

The impact of varying penalty values on compliance with unemployment payment requirements: An analysis using 2015/16 Australian National Data

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Abstract

Existing empirical research on unemployment payment schemes has demonstrated that financial penalties affect unemployment payment recipients' behaviour. However, limited empirical work exists on the effects of varying penalty values as well as compliance with requirements (as opposed to employment outcomes). In order to address this gap in the literature, this paper examines the extent to which higher-value penalties enhance unemployment payment recipients' compliance with requirements. It does this using a natural experiment under Australian administrative rules, whereby identical recipients can face penalties varying in value by 100 per cent. Those receiving larger penalties were found to be significantly more likely to comply with requirements compared to those receiving smaller penalties. However, contrary to expectations, no evidence was found supporting earlier evidence that women respond more strongly to penalties than men.

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1. Introduction

Notwithstanding the ubiquity of unemployment payment systems internationally, only a limited number of empirical studies have examined the effect of unemployment penalties on compliance with payment requirements, as opposed to employment outcomes. This represents a significant gap in the empirical literature.

A key reason that penalties exist is to encourage people to comply with their requirements, such as participation in active labour market programs or public employment services (Langenbucher 2015). While the end goal of payment requirements may be to increase employment, the extent to which policies designed to increase compliance with requirements are effective is important in its own right. For example, in Australia, over the 2017-18 financial year, approximately \$1.7 billion was spent by the Australian government on providing and monitoring the requirements with which jobseekers need to comply (Department of Jobs and Small Business 2019). This is over 10 per cent of the value paid on unemployment payments themselves (approximately \$15 billion was spent on payments which may require participants to meet requirements (Department of Social Services 2019)). If policies designed to incentivise compliance with requirements do not achieve their intended purposes, this raises significant questions about the optimum design of these policies and requirements themselves. Furthermore, a central reason for unemployment payment requirements in Australia and elsewhere has been to buttress public support for unemployment payments (Disney *et al.* 2010). Thus, empirically investigating the effects of incentives encouraging unemployed persons to meet their requirements is important to inform future policy development.

The present paper seeks to partially address this gap in the literature by empirically examining the extent to which higher value income support penalties motivate Australian jobseekers to comply with payment requirements. Optimal job search models, including welfare penalties (see, for instance, Van den Berg *et al.* 2004; Abbring *et al.* 2005 and Boone *et al.* 2007) predict that the presence of unemployment payment penalties for not sufficiently looking for work increase jobseekers' optimal level of job search intensity and speed their transition into employment. In an Australian context, where jobseekers can be penalised for not attending appointments with employment service providers, higher penalties should result in higher levels of attendance.

While theory would suggest that if jobseekers are aware of penalty arrangements, this should lead to their changing their behaviour before facing financial penalties, multiple studies find that jobseekers change their behaviour following application of a penalty (see, for example, Arni *et al.* 2012; Svarer 2011 and Bookmann *et al.* 2014). There is also evidence that this effect is greater for women than men (Abbring *et al.* 2005; Van der Klaauw and Van Ours 2013).

In the context of the Australian unemployment payment system, this suggests that higher-value penalties will result in higher future appointment attendance - and that a greater effect will be observed for women.

These expectations are examined using a propensity score matching approach, administrative data and a natural experiment. This natural experiment is created by administration procedural rules, whereby two identically behaving jobseekers can have a penalty – termed a Provider Appointment Report (PAR) – varying in value by 100 per cent based on factors outside of their control. These penalties apply for non-attendance at compulsory appointments with private employment service providers and are calculated as 10 per cent of the person’s payment rate multiplied by the number of days until jobseekers attend re-engagement appointment. As we shall see in section four, administrative arrangements mean that the penalty value is outside of the control of both jobseekers and providers. This arrangement has the effect of controlling for selection effect factors of who receives higher value payment penalties (such as those discussed in Van den Berg *et al.* 2004; Lalive *et al.* 2005 and Svarer 2011). This allows for unbiased estimates of the effect of changing penalty values on jobseekers’ behaviour.

The data used for this study includes information on jobseeker characteristics that determine eligibility for employment services and unit-level information on 1.1 million jobseekers’ attendance at 11.43 million appointments between 1 October 2015 and 30 September 2016.

The paper is divided into five main parts. Section two provides a synoptic review of the extant empirical literature. Section three offers a brief description of the Australian unemployment payments institutional environment by way of background. The empirical methodology employed in the paper is set out in section four. Section five presents the empirical findings of the analysis. The paper ends with some brief concluding remarks in section six on the significance of our empirical findings.

2. Empirical evidence

Existing empirical evidence has established a relationship between penalties and employment entry. For example, Abbring *et al.* (2005) examined Dutch social security data on sanctions during unemployment insurance spells beginning in 1992 and found sanctions significantly raised re-employment rates and that this effect was greater for women. Looking at all industries they found penalties increased the hazard of re-employment by 58 per cent for men and 67 per cent for women. However, they found that this effect differed by industry with re-employment hazards increased by 61 per cent for men in the metal and 36 per cent in the banking industry, compared to 98 and 85 per cent for women in those industries respectively. Abbring *et al.* (2005) also found reducing benefits appears less important than monitoring and threat of further more severe sanctions. In an additional study of Dutch benefit recipients, Van der Klaauw and Van Ours (2013) found that benefit sanctions increased the rate of exit from payment by 21 per cent for men and 47 per cent for women.

Similarly, a study by Arni *et al.* (2012) found Swiss jobseekers’ job finding rate and exit from benefits increases after the application of a sanction. However, they also established that warnings of a penalty (without application) increased the job finding and exit rate. This echoed the findings of an earlier Swiss study by Lalive *et al.* (2005).

While these studies and others show jobseekers respond to penalties, there is less evidence regarding the effects of changing penalty values. While Van den Berg *et al.* (2004) found that sanctions more than double the transition rate from unemployment (an increase of 140 per cent) they also found that this does not appear to vary much depending on penalty magnitude. They contend that any financial effect of increased penalty values could be dominated by non-financial considerations. However, they also stress that - unlike selection problems of whether a penalty is imposed - they are unable to control for selection of which penalty value is applied.

Some empirical research has shown stricter application of penalties can increase the rate jobseekers move into employment. Bookmann *et al.* (2014) found that German welfare agencies that applied penalties at a higher than average rate were found to result in significant increases in the likelihood of jobseekers finding work for all studied six months after a penalty, ranging between 24 and 58 percentage points. Conversely, Taulbut *et al.* (2018) found only a short-term effect on exit from payment to employment due to higher sanction rates.

It should be stressed that no existing studies were found that specifically examined the effect of varying penalty values on jobseekers' compliance with their requirements, such as attending interviews.

Questions in existing empirical research to be considered in the current study

A problem for empirical estimation that has been raised in existing evaluations of active labour market programs or incentives associated with unemployment benefits is selection effects (Card *et al.* 2010, Carling *et al.* 2001). Similarly, Abbring *et al.* (2005) and Griggs and Evans (2010) argue that sanction or penalty application is not random, and those who have been penalised may have other characteristics associated with higher penalty likelihood that may lead to jobseekers facing a penalty. Indeed, Wu *et al.* (2006) found those least able to succeed in the labour market are most likely to be sanctioned. Many studies have accounted for these effects by modelling the process of receiving a penalty, as well as the outcome (see, for example, Van den Berg *et al.* 2004).

A further concern for analysis identified in the empirical analysis of welfare penalties is differing administrative arrangements following penalties. This could be explicit, such as in the Dutch system where jobseekers are more closely monitored following the application of a penalty (Van den Berg *et al.* 2004 p. 213) or based on revised welfare agency expectations of previously penalised jobseekers. Several studies have shown increased monitoring of jobseekers can significantly affect their behaviour (for instance McVicar 2010; Borland and Tseng 2007 and Klepinger *et al.* 2002).

As we noted earlier, in this paper we employ a natural experiment whereby recipients of higher or lower penalties are otherwise treated identically – with Australian administrative arrangements surrounding a one-day or two-day PAR penalty identical. This should ensure these potential effects will not unduly influence our results.

3. Institutional arrangements

Australian payments for the unemployed are relatively unusual internationally in that non-time-limited support is provided at a flat rate, irrespective of previous work history. These payments are provided from general revenue to anybody meeting eligibility criteria and complying with other requirements. Recipients need not have previously worked and rates do not depend on previous earnings (Australian Government 2018). In addition, payments are not time limited. In contrast, most OECD countries primarily provide unemployment support through insurance schemes, with time-limited support dependent on contributions made into the scheme (OECD 2012).

To receive payment, Australian jobseekers must look for work and undertake certain activities (Department of Human Services 2018). Requirements vary according to individuals' particular circumstances, such as age, assessed work capacity, caring responsibilities and the employment service they are required to participate in (Australian Government 2018A). However, unlike most countries, these requirements are not set and enforced by public agencies, but instead by contracted employment services providers (within guidelines set by the national government). Australia is also the only OECD country where employment services are fully privatised (OECD 2012).

The vast majority (94 per cent) of Australian jobseekers are assisted through the program titled 'jobactive' (Australian National Audit Office 2017). The current study will examine these jobactive jobseekers. Under jobactive, providers' activities are regulated through contract, and they are generally responsible for helping jobseekers meet their requirements, look for work and become job ready. They do this by providing assistance with résumé writing, targeted training, support and interview preparation. Providers also work with local employers and refer jobseekers to particular labour market opportunities (Department of Employment 2016).

Providers of jobactive services are paid an administration fee for each jobseeker on their caseload with larger payments for those who find work or enter full-time education (and leave servicing). These payments are also generally higher for those with more barriers to work and longer unemployment duration and in regional areas (Australian Government 2015).

If job seekers do not meet their requirements, then their payment may be affected. In the present context, over the period covered by our data - 1 October 2015 to 30 September 2016 - where jobseekers did not attend compulsory appointments with their provider without a valid reason, providers could elect to recommend a penalty be applied. The penalty is referred to as a PAR and it is generally valued at 10 per cent or 20 per cent of jobseeker's fortnightly payment. PARs were introduced from July 2015 and ceased in most of Australia on 1 July 2018 (The Parliament of the Commonwealth of Australia 2018).

Use of PARs was unusual. This is because providers have a number of other options for re-engaging jobseekers who do not attend appointments. For instance, providers could suspend a jobseeker's payment (paused with back pay) until they re-engage, without recommending further penalty (Department of Jobs and Small Business 2017).

In terms of the penalty application process, when jobseekers do not attend appointments, their payment is temporarily suspended until contact is made with the jobseeker. The provider then determines if jobseekers have a valid reason for missing their appointment. Payment remains suspended until jobseekers attend a re-engagement appointment, at which point jobseekers are generally back-paid suspended payments. However, providers may elect to impose PAR penalty.

In order to apply a PAR, an appointment must be available within the next two business days or the suspension ends (and no penalty is applied) (Department of Jobs and Small Business 2017). Where a PAR is applied, if jobseekers attend a re-engagement appointment with the provider (a) the next business day, the penalty is 10 per cent of their fortnightly payment, and (b) two business days later, the penalty is 20 per cent of their payment. Jobseekers cannot choose when their appointment will be offered and providers must formally notify jobseekers several days in advance of regular appointments (Department of Jobs and Small Business 2017). This means that appointment availability the next business day is determined prior to jobseekers' non-compliance, and at the time of booking the re-engagement appointment neither jobseekers nor providers have control over re-engagement appointment availability (and therefore whether the jobseeker receives a one-day or two-day PAR).

These arrangements mean two jobseekers in the same circumstances behaving identically could have penalty values varying by a factor of 100 per cent based purely on factors outside their or their providers' control. This enables us to determine if there is an effect from higher penalty values on compliance with requirements and if that effect will be sustained.

If jobseekers do not attend a scheduled appointment within two business days (without a good reason), their penalty continues to increase until they actually attend a subsequently scheduled appointment. However, as the jobseeker has deliberately not attended the appointment that was available to them, their penalty value is within their control. Accordingly, PAR penalties of longer than two days are excluded from the current study.

It could be argued that because the difference in penalty for a one or two-day PAR is relatively small in absolute terms (a difference of \$54.60 for a single childless recipient aged over 21), there is minimal financial impact for individuals. However, for Australian unemployment payment recipients, this likely represents a significant sum. This is because eligibility criteria for payments include reductions based on personal, partner and (for those aged less than 22) parental income. In addition, payments also have waiting periods to ensure that jobseekers draw on their own resources before taxpayer-funded support (Australian Government 2018A). Furthermore, payment rates are deliberately set to act as a short-term safety net that is not an 'attractive or viable' alternative to paid work (Australian Government 2012 p. 26). Indeed, the maximum fortnightly rate of basic payment for a single, childless recipient aged over 21 as at March 2019 is \$555.70 (Department of Human Services 2019). This is less than 40 per cent of the national minimum wage, which is \$740.80 per week (Fair Work Ombudsman 2019). These arrangements contribute to Australia having the most highly targeted welfare system in the OECD in terms of assistance received by the poorest 20 per cent of the population relative to the richest 20 per cent (Whiteford 2010). In addition, these

arrangements mean that only around one third of those unemployed actually receive unemployment payments (Australian Bureau of Statistics 2014), despite the fact that all those willing to meet requirements and with financial resources below relevant thresholds may receive payment.

The eligibility criteria, payment rates, means testing and waiting periods have the combined effect that jobseekers receiving unemployment payments tend to have very limited other financial support available. This would likely affect the responsiveness of jobseekers to varying penalty levels. Further, as PAR recipients typically have been receiving these payments for a long period (median unemployment duration is 21 months), it is likely that any PAR penalty recipients have exhausted any other available means of financial support. This implies that any financial penalty affecting jobseekers receiving Australian unemployment payments is likely to have a strong financial impact.

4. Empirical strategy

As we have seen in section 3, under Australian Government administrative arrangements, if jobseekers have a PAR penalty applied the value of that penalty can vary by 100 per cent for reasons outside of the control of jobseekers or their providers. We use this administrative arrangement to test whether receiving a two-day PAR penalty rather than a one-day PAR penalty increases the likelihood of jobseekers complying with their requirement to attend appointments with their provider. We use Propensity Score Matching (PSM) to control for any systematic relation between jobseeker characteristics and whether they received a one or two-day PAR penalty.

Because both the one-day and two-day PAR groups have experienced a penalty - and are thus non-compliant in the same way and selected to receive the same type of penalty - this overcomes any selection bias based on who is selected to receive a penalty. Furthermore, since the same administrative processes occur, potential behavioural responses due to differences in post-penalty monitoring are unlikely to exist.

Data description

As part of prior efforts by the then Department of Jobs and Small Business, data was extracted from administrative systems. This data was employed in the current analysis and included unit-level data on 1.1 million jobseekers' attendance at 11.43 million jobactive appointments between 1 October 2015 and 30 September 2016. However, to compare the effect of varying penalty values, we examine only those jobseekers who faced a one or two-day PAR penalty. Jobseekers who did not face a penalty, or whose penalty value was within their control (i.e. greater than two days), were excluded. Over the period, jobseekers faced the application of a one or two-day PAR penalty over 11,000 times.

As mentioned, our outcome variable of interest was whether jobseekers complied with their requirement to attend compulsory appointments with their providers. This needed to be derived from data that providers are contractually required to record for each scheduled appointment on the day of the appointment (Australian Government 2015). Specifically, whether jobseekers:

- attended the appointment;
- did not attend, but had a valid reason;
- had no valid reason, but the provider is exercising discretion in not recommending a penalty; or
- did not attend and did not have a valid reason.

Beginning with every PAR and appointment in between 1 October 2015 and 30 September 2016, records were sorted by unique jobseeker and by date. For every PAR, the outcome for their next appointment not required to re-start their payment was derived (since payments are suspended until jobseekers attend a re-engagement appointment). This was recorded in binary terms: one if jobseekers attended their subsequent appointment or had a valid reason for not attending their appointment and zero if jobseekers did not attend without valid reason, regardless of whether providers decided to use discretion and not recommend a penalty apply. This is because jobseekers' behaviour is the key variable of interest, and if jobseekers had a valid reason for not attending, then they are not being non-compliant. Likewise, if jobseekers do not attend their appointment without a valid reason, they are being non-compliant, regardless of how the provider elects to deal with that non-compliance.

The data also includes information on jobseekers' characteristics such as the number of previous compliance events, months unemployed and demographic factors, including age, gender, and some vulnerabilities. Unfortunately, variables are only included in the data if they are used for assessing eligibility for payment, servicing or compliance decisions. For example, no data is included on whether a jobseeker has exited payment during the period, although this can be inferred from whether or not the jobseeker had a subsequent appointment scheduled. Although not statistically significant, those who receive a two-day PAR are less likely to have a subsequent appointment scheduled than those who received a one-day PAR (9.2 per cent of those who receive a two day PAR do not have a subsequent appointment scheduled, compared to 8.3 per cent of those who receive a one-day PAR). While the main question of interest in this study is the effect of penalties on compliance with behaviour for those who continue to receive unemployment payments, this is a potential source of bias in the analysis.

In addition to the length of the PAR, and the outcome variables, the following other variables were included:

- The count of jobseekers' non-compliance events as at the PAR application;
- The count of appointments as at the PAR application;
- The number of months the person has been unemployed as at the PAR application;
- If the person is in the Work for the Dole Phase and has Annual Activity Requirements (additional requirements that usually commence after one year on payment for six months at a time);
- The jobseeker's age;
- If jobseekers are recorded as a parent, and the age of their youngest child;
- If jobseekers are recorded as having a disability or illness resulting in an assessed partial work capacity of less than 30 hours per fortnight;
- If jobseekers are recorded as from a culturally or linguistically diverse (CALD) background;
- If jobseekers are recorded as having recorded previous criminal convictions;
- If jobseekers are male or female;
- If jobseekers are recorded as at risk of homelessness;
- If jobseekers are under the age of 22 (this results in a lower payment rate)

Jobseekers' characteristics are recorded as they are specified in administrative records at the time of the appointment that ends the penalty. The exception to this is the number of previous non-compliance events, which is recorded in the extract of the penalty record.

Variable balance

Balance in observable characteristics between those who faced a one-day PAR and those who faced a two-day PAR supports the proposition that neither providers nor jobseekers control what type of penalty they receive. For the non-categorical variables in our data, no significant relation between treatment assignment (whether the person received a one or two day PAR) was found prior to matching and t-tests found no significant differences in the means which are very similar, as can be seen in Table 1. Visual examination of the proportionate frequency for each non-categorical variable also shows very similar profiles, and Kolmogorov-Smirnov tests found no significant differences in the distribution.

Table 1: Means of non-categorical variables

| | <i>1-day PAR</i> | <i>2-day PAR</i> | <i>p value</i> |
|----------------------|------------------|------------------|----------------|
| Age | 28.51 | 28.66 | 0.38 |
| Breach sequence | 28.19 | 28.28 | 0.83 |
| Appointment sequence | 20.61 | 20.58 | 0.89 |
| Months unemployed | 32.82 | 33.39 | 0.38 |

Table 2 shows that the categorical variables were also well balanced between groups. A chi square test was used to assess any relation with the treatments, followed by Cramer V tests to examine the strength of any relationships (as described in McHugh 2013). Significant relationships were found only between the likelihood of facing either a one or a two-day PAR and whether a person is an ex-offender or is from a culturally and linguistically diverse background. However, for both, Cramer's V tests show this relationship is very weak (0.017 and 0.025 respectively). Additionally, variable balance was also assessed by logistic regression of assignment to the treatment group on other variables and compared via likelihood ratio test to logistic regression excluding other variables (as described in Hansen and Bowers 2008). The null hypothesis that the model is better without the inclusion of additional variables was not rejected, suggesting no significant relationship between variables and treatment assignment.

Table 2: Categorical variable balance

| | <i>1-day PAR</i> | <i>2-day PAR</i> | <i>p value</i> |
|--|------------------|------------------|----------------|
| Per cent parent | 1.6 | 1.4 | 0.47 |
| Per cent with an assessed partial capacity to work | 1.4 | 1.3 | 0.47 |
| Per cent assessed as at risk of homelessness | 19.0 | 18.5 | 0.48 |
| Per cent male | 65.5 | 66.0 | 0.54 |
| Per cent with Annual Activity Requirements | 45.2 | 46.5 | 0.14 |
| Per cent ex-offender | 32.0 | 30.4 | 0.05 |
| Per cent from culturally and linguistically diverse background | 11.5 | 13.2 | 0.00 |

On the basis of the argument that a one-day or two-day PAR is predominantly due to chance, and that there is some (mixed) evidence of no systemic relation between treatment assignment and covariates, an argument could be made that treatment efficacy could be compared through a straight comparison of attendance rates following a one or two-day PAR. This results in significant increases in attendance at the next appointment following a two-day PAR - 2.25 percentage points (average attendance at the next appointment was 60.32 per cent for those who received a one-day PAR and 62.57 per cent for those who received a two-day PAR). However, this is not our preferred method as assignment to treatment is not truly random and there may be a

relationship between treatment and some variables that could potentially be correlated with treatment, which would make this method invalid. For example, although neither providers nor jobseekers have control over appointment availability, an unscrupulous provider who wanted a more non-compliant jobseeker to face a larger penalty could lie and tell them no appointment was available the next day (so they faced a two-day PAR rather than a one-day PAR). While this is unlikely, it is theoretically possible. Additionally, as mentioned above a very weak relation was found between whether somebody received a one or two-day PAR and whether they were an ex-offender or from a culturally or linguistically diverse background.

PSM method

To account for any potential systematic relation between penalty value and jobseeker characteristics, a PSM approach using nearest neighbour matching was adopted for this study. Examples of the use of PSM in studying unemployment payments include Borland and Tseng (2007), Schnieder (2008) and Dengler (2019). For completeness, we present both average treatment effect (where each subject is matched with a subject with the opposite treatment with the closest propensity score) and the average treatment effect on the treated (where matches are only made for treated subjects)

As propensity scores only predict allocation to treatment, some scholars have argued that over-specification is not a problem (see, for instance, Filho *et al.* 2012). Indeed, inclusion of too many variables does not result in bias, although it does increase the variance (Caliendo and Kopening 2008). While there is a theoretical argument for only including variables which predict assignment to the treatment group (Austin 2011), in Monte Carlo simulations testing different PSM model specifications, Brookhart *et al.* (2006) found it preferable to include all variables related to either the treatment assignment or the outcome variable. They suggest this is because there may be statistically insignificant relations between treatment exposure and variables related to outcomes. Accordingly, in the present analysis this approach was adopted, with variables included if there is a theoretical reason to expect that there could be a relation to either treatment or outcome. Other than if the penalty was a one or two-day PAR, retained variables were:

- The count of jobseekers' previous non-compliance events as at the PAR application;
- The number of months the person has been unemployed as at the PAR application;
- The jobseeker's age;
- If the jobseeker has Annual Activity Requirements;
- If the person is recorded as an ex-offender;
- If the person is from a culturally and linguistically diverse background;
- If jobseekers are recorded as having a disability or illness resulting in an assessed partial work capacity of less than 30 hours per fortnight;
- If the person is male;
- If the person is a parent;
- If the person is aged under 22.

The majority of these variables were included due to potential relation to the outcome variable, compliance with the requirement to attend the next appointment. Previous non-compliance is included because jobseekers who have historically been non-compliant are more likely to continue to be so. Similarly, age is included as administrative income support data shows that younger jobseekers are more likely to be non-compliant (Department of Employment 2017).

Jobseekers' duration of unemployment may affect their willingness to comply with requirements as jobseekers would likely consider that there is less benefit of their attending appointments if they have been unemployed long term without appointments assisting their finding work. Additionally, unemployment duration would also be related to the strength of jobseekers' local labour market, which unfortunately is not a variable that we have available in our data.

Whether job seekers have a disability affecting their capacity to work, are parents, or have Annual Activity Requirements all affect the potential intensity of other requirements. Parents and those with a disability affecting their capacity to work generally have the same requirements as other jobseekers, however legislative criteria allow them to choose to instead 'fully meet' their requirements through undertaking 30 hours of paid work per fortnight (Australian Government 2018A). Annual Activity Requirements in contrast are additional requirements that jobseekers need to meet for six months each year – generally after 12 months unemployment (Australian Government (2019)). Additional requirements may affect jobseekers' willingness to attend appointments due to the cumulative difficulty of meeting requirements.

Similarly, whether jobseekers are aged under 22 is included as an additional variable because these jobseekers receive Youth Allowance which is lower than the Newstart Allowance older job seekers receive (Newstart was renamed JobSeeker payment from March 2020). Under the optimal job search models discussed in the introduction, a lower payment rate would be expected to affect their willingness to meet requirements such as appointment attendance.

The reason jobseekers' sex is included is because of the previous empirical findings of Abbring *et al.* (2005) and Van der Klaauw and Van Ours (2013) that women are more likely to move off payment following application of a penalty than men. This would be expected to imply that men are less likely to increase their compliance following a penalty relative to women.

Finally, variables related to whether a jobseeker was an ex-offender or from a culturally or linguistically diverse background were included due to the evidence of a weak relation to treatment assignment, discussed above. Potentially whether somebody is from a culturally or linguistically diverse background could delay their ability to attend an appointment in a small number of cases if they needed to arrange an interpreter. There is also possibility that these two variables could affect jobseekers' likelihood of finding employment, which may affect their likelihood of choosing to attend an appointment with their provider.

Assumptions

For PSM to be valid, two assumptions must hold: (a) conditional independence (or strongly ignorable treatment assignment (Rosenbaum 1984)) and (b) common support (or overlap) (Caliendo and Kopeinig 2008). Conditional independence refers to the assumption that all variables that affect both treatment assignment and outcome are observed and common support refers to the assumption that for any given value of the variables, a person could either be treated or not (Schnieder 2008).

Conditional independence

While variables are observed to control for many factors which could affect whether or not a person could attend an appointment one or two business days later, there remains a risk that other non-observed variables could affect whether a person would receive a one-day or two-day PAR, such as lack of transport availability or some other factor affecting jobseekers' ability to attend appointments. However, there is no reason to suspect that this might be the case due to the lack of control that jobseekers and providers have over appointment availability, and the proximity in time of appointments resulting in one or two-day PARs. For example, while we unfortunately do not have data on jobseekers' transport availability, this is unlikely to change from one business day to the next. Bus timetables would be expected to be the same, and jobseekers would be no more or less likely to have access to their own transport etc. Similarly, ideally, we would have data on the strength of the local labour market. However, this is unlikely to change in between appointments – or affect the likelihood of a one or two-day PAR.

Further, in the event that there is any unobserved characteristic of the jobseeker that makes them less likely to attend an appointment the next business day (and thus more likely to receive a two-day PAR), then this would also be expected to make the person less likely to attend a subsequent appointment. Any (unlikely) potential bias from unobserved characteristics would thus be expected to understate the effects of stronger penalties on future compliance.

Additionally, whenever a circumstance outside of an individual's control affects jobseekers' ability to attend a requirement, providers are required to record that the jobseeker had a valid reason -so jobseekers would face neither a one or two-day PAR (Department of Jobs and Small Business 2017). Circumstances such as lack of transport availability, caring responsibilities, illness etc. would all be considered as valid reasons for not attending appointments.

Common support

The common support condition requires that for a given set of variables there is not perfect predictability, and it is possible for the subject to either be in the treatment or control group (Caliendo and Kopeinig 2008). In the current analysis, the predicted propensity scores indicate that it is possible for all subjects to be in either the treatment or control group. Further, the estimated propensity score densities are very similar for both those experiencing a one-day PAR, or a two-day PAR.

Post-matching covariate balance

To ensure comparability of treatment and control groups, and that PSM models are appropriately specified, the balance of the covariates in the matched sample should be evaluated (Zhang *et al.* 2019). Covariate difference between the matched treatment and control groups is commonly assessed through examination of standardised difference (Austin 2009; Zhang *et al.* 2019). Negligible covariate difference is generally accepted as being indicated by an absolute standardised difference of less than 0.1 (Staffa and Zurakowski 2018; Austin 2009).

5. Results

Estimates of average treatment effect show jobseekers to be 2.4 percentage points more likely to attend their next appointment, significant at the 0.05 level. Estimates of the average treatment effect on the treated show jobseekers to be 3.6 percentage points more likely to attend their next appointment, also significant at the 0.05 level. However, for both estimations the confidence intervals are very large – as can be seen in Table 3. For reference, total average attendance at the next appointment is 61.2 per cent, 60.3 per cent for those who received a one-day PAR and 62.6 per cent for those who received a two-day PAR.

Table 3: PSM average treatment effect on compliance at next appointment

| | <i>Coefficient</i> | <i>Standard Error</i> | <i>p value</i> | <i>95% Confidence Interval</i> | |
|---|--------------------|-----------------------|----------------|--------------------------------|-------|
| Average Treatment Effect | 0.024 | 0.011 | 0.023 | 0.003 | 0.045 |
| Average Treatment Effect on the Treated | 0.036 | 0.012 | 0.003 | 0.012 | 0.060 |

n= 11,515 (6,606 one-day PARs, 4,809 two-day PARs)

Sequential analyses were also performed on male and female job seekers, however with no conventionally significant results – as shown in Table 4 and 5 respectively. Given the significant findings for the entire cohort, presumably this is due to the high variance of our matching models. Notwithstanding these issues, our results show no evidence for a stronger effect of higher value penalties on women than men.

Table 4: Male PSM average treatment effect on compliance at next appointment

| | <i>Coefficient</i> | <i>Standard Error</i> | <i>p value</i> | <i>95% Confidence Interval</i> | |
|---|--------------------|-----------------------|----------------|--------------------------------|-------|
| Average Treatment Effect | 0.014 | 0.013 | 0.299 | -0.012 | 0.040 |
| Average Treatment Effect on the Treated | 0.029 | 0.015 | 0.058 | -0.001 | 0.060 |

n= 7,576 (4,391 one-day PARs, 3,185 two-day PARs)

Table 5: Female PSM average treatment effect on compliance at next appointment

| | <i>Coefficient</i> | <i>Standard Error</i> | <i>p value</i> | <i>95% Confidence Interval</i> | |
|---|--------------------|-----------------------|----------------|--------------------------------|-------|
| Average Treatment Effect | 0.021 | 0.018 | 0.247 | -0.014 | 0.055 |
| Average Treatment Effect on the Treated | 0.012 | 0.020 | 0.557 | -0.028 | 0.052 |

n= 3,939 (2,315 one-day PARs, 1,624 two-day PARs)

However, a weakness of the PSM approach is that it provides average treatment effects, and not coefficients for each variable in the same way as regression would. As a result, while the high variances of our models may obscure any effect, if there is a truly stronger effect for women than men more generally, it is also possible that it may be hidden due to correlations between sex and other variables in our analysis. One relation often raised is that women are more likely to be primarily responsible for raising children. This is also true in our sample, although parents are quite unlikely to receive a PAR penalty (0.5 per cent of males in the sample are recorded as parents, compared to 3.5 per cent of females). Relations between sex and other variables in our sample are that women generally have fewer previous instances of non-compliance, and are less likely to be recorded as an ex-offender, from a culturally and linguistically diverse background, or having an assessed partial capacity to work. Similarly, although women are equally likely to receive a one or two-day PAR, they are less likely to receive a PAR in the first place. Women are responsible for only 34 per cent of our sample, despite accounting for half of unemployment payment recipients (Department of Social Services 2019a).

6. Conclusion

Our results support previous empirical work showing that penalties can change jobseekers' behaviour after application of penalties. However, our results do not support the empirical findings of Abbring *et al.* (2005), and Van der Klaauw and Van Ours (2013) that women are more likely to move off payment following application of a penalty than men. However, this is likely due to the high variances of our matching models, the relatively small sample size of women relative to men, and potentially selection effects on who receives a PAR in the first place.

Our results build on earlier empirical work in three ways by demonstrating:

1. that higher value penalties can result in higher levels of behavioural change than lower value penalties;
2. that penalties can motivate change in compliance behaviour, not just employment outcomes; and
3. that penalty values affect jobseekers' behaviour in the unique Australian income support and employment services system.

The prediction that higher value welfare penalties for non-attendance at compulsory provider appointments will result in higher future attendance is thus supported by the results.

While our findings demonstrate that changing penalty values influence Australian jobseekers' behaviour, it could be argued that these penalty values are too low to ensure 'adequate' compliance with requirements for this cohort. This is because a doubling in penalty value resulted in an estimated 2.4 or 3.6 percentage point increase in the likelihood of jobseekers attending appointments. This is from a low base of 60.3 per cent attendance following a one-day PAR – significantly below the 79 per cent compliance rate observed by all jobseekers in the 2016-17 financial year (Department of Employment 2017).

While PARs are likely significant penalties for jobseekers due to the low financial reserves available for Australian unemployment payment recipients, and the fact that a PAR represents either 10 or 20 per cent of these jobseekers' fortnightly income, PAR recipients are likely more resistant to behavioural change than regular jobseekers. This is because PAR penalties require recommendation by providers, and they are more likely to recommend these penalties for persistently non-compliant jobseekers, who would be expected to have more entrenched behavioural patterns. Other cohorts may respond more strongly to penalties of this value.

In conclusion, our results support the proposition that changes to penalty values can be an effective policy lever for increasing jobseekers' compliance with their requirements. While our results do not find evidence supporting earlier empirical work showing sex differences in penalty responses, an implication of these earlier findings is that to elicit a desired level of behaviour change through penalties it is important for policymakers to consider the demographics of those likely to be penalised.

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