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Do workers like employer driven flexibility? Experimental evidence on work and pay uncertainty and willingness to work

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ABSTRACT

Flexible employment arrangements where workers only provide labour (and are paid) when requested to by their employer have proliferated. How do workers react to the resulting instability in work schedules and pay? This study seeks to provide an answer using experimental methods. 301 low-income, working age, non-student individuals took part in an on-line experiment simulating standard and zero-hours contractual conditions. Results unambiguously support the hypothesis that work uncertainty discourages work. This is not only because variability in work availability reduced total expected pay but also because uncertainty itself is avoided, even at the cost of lower total earnings. Public benefits play an important moderating role. Workers are more likely to accept uncertain work and pay when access to out of work benefits is limited or when benefits automatically top up incomes during periods when work is unavailable.

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Uncertainty; labour supply; wages; low income; experiment

1. Introduction

The consequences of non-standard employment have been the subject of a large body of scholarly work (Kalleberg, 2011; Kalleberg & Vallas, 2018; Rubery et al., 2018; Spreitzer et al., 2017). The early literature has focused on temporary contracts (Barbieri & Scherer, 2009; Gash, 2008). More recently, attention has turned to other forms of non-standard employment such as agency, on-call, zero-hours or gig economy employment (Aletraris, 2010; J. J. Ravalier et al., 2019; J. M. J. M. Ravalier et al., 2017). These types of contractual arrangements have become more important as employers favour them as tools to increase numerical flexibility and reduce labour costs especially in countries with permissive regulatory regimes (O'Sullivan et al., 2020). The economic crisis triggered by the COVID-19 pandemic may further accelerate this trend.

While all forms of non-standard employment share an element of contractual uncertainty or insecurity (Kalleberg & Vallas, 2018; Prosser, 2016), the actual contract elements that are affected differ. A special category is constituted of jobs that guarantee no or only a very limited number of working hours. These include zero-hours,[1] on-call,[2]" if-and when"[3] contracts, "false" self-employment,[4] and some part-time jobs where the number of guaranteed weekly hours is much smaller than the number of hours worked in practice. Workers in these types of working arrangements can experience substantial short-term instability both in the hours they work and the income they earn. Unlike temporary contracts, uncertainty concerns the immediate future, sometimes the following days or weeks.

Previous studies have focused either on the legal aspects (Adams & Prassl, 2018; Pyper & McGuiness, 2018) or on establishing prevalence and documenting associations with pay, benefits, working hours, and/or job satisfaction (Adams & Prassl, 2018; Farina et al., 2019; Koumenta & Williams, 2019). Insofar as we know, no study has attempted to measure the effects of *uncertainty itself*. This is important because uncertainty has sometimes been framed as flexibility that ultimately benefits not only employers but also employees, especially peripheral groups such as young workers, women with care responsibilities, older workers or immigrants (Jahn et al., 2012).

This study aims to contribute to the debate on the effects of work and pay uncertainty on worker behaviour by experimentally testing labour supply responses to uncertain hours and pay. Ascertaining behavioural responses is a difficult task. Jobs with no or few guaranteed hours often have other features that make them less desirable: lower wages, fewer benefits, fewer hours, and/or less control. Observational studies have difficulty in separating out the corresponding effects and remain vulnerable to confounding bias. To avoid these pitfalls, this study uses an experimental approach. Inference is drawn by examining worker behaviour in an on-line real effort experiment with low income,[5] non-student participants. Using an experimental framework has the advantage of clearly isolating uncertainty from other job characteristics that might influence worker behaviour. Results provide compelling evidence that workers avoid uncertainty whenever possible resulting in lower labour supply. A second contribution is to provide evidence on the moderating role of the benefit system. Workers can be incentivized to take up flexible work both by providing a safety net that reduces uncertainty around income and by making benefit income unavailable through sanctions.

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Supplemental data for this article can be accessed here

2. Effects of hours and pay uncertainty on worker behaviour

Uncertainty is usually defined as lack of complete information about future outcomes (Milburn & Billings, 1976; Rosatti, 2017). While not completely eliminating uncertainty, the standard employment contract specifies a fixed number of hours the worker is expected to work and the associated pay rate. The worker would be paid for this number of hours even when her services were not needed, providing some security about future income. In contrast, contracts which guarantee no or very few hours expose the worker to considerable income and time uncertainty. Employees are expected to routinely work considerably more hours than their contracted ones, but this number varies week to week and workers do not know it in advance (or they know it at very short notice). As a result, workers often do not know either the amount of money they will be able to earn in the following week, or the time resources they are expected to commit to work. They face considerable uncertainty regarding both their income and time resources.

The empirical research on jobs with no or few guaranteed hours is rather limited. In the UK, a few studies have examined zero-hours contracts which do not guarantee any working hours. They found that workers in zero-hours jobs work fewer hours on average, experience more week-to-week variability, and are more likely to be underemployed than employees on other types of contracts. They also experience a pay penalty of approximately 8–10% (Adams & Prassl, 2018; Koumenta & Williams, 2019). A 2013 survey found no or slightly positive differences in job satisfaction and work-life balance compared to permanent employees (Chartered Institute of Personnel and Development, 2013). In contrast, qualitative studies indicate that uncertainty in working hours, working schedules and pay can both create significant financial hardship and strain family and social relationships (Henly & Lambert, 2014; Henly et al., 2006; Lambert, 2008; Pennycook et al., 2013; J. M. J. M. Ravalier et al., 2017).

While the effects of work related uncertainty and insecurity on health and well-being have been well documented (Bender & Theodossiou, 2018; Burchell, 2011; Burgand et al., 2009; Green & Leeves, 2013), less is known about how labour market behaviour is affected. The vast majority of studies have focused on the effects of job insecurity on job satisfaction, organizational commitment and performance (De Cuyper & De Witte, 2006; De Witte & Näswall, 2003; Guest et al., 2006; König et al., 2010; S. K. S. K. Parker et al., 2002; Sverke et al., 2002). These studies usually find a negative effect when insecurity is defined subjectively but not necessarily when objective measures such as having a temporary contract are used.

In economics, work motivation under uncertainty has been studied primarily in the framework of expected utility (Schoemaker, 1982; Von Neumann & Morgenstern, 1944). In this framework, when faced with alternative courses of actions, a rational decision maker will choose the one where the product between the value (utility) of the outcome and the probability of its occurrence is highest. Compared to a situation where outcomes are certain, uncertainty impacts on motivation and behaviour by reducing the *expected* value of the outcome. If individuals are motivated to take up a job primarily by pay (Rynes et al., 2004, 2005), the attractiveness of a job with no or few guaranteed hours will be determined by its wage rate (an indicator of value) and the (perceived) probability that sufficient working hours will be available in the future. If the wage rate is increased to exactly match the fall in expectation due to uncertainty, worker choices and behaviour should not be affected.

Closely related to expected utility, expectancy theory (Vroom, 1964) hypothesizes that individuals are motivated to act by three types of beliefs: expectancy, instrumentality and valence. Expectancy refers to the perceived connection between effort and performance, instrumentality to the link between performance and the outcome and valence to the value the individual attaches to the outcome. While expectancy theory in its original formulation does not address uncertainty directly (Wahba & House, 1974), both expectancy and instrumentality imply some measure of uncertainty. In fact, expectancy has sometimes been interpreted as a subjective probability (Wahba & House, 1974), while at other times it has been construed as separate but closely related to environmental uncertainty (Ferris, 1978). Assuming employers generally pay the agreed wage rate for the number of hours worked (i.e., instrumentality is one), predictions made by expectancy theory closely mirror those of expected utility. The attractiveness of a job with no or few guaranteed hours will depend on its pay rate and the perceived probability enough working hours will be available.

It should be said that the probability of work availability in the future may depend on current choices and effort. Workers may be more likely to take up a job with no or few guaranteed hours if they believe that their effort will be rewarded with work and pay in the future.

The conservation of resources theory (Hobfoll, 1989, 2010; Hobfoll et al., 2018) states that humans are motivated to acquire and preserve resources needed for survival. Resources can include material objects but also internal resources (for ex: self-esteem). One important principle is that resource loss is more salient and more impactful than resource gains. The threat or experience of resource loss will induce stress or negative emotions such as anxiety, disappointment, or regret. Anticipating these negative feelings, individuals may try and avoid a stressful situation altogether (Milburn & Billings, 1976).

Jobs with no or few guaranteed hours threaten both time and economic resources. Low work availability endangers the income flows on which a worker may be reliant for basic consumption and wellbeing. High work demands on the other hand may limit the time available for other commitments and activities such as for example, family time, maintaining social ties etc. From a conservation of resources perspective, the uncertainty embedded in jobs with no or few guaranteed hours creates a threat of loss which is a stressor that can potentially decrease motivation to take-up or continue in such a job.

Previous research has shown that individual reaction to the same stressor can vary significantly based on economic and psychological characteristics and perceived situational control (Shoss, 2017; Staufenbiel & König, 2010). Individuals who feel they can alter future outcomes may be incentivized to increase effort so as to secure their position and avoid future income losses (Engellandt & Riphahn, 2005).

3. The role of public transfers

If pay is the main benefit individuals obtain from work, an important factor affecting work motivation is the availability of other sources of income, including public transfers available when out of work. More generous and easily accessible out of work policies will decrease willingness to work. On the contrary, workfare policies that limit or even remove access to out of work benefits as an alternative source of income should increase the willingness to take up a job, including jobs with uncertain work (and pay) availability.

In theory, public transfers such as in-work benefits or programmes that combine in and out of work payments such as Universal Credit in the UK can be used to mitigate some of the variability in income generated by jobs with no or few guaranteed hours. By replacing or topping up incomes when work is unavailable, public transfers could stabilize income flows and reduce insecurity. This stabilization effect should impact on willingness to work. In the expected utility and expectancy frameworks, benefits paid during periods when income from work is low will increase the expected value of taking up a job with variable hours and pay (relative to when these benefits are not available). In the conservation of resources framework, in addition to affecting overall expected pay, benefits paid when income from work is low also impact behaviour through their effect on income variability. By stabilizing income, they reduce uncertainty related stress and can make jobs with variable hours and pay more attractive.

Although theoretically appealing, in practice, a benefit system that quickly reacts to changes in income from work is not easy to implement. The administrative requirements of accessing benefits may be more difficult to meet when pay is variable (Ben-Ishai, 2015). Moral hazard considerations that typically limit the availability of out of work benefits continue to be salient.

4. Aims and hypotheses

The existing evidence makes it difficult to judge how the uncertainty embedded in jobs with no or few guaranteed hours affects worker behaviour. Satisfaction measures collected in surveys may suffer from desirability bias. Workers may also express satisfaction not because of a preference for uncertainty but because of a perceived lack of alternative employment. On the other hand, qualitative studies may not be necessarily representative of workers' experience and they may be more likely to capture the negative aspects. Both types of methods are vulnerable to biases common to observational studies.

Experimental studies have the advantage of being able to address confounding factors, observed or unobserved, in a convincing way (Charness & Kuhn, 2011; Falk & Heckman, 2009; Podsakoff & Podsakoff, 2019). By carefully manipulating the environment and randomly assigning units to treatments, the researcher can be confident that changes in observed behaviour can be attributed to treatment manipulation and not to other coincidental factors.

This study uses a real-effort experiment to test the effect of uncertain work and pay availability on labour supply behaviour. Using an experimental framework allows for a clear isolation of uncertainty from other job characteristics that may also influence worker choices. By varying the uncertainty about work availability and total pay and observing worker responses, a clear test of how uncertainty impacts labour supply can be performed. The same framework is then used to test for the moderating role of the benefit system. This is done by varying the availability of an out of work benefit and/ or the use of benefit sanctions.

Unlike previous studies, the outcome we study is observed behaviour rather than intentions or perceptions of behaviour. Focusing on observed behaviour allows us to sidestep issues around social desirability bias and provides a useful complement to studies that rely on subjective measures.

Both conservation of resources and expectancy valence theory predict that the impact of uncertain hours and pay will depend on perceived situational control, i.e., the extent to which workers feel they can influence future outcomes through their current choices. In our experimental framework, the availability of future work (and pay) is purely random and cannot be affected by participant choices. This simplifies the experimental design and ensures that any detected effects are the result of uncertainty itself rather than any underlying power dynamics. The task is simple and straightforward to complete so as to focus on participant choices and minimize the role of self-regulation in pursuit of a goal (Kanfer, 2012).

We hypothesize that:

Hypothesis 1: *Participants who face uncertainty about availability of work and pay are less likely to choose to work compared to participants for whom work availability is certain, when pay rates are equal.*

Since uncertainty reduces the total expected pay-out, all three theoretical frameworks predict participants will be less inclined to choose to work when work availability is uncertain.

Predictions derived from expectancy-valence and expected utility on the one hand and conservation of resources on the other hand, are less consistent when it comes to unequal pay rates. The first two theories suggest that when pay rates are increased so as to match the fall in the expected outcome generated by uncertainty, worker behaviour should not be affected. We thus hypothesize that:

Hypothesis 2a: *Participants who face uncertainty about availability of work and pay are equally likely to choose to work compared to participants for whom work availability is certain, provided the expected pay-outs are equal.*

Conservation of resources theory on the other hand suggests the threat of resource loss or unrealized gains produces stress (Hobfoll, 2010), and individuals will seek to avoid stressful situations. In this case, the uncertainty about work availability creates stress by exposing participants to the possibility of not earning any money (or earning too little) despite their time and effort investment. As a result, willingness to work may decrease even when the expected outcomes are the same. Based on this, we construct hypothesis 2b:

Hypothesis 2b: *Participants who face uncertainty about availability of work and pay are less likely to choose to work compared to participants for whom work availability is certain even when the expected pay-outs are equal.*

Note that a number of studies found the possibility of future labour income losses increases labour supply in the present (Flodén, 2006; S. C. S. C. Parker et al., 2005). However, the medium and long-term uncertainty examined by these studies is qualitatively different from the immediate/short-term uncertainty this study focuses on. Specifically, when uncertainty concerns the more distant future, increasing earnings in the present (via increased labour supply) can act as insurance against future income loss. This is not the case when uncertainty concerns the immediate future. Increasing labour supply in this case will not necessarily increase earnings if work is unavailable. Furthermore, because individuals generally need time to adapt, uncertainty regarding the immediate future is likely to be more stressful than uncertainty which lies further away in time.

The willingness to engage in work with uncertain hours and pay will depend on alternative sources of income, including out of work benefits. We thus expect that:

Hypothesis 3: *Restricting the availability of out of work benefits via benefit sanctions will increase labour supply when work and pay are uncertain*.

From an expected utility point of view, sanctions have the effect of lowering the expected value of out of work benefit payments by introducing some uncertainty about their availability and/or amount. From an expectancy valence perspective, benefit sanctions affect instrumentality. Even if the individual chooses to receive benefits rather than working, benefit payments are not guaranteed, as sanctions break the automatic link between individual performance and outcomes. In both cases, the expected value of the benefit option falls, and the relative attractiveness of the work option increases.

The use of benefit sanction effectively introduces some uncertainty regarding the availability of benefit income. While conservation of resources gives little guidance on how individuals weigh different kinds of uncertainty, variability in benefit payments clearly will make relying on benefits instead of work less attractive relative to a scenario where benefit payments are guaranteed.

Finally, public transfers can also be used to smooth income variability when hours and pay are uncertain. Benefit payments during periods of low work (and pay) availability can impact labour supply in two ways. First, by providing workers with a payment when work is not available, they increase the total expected income associated with working unstable hours. Both expected utility and expectancy valence predict that increased income will make jobs with uncertain hours and pay more attractive.

Second, benefit payments during periods when work income is low reduce the income variability associated with working uncertain hours. From a conservation of resources perspective, this should reduce the burden uncertainty exerts on workers and may increase labour supply. We thus expect that:

Hypothesis 4: *The impact of uncertain work (and pay) availability on labour supply will be lower when the resulting variability in income is smoothed via public transfers.*

To sum up, all three theoretical frameworks predict support for H1, H3 and H4, albeit the mechanisms may be different. Expected utility and expectancy valence predict support for H2a (but not for H2b), whereas conservation of resources predicts support for H2b (but not for H2a). Thus, the main difference between the three theoretical frames refers to uncertainty impacting on labour supply over and above what would be expected given changes in expected pay. Testing H2a and H2b will allow for answering this question.

The next section provides a detailed description of the experimental design. A complete transcript of the experiment can be found in the Supplementary material.

5. Data and methods

5.1. Sample characteristics

Low income working age non-student participants living in the UK were recruited to take part in an on-line experiment simulating the choice between paid work and lower benefits under the standard employment contract and under a zero-hours contract. To be eligible to participate, subjects had to be aged between 18 and 60, have a family income of less than £20,000 - per year and not be undergraduate students. All participants were resident in the UK at the time they participated.

Data was collected in two ways. 68 participants took part in nine face to face (f2f) sessions between July 2019 and February 2020. The sessions were conducted on iPad tablets in two locations in Colchester, UK. Subsequently, data was collected via an on-line participant recruitment platform called Prolific (https://www.prolific.co/). Prolific was chosen due to its explicit focus on facilitating data collection for research purposes, its ethical safeguards, accessibility of screening information, and the availability of sufficiently large numbers of UK participants. 233 individuals completed one of four sessions organized in May and June 2020.

Both f2f and Prolific participants were more likely to be female: 59% of Prolific participants and 68% of f2f participants were women. The average age was 37 years in both samples. Prolific participants were more likely to have experience of claiming out of work benefits: nearly 60% said they have received out of work benefits in the past vs. only 40% in the f2f sample. The majority of participants were working in both samples: around 51% in the Prolific sample and 72% in the f2f sample. Prolific participants were also slightly more likely to have children under five in their care (19% vs. 15%).Participants in the f2f sessions were slightly more educated than those recruited via Prolific. Almost 40% had a diploma of higher education compared with only 35% of Prolific participants.. Both Prolific and f2f subjects had some previous experience of taking part in experiments although this varied considerably from person to person. As expected, Prolific participants were on average much more experienced.

5.2. Experimental design

Participants completed the experiment using a purpose built web page built using oTree (Chen et al., 2016) and hosted by a cloud service platform. The experiment had five stages. In the first stage, participants received general instructions and consent was obtained. In the second stage, participants took part in a lottery game designed to measure risk aversion. The main

part of the experiment took place in stage three. It consisted of 26 rounds. In each round, participants were asked to choose between performing a real effort task for pay or accepting a lower fixed payment, called a benefit, and moving on to the next round. The exact conditions under which this choice took place differed between the treatment and control groups. The fourth stage measured participants' skill in completing the real effort task. The final stage collected demographic information and asked participants to rate their understanding of the instructions and incentives and the difficulty of the task. A complete transcript can be found in the Supplementary material.

Participants took on average 35–40 minutes to complete the experiment. Both f2f and Prolific participants rated instructions and incentives as clear and the task as moderately difficult.

The main stage of the experiment simulated the decision to work under different conditions. In a real-world labour market setting, the decision to work involves weighing up its advantages (e.g., pay) versus its disadvantages (e.g., time and effort). To replicate this setting as closely as possible, participants were asked to choose between completing a real-effort task in return for pay and receiving a lower benefit and moving on to the next round. The real-effort task was chosen to be relatively simple but tedious and boring. Participants were asked to transcribe short Latin paragraphs from Tertullian, an early Christian author. Participants were paid if they had three mistakes or fewer as measured by the Levensthein distance. If they had any more, they were paid nothing. This rule has been chosen so as to incentivize participants to try and transcribe correctly but at the same time not penalize them for small errors. Participants were aware of this rule and received feed-back about the number of mistakes they made at the end of each round.

The main stage had 26 rounds. The first two rounds were unpaid trial rounds where participants had the opportunity to practice completing the transcription task if they wished to do so. The remaining 24 rounds were paid. In each round, participants had to choose whether to work or receive a benefit. The pay associated with each option varied across treatments and rounds. In the control group, work was always available. In the two treatment groups, work was available with a probability of 50%. Participants chose whether to work or receive benefits before knowing whether work was available. If they chose to work and work was unavailable, they did not work but were also not paid anything, similar to a zero-hours contract. If they chose to receive the benefit, they were paid the benefit rate and moved on to the next round. The payments associated with each option-working or receiving a benefit- for each treatment group and round are shown in Table 1.

To better understand the effects of earnings versus uncertainty on the choice to work, two treatment groups were constructed. In the first treatment group, participants were paid a basic rate, the same as participants in the control group, but work was only available half of the time. If they always chose work over benefits, participants in the first treatment group could expect to earn half of what participants in the control group earned but also to work 50% less. Essentially, this is the zero-hours contract setting where lack of work (and pay) is only compensated by increased leisure time. In the second treatment group, participants were paid twice the basic pay rate of participants in the control group. If they always chose to work, they could expect to earn the same as participants in the control group but work only half as much. Clearly, participants in the second treatment group should be better off than participants in the control group when choosing work over benefits.

The benefit was always paid at a fixed rate (2/3 of the basic pay rate) but its availability varied throughout the experiment. In rounds 3 to 14, participants received the benefit only when they expressly chose the benefit option. They did not receive the benefit when they chose to work and work was unavailable. This set-up is intended to capture the time and administrative costs of applying for benefits. Typically, a zero-hours worker would be unable to access benefit income that would immediately compensate them for lost pay due to unavailability of work. In some situations, working individuals cannot access out of work benefits, making working and benefit receipt mutually exclusive.

The moderating role of the benefit system is investigated in the last 12 rounds. Participants in all treatments were randomly allocated to two benefit treatment groups, resulting in a 3 by 2 crossed treatment design. In the first benefit treatment group, participants received the benefit not only when expressly choosing this option but also when they chose work and work was unavailable. In this case, benefits were no longer an alternative to paid work but also an insurance mechanism that topped up incomes whenever work was not available. In the second benefit treatment, participants faced a 50% probability of being sanctioned, i.e., not receiving the benefit, if they chose to receive benefits two rounds in a row. If a participant chose to receive benefits in the previous round *and* chose again to receive benefits in the current round, the computer

Table 1. Pay structure.

Group	Round	Work		Benefit		
		Availability	Pay rate	Access	Rate	Sanctions
No uncertainty	3–14	Always available	£1.50	When choosing benefit	£1	No
Uncertainty-basic pay	3–14	50% chance	£1.50	When choosing benefit	£1	No
Uncertainty-double pay	3–14	50% chance	£3.00	When choosing benefit	£1	No
No uncertainty	15–26	Always available	£1.50	When choosing benefit	£1	Yes
				When choosing benefit	£1	No
Uncertainty-basic pay	15–26	50% chance	£1.50	When choosing benefit	£1	Yes
				When choosing benefit OR when work unavailable	£1	No
Uncertainty-double pay	15–26	50% chance	£3.00	When choosing benefit	£1	Yes
				When choosing benefit OR when work unavailable	£1	No

determined randomly with a 50% probability whether a sanction would be applied or not. No sanction was applicable if work was chosen in the previous round. Sanctions approximate a workfare based approach aiming to deter participants from opting for benefits.

While the labour task was relatively simple, individuals are still expected to vary widely in their ability to complete it. Typing skills may influence the extent to which a participant will choose to work or receive benefits. Stage four collected a measure of participant productivity. Participants were presented with a challenge: they had 5 minutes to transcribe as many texts as possible. For each correctly transcribed text they received £1.50, and they could not move on to the next round until the 5 minutes elapsed. On average, participants correctly transcribed three to four texts. However, some participants were considerably more skilled. The maximum number of correctly transcribed texts was nine.

The final section of the experiment collected demographic information: sex, age, highest qualification (6 categories), number of children under 5 in care (0/1/2/3+), currently in paid work (yes/no), ever received means-tested out of work benefits (yes/no).

6. Results

6.1. The impact of uncertainty about work availability on the decision to work

If uncertainty about work availability is avoided by workers, we would expect to see participants choose to work less often in the two treatment groups compared to the control group. In fact, this is what we observe. Figure 1 shows the average number of work choices in the first 12 paid rounds (when benefits and work were mutually exclusive) by treatment group. Participants in the "uncertainty-basic pay" group choose to work on average in 4.8 rounds compared to 6.8 in the "no uncertainty" group. The nonparametric Mann Whitney test indicates that this difference is significant at the 1% level (z = 2.90). In the 'uncertainty-double pay' group, the number of rounds worked was similar to the "no uncertainty" group despite the pay rate being twice as high (z = 0.31).

Figure 2 shows the evolution of the decision to work over time. It plots the proportion of participants who chose work by treatment group and round. All three groups experienced a decline in the proportion choosing work possibly due to fatigue or boredom. However, the decline is much steeper in the two "uncertainty" groups. In the "uncertainty basic pay" group, the proportion choosing work is lower already in the first round (55% versus 64% in the no uncertainty group). It then declines precipitously reaching 31% in round 14. In the `uncertainty-double pay' group, the proportion choosing work is initially higher than in the "no uncertainty group", possibly reflecting the higher pay rate this group received. However, the decline is just as strong as in the "uncertainty-basic pay" group so in round 14, the proportion choosing work is lower than in the "no uncertainty" group (45% vs. 53%).

To formally test hypotheses 1,2a,and 2b, the probability to choose work was modelled using a logistic regression, controlling for round number, participant's productivity measured as the number of correctly transcribed texts in the productivity stage, session (4 Prolific sessions plus one face to face), participant ratings on the difficulty of the task, clarity of instructions and clarity of incentives, and demographic characteristics: gender, age, the number of children under five, current work status, and welfare receipt. To capture time variation in treatment effects, appropriate interactions were included. A full list of estimated coefficients can be found in Table A in the Supplementary material.

Figure 3 shows the predicted probability to choose work over benefits derived from the logistic regression model. Results largely mirror the descriptive patterns shown in Figure 2. Both "uncertainty" groups show a steeper decline

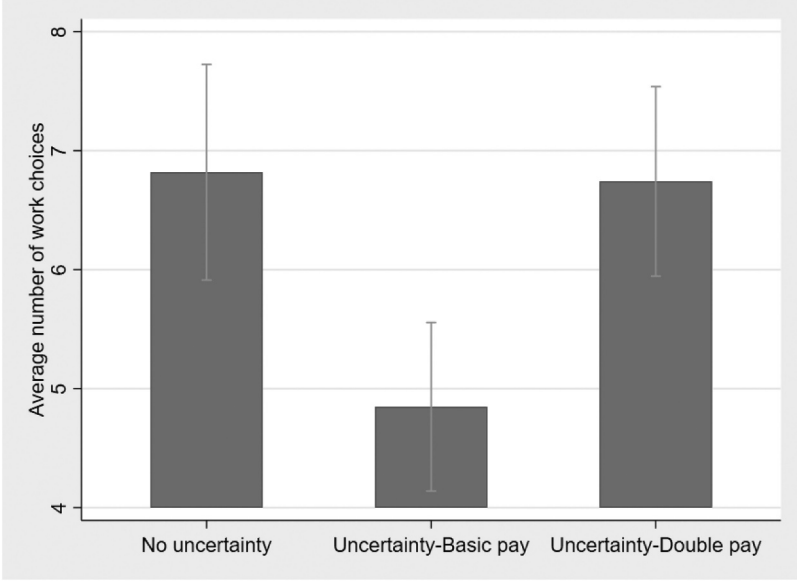

Figure 1. Average number of work choices in the first stage, by treatment group. Source: Experimental data

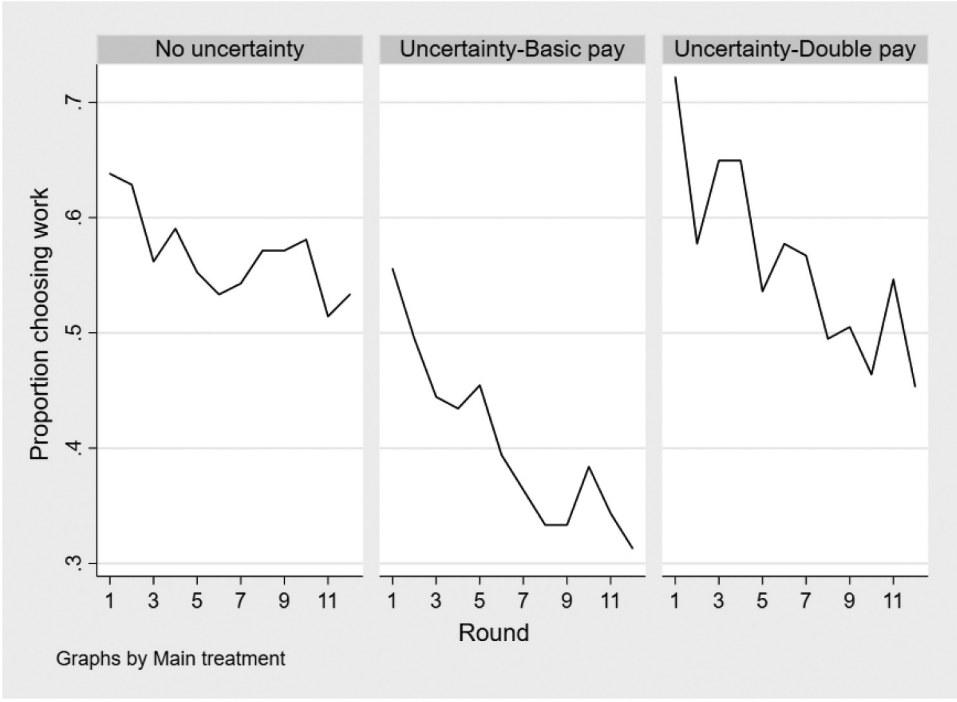

Figure 2. Proportion choosing to work in the first stage, by round and treatment group. Source: Experimental data

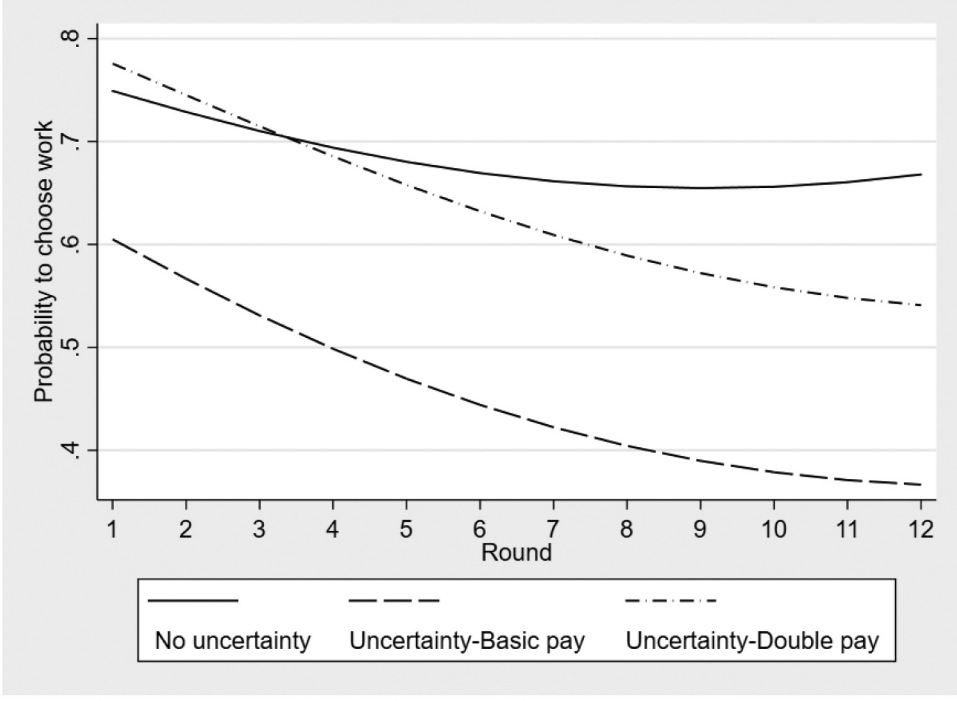

Figure 3. Probability to choose work by round and treatment group. Source: Experimental data

of the probability to choose work over time compared to the "no uncertainty group". Interestingly, the steepness of the curve is almost identical despite the differences in the pay rate.

Average marginal effects by round together with associated confidence intervals are shown in Figure 4. Participants in the "uncertainty-basic pay group" clearly are less likely to choose work than participants in the control group in every round. Moreover, the difference between the two groups is increasing over time. In the case of the 'uncertainty-double pay' group, there is initially no difference in the probability to choose work compared to the "no uncertainty" group. However, the difference is widening in later rounds to the point that in the last four rounds, participants in the

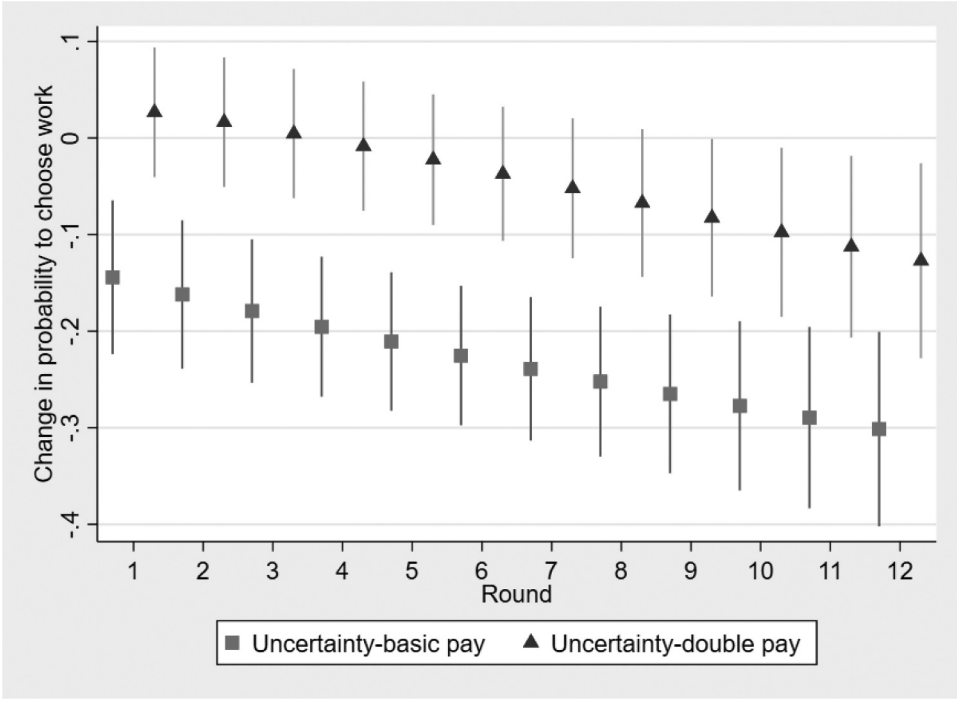

Figure 4. Average marginal effects of treatment group. Source: Experimental data

"uncertainty-double pay group" are significantly less likely to choose work than those in the "no uncertainty" group despite receiving a much higher pay rate.

Hypotheses 1 is supported. Participants in the "uncertainty-basic pay" were significantly less likely to choose work compared to the "no uncertainty group", and this difference increased over time.

Hypothesis 2b is supported whereas Hypothesis 2a is rejected. In the later rounds, participants in the "uncertainty-double pay" group were significantly less likely to choose work over benefits compared to participants in the "no uncertainty" group despite having similar expected pay-outs. This result suggests uncertainty affects behaviour directly, not only through lowering expected pay-outs.

6.2. Insurance through benefits or sanctions?

In the second half of the experiment, the conditions under which benefits could be accessed were changed. Participants were randomly assigned to two possible benefit treatments (uncertainty about work availability was kept the same, i.e., participants always remained in the same work-related treatment group). In the first benefit treatment, participants automatically received the benefit whenever work was not available in addition to receiving it when the benefit option was expressly chosen. In this situation, benefits effectively insure against the unavailability of work in any particular round. In the second benefit treatment, participants faced a possible sanction if they chose to receive benefits two rounds in a row. Sanctions were imposed randomly with a probability of 50% and consisted of the benefit not being paid. Participants were aware of all the rules governing access to benefits before making their choices.

Both benefit treatments are designed to make the work option more attractive, either through the use of a carrot (extra availability of benefits) or a stick (benefit sanctions). This part of the experiment had two objectives: measuring the extent to which these sticks and carrots modified participant behaviour and increased labour supply and establishing whether one option was more effective than the other.

Figure 5 shows the proportion of individuals choosing work in rounds 16 to 26 by work treatment group and combining the responses of participants in different benefit treatment groups. While the proportion of work choices declines, just as in the first half of the experiment, the decline is less steep particularly in the second work treatment group. To understand which benefit treatment is driving these results, Figure 6 plots the share of individuals choosing work by benefit treatment as well as results from the first stage focusing on the two groups where work was uncertain. The proportion of individuals choosing work increases under both benefit treatments. Moreover, there appears to be no significant difference between the two benefit treatments.

In the next step, the impact of the benefit treatment on the work choice probability by work treatment and round was estimated using a logistic regression and including the same control variables as in the previous subsection (a complete set of results is available in Table B in the Supplementary material). Figure 7 displays average predicted probabilities to choose work by work treatment and benefit treatment in the first and second stages. The average predicted probability to choose work increased by between 11 and 15 percentage

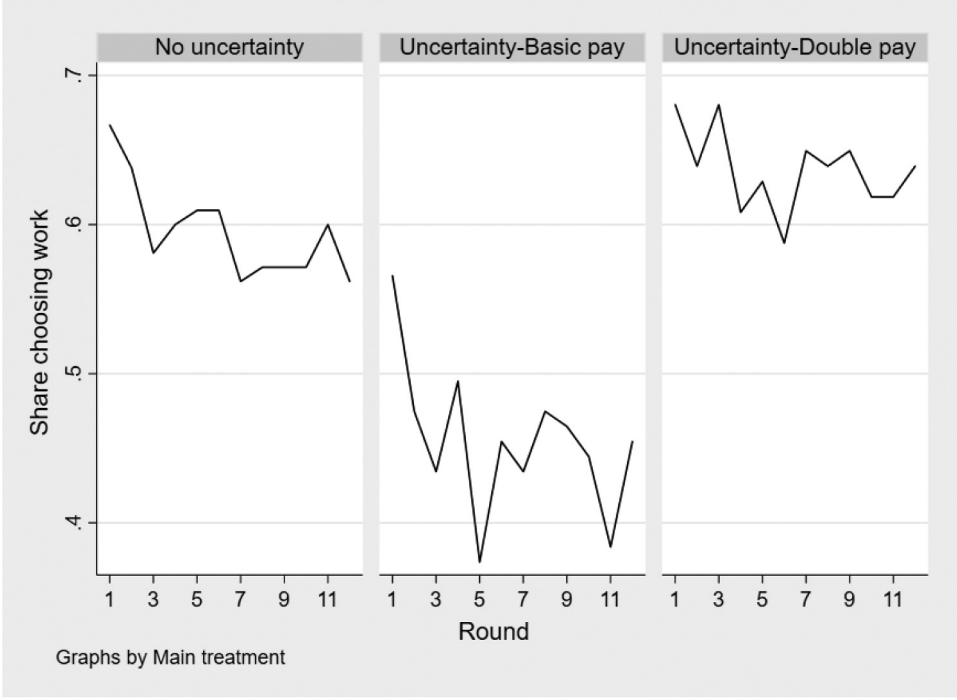

Figure 5. Proportion choosing to work in the second stage, by round and treatment. Source: Experimental data

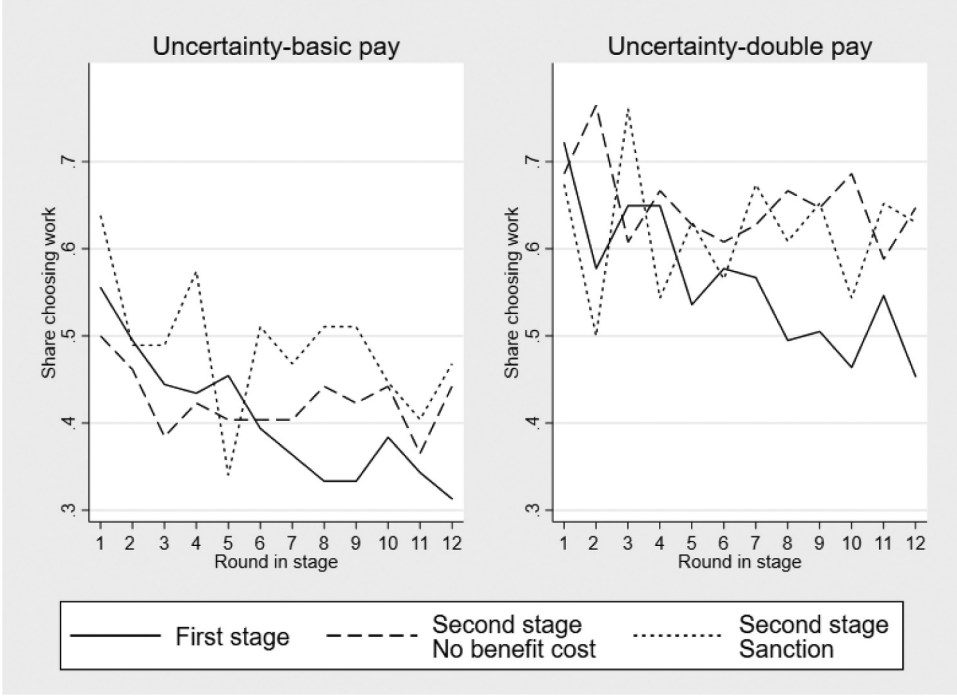

Figure 6. Proportion choosing to work by benefit treatment. Source: Experimental data

points both under the insurance and sanctions regimes. This increase is of a comparable magnitude to the negative effect induced by uncertainty about work availability in the first stage (note however that uncertainty continues to depress willingness to work under both benefit treatments). Regression results confirm the differences between the two benefit treatment groups are negligible.

Finally, Figure 8 displays the same predicted probabilities to choose work, allowing the effects to differ by round (a complete list of estimated coefficients can be found in Table C in the Supplementary material). It shows that in the case of the two groups who faced uncertain work availability, both benefit treatments worked by limiting the decline in the proportion working. The lines

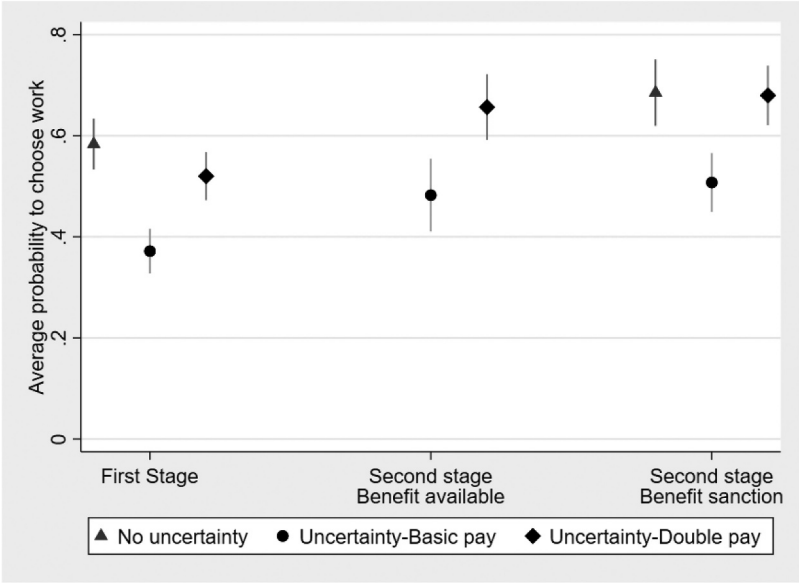

Figure 7. Average probability to choose to work by treatment groups. Source: Experimental data

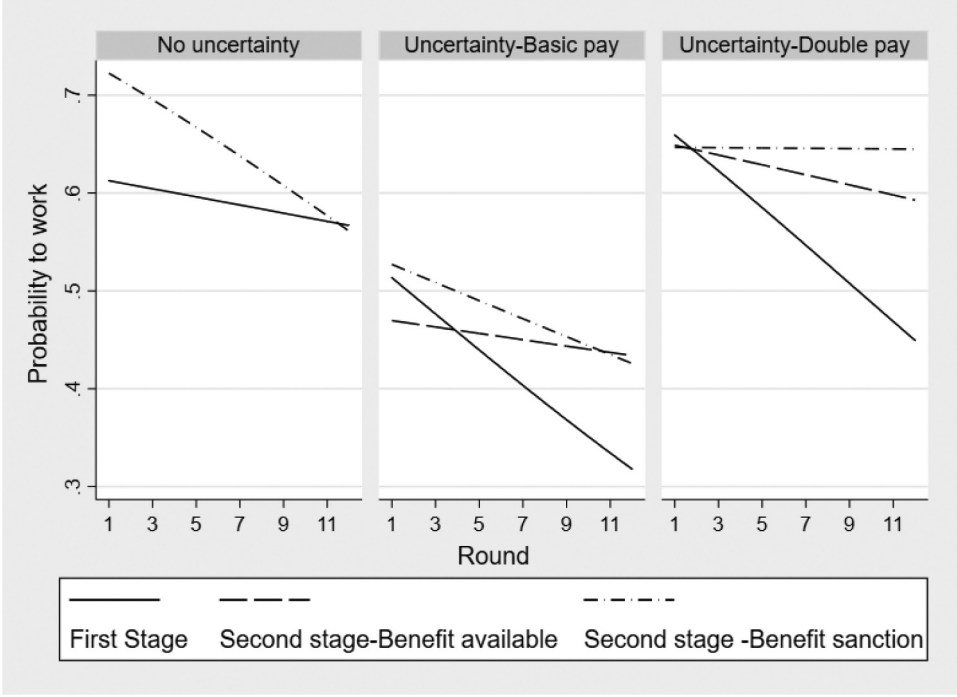

Figure 8. Average probability to choose to work by treatment group and round. Source: Experimental data

corresponding to the two benefit treatments are much flatter compared to the line corresponding to the first stage. Thus, the effect of the benefit treatments was especially large in the later rounds.

Hypothesis 3 and Hypothesis 4 are both supported. Participants in both "uncertainty" groups were significantly more likely to choose to work when either benefits were automatically paid when work was unavailable, or access to benefits was limited via sanctions.

7. Discussion

Expected utility and expectancy valence predict that work uncertainty will depress labour supply by reducing expected pay-outs. Experimental results confirm these predictions. Participants who faced a 50% probability of work not being available were between 15 and 30 percentage points less likely to choose work compared to participants who faced no uncertainty, when the pay rate was identical.

What is less clear is whether this difference can be entirely explained by the lower expected pay outs generated by uncertainty. Whenever work was unavailable, participants who chose work lost the benefit payment. On average, they were expected to earn half as much as the "no uncertainty" group if they always chose work. In fact, they earned around 80% of the "no uncertainty" group's earnings by choosing the benefit option more often.

Conservation of resources suggests that uncertainty might impact behaviour directly, not only though lowering expected pay-outs. Evidence on this issue is provided by the behaviour of the "uncertainty-double pay" group who faced a pay rate that was twice as high as that of the "no uncertainty" group, and hence a similar expected pay-out.

Participants in this group were initially similarly likely to choose to work as participants in the "no uncertainty" group. However, their behaviour changed over time. As they gained more experience, they were less likely to choose work and in the final rounds they were significantly less likely to choose work compared to the "no uncertainty" group. This result suggests that uncertainty impacts behaviour directly, not only through expected pay-outs.

The conclusion that uncertainty itself is driving lower labour supply is also supported by results from the second stage of the experiment. Participants who faced work uncertainty chose work less often compared to the "no uncertainty" group even when they received the benefit in case work was unavailable. On average, they chose work 42% of the time compared to 60% in the "no uncertainty" group. Taken together, these results suggest that workers seek to avoid work uncertainty not just to maximize their payments but also because they dislike uncertainty itself.

The negative effects on labour supply would appear to contradict findings from the pay for performance literature that usually finds that pay for performance policies can increase effort (Bandiera et al., 2007; Lazear, 2000; Rynes et al., 2005). However, this result is contingent on the strength of the link between individual effort and outcomes. For example, performance incentives are less effective when tasks are complex or when outcomes depend on teamwork (Bandiera et al., 2013; Garbers & Konradt, 2014). In our setting, workers did not control the availability of work, and thus our results do not extend to situations where work availability directly depends on previous effort.

The second half of the experiment tested two alternative benefit policies. The first made the benefit automatically available whenever participants chose to work but work was unavailable. This option both increased the total expected pay associated with choosing work and reduced pay-out variability. By providing a payment during rounds when work was not available, the benefit payment effectively insured against lack of work and reduced uncertainty. As expected, the probability to choose to work increased significantly, especially in the later rounds.

The second benefit treatment introduced benefit sanctions with a 50% probability whenever participants chose the benefit option two rounds in a row. This reduced the expected pay-outs associated with choosing to receive the benefit. It also introduced some uncertainty regarding the availability of benefits, making the benefit option less attractive and increasing the probability to choose to work.

The first benefit treatment approximates a "flexicurity" regime where workers face work related instability but are shielded to some extent by the safety net. The second benefit treatment corresponds to a "workfare" regime where workers are encouraged to take up unstable or insecure work by having their access to out of work benefits limited. It is important to stress that in real-life sanctions are likely to have strong adverse consequences (financial hardship, family stress etc.) that are not captured by the experiment. Instead, what is captured is the behavioural incentives given by the threat of sanctions. As such, while the two options may have similar effects in an experimental setting, they are unlikely to be equivalent in a real-life setting.

8. Conclusions

This study set out to experimentally test the labour supply effects of work uncertainty. Results provide overwhelming support for the hypothesis that workers avoid work uncertainty.

It should be noted that the experimental environment likely downplays and limits any negative effects of work uncertainty for two reasons. First, the experiment was a one-time session of limited duration which likely minimized the chance of scheduling conflicts. In a real-world situation, workers in jobs with unpredictable hours can face substantial difficulties in planning for non-work related activities on an ongoing basis. Second, the uncertainty faced by participants was entirely random and computer generated. In the real world, employers and managers have some control over how to distribute existing work and use this discretionary power not only to match demand with labour costs but also to discipline workers and control them (Halpin, 2015). Scheduling conflicts and lack of control impose two additional costs on workers that are not captured by the experimental set-up used in this study.

The implication is that workers in jobs with no or few guaranteed hours are most likely hurt by the uncertainty and insecurity inherent in this type of employment arrangement. A higher pay rate whenever work is not guaranteed shields workers from some of the financial consequences of insecurity. In the experiment, participants in the 'uncertainty-double pay' group earned similar amounts as those in the "no uncertainty" group. However, a higher pay rate does not necessarily compensate workers for the costs of uncertainty itself, nor does it automatically enable them to avoid scheduling conflicts or to escape excessive managerial control.

The second finding of this study is that the safety net can be used to increase labour supply, either by shielding workers from some of the monetary losses they incur when work is unavailable or by threatening sanctions. Interestingly, in this case, the two alternatives had very similar effects. Further research is needed to verify this result. However, if confirmed, it would suggest that governments can achieve similar results to benefit sanctions by tweaking the design of benefits. Given the potential negative outcomes associated with sanctions (Dwyer, 2018), this is an important finding.

Notes

1. Zero-hours contracts are a type of contract where the employer is under no obligation to provide work for the worker and the worker Is not under an obligation to accept work made available by the employer.; they have been used primarily in the UK.
2. On – call contracts are a type of contract where workers are at the disposal of the employer but not actually working; Time spent on call is not counted as working time and may not be remunerated or may be remunerated at a lower rate.
3. "If and when" contracts are very similar to zero-hours contracts; employers are under no obligation to offer work and workers are under no obligation to accept work; they have been primarily used in Ireland.
4. False self-employment is a situation where someone is registered as self-employed but de facto works as an employee, under the authority and subordination of another company (the employer.
5. Individuals were eligible to participate if their annual family income was less than £20,000.

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References

Adams, A., & Prassl, J. (2018). *Zero-hours work in the United Kingdom conditions of work and employment series 101*. International Labour Organization.

Aletraris, L. (2010). How satisfied are they and why? A study of job satisfaction, job rewards, gender and temporay agency workers in Australia. *Human Relations*, *63*(8), 1129–1155. https://doi.org/10.1177/0018726709354131

Bandiera, O., Barankay, I., & Rasul, I. (2007). Incentives for managers and inequality among workers: Evidence from a firm-level experiment. *The Quarterly Journal of Economics*, *122*(2), 729–773. https://doi.org/10.1162/qjec.122.2.729

Bandiera, O., Barankay, I., & Rasul, I. (2013). Team incentives: Evidence from a firm level experiment. *Journal of the European Economic Association*, *11*(5), 1079–1114. https://doi.org/10.1111/jeea.12028

Barbieri, P., & Scherer, S. (2009). Labour market flexibilization and its consequences in Italy. *European Sociological Review*, *25*(6), 677–692. https://doi.org/10.1093/esr/jcp009

Ben-Ishai, L. (2015). *Volatile job schedules and access to public benefits*. Center for Law and Social Policy.

Bender, K., & Theodossiou, I. (2018). The unintended consequences of flexicurity: The health consequences of flexible employment. *The Review of Income and Wealth*, *64*(4), 777–799. https://doi.org/10.1111/roiw.12316

Burchell, B. (2011). A temporal comparison of the effects of unemployment and job insecurity on wellbeing. *Sociological Research Online*, *16*(1), 66–78. https://doi.org/10.5153/sro.2277

Burgand, S. A., Brand, J. E., & House, J. S. (2009). Perceived Job Insecurity and worker health in the United States. *Social Science & Medicine*, *69*(5), 777–785. https://doi.org/10.1016/j.socscimed.2009.06.029

Charness, G., & Kuhn, P. J. (2011). Lab labor: What can labor economists learn from the lab? In O. Ashenfelter & D. Card (Eds.), *Handbook of labor economics* (Vol. 4A, pp. 229–330). North Holland.

Chartered Institute of Personnel and Development. (2013). *Zero-hours contracts: Myth and reality*. The Chartered Institute for Personnel and Development. https://www.cipd.co.uk/knowledge/fundamentals/emp-law/terms-conditions/zero-hours-reality-report

Chen, D. L., Schonger, M., & Wickens, C. (2016). oTree - An open-source platform for laboratory, online, and field experiments. *Journal of Behavioral and Experimental Finance*, *9*, 88–97. https://doi.org/10.1016/j.jbef.2015.12.001

De Cuyper, N., & De Witte, H. (2006). The impact of job insecuriy and contract type on attitudes, well-being and behavioural reports: A psychological contract perspective. *Journal of Occupational and Organizational Psychology*, *79*(3), 395–409. https://doi.org/10.1348/096317905X53660

De Witte, H., & Näswall, K. (2003). 'Objective' vs. 'Subjective' job insecurity: Consequences of temporary work for job satisfaction and organizational commitment in four European countries. *Economic and Industrial Democracy*, *24*(2), 149–188. https://doi.org/10.1177/0143831X03024002002

Dwyer, P. J. (2018). Punitive and ineffective: Benefit sanctions within social security. *Journal of Social Security Law*, *25*(3), 142–157.

Engellandt, A., & Riphahn, R. T. (2005). Temporary contracts and employee effort. *Labour Economics*, *12*(3), 281–299. https://doi.org/10.1016/j.labeco.2003.11.006

Falk, A., & Heckman, J. J. (2009). Laboratory experiments are a major source of knowledge in social science. *Science*, *326*(5962), 535–538. https://doi.org/10.1126/science.1168244

Farina, E., Green, C. P., & McVicar, D. (2019). Zero hours contracts and their growth. *British Journal of Industrial Relations 58*(3), 507–531. 28 Nov 2019. https://doi.org/10.1111/bjir.12512

Ferris, K. R. (1978). Perceived environmental uncertainty as a mediator of expectancy theory predictions: Some preliminary findings. *Decision Sciences*, *9*(3), 379–390. https://doi.org/10.1111/j.1540-5915.1978.tb00727.x

Flodén, M. (2006). Labour supply and saving under uncertainty. *The Economic Journal*, *116*(513), 721–737. https://doi.org/10.1111/j.1468-0297.2006.01108.x

Garbers, Y., & Konradt, U. (2014). The effect of financial incentives on performance: A quantitative review of individual and team-based financial incentives. *Journal of Occupational and Organizational Psychology 87*(1), 102–137. https://doi.org/10.1111/joop.12039

Gash, V. (2008). Bridge or trap? Temporary workers' transition to unemployment and to the standard employment contract. *European Sociological Review*, *24*(5), 651–668. https://doi.org/10.1093/esr/jcn027

Green, C. P., & Leeves, G. D. (2013). Job security, financial security and worker well-being: New evidence on the effects of flexible employment. *Scottish Journal of Political Economy*, *60*(2), 121–138. https://doi.org/10.1111/sjpe.12005

Guest, D. E., Oakley, P., Clinton, M., & Budjanovcanin, A. (2006). Free of precarious? A comparison of the attitudes of workers in flexible and traditional employment contracts. *Human Resource Management Review*, *16*(2), 107–124. https://doi.org/10.1016/j.hrmr.2006.03.005

Halpin, B. W. (2015). Subject to change without notice: Mock schedules and flexible employment in the United States. *Social Problems*, *62*(3), 419–438. https://doi.org/10.1093/socpro/spv008

Henly, J. R., & Lambert, S. J. (2014). Unpredictable work timing in retail jobs: Implications for employee work-life conflict. *Industrial & Labor Relations Review*, *67*(3), 986–1016. https://doi.org/10.1177/0019793914537458

Henly, J. R., Schaefer, L., & Waxman, E. (2006). Nonstandard work schedules: employer- and employee-driven flexibility in retail jobs. *Social Service Review*, *80*(4), 609–634. https://doi.org/10.1086/508478

Hobfoll, S. E., Halbesleben, J., Neveu, J.-P., & Westman, M. (2018). Conservation of resources in the organizational context: The reality of resources and their consequences. *Annual Review of Organizational Psychology and Behavior*, *5*(1), 103–128. https://doi.org/10.1146/annurev-orgpsych-032117-104640

Hobfoll, S. E. (1989). Conservation of resources: A new attempt at conceptualizing stress. *American Psychologist*, *44*(3), 513–524. https://doi.org/10.1037/0003-066X.44.3.513

Hobfoll, S. E. (2010). Conservation of resources theory: Its implications for stress, health, and resilience. In S. Folkman (Ed.), *The Oxford handbook of stress, health and coping* (pp. 128–146). Oxford University Press.

Jahn, E. J., Riphahn, R. T., & Schnabel, C. (2012). Flexible forms of employment: Boon and bane. *The Economic Journal*, *122*(562), F115–F124. https://doi.org/10.1111/j.1468-0297.2012.02532.x

Kalleberg, A. L., & Vallas, S. P. (2018). Probing precarious work: theory, research and politics. *Research in the Sociology of Work*, *31*, 1–30. https://doi.org/10.1108/S0277-283320170000031017

Kalleberg, A. L. (2011). *Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s-2000s*. The Russel Sage Foundation.

Kanfer, R. (2012). Work motivation: Theory, practice, and future directions. In S. W. J. Kozlowski (Ed.), *The Oxford handbook of organizational psychology* (Vol. 1, pp. 455–495). Oxford University Press. https://psycnet.apa.org/record/2012-14033-014

König, C. J., Debus, M. E., Häusler, S., Lendenmann, N., & Kleinmann, M. (2010). Examining occupational self-efficacy, work locus of control and communication as moderators of the job insecurity-job performance relationship. *Economic and Industrial Democracy*, *31*(2), 231–247. https://doi.org/10.1177/0143831X09358629

Koumenta, M., & Williams, M. (2019). An anatomy of zero-hour contracts in the UK. *Industrial Relations*, *50*(1), 20–40. https://doi.org/10.1111/irj.12233

Lambert, S. J. (2008). Passing the buck: Labor flexibility practices that transfer risk onto hourly workers. *Human Relations*, *61*(9), 1203–1227. https://doi.org/10.1177/0018726708094910

Lazear, E. P. (2000). Performance pay and productivity. *American Economic Review*, *90*(5), 1346–1361. https://doi.org/10.1257/aer.90.5.1346

Milburn, T. W., & Billings, R. S. (1976). Decision-making perspectives from psychology. dealing with risk and uncertainty. *American Behavioral Scientist*, *20*(1), 111–126. https://doi.org/10.1177/000276427602000107

O'Sullivan, M., Turner, T., Lavelle, J., McMahon, J., Murphy, C., Ryan, L., … O'Brien, M. (2020). The role of the state in shaping zero hours work in an atyical liberal market economy. *Economic and Industrial Democracy*, *41*(3), 652–671. https://doi.org/10.1177/0143831X17735181

Parker, S. C., Belghitar, Y., & Barmby, T. (2005). Wage uncertainty and the labour supply of self-employed workers. *The Economic Journal*, *115*(502), C190–C207. https://doi.org/10.1111/j.0013-0133.2005.00987.x

Parker, S. K., Griffin, M. A., Sprigg, C. A., & Wall, T. D. (2002). Effect of temporary contracts on perceived work characteristics and job strain: A longitudinal study. *Personnel Psychology*, *55*(3), 689–719. https://doi.org/10.1111/j.1744-6570.2002.tb00126.x

Pennycook, M., Cory, G., & Alakeson, V. (2013). A matter of time. The rise of zero-hours contracts: The resolution foundation.

Podsakoff, P. M., & Podsakoff, N. P. (2019). Experimental designs in management and leadership research: Strenghts, limitations, and recommendations for improving publishability. *The Leadership Quarterly*, *30*(1), 11–33. https://doi.org/10.1016/j.leaqua.2018.11.002

Prosser, T. (2016). Dualization or liberalization? Investigating precarious work in eight European countries. *Work, Employment and Society*, *30*(6), 949–965. https://doi.org/10.1177/0950017015609036

Pyper, D., & McGuiness, F. (2018). Zero-hours contracts *commons briefing papers SN06553*. London: House of Commons Library

Ravalier, J. M., Fidalgo, A. R., Morton, R., & Russel, L. (2017). The influence of zero-hours contracts on care worker well-being. *Occupational Medicine*, *67*(5), 344–349. https://doi.org/10.1093/occmed/kqx043

Ravalier, J., Morton, R., Russell, L., & Rei Fidalgo, A. (2019). Zero-hour contracts and stress in UK domiciliary care workers. *Health and Social Care*, *27*(2), 348–355. https://doi.org/10.1111/hsc.12652

Rosatti, A. (2017). Decision making under uncertainty: Preferences, biases and choice. In J. Call, G. M. Burghardt, I. M. Pepperberg, C. T. Snowdon, and T. R. Zentall (Eds.), *APA handbook of comparative psychology* (pp. 329–357). American Psychological Association.

Rubery, J., Grimshaw, D., Keizer, A., & Johnson, M. (2018). Challenges and contradictions in the 'Normalising' of precarious work. *Work, Employment and Society*, *32*(3), 509–527. https://doi.org/10.1177/0950017017751790

Rynes, S. L., Gerhart, B., & Minette, K. A. (2004). The importance of pay in employee motivation: Discrepancies between what people say and what people do. *Human Resource Management*, *43*(4), 381–394. https://doi.org/10.1002/hrm.20031

Rynes, S. L., Gerhart, B., & Parks, L. (2005). Personnel psychology: Performance evaluation and pay for performance. *Annual Review of Psychology*, *56*, 571–600. https://doi.org/10.1146/annurev.psych.56.091103.070254

Schoemaker, P. J. H. (1982). The expected utility model: Its variants, purposes, evidence and limitations. *Journal of Economic Literature*, *20*(2), 529–563. http://www.jstor.org/stable/2724488

Shoss, M. K. (2017). Job Insecurity: An integrative review and agenda for future research. *Journal of Management*, *43*(6), 1911–1939. https://doi.org/10.1177/0149206317691574

Spreitzer, G. M., Cameron, L., & Garett, L. (2017). Alternative work arrangments: Two images of the new world of work. *Annual Review of Organizational Psychology and Organizational Behaviour*, *4*(1), 473–499. https://doi.org/10.1146/annurev-orgpsych-032516-113332

Staufenbiel, T., & König, C. J. (2010). A model for the effects of job insecurity on performance, turnover intention, and absenteeism. *Journal of Occupational and Organizational Psychology*, *83*(1), 101–117. https://doi.org/10.1348/096317908X401912

Sverke, M., Hellgren, J., & Näswall, K. (2002). No security: A meta-analysis and review of job insecurity and its consequences. *Journal of Occupational Health Psychology*, *7*(3), 242–264. https://doi.org/10.1037/1076-8998.7.3.242

Von Neumann, J., & Morgenstern, O. (1944). *Theory of games and economic behavior*. Princeton University Press.

Vroom, V. H. (1964). *Work and Motivation*. Wiley.

Wahba, M. A., & House, R. J. (1974). Expectancy theory in workand motivation: Some logical and methodological issues. *Human Relations*, *27*(2), 121–147. https://doi.org/10.1177/001872677402700202