following comes closer to your own opinion?

    a. These agreements exist in the workplace and are important to honor. <u>66.1%</u>
    b. These agreements exist but are not important to honor. <u>11.3%</u>
    c. No such agreements exist in the workplace. <u>19.7%</u>

Just under 2/3 of the respondents thought workplace agreements exist and are important. Response (b) accounts for those who engage in mutual deceit, while response (c) captures those who fail to see any kind of reciprocal commitment in the workplace.

Two problems could result by including those who answered (b) or (c) in the sample. First, those who answered (b) or (c) may also be more prone to overstating the likelihood of keeping an agreement to work hard, thereby biasing the results. The second is a measurement problem stemming from attitudes versus reported actions. Recall that the primary question in section *3a* about the likelihood of shirking included those who might not believe that a binding workplace agreement exists. For them the question was more hypothetical and their responses represented an attitude. If we exclude them the question reveals more of a self-reported action. Survey researchers demonstrate the greater possibility for measurement error when an attitude is used as a dependent variable in regression analysis (Bertrand and Mullainathan, 2001); also see Kraus, 1995). In order to reduce the possibility of both kinds of measurement error, the logit analysis was repeated by excluding those who responded (b) or (c) to the question above. The results are reported in Table 3.[19] Again, the coefficients on moral and intrinsic motivations retain their significance.

The survey question on the existence of workplace agreements hints at another important point. Perhaps the best way to induce both workers and employers to fulfil their consensual obligations to one another is to get them to realize their mutual commitments. Of the respondents who answered (a) to the above question, 87.5% also answered "very likely" to the question about working hard if they agreed to, versus 72.4% for those who answered (b) or (c). While the evidence suggests that a large number of workers already recognize a commitment to keeping agreements with their employers, there may be a real missed opportunity get the others to commit. That won't happen unless workers and employers each see the existence of workplace agreements, and also the importance of honoring them, even

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[19] The relevant statistics on the model's fit: chi-square for global null hypothesis for Beta=0: 66.02; association of predicted probabilities and observed responses: percent concordant 90.2.

despite their imperfect enforceability. Finding ways of promoting honesty on both sides would be a good place to start.[20]

4. Conclusion

In this paper a novel survey instrument is used to test the importance of five different worker motivations: incentives, moral, intrinsic, peer (and firm) pressure, and fairness. Based on respondents' answers, shirking in firms may not be the problem most economists think it is, and for reasons not usually considered. Moral and intrinsic motivations are the most important reasons given for why workers would keep agreements to work hard. They are also the most important determinants in the intensity of that commitment. If these results are correct, it implies that firms might benefit from both motives if they provide interesting work and a fair employment package, and then keep those promises. It would also imply that economists need to reconsider a foundational assumption, and the transaction cost and agency theories would have to adjust significantly.[21] While incentives still matter, after a consensual employment agreement has been struck, other motivations might become even more important. Moreover, the difference between firms and markets could not be reduced to the way each administers incentives.

The results in this paper are consistent with those found in the experimental literature in that economic agents are motivated by factors other than instrumental rationality. The results are also consistent with emerging empirical literature on workplace motivations. The potential for measurement error, however, necessitates caution in interpreting the results, and also the need for further validation. For instance, one further objection could target a different kind of misrepresentation. It is possible that workers do believe that they would work hard if they agreed to (and believe they are doing just that), as this study finds, but that either (a) workers define hard work differently than their employers do, or (b) workers engage in self-deception. If workers and employers define hard work differently, then shirking could still be a problem. Even then the solution would not be better incentives. Better communication on each other's views and expectations might instead be required. In contrast, self-deception might resolve the

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[20] Such efforts could prove to be especially difficult if commentators like Sennett (1998) are right when suggesting that by living in an era of increased mobility and shorter employment duration we forego opportunities for mutual commitment. The age coefficients in the logit analysis prompts further concern, because younger workers are less likely to keep their agreements.

[21] One literature much less reliant on the incentive assumption is the capabilities view of the firm, which focuses more on coordination and the pooled knowledge and skills inherent in firms. See Loasby (1998) for a good review.

conflict workers confront if they believe it to be fair (or moral) to work hard, but they don't want to because it runs counter to their material self-interest (Konow, 2000). In that case, workers may find reasons to justify not working hard in spite of any agreement. To the extent that self-deception is systematically correlated with any of the six demographic variables, it was controlled for in the logit analysis. But the lessons here suggest that efforts to get workers (and employers) to recognize the existence of employment agreements and the importance of honoring them would increase the likelihood that those confronting a conflict would resolve it in favor of keeping their agreement.

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Table 1
Sample Respondent Characteristics

1. Sex
    a. Male   46.7%
    b. Female   53.3%

2. Age
    a. Mean   38.5
    b. S.D.   13.3

3. Race
    a. Black   9.8%
    b. White   75.8%
    c. Hispanic   5.9%
    d. Asian   1.9%
    e. Native American   .8%
    f. Other/ Biracial/   5.9%
        Don't know/ Refused

4. Income
    a. < 40k Annual   32.1%
    b. > 40k Annual   63.2%

5. Education (Highest Level Attained)
    a. 0-8   1.0%
    b. 9-11   5.3%
    c. H.S. Grad   28.6%
    d. Some College   20.0%
    e. College Grad   22.1%
    f. Post Grad   15.0%

6. Employment
    a. Employed   92.8%
    b. Unemployed   7.2%

7. Occupation
    a. Professional   30.0%
    b. Managerial   12.0%
    c. Service   15.0%
    d. Manufacturing   4.9%
    e. Processing   1.9%
    f. Technical   9.1%
    g. Clerical/ Sales   9.9%
    h. Agricultural   1.4%
    i. Other   8.2%
    j. Don't Know/   7.7%
          Missing

Table 2
Logistic Regression Analysis of Likelihood of Working Hard

Independent Variable	(1)			(2)		
Intercept	-.2926	.5534		-1.8323*	.8113	
Moral (i)	.1587**	.0517	1.172	.1810**	.0541	1.198
Intrinsic motivation (ii)	.1681**	.0430	1.183	.1562**	.0455	1.169
Peer-pressure (iii)	.0533	.0394	1.055			
Positive incentive (iv)	-.0343	.0345	0.966			
Negative incentive (v)	-.1355**	.0347	0.873	-.1030**	.0363	0.902
Firm-pressure (vi)	-.0966**	.0375	0.908	-.1065**	.0401	0.899
Fairness (Q1)	.0182	.0513	1.018			
Sex				.6682**	.2331	1.951
Age				.0261**	.0103	1.026
Education				.1927	.1063	1.212
Race				-.2326	.2681	0.792
Income				-.2380	.2600	0.788
Occupation				-.1239	.3598	0.883
Number of Observations	906			809		

 Column ordering: estimated coefficient, standard error, odds ratio estimate.

* significant at the 5% level (one-tailed test)
** significant at the 1% level (one-tailed test)

Table 3
Logistic Regression Analysis of Likelihood of Working Hard Excluding Respondents Who
Don't Believe in the Existence of Binding Workplace Agreements

Independent Variable			
Intercept	-1.7125	1.207	
Moral (i)	.2441**	.0774	1.276
Intrinsic motivation (ii)	.1527**	.0713	1.165
Peer-pressure (iii)	.0699	.0688	1.073
Positive incentive (iv)	-.0511	.0619	0.950
Negative incentive (v)	-.1351*	.0556	0.874
Firm-pressure (vi)	-.1837**	.0564	0.832
Fairness (Q1)	-.0798	.0977	0.923
Sex	.4207	.3204	1.523
Age	.0281	.0152	1.029
Education	.1521	.1451	1.164
Race	.0142	.3938	1.014
Income	-.1982	.3563	0.820
Occupation	.4656	.4536	1.593
Number of Observations		541	

Column ordering: estimated coefficient, standard error, odds ratio estimate.

* significant at the 5% level (one-tailed test)
** significant at the 1% level (one-tailed test)