ERASMUS UNIVERSITY ROTTERDAM

Erasmus School of Economics

Department of Economics

Altruism in tournament games

Bachelor thesis

Madina Ismailova (329236)

Supervisor: Robert Dur

No act of kindness, no matter how small, is ever wasted.

-Aesop

In this paper we focus our attention on the tournament games in promotion decisions. In tournament games workers are evaluated based on relative performance. The best performing agent is rewarded by a promotion and a higher salary, while the other worker receives a relatively lower salary. We note that standard theory does not take into account the other-regarding behavior, while it was proved to take place in people's decision making process and also was confirmed to be fully rational (Andreoni, Miller, 2002). Analysis of the paper proved that in the model where agents care about each other's well-being the effort choice is negatively correlated with level of altruism. However, under an optimal wage scheme optimal effort is not affected by the other-regarding preferences.

Content

Introduction

Tournament theory in personnel economics describes a competitive situation where wage differentials are based not on the agent's productivity but rather on his rank in an organization. The agent with the highest level of output receives a bonus or promotion to a job with higher base salary, while the next best performing agent has to be satisfied with the lower base salary regardless of how small the gap in their effort or output is. The evaluations are based on relative performance, rather than on the marginal productivity. It has been proven that in many circumstances tournament promotion provides the same efficient allocation of resources as a performance related pay (Lazear, Rosen 1981).Ordinal ranking of employees has a number of benefits. For example: pay for performance requires expensive and reliable measurement of each worker's input. Contrary to that rewards based on rank reduce cost of measurement, since it is easier to evaluate relative performance rather than absolute. Employee performance depends on the effort as well as good or bad luck (measurement error). In case of the cardinal ranking based on absolute performance, the worker has to accept the chance of receiving low salary due to bad luck. For example, if the sales decreased due to an economic crisis that affected the whole world, it seems unfair that the worker should receive a lower salary. Relative performance evaluation decreases common risk borne by workers (Lazear, Gibbs 2009).

Although ranking approach holds a number of advantages, there are clear shortcomings. Lepak and Gowan (2010) state that the decisions on the ranking can be complicated due to forced distribution applied in firms. This is a form of interpersonal comparisons in which managers are required to distribute the workers into few fixed categories. For example, manager can be required to rate 10% of his employees as "very good", 20% as "good", 40% as "average", 20% as "poor" and the last 10% as "very poor". This evaluation method prevents managers from rating all employees as average or outstanding. However, if 20% of the employees deserve to be rated "very good" it forces managers to make distinctions between workers that may have similar performance. Also managers will encounter difficulties as the number of the workers that has to be evaluated grows. Comparing 200 or even 2000 employees to each other is not an easy task. Therefore Lepak and

Gowan (2010) conclude that the relative evaluation is more useful for administrative purposes, rather than development purposes.

Rank-order tournaments often arise in cases when promotion decisions are made. Several workers compete for the career advancement and a higher salary. Because large payment gap serves as a stimulus for other agents in the firm, executives receive a much higher salary right after promotion, even though their productivity does not increase in accordance immediately.

It is commonly argued that relative performance evaluation may raise the problems of sabotage and reduce incentives to cooperate (Lazear & Gibbs, 2009). When analyzing rank-order tournaments it is commonly assumed that each of the workers is selfish and cares only about own well being. However, empirical studies show that people generally do not behave egoistically. For example, in ultimatum bargaining, one player proposes how to share a sum of money, while the second player has the right to accept or decline the offer. In case the second player rejects the proposal both players receive nothing. According to game theory, the second player should be willing to accept any amount of money, since it is better than nothing. Knowing this fact, the first player should maximize his own payoff by proposing the smallest non-zero amount possible. Nevertheless, in numerous experimental games by Thaler (1988) or Guth and Tietz (1990) a different outcome was observed. The modal choice of split is 50% of a sum, there are almost no offers below 20%. This outcome can be explained by various factors affecting people's behavior such as altruism, reciprocity or the inaccurate experimental set up. The altruism of the proposer in such situation is not a definite reason for the high modal split choice. However, it is a plausible theory to explain some of the participant's motives. Non-egoistic behavior was further studied in the dictator game.

The original Dictator Game was developed by Forsythe, et al. (1994) where a subject shares a certain amount of money between himself and another subject. The proposer is like a dictator who holds the power to make decisions for the allocation of the money between him and another player while the second player has to accept them. The standard theory predicts that the dictator player would maximize his own utility by keeping the entire amount. Despite that, numerous studies proved that dictators give more than zero to the other agents. Hoffman et al. (1994) and Forsythe et al. (1994) argue that the altruism is not the reason for the positive non-zero amounts

contributed by the dictators, but rather, for example, the result of the "experimenter effect". However, Eckel and Grossman (1996) reason that people show compassion to those who "deserve" it. Regardless, it is clear that, whether big or small, the other-regarding preferences affect people's behavior.

Research by Andreoni and Miller (2002) proved that altruistic behavior is rational. In their laboratory experiment over 98% of the subjects behaved as utility maximizing agents, where the utility is assumed to be represented by monetary payoff. The experiment included a modified Dictator Game. Subjects were offered sets of payoffs with different endowment and transaction costs. Andreoni and Miller used Bronars' test (1987) and Afriat's (1972) Critical Cost Efficiency Index to test for violations of the revealed preference axioms, such as GARP[1]. They concluded that altruism is rational and a significant minority of subjects behaves jealously. Other important findings were that individuals are heterogeneous and "fairness must be addressed and analyzed on individual level". Similarly Levine (1998) noticed that Rabin (1993) "assumes that each player is interested in what is fair for himself, rather than what is fair for the other".

While the standard tournament game assumes a competition of fully-rational agents, it does not take into account that compassion and spite also can be considered as a rational behavior. Therefore, in this paper, we will look at the tournament game while taking into account people's other-regarding preferences. The idea is that the agents care not only about their own monetary payoffs, but also about their co-worker's well being. In this study altruism and spite are characteristics of a person that cannot be altered by the worker himself. First we review other studies in similar subjects. Secondly in the chapter called "model" we explain how we implement altruism in the utility function, as well as present basic assumptions of the research. We continue testing the optimal wage scheme under chapter "analysis" and summarize the findings in the last chapter.

[1] GARP=Generalized Axiom of Revealed Preferences

Literature review

In 1976 Becker conducted a research of altruistic behavior in economics and sociobiology. Becker (1976) showed that an egoistic agent has incentives to act in the same manner as an altruist. It was explained by the rotten-kid theorem. If the reward is assigned by parents to children depending on their behavior towards each other, then simulation of altruistic behavior by an egoistic unkind kid maximizes his utility. The same logic can be applied to the agents' behavior depending on financial incentives.

Research by Robert Dur and Joeri Sol (2010) throw light upon the role of social interactions in people's effort choices and its managerial implications. In particular the scholars employ exchange of attention between agents in a model of social interactions. Worker receiving attention experiences consumption benefit as well as develop feelings of altruism for the giving worker, which further raises his utility. The model analysis proved that in the absence of the team or relative incentives, workers lack devotion to improve their relationships with co-workers. Also the negative correlation of attention received and effort of each worker in case of relative incentive, and positive correlation in case of team incentives.

In a similar study by Grund and Sliwka(2005) the wage differentials affect the degree of compassion and envy in tournament games. They proved that inequity adverse agents exert more effort compared to selfish agents. Unlike them, in our model analysis we see that the spiteful agents are the ones to exert the biggest effort. David K. Levine (1998) proposed to take into account the possibility that agents would care more about the well being of altruistic opponents than spiteful ones. In contrast to these papers, our model assumes that altruism is the feeling people develop over their lives and cannot be affected by the people's decisions. It is an exogenous factor that can reflect the heterogeneity of the agents.

In a later work Robert Dur and Jan Tichem (2012) examined altruism and envy towards not the co-workers but the principal, allowing him to feel compassion or spite towards his workers. In other words the principal's and agent's utilities are interdependent. The model is presented as a

dynamic game[2] of complete information[3], where agents participate in an infinite number of periods.

Even though relative performance evaluation holds many benefits, it is not used by managers too much according to Chiappori and Salanie (2003). To study this fact Bartling (2011) further developed the research by assuming that the agents are either status seeking or inequality averse. The worse-off agents in the Bartling model experience a utility decrease due to negative inequality, while the better off agents incur a loss due to inequity aversion or gain because of a status preferences. According to the research a choice between relative performance and team evaluation depends on a three-fold tradeoff between risk, inequality and motivation effect of other-regarding preference. Furthermore, the optimal contracts for the other-regarding agents were proved to be low powered in comparison to contracts for egoistic agents.

Another reason for unpopularity of relative performance evaluation was stated by Bandiera et al (2005). Their analysis of personnel data proved that the productivity under the relative incentives scheme is at least fifty percent lower than under piece rate. Bandiera et al. reason that in their research individual effort imposes a negative externality on the other workers under relative performance evaluation. Similar to that we observe the negative effect of the co-worker's choice of effort on the utility of an agent. Bandiera et al. also claim that relationship among workers does not affect productivity under piece rate. In our analysis we prove that altruism in tournament also does not affect the optimal effort choice when the wage scheme is optimized.

Patacconi and Ederer (2010) conducted a research similar to Bartling's (2011) on tournament games in which agents care about their status within a group. In the model worker's utility is affected by an additional factor besides effort choice and wage, namely "reference" or "typical" wage. They assume that people dislike receiving a salary that is below a certain reference level, but enjoy being ahead of their co-workers. Patacconi and Ederer firstly test the model by defining the "reference" wage as the one received by the majority. Secondly they add ambition factor to the model, where ambitious workers tend to set themselves a higher reference wage. The

[2] "When players interact by playing a similar stage game (such as the prisoner's dilemma) numerous times, the game is called a dynamic, or repeated game. Unlike simultaneous games, players have at least some information about the strategies chosen on others and thus may contingent their play on past moves" from gametheory.net

[3] Every player knows the payoffs and strategies available to the other players.

analysis of the model proved that people tend to compare outcomes with others and that workers are subject to loss aversion[4] .In other words "individuals are more motivated by the desire to avoid losses than they are by maximizing gains". Agents who consider their status were proved to exert more effort, while the difference in wage and effort level between males and females was argued to be due to ambition factor.

One of the studies of the other-regarding behavior includes "Moral Hazard And Other-Regarding Preferences" by Hideshi Itoh .He follows a model in which the final monetary distribution plays the role. In particular, he assumes that agent feels guilty when their payoff is above the co-worker's and feels envious if he is the one receiving the lower payoff. Also he extends it by adding the competitive or status-seeking behavior, which he defines as the disutility of an agent if he is behind and his joy if he is ahead. Itoh proves that in principal-agent relation, the manager is worse off by hiring an inequity-averse agent. He also suggests that the workers concern of each-others well being can be exploited by the principal by introducing the relative performance contract.

After analyzing the previous studies in the field of the tournament games and agent's other regarding preferences we create our own simplified model of the promotion competition.

Model

In this paper we analyze a simple tournament model in which two workers *a* and *b* compete for a promotion to the upper level with a higher salary. We develop a model where both players can be egoistic, altruistic or selfish. Altruism is expressed as the correlation of a player's utility with another player's utility. In our model we follow the interdependent utility function, where an agent cares about his own as well as his co-workers utility as it was presented by Bergstrom (1999). It is different from model employed by Levine (1998) where the altruistic worker conditionally cares for his co-workers monetary payoff. Based on an observation of Andreoni and Miller (2002) that things other than the final monetary payoff are likely to be important for subjects we employ

[4] Loss aversion – the effect of the loss is larger than a corresponding gain in terms of utility

Bergstrom model. Also this model, in our opinion, represents a more precise picture of social interactions within a single working group.

The utility of player *a* is given by

$$U_a = u_a + \alpha U_b,$$

Where $u_a = E(w) - \frac{1}{2}\theta e_a^2$ is the agents utility consisting of expected wage minus cost of effort. Agent *a* exerts effort at the cost of effort $C(e_a)$. For simplicity we assume that $C(e_a) = \frac{1}{2}\theta e_a^2$. The variable αU_b represents the altruistic part of the utility, where U_b is utility of agent *b* and α denotes the level of altruism of agent *a*.

The utility of player *b* is given by similar function

$$U_b = u_b + \beta U_a$$

Where $u_b = E(w) - \frac{1}{2}\theta e_b^2$. The term βU_a is the altruistic utility of agent *b* and β is his level of altruism. Similar to the model of Dur and Tichem (2012) we assume that no agent cares for the other as much, or more, as about himself, therefore $\alpha, \beta \in (-1,1)$.

The winner of the competition is the worker who produces maximum of the output. Each of the agents produces an output by extracting effort. Agent *a*'s output can be expressed by

$$q_a = e_a + \varepsilon_a,$$

where $e_a \geq 0$ stands for effort extracted by agent *a*, and ε_a is a stochastic[5] variable. Components ε_a and ε_b are independent and identically distributed. The winner receives a bonus in addition to his regular salary *W+Z*, while the loser receives a regular salary *W*. Worker *a* is promoted with certainty if $q_a > q_b$. The probability that *a* wins is

$$P_a = prob\ (q_a > q_b) = prob\ (e_a - e_b > \varepsilon_b - \varepsilon_a).$$

We assume an approximation for the promotion chance such that

$$P_a = \frac{1}{2} + \pi(e_a - e_b)$$

[5] Stochastic-random variable

$$P_b = \frac{1}{2} + \pi(e_b - e_a)$$

where $p_a + p_b = 1$.In case $e_a = e_b$ or π =0 each of the workers has an equal probability of winning ½, therefore their promotion depends on luck. When $e_a > e_b$, worker *a* has a higher chance to win, but without certainty. π helps to evaluate the importance of luck or noise, as π increases luck loses its importance. As $\pi \to \infty$ luck plays no role.

Analysis

To derive the optimal contract for the other-regarding agent we take three steps. First we find the effort choice that would maximize the workers utility. Also we would like to test whether it is possible that the altruistic worker would deliberately exert lower level of effort in order to let his co-worker win. Second we take into account the workers outside option. And last, we derive the optimal level of the bonus for the best performing agent as well as its effect on the effort choice by each worker.

Worker's effort choice

Taking into account the probability of winning the complete utility of agent *a* as follows

$$U_a = p_a(W + Z) + (1 - p_a)W - \frac{1}{2}\theta e_a^2 + \alpha U_b \quad (1)$$

Utility of agent *b* similarly is equal to

$$U_b = p_b(W + Z) + (1 - p_b)W - \frac{1}{2}\theta e_b^2 + \beta U_a \quad (2)$$

Substitution of equation (2) in (1) brings

$$U_a = \frac{Z(p_a + \alpha p_b) + W(1 + \alpha) - \frac{1}{2}\theta(e_a^2 + e_b^2)}{1 - \alpha\beta}$$

Worker chooses the level of effort to extract such, that it maximizes his utility

$$\frac{dU_a}{dUe_a} = \frac{\pi Z - \alpha\pi Z - \theta e_a}{1 - \alpha\beta} = 0$$

$$e_a = \frac{(1-\alpha)\pi Z}{\theta}$$

Similarly

$$e_b = \frac{(1-\beta)\pi Z}{\theta}$$

Effort extracted by each agent depends on his level of altruism, noise and cost of effort. It is logical that effort decreases with cost of effort. As it becomes more costly to produce effort, it is optimal to reduce strength put into work. As the size of the bonus increases it motivates the agent to work harder, since it compensates for the higher cost of effort associated. Increase in noise leads to decrease in effort, because it doesn't make sense to work harder if promotion decision depends more on luck. It follows from the equations that increase in level of altruism decreases effort. More compassionate agent enjoys utility increase by sharing happiness of the increased co-worker's promotion probability. In contrast, increase in level of spite increases effort of the agent. More spiteful agent dislikes giving any opportunity of promotion to the other worker.

Next we test in which circumstances the agent may gain higher utility by losing compared to utility of wining. Utility of agent a if he wins:

$$U_a = W + Z - \frac{1}{2}\theta e_a^2 + \alpha(W - \frac{1}{2}\theta e_b^2 + \beta U_a)$$

Utility of agent a if he loses:

$$U_a = W - \frac{1}{2}\theta e_a^2 + \alpha(W + Z - \frac{1}{2}\theta e_b^2 + \beta U_a)$$

Utility of agent in case of loss is higher than utility in case of gain if $\alpha, \beta > 1$. However, under our assumption $\alpha, \beta \in (-1,1)$.Regardless whether the agent is spiteful, or altruistic, his utility of wining is always higher than utility of loosing

Worker's participation constraint

If the worker quits his job he can find an outside option with payoff $\bar{U}$, therefore his current job should provide him with $U_a \geq \bar{U}, U_b \geq \bar{U}$. For simplicity we assume that agents are identical in the level of altruism. Based on this assumption, they chose the same level of effort such that $e_a = e_b = e^*$ .Where $e^* = \frac{(1-\alpha)\pi Z}{\theta}$. Therefore $p_a = p_b = \frac{1}{2}$ in equilibrium. The current employee should provide minimum wage satisfying this requirement:

$$W = \frac{\bar{U}(1-\alpha\beta) - Z(p_a + \alpha p_b) + \frac{1}{2}\theta(e_a^2 + \alpha e_b^2)}{1+\alpha}$$

Substituting for $p_a, p_b, e_a \; and \; e_b, with \; assumption \; that \; \alpha = \beta$

$$W = \bar{U}(1-\alpha) - \frac{1}{2}Z + \frac{1}{2}\frac{\pi^2 Z^2 (1-\alpha)^2}{\theta}$$

We can conclude that higher $\bar{U}$ requires higher W. One way to retain the worker who has a good offer from other companies is to offer him a higher salary. Higher π leads to increase in wage. Salary decreases with noise since it is not rational to pay the worker more when his productivity is hard to verify. Bonus payment Z has an ambiguous effect on wage. Since effort increases with bonus, and higher effort leads to higher productivity, workers should be compensated for it by increase in wage. Higher bonus level permits for reduction in the base salary therefore wage also decreases with bonus. For altruistic worker with $\alpha > 0$, increase in level of altruism α leads do decrease of the wage. For spiteful agent with $\alpha < 0$, the effect is ambiguous. While more spiteful agents require higher salary due to the availability of the outside option, they are also willing to receive lower salary as they extract effort to satisfy their envy of the co-workers well-being rather than to receive higher salary.

Optimal wage scheme

Next we assume that unit of effort produced by each worker is worth R to the firm. Firm's profits can be expressed as

$$2e^*R - Z - 2W$$

After substituting for the values of e^* and W derived above we maximize the profit subject to bonus Z. First-order condition reveals:

$$Z^* = \frac{R}{\pi(1-\alpha)}$$

Optimal promotion bonus increases with firm's value of the effort. The more the company values the effort of the worker the more it is willing to pay a higher salary to attract and retain an important worker. Bonus Z also increases with noise, since workers need a higher incentive to work for a promotion that depends more on luck rather than on their effort. Increase in value of α requires a higher bonus. The bigger bonus is needed for the most altruistic agents, while the smaller bonus is sufficient for more spiteful ones. Altruistic compassionate agents ($\alpha > 0$) need a higher bonus to engage in a more competitive tournament for promotion and extract higher value of effort.

By substituting Z^* in e^* we derive that optimal promotional bonus Z implies effort

$$e^* = \frac{R}{\theta}$$

The equation shows that under the optimal wage scheme the worker chooses for the effort that depends only on two variables: the value that firm attaches to the effort produced by the worker and the worker's cost of effort. The effort choice of the worker increase with firm's value of effort and decreases with costs worker has to occur to produce the output. Elements such as noise or altruism play no role in determining effort level under optimal wage scheme.

Conclusion

Traditional reward system tends to pay more to those who achieve higher productivity, rather than to those who share their knowledge and support the co-workers. Clearly this system discourages cooperation in the work-place (Lepak, Gowan 2010). Potential conflicts among co-workers could be reduced if they felt compassion towards each other. This would benefit the firm in two ways. First, employees would not resort to sabotage at the work place. Second, in the atmosphere of fair competition workers because of feeling of altruism would be more willing to share knowledge and help each other. These would increase the company's productivity and profit.

In our paper we analyzed the effect of the compassion or spite on the worker's effort choice. In alignment with conclusion of Oleg Shchetinin (2008) we find that higher altruism may decrease effort of the worker. Another similar to this papers finding is the double effect of the altruism on effort choice. Shchetinin argues that wage increases with altruism due to difficulty to attract the other-regarding agent while the wage decreases with altruism due to self-compensation. In our model analysis we see that the double effect applies only to the spiteful agent.

In the end we observe that the worker's effort level does not depend on his other-regarding preference if the bonus level and the base wage are optimally chosen. Whether the worker is egoistic, spiteful or altruistic his effort choice under the optimal labor contract is the same and depends only on firm's value of effort and worker's cost of effort.

Discussion

The research can be further developed in many ways. In this paper we assumed that the agents have the same level of the altruism, however in reality the agents tend to have heterogeneous other-regarding preferences. Also the model considers relationship solely between two workers. Consideration of the agent-principal or many agents relationship would increase the depth of the research. Another question is if the worker could choose between being altruistic, spiteful or egoistic what should be his optimal behavior. Additionally in this paper we consider a

model where the agents care about each other's utility level, however it is not clear how they evaluate each other's utility. Therefore a more realistic assumption might be, that the agents observe the salary level of the co-worker and that their utility correlates to the observed wage level.

References:

Afriat,S.(1972).Efficiency Estimates of Productions Functions. *International Economics Review,13*, 568-598

Andreoni, J., & Miller, . J. (March 01, 2002). Notes and Comments: Giving According to GARP: An Experimental Test of the Consistency of Preferences for Altruism. *Econometrica, 70,* 2, 737-753.

Bandiera, O., Barankay, I., & Rasul, I. (August 01, 2005). Social Preferences and the Response to Incentives: Evidence from Personnel Data*. *Quarterly Journal of Economics, 120,* 3, 917-962.

Bartling, B. (August 01, 2011). Relative performance or team evaluation? Optimal contracts for other-regarding agents. *Journal of Economic Behavior and Organization, 79,* 3, 183-193.

Becker, G. S. (September 01, 1976). Altruism, Egoism, and Genetic Fitness: Economics and Sociobiology. *Journal of Economic Literature, 14,* 3.)

Bergstrom, Ted. (1999). *Systems of Benevolent Utility Functions*. eScholarship, University of California.

Bronars, Stephen G. (1987). The power of Nonparametric Tests of Preference Maximization.*Econometrica,* 55, 693-698

Chiappori, P.-A., & Salanie, B. (January 01, 2003). Testing Contract Theory: A Survey of Some Recent Work. *Econometric Society Monographs, 35,* 115-149.

Dur, R., & Sol, J. (July 01, 2010). Social interaction, co-worker altruism, and incentives. *Games and Economic Behavior, 69,* 2, 293-301.

Dur, R., & Tichem, J. (2012). *Social Relations and Relational Incentives*. München: CESifo, Center for Economic Studies & Ifo Institute for economic research.

Eckel, C., & Grossman, P. (October 01, 1996). Altruism in Anonymous Dictator Games. *Games and Economic Behavior, 16,* 2, 181-191

Ederer, F., & Patacconi, A. (August 01, 2010). Interpersonal comparison, status and ambition in organizations. *Journal of Economic Behavior and Organization, 75,* 2, 348-363

Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (January 01, 1994). Fairness in Simple Bargaining Experiments. *Games and Economic Behavior, 6,* 3, 347-369.

Grund, C., & Sliwka, D. (March 01, 2005). Envy and Compassion in Tournaments. *Journal of Economics and Management Strategy, 14,* 1, 187-207.

Guth, W., & Tietz, R.(1990). Ultimatum bargaining behavior: A survey and comparison of experimental results. *Journal of Economic Psychology,* 11, 417-440.

Hoffman, E., McCabe, K., Shachat, K., & Smith, V. (November 01, 1994). Preferences, Property Rights, and Anonymity in Bargaining Games. *Games and Economic Behavior, 7,* 3, 346-380.

Itoh, H. (March 01, 2004). Moral Hazard and Other-Regarding Preferences. *The Japanese Economic Review, 55,* 1, 18-45.

Lazear, E. P., & Gibbs, M. (2009). *Personnel economics in practice*. Hoboken, NJ: John Wiley & Sons.

Lepak, D., & Gowan, M. (2010). *Human resource management: Managing employees for competitive advantage*. Upper Saddle River, NJ: Pearson/Prentice Hall.

Lazear, E. P., & Rosen, S. (October 01, 1981). Rank-Order Tournaments as Optimum Labor Contracts. *The Journal of Political Economy, 89,* 5, 841-864.

Levine, D. (July 01, 1998). Modeling Altruism and Spitefulness in Experiments. *Review of Economic Dynamics, 1,* 3, 593.

M.Rabin, Endogenous preferences in games, *Amer. Econom. Rev.* **83** (1993),1281-1302.

Shchetinin, O., & Handelshögskolan vid Göteborgs universitet. (2010). Altruism and career concerns. Göteborg: Department of Economics, School of Business, Economics and Law at University of Gothenburg.

Thaler, R. H. (October 01, 1988). Anomalies: The Ultimatum Game. *The Journal of Economic Perspectives, 2,* 4, 195-206.