Speeding up Bureaucrats by Greasing Them
- An Experimental Study -

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Abstract

In the experiment two bureaucrats independently can grant a permit with the profit of the private party depending on when the permit is given. Whereas one bureaucrat can only veto the project, the second one has additional discretion in granting the permit earlier or later. We speak of greasing when the private party assigns a higher reward to the second bureaucrat.

More specifically, the procedural rules are those of ultimatum bargaining with two responders of whom one can delay agreement. The experimental data suggest that greasing bureaucrats is moderately efficient in speeding them up.

Keywords: Greasing, Ultimatum Game, Bureaucracy, Efficiency

JEL Classification: C78, C92, D73

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1 Introduction

The need to grease bureaucrats in order to speed up delivery of government services is not unusual across countries and this phenomenon is generally recognized as a form of corruption. In the last decade there have been many empirical studies trying to shed light on the causes and consequences of corruption (see Tanzi, 1998, for a survey) mostly underlining its negative effects (e.g., Long and Rao, 1995, Mauro 1995, Gupta et al., 1998). Nevertheless, it has also been suggested that, under certain circumstances, greasing bureaucrats may lead to a more efficient allocation of resources. In case of rationing, for instance, this may serve as an efficiency enhancing mechanism that ensures allocation to consumers with the highest willingness to pay.

For the situation which we want to study, imagine an applicant asking for a government permit to start an investment. If, as it is often the case, the permit depends on the authorization by several bureaucrats with different discretionary decision power, then some bureaucrats may require some extra reward. Thus, rewarding the more powerful bureaucrats more could be the only mean to obtain a timely approval. Greasing in this sense would have the positive effect of speeding up bureaucratic decisions.

We want to investigate experimentally whether this actually will happen. Consider an ultimatum bargaining game with two responders, the two bureaucrats. One is better informed and can delay agreement, what imposes a cost upon himself as well as upon the proposer. We do not refer to greasing whenever the bureaucrats are positively rewarded. Rather we rely on a more narrow definition which tries to capture whether more discretionary power implies larger rewards. More specifically, active greasing is diagnosed when the proposer offers more to the responder with additional discretion and passive greasing when this more powerful responder requires more. Thus, greasing is efficiency enhancing if it induces the timely permit of the responder with additional information and discretion power.

In the following section 2 we present the theoretical model. Section 3 provides details of the experimental procedures. The data are described and statistically analyzed in Section 4. Section 5 concludes.

2 Game model

Consider a situation in which an applicant, X, requires a government permit to initiate an investment, which would produce with certainty a surplus of size $p > 0$, the legendary pie in experimental studies of distributive justice (see

Roth, 1995, for a survey). The authorization of the permit depends upon the decision of two bureaucrats, Y and Z, who both have veto power.

When applying for the permit, the applicant proposes an allocation (x, y, z), with $x, y, z > 0$ and $x + y + z = p$, meaning that X demands x for himself and offers y and z to Y, resp. Z. Due to his/her higher rank in the internal organization of government, only Z (together with X) knows the complete allocation proposal (x, y, z), while Y is just informed about y. Furthermore, if the permit is approved by both bureaucrats, Z decides about the timing of the approval. More specifically, Z can delay the permit.

Delaying the permit is costly both for the applicant X and for Z himself. The payoff vector is (x, y, z) only if the project is approved immediately, but it is $(\lambda x, y, z - \epsilon)$ if the project is granted late. The parameter λ with $0 < \lambda < 1$ is assumed to reflect a big loss of X whereas ϵ with $\epsilon > 0$ stands for the minor additional effort of delaying the permit.[1] A refusal by at least one responder leads to the payoff vector $(0, 0, 0)$.

Thus, the decision process is as follows:

- First X proposes a reward allocation (x, y, z).
- Then Y and Z, knowing y, resp. (x, y, z), can either veto the proposal or accept it where Z can do the latter immediately or with delay.

Figure 1 illustrates the extensive form of the game used in the experiment.

Insert Figure 1 about here

The game theoretic solution, assuming opportunistically rational players,[2] can be derived easily by backward induction. Since we suppose $y, z > 0$ and $\epsilon > 0$, both Y and Z should grant the permit and, in case of Z, do so early. But then X, rationally anticipating such behavior, will only assign minimal amounts to Y and Z. If g (> 0) denotes the smallest feasible reward for both bureaucrats, the solution is thus described by the proposal:

- $(x^*, y^*, z^*) = (p - 2g, g, g)$ by X, and
- (early) permit always by Y and Z.

If we interpret g as the salary of Y and Z, then asking for more than g could already be considered as requesting "greasing". We refrain, however, from referring to $y > g$ and $z > g$ as greasing. If players have veto power, the abundance of ultimatum experiments (see Roth, 1995, for a survey and discussion) suggests that they will be offered and require more than g.

[1] Player Z may have to justify delaying the permit to some supervisor or may have to study again the application by X. All these troubles can be avoided by doing things immediately.

[2] Opportunism means that one is only interested in own monetary reward. We also assume that all parties' opportunism is commonly known.

Rather we want to investigate whether "status" considerations influence the degree to which the high-ranked and better informed bureaucrat Z feels entitled and actually justified in his/her hope to receive a higher reward than Y (although exercising such extended veto-power is not rational). Hence, we define "greasing" as the situation in which

$$z > y \text{ or } y/z < 1,$$

where, of course, the size of $z - y$ or $1 - y/z$ is essential.

3 Experimental design

In the experiment, p amounted to 120 tokens and g to 10 tokens (where 1 token = 0.75 DM). Furthermore, all amounts x, y, and z had to be integer multiples of 10 tokens. As for the parameters representing the costs of delaying the permit, λ was set equal to 0.5 and ϵ to 10. The rather short instructions (see App. A for an English translation) were read aloud to establish common knowledge. Questions were answered privately. Then written instructions, an expectation questionnaire and two closed envelopes containing a decision form and an identification number were handed out to the subjects (translations of all forms are provided in App. B).

Without knowing their role in the experiment, subjects had to state expectations regarding the most frequent decisions by X, Y and Z. Afterwards, subjects could open the envelope with the decision form. The latter assigned player roles and asked for decisions. We employed the strategy method for players Y and Z in order to learn, especially in case of Z, how he reacts to differential treatment, i.e. whether he demands greasing.

To give subjects an incentive to state their expectations seriously, we paid them for accurate predictions. At the end of the experiment, we randomly chose 15 participants: 5 of them were rewarded for their expectations concerning X, 5 for their expectations concerning Y and 5 for their expectations concerning Z. For each party and for each possible single decision, we calculated the most frequent choice. The selected participants were paid according to the times they "hit" the most frequent choice.[3]

The experiment was run in two separate sessions at the Universities of Bochum and Jena with 42, resp. 54, participants.[4] These subjects formed

[3] If they always predicted the most frequent choice, they received DM 55; if they never hit, they received zero; if they hit only 50% of the times, they received DM 27.5 and so on.

[4] The responses of player Z in group 9 of the Jena session had to be discarded because the participant did not understand the rules of the experiment. Thus, there are only 17 observation for Z's behavior in Jena.

a total of 32 groups with three members each. Since all subjects played only once, all 96 decisions are independent. Excluding payments for expectations, X–participants earned on average DM 27.5, Y–participants DM 22 and Z–participants DM 22.5.

4 Experimental results

4.1 Proposals

We start our analysis with the applicant's behavior. What X-participants offered to Y and Z is visualized in Figure 2 within the triangular set ABC of feasible offers. The upper half triangle is the greasing area where $z > y$ holds.

Insert Figure 2 about here

The 32 independent observations are marked by a '+' sign. The spots represent more than one observation in a single point. So, for example, the most frequent proposal is "full-equity" (where both Y and Z receive 40 tokens) with 12 observations, followed by giving 30 to Y and 40 to Z with 7 observations.

¿From Figure 2, it is quite clear that there is a significant deviation from the subgame-perfect equilibrium: X-participants tend to offer more than the minimal amount 10 to both Y and Z. Furthermore, in about 40% of the cases X gives some "preferential treatment" to Z, i.e. there is greasing.

It is interesting to examine how X's decisions deviate from the game theoretic solution. Given that the offers y and z can only assume a finite number of values over the triangle ABC, it seems reasonable to write these offers as

$$\begin{aligned} y &= y^* + 10\,\delta_y \\ z &= z^* + 10\,\delta_z, \end{aligned}$$

where δ_y, $\delta_z \geq 0$ are (non-independent) random shocks which determine the size of the deviations from the equilibrium. We model these deviations as following a bivariate-Poisson distribution based on a common fairness shock, F, and two independent greasing shocks, G_y and G_z:

$$\begin{aligned} \delta_y &= F + G_y \\ \delta_z &= F + G_z. \end{aligned}$$

F follows a (univariate) Poisson distribution with expected value ξ whereas G_y and G_z, follow Poisson distributions with expected values θ_y, resp. θ_z. Thus, δ_y and δ_z have Poisson marginal distributions with expected values $\xi + \theta_y$ and

$\xi + \theta_z$.[5] It is then quite intuitive to interpret the F component as a tendency to move along the equity line (the 45° line in Figure 2). Similarly, the G_y and G_z components can be thought of as greasing effects granting some preferential treatment to Y, resp. Z.

The bivariate probability mass function of the deviations (δ_y, δ_z) under this model is given by

$$P(\delta_y, \delta_z) = e^{-(\xi+\theta_y+\theta_z)} \sum_{i=0}^{min(\delta_y,\delta_z)} \frac{\xi^i}{i!} \frac{\theta_y^{\delta_y - i}}{(\delta_y - i)!} \frac{\theta_z^{\delta_z - i}}{(\delta_z - i)!}. \tag{1}$$

Notice, however, that the restrictions x,y,$z \geq 10$ and $x + y + z = 120$ imply: $\delta_y + \delta_z \leq 9$. Therefore, the sample distribution of the deviations δ_y and δ_z is incidentally truncated (see Greene, 1997):

$$P(\delta_y, \delta_z | \delta_y + \delta_z \leq 9) = \frac{e^{-(\xi+\theta_y+\theta_z)} \sum_{i=0}^{min(\delta_y,\delta_z)} \frac{\xi^i}{i!} \frac{\theta_y^{\delta_y - i}}{(\delta_y - i)!} \frac{\theta_z^{\delta_z - i}}{(\delta_z - i)!}}{\text{Prob}(\delta_y + \delta_z \leq 9)}. \tag{2}$$

Table 1 shows the maximum likelihood estimates of the parameters of (2) with the pooled data of both sessions.[6]

<u>Insert Table 1 about here</u>

The estimate of the fairness parameter ξ corresponds to expected offers near to $(40, 40)$. Moreover, the maximum likelihood estimates of the greasing parameters θ_y and θ_z show a much stronger tendency to favor player Z (although the parameter estimate for θ_y is not zero there is only one observation with $y > z$).

As expected, the likelihood ratio test clearly rejects the hypothesis that $\xi = 0$ meaning that δ_y and δ_y are positively correlated as well as the hypothesis $\theta_z = \theta_y$ confirming that δ_z has a higher expected value than δ_y.

4.2 Y-responses

The acceptance rates of Y-participants for each of the 10 possible values of y are listed in Table 2. Figure 3 is a box-plot displaying the relation between the two possible responses of Y and the 10 values of y.[7]

[5] See Kotz and Johnson(1969) for more details on the properties of this bivariate discrete distribution.

[6] The likelihood ratio test performed on the Bochum sample using as restrictions values of the parameter estimates from Jena does not reject the hypothesis that both samples come from the same distribution ($\chi^2 = 2.56$).

[7] The boxes show the limits of the middle half of the data (the line inside the box represents the median). Extreme points are also highlighted. Box-plots not only show the location and spread of data but indicate skewness as well.

Insert Table 2 and Figure 3 about here

Most Y-participants rejected offers lower than 40, with acceptance rate rapidly increasing with X's offer, y (although a 100% acceptance rate is observed only for $y = 70$).[8]

Clearly, the subgame-perfect equilibrium prediction of universal acceptance of y by Y is not supported by the experimental data. Y-rejections might be due to some non-monetary preferences. In particular, a preference for "being treated fairly" (individual fairness) as well as for "treating the others fairly" (social fairness) might explain why most Y-participants rejected positive offers risking 0-earnings. The individual fairness motivation has the effect of increasing the probability of acceptance for higher values of y. The notion of social fairness has a similar effect but it is related to the welfare of the least favored member of a group.[9] Although Y is only informed about his/her own payoff, we can think of him/her as basing his/her decision on the comparison between own payoff and *average* payoff of the other players. In this case, a measure of social fairness would be: $\min\{y, (120 - y)/2\}$.

Indeed, estimating a Probit model: Prob("Y accepts") $= \Phi(\beta_1 + \beta_2 y + \beta_3 \min\{y, (120 - y)/2\})$ delivers $\beta_1 = -2.220(-6.765)$, $\beta_2 = 0.036(9.294)$, and $\beta_2 = 0.060(5.232)$.[10] This supports our conclusion that the acceptance of y by Y is guided by the notions of individual and social fairness. The shape of the estimated probability of acceptance is illustrated by Figure 4.

Insert Figure 4 about here

4.3 Z-responses

Finally, let us look at Z-participants' decisions and see whether they required some greasing as a recognition of their privileged position. Table 3 lists the observed distribution of Z's choices for each possible combination (y, z).

Insert Table 3 about here

Offers z of 10 and 20 were rejected in 73.2%, resp. 57.3%, of the cases. Furthermore, although higher offers were more frequently accepted (immediately), this pattern was not monotonic: The highest acceptance rate without delay is observed for the "full-equity" distribution and for five distributions in the

[8]Cochran's test for related observations rejects the null hypothesis of equal probability of acceptance for all levels of y in favor of the alternative hypothesis that probability differs for at least two levels of y ($\alpha = 0.001$).

[9]This notion of fairness *à la* Rawls fits very naturally in the interpretation of the parameter ξ in (1), where $\min\{y, z\}$ determines the probability of observing a particular offer (y, z).

[10]The numbers in parenthesis are the estimated coefficients divided by their standard errors.

"greasing area" which, however, are not the ones with the highest greasing levels. Offers greater than 60 (high greasing levels) were delayed with positive probability.[11]

The data support the following conclusions:

• Immediate acceptance was more frequent for higher values of z (lower values of y) and higher greasing levels.

• Most rejections concerned $z = 10$ and 20 as well as offers with $z - y < 0$.

• Offers higher than 40 were seldom rejected but frequently delayed.

• Both the offer z and the greasing level $z - y$ explain the variations in Z's decisions with z being clearly more decisive.

To investigate in more detail Z's decisions, we performed ordered-probit regressions. The possible choices $j \in \{No = 0, Later = 1, Immediately = 2\}$ are inherently ordered (as indicated), and therefore the underlying motivation revealed by Z when choosing a particular action j can be modelled by a latent "motivation" function[12] of the form

$$\delta^* = \beta' \mathbf{w} + \epsilon,$$

where $\epsilon \sim N(0,1)$ and $\mathbf{w}$ is the vector of latent variables.

The actual decision j is driven by the probability that the latent function δ^* lies between some ordered intervals:

$$j = \begin{cases} 0 & \text{if } \delta^* \leq 0; \\ 1 & \text{if } 0 \leq \delta^* < \mu; \\ 2 & \text{if } \mu \leq \delta^*. \end{cases}$$

The systematic rejection of low offers observed in the experimental data, given the ordered nature of the available choices, suggests that $\beta' \mathbf{w}$ does not vanish. Among the factors influencing Z's decision, the immediate candidates are the notions of individual and social fairness (captured by z, resp. $min\{x, y, z\}$), and the desire for greasing (requiring $z > y$). The following specification of Z's latent function was used to estimate the probabilities of rejection and (late/immediate) acceptance:

$$\delta^* = \alpha + \beta_1 z + \beta_2 min\{x, y, z\} + \beta_3 G(y, z) + \epsilon,$$

where $G(y, z)$ is a dummy variable for greasing, taking the value of 1 only when $z > y$.

[11] The fact that too much generosity, e.g. $z > 60$, makes delay more likely is not unusual (see Güth et al., 2001) and can be explained by intrinsic concerns for general fairness.

[12] See Bolton and Ockenfels (2000).

Table 4 shows the maximum-likelihood estimates of the model with and without the fairness and greasing terms. The results confirm that the proposed explanatory variables have significant effects on the probability of (immediate) acceptance.

Insert Table 4 about here

5 Conclusions

Field research on greasing bureaucrats and (in its illegal form, even) bribery is one of the most demanding challenges since the evidence is at best only the tip of an iceberg. Also the institutional details of when and how greasing takes place is (quite naturally) poorly recorded. This on the one hand suggests an experimental approach which, on the other hand, encounters the difficulty of more or less arbitrarily modelling a "permit game".

To avoid lots of institutional details whose structural form and parameter specifications are largely unknown, we used a minimal design with one applicant facing two bureaucrats with different discretionary decision power and information. By imposing the procedural rules of ultimatum bargaining we can further compare the data to usual 2/3 person-ultimatum experiments. This does not deny that actually there may be some distasteful haggling about the amount of greasing. But, since little is known about when and how this is done, we view it more as an advantage than a weakness of our approach that modelling such haggling can be avoided.

Our main findings are that

- applicants often are willing to engage in greasing to obtain the permit in time, and
- bureaucrats are more likely to abuse their decision power when their reward shares are too low.

This confirms our intuition that one of the most effective measures to prevent bureaucrats from asking for grease money is to introduce more transparency (i.e., to eliminate privileged access to information) in the internal organization of government and to limit the number of bureaucrats so that they can be paid decently.

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Maximum-likelihood estimates:	
ξ	2.7226
θ_y	0.0692
θ_z	0.7109
Unrestricted log-likelihood:	-86.481866
Rest. log-likelihood ($\xi = 0$):	-99.370820
Rest. log-likelihood ($\theta_y = \theta_z$):	-93.742264

Table 1: "Fairness" and "greasing" parameters in X's decision.

$y =$	10	20	30	40	50	60	70	80	90	100
	0.19	0.25	0.69	0.97	0.97	0.97	1.00	0.94	0.97	0.97

Table 2: Y's observed rates of acceptance.

$y =$ \ $z =$	10	20	30	40	50	60	70	80	90	100
	74.2	51.6	19.3	9.7	3.2	0.00	0.0	3.2	0.0	0.0
10	6.4	16.1	41.9	19.3	9.7	9.7	12.9	12.9	12.9	12.9
	19.3	32.3	38.7	71.0	87.1	90.3	87.1	83.9	87.1	87.1
	71.0	48.4	22.6	9.7	3.1	0.0	0.0	0.0	0.0	
20	9.7	22.6	38.7	22.6	16.1	16.1	12.9	16.1	12.9	
	19.3	29.0	38.7	67.7	80.6	83.9	87.1	83.9	87.1	
	71.0	58.1	22.6	6.4	0.0	0.0	0.0	0.0		
30	9.7	19.3	25.8	16.1	19.3	12.9	9.7	9.7		
	19.3	22.6	51.6	77.4	80.6	87.1	90.3	90.3		
	71.0	58.1	25.8	0.0	0.0	0.0	0.0			
40	6.4	16.1	22.6	9.7	19.3	9.7	9.7			
	22.6	25.8	51.6	90.3	80.6	90.3	90.3			
	71.0	58.1	25.8	6.4	0.0	0.0				
50	6.4	16.1	22.6	16.1	16.1	9.68				
	22.6	25.8	51.6	77.4	83.9	90.3				
	71.0	51.6	29.0	12.9	6.4					
60	9.7	16.1	25.8	19.3	9.7					
	19.3	25.8	45.2	67.7	83.9					
	74.2	58.1	32.3	12.9						
70	6.4	16.1	22.6	22.6						
	19.3	25.8	45.2	64.5						
	74.2	61.3	38.7							
80	6.4	16.1	19.3							
	19.3	22.6	41.9							
	77.4	64.5								
90	6.4	16.1								
	16.1	19.3								
	77.4									
100	6.4									
	16.1									

Note: The first number in each cell corresponds to the rejection rate (N), the middle number to late-acceptance rate (L), and the lower number to immediate-acceptance rate (I), all of them in %.

Table 3: Sample distribution of Z's responses to each proposal (y, z).

	Model 1	Model 2	Model 3
α	-0.705	-0.989	-1.031
	(-12.555)	(-13.105)	(-13.760)
z	0.038	0.034	0.024
	(28.836)	(23.448)	(10.29)
$\min\{x, y, z\}$	-	0.188	0.027
		6.372	(8.336)
$G(y, z)$	-	-	0.547
			(5.096)
μ	0.585	0.597	0.606
	(15.995)	(16.056)	(15.914)
log likelihood	-1294.154	-1273.987	-1260
χ^2	703.40	743.74	770.51

Note: The numbers in parenthesis are the coefficients divided by their standard errors.

Table 4: Ordered-probit estimations of Z's motivation function.

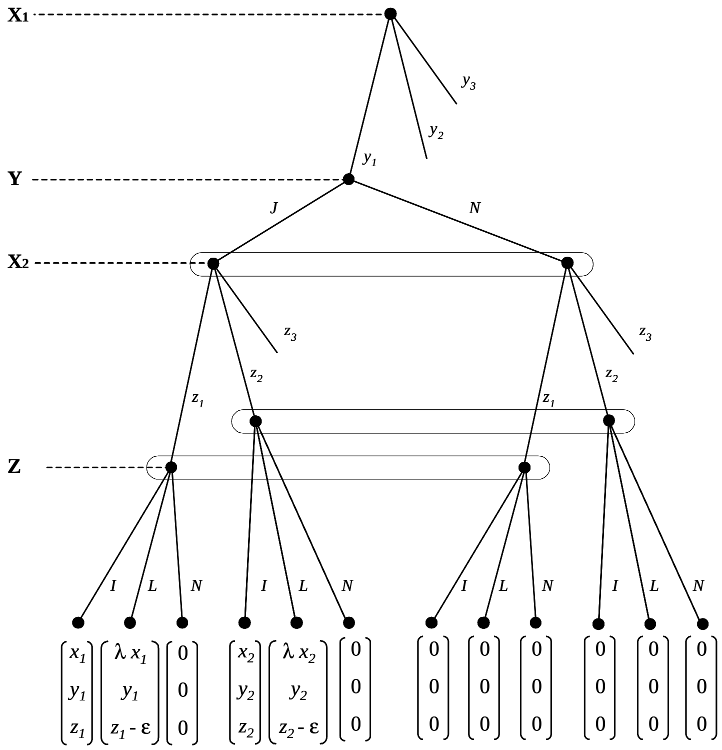

Figure 1: Game tree assuming rational and opportunistic players.

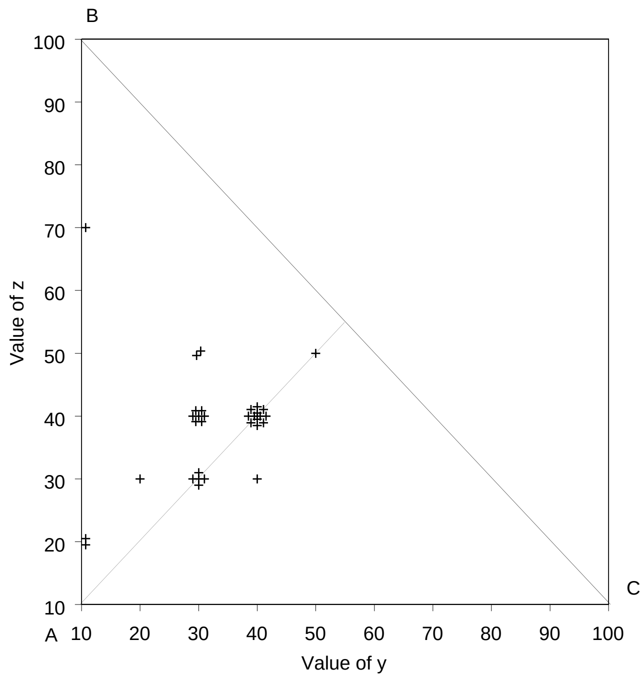

Figure 2: Distribution of X's observed decisions.

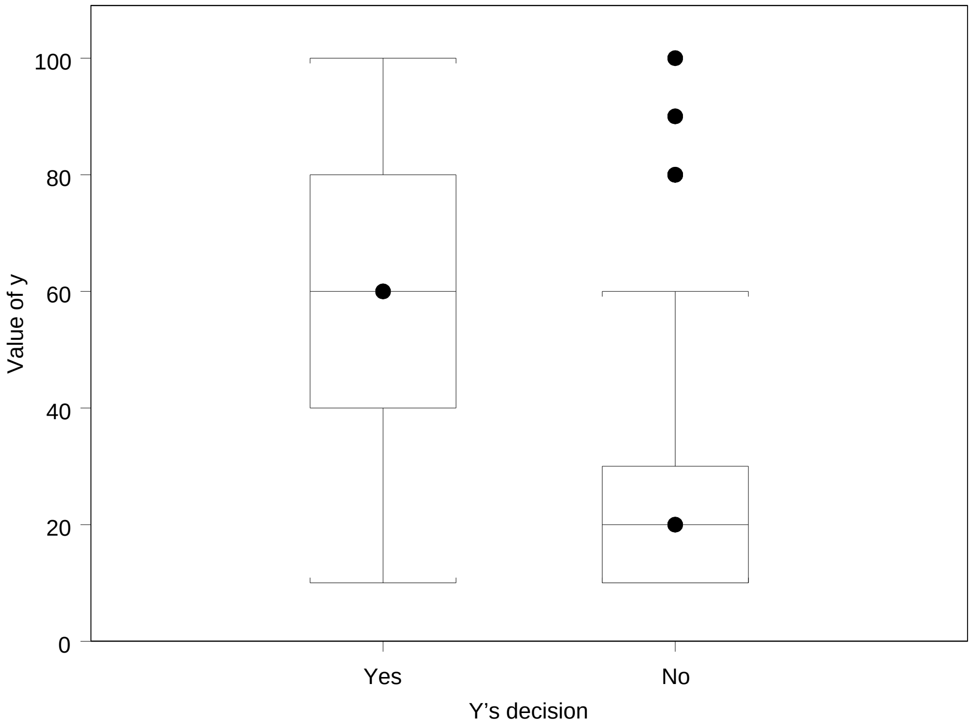

Figure 3: Relation between Y's decisions and the values of y.

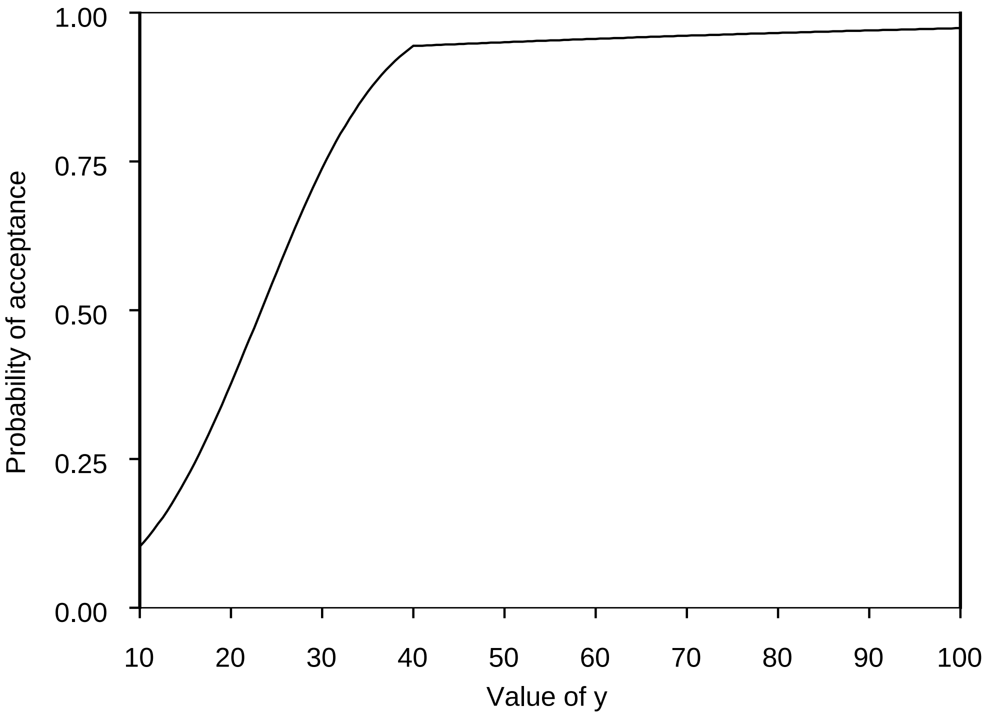

Figure 4: Estimated probability of acceptance by Y.

Appendix A: Instructions

In this experiment you will be interacting in groups of three participants. The identity of your group members will remain unknown to you during and after the experiment. We kindly ask you to not communicate with other participants. If you have any question, please raise your hand and we will come to help you.

Each of the three group members will be assigned to one of three roles: X, Y or Z. Which role you acquire will be told to you on your decision form.

THE PROCEDURES OF THE EXPERIMENT WILL BE AS FOLLOWS.

Participant X makes a proposal about how to divide 120 tokens among the three group members X, Y and Z. This proposal must fulfil the following conditions:

- Each participant must receive a multiple of 10 (i.e., 10, 20, 30, $\cdots$).
- Each participant must receive at least 10 tokens.
- The 120 tokens must be completely exhausted.

Participants Y and Z decide which of X's proposals they want to accept and which ones they want to reject, where the following must be taken into account.

- Participant Y is only informed about the amount that (s)he receives by X. This means that (s)he does not know how many of the remaining tokens are given to Z. Thus, his/her decision can be either "**Yes**" or "**No**".
- Participant Z knows both his/her own amount and the amount given to Y. Z can decide for "**Yes - without restrictions**", "**Yes - with restrictions**", or "**No**".

HOW DO MONETARY PAYOFFS DEPEND ON THE THREE GROUP MEMBERS' DECISIONS?

1. If Y's and/or Z's decision is "**No**", then all participants receive 0 (Zero) tokens.
2. If both Y and Z accept X's offer but Z decides for "**Yes - with restrictions**", then X receives one half of the amount (s)he originally demanded for him/herself while Z receives the original offer minus 10 tokens. The payoff for Y remains unchanged.
3. If both Y and Z accept and, in particular, Z does this "**without restrictions**", then all receive the amount that X proposed.

Each participant will be also requested to guess the most frequent results of the experiment. Participants who guess correctly will have the chance to win up to DM 55.

The experiment step by step

1. First, you will receive a big envelope containing an "expectations form" and two smaller envelopes (one white and the other blue).

   Please, keep the blue envelope with you: In it there is an **identification number** that you will use to collect your payoff at the end of the experiment.

2. Without opening the white envelope, you must fill out the **expectations form**. On this form you will tell us your own expectations about the experiment. We will collect the forms once everyone has finished with them.

3. You must then open the white envelope. In it you will find the **decision form** from which you will get to know the role (X, Y or Z) to which you have been assigned.

   • Participants X must make an offer.

   • Participants Y must decide which of all the possible offers by X they want to accept and which ones they want to reject.

   • Participants Z must decide which of all the possible offers by X they want to accept without restrictions, which ones they want to accept with restrictions, and which ones they want to reject.

4. When you are ready, please put your decision form back into the white envelope. We will come to your place and pick it up. The experiment ends after all decision forms have been collected.

5. Before you leave the room, we will randomly choose 15 participants: 5 of them will be rewarded for their expectations about X, 5 for their expectations about Y, and 5 for their expectations about Z.

   If the expectations of a selected participant correspond 100% to the result of the experiment, then (s)he will receive 55 DM as additional payment. If only 50% of his (her) expectations are correct, then (s)he will receive 27,50 DM and so on.

Appendix B1: Expectations Form

Before the experiment begins, please tell us what do you think will be the most frequently observed decisions by X, Y and Z.

1. I expect that most X players will submit the proposal assigning:

   $x =$ ☐ to X

   $y =$ ☐ to Y,

   $z =$ ☐ to Z.

2. I expect that most Y participants would accept the following proposals:

y	10	20	30	40	50	60	70	80	90	100
*										

   (* Please, insert **y** for **y**es if you expect Y to accept, and **n** for **n**o if you expect Y not to accept.)

3. I expect that most Z participants would accept (early / late) the following proposals:

z

	*	10	20	30	40	50	60	70	80	90	100
	10										
	20										
	30										
	40										
	50										
y	60										
	70										
	80										
	90										
	100										

   (* Please, insert **i** for **i**mmediately if you expect Z to accept early, **l** for **l**ate if you expect Z to accept late, and **n** for **n**o if you expect Z not to accept at all.)

Appendix B2: Decision Forms

We report the decision forms for players X and Y. Those for player Z were adapted accordingly.

X-Decision Form

You have been assigned to the role of party X. Now, please, decide about your own offer:

I, as X, demand $x =$ ☐ for myself,

offer $y =$ ☐ to Y,

and $z =$ ☐ to Z.

(Remember that x, y and z cannot be smaller than 10 each, and that they must add up to 120. Remember also that x, y and z must be integer multiples of 10 tokens each).

Y-Decision Form

You have been assigned to the role of party Y. Now, please, decide about your own acceptance or rejection of offers (remember that all amounts x, y and z are integer multiples of 10 tokens):

y	10	20	30	40	50	60	70	80	90	100
*										

(* Please, insert **y** for **y**es if you want to accept and **n** for **n**o if you do not want to accept.)