Finding Team Mates who are not prone to Sucker and Free-Rider effects: The Protestant Work Ethic as a Moderator of Motivation Losses in Group Performance

Susanne Abele and Michael Diehl

ERIM REPORT SERIES *RESEARCH IN MANAGEMENT*	
ERIM Report Series reference number	ERS-2005-053-ORG
Publication	October 2005
Number of pages	36
Persistent paper URL	http://hdl.handle.net/1765/6990
Email address corresponding author	sabele@rsm.nl
Address	Erasmus Research Institute of Management (ERIM) RSM Erasmus University / Erasmus School of Economics Erasmus Universiteit Rotterdam P.O.Box 1738 3000 DR Rotterdam, The Netherlands Phone: + 31 10 408 1182 Fax: + 31 10 408 9640 Email: info@erim.eur.nl Internet: www.erim.eur.nl

Bibliographic data and classifications of all the ERIM reports are also available on the ERIM website:
www.erim.eur.nl

ERASMUS RESEARCH INSTITUTE OF MANAGEMENT

REPORT SERIES

RESEARCH IN MANAGEMENT

ABSTRACT AND KEYWORDS	
Abstract	This study examines the contribution of a personality variable in motivation losses in group performance. Differences in the endorsement of the 'Protestant Work Ethic' can account for variance in motivation losses in group work. Male student scores on the Mirels- Garrett Protestant Work Ethic Scale and Ho's Australian Work Ethic Scale as well as different preferences for reward distributions were used as moderator variables. The study tested motivation losses in a situation that was designed to provoke the free-rider effect and in a situation that was designed to provoke the sucker-effect. Results showed that different facets of the Protestant Work Ethic have different effects on behavior in group work situations: Whereas approval of the equity principle moderates the sucker-effect, belief in work as a value moderates the free-rider effect.
Free Keywords	Group-productivity, Motivation-losses, Protestant Work Ethic
Availability	
Classifications	

Finding Team Mates who are not prone to Sucker and Free-Rider effects:

The Protestant Work Ethic as a Moderator of Motivation Losses in Group Performance

Susanne Abele

Erasmus University Rotterdam

Michael Diehl

University of Tuebingen

Abstract

This study examines the contribution of a personality variable in motivation losses in group performance. Differences in the endorsement of the 'Protestant Work Ethic' can account for variance in motivation losses in group work. Male student scores on the Mirels-Garrett Protestant Work Ethic Scale and Ho's Australian Work Ethic Scale as well as different preferences for reward distributions were used as moderator variables. The study tested motivation losses in a situation that was designed to provoke the free-rider effect and in a situation that was designed to provoke the sucker-effect. Results showed that different facets of the Protestant Work Ethic have different effects on behavior in group work situations: Whereas approval of the equity principle moderates the sucker-effect, belief in work as a value moderates the free-rider effect.

Key-words: 'Group-productivity', 'motivation-losses', 'Protestant Work Ethic'

Nowadays a lot of important tasks in life cannot be conducted by a single individual, but can only be accomplished by groups. For instance, in industrial organizations the formation of groups, whose members pool their individual contribution to a common group product has been an important issue since a long time (e.g. Antoni, 1994). The result of the teamwork does not always work out as intended. In some instances organizational managers find the group product satisfying, in other instances however the group is far from achieving their productive potential.

The phenomenon of diminished actual group productivity compared to potential group productivity has been thoroughly investigated and is a well established finding. Of course, decreased productivity can be the result of coordination-losses, but it is also a result of effort-reduction stemming from motivation-losses (Steiner, 1972; Latane, Williams, & Harkins, 1979). One proposed reason for motivation losses is that individuals might realize that their contribution cannot be identified and thus evaluated (Harkins & Jackson, 1985). Furthermore, group-members may perceive their contributions as dispensable and hence reduce their effort while free-riding on the contribution of the others (Kerr & Bruun, 1983). These explanations assume that the basic motivation of each individual cannot consist in working per se or maximizing a group utility. It is rather assumed that the basic motivation of each individual consists in maximizing individual utility, hence maximizing the individual input-output ratio, an assumption underlying neoclassical economics.

Group-work can be viewed as a social dilemma (Kerr, 1983) inasmuch as the strategy ‘not to contribute to the group product’ dominates the strategy ‘to contribute’, no matter what the other group-members are doing; however if no-one contributes the collective is worse off as the group does not produce. In other words, group-members have an incentive to defect, as long as their contributions are additive, and the individual’s main aim is to achieve a maximal

individual outcome. But pursuing that strategy is not conducive to the group productivity, and hence in conflict with the collective interest.

It is undeniable that the products of groups have an enormous significance in our lives. Whereas in the past, at times of the manufacturing industry, the pooling of physical effort was important, it is nowadays, at times of the knowledge and service industry, the joint effort we exert on cognitive tasks. Think of writing a joint report, developing a commercial computer program, or operating an air traffic control system. But we are not only facing today the times of knowledge and service industry, but also globalization, a faster moving society and change of traditional values. Values like modesty, diligence, honesty have the taste of being old-fashioned, while self-actualization, pursuing a career and cultivating a healthy narcissism are on the agenda (e.g. Hogan & Blake, 1996). If the spirit of the 22nd century is dominated by pursuing one's own individual goals, and on the other hand, team work is important, then an issue is who does the team work effectively. Who would not leave us in the lurch when working jointly? In the current research, we address the issue, whether all individuals are equally inclined to loaf on other team members, or whether there is a way to tell team workers from team loafers systematically apart. After all, when team work is so important, a way to identify those who still exert effort in groups, can become important for all of us. But before we turn to the question what incentives people have for contributing to a group-product, we will briefly summarize the social psychological explanations for reduced group productivity.

Motivation losses in group work

Since the discovery of the Ringelmann effect (see Moede, 1927, see also Kravitz & Martin, 1986) and its psychological analysis (Ingham, Levinger, Graves & Peckham, 1974), we know that group work compared to individual work often results in productivity losses. Latane, Williams & Harkins (1979) showed that the decreased productivity is caused by co-ordination loss and, what is more important from a psychological perspective, by effort

reduction. They interpreted the effort reduction as a result of motivation losses and called it ‘social loafing’. With emerging research the phenomenon of motivation losses in groups has been given different labels depending on the circumstantial conditions. Social loafing stems from the realization that the individual contribution cannot be identified and thus evaluated (Harkins & Jackson, 1985). The potential for evaluation need not necessarily refer to an external person, like e.g. the experimenter, a possible self-evaluation can eliminate the effect as well as a possible comparison to a social group standard (Szymanski & Harkins, 1987; Harkins & Szymanski, 1989). Free-riding stems from the perception that the individual's contribution is dispensable, even if it is identifiable and appraisable (Kerr & Brunn, 1983, see also for a detailed analysis of task type and possible motivation losses in the framework of social dilemmas Arnscheid, Diehl & Stroebe, 1997). The sucker-effect results from the perception that others could free-ride on the individual’s expenses (Orbell & Dawes, 1981). In this case it is the potential of the averseness of this role, which makes the individual reduce his/her effort. Kerr (1983) argues that the violation of certain social norms like the equity norm, the norm of reciprocity and the norm of social responsibility make the sucker role uncomfortable. In the last decade motivation losses in group performance have been linked to general theories of motivation (Karau & Williams, 1993; Shepperd & Taylor, 1999; Shepperd, 1993).

The assumed underlying mechanism for the free-rider effect and social loafing make the assumption that individual’s main driving force is to maximize individual outcomes, while minimizing input. The proposed underlying mechanism for the sucker-effect is in that sense distinct from the other two, as it makes the assumption that behavior can also be driven by other motives and needs like feeling socially equal and accepted. An obvious question is then, whether other motives, as for instance, seeing work as something valuable per se, may play important roles in group work, too.

What Moderates Motivation Losses in Group Work

Karau's and Williams' (1993) meta-analytic review testifies that motivation losses in group work is a robust phenomenon, which generalizes across tasks and populations. Above we have briefly mentioned variables that play a role in the underlying processes of motivation losses in groups. Among those, evaluation potential, expectations of co-worker performance, task meaningfulness, and culture were found to have a consistent impact (Karau & Williams, 1993).

Moreover, individual differences have also been shown to moderate motivation losses in groups. Need for cognition refers to the tendency to engage and enjoy effortful cognitive endeavors (Cacioppo & Petty, 1982). Smith, Kerr, Markus, and Stasson (2001) demonstrated that the need for cognition can moderate motivation losses in group work: Individuals high in need for cognition worked equally hard on a vigilance task, no matter whether they were working collectively or coactively. Individuals low in need for cognition, however, exerted considerable less effort when working collective compared to working coactive.

Hart, Karau, Stasson and Kerr (2004) showed that people high in achievement motivation exerted equal effort, regardless of whether they were working coactively or collectively, and whether they expected the other person to exert high or low effort. However, people low in achievement motivation reduced their effort most when working collectively with somebody from whom they expected high effort. Hence, apparently they reduced their effort when they perceived their contribution as dispensable and not identifiable. What seems to be left open in their study is what reason participants attributed to the allegedly predicted effort of their team-member. When induced to expect low effort, participants received the message that their team partner found the task very interesting but was not going to exert much effort on it. This message could be interpreted a bit ambiguous and neither is an attribution on the partner's willingness or capability compelling. Another issue is that people

do not only have the trait of achievement motivation. They might have other traits that could be systematically associated with achievement motivation or need for cognition, and which also have an impact on behavior in teams, like for instance attitude towards work and endowment of an equity principle.

The Protestant Work Ethic

In 1905 Max Weber published his work 'The Protestant Ethic and the Spirit of Capitalism'. The basic idea of this work was that the Protestant ethic was an important factor in the economic success of Protestant groups in the early stages of capitalism. Worldly success was interpreted as a sign of election and therefore vigorously pursued.
After Weber, anthropologists, economists, sociologists, historians and psychologists have been interested in the issue of the Protestant Work Ethic (PWE). Psychologists were not concerned with whether Weber was right or wrong, but with translating the concept into individual terms.

In the discipline of psychology, McClelland (1961) was the first to use the concept of PWE. His explanation for the association between Protestantism and capitalism was the following: Parents, who internalized Protestant values, tend to perform child rearing practices, which foster independence, rationality and delay of gratification. This in turn is likely to lead to children with a high achievement motivation, and people with a high achievement motivation are very likely to contribute to expansion of business. He subsumed the concept Protestant Work Ethic into the need for achievement concept, which has been criticized, since he concentrated on only the 'hard work-aspect' of the work ethic and left out other aspects. But the idea that high achievement motivation is a relative stable disposition, which has its roots in the early socialization in the Protestant Work Ethic led others to operationalize PWE beliefs as a variable of individual differences. The research focus has shifted from the

etiology of the PWE to the measurement of this variable and on relationships between the PWE and behavior-patterns and other belief systems. Self-report measures have been developed (e.g. Goldstein & Eichhorn, 1961; Blood, 1969; Mirels & Garrett, 1971; Hammond & Williams, 1976; Buchholz, 1976; Ray, 1982; Ho, 1984). In respect to the association of the PWE with behaviors and other constructs, key-findings are: Persons with a high PWE are industrious, ambitious, hard working and intrinsically motivated (Furnham, 1990a); they tend to have an internal locus of control in matters that are linked to work (Lied & Pritchard, 1976); they are not easily affected by external factors and their behavioral orientation in a free-choice period is to work equally hard on the task regardless of the performance feedback (Furnham, 1990a). Moreover, they are inclined to apply the equity norm to a reward distribution (Greenberg,1978).

Equity norm refers to a proportional input-output relation. People perceive a distribution as fair, when their own ratio of inputs to outputs equals the input-output ratio of others. Put differently, according to equity norm, rewards should be distributed in direct proportion to the effort each group-member exerts (Adams, 1965; Walster, Berscheid & Walster 1973). In contrast to that, the equality norm does not focus on the input-output relation in determining whether justice or injustice is perceived, but merely on an equal size of the output. Hence, the equality norm would suggest an equal distribution of rewards irrespective of inputs (Homans, 1958, 1961).

People low in Protestant Work Ethic are basically the opposite: they are not hard working, easily distracted and extrinsically oriented (Furnham, 1990a). They have an external locus of control in work-domains and they are easily affected by fear of failure and external factors. Moreover, low Protestant Work Ethics will only exert effort on a task when they are given negative feedback to avoid failure or embarrassment. They are also more likely to apply the equality norm than the equity norm (Greenberg, 1978).

Protestant Work Ethics as a Team

We have outlined that motivation-losses in group-work are determined by external factors. This raises the question whether people with intrinsic motives lose motivation when working in groups, too. In other words, since PWE is characterized by internal values and intrinsic motivation, should it not moderate motivation-losses due to external factors?

The purpose of the current study is to investigate the PWE as a moderator of motivation losses in group work. Heaven (1989) as well as Furnham (1990b) delivered empirical evidence that the global construct 'PWE' consists of several components. Thus different components might be responsible for the behavioral correlates and associations with other personality constructs, which were described above. Let us recall some of what we mentioned there: high work ethic is associated with a preference for the equity norm and intrinsic motivation; whereas people with low work ethic are extrinsically motivated and prefer the equality norm when asked to divide a reward (Greenberg, 1978, Furnham, 1990a). In PWE measures both of these components are allegedly captured.

Furthermore, both of these components, the preference for an equity norm and the attitude towards work become relevant in group-work situations. Let us see how: The free-riding effect occurs, when individuals realize that their contribution to the group-product is dispensable while they can nevertheless benefit from the group-product. Thus concerning the free-rider effect maximizing the individual cost-benefit ratio should lead to less effort. On the one hand for people with a high PWE, as they have internalized work as a value itself, high performance should have a high value regardless of the outcome. On the other hand for people with a low PWE, who see work as a means to an end, performance should depend on the value of the outcome. When individual contributions are perceived as dispensable, the contingency between individual performance and group performance is diminished. In that

way the perceived instrumentality of the behavior to obtain the desired group outcome and the individual share of the outcome is reduced. Persons, who see work as a means to an end, should be influenced by such a diminished contingency, and therefore they should choose a lower effort level. Persons who value work in itself should not be influenced in the choice of their effort-level in that specific situation. Therefore participants with a high PWE should not show the free-rider effect, whereas participants with a low PWE should show the free-rider effect.

The sucker-effect occurs when individuals perceive the danger that others may free-ride on their contributions. Thus a perceived violation of the equity norm is responsible for this motivation-loss. In group work situations the reward system is usually fixed according to the equality principle. Thus, once group-members perceive the danger that others might free-ride the only possibility to assure that the equity norm is not violated is to reduce the contribution. Persons with a high PWE hold the equity norm in high esteem. Therefore they should show the sucker-effect to a higher extent than persons with a low PWE. However, if intrinsic motivation prevails, persons with high work ethic should show the sucker effect to a lesser extent. Thus concerning the sucker-effect contrasting predictions can be derived from the concept of PWE. Understanding the relationship between PWE and susceptibility to the sucker effect requires that the components of PWE (namely, intrinsic motivation and preference for equity norm) be measured separately.

Hypotheses

Free-riding should not occur within participants with high PWE, while the effect should be observed within participants with low PWE.

Two countervailing hypotheses concerning the relationship between PWE and the sucker effect are considered. First, if adherence to equity norm drives the sucker effect, then

high PWE's should exhibit the sucker effect and low PWE's should not. However, if intrinsic motivation overrides concern about being the sucker, the reverse should occur: low PWE's should exhibit the sucker effect and high PWE's should not.

Method

Overview. In order to test the research hypotheses, a situation was designed that permitted free-riding, and another situation was designed that made participants vulnerable to the sucker-effect. Also included were two corresponding control conditions. Participants worked in dyads on a potentially divisible task.

In the free-rider condition, participants were led to believe that their partner was capable at the task by the initial feedback on the task performance. In the free-rider control condition, participants performed the task individually.

In the sucker-effect condition, the partner of the participant is portrayed as capable by the initial feedback on task performance. The feedback after the first three trials revealed that the team did quite well on the task, but that the participant's contribution consistently exceeded the 'partner's' contribution. The 'partner' of the participant was a confederate of the experimenter. In order to have the participants really attribute the 'partner's' smaller contribution to his reduced effort and not to his lower ability of the person, the confederate displayed boredom by scripted behavior. In the sucker-effect control condition, the participant's contribution exceeded the 'partner's' contribution. But here the participant was led to believe by the initial task performance feedback that their partner's task ability was low. During the initial trials, the confederate commented on the difficulty of the task.

Participants and Design. Eighty male students from University College London participated in the experiment. Because of the sex-difference in the sucker-effect (Kerr, 1983)

only the male gender was included. Participants were randomly assigned to one of the 4 experimental conditions (free-rider, free-rider control, sucker-effect or sucker-effect control). Thus, the design was a 4 independent groups design.

Measurement of the Protestant Work Ethic The endorsement of the PWE was assessed with the Protestant Work Ethic Scale from Mirels & Garrett (1971) and the Australian Work Ethic Scale from Ho (1984). Despite the theoretical inclusion of the equity/equality norm in the concept of PWE as a variable of individual differences, these scales do not include items that measure directly for a preference for equity or equality. Therefore nine further items were created to assess whether participants prefer the equality-norm or the equity-norm. Examples for such items would be: “The trouble with giving people equal rewards for work is that they very rarely work equally hard” or “When a task is completed by a team there is nothing wrong with distributing the reward equally regardless of unequal input”.

Task. The task that the participants were performing in three trials was the ‘d2’ concentration test (Brickenkamp, 1994). In this test, participants are confronted with a sheet full of the letters ‘d’ and ‘p’ which have one to four lines above or beneath them. The task is to work through the lines of letters and cross out every ‘d’ that has two lines with it. In order to give a reason, why this task had to be completed by teams, as well as avoiding participants from focusing on the real issue of the study the following cover story was presented:

The study was about how to design the task of manually checking transfer slips most efficiently. In most instances one fills in forms nowadays using the computer. However, some service providers, like banks, are still obliged to offer other possibilities for clients to hand in forms. Service providers let clients also use forms, which can be filled in by hand, but can later be read by a computer. People are instructed how to fill in these forms, so that the computer can read them, but still a given percentage cannot be read by the computers. When

the computers read the forms, the information is translated into a code. This code then appears on a screen, and consists of signs and abnormalities. The signs represent information from the transfer slip that could be read properly, whereas the abnormalities stem from information that could not be read properly. Somebody has to detect the abnormalities, which demands a continuously high concentration and is a boring task. A short period of inattention will lead to a greater amount of undetected abnormalities, which will be noticed in the succeeding processing. The study wants to test whether sharing the task so that the code would come up on two screens has an impact. Another feature that the study was interested in was whether and in how far feedback and certain feedback frequencies had an impact on performance. Hence, participants would be working on a task, where they had to detect abnormal signs in a list of abnormal and normal signs, they were doing this either with another person or alone, and would be given feedback in certain frequencies.

Procedure. After arrival participants were asked to complete the PWE questionnaires, which were said to be part of a different research project. They were then told the alleged purpose of the study, before they were randomly assigned to one of the four conditions. With the exception of the free-rider control condition participants were told that they would work at the task as a co-operative team, which meant that their performances were going to be joined and that they would be rewarded for their joined performance regardless of the contribution of the parties. Participants were guaranteed two pounds as a reward and they were told that they could earn up to three pounds depending on their combined performance. Three pounds were approximately worth 5 US$. Eventually everybody was paid three pounds. Participants were then made familiar with the requirements of the task by practicing on a line of letters. During the actual experimental trials participants were wearing headphones. The command to start was given via these headphones. Furthermore, during the trials office-noise was displayed in order to prevent the participants from overhearing each other's speed.

The first trial lasted for one minute and participants were told that this trial was meant to assess their initial ability, the second to the fourth trial went on for two and a half minutes each. The experimenter left the room for the time the 'teams' were actually working on the task. Occurrences in the room could be monitored through a glass window in the door. After each trial the experimenter returned, took the sheets from the participants and allegedly appraised them in the same room.

Participants were told that there existed a norm, and their feedback would refer to the average of this norm. In all experimental conditions participants were given the feedback after the first trial that their own performance, which was supposedly the initial ability, was 20% above average. In the sucker-effect condition and the free-rider condition they were told that their partner's performance was 20% above average as well, whereas in the control condition to the sucker-effect the performance feedback for the partner was 5% below average.

After the first trial, in the sucker-effect condition, the confederate yawned and stretched and started to lean back with his chair while the sheets were corrected. After the second trial he again leaned backwards and began to drum with his fingers on the table. The performance feedback then revealed a combined result around 20% above average and a contribution of the participant to the total about 60%. After the third trial the confederate mumbled to himself "it's getting boring", while the experimenter was still outside the room. The performance feedback for this trial then again revealed a combined result that was 20% above average, to which the participant had contributed again more than 60%.

In the sucker-effect control condition the confederate said after the first trial 'I can't tell them apart'. After the second trial he moaned and said to himself "it is really difficult". The combined result was said to be 20% above average and the contribution of the participant about 60%. After the third trial the confederate said 'not easy' while handing his sheet over to

the experimenter. Feedback for this trial then revealed the same result than for the second trial.

In the free-rider condition participants were told after the second and third trial that they together achieved 20% above average; no information was given concerning the individual contributions to the team-performance.

In the free-rider control condition participants were given the feedback that they achieved about 20% above average after each trial. After the fourth trial in none of the four experimental conditions feedback was given, but participants were asked to complete a questionnaire, that was functioning as a manipulation check. Participants were then debriefed, thanked and paid.

Results

The Protestant Work Ethic. In order to disentangle the two aspects of the global construct a principal component factor analysis with Varimax-rotation was conducted on the data of the questionnaires. A Scree plot indicated the presence of three factors. Seven items were loaded on the first factor, all of these items captured the aspect of intrinsic motivation (see appendix for details). Thus this factor was called the work-factor, it explained 24,4% of the variance. Six items were loaded on the second factor, which explained 7.3 % of the variance. All the items captured approval to conservatism and therefore was labeled as 'conservatism'. And the third factor with five items loading on it comprised the 'equity items'; it explained 7.0% of the variance.

Three scales were built on the basis of the structure of the factors, which consisted of the items loading high on each of the factor. Cronbach's Alpha for the 'work factor' was .79, for the 'equity factor' .80 and for the conservatism factor .79. The items of each factor are depicted in Appendix A.

The score on the items of the work-factor was measuring individual differences in the attitude towards work. The equity factor was the measure for approval of the equity norm. Correlation between the work factor and the equity factor was r = .40, between work and conservatism factor r = .35 and between the equity factor and the conservatism factor r = .34.

Analysis of the Performance Data. Four participants had to be excluded from the analysis, one had suspicion about the confederate and the other three did not accomplish the task properly. Table 1 reveals the raw-performances in all four conditions for the four trials. Raw-performances means the number of all correctly marked signs minus the number of signs which were marked falsely and minus the number of signs which had been failed to be marked up to the last correctly marked sign.

The primary dependent variable was the performance in the fourth trial, because when participants were performing in the fourth trial the experimental manipulation should have been most effective. As depicted in Table 1, scores in the fourth trial in the free-rider condition (M = 282.26) and in the sucker-effect condition (M = 279.47) were lower than in the free-rider control condition (M = 316.8) and in the control condition sucker-effect (M = 295.8). A one-way ANCOVA was performed, with the performance in the fourth trial as a dependent variable, and the performance on the first trial as a covariate. The first trial was used as a covariate in order to control for individual differences in performance before the introduction of the experimental manipulations and hence reduce error variance. There was a main effect of the condition, $F(3, 71) = 3.2$, $p < .028$. Also the effect of the covariate was significant, $F(1, 71) = 58,7$, $p < .001$. Table 2 contains the mean performances adjusted for the covariate.

Two contrasts were calculated to test for the free-rider effect and the sucker-effect. The comparison of the free-rider to the free-rider control was significant, $F(1, 67) = 5.67$, $p <$

.05. The comparison of the sucker effect condition to its control revealed a significant sucker-effect, $F(1, 67) = 3.978$, $p < .05$.

Analysis of the Performance Data under Consideration of the PWE.

Participants were divided with a median split on their combined scores from the PWE scale from Mirels and Garrett (1971) and the work ethic scale from Ho & Lloyd (1984) into participants with a high and low PWE. A 4(free-rider condition versus free-rider control condition versus sucker-effect condition versus sucker-effect control condition) X 2(high PWE versus low PWE) ANCOVA was performed, using trial 1 as a covariate. The effect of the covariate was highly significant, $F(1,67) = 57.88$, $p < .001$. The main effect of the condition was also significant, $F(3,67) = 4.47$, $p < .006$. However the main effect of the PWE factor was not significant, $F(1, 67) = 2,06$, $p < .16$. The interaction between the conditions and the PWE factor was significant, $F(3, 67) = 2.68$, $p = .05$. Adjusted means are depicted in Table 3, for participants with a high or a low score on the PWE scales separately. Contrasts were calculated using these adjusted means. It turned out that participants with a high PWE showed no free-rider effect, $F(1,67) < 1$, n.s.. However, participants with a low PWE showed a free-rider effect, $F(1,67) = 10.02$, $p < .005$. Furthermore, the latter group of participants showed no sucker-effect, $F(1,67) < 1$, n.s., whereas participants with a high PWE did exhibit the sucker-effect, $F(1, 67) = 5.98$, $p < .01$.

In order to understand these results a bit better, performance-differences of participants, who can be distinguished on the scales work and equity, are particularly interesting. In order to test for the moderating effects of differences in the attitude towards work participants were divided by median split on the work scale. Participants with a high score tend to see work as a value itself, whereas participants with a low score are regarded as those who see work as means to an end. A 4(free-rider condition versus free-rider control condition versus sucker-effect condition versus sucker-effect control condition) X 2(work as a

value versus work as a means to an end) ANCOVA was performed, using trial 1 as a covariate. The effect of the covariate was highly significant, $F(1,67) = 58.76$, $p < .001$. The main effect of the condition was also significant, $F(3,67) = 2.95$, $p < .039$. However the main effect of the work factor was not significant, $F(1, 67) = 1$, n.s., neither was the interaction between the conditions and the work factor, $F(3, 67) = 1$, n.s.. Adjusted means are depicted in Table 4, for participants with a high or a low score on the work scale separately. Contrasts were calculated using these adjusted means. It turned out that participants, who value work in itself showed no free-rider effect, $F(1,67) = 2.33$, n.s.. However, participants, who see work as a means to an end, showed a free-rider effect, $F(1,67) = 3.52$, $p < .05$. Furthermore, the latter group of participants showed a sucker-effect, $F(1,67) = 4.69$, $p < .05$, whereas participants, who see work as a value in itself, did not exhibit the sucker-effect, $F(1, 67) < 1$, n.s..

A median split on the scores of the equity scale divided participants into two further groups. Participants with a high score prefer the equity norm whereas participants with a low score prefer the equality norm when asked to divide a reward. A 4(free-rider condition versus free-rider control condition versus sucker-effect condition versus sucker-effect control condition) X 2(endorsing equity versus endorsing equality) ANCOVA was performed, using trial 1 as a covariate. Again the effect of the covariate was highly significant, $F(1,67) = 61.9$, $p < .001$. Also the effect of the different experimental condition was significant, $F(3,67) = 3.57$, $p < .019$. However the effect of the equity/equality scale was not significant, $F(1,67) = 1.41$, n.s.. Neither was the interaction between the different experimental conditions and the equity/equality scale significant, $F(3,67) < 1$, n.s.. Adjusted means are depicted in Table 5, for participants, who value equity, and for participants, who value equality separately. Contrasts were calculated using these adjusted means. It turned out that participants, who favor equity, showed no free-rider effect, $F(1,67) = 2.22$, n.s., however participants, who favor equality, did exhibit the free-rider effect, $F(1,67) = 3.88$, $p < .05$. Moreover, participants, who endorse to

the equality norm, did not exhibit the sucker-effect, $F(1,67) < 1$, n.s., whereas, most remarkable, participants, who endorse the equity norm, did show the sucker-effect, $F(1,67) = 5.3$, $p < .05$. Table 6 summarizes which type of motivation loss was significant for each of the participant groups.

Discussion

The purpose of this study was to investigate the effects of individual differences on motivation losses in performance groups; more specifically effects of the global construct 'PWE' on the sucker-effect and the free-rider effect were examined.

Overall, irrespective of individual differences, both a sucker-effect and a free-rider effect were obtained. This means that our set-up was successfully designed to elicit these well-known motivation losses in group work.

But let us look now at individual differences. People are alike in some ways, but in other ways they are not. The issues of interest at this point is, whether there are people, who work equally hard, no matter whether they are working alone or with another/ others, and furthermore whether we can systematically distinguish people, who exert equal efforts alone and in groups, from people who don't.

As we had predicted participants with a high PWE did not show the free-rider effect. These participants did not reduce their effort, when knowing that their team-performance was well above average and individual contributions were not revealed. They obviously appreciate work and therefore exert effort. Looking only at low PWE participants we do observe a free-rider effect. If their contribution does not appear to be absolutely necessary these kind of participants are less inclined to exert effort.

Concerning the sucker effect and a potential moderating role of the PWE we had two competing hypothesis. On the one hand, we speculated that high PWE would not show the

sucker effect, as they value work in itself. On the other hand, it could be that high PWE show the sucker effect when they would react to the violation of the equity norm in that situation rather than the work aspect. It turned out that high PWE showed a sucker-effect. They were apparently reacting to the violation of the equity norm in the situation that could provoke a motivation loss due to the possibility that someone could free-ride on their effort. Looking only at low PWE no sucker effect was observed. These people were not inclined to reduce their effort due to the possibility that their team-partner could try to free ride on their effort. The findings concerning the PWE and the sucker effect are also consistent with the results of Greenberg's experiment (1978), in which participants with a low PWE (measured with the Mirels & Garrett scale (1971)) divided a reward between a partner and themselves according to the equality norm and participants with a high PWE applied the equity norm. So not only do high PWE place more value on the equity norm than persons with a low PWE in situations in which they can alter the reward (Greenberg, 1978), but also if they can just alter their individual contribution.

With the help of the factor analysis we could separate two components as sufficiently different, i.e. the 'work-component' and the 'equity component'. The results of the factor analysis are consistent with Furnham (1990b) and Heaven (1989) who concluded that the PWE scale consists of several components that correlate only moderately with each other. The current study demonstrates empirically that at least two components can be usefully distinguished. Our 'work-scale' correlates r = .40 with our 'equity scale', the 'work-scale' correlates . 69 with the PWE-scale from Mirels & Garrett (1971), the 'equity-scale' correlates .54 with the PWE-scale from Mirels & Garrett (1971). Furthermore the PWE from Ho and Lloyd (1984) correlates r = .94 with our 'work-scale' and r = .43 with our 'equity-scale.

The overall effects of PWE were qualified by examining separately the roles of the work and equity components of the scale. Participants, who value work in itself, did not show

the free-rider effect. That means that they were working equally hard on the task, no matter whether working alone or working in a group. Knowing that the joint performance was considerably above average and that no individual contributions were revealed did not tempt these participants to reduce their effort and free-ride on the effort of their partner. Participants, who had indicated previously that they value work in itself, worked hard on the task, and apparently did not have the primer goal to maximize their individual input output ratio.

Participants, on the other hand, who see work as a means to an end, did show the free-rider effect. They exerted less effort when they knew that the joint performance was considerably above average and individual contributions were not revealed. In this instance, working hard did not have an obvious external goal, and hence these participants apparently were more inclined to take advantage of their partner's contribution, while still benefiting from the group product.

Furthermore, when looking only at the participants, who endorse the equity principle, we did not observe a free-rider effect. Participants, who value a proportional input output ratio for each team-member, do not reduce their effort when their individual contribution is not identifiable and their team's performance is well above average. Hence, it could well be that these people think that the output of attributing the successful completion of the task is not proportionally divisible. Consequently they work hard so that equal shares of input can justify that the success is equally attributed to both team-members. However, what they cannot exclude is the possibility that their contribution exceeded the contribution of their team-member from the first trial on.

Participants, who favor the equality principle, do show a free-rider effect. These kind of people apparently take a pragmatic approach: If their effort is not seen as necessary for collective success, they reduce their effort. Feedback after the first, second and third trial might have given them the impression that their partner was working hard and not reducing

his effort, and hence their effort was dispensable. For people, who endorse the equality principle, an equal distribution of the outcome, without consideration of inputs, is perceived as fair. Consequently, they might see no need to keep up their effort, neither for successful task completion nor for, in their own eyes, as fair perceived behavior.

As predicted, participants, who place high value on the equity norm showed the sucker-effect, whereas participants who prefer the equality norm did not. This implies that the former would find a violation of the equity norm so aversive that they rather accept a poor team performance and sacrifice a part of their individual reward than be treated unfairly by an equity rule. For the participants, who endorse the equality norm, a comparison of the own cost-benefit ratio with the cost-benefit ratio of the team-partner seems to be irrelevant. It is not that aversive to them if they get the impression that their team-member is not working as hard as he could. It is probably not a situation they hope for, but it does not seem that significant to them on an emotional level. Similarly as the equality endorsers are inclined to take advantage if there is an opportunity to free-ride, probably without feeling too bad about it either. It seems that these kind of people just have a pragmatic approach to team-work, it appears that the maximization of their individual input output ratio is most salient to them. Equity endorsers, on the other hand, seem to be very sensitive to the behavior of other team-members in a social way. Most salient to them seems to be their individual input output ratio in comparison to the input output ratio of other team-members. They do not take advantage to free-ride, but they reduce their effort when they get the feeling that somebody else wants to free-ride on their effort. This means that their behavior cannot be explained rationally, in terms of utility maximization. In line with this reasoning, it is interesting to note that, participants who prefer the equity norm show the highest performance among all participant-groups in the sucker-effect control condition. This emphasizes again that their decisive aspect of the input is not the measurable contribution, but the effort. When working with an unable

partner they might feel obliged to devote their ability even more, in order to achieve the desired outcome.

These results also speak well for the validity of the added ‘equity items’ as participants who showed the sucker-effect and participants who did not show the sucker-effect can be distinguished by their scores on these items.

Let us look at these partial results on a different level. What do these results imply, if you want to organize a successful teamwork? Imagine you had to choose people to work together, and you wanted them to be successful as a team. Would you choose people, who endorse more to equity or more to equality? In the light of the current results, it seems that you should choose equity endorsers to avoid the free-rider effect. You would be also well off with only equity endorsers to avoid the sucker-effect, given that none of them would be inclined to free-ride on another’s effort. However, imagine that there would be the information that one team member was not exerting enough effort; this can also be a false information, like wrongly interpreted behavior. Equity endorsers would be inclined to react to that information in a quite disruptive way for the team, while equality endorsers would be less likely affected by this information, and therefore, in this instance, more beneficial for the team. Given that interpretation of behavior, be it effort driven or capability driven, is not always accurate, it makes sense to also have people on a team, who are less responsive to other’s apparent motives for performance, but rather to the performance itself and the situational requirements.

Results of participants who can be distinguished in their attitude towards work are interesting concerning the sucker-effect condition. Participants who see work as a value itself do not show the sucker-effect. Apparently when these kind of people work they are not affected by external factors, like unequal cost-benefit ratios among the group members. They indicate that work in itself is a value for them, they want to work and perform well, they do

not want to take advantage of an opportunity to free-ride, neither are they affected when somebody else free-rides on their effort. This could mean that they either accept psychological costs as they are intrinsically motivated, or having somebody potentially free-ride on their effort is not perceived as a psychological cost for people, who value work in itself.

Participants who see work as a means to an end show the sucker-effect. Getting the information that their team-partner is apparently exerting less effort on the task, makes them reduce their effort, too. It could be that for people who see work as a means to an end, the relevant aspect in this situation is not that somebody could free ride on their effort, but rather that somebody else reduces their effort. Maybe that is the sign for them to reduce their effort, too. It could be that they interpret this information as diagnostic in terms of whether it is worth to work hard on this task. Any cue that the task might not be worth to work on hard, might be taken as a reason to reduce their own effort. It could, however, also be that they see their reward in relative terms. They indicate they see work as a means to an end. So the "end" might not be something absolute and fixed but maybe relative and even social, and the frame of reference could consist of the cost-benefit ratios of other group-member.

Summing up the results on individual differences in performances deterioration in teamwork, it seems that when composing a team, one is best of with people, who see work as a value. They did not show any of the two motivation losses we tested for, neither the free-rider effect, nor the sucker effect. However, one should make sure that the "work-endorsers" one chooses are not at the same time, high equity endorsers. For, as we have shown that the latter seem to be particular sensitive to the behavior of others.

The results imply that you should not choose people for a team, who see work as a means to an end. This is because their individual utility seems to be most salient to them.

Teamwork situations provide possibilities in which individuals can maximize their individual input output ratio, which are not beneficial for the team.

If you want to avoid the sucker effect, it is good to have equality endorsers in the team. But these people would be inclined to free-ride. Hence, concerning beliefs in an equity principle, there is no easy answer about whom to choose best for a team. Equality endorsers could be inclined to free-ride, but equity endorsers can react sensitive and disruptive for the group when they get the feeling that somebody else could free-ride on their effort. Hence, the best way to get a well-performing team would be to compose it of people who value work in itself. At the same time design the teamwork situation as such that threatening issues about equity and reward distribution have little chance to come up.

Conclusions

Overall results replicated the well-known motivation losses in group work. But the findings are reassuring when we are looking for a good team-partner. We just need to choose the right one. The PWE moderates motivation losses in group work in an interesting way. High PWE showed no free-rider effect but the sucker effect, and vice versa. Decomposing the PWE in the work and the equity factor helped to explain this result. Seeing work as a value was related to no motivation loss, while seeing work as a means to an end was related to both. Preference for equity principle was related to the sucker effect, while preference for the equality principle was related to the free-rider effect. Hence, the findings strengthen the claim to measure the global construct ‘PWE’ not with one unique measure, as the experimental results confirm that different components of the PWE are associated with different behavior patterns. Furthermore we could show that motivation-losses in group-work can be moderated by individual differences. That is that the attitude towards work and the attitude towards reward distributions have an impact on how individuals work in a group.

References

Adams, J. S. (1965). Inequity in social exchange. In L. Berkowitz (Ed.), *Advances in experimental social psychology* (pp. 267- 99). New York: Academic Press.

Antoni, C. H. (1994). Gruppenarbeit in Unternehmen - Konzepte, Erfahrungen, Perspektiven. Weinheim: Psychologie Verlags Union.

Arnscheid, R., Diehl, M., & Stroebe, W. (1997). Lack of motivation in groups: An empirical test of a theoretical integration. *Zeitschrift fuer Sozialpsychologie, 28*, 241 – 250.

Blood, M. (1969). Work values and job satisfaction. *Journal of Applied Psychology, 53*, 456 - 459.

Brickenkamp, R. (1994). *Test d2 Aufmerksamkeits-Belastungs-Test.* 8. Auflage (1. Auflage: 1962) Göttingen: Hogrefe Verlag für Psychologie.

Buchholz, R. (1976). Measurement of beliefs. *Human Relations, 29,* 1177-1188.

Cacioppo, J.T., & Petty, R.E. (1982). The need for cognition. *Journal of Personality and Social Psychology, 42*, 116 – 131.

Furnham, A. (1984). The Protestant Work Ethic: a review of psychological literature. *European Journal of Social Psychology, 14*, 87- 104.

Furnahm, A. (1990a). *The Protestant Work Ethic.* Routledge. London, New York.

Furnham, A. (1990b). A content, correlational, and factor analytic study of seven questionnaire measures of the Protestant Work Ethic. *Human-Relations, 43(4)*, 383-399.

Goldstein, B. & Eichhorn, R. (1961). The changing Protestant ethic: rural patterns in health, work and leisure. *American Sociological Review, 26*, 557-565.

Greenberg, J. (1977). The Protestant Work Ethic and Reactions to Negative Performance Evaluations on a Laboratory Task. *Journal of Applied Psychology, 62,* 682- 690.

Greenberg, J. (1978). Equity, Equality, and the Protestant Ethic: Allocating Rewards following Fair and Unfair Competition. *Journal of Experimental Social Psychology, 14*, 217-226.

Hammond, P. & Williams, K. (1976). Protestant ethic Thesis: social psychological assessment. *Social Forces, 54*, 579-589.

Harkins, S. & Jackson, J. (1985). The role of evaluation in eliminating social loafing. *Personality and Social Psychology Bulletin, 11*, 457- 465.

Harkins, S. & Szymanski, K. (1989). Social loafing and group evaluation. *Journal of Personality and Social Psychology, 56*, 934- 941.

Hart, J.W., Karau, S.J., Stasson, M.F., & Kerr, N.A. (2004). Achievement Motivation, Expected Coworker Performance, and Collective Task Motivation: Working Hard or Hardly Working. Journal of Applied Social Psychology, 34 (5), 984 – 1000.

Heaven, P. (1989). Structure and personality correlates of the Protestant Work Ethic among women. *Personality-and-Individual-Differences, 10(1),* 101-104.

Ho, R. (1984). Adherence to Protestant Work Ethic Values and Helping Judgments Towards the Unemployed. *Unpublished Paper*.

Ho, R. & Lloyd, J. (1984). Development of an Australian work ethic scale. *Australian Psychology, 19*, 321- 32.

Hogan, R. & Blake, R.J. (1996). Vocational interests: Matching self-concept with the work environment. In K.R. Murphy: Individual differences and behavior in organizations. San Francisco: Jossey-Bass.

Homans, G.C. (1958). Human Behavior as exchange. *American Journal of Sociology, 63*, 597- 606.

Homans, G.C. (1961). Social Behavior: Its elementary forms. New York: Hartcourt, Brace & World.

Ingham, A. G., Levinger, G., Graves, J. & Peckham, V. (1974). The Ringelmann effect: Studies of group size and group performance. *Journal of Experimental Social Psychology, 10,* 371- 384.

Karau, S.J. & Williams, K.D. (1993). Social Loafing: A Meta-Analytic Review and Theoretical Integration. *Journal of Personality and Social Psychology, 65,* 681- 706.

Kerr, N. (1983). Motivation losses in small groups: a social dilemma analysis. *Journal of Personality and Social Psychology, 45,* 819- 828.

Kerr, N. & Brunn, S. (1983). Dispensability of member effort and group motivation losses: Free rider-effects. *Journal of Personality and Social Psychology, 44,* 78- 94.

Kravitz, M. & Martin, B. (1986). Ringelmann rediscovered. *The original article. Journal of Personality and Social Psychology, 50,* 936 – 941.

Latane, B., Williams, K. & Harkins, S. (1979). Many hands make light the work: The causes and consequences of social loafing. *Journal of Personality and Social Psychology, 37,* 823- 832.

Lied, T. & Pritchard, R. (1976). Relationship between personality variables and components of the expecting valence model. *Journal of Applied Psychology, 61,* 463- 467.

Mac Donald, A.P. (1972). More on the Protestant ethic. *Journal of Consulting and Clinical Psychology, 39,* 116- 122.

Mirels, H. & Garrett, J. (1971). The Protestant ethic as a personality variable. *Journal of Consulting and Clinical Psychology, 36,* 40- 4.

McClelland, D.C. (1961). *The Achieving Society*. Van Nostrand, New York.

Moede, W. (1927). Die Richtlinien der Leistungspsychologie. *Industrielle Psychotechnik, 4,* 193- 209.

Orbell, J. & Dawes, R.(1981). Social dilemmas. In G. Stephenson & J.H. Davis (Eds.), *Progress in applied social psychology* (Vol. 1). Chichester, England: Wiley.

Ray, J. (1982). The Protestant ethic in Australia. *Journal of Social Psychology, 116,* 127-138.

Shepperd, J. A. (1993). Productivity Loss in Performance Groups: A Motivation Analysis. *Psychological Bulletin, 113,* 67- 81.

Shepperd, J.A. & Taylor, K.M. (1999). Social Loafing and Expectancy-Value Theory. *Personality and Social Psychology Bulletin, 25,* 1147 – 1158.

Smith, B.N., Kerr, N.A., Markus, M.J., & Stasson, M.F. (2001). Individual Differences in Social Loafing: Need for Cognition as a Motivator in Collective Performance. *Group Dynamics, Theory, Research, and Practice, 5,* 150 – 158.

Steiner, I.D. (1972). Group Process and Group Productivity. New York: Academic Press.

Szymanski, K. & Harkins, S. (1987). Social loafing and self-evaluation with a social standard. *Journal of Personality and Social Psychology, 53,* 891- 897.

Vroom, V. H. (1964). *Work and motivation.* New York: Wiley.

Walster, E., Berscheid, E. & Walster, G. W. (1973). New directions in equity research. *Journal of Social and Personality Psychology, 25,* 151- 76.

Weber, M. (1905). Die protestantische Ethik und der 'Geist' des Kapitalismus. *Archiv für Sozialwissenschaft und Sozialpolitik, 20,* 1- 54.

Author Notes

Susanne Abele, Rotterdam School of Management, VG2, Erasmus University of Rotterdam, The Netherlands, Michael Diehl, University of Tuebingen, Psychologisches Institut, Tuebingen, Germany.

This work was supported by a Grant from the DAAD (Deutscher Akademischer Austauschdienst) awarded to the first author.

We are grateful to Adrian Furnham for giving us every facility to run the experiment at the University College London. We are also grateful to John Wieber for acting as an excellent confederate.

Correspondence concerning this article should be addressed to Susanne Abele, Erasmus University of Rotterdam, Rotterdam School of Management, VG2, Burg Oudlaan 50, Postbus 1738, NL 3000 Rotterdam, The Netherlands. Electronic mail may be sent via the Internet to: sabele@rsm.nl

Appendix A

Items loading on the first factor ('work factor'):

1. Hard work is not a key to success. (Ho, 1984)

2. People who work deserve success. (Ho, 1984)

3. There are few satisfactions equal to the realisation that one has done one's best at a job (Mirels & Garrett, 1971).

4. By working hard an individual can overcome most obstacles that life presents and make his or her own way in the world. (Ho, 1984)

5. Nothing is impossible if you work hard enough. (Ho, 1984)

6. If you work hard you will succeed (Ho, 1984)

7. The person who can approach an unpleasant task with enthusiasm is the one who gets ahead. (Mirels & Garrett, 1971)

Items on the second factor ('conservatism factor'):

1. People should have more leisure time to spend in relaxation (r)[1]. (Mirels & Garrett, 1971)

2. Life would be more meaningful if we had more leisure time (r). (Mirels & Garrett, 1971)

3. Our society would have fewer problems if people had less leisure time. (Mirels & Garrett, 1971).

4. Most people who don't succeed in life are just plain lazy. (Mirels & Garrett, 1971)

5. Most people spend too much time in unprofitable amusement. (Mirels & Garrett, 1971)

6. A self-made person is likely to be more ethical than a person born to wealth. (Mirels & Garrett, 1971)

Items loading on the third factor ('equity factor'):

[1] (r) means that the scoring of the item is reversed.

1. When a task is completed by a team there is nothing wrong with distributing the reward equally regardless of unequal input (r).

2. The relative input of each team-member does not necessarily provide a legitimate basis for claiming differential rewards (r).

3 Rewards should be distributed to persons in direct proportion to their inputs (i.e., their relative contributions).

4. The trouble with giving people equal rewards for work is that they very rarely work equally hard.

5. If people work together on a task it is very important that the reward is distributed in proportion to the effort each puts in.

Table 1: Number of Signs Participants Managed to Work on in the Different Conditions

	Condition 1 free-rider effect	Condition 2 control free-rider effect	Condition 3 sucker-effect	Condition 4 control sucker-effect
1. Trial[1]	107.58	115.2	106.41	104.5
	(17.52)	(12.53)	(17.69)	(18.78)
2. Trial	273.79	287.75	271.24	259.55
	(32.69)	(31.18)	(43.16)	(39.99)
3. Trial	280.89	301.95	276.41	279.55
	(35.35)	(30.07)	(39.38)	(41.42)
4. Trial	282.26	316.8	279.47	295.8
	(40.14)	(32.58)	(43.53)	(41.58)

[1] Please note that the first trial lasted for one minute only, while the others lasted for 2,5 minutes.

Table entries are means with standard deviations in parentheses.

Table 2: Adjusted Means in 4. Trial

	Condition 1 free-rider effect	Condition 2 control free-rider effect	Condition 3 sucker-effect	Condition 4 control sucker-effect
4. Trial	283.74	306.19	282.81	302.17
	(6.75)	(6.72)	(7.15)	(6.63)

Table 3: Adjusted Means in Trial 4 for participants with a high and low PWE

	Condition 1 free-rider effect	Condition 2 control free-rider effect	Condition 3 sucker-effect	Condition 4 control sucker-effect
High PWE	299.58 (8.49)	309.18 (9.02)	271.98 (11.56)	308.24 (9.39)
Low PWE	261.83 (9.97)	304.1 (8.98)	288.49 (8.49)	296.71 (8.58)

Table 4: Adjusted Means in Trial 4 for participants, who value work, and for participants, who see work as a means to an end

	Condition 1 free-rider effect	Condition 2 control free-rider effect	Condition 3 sucker-effect	Condition 4 control sucker-effect
work as a value	292.56 (9.35)	312.18 (9.05)	287.19 (11.13)	295.64 (9.86)
work as a means to an end	273.98 (9.83)	298.66 (9.85)	279.78 (9.31)	307.6 (8.9)

Table 5: Adjusted Means in Trial 4 for participants, who endorse to the equity norm, and for participants, who endorse to the equality norm

	Condition 1 free-rider effect	Condition 2 control free-rider effect	Condition 3 sucker-effect	Condition 4 control sucker-effect
equality	272.89 (10.35)	300.26 (9.45)	286.76 (8.47)	294.18 (9.3)
equity	291.8 (8.84)	310.86 (9.31)	274.0 (13.1)	310.9 (9.61)

Table 6: Summary of significant free-rider and sucker effects for each of the participant groups

	free-rider effect	sucker-effect
High PWE	F(1,67) < 1, n.s.	F(1,67) = 5.98, p < .01
Low PWE	F(1,67) = 10, p< .005	F(1,67)< 1, n.s.
work as a value	F(1,67) = 2.33, n.s.	F(1,67)< 1, n.s.
work as a means to an end	F(1,67) = 3.52, p < .05	F(1,67) = 4.69, p < .05
equality	F(1,67) = 3.88, p < .05	F(1,67) < 1, n.s.
equity	F(1,67) = 2.22 n.s.	F(1,67) = 5.3, p < .05

Biographical Notes

Susanne Abele is an Assistant Professor of Organizational Behavior at Erasmus University Rotterdam and she also holds an Adjunct Position at Miami University. Her research interests comprise information processing in interdependent decision-making, basic processes in tacit forms of coordination, and the effects of person variables on social interaction.

Michael Diehl is a Professor of Personality and Social Psychology at the University of Tuebingen. His research interests are intra and intergroup processes, social-cognitive predictors of behavior, as well as effects of person variables on social psychological processes.

Publications in the ERIM Report Series Research* in Management

ERIM Research Program: "Organizing for Performance"

2005

Continuous versus Step-Level Public Good Games
Susanne Abele and Garold Stasser
ERS-2005-015-ORG
http://hdl.handle.net/1765/1937

Collective Consuming: Consumers as Subcontractors on Electronic Markets
Wilfred Dolfsma
ERS-2005-020-ORG
http://hdl.handle.net/1765/1932

Appropriability in Services
Wilfred Dolfsma
ERS-2005-021-ORG
http://hdl.handle.net/1765/1926

Is China a Leviathan?
Ze Zhu
ERS-2005-031-ORG
http://hdl.handle.net/1765/6551

Information Sharing and Cognitive Centrality
Susanne Abele, Garold Stasser and Sandra I. Vaughan-Parsons
ERS-2005-037-ORG
http://hdl.handle.net/1765/6664

Virtual Enterprises, Mobile Markets and Volatile Customers
Ferdinand Jaspers, Willem Hulsink and Jules Theeuwes
ERS-2005-039-ORG
http://hdl.handle.net/1765/6728

No Black Box and No Black Hole: from Social Capital to Gift Exchange
Rene van der Eijk, Wilfred Dolfsma and Albert Jolink
ERS-2005-040-ORG
http://hdl.handle.net/1765/6665

Boards in Agricultural Cooperatives: Competence, Authority, and Incentives
G.W.J. Hendrikse
ERS-2005-042-ORG
http://hdl.handle.net/1765/6883

Finding Team Mates who are not prone to Sucker and Free-Rider effects: The Protestant Work Ethic as a Moderator of Motivation Losses in Group Performance
Susanne Abele and Michael Diehl
ERS-2005-053-ORG
http://hdl.handle.net/1765/6990

Organization and Strategy of Farmer Specialized Cooperatives in China
Yamei Hu, Zuhui Huang, George Hendrikse and Xuchu Xu
ERS-2005-059-ORG
http://hdl.handle.net/1765/6995

The Influence of Employee Communication on Strategic Business Alignment
Cees B. M. van Riel, Guido Berens and Majorie Dijkstra
ERS-2005-060-ORG
http://hdl.handle.net/1765/6996

The Tsunami's CSR Effect: MNEs and Philanthropic Responses to the Disaster
Gail Whiteman, Alan Muller, Judith van der Voort, Jeroen van Wijk, Lucas Meijs and Cynthia Piqué
ERS-2005-062-ORG
http://hdl.handle.net/1765/6994

Bridging Structure and Agency: Processes of Institutional Change
Wilfred Dolfsma and Rudi Verburg
ERS-2005-064-ORG
http://hdl.handle.net/1765/7014

Accounting as Applied Ethics: Teaching a Discipline
Wilfred Dolfsma
ERS-2005-065-ORG
http://hdl.handle.net/1765/7021

Institutions, Institutional Change, Language, and Searle
John Finch, Robert McMaster and Wilfred Dolfsma
ERS-2005-067-ORG
http://hdl.handle.net/1765/7109

Reflexivity in Teams: A Measure and Correlates
Michaéla C. Schippers, Deanne N. den Hartog and Paul L. Koopman
ERS-2005-069-ORG
http://hdl.handle.net/1765/7117

The Role of Team Leadership in Enhancing Team Reflexivity and Team Performance
Michaéla C. Schippers, Deanne N. den Hartog, Paul L. Koopman and Daan van Knippenberg
ERS-2005-070-ORG

The Psychological Benefits of Superstitious Rituals in Top Sport
Michaéla C. Schippers and Paul A.M. Van Lange
ERS-2005-071-ORG
http://hdl.handle.net/1765/7118

The Impact of New Firm Formation on Regional Development in the Netherlands
André van Stel and Kashifa Suddle
ERS-2005-075-ORG

---

* A complete overview of the ERIM Report Series Research in Management:
https://ep.eur.nl/handle/1765/1

ERIM Research Programs:
LIS Business Processes, Logistics and Information Systems
ORG Organizing for Performance
MKT Marketing
F&A Finance and Accounting
STR Strategy and Entrepreneurship