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Incentives and Gender in a Multitask Setting: an Experimental Study with Real-Effort Tasks

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Abstract

This paper investigates the behavioural effects of competitive, social and image incentives on men's and women's allocation of effort in a multitask environment. Specifically, using two real-effort laboratory tasks, we investigate how competitive prizes, social value generation and public awards affect effort allocation decisions between the tasks. We find that all three types of incentives significantly focus effort allocation towards the task they are applied in, but the effect varies significantly between men and women. The highest effort distortion lies with competitive incentives, which is due to the effort allocation decision of men. Women exert similar amount of effort across the three incentive conditions, with slightly lower effort levels in the social-image incentivized tasks. Our results inform how and why genders differences may persist in competitive workplaces.

Keywords: Incentives, Gender Differences, Multitasking, Experiments

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1 Introduction

Incentives in multitasking settings have received increasing attention in recent years. More employers than ever before require employees to multitask between different job responsibilities, a trend that has increased with the economic downturn as a means to save on labour costs (Cain 2011; Jacobs 2013; DeVaro & Gurtler 2016). Multitasking is evident in academic jobs, where university lecturers are involved in teaching, research and administrative duties. Similarly, most clinically active surgeons in medical centres are required to conduct research as well as examine patients and perform clinical procedures. It has been argued that in these multitasking environments gender inequalities prevail: leading figures from Cambridge University in the UK have recently argued that the lack of women in top academic positions may be attributed to the way different job tasks are rewarded (Sanders et al., 2014). Academic promotions, they claim, are based on rigid and highly competitive research outcomes, such as publications and research grants, and much less on teaching and public engagement. Therefore the criteria for success may benefit men more than women.

Previous evidence on singleton tasks has shown that there are indeed gender variations in how men and women respond to different types of incentives. In competitive incentive schemes men have been shown to perform better than women (Gneezy et al. 2003; Dohnmen & Falk 2011). These types of incentives have long been utilized in the private sector with emphasis given to competitive performance evaluations. Increasingly governments have been arguing for the adoption of relative performance related pay schemes in public services such as healthcare, education, law enforcement and the civil service (Ray et al. 2014). In contrast, women tend to perform better when they are given social-value incentives (Croson et al. 2010; Dufwenberg & Muren 2006). These types of schemes are more prevalent in the public and non-profit sectors but are also becoming a feature in the private sector through firm engagement in corporate social responsibility and philanthropic projects.

Despite the growing evidence on gender differences in singleton settings, there is no empirical evidence on the effectiveness of varied incentives on effort allocation levels for each gender in a multitasking setting. This remains the biggest gap in the literature of multitasking, and an important one given the growing use of multitask working environments. The aim of this paper is to explore the behavioural effects that competitive, social-value and social-image incentives have on the effort allocation decisions of men and women in a multitask environment.

We use experimental methodologies to investigate our research aim. The multitask setting that we consider involves working on two distinct tasks under a restricted work time which induces a conflict between the tasks. We find strong evidence that incentives have differential effects on the effort allocation decisions of men and women. All three types of incentives significantly distort effort allocation decisions towards the task to which they are applied compared to a piece rate paying fixed

second task. Subjects earn significantly less in the social-value and social-image treatments emphasising the social preferences of subjects and their willingness to sacrifice some of their effort for a social cause. The highest distortion of effort across the tasks is in the competitive incentive treatment, which is solely due to the effort allocation decisions of men. Further we observe that men's effort allocation in the social-image incentive treatment is higher compared to the social-value incentive treatment, underlining the importance of social-image concerns for men. The effort allocation decision of women, on the other hand, is the same across all three incentive treatments, with a marginally lower contributions in the social-image treatment compared to the social-value treatment which can be explained by the previously observed 'wallflower effect' (Jones & Linardi 2014). From our results, we can infer that while competitive and social-image incentives are attractive to employers, as they drive up the effort on the tasks they are applied in, they will favour men as men are more responsive to the incentives compared to women. This could be a plausible explanation of gender gaps in senior roles and payment differences in junior positions of organizations. Our findings thus contribute to the limited literature on incentives in multitasking settings and have significant implications for organizational decision makers in designing incentive systems and implementing affirmative action policies (Niederle et al. 2013; Balafoutas and Sutter 2012).

The rest of the paper is structured as follows. Section 2 reviews related literature and how our study contributes to it. Section 3 describes and discusses our experimental design. Section 4 presents our results on the effectiveness of competitive, social-value and social-image incentives in a multitasking setting and the differences between the genders in responding to the incentives. Section 5 discusses our results in the light of previous findings and Section 6 concludes.

2 Related Literature

The empirical evidence on multitasking incentives and especially their interaction with gender is very limited. Following the seminal theoretical work by Holmstrom & Milgrom (1991) a number of papers have investigated the complexities associated with designing an appropriate incentive system in a multitask environment with substitutable or conflicting tasks. Such complexities arise because the design must motivate the desired level of effort taking into account potential interactions between incentives across the tasks and worker heterogeneity. The literature on these potential interactions so far has mostly investigated the effects of incentives on multitasking productivity in theoretical models (Dewatripont et al. 2000; Corneo & Rob 2003; Eggleston 2005; Bond & Gomes 2009; Huffman & Just 2010; Kaarboe & Siciliani 2011; DeVaro & Gurtler 2016). The empirical literature on multitasking is scarce mainly because of the identification and endogeneity issues in the field. Nevertheless, a number of papers have identified natural experiments with varying incentives, and surveyed employees working in different organizational setups to investigate multitasking effort allocation.

Dumont et al. (2008) found a significant effect of introducing mixed compensation systems on physicians' volume of services, their hours spent on seeing patients as well as time spent on teaching and administrative duties. Schultz et al. (2013) surveyed surgeons within academic medical centres and found significant effect of internal and external resource availability on surgeons' willingness to multitask between clinical operations and research activities.

There has been a recent surge in interest in experimental studies on multitasking incentives, which ensure exogenous manipulation of incentives and task characteristics. The first paper to study multitasking incentives in the laboratory is Fehr & Schmidt (2004) who test the effect of bonuses on the chosen effort levels in contractible and non-contractible tasks. The experimental employees reciprocate to principals who use bonus contracts by choosing more equal effort levels across tasks. The laboratory study by Brüggen & Moers (2007) develop and test a model of distortionary effect of financial incentives from firms' optimal effort levels, mitigated by conformity to social norms and social-image concerns. They employ publicly announcing effort choices and asking subjects with the highest effort allocation distortion explain their choices. This results in more evenly distributed chosen effort levels across two tasks. In contrast, our design uses a subtler social-image incentive, compared to the artificially induced "social norm". In a multitasking setting with experimentally induced conflicting tasks, Hoppe & Kusterer (2011) show that assigning an employee "to singletask", performance is more favourable for the employer than assigning one employee to multitask. The latter study focuses mainly on the effects of specialisation, and does not consider the case when employees are required to complete multiple tasks as a part of their job responsibility. Our study on the other hand will consider a situation where multitasking is a requirement for employees who receive no earnings if they fail to deliver a minimum required standard of work.[1]

The biggest gap in the literature on multitasking incentives remains the dearth of evidence on gender differences. The empirical evidence on incentives and gender differences comes from singletask settings. A number of studies have shown that men prefer competitive payment schemes more than women (Gneezy et al. 2003; Dohmen & Falk 2011; Niederle et al. 2013) due to differences in risk preferences, confidence (Reuben et al., 2012; Ertac & Gurdal 2012), aversion to receive relative performance feedback and willingness to compete (Niederle & Vesterlund 2007). Women on the other hand, are more motivated by social-value generation compared to men (Bennett 2003; Croson et al. 2010; Dufwenberg & Muren 2006), due to differences in pro-sociality and attitudes towards social and non-profit organizations (Andreoni & Vesterlund 2001; Eagly and Koenig 2006; Croson & Gneezy 2009; Mesch et al. 2011). There is also some evidence of gender differences in response to social-image

[1] Academics are required to provide a certain number of teaching hours (Bentley et al. 2012), surgeons have to see a certain number of patients in a week and manufacturing workers have to adhere to minimum quality standards.

incentives: men are found to be more motivated by social-image concerns than women (Gneezy et al. 2003; Pan & Houser 2011) which has been explained by the evolutionary motivation of men to raise their social-status (Eagly & Wood 1999; Rose & Smith 2011). A more recent evidence from field and lab experiments (Kosfeld & Neckerman 2011; Gerhards & Siemers 2015; Blanes i Vidal & Nossol 2011), closely related to our design of social-image incentives, found no evidence of higher performance of men compared to women in public award treatments. Our results thus closely link to this strand of literature on incentivizing singletask performance, but investigates the effectiveness of incentives for each gender in a multitask setting: specifically we are interested in effort decisions in the presence of another task, providing us with a clear opportunity cost of effort in the tasks the additional incentives are applied to.

We assess the effectiveness of each incentive in a task that the incentive is applied to, in the presence of a second task which pays a piece rate. In contrast to the extant experimental studies in multitasking, we increase the external validity and generalizability of our results by designing an experiment with *real* effort rather than *chosen* effort tasks.[2] One of the most similar designs to ours is by Van Dijk et al. (2001) who also use two tasks, keeping incentives in one task constant and varying incentives (piece rate, team and tournament) in the other task, to explore how incentives affect effort allocation decisions. They find that competitive tournament incentives produce more variable and higher effort levels followed by team incentives and piece rate incentives. Hannan et al. (2012) is another study investigating the effectiveness of incentives across multiple real effort tasks.[3] Their study finds that public visibility of relative performance feedback has a significant effect on effort allocation between the tasks: feedback improves subjects' effort in total but distorts effort allocation towards the task in which performance feedback is publicly visible. While van Dijk et al. (2001) do not report any results pertaining to gender, Hannan et al. (2012) report that they do not find any gender differences and thus do not include gender in their analysis.

Our study contributes to the growing experimental literature on gender in the labour market (Azmat & Petrongolo 2014) demonstrating the behavioural effects of different types of incentives on effort allocation of men and women in multitask environments, an area where the evidence is particularly limited. By comparing the effectiveness of incentives on the effort allocation in the presence of a second piece-rate paying task for each gender, we thus present holistic evidence on how

[2] A similar line of research was undertaken by Hecht et al. (2012) and Tonin & Vlassopoulos (2015) who also used real effort tasks and online experiments to increase the external validity of their studies. However both of these studies use task *complementarity* to study the interaction between the performance-related private and social incentives and the effort allocation decisions.

[3] Two other studies using real effort tasks are by Al-Ubaydli et al. (2015) and Belot & Schroder (2015). However, differently from us, their main focus is on how incentives and monitorability affect the quality and quantity dimensions of a single task rather than effort allocation across two tasks.

men and women react to each incentive type, and how certain incentives may favour one gender over the other, for example in hiring decisions or career progression. We further discuss our findings in the light of previous studies in Section 5 and implications for policy makers in Section 6 of the paper.

3 Experimental Design

The experiment consisted of two parts, a singletask and a multitask part, both of which involved working on the slider task and the counting zeros task.[4]

In the singletask part of our experiment, subjects sequentially received instructions about the two tasks they had to complete and had 5 minutes to complete each task. The order of the presentation of the two tasks was randomized to avoid any potential order effects. They had to complete each task separately and the performance in each task served as a control for heterogeneous abilities. At the end of the task, subjects received feedback on the number of correctly positioned sliders and completed counting zeros tables, which eliminated any potential uncertainty in subjects' knowledge of their absolute ability levels. They were paid a piece rate of £0.10 per correct completion both in the slider and counting zeroes tasks, and the total earning in the singletask part was the sum of piece-rate earnings from both tasks. The full questionnaire and the experimental instructions are presented in the Appendix A.

After the singletask part subjects completed a mid-study questionnaire that elicited demographic information (gender, age, and nationality) and self-reported economic preferences (general risk attitudes, competitiveness, confidence and attitudes towards donating to charities and social institutions) on a 7-item Likert-scale. The main reason for using mid-study rather than end-of study questionnaire was to ask subjects to choose a charity organization that they regularly donate to or whose activities they support from a list of charities offered.[5] The chosen charity was in turn used in the next part of the experiment, where we induced social-value incentives as donations to chosen charities. Additionally, we chose to elicit the four economic preferences as they were identified by the

[4] The selection of these two tasks was based on a pre-test experiment, which was conducted among 18 subjects. The pre-test experiment explored the within-subject correlations between five real-effort tasks. Five tasks, the circle task (Huang & Murad 2016), the counting zeros task (Abeler, et al. 2011), the ball-catching task (Gächter et al. 2015), the slider task (Gill & Prowse 2014) and the number adding task (Niederle et al. 2013) were presented to subjects in a random order. Subjects were paid for their performance according to a piece rate in one randomly selected task. At the end, subjects were asked to rate the difficulty level of each task on a 7-item scale from "extremely easy" to "extremely difficult". Based on a within-subject analysis, we found that the highest correlation was between the slider task and the counting zeros task both in terms of actual performance and perceptions of the difficulty level. The Spearman correlation coefficient between the slider and counting zeros tasks was 0.4170 (p-value=0.096) for performance and 0.4565 (p-value=0.057) for the perceived difficulty. Aiming for characteristically very similar tasks to control for heterogeneous preferences for and performances in each task, we selected these two tasks as the most suitable for the purposes of our main experiment. The instructions for the pre-test experiment are presented in the Appendix A of the paper. Also refer to Huang & Murad (2016) for more detailed results of the pre-test experiment.

[5] Subjects could also fill in the charity that was not on the list.

previous literature to predict competitive, social and image-seeking behaviour of subjects in singletask settings. The self-reported measures of economic preferences were similar to the validated survey instruments developed by Falk et al. (2016) who show strong correlations of the measures with many real life and laboratory decisions. At the end of the questionnaire, we asked subjects which task they enjoyed most such that they could choose either one, both or neither. This question was aimed at controlling for subjects' personal preferences for the tasks.

After the completion of the mid-study questionnaire, the multitask part of the experiment started. Subjects had to multitask for 10 minutes between the slider and counting zeros tasks presented to them on the same screen. This part of the experiment consisted of four between-subject treatments where all subjects in a session participated in the same treatment. In all four treatments, subjects had to position a minimum of 10 sliders to receive a flat rate of £3 and additionally they could earn a piece rate of £0.10 per completed counting zeros table. If subjects positioned less than 10 sliders their earnings from the multitask part would be equal to £0. The flat rate of £3 for a minimum correctly completed 10 sliders served two purposes. First, it helped to eliminate the experimenter demand effect (Zizzo 2010) that could affect the effort allocation decision in the slider task: subjects might feel that they had to position a certain number of sliders since the task was on their screens. Second, our design mimicked the real world multitask work environment where one of the tasks has a minimum required work load to be completed, otherwise the worker could get fired.[6]

Across the four treatments, we manipulated whether subjects received additional incentives for their effort in the slider task. The *Baseline* condition lacked any additional incentives other than those described and served as a control condition. In the other three treatments, we manipulated the additional incentives applied on the flat rate paying slider task whilst keeping the piece rate in the counting zeroes task constant. In the *Charity* treatment, the slider task was a social-value generating task where subjects could earn a donation of £0.10 for a charity of their choice per each slider they positioned correctly exceeding the minimum of 10 sliders.[7] This treatment measured the effect of social-value incentives on effort allocation decisions between the tasks compared to the Baseline. The Charity treatment mimicked the environment of working in corporate social responsibility and corporate philanthropy projects, where certain job tasks and projects improve societal welfare (Collier & Esteban 2007; Bhattacharya et al. 2008). It also mimicked social service jobs such as academic multitasking where effort spent on teaching has a direct third party benefit (to students) compared to research activities that are considered to have more of a private value in terms of career progress and

[6] For example, minimum hours of teaching in academia, minimum number of patients to be seen, a minimum threshold for sales of a particular product or a minimum standard quality level of a production task.

[7] Subjects' favoured charities were elicited before the multitask park, in a mid-study questionnaire. Subjects were not aware that we would use the reported charities in the later part of the experiment.

job mobility (Gautier & Wauthy 2007).

We assessed the effect of social-image incentives on effort allocation decision across the tasks in the *CharityImage* treatment where we designed the treatment according to Heffetz & Frank's (2008) definition of social-image being positional, desirable and non-tradable.[8] In addition to donations earned for every slider exceeding the minimum of 10, subjects were told that the names of the top three highest donors in a session would be publicly announced and they would be awarded with a Thank You! certificate. The certificate was signed by the project grant holder and thanked the participants for their donation.[9] We chose to use a certificate award rather than the visibility of donations as our manipulation of social-image incentives to reduce the "wallflower" effect previously reported in experiments of this sort (Jones & Linardi 2014).[10] Finally, in the *Prize* treatment, we measured the effect of competitive financial incentives on effort allocation decisions between the two tasks. In this treatment, in addition to Baseline incentives subjects could earn a £5 prize if their performance in the flat rate paying slider task was in the top three performances in their session. The amount of £5 was determined so that the prize is slightly less than the total donation made in a session divided by three, thus making the treatments comparable. We ran some of the Charity and CharityImage treatments before the Prize treatment to identify the average amount donated in a session and what would be its financial prize equivalent.

At the beginning of the experiment subjects knew that only one of the (singletask or multitask) parts would be randomly selected to be paid out. By using the random incentive system to pay subjects, we controlled for income effects and other potential interdependencies between the singletask and multitask parts.[11] At the end of the multitask part, subjects received feedback about their performance in both parts, the amount of donations they contributed to their chosen charity (in the Charity and ChairtyImage treatments) and whether they were in the top three of the session in their slider task performance (in the CharityImage and Prize treatments). In the CharityImage treatment, we also publicly announced the participation numbers of the top three donors, made them stand up and awarded them with a "Thank You!" certificate. All subjects were then privately paid in

[8] Social image is achieved via favourable comparison to others in socially recognized situations, hence positional. Social image is also desirable, because good social image brings along some benefit. Finally, social image is non-tradable in the sense that it cannot be directly purchased. Instead, it must be gained individually and, therefore, it must be acquired through actions that are visible. Hence, in social value generating settings, people concerned with obtaining high social image will strive to appear more generous.

[9] This design choice was inspired by Kosfeld & Neckerman's (2011) field experiment and Gerhards & Siemer's (2015) lab experiment which show significant effect of public recognition and awards on effort. The "Thank you!" certificate is included in the Appendix A.

[10] The wallflower effect is defined as an aversion to stand out in positive or negative ways and it manifests itself as people trying to perform "on average" when their actions are visible.

[11] The random incentive system is a widely used experimental procedure. For a discussion of its rationale and possible limitations see Bardsley et al. (2010).

their cubicles. Table 1 summarises the incentives used on the slider task of the multitask part.

In total 210 subjects participated in the experiment with 54% female and 26% from social science departments. There were 42 subjects in the Baseline, 51 in the Charity, 65 in the CharityImage and 52 in the Prize treatments. The number of subjects in a session varied between 10 and 15 subjects depending on the number of fifteen registered subjects to show up to the experiment. While subjects knew that the experiment was for 15 participants when they signed up, they were not aware of how many exactly showed up as we seated them in their cubicles as soon as they arrived. Additionally we use the number of participants in a session as control in all of our regression analysis. Thus we can control for the probability of winning the prize or being awarded with a certificate. The experiments were conducted at the University of Surrey and were programmed using the software Ztree (Fischbacher 2007). Subjects received £5 for participating in a one hour session and additionally earned an average of £6.2.

Table 1: Incentives on the Slider task in the Multitask Part

Baseline: £3 flat rate for minimum of 10 sliders	*Charity*: Baseline + £0.10 donation per each additional slider in excess of the minimum
Prize: Baseline + £5 prize for the top three slider task performers	*CharityImage*: Charity + public certificate award for the top three donors
The incentives for the counting zeros task was kept constant at £0.10 per correctly completed table.	

4 Results

4.1 Effort allocation across treatments

In the singletask part of the experiment, the average number (standard deviation) of completed sliders was 42.8 (12.3) with a minimum of 13 and maximum of 76 sliders. The average number (s.d.) of completed counting zeros tables were 28.2 (6.2) with a minimum of 9 and maximum of 48 counting zeros tables. In Table 2, we test whether any of the observable characteristics of subjects significantly predict the performance in the tasks. The main observation from analysing the singletask performance is that the predictive power of performance in the slider task on performance in the counting zeros task (and the reverse) is highly significant controlling for other possible observable characteristics of our subjects. This is consistent with our pre-test results that identified the two tasks as the most similar tasks and justifies internal validity of our experimental design. Aside from any strategic considerations, the positive correlation between the tasks supports that there was no endogenous conflict between the tasks per se. This enables us to exogenously induce conflict into the multitasking part of the experiment by explicitly manipulating incentives and restricting work time. Additionally, we do not find any significant correlation between favouring a task and performance in a task. The insignificance of the correlation between favouring a task and scoring high in a task is also encouraging and

potentially means that personal preferences play a negligible role in exerted effort levels under piece-rate incentives. Overall, the results of the singletask part are reassuring and enable us to control for individual heterogeneity in performance and personal preferences independent of any other strategic considerations when analysing the effectiveness of incentives in the multitask part.

Table 2: Singletask Part Performance

Dependent Variable	Slider task performance	Counting Zeroes task performance
Female	-7.562 (1.65)***	2.015 (0.72)**
Age	-0.491 (0.09)***	-0.054 (0.04)
British	-0.724 (1.45)	1.391 (0.89)
RiskTaking	0.148 (0.64)	0.225 (0.37)
Confidence	-1.451 (0.66)**	0.246 (0.49)
Competitiveness	0.490 (0.52)	0.026 (0.39)
DonationAttitude	-0.424 (0.66)	-0.384 (0.21)
FavouriteSlider	-1.163 (1.61)	-0.997 (0.65)
FavouriteCountingZeros	-5.388 (1.44)***	1.849 (1.19)
CountingZeroSingletask	0.707 (0.10)***	
SliderSingletask		0.206 (.03)***
Constant	46.02 (5.16)***	18.00 (3.34)***
N	210	210
Adj R^2	0.3442	0.2370

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. RiskTaking, Confidence, Competitiveness and Donation Attitude are self-reported measures from the mid-study questionnaire. FavouriteSlider and FavouriteCountingZeros are dummy variables of whether subjects reported enjoying one of the tasks.*

In Figure 1, we present the distribution of effort allocated to the flat rate paying slider task and piece-rate paying counting zeros task in the multitask part of the experiment across the four conditions. On inspection, the graphs show that all three-treatment conditions are effective in increasing effort levels in the slider task that they were applied to. A non-parametric test on the equality of distributions shows significant differences between Baseline and the other three treatments. In the Baseline condition, the average number of completed sliders is 18 (s.d. 8.31), slightly above the minimum level of required 10 sliders.[12] The average number of completed sliders is the highest in the Prize treatment with 51 (s.d. 40.23), followed by the CharityImage treatment with 37 (21.02) and the Charity treatment with 35 (s.d. 18.02) sliders. A Wilcoxon-ranksum test on the equality of distributions shows significant differences in average effort level in the slider task between the treatments and Baseline conditions (p-value<0.000). Comparing the distributions of effort levels in the slider task across the three treatment conditions, we do not find significant differences between

[12] Since we did not give our subjects any feedback on the number of correctly positioned sliders while they were performing the task, subjects took an extra care not to fall below the minimum threshold 10 sliders by completing on average 18 sliders.

Prize, Charity and CharityImage treatments (Kolmogorov-Smirnov p-value>0.10). However, the results of the Wilcoxon-ranksum test shows significantly higher effort level in the Prize treatment compared to the Charity and CharityImage treatments (p-value=0.012 and 0.011, respectively). The pairwise tests on the equality of variances also shows significant differences between the Prize treatment and the Charity and CharityImage treatments: the variability in the Prize treatment is significantly higher than the variability in the other two treatments (p-value<0.0001).[13] Panel (b) of Figure 1 presents the equivalent analysis of the effort level allocated in the counting zeros task demonstrating a mirror image of the effort allocations in the slider task. The only difference in the multitask effort levels in the two tasks is in the differences in variance between the two charity treatments. The variability in effort levels in the slider task is higher in the two charity treatments than in the Baseline whereas variability in effort levels in the counting zeros task is not significantly different between the two charity treatments and the Baseline condition.

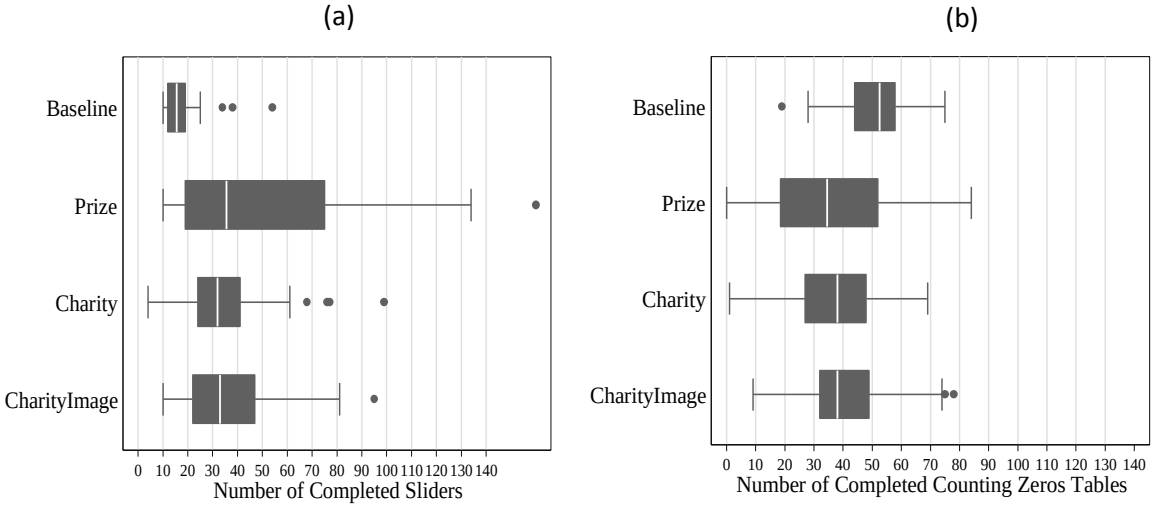
We further explore whether the variability in the effort levels in the multitask part within each treatment is significantly predicted by subjects' observable characteristics. Table B2 in Appendix B tests for heterogeneous effects of incentives on effort allocation decision of our subjects reporting the results from a linear regression; the most notable finding is that controlling for other observable characteristics, subjects with higher self-reported attitudes to donating to charities complete lower number of counting zeros tables which is marginally significant.[14] This however does not translate into higher performance in the slider task for those subjects with higher self-reported attitudes to donating: one scale increase in the attitude to donating increases the number of completed sliders by two sliders, which is not significant. We thus find a very limited evidence of self-reported characteristics predicting behaviour in our experiment. As a measure of ability levels we find that in the Prize and CharityImage treatments, singletask performance in the slider task significantly predicts the number of sliders completed in the multitask part. While we cannot test whether the higher number of completed sliders is due to the self-selection of more able subjects into competitively incentivized tasks or merely caused by their ability to complete more sliders in a given time, we can draw parallels with the previous literature who find similar results. There are number of previous

[13] Table B1 of the Appendix B presents the results of an OLS regression across the three different model specifications to test whether the differences between the treatments are robust to model specifications. We find robust effect of incentives on the effort allocation in the slider task to the inclusion of additional variables such as singletask part performance, demographics and reported socio-economic preferences.

[14] Given that we administered the questionnaire to subjects prior to them working in the multitasking stage, it is highly improbable that their behaviour in the experiment affected their responses in the questionnaire. The opposite however can be true such that their responses in the questionnaire may have affected their effort allocation decisions in the multitasking stage by psychologically triggering social and competitive cues. However, we find only very limited support of this. The variable measuring donation attitudes has a weak effect on the effort allocation decision in the multitask part, while other variables have no significant effect.

findings of more able individuals reacting more positively to competitive environments by Gerhards & Siemer (2015) and Kosfeld & Neckerman (2011) on the effect of awards in a singletask settings and van Dijk et al. (2001) on the effect of competitive prizes on effort levels in a multitask setting. Yet a field study by Neckerman et al. (2014) finds that in singletask settings awards can me similarly (or even more) motivating to underperforming employees as to overperforming ones.

Figure 1: Effort allocation in the multitasking stage across the treatment



4.2 Gender differences in effort allocation

The visual evidence of the effectiveness of incentives on effort allocation decisions in the slider and counting zeros tasks for men and women is presented in Figure 2. In the Baseline condition, both women and men complete around 18 sliders. Men complete slightly higher number of counting zeros tables but this difference is not statistically significant: mean number of counting zeros tables completed is 54.5 for men and 49.5 for women (Wilcoxon-ranksum p-value of 0.355).[15]

In the Prize treatment, we observe differences between men and women in both tasks of the multitask part: men and women on average complete 62.6 and 38.8 sliders (p-value=0.0315) and 29.4 and 37.9 counting zeros tables (p-value=0.1607), respectively. The parametric analysis of the data, reported in Table 3, provides further evidence of significant differences between men and women in their effort allocation decisions in the slider task. The coefficient of the *Female*×*Prize* interaction term is negative and significant under all three model specifications that control for individual singletask slider performance and other self-reported preferences of subjects. The result is consistent with the previous literature showing that when given a choice of incentives, men self-select into competitive work environments whereas women choose flat or piece-rate payment schemes (e.g. Niederle et al. 2013; Dohmen & Falk 2011).

[15] The reported p-values are from a Wilcoxon-ranksum tests across the genders and treatment conditions, unless otherwise specified.

Figure 2: Effort Allocations in the Multitask Part by Gender

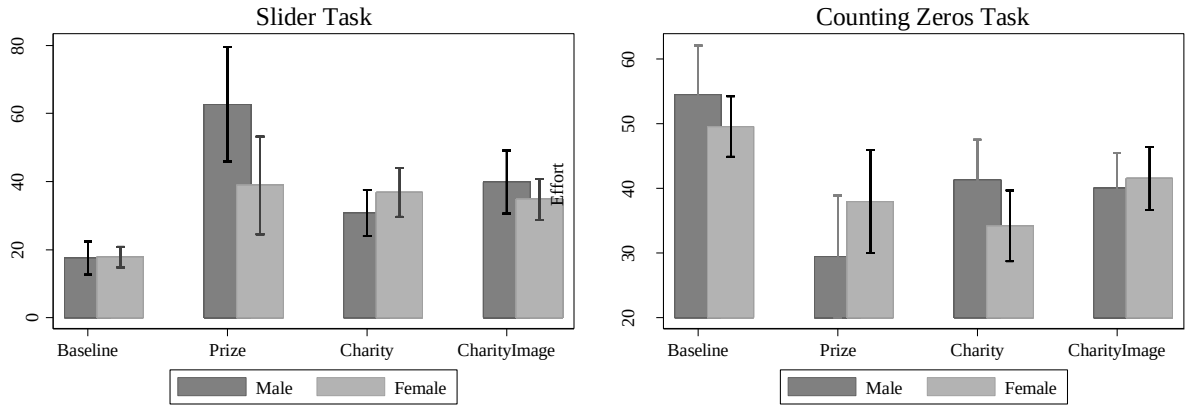


Table 3: Incentives and Gender

Dependent Variable: Number of Completed Sliders in the Multitask part			
	Model 1	*Model 2*	*Model 3*
Female	0.31 (2.31)	4.93 (3.08)	5.48 (3.69)
Prize	45.20 (8.15)***	47.11 (8.59)***	47.97 (7.91)***
Charity	13.34 (3.23)***	17.62 (4.61)***	17.16 (4.58)***
CharityImage	22.45 (3.05)***	24.59(3.55)***	26.64 (4.74)***
Female×Prize	-24.11 (7.65)***	-25.22 (7.74)***	-25.12 (7.08)***
Female×Charity	5.72 (5.89)	2.64 (6.35)	3.43 (6.44)
Female×ChairtyImage	-5.45 (3.43)	-6.41 (3.76)*	-8.87 (4.36)**
SliderSingletask		0.43 (.14)***	0.55(.18)***
Controls	No	No	Yes
Constant	17.44 (1.66)	-4.82 (7.55)	-38.56 (17.10)**
N	210	210	210
Adj R^2	0.2179	0.2500	0.3004

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. Controls include variables self-reported in the mid-study questionnaire and a number of subjects in a session as a measure of probability of winning the prize/award.*

Another novel result that we observe from Figure 2 is the similar effort allocation decisions of women in the slider task across the three treatment conditions: 38.8 in the Prize, 36.8 in the Charity and 34.7 in the CharityImage treatments. The effort levels of men, on the other hand, in the two charity treatments is significantly lower compared to the Prize treatment: 62.6 in the Prize treatment versus 30.7 in the Charity (p-value=0.003) and 40 in the CharityImage (p-value=0.015) treatments. Testing for the differences in allocated effort levels in the slider task of men between the Charity and CharityImage treatments, we observe a marginally higher effort in the CharityImage treatment compared to the Charity treatment (p-value=0.0735). The parametric analysis of the number of completed sliders in the multitasking part (Table 4) provides further support for this result showing significant positive effect of the social-image incentives on men's (post-estimation Wald p-values<0.05) and marginally significant negative effect on women's (Wald p=0.089 in Model 2

specification) effort allocation decisions. From Table 3, we also observe that the number of completed sliders is lower for women than for men in the CharityImage treatment (the coefficient of *Female×CharityImage* is negative in two model specifications). This result is in turn consistent with the previous literature showing that men are more motivated by social-image concerns and engage in more status-seeking behaviour compared to women (Pan & Houser 2011). Women on the other hand are more likely to demonstrate wallflower effect — aversion to stand out — in their cooperative and altruistic behaviour when their behaviour can be publicly observed (Jones & Linardi 2014). It is also consistent with the finding that men are more motivated by the competitive type of incentives where they can excel compared to their peers. The highly significant difference between CharityImage and Prize treatments for men (Wald p-value<0.000), though shows that a more drastic change in effort levels comes from the financial prize expectations rather than purely rank based incentive of scoring in the top three compared to peers. We also observe that while a quarter of variability in effort allocation decisions of men can be explained by the treatment conditions, only 8.7% of the variability can be explained for women which further increases to 14.6% with addition of other observable characteristics. This in turn indicates that incentives can predict effort decisions of men more than of women, shedding light on how gender differences in organizations may be more rigid to be tackled with the help of incentives. We discuss this point in a more detail in the concluding section.

Table 4: Incentives and Gender

Dependent Variable: Number of Completed Sliders in the Multitask part				
	Men		*Women*	
	Model 1	*Model 2*	*Model 1*	*Model 2*
Prize	45.20***	48.63***	21.09**	22.20**
	(8.14)	(7.58)	(8.11)	(8.56)
Charity	22.45***	13.81**	19.06	24.41***
	(3.04)	(5.38)	(2.81)	(3.65)
CharityImage	13.34***	26.38***	17.00***	18.12***
	(3.23)	(5.37)	(1.03)	(2.82)
(p-value)				
Prize=Charity	(0.000)	(0.001)	(0.814)	(0.846)
Prize=CharityImage	(0.000)	(0.006)	(0.465)	(0.650)
Charity=CharityImage	(0.027)	(0.018)	(0.619)	(0.089)
Controls	No	Yes	No	Yes
Constant	17.44*** (1.65)	-33.61 (21.71)	17.75*** (0.82)	-26.71 (23.05)
N	92	92	118	118
Adj R^2	0.245	0.261	0.087	0.146

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. Controls include the variables elicited in the mid-study questionnaire, SliderSingletask performance as a measure of ability and number of subjects in a session as a measure of probability of winning the prize/award. The p-values for pairwise treatment comparisons are from post-estimation Wald test.*

An additional analysis of the heterogeneous effects of incentives separately on women's and men's effort allocation decisions is presented in Table 5. Most notably, we find a significant positive effect of self-reported donation attitudes on men's effort allocation in the slider task of the Charity treatment while no such correlation is detected for women. Men's effort donation decisions are hence, governed by their preferences for charities and social institutions. Women's effort allocation decision, on the other hand, may be affected by perceived norms of donation rather than their own preferences for donating, a measure that we have not elicited in our experiment. Although previous literature shows significant predictive power of norms on giving behaviour (Krupka & Weber 2013; Erkut et al. 2015), there is no existing evidence of norms mediating the effect of giving in multitasking settings and how it can vary for each gender. This question demands further research investigation.

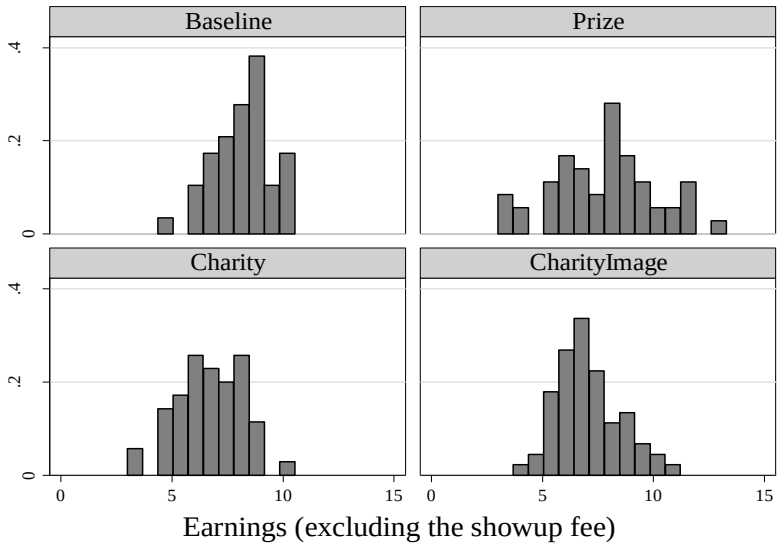
Table 5: Testing for Heterogeneity in Effectiveness of Incentives by Gender

		Prize	Charity	CharityImage
Men:				
	SliderSingletask	1.43 (1.06)	0.06 (.49)	0.85 (.26)**
	Age	0.33 (2.44)	-0.24 (.52)	0.33 (.59)
	Risk Taking	1.38 (9.60)	0.15 (4.00)	1.77 (5.77)
	Competitive	16.85 (35.40)	-13.87 (11.19)	-11.95 (6.15)*
	Donation Attitude	-0.40 (7.24)	7.026 (1.82)**	1.45 (1.31)
	Favorite ST	40.35 (40.10)	-4.74 (8.73)	6.24 (14.74)
	Favorite CZT	1.67 (18.63)	4.95 (7.02)	-2.32 (14.83)
	NumberSubjects	-5.79 (9.23)	2.48 (.64)*	-3.77 (2.37)
	Const	10.53 (91.09)	-32.27 (45.49)	20.21 (40.62)
	N	26	19	29
	Adj R^2	0.029	0.042	0.001
Women:				
	SliderSingletask	1.18 (.76)	0.29 (.27)	0.87 (.59)
	Age	1.99 (2.06)	0.49 (.95)	0.10 (.22)
	Risk Taking	3.16 (5.02)	-5.21 (2.60)	0.61 (2.31)
	Competitive	19.29 (11.70)	0.61 (12.05)	-5.21 (6.47)
	Donation Attitude	2.64 (2.13)	0.90 (6.31)	4.23 (2.31)
	Favorite ST	34.27 (17.97)	-2.92 (7.07)	3.46 (12.11)
	Favorite CZT	20.44 (16.96)	2.51 (12.24)	-3.14 (4.87)
	NumberSubjects	-12.49 (6.72)	-1.24 (1.69)	-0.64 (2.69)
	Const	29.65 (82.57)	50.13 (57.44)	-16.62 (19.49)
	N	26	32	36
	Adj R^2	0.0165	0.002	0.117

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. NumberSubjects is the number of subjects in a session as a measure of probability of winning the prize/award. * 10%, ** 5%, *** 1% significance levels.*

Finally, we analyse the economic costs to the "employees", which in our case are the experimental subjects. Figure 4 plots the histogram of subjects' take-home earnings in each treatment from the multitasking part of the experiment. The minimum earnings were £3 which was conditional on subjects completing the minimum number of 10 sliders. The observed mean earnings were £8.16 (s.d. 1.31) in the Baseline, £7.8 (2.29) in the Prize, £6.68 (1.46) in the Charity and £7.08 (1.42) in the CharityImage treatments. There is a higher degree of variability in earnings in the treatment conditions reflecting the heterogeneity in subjects' working patters in the multitask part: the histograms demonstrate that earnings were more left skewed in the treatments compared to the Baseline condition (Wilcoxon ranksum p-values<0.100). On average, subjects earned significantly less in the Charity and CharityImage treatments compared to the Baseline and Prize treatments sacrificing around £1 in earnings to work in the social-value generating slider task rather than piece-rate paying counting zeros task. We also note that the earnings are more left skewed in the CharityImage compared to Charity treatment, although the formal statistical test shows no significant difference between the treatments (ranksum p-value=0.150). Comparing the Prize to the Baseline treatment, we do not find any significant differences in the mean earnings between the treatments. This is due to the variability in effort levels allocated to the slider task in the multitask part: in the Prize treatment, around 35% of subjects complete more than 50 sliders and 20% of subjects complete more than 100 sliders whereas only 10% of subjects in the Charity and 20% of subjects in the CharityImage treatments complete more than 50 sliders with no subjects completing more than 100 sliders (Figure B1 of Appendix B).

Figure 4: Earnings from the multitask part of the experiment



We find that men earn less than women in the multitasking part of the Prize which is robust to model specifications with additional controls (Table 6). This result is a novel demonstration of gender differences

in competitive effort allocation in a multitasking settings where decision makers have a choice to allocate effort between competitively incentivized and piece-rate paying tasks, where there is direct trade-off and opportunity cost of performing a competitive task. In our experiment, women make more efficient effort allocation decisions whereas men compete more fiercely. Consequently, men earn significantly less in the competitive multitasking settings, caused by over-allocation of effort to a competitively incentivized task while sacrificing effort that could be allocated to a piece rate paying task. We also find that women earn less in the Charity treatment although the difference is not statistically significantly as seen by non-significant negative coefficient of the *Charity×Female* dummy. This is in turn consistent with women on average completing slightly more sliders and slightly less counting zeros tables in the Charity treatment compared to the other treatments.

Table 6: Gender Differences in Earnings

	Model 1	*Model 2*	*Model 3*
Female	-0.49 (.34)	0.18 (.31)	0.04 (.35)
Prize	-0.92 (.65)	-0.69 (.57)	-0.70 (.57)
Charity	-1.31 (.36)***	-0.69 (.25)**	-0.83 (.30)**
CharityImage	-1.45 (.39)***	-1.14 (.33)**	-1.26 (.38)***
Female×Prize	1.10 (.43)**	0.99 (.35)**	1.06 (.43)**
Female×Charity	-0.22 (.53)	-0.66 (.39)	-0.49 (.43)
Female×ChairtyImage	0.65 (.41)	0.51 (.39)	0.65 (.44)
SliderSingletask		0.06 (.01)***	0.06 (.01)***
Controls	No	No	Yes
Constant	8.45 (.31)***	5.20 (.46)***	6.18 (.84)
N	210	210	210
Adj R^2	.0949	.2620	.2635

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. Controls include variables self-reported in the mid-study questionnaire.*

5 Discussion

The incentive effects on women and men's selection to work on one task or another is remarkably different from each other. We find that while men are more responsive to competitive and social-image incentives being applied to a fixed rate paying task, women exert similar amount of effort when competitive, social-value and social-image incentive is applied on the fixed rate paying task.

Our findings on differential effects of incentives on women's and men's effort levels contribute to the field studies analysing selection effects into the public and private sector education providers (see for instance Dohmen & Falk 2010), and selection effect effects into more social or financial online work environments (Tonin & Vlassopoulos 2015) and studies on incentive effects in various laboratory experiments (Pan & Houser 2011; Dohmen and Falk 2011, Gneezy et al. 2003). While some studies find that women are more willing to exert effort in social-value generating tasks and tend to self-select into social environments more often (Bennet 2003; Croson et al. 2010; Dufwenberg & Muren 2006), when they are given a choice of

social-value and piece-rate generating tasks, they do not exert more effort in social-value tasks than men or than when they are given a choice between competitive and piece-rate generating tasks.

Furthermore, although publicly awarding top three donors in a lab experiment might seem artificial, the incentives in our CharityImage treatment affect exerted effort levels of men similarly positively as public recognition of employees and students analysed in natural field settings (Kosfeld & Neckerman 2011). Our results, moreover, resemble Gerhards & Siemer's (2015) findings from laboratory experiments. A marginally negative effect of public recognition on women's performance, on the other hand, is consistent with recent findings in the laboratory experiment that investigate 'wallflower' effects: Jones & Linardi (2014) find that women are more likely to avoid standing out when their behaviour, in their case their donations to a charity, can be publicly observed. We cannot rule out that the specificities of our experimental design (i.e., awarding top three performers and public recognition in a laboratory setting) might have influenced this finding. A similar setup in an environment in which the employees' self-esteem is more closely linked to their work might increase the positive incentive effects of social-image for men and eliminate negative incentives effects of social-image for women. However, the effects could also be reversed, for instance if the share of shy or introverted employees in the work force is sufficiently large.

While some studies have previously found men responding more strongly to relative performance feedback and competitive incentives (reviewed in Azmat & Petrongolo 2014), others find that men and women do not react differently to competitive situations per se (Gerhards & Siemer 2015, Neckerman & Kosfeld 2011; Blanes I Vidal & Nossol 2011). Taken together these results may indicate that gender differences in competitive behaviour may depend on the characteristics of the competition, such as for example, size of the prize (Gill & Prowse 2014) or the presence of the second task as in our experiment.

Similar to previous studies (Kosfeld & Neckermann 2011; Gerhard & Siemer 2015, Dohmen & Falk 2011), we find that more able individuals react more positively to competitive environments in both of our Prize and CharityImage treatments. However, differently from previous studies, (e.g. Falk et al. 2016), overall, do not find predictive power of self-reported economic attitudes (competitiveness, risk, confidence and social) on effort levels allocated to competitive, social-value or social-image tasks. We only find that men's attitudes towards charities and other non-profit organizations predict allocated effort levels to social-value task in the Charity treatment. This in turn, suggests the limited power of self-reported measures to predict behaviour in similar lab experiments and potentially field surveys.

6 Concluding Remarks

The paper explores the effectiveness of three different incentive schemes in a multitasking setting and the extent to which men and women differ in their effort allocation decisions. We find strong evidence that all three incentives, namely competitive prizes, social value generation and public awards, significantly distort the effort allocation towards the task they are applied in. The impact on women's effort is very similar across all three incentives, while among men, the competitive incentives yield the

highest effort. According to our results, in multitask job environments such as academia, women are more likely to allocate effort to non-competitive teaching and administrative duties, while men are more likely to concentrate on more competitive and prestigious tasks such as research publications and grant bids. This in turn can explain why there is still pervasive gender gap in positions and salaries in academia where men are more likely to be promoted and receive better outside offers with higher potential of salary advancements (Blackaby et al. 2005; Barret & Barret 2011; Sanders 2014).

Significant differences in men's responses to competitive and social-image incentives can shed further light why in sectors with heavily used competitive incentive such as the financial sector, men excel much more than women. This calls for careful consideration of incentive designers in organizations, who can improve upon such "discriminatory" incentives; for example, putting employees in teams is shown to decrease the degree of gender differences in willingness to compete (Healy & Pate 2009; Dargnies 2012). At the same time, men have been found to have lower job satisfactions in equivalent public than private sector jobs (Buelens et al. 2007). Adding a competitive (non-financial) award incentives on some tasks of public sector jobs can motivate men to exert more effort as our study demonstrates. What is more, our results—that most of the subjects are ready to sacrifice some of their earnings to increase the social value created as donations to charities of their choice— provide empirical support for the growing recognition of the idea that some workers have an intrinsic motivation in advancing social causes. This explains the increasing involvement of firms in corporate social responsibility and philanthropy projects (Collier & Esteban 2007; Bhattacharya et al. 2008).

However, there is a possibility that employers can benefit from such a variability in behaviour between genders in response to various incentives by allowing employees to self-sort into incentive schemes and tasks in a multitasking work environment and potentially improve employee motivation. Although we do not measure work motivation of our subjects across the treatment conditions, there is an evidence put forward by self-determination theorists that environments which allow people the autonomy to choose and self-select into their preferred environment have much higher intrinsic motivation and growth potential than externally imposed environments (Deci & Ryan 2002). The competitive incentive schemes applied in the Prize treatment may be more motivating and engaging for employees than delivering a minimum required outcome in the flat rate paying task. This however should take into account that competitive incentives may attract and subsequently motivate more male than female workers. Further research should address this question and measure job motivation of male and female workers who work in multitasking settings with variable incentive schemes.

One limitation of our study, as with any experimental study is the generalizability of our results (Falk & Heckman 2009). In the current study, we improve upon the external validity of existing

experimental studies on multitasking incentives by using a real effort task as opposed to "chosen" effort tasks. However, we still use university students as our main subject pool which some would argue is non-representative of the general population. In the context of our experiment, we need to point out that several studies found that nonstudents are generally more pro-socially motivated than and are similarly competitive and risk-seeking as students (Charness & Villeval 2009; Cappelen et al. 2015). Hence our results are more likely to underestimate the actual response of the general population who would exert more effort in social-value generating tasks. Secondly, if we take into account that it is students who continue to become employees of public and private sector organizations, their behaviour and preferences under different incentive schemes are of particular interest to research. It is reassuring that students participating in experiments have been found to be similar to the rest of the student population in terms of their economic preferences (Falk et al. 2013), although there is some evidence that students who opt to participate in an experiment report having volunteered more outside the lab than non-participants (Slonim et al. 2013).

Another limitation of our study is the use of restricted time experiment to measure productivity of our subjects in a multitask setting. The imposed time durations of the experiment creates a substitutability on the tasks which potentially eliminated the possibility of productivity gains when additional incentives are provided. Although most of the real world jobs have set working hours, there are also many jobs that reward overtime working and offer their employees an autonomy over their working hours. Further research should explore whether additional incentives on one task improves productivity and motivation in other tasks, through overtime work, knowledge spillovers, goal perseverance or self-determined intrinsic motivation (Deci & Ryan 2002).

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Appendix A:

Experimental Instructions

Welcome!

You are about to participate in an experiment on decision making. You will be paid a showup fee of £2 for showing up to the experiment. You will also get £3 for completing the experiment. Additionally, you can earn money during the experiment.

This experiment will consist of several parts. The instructions for each part will be shown on your screen before the start of each part. Please read the instructions on your screen carefully and take notes if necessary as you will not be able to go back to read them.

At the end of the experiment, one of the parts will be randomly selected by the computer. Your final earnings will be determined according to your performance in the selected part. Each part has an equal chance of being selected for the payment so please pay an equal attention to each part.

Throughout the experiment you must not communicate with other participants. The use of any electronic devices is strictly prohibited. If you break these rules, you will be excluded from the experiment without receiving any fee.

You may leave at any point during the experiment if you do not wish to complete the experiment. If you leave the experiment before it is completed, you will only be paid the show up fee of £2.

Your decisions are anonymous and under no circumstances will be linked to your identity.

If you agree with these rules, you can sign and date the CONSENT FORM on your desks that you are willing to participate in this experiment and consenting to the use of your data.

If you have a question please raise your hand and someone will come to your desk to answer it.

[On screen instructions:]

Part 1

In this part of the experiment, you will complete two tasks: Slider task and Counting Zeros task. You will have 300 seconds (5 minutes) to complete each task. You will complete one task after the other. **If Part 1 is selected for the payment, you will be paid the sum of your earnings from both of the tasks.** You will see the detailed instructions for the Slider and Counting Zeros tasks on your screens.

If you have a question please raise your hand and someone will come to your desk to answer it. [Next Button]

Part 1A: Slider Task

In this task, you will be asked to position a series of sliders. The figure below shows the work screen you will use for this task. Each slider is initially positioned at 0 and can be moved as far

as 100. Each slider has a number below showing its current position. You can use **the mouse or the arrow keys** on the keyboard to move each slider. You can readjust the position of each slider as many times as you wish. After you have positioned a slider, you can click the NEXT button and a new slider will be generated. Your performance in this task will be the number of sliders positioned at exactly 50 at the end of the 300 seconds. You will earn £0.10 for each slider you positioned at exactly 50. At the end of Part 1, you will learn how many sliders you have positioned correctly.

If you have a question please raise your hand and someone will come to your desk to answer it.

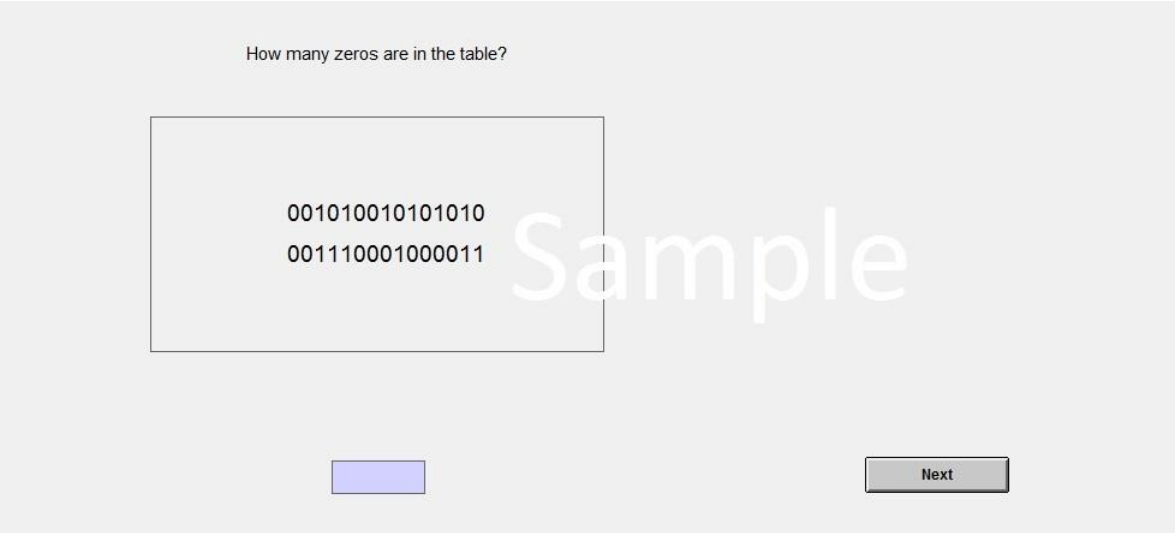
If you are ready, click Start the Task button.

Part 1B: Counting Zeros Task

In this task, you will be asked to count zeros in a series of tables. The figure below shows the work screen you will work on for this task. You will enter the number of zeros into the box below the table. After you have entered the number, you can click the NEXT button. No matter if the answer is correct or not, a new table will be generated. Your performance in this task will be the number of correctly solved tables at the end of the 300 seconds. You will earn £0.10 for each table you solved correctly. If you enter a wrong number for a table, you will earn nothing for that table. At the end of Part 1, you will learn how many tables you have solved correctly.

If you have a question please raise your hand and someone will come to your desk to answer it.

If you are ready, click Start the Task button.



You have finished Part 1 of the experiment. You have correctly completed <#> sliders and <#> counting zeros tables. Before proceeding to Part 2 of the experiment, please answer the following questions. Your answers are anonymous and will not be linked to your identity. After you have submitted your answers you can proceed to Part 2.

Questionnaire

Which task did you enjoy the most? □ Neither □ Both; □ Slider Task; □ Counting Zeros Task

What is your gender? □ Male □ Female

What is your age? _____

What is your nationality?

□ British □ Other

If you are a student, what is your subject area? _____

On a scale of 1 to 7, how willing are you to take risks in general?

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □
Not at all willing Very willing

On a scale of 1 to 7, how confident are you as a person?

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □
Not at all confident Extremely confident

On a scale of 1 to 7, how competitive are you as a person?

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □
Not at all competitive Extremely Competitive

On a scale of 1 to 7, how important it is to donate to charities and other social institutions?

1 □ 2 □ 3 □ 4 □ 5 □ 6 □ 7 □
Not at all important Extremely Important

From the list below, please select your preferred charity (the charity that you regularly donate or would like to regularly donate money to or whose activities you admire and support).

1 British Red Cross □ 2 Cancer Research □

3 World Wildlife Fund □ 4 Help the Heroes □

5 Save the Children □ 6 Surrey Student Union □

7 Other _____ (please specify)

Part 2: [BASELINE CONDITION]

This is Part 2 of the experiment. In this part of the experiment, you are asked to complete both the Counting Zeros and Slider tasks on the same screen. You will have 600 seconds in total to work on both tasks. **If Part 2 is selected for the payment, your payoff will be**

determined as following. You will receive a fixed fee of £3 for correctly positioning a minimum of 10 sliders. In addition to this fixed fee, you have a chance to earn £0.10 per each correctly completed Counting Zeros table. However, if you position less than 10 sliders correctly, regardless of your performance in the Counting Zeros table, your payoff in Part 2 will be £0!

To proceed to Part 2, we first need to check your understanding of the payoff structure by asking you to answer the following questions correctly. \par \par

If you have a question please raise your hand and someone will come to your desk to answer it.

1. If you complete 9 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected for the payment, how much will your earnings be (excluding the showup fee)? ___ (£0)

If you complete 10 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected for the payment, how much will your earnings be (excluding the showup fee)? ___ (£5.5)

If you complete 15 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected for the payment, how much will your earnings be (excluding the showup fee)? ___ (£5.5)

Part 2: [PRIZE TREATMENT]

This is Part 2 of the experiment. In this part of the experiment, you are asked to complete both of the Counting Zeros and Slider tasks on the same screen. You will have 600 seconds in total to work on both tasks. **If Part 2 is selected for the payment, your payoff will be determined as following.** You will receive a fixed fee of £3 for correctly positioning a minimum of 10 sliders. In addition to this fixed fee, you have a chance to earn £0.10 per each correctly completed Counting Zeros table. However, if you correctly position less than 10 sliders, regardless of your performance in the Counting Zeros table, your payoff in Part 2 will be £0!

In this part of the experiment, you also have a chance to win a **Prize of £5** in addition to your final earnings. The computer will compare your performance to the other participants' performances in the Slider task in Part 2. If you are among the top three performers that correctly positioned the highest number of sliders in Part 2, you will earn a prize of £5 that will be added to your final earnings. You will win a Prize of £5 even if Part 2 is not selected for the payment.

To proceed to Part 2, we first need to check your understanding of the payoff structure in Part 2 by asking you to answer the following questions correctly.

If you have a question please raise your hand and someone will come to your desk to answer it.

If you complete 9 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected

by the random draw for the payment, how much will your earnings be? ___ (£5.5)

If you complete 10 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your earnings be? ___ (£5.5)

If you complete 11 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your earnings be? ___ (£5.5)

If you complete 20 sliders and 25 counting zeros tables correctly in Part 2, Part 2 is selected for the payment and you are one of the top three highest performers in the Slider task in Part 2, how much will your earnings be? ____ (£10.5)

If you complete 25 sliders and 25 counting zeros tables in both Part 1, Part 1 is selected for the payment and you are one of the top three highest performers in the Slider task in Part 2, how much will your earnings be? ___ (£15)

Part 2: [CHARITYIMAGE TREATMENT]

This is Part 2 of the experiment. In this part of the experiment, you are asked to complete both of the Counting Zeros and Slider tasks on the same screen. You will have 600 seconds in total to work on both tasks. **If Part 2 is selected for the payment, your payoff will be determined as following.** You will receive a fixed fee of £3 for correctly positioning a minimum of 10 sliders. In addition to this fixed fee, you have a chance to earn £0.10 per each correctly completed Counting Zeros table. However, if you correctly position less than 10 sliders, regardless of your performance in the Counting Zeros table, your payoff in Part 2 will be £0!

In this part of the experiment, you also have a chance to earn a donation to the charity <Charity> in addition to your final earnings. We will donate £0.1 per each slider you position correctly in addition to the minimum of 10 sliders. You will earn a donation of 0.10 for each additional slider you position correctly after the 10th slider even if Part 2 is not selected for the payment. We will compare your donation amount to the other participants' donation amounts and if you are among the top three donors, your participant number will be publicly announced and you will be presented a **Thank You! Certificate** as one of the highest three donors in the experiment. We will send you an email with the receipts of donations made at the end of the study.

To proceed to Part 2, we first need to check your understanding of the payoff structure by asking you to answer the following questions correctly

If you have a question please raise your hand and someone will come to your desk to answer it.

1 If you complete 9 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and donation be? ___ (£0 final earnings) and ____ (£0 donation)

2 If you complete 10 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and

donation be? ___ (£5.5 final earnings) and ___ (£0 donation)

3 If you complete 15 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and donation be? ___ (£5.5 final earnings) and ___ (£0.50 donation)

4 If you complete 25 sliders and 25 counting zeros tables in Part 1, Part 1 is selected for the payment and you position 20 sliders correctly in Part 2, how much will your final earnings and donation be? ___ (£5 final earnings) and ___ (£1 donation)

5 If you complete 25 sliders and 25 counting zeros tables correctly in Part 2, Part 2 is selected for the payment and you are one of the three highest performers in the Slider task in Part 2, how much will your earnings and donation be? ____ (£5.5 final earnings), ___ (£1 donation) with a Thank You Certificate/ Without a Thank You Certificate.

Part 2: [CHARITY TREATMENT]

This is Part 2 of the experiment. In this part of the experiment, you are asked to complete both of the Counting Zeros and Slider tasks on the same screen. You will have 600 seconds in total to work on both tasks. **If Part 2 is selected for the payment, your payoff will be determined as following.** You will receive a fixed fee of £3 for correctly positioning a minimum of 10 sliders. In addition to this fixed fee, you have a chance to earn £0.10 per each correctly completed Counting Zeros table. However, if you correctly position less than 10 sliders, regardless of your performance in the Counting Zeros table, your payoff in Part 2 will be £0!

In this part of the experiment, you also have a chance to earn a donation to the charity <Charity> in addition to your final earnings. We will donate £0.1 per each slider you position correctly in addition to the minimum of 10 sliders. You will earn a donation of 0.10 for each additional slider you position correctly after the 10th slider even if Part 2 is not selected for the payment. We will send you an email with the receipts of donations made at the end of the study.

To proceed to Part 2, we first need to check your understanding of the payoff structure by asking you to answer the following questions correctly

If you have a question please raise your hand and someone will come to your desk to answer it.

1 If you complete 9 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and donation be? ___ (£0 final earnings) and ____ (£0 donation)

2 If you complete 10 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and donation be? ___ (£5.5 final earnings) and ___ (£0 donation)

3 If you complete 15 sliders and 25 counting zeros tables correctly in Part 2, and Part 2 is selected by the random draw for the payment, how much will your final earnings and

donation be? ___ (£5.5 final earnings) and ___ (£0.50 donation)

4 If you complete 25 sliders and 25 counting zeros tables in Part 1, Part 1 is selected for the payment and you position 20 sliders correctly in Part 2, how much will your final earnings and donation be? ___ (£5 final earnings) and ___ (£1 donation)

5 If you complete 25 sliders and 25 counting zeros tables correctly in Part 2, Part 2 is selected for the payment and you are one of the three highest performers in the Slider task in Part 2, how much will your earnings and donation be? ____ (£5.5 final earnings), ___ (£1 donation)

[Feedback and Payment Stage]:

In Part 1, you completed <#> Sliders and <#> Counting Zeros tables. In Part 2, you completed <#> Sliders and <#> Counting Zeros tables.

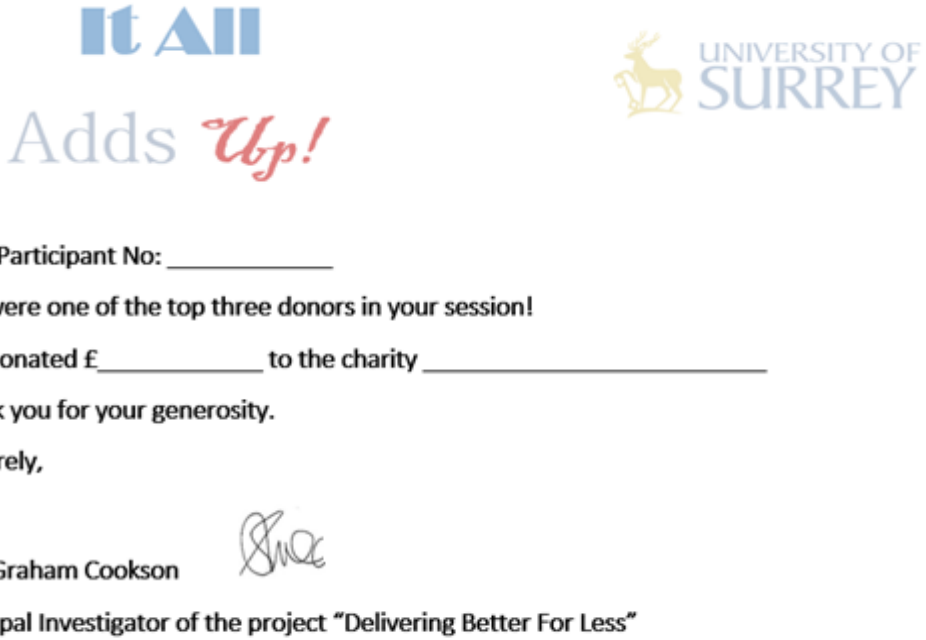
Prize Treatment {Your performance in the Slider task of the Part 2 was <in the top three of performances. So you won a Prize of £5/ not in the top three of performances.>

Charity Treatment {We will donate £<#> to the charity <text>. Your donation was <in the top three of donations. [CharityImage Treatment {So you will be presented with a Thank You! Certificate}]/not in the top three of donations.>}

Part <#> was chosen for the payment. Your earnings for Part <#> are £#. You will be paid £<total> for participating in this experiment.

Thank you for your participation! Please wait at your desk until the experimenter approaches you with the payment.

Thanks You! certificate in the CharityImage treatment



Appendix B: Additional Figures and Tables

Table B1: Predicting the Number of Completed Sliders in the Multitask Part

	Model 1	*Model 2*	*Model 3*
Prize	33.13 (8.45)***	34.26 (8.63)***	34.92 (8.64)***
Charity	16.94 (.90)***	19.85 (1.60)***	20.33 (3.13)***
CharityImage	19.42 (1.56)***	21.12 (2.05)***	22.03 (3.26)***
SliderSingletask		.47 (.148)***	.61 (.187)***
Prize=Charity (p-value)	(0.0722)	(0.0940)	(0.0848)
Prize=CharityImage (p-value)	(0.1272)	(0.1360)	(0.1371)
Charity=CharityImage (p-value)	(0.1517)	(0.4208)	(0.4392)
Controls	No	No	Yes
Constant	17.61 (.52)***	-4.24 (6.71)	-40.06 (18.72)**
N	210	210	210
Adj R^2	0.1528	0.1944	0.2202

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. Controls include the variables elicited in the mid-study questionnaire as reported in Table 2.The p-values for pairwise treatment comparisons are from post-estimation Wald test.*

Table B2: Variation in multitask effort and self-reported economic preferences

Dependent variable	**Number of completed sliders in the multitask part**						**Number of completed counting zeros tables in the multitask part**					
	Prize		Charity		CharityImage		Prize		Charity		CharityImage	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Risk taking	.89	1.78	-3.08	-2.95	1.84	1.012	-1.83	-1.78	1.34	2.64	-.68	-.82
	(2.76)	(2.96)	(2.22)	(2.10)	(2.79)	(2.52)	(1.30)	(1.27)	(1.62)	(1.63)	(1.55)	(1.71)
Confidence	1.11	1.72	-.30	-.22	-.13	.54	-.81	-.78	-1.02	-.15	1.55	1.66
	(3.63)	(2.03)	(1.82)	(1.99)	(1.40)	(1.30)	(1.00)	(.93)	(2.48)	(1.49)	(1.45)	(1.44)
Competitive	15.71	17.51	-1.77	-1.75	-5.05	-8.23	-10.83	-10.74	4.56	4.72	2.22	1.66
	(16.29)	(16.73)	(7.29)	(7.46)	(7.21)	(5.10)	(8.66)	(8.76)	(5.38)	(3.97)	(4.09)	(4.63)
Donation Attitude	1.25	.07	2.23	2.42	2.27	2.45	-.71	-.76	-5.56*	-3.60*	-2.07*	-1.68
	(3.52)	(3.54)	(3.27)	(4.06)	(1.38)	(1.76)	(1.75)	(1.65)	(2.36)	(1.81)	(.99)	(1.14)
Favourite ST	31.05*	35.06	-4.11	-3.56*	6.72	2.46	-21.75	-21.57	-.159	5.52	-5.09	-5.37
	(15.66)	(18.51)	(3.12)	(1.43)	(4.75)	(1.76)	(11.78)	(11.55)	(3.99)	(5.10)	(6.00)	(5.56)
Favourite CZT	5.80	11.28	4.55	5.06	-1.26	-1.14	-.38	-.12	-1.06	4.05	4.73	4.75
	(15.81)	(15.96)	(4.56)	(5.61)	(4.84)	(3.23)	(7.29)	(7.89)	(4.79)	(5.86)	(2.71)	(2.84)
SliderSingletask		1.26**		.08		.80**		.06		.81**		-5.37
		(.470)		(.311		(.27)		(.20)		(.27)		(5.56)
Constant	11.46	-48.84	39.35*	33.90	27.69	-13.5	65.52***	62.7***	63.04*	7.20	45.37***	38.13**
	(33.99)	(31.15)	(16.49)	(35.90)	(15.88)	(21.84)	(10.97)	(15.74)	(22.16)	(30.27)	(9.88)	(13.1)
N	52	52	51	51	65	65	52	52	51	51	65	65
Adj R^2	0.1881	0.3376	0.0867	0.088	0.0467	0.181	0.3135	0.3146	0.1502	0.4809	0.1378	0.1468

*The reported coefficients are from an OLS regression. Clustered standard errors at session level are reported in parentheses. * 10%, ** 5%, *** 1% significance levels. ST and CZT stand for slider and counting zeros tasks respectively.*

Figure B1: Cumulative density function of the completed sliders in the multitask part