

**Effects of activity test arrangements on exit from payments:
The 9 month Intensive Review**

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June 2003

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Executive Summary

1. This project examines the effect of the 9-month Intensive Review process on exit from payments for recipients of unemployment related allowances - Jobsearch Allowance (JSA), Newstart Allowance (NSA) and Youth Allowance (other) (YA(o)) - over the period from mid-1995 to mid-2000. The importance of the 9-month Review in the Australian activity test system, and international evidence on the sensitivity of the impact of reviews to the specific features of the Review, provide the motivation for this project.
2. Recipients of NSA and YA(o) are subject to a 9 month review. That review involves two stages. The first stage is a 'mail review' whereby payment recipients are required to complete and return forms (which are mailed to them a week in advance) when they reach the 38th week of payment receipt. In the second stage the objective of Centrelink is to select 40 per cent of payment recipients for an 'office review'. (A 12-month review process was introduced in 1991 as part of the creation of the JSA and NSA. The 12-month review was subsequently replaced by the 9-month review, a policy change made effective as of March 20, 1996.)
3. The main focus will be on new unemployment payment spells that begin between 1 January 1995 and 30 June 2000. Attention is restricted to payment recipients aged 18 to 49 years at the time their payment spell commences, whose payment type is Jobsearch Allowance (JSA), Newstart Allowance (NSA) and Youth Allowance (other) (YA(o)), and who are subject to the activity test. The other restriction is that the main activity type of a payment recipient at the time their spell commences should be 'job search'. Payment spells are divided between those where recipients would have been subject to a 9-month Review and a 12-month Review. Spells that begin after 27/6/1995 would have been subject to a 9-month Review. Spells that begin after 6/4/1995, and before 27/6/1995 would have been subject to a 12-month Review.
4. The 9-month Intensive Review process is an intervention directed at the job search activity of an unemployment payment recipient. The requirement in the 9-month Review to provide information on job search activity and the checks on that information that may occur constitute 'monitoring'. The provision of information about job search technique and about available programs in the Office Review constitutes 'counseling'. Both cancellation of payments due to monitoring, and the increase in job search intensity due to monitoring and counseling, should increase the rate of exit from unemployment payments. The first effect is direct; the second effect arises due to an expected increase in the rate of outflow from unemployment to employment due to an increase in the rate of matching between unemployed and job vacancies.
5. In this study we focus on the potential effect of the 9-month Review on exit from payments at around the time of the Review. The 'ideal' empirical approach to examine the effect of the 9-month review would be to make a comparison of the rate of exit from payments between a sample of 'treatment' group participants who had been required to complete the mail review and/or the office review, and a group of 'control' group participants who had not been required to undertake those dimensions of the 9-month review. Data limitations mean such an approach is not feasible.

Hence we need to apply alternative empirical approaches. One approach is to compare the rate of exit from unemployment payments at payment spell durations at or close to the duration at which the 9-month Review would occur (defined as 'Review dates'), with rates of exit at payment spell durations 'nearby' to the Review dates. The second approach exploits the change in March 1996 in the payment spell duration at which the Intensive Review occurs. With this approach the rate of exit from unemployment payments at payment spell durations at or close to the duration at which the 9-month Review would occur in the post-March 1996 period is compared with rates of exit at the same payment spell durations in the pre-March 1996 period (at which time there was not a 9-month Review); and a similar exercise is undertaken comparing rates of exit from payments at around payment spell duration at which the 12-month Review occurred in the pre-March 1996 period with rates of exit at the same payment spell durations in the post-March 1996 period (at which time there was not a 12-month Review).

6. There are problems with the empirical methodology that has been applied in this project. The first problem is identification of treatment effects. First, it is not the case that the timing of the 9-month Review for all unemployment payment recipients will occur at week 38. Second, from the available data we are not able to distinguish those unemployment payment recipients who are and are not referred for an office review, nor is there data on the timing of notification or occurrence of that review. The second problem is that unemployment payment recipients with spell durations 'nearby' to the Review dates do not constitute an ideal control group.

7. The findings from this study provide mixed results on the effect of the 9-month Review on exit from unemployment payments. Administrative data suggest that there is a fairly high incidence of cancellation of payments of around 5 to 7 per cent that is a direct result of the 9-month Review. However, the analysis of exit from unemployment payments undertaken in this study does not provide compelling evidence of a substantial or significant effect of the 9-month Review. Examining the time period where the Review occurs at 9 months, a significant increase in the rate of exit from payments at the Review dates is found for one empirical model; this finding exists for males but not for females. Importantly, the finding is not robust to alternative empirical specifications, or to disaggregation by time periods or by age groups. Interestingly, for the empirical specification where an effect is found, at the Review dates there is a significant increase in the rate of exit from payments, but then in the period immediately following there is a significant decrease in the rate of exit from payments. This raises the possibility that, while the 9-month Review is associated with a high rate of cancellation of payments, a significant fraction of those payment recipients would have exited payments in any case within the next months. The other empirical approach - a comparison between time periods where the Review did and did not occur at 9 months - suggests that the rate of exit from payments at spell durations around 9 months was actually lower in the period where the Review did take place at 9 months.

8. To properly answer the question of whether the 9-month Review has an effect on exit from payments will require a better empirical methodology than we have been able to apply in this study. A better empirical methodology would be a quasi-experimental matching analysis that compared exit from payments for unemployment payment recipients who did and did not receive the 9-month mail review at a

particular payment spell duration, and compared exit from payments for unemployment payment recipients who were and were not referred for an office review at a particular payment spell duration. To undertake the quasi-experimental analysis would require obtaining data from Centrelink records on the timing of the mail review for each payment recipient and whether a payment recipient was referred for an office review, and matching that data to LDS records. [A more ambitious project would be to undertake a random experiment in order to examine the effect of differences in timing (eg., 6 months compared to 9 months) of the Review, and to examine the effect of referral to an office review.]

1. Introduction

This project examines the effect of the 9-month Intensive Review process on exit from payments for recipients of unemployment related allowances - Jobsearch Allowance (JSA), Newstart Allowance (NSA) and Youth Allowance (other) (YA(o)) - over the period from mid-1995 to mid-2000.

Social Security legislation in Australia requires that (unless exempted) unemployment payment recipients must meet an 'activity test' – to be actively looking for work, or undertaking activities to improve their employment prospects, and be willing to accept offers of suitable employment (Social Security Act 1991, Section 601). One part of activity test arrangements is a range of types of 'reviews' undertaken by Centrelink. One type of review is the '10% review' whereby it is intended that over the course of each year Centrelink should interview 10 per cent of payment recipients who lodge 'Application for payment' (SU19) forms. A second type is the review processes that occur at the 12-week and 9 months durations of spells on unemployment-related payments. In the first stage payment recipients are required to complete review forms that are mailed to them when they reach 10 weeks and 38 weeks of continuous payment receipt. In the second stage Centrelink aims to personally interview 40 per cent of payment recipients who complete the mail review forms.

The importance of the 9-month Review in the Australian activity test system, and international evidence on the sensitivity of the impact of reviews to the specific features of the Review, provide the motivation for this project. The importance of the 9-month Review derives from the substantial resources that are expended on the Review, and that the Review may constitute the last significant intervention with unemployed persons during payment spells that exceed that 9 months duration. (There is of course a continuing requirement after 9 months for a payment recipient to submit a fortnightly payment form. On-going intervention – in the form of Mutual Obligation requirements – exists in more recent time periods for younger payment recipients.) International evidence suggests that interventions of the type of the 9-month Review can have positive effects on labour market outcomes for unemployed

persons – but that the impact is likely to vary depending on the time at which such a Review occurs, and with the intensity of intervention (see for example, Meyer, 1995, Martin, 1998, and Dolton and O’Neill, 2002).

The next section of the report provides an introduction to the main features of the 9-month Review process. Section 3 describes the data source, choice of sample of payment spells for this study, and descriptive information. Section 4 introduces the empirical methodology used in the study. The main findings are described in section 5. Conclusions and suggestions for future research are presented in section 6.

2. Intensive Review

Currently, recipients of NSA and YA(o) are subject to a 9 month review. That review involves two stages. The first stage is a ‘mail review’ whereby payment recipients are required to complete and return forms (which are mailed to them a week in advance) when they reach the 38th week of payment receipt. All recipients whose activity type is ‘job search’ or similar and who are not on ‘variable reporting’ are required to complete the mail review forms. The mail review form (SU19JNR) has a similar structure to the standard form (SU19) that payment recipients must complete each fortnight, but contains additional questions about ability and preparedness to work, and about job search activities of the recipient. In the second stage the objective of Centrelink is to select 40 per cent of payment recipients for an ‘office review’. That selection is made on the basis of an assessment of the payment recipient’s eligibility and entitlement undertaken using responses to questions on the mail review form.

Mail reviews and office reviews have always operated alongside each other. A 12-month review process was introduced in 1991 as part of the creation of the JSA and NSA. The 12-month review was subsequently replaced by the 9-month review, a policy change made effective as of March 20, 1996. (Some uncertainty exists, however, over the length of the transition process following this date, since notification of Department of Social Security (DSS) Regional offices does not appear to have occurred until March 26, 1996.)

The stated aims of the 9 month review are to ensure a payment recipient (Department of Family and Community Services, 2002a, section 6.2.1.10):

- Retains general eligibility for payments, covering aspects such as assets and income;
- Is aware of and is complying with the activity test; and
- Has any information they require.

Reviews are seen primarily as an important tool for fraud control, although it is also argued they improve the motivation of recipients in their job search activity and help them to more effectively search for work (Department of Family and Community Services, 2001a, p.5).

The responses to the mail review questions form the primary basis for selection of recipients for office review, with the following specific factors considered (Department of Family and Community Services, 2002a, section 6.2.1.10):

- Answers that indicate a restrictive job search, a failure of the activity test, uncertainty over activity test obligations, that indicate alternate forms of assistance may be appropriate, or that the customer is not using the services provided by Centrelink;
- A request for more social security information; and
- The recent completion of another type of review.

Other information that may be considered includes the activity test breach history of the payment recipient, results of previous Employer Contact Certificates (ECCs), and local knowledge (Centrelink, 1997). For certain categories of payment recipients – such as those re-issued with a Jobseeker Diary at the 12 week review – selection for an interview at 9 months is compulsory (Centrelink, 1996). The basic criteria for selecting payment recipients for office review have remained unchanged since 1996, however FaCS (2001a, p.5) believe that “...over more recent time a greater emphasis has been placed on selecting customers considered at risk...”.

The mail review form is usually issued in week 37 of a payment spell (for return at week 38). However, if the payment recipient has another activity type from a set of specified types (for example, Bereavement Payment, Mutual Obligation, or Intensive Assistance), the issue of the mail review form is delayed until the activity type

changes to job search. The latest date at which the 9 month review can occur is week 78, after which the review will not occur, even if the activity type subsequently switches to job search.

Payment recipients selected for office review are required to provide further information relating to eligibility and entitlement. Effective from 21 October 1997 until mid-2000, two forms were required to be completed - one part (SU460, focusing on entitlement review) must be completed by a payment recipient prior to the interview (issued on notification of required attendance at the office review), and the other part (SU14, focusing on activity test review) must be completed at the interview. (Prior to 21 October 1997 a single form with information on both entitlement and activity test was completed at the office review. Subsequent to mid-2000 computer-assisted interviewing has been used.)

The scope of office reviews has evolved over time. Prior to the shift from the Commonwealth Employment Service to Centrelink (on 1 July 1997) reviews were largely directed to assessing continuing payment eligibility and entitlement. After that time the scope of office reviews has been broader covering issues such as - updating of Jobseeker Classification Index; assessment of payment eligibility and entitlement; discussion of job search effort and techniques; and discussion of matters relating to Mutual Obligation, Job Search Training and Work for the Dole (Department of Family and Community Services, 2001a, p.5).

Failure to return the mail review form, or to attend an office review (without valid reason) will result in cancellation of payments. An assessment that a payment recipient is failing to meet activity test requirements may also result in cancellation of payments or an activity test breach penalty being applied. Employer Contact Certificates (ECCs), which require a payment recipient to have an employer, with whom a job application has been lodged, complete details regarding the application and the position, or a Jobseeker Diary, can also be issued at an office reviews (Centrelink, 1997).

3. Data and descriptive statistics

a. The database

The database for this study is the Department of Family and Community Services Longitudinal Administrative Data Set (LDS). More specifically, the LDS Unemployment Payment File, a 10 per cent random sample of unemployment payment recipients for the period from January 1995 to June 2001, is used. (The LDS Unemployment Payment File includes new unemployment-related payment spells that commence between January 1995 and June 2000, but includes information on those payment spells for the period from January 1995 to June 2001.) The LDS is created from administrative records of social security payment receipt in Australia. It includes information on the date on which any social security payment was made; type and amount of payment; assets, income, and demographic characteristics of payment recipients (for example, date of birth, country of birth, and family characteristics) (Department of Family and Community Services, 2002b). Payments are made at fortnightly intervals, and hence that is the periodicity of the database.

b. Sample choice

In this study the main focus will be on new unemployment payment spells that begin between 1 January 1995 and 30 June 2000. We restrict attention to payment recipients aged 18 to 49 years at the time their payment spell commences, and whose payment type is Jobsearch Allowance (JSA), Newstart Allowance (NSA) and Youth Allowance (other) (YA(o)) subject to the activity test. The other restriction is that the main activity type of a payment recipient at the time their spell commences should be 'job search'. (However, prior to June 1995 no data on activity type is available from the LDS – Hence for this period the sample includes all payment recipients.)

The basis for defining new spells is the Social Security Act 1991 Section 38B on 'Notional continuous period of receipt of income support payments'.¹ A new spell on JSA, NSA or YA(o) is defined to begin if a payment recipient has been off all social security payments for at least four consecutive fortnights where the duration of the most recent payment spell is less than or equal to 23 fortnights; or off all payments for at least seven consecutive fortnights where that payment spell duration is more than

23 fortnights. (Hence – on the basis of this definition – no new spell can be defined to commence in the first seven fortnights of the LDS sample period.)

Note that we define a payment recipient to be off all payments where no claim form for an unemployment payment is lodged and where the payment recipient does not appear in the LDS as an income-support payment recipient (treating Austudy and YA(educ) as off income support payments).² With this approach, a fortnight in which a payment recipient lodges a claim form (SU19 or SU19JNR) is treated as one in which the recipient is ‘on payments’ even if actual payments are zero. (A payment recipient may lodge a claim form for up to 6 consecutive fortnights before payment cancellation occurs.)

An important consideration is that our rule for determining new spells should be consistent with the approach used by FaCS. This is because it is the FaCS definition that is the basis for implementation of spell duration-determined requirements on payment recipients such as the 9 month Review. That is, the 9-month review occurs at the 9-month point in payment spell duration as determined by the Centrelink measure of payment spell duration. In fact, our definition requires a longer break in payments for a new spell to be deemed to occur than the FaCS definition. Data limitations mean that it is necessary to use a longer break in payments, to ensure that our sample is restricted to spells that would be classified as new spells under the FaCS definition.³ Having a stricter definition implies that the sample of payment spells included in this study should all satisfy the definition of a new payment spell as applied by FaCS, and hence that our dating of payment spell duration should be equivalent to the FaCS dating. (However, some payment spells classified as new spells by FaCS may not be included in the sample of payment spells in this study.)

Payment spells are divided between those where recipients would have been subject to a 9-month Review and a 12-month Review. Spells that begin after 27/6/1995 would have been subject to a 9-month Review. Spells that begin after 9/4/1995, and before 27/6/1995 would have been subject to a 12-month Review.

The outcome variable in the study is whether a payment recipient exits payments in a particular fortnight, given that their payment spell had lasted until the previous fortnight. Exit from payments is defined to occur where a JSA/NSA/YA(o) payment recipient has three consecutive fortnights off that payment. A payment recipient is defined to be ‘on unemployment payments’ in any fortnight in which they lodge a claim form (SU19), regardless of payment entitlement.

c. Descriptive information

Tables 1 and 2 present descriptive information on the sample of unemployment payment spells examined in this study. Table 1 shows that a relatively small number of about 16,000 spells can be examined for the time period in which Intensive Review occurred at 12 months, but for the period in which the Intensive Review occurs at 9 months over 285,000 spells exist. In each period about one-third of payment spells are on-going at 38 weeks which is the earliest date at which the 9-month Review could be initiated. Table 2 shows disaggregated information on the sample of payment spells. Males account for about two-thirds of all new spells, and payment spells are concentrated amongst those aged 18-24 years. The composition of payment spells does not seem to change significantly to the 38th week spell duration, except for by age where the share of young payment recipients declines and the share of recipients aged 35 to 49 years increases. Female unemployment payment recipients tend to be younger, and less likely to be married or to have dependent children, than males.

4. Methodology

a. Theory

The 9-month Intensive Review process is an intervention directed at the job search activity of an unemployment payment recipient. In search-theoretic models, the likelihood of an unemployed person ‘matching’ with a vacant job depends on that person’s ‘efficiency units’ of job search. Efficiency units of job search could be

increased by an unemployment payment recipient spending a longer amount of time on job search, or increasing the effectiveness of job search per unit of time spent searching (Pissarides, 2000, chapter 5). Together, these factors can be thought of as an increase in job search ‘intensity’.

The requirement in the 9-month Review to provide information on job search activity and the checks on that information that may occur constitute ‘monitoring’. The existence of monitoring would be expected to have a variety of potential effects on job search:

- a) Job search prior to 9-month review: Knowledge that monitoring will occur could increase search intensity by an unemployment payment recipient in the period prior to the 9-month Review. This might happen where an individual payment recipient’s optimal search intensity is less than the level mandated by the activity test (for example, Van den Berg and van der Klaauw, 2001). This would be expected to increase the rate of exit from payments in the period prior to the 9-month review.
- b) Payment cancellation and threat of payment cancellation: Where a payment recipient is monitored and found to not satisfy the activity test, that may result in cancellation of payments or imposition of a breach penalty. Where cancellation occurs this will directly cause a higher rate of exit from payments at the time of the 9-month review. Alternatively, the threat of cancellation may directly cause exit from payments. This could occur - first, where payment recipients anticipate that they will be assessed to have not satisfied the activity test requirements; or second, where a payment recipient has obtained a job but is waiting to start work and for whom the costs of completing the mail review form or attending the office review outweigh the benefit of continuing to receive payments prior to commencing work. Again, this would be expected to cause an increase in the rate of exit from payments at the time of the 9-month review.
- c) Costs of intensive review for payment recipient: Participation in the intensive review process could be a source of ‘disutility’ for a payment recipient. Although it seems unlikely, given that the costs of the intensive review process are fairly small, this could cause a payment recipient to exit from payments. If such an effect did occur, it would be at the time of the 9-month review.
- d) Breach effect: Where a payment recipient is monitored and found to not satisfy the activity test, and has a reduction in payments imposed, there is likely to be an increase

in search intensity in the following time period (for example, Lalive et al., 2002). This would increase the rate of exit from payments in the time period following the 9-month review.

The provision of information about job search technique and about available programs in the Office Review constitutes ‘counseling’. The purpose of the counselling is to enhance the effectiveness of job search activity. The expected effect would be to increase the rate of exit from payments in the period following the 9-month Review.

b. Methodology - basic ideas

The objective is to examine the effect of the 9-month Review on exit from unemployment payments. Theoretical analysis suggests that the potential effects of the Review are to: a) Increase the rate of exit from payments in the period prior to the Review for all payment recipients (job search effect); b) Increase the rate of exit from payments at the time of the Review for all payment recipients but most particularly for those required to attend an office review (cancellation and (perhaps) job search effect); and c) Increase the rate of exit from payments in the period immediately after the Review for all payment recipients (job search effect). In this study we focus on the second potential effect of the 9-month Review - on exit from payments at around the time of the Review.

The ‘ideal’ empirical approach to examine the effect of the 9-month review would be to make a comparison of the rate of exit from payments between a sample of ‘treatment’ group participants who had been required to complete the mail review and/or the office review, and a group of ‘control’ group participants who had not been required to undertake those dimensions of the 9-month review. There are two difficulties with implementing such an approach. First, the requirement to undertake the mail review is universal so it is not possible to define treatment and control groups. (Although payment recipients can potentially be required to complete the mail review at different spell durations, the LDS does not provide data on the fortnight at which individual payment recipients are required to complete the 9-month mail review.) Second, since the 9-month office review is applied to a subset of

payment recipients, in this case it would potentially be possible to define treatment and control groups. However, the LDS does not contain data that identifies which payment recipients were required to attend an office review, which payment recipients attended an office review, and the timing of those events in an individual's payment spell. (Even if this information was available, there is a further problem of non-random assignment to the Office Review.)

Hence we need to apply alternative empirical approaches to what might be considered the ideal quasi-experimental method. Two main empirical approaches are adopted. Both are motivated by the idea that effects of the Review should be most pronounced, or empirically most significant, at the date at which the Review occurs.

One approach is to compare the rate of exit from unemployment payments at payment spell durations at or close to the duration at which the 9-month Review would occur (defined as 'Review dates'), with rates of exit at payment spell durations 'nearby' to the Review dates. With this approach, the group of payment recipients whose spell duration reaches the point at which they would be 'exposed' to a mail review and (possibly) office review constitute the 'treatment' group, and payment recipients whose spell durations have not yet reached the point at which they are about to be exposed to Review, or are beyond the Review date, constitute the 'control' group. To the extent that there is a Review date effect, this should be manifested in a higher rate of exit than would be predicted, given the rates of exit at 'nearby' durations. For example, if the rate of exit is fairly constant at nearby durations, but much higher at the Review date, this could be taken as evidence that the Review has raised the rate of exit from payments.

The second approach exploits the change in March 1996 in the payment spell duration at which the Intensive Review occurs. With this approach the rate of exit from unemployment payments at payment spell durations at or close to the duration at which the 9-month Review would occur in the post-March 1996 period is compared with rates of exit at the same payment spell durations in the pre-March 1996 period (at which time there was not a 9-month Review); and a similar exercise is undertaken comparing rates of exit from payments at around the payment spell duration at which the 12-month Review occurred in the pre-March 1996 period with rates of exit at the

same payment spell durations in the post-March 1996 period (at which time there was not a 12-month Review). This is done controlling for factors that might have caused the rate of exit from payments at all payment spell durations to increase or decrease after the policy change. In this second approach the ‘treatment’ group can be thought of as payment recipients whose spell is close to the duration at which the Review occurs in the time period in which the Review does occur at that duration, and the ‘control’ group is payment recipients whose spell is at the same duration but in the time period in which the Review does not occur at that duration. A Review date effect should cause a higher rate of exit for payment recipients at the Review date in the time period where the Review exists at that date, relative to the rate of exit at the same spell duration where no Review is undertaken.

The empirical approaches used in this study are similar to a methodology that has been applied to examine the effect on the rate of exit from payments of time limits on receipt of unemployment payments. For example, Katz and Meyer (1990) examine exit rates from unemployment payments at different payment durations prior to the payment expiration duration. With this approach the treatment group is payment recipients whose spell duration is ‘close’ to the expiration duration, and the control group is payment recipients with spell durations immediately prior to those close to expiration. This is similar to the first empirical approach applied in this study. Katz and Meyer also compare exit rates from unemployment for payment recipients whose spell durations are close to payment expiration durations, with exit rates at the same spell durations for unemployed persons who are not receiving payments. In this case the treatment group is unemployment payment recipients, and the control group is unemployed who are not payment recipients. This is similar to the second empirical approach adopted in this study.

c. Hazard function

The empirical method used to evaluate and describe the effect of the 9-month Review on the rate of exit from unemployment payments is by estimation of hazard functions. A hazard function is a representation – at each payment spell duration - of the rate of exit from payments from the set of payment spells that reach that duration (see Kiefer, 1988).

i. Empirical hazard

A non-parametric or Kaplan-Meier estimator will be used to present descriptive information on the rate of exit from unemployment payments. The Kaplan-Meier estimator of the hazard rate at time t is:

$$(1) \quad \lambda(t) = h_t/n_t$$

where h_t and n_t are respectively the number of observed payment spells completed at time t and the number of payment spells that are ‘at risk’ of ending at time t (or on-going to the instant before time t). (In a discrete time model, the risk set is the number of spells that are on-going at time $t-1$ and that are not censored at that time.)

ii. Hazard rate modelling

The second stage of the empirical analysis is to estimate models of the hazard rate. This is done in order to be able to formally test for and quantify any effect of the 9-month Review on exit from payments, and to be able to control for other factors apart from the 9-month Review that might affect exit from payments. The basic estimation approach is the proportional hazard model (Cox, 1972) whereby the hazard rate is specified as a function of a ‘baseline’ hazard and of a set of other explanatory variables:

$$(2) \quad \lambda(t|x) = \theta(t) \cdot \phi(x) .$$

where $\theta(t)$ is the baseline hazard, and $\phi(x)$ represents the effect of other explanatory variables (x). The baseline hazard shows the rate of exit at each spell duration for a payment recipient with a specified ‘base’ set of characteristics. The effect of the other explanatory variables is then simply to shift the baseline hazard up or down. So for all payment recipients – the variation in the rate of exit by payment spell duration is the same.

Three specifications of the hazard model are used. We let h_{it} represent an indicator variable for whether the spell of payment recipient i is completed in the t^{th} fortnight.

$$(3a) \quad \log[h_{it}/(1-h_{it})] = \theta(t) + X_{it}'\beta \quad [\text{Logit}]$$

$$(3b) \quad h_{it} = \theta(t) + X_{it}'\beta \quad [\text{Linear}]$$

$$(3c) \quad \log[-\log/(1-h_{it})] = \theta(t) + X_{it}'\beta \quad [\text{Complementary log-log}]$$

Each of these approaches is estimated using two alternative specifications of the baseline hazard:

$$(4a) \quad \theta(t) = \delta \cdot t + \sum_{t=1}^7 \alpha_t I_t + \sum_{t=18}^{25} \alpha_t I_t$$

$$(4b) \quad \theta(t) = \delta \cdot \log(t) + \sum_{t=1}^7 \alpha_t I_t + \sum_{t=18}^{25} \alpha_t I_t$$

where I_t is an indicator variable for the i^{th} fortnight.

Specification (4a) includes a linear spell duration variable and dummy variables for fortnights 1 to 7 and fortnights 18 to 25. Specification (4b) includes the log of spell duration and dummy variables for fortnights 1 to 7 and fortnights 18 to 25. These specifications impose parametric forms on the baseline hazard and test whether there is a significant deviation from those functional forms for specified fortnights.

Dummy variables for fortnights 18 to 25 are intended to test for the effect of the 9-month Review. Dummy variables for fortnights 1 to 7 are included to capture the ‘inverse-U’ shape of the hazard function over those fortnights.

A range of other explanatory variables is included in the estimated hazard models:

- Gender;
- Quarter of year in which spell commenced (4 dummy variables);
- Age (7 categories: 18-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45+ years);
- Foreign-born dummies (3 categories: Australian-born, English-speaking background immigrant, and Non-English-speaking background immigrant);
- Marital status;

- Aboriginal or Torres Strait Islander identifier;
- Dependent children (Dummy variables for whether have dependent children; and whether have dependent children under 13 years of age)
- Home ownership status;
- ABS labour force region (aggregated into 35 categories); and
- Current month unemployment rate in ABS labour force statistical region.

d. Limitations

There are two main problems with the empirical methodology that has been applied in this project. One problem is with regard to identification of treatment effects, and the other is to do with the quality of the control group.

The first problem of identification of treatment effects involves two elements. First, it is not the case that the timing of the 9-month Review for all unemployment payment recipients will occur at week 38. In certain situations (such as where the payment recipient is undertaking Mutual Obligation or Intensive Assistance) the Review will be delayed until that activity is complete (up to a maximum limit of 78 weeks after which time the requirement for a Review lapses). Hence, especially in the period after introduction of Mutual Obligation and Intensive Assistance, there is some doubt about whether an effect of the occurrence of a mail review should be concentrated at 9 months payment spell duration. Second, from the available data we are not able to distinguish those unemployment payment recipients who are and are not referred for an office review; nor is there data on the timing of notification or occurrence of that review. Hence, even where the 9-month Review does occur at around week 38, we are only able to estimate an effect of the office review on the rate of exit from payments for all unemployment payment recipients, rather than for the subset who are actually referred for the office review.

The second problem is that unemployment payment recipients with spell durations 'nearby' to the Review dates do not constitute an ideal control group. With this choice of control group, in order to estimate an effect of treatment, it is necessary to make some assumption about the counter-factual – that is, what would happen to the

exit rate of payment recipients if their payment spell lasts until the Review dates, but in an environment where there is no Review. Our approach, described above, is to assume that the rate of exit from unemployment payments has a parametric form, and to examine whether the rate of exit from payments departs from that parametric form at the Review dates. The parametric form of the baseline hazard rate is chosen to attempt to match the shape of the empirical hazard – as displayed in Figures 1a and 1b. However, it needs to be recognised that the choice of functional form for the hazard rate, and hence the counter-factual assumption, cannot be justified explicitly.

The other main limitation of this study derives from the administrative data source being used. Unfortunately the LDS does not provide information on payment recipients for time periods where they are not receiving social security payments. This has the important implication that, for unemployment payment recipients observed to exit payments, it is not possible to determine labour market status or income. Therefore, analysis of effects of activity test arrangements must focus on outcomes that are related to receipt of unemployment payments.

5. Results

a. Descriptive information

Descriptive non-parametric Kaplan-Meier hazard rates of exit from unemployment payments are shown in Figures 1 to 3. The descriptive evidence does not provide a strong basis for concluding that there is an effect of the 9-month Review.

Figure 1a shows the hazard rate from payments for all new payment spells in the sample period where the Intensive Review occurs at 9 months (that is, for spells commencing after 27/6/1995). There is no apparent ‘spike’ or upward deviation from trend in the hazard at the Review dates compared to nearby dates that would indicate a substantial effect of the Review; at best, it might be concluded that there is a slight upward deviation in fortnights 19 to 21 from the slow downward trend in the hazard around those dates.

Figure 1b shows the hazard rate from payments for all new payment spells in the sample period after 1 January 1995 where the Intensive Review occurs at 12 months. Due to the much smaller number of observations the descriptive hazard is much ‘noisier’. A large ‘spike’ in the hazard occurs at 12 months. While this might be taken as evidence of a Review effect, it is necessary to be cautious about such a conclusion – since the hazard exhibits several spikes around this payment spell duration, and the effect is not at all persistent.

Figure 2 shows the hazard rates for males and females in the sample period where the Intensive Review occurs at 9 months. For neither group is a ‘spike’ in the hazard evident. For males the same slight upward deviation from the downward trend is evident as in the aggregate hazard, but for females there is no apparent departure from the downward trend.

An important issue in making inferences on the effect of the Review, described above, is that we cannot be sure that the mail review would occur in the 38th week of each payment recipient’s spell. This problem is likely to be particularly severe in the period after introduction of Mutual Obligation and Intensive Assistance since participation in those activities delays the mail review. In an attempt to focus on a period where mail reviews would predominantly have occurred at week 38 of payment spells, Figure 3 shows the hazard rate for new spells in the sample period where the Intensive Review occurs at 9 months prior to 1 July 1998 (starting date for Mutual Obligation). Hazard rates are presented for three disaggregated age groups. Again, no evidence of a ‘spike’ exists for any group, although the conclusion that there may be an upward deviation from trend in the rate of exit at the Review dates can be made for each age group.

b. Estimation of hazard models

i. 9-month Review

The basic specification of the hazard model estimated is the logit model. Both parametric specifications of the baseline hazard are tested. Results on the estimated effects on exit for fortnights 18 to 25 for new spells in the sample period where the Intensive Review occurs at 9 months are presented in Table 3. Our assumption is that

the parametric baseline hazard represents the counter-factual for the rate of exit from unemployment payments in the absence of the 9-month Review. Hence, the estimated fortnight effects are interpreted to represent the effect of the 9-month Review.

Figures 4a and 4b compare estimates of the baseline hazard from a model with a non-parametric baseline hazard with estimates from the two parametric models. At most spell durations, the parametric models appear to be a fairly close fit to the unrestricted model. (The main difference is between fortnights 9 and 15 where the parametric forms under-predict the rates of exit from payments.) This suggests that the linear and log specifications of the baseline hazard are reasonable representations of the counter-factual baseline hazard rate that would exist in the absence of the 9-month Review. (Full results for the specifications for all persons are presented in Appendix Table 1.)

For the linear baseline hazard specification there is virtually no evidence of a significant positive effect of the 9-month Review on exit from payments. This finding holds for the hazard for all persons, and disaggregated between males and females. (There is just one fortnight – in the male hazard - in which there is a significant positive deviation from the baseline hazard.) For the log baseline hazard specification there is stronger evidence of an effect of the 9-month Review. The estimated hazard for persons displays significant positive deviation from the baseline in fortnights 19 to 22, and for males in fortnights 19 to 21 – however, no significant effect is found for females. Interestingly, the positive effects found for persons and males in fortnights 19 to 22 are followed immediately by significant negative deviations from the baseline hazard in fortnights 23 to 25.

Apart from the logit hazard specification, alternative log-log and linear specifications have been estimated. Findings are reported in Table 4. Due to computational complexity and the large sample size over the whole sample period during which the Intensive Review has occurred at 9 months, it is only possible to estimate the log-log specification for sub-periods. In Table 4 results are presented for 1995 and 1996. (These results are representative of findings from other sub-periods, and hence only results for that period are shown.) Two main findings are apparent. First, there is less evidence of significant deviations from the baseline hazard in fortnights 19 to 22 once

attention is restricted to narrower sample periods. Second, the choice of hazard specification has only marginal effects on the pattern of significant fortnight effects.

Finally, using the logit specification, the hazard model estimation is undertaken for the time period prior to the introduction of Mutual Obligation. These results are reported in Table 5. Results for the specification for all persons are similar – in terms of the pattern of significance of fortnight effects – to the results for the entire 9-month Review sample period. Again, the linear baseline does not suggest that there is a 9-month Review effect on exit; whereas the log baseline hazard suggests that a significant positive (and then negative) effect does exist. Hazard models estimated for payment recipients disaggregated into three age groups shows weaker effects, and a generally similar pattern of significant fortnight effects for each age group.

ii. 9-month and 12-month Review

The second empirical approach is essentially a before-after method: to compare the rates of exit from payments at 9 months and 12 months from before and after the change in Review date. This is done controlling for other factors that could affect the rate of exit from payments, and most specifically, other factors that might have caused a difference in the rate of exit from payments between the periods before and after the change in Review date.

Table 6 reports the fortnight effects on exit from payments – at around the 12 month Review date for the pre-policy change period, and around the 9 month Review date for the post-policy change period. (These effects are from interactions of dummy variables for each ‘Review date’ fortnight and dummy variables for whether payment spells in that time period were subject to a 9-month or 12-month review. Full results from the estimated hazard model are reported in Appendix Table 2.)

The results are very mixed. Looking at the period where the Review date was at 12 months, there is a significantly higher rate of exit from payments at the 26th fortnight payment duration than in the period where the Review was not at 12 months. This would support theoretical predictions that the effect of the Review will be to increase the rate of exit from payments. However, any effect appears to be concentrated at that

26th fortnight. There is no significant positive effect in the immediate preceding period, and in the period after the Review date there is some evidence of a significant negative effect on the rate of exit from payments. Then considering the period where the Review date is at 9 months, the model estimates suggest that in that period the rate of exit from payments is significantly lower at the 9-month Review date, as well as in the fortnight prior to the Review date and in fortnights immediately after the Review date, than in the period where the Review did not occur at that date. This strongly contradicts the prediction that the Review should increase the rate of exit from payments.

c. Cancellation data

Administrative data on the number of 9-month Reviews undertaken, and on cancellations, are presented in Table 7. These data reveal a fairly high incidence of cancellations associated with those Reviews. For each financial year from 1997/98 to 2000/01 it is possible to calculate the aggregate incidence of cancellation, and the incidence for the mail review and the office review. Over the four years the aggregate rate of cancellation is between 5 and 7 percent; higher in the latter two years than the former years. Generally, the incidence of payment cancellation associated with the office review is higher than for the mail review.

d. Summary

The findings from this study provide mixed results on the effect of the 9-month Review on exit from unemployment payments. Administrative data suggest that there is a fairly high incidence of cancellation of payments of around 5 to 7 per cent that is a direct result of the 9-month Review. However, the analysis of exit from unemployment payments undertaken in this study does not provide compelling evidence of a substantial or significant effect of the 9-month Review. Examining the time period where the Review occurs at 9 months, a significant increase in the rate of exit from payments at the Review dates is found for one specification of the counterfactual baseline hazard. This finding exists for males but not for females. Importantly, the finding is not robust to the alternative specification of the counterfactual baseline or to disaggregation by time periods or by age groups. Interestingly,

for the specification where an effect is found, at the Review dates there is a significant positive deviation from the parametric baseline hazard, but then in the period immediately following (fortnights 23 to 25) there is a significant negative deviation from the parametric baseline hazard. This raises the possibility that, while the 9-month Review is associated with a high rate of cancellation of payments, a significant fraction of those payment recipients would have exited payments in any case within the next months. A comparison between time periods where the Review did and did not occur at 9 months suggests that the rate of exit from payments at spell durations around 9 months was actually lower in the period where the Review did take place at 9 months.

6. Conclusions and suggestions for further research

The findings from this study on the effect of the 9-month Review on exit from unemployment payments are inconclusive. Administrative data indicate that cancellation effects are fairly large. However the analysis of exit from payments undertaken in this study provides mixed findings on whether there is an effect on exit from unemployment payments that is correlated with the Review dates. One possible way to reconcile these findings is that cancellations due to the 9-month Review consist largely of payment recipients who would have exited payments in any case within the next months.

Ultimately, the issue of whether the 9-month Review has an effect on exit from payments, and whether that effect is due to administrative cancellation of payments or to changes to job search behaviour, can only be answered with a better empirical methodology than we have been able to apply in this study.

A better empirical methodology would be a quasi-experimental matching analysis that compared exit from payments for unemployment payment recipients who did and did not receive the 9-month mail review at a particular payment spell duration, and compared exit from payments for unemployment payment recipients who were and were not referred for an office review at a particular payment spell duration. The analysis would distinguish between exits due to cancellation of payments, and other

causes of exit. To undertake the quasi-experimental analysis would require obtaining data from Centrelink records on the timing of the mail review for each payment recipient and whether a payment recipient was referred for an office review, and matching that data to LDS records. A more ambitious project would be to undertake a random experiment in order to examine the effect of differences in timing (eg., 6 months compared to 9 months) of the Review, and to examine the effect of referral to an office review. However, it must be recognized that undertaking these types of extensions to research on Intensive Review would still not address the effect of Review on exit from payments at dates prior to and following the Review.

The motivation for undertaking the further quasi-experimental analysis of effects of the 9-month Review would be fundamentally the same as the motivation presented at the outset of this report. First, there is a significant expenditure of resources on the 9-month Review, and it constitutes a key intervention for unemployed persons. Hence, in terms of efficient allocation of public resources and providing effective support to unemployed persons, it matters to know the labour market impact of the Review. Although the administrative cancellation data appear to show a large effect of the Review, whether this is associated with a large reduction in payments depends on when those payment recipients would have exited payments in the absence of the Review. In other words, a proper cost-benefit analysis cannot be undertaken only on the basis of the administrative cancellation data, but requires the type of quasi-experimental analysis that is proposed. The second motivation is the international literature on interventions for unemployed persons targeted at job search activity. That literature suggests that the effects of interventions such as the 9-month Review are likely to depend on the timing and scale of the intervention. Hence, it is of interest to assess whether the timing of the Review at 9 months, and the scale and scope of the Review, are optimal.

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Notes

1. The Social Security Act 1991 defines a 'notional continuous period of receipt of income support payments' as one in which the maximum break from payments in the first 12 months of payment receipt is 6 weeks, and in which the maximum break in subsequent months is 13 weeks; and where a break in payments begins prior to, but within 6 weeks of, 12 months duration, the 13-week test applies.
2. Prior to 1998 Austudy payments were not administered by FaCS/Centrelink and therefore are not included in the LDS.
3. Information on payment receipt from the LDS is only available on a fortnightly basis. Since it is possible for a break in payments of 3 fortnights to correspond to a break in payments of exactly 6 weeks so that according to the FaCS definition a new spell would not have commenced, therefore to define new spells in this study the rule of requiring a break of 4 fortnights off payments where spell duration is less than 23 fortnights is adopted. For the case where spell duration is more than 23 fortnights, and the FaCS rule for a new spell is a payment break of 13 weeks, it is necessary to use 7 fortnights as the period off payments to define new spells.

Table 1: Number of unemployment payment spells

Period of spell commencement	Total spells	In progress at week 38
Subject to IR at 12 months		
1995	16228	6435
Subject to IR at 9 months		
1995-1996	96904	37078
1997-1998	114598	37354
1999-2000	75853	19228

Table 2: Unemployment payment spells – Descriptive information (%)

	Persons		Males		Females	
<i>Spells subject to IR at 9 months</i>						
	At spell commencement	At 38 weeks	At spell commencement	At 38 weeks	At spell commencement	At 38 weeks
Male	67.6	70.1				
Aged 18-24 years	44.4	37.5	38.5	32.3	56.8	49.8
Aged 25-34 years	31.6	32.9	34.8	36.2	25.1	25.3
Aged 35-49 years	24.0	29.5	26.8	31.5	18.1	24.9
ATSI	4.1	4.6	4.0	5.1	2.6	3.4
ESB	8.0	7.3	8.3	7.5	7.3	6.6
NESB	13.0	15.3	13.1	15.2	12.8	15.4
Married	23.0	24.3	27.0	27.6	14.7	16.4
Dependent children	13.8	16.0	18.8	20.9	3.3	4.3
<i>Spells subject to IR at 12 months</i>						
	At spell commencement	At 38 weeks	At spell commencement	At 38 weeks	At spell commencement	At 38 weeks
Male	71.1	73.2				
Aged 18-24 years	44.4	37.5	38.1	32.7	57.4	50.4
Aged 25-34 years	31.6	32.9	35.6	37.5	24.3	25.4
Aged 35-49 years	23.9	28.3	26.3	29.8	18.2	24.2
ATSI	4.3	3.9	3.9	4.2	2.7	2.9
ESB	8.5	8.2	9.1	8.7	7.0	6.7
NESB	11.9	13.7	12.0	13.6	11.6	14.0
Married	23.5	25.5	27.1	29.2	14.4	15.4
Dependent children	15.9	18.3	19.6	22.5	6.6	7.0

Note: ATSI – Aboriginal or Torres Strait Islander; ESB – immigrant from one of the main English speaking countries (UK, Ireland, USA, Canada, New Zealand or South Africa); NESB – other immigrant.

Table 3: Estimated fortnights effects on hazard rate – 9-month Review – 1995 to 2000 – Logit specification

	Fortnight							
	18	19	20	21	22	23	24	25
<i>Persons</i>								
(a)	-0.025 (0.094)	-0.017 (0.015)	0.023 (0.016)	-0.017 (0.017)	-0.017 (0.017)	-0.120* (0.019)	-0.130* (0.019)	-0.069* (0.019)
(b)	0.030* (0.015)	0.040* (0.016)	0.079* (0.016)	0.036* (0.017)	0.034* (0.017)	-0.072* (0.019)	-0.086* (0.019)	-0.030 (0.020)
<i>Males</i>								
(a)	-0.046* (0.015)	-0.008 (0.019)	0.043* (0.019)	-0.001 (0.020)	-0.025 (0.021)	-0.127* (0.023)	-0.139* (0.024)	-0.084* (0.024)
(b)	0.009 (0.019)	0.047* (0.019)	0.098* (0.019)	0.052* (0.025)	0.025 (0.021)	-0.080* (0.023)	-0.096* (0.024)	-0.045 (0.024)
<i>Females</i>								
(a)	0.016 (0.026)	-0.034 (0.028)	-0.016 (0.029)	-0.053 (0.030)	0.000 (0.031)	-0.106* (0.033)	-0.115* (0.034)	-0.045 (0.034)
(b)	0.067* (0.026)	0.016 (0.028)	0.034 (0.029)	-0.005 (0.030)	0.045 (0.031)	-0.064 (0.033)	-0.077* (0.035)	-0.012 (0.035)

Note: Standard errors in parentheses. Asterisk denotes significant at 5% level.

Table 4: Estimated fortnights effects on hazard rate – 9-month Review – Persons 1995-96 – Alternative hazard models

	Fortnight							
	18	19	20	21	22	23	24	25
<i>Logit</i>								
(a)	-0.017 (0.025)	-0.051 (0.026)	0.046 (0.026)	-0.002 (0.027)	-0.010 (0.028)	-0.120* (0.031)	-0.139* (0.032)	-0.092* (0.032)
(b)	0.027 (0.025)	-0.006 (0.026)	0.091* (0.026)	0.041 (0.028)	0.032 (0.029)	-0.080 (0.031)	-0.101* (0.032)	-0.058 (0.032)
<i>Log-Log</i>								
(a)	-0.016 (0.025)	-0.050 (0.026)	0.046 (0.025)	-0.002 (0.027)	-0.009 (0.028)	-0.117* (0.030)	-0.136* (0.031)	-0.089* (0.031)
(b)	0.027 (0.025)	-0.006 (0.026)	0.090 (0.025)	0.041 (0.025)	0.031 (0.028)	-0.078* (0.030)	-0.099* (0.031)	-0.059 (0.032)
<i>Linear</i>								
(a)	-0.001 (0.001)	-0.002* (0.001)	0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.005* (0.001)	-0.005* (0.001)	-0.003* (0.001)
(b)	0.000 (0.001)	-0.001 (0.001)	0.002* (0.001)	0.001 (0.001)	0.001 (0.001)	-0.003* (0.001)	-0.004* (0.001)	-0.002* (0.001)

Note: Standard errors in parentheses. Asterisk denotes significant at 5% level.

Table 5: Estimated fortnights effects on hazard rate – 9-month Review – 1995 to 1998 (Pre-MOI)

	Fortnight							
	18	19	20	21	22	23	24	25
<i>All Persons (Logit)</i>								
(a)	-0.007 (0.020)	-0.002 (0.020)	0.049* (0.021)	0.029 (0.021)	0.010 (0.023)	-0.110 (0.025)	-0.131* (0.026)	-0.089* (0.026)
(b)	0.042* (0.020)	0.048* (0.021)	0.100* (0.021)	0.079* (0.022)	0.058* (0.023)	-0.065* (0.025)	-0.090* (0.026)	-0.052* (0.026)
<i>Persons aged 18-24 years (Logit)</i>								
(a)	0.023 (0.031)	-0.003 (0.032)	0.032 (0.033)	0.023 (0.034)	0.022 (0.035)	-0.061 (0.038)	-0.151* (0.041)	-0.047 (0.040)
(b)	0.060 (0.031)	0.033 (0.032)	0.068* (0.033)	0.058 (0.034)	0.055 (0.035)	-0.030 (0.038)	-0.123* (0.041)	-0.022 (0.040)
<i>Persons aged 25-34 years (Logit)</i>								
(a)	-0.018 (0.036)	-0.028 (0.037)	0.061 (0.037)	0.039 (0.038)	0.010 (0.040)	-0.201* (0.045)	-0.149* (0.145)	-0.037 (0.044)
(b)	0.046 (0.036)	0.031 (0.037)	0.121* (0.037)	0.098* (0.038)	0.068 (0.040)	-0.146* (0.045)	-0.098* (0.046)	0.009 (0.045)
<i>Persons aged 35-49 years (Logit)</i>								
(a)	-0.061 (0.042)	0.028 (0.041)	0.057 (0.042)	0.020 (0.044)	-0.016 (0.046)	-0.085 (0.048)	-0.086 (0.050)	-0.240* (0.055)
(b)	-0.004 (0.040)	0.086* (0.041)	0.115* (0.042)	0.078 (0.042)	0.039 (0.046)	-0.032 (0.049)	-0.036 (0.050)	-0.195* (0.055)

Note: Standard errors in parentheses. Asterisk denotes significant at 5% level.

Table 6: Estimated fortnight effects on hazard rate – Pre and post change in review date – 1995 to 2000 – Logit model (non-parametric baseline hazard)

12-month Review effects		9-month Review effects	
Fortnight	Coefficient estimate	Fortnight	Coefficient estimate
25	0.049 (0.084)	18	-0.156* (0.061)
26	0.641* (0.066)	19	-0.721* (0.050)
27	0.063 (0.086)	20	0.132 (0.073)
28	-0.176* (0.075)	21	-0.205* (0.066)
29	0.037 (0.091)	22	-0.144* (0.070)
30	-0.076 (0.099)	23	-0.635* (0.062)

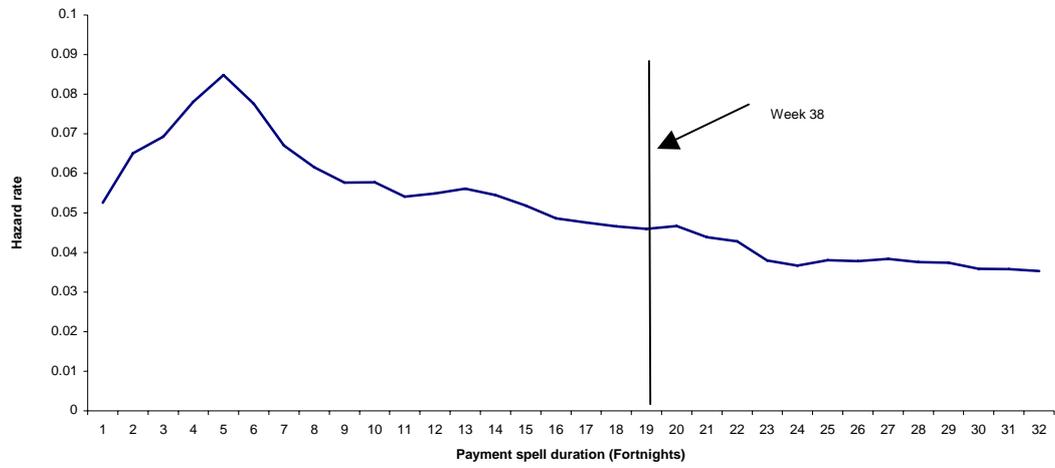
Note: Standard errors in parentheses. Asterisk denotes significant at 5% level.

Table 7: 9-month Reviews and cancellations – Administrative data – 1997/98 to 2000/01

	Total completed reviews	Cancellations	Percentage
1997/98			
Mail review	191,016	5,709	3.0
Office review	64,736	4,166	6.4
Total	191,016	9,975	5.2
1998/99			
Mail review	209,893	9,167	4.4
Office review	68,075	2,090	3.1
Total	209,893	11,257	5.4
1999/2000			
Mail review	115,417	4,215	3.7
Office review	64,829	3,824	5.9
Total	115,417	8,049	7.0
2000/01			
Mail review	90,870	3,397	3.7
Office review	50,948	2,873	5.6
Total	90,870	6,270	6.9

Source: Department of Family and Community Services (2001b).

**Figure 1a: Hazard rate - Exit from unemployment payments - Persons -
9-month Review - 1995 to 2000**



**Figure 1b: Hazard rate - Exit from unemployment payments - Persons -
12-month Review - 1995**

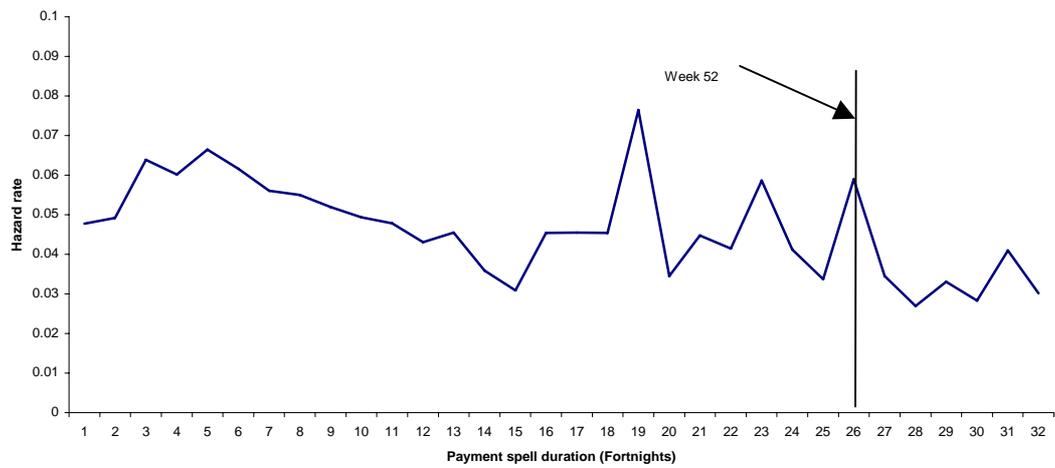


Figure 2: Hazard rates - Exit from unemployment payments - 9-month Review - 1995 to 2000

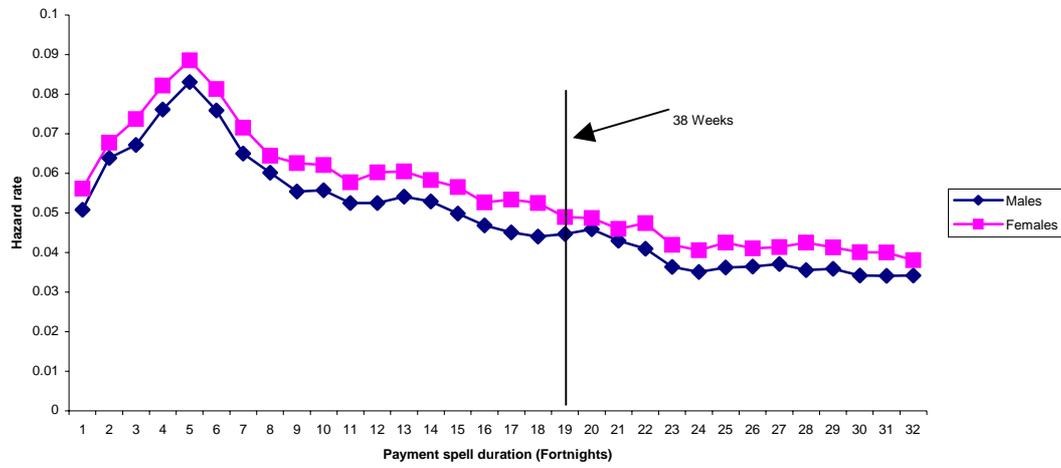


Figure 3: Hazard rates - Exit from unemployment payments - 9-month Review - Persons by age - Pre-Mutual Obligation

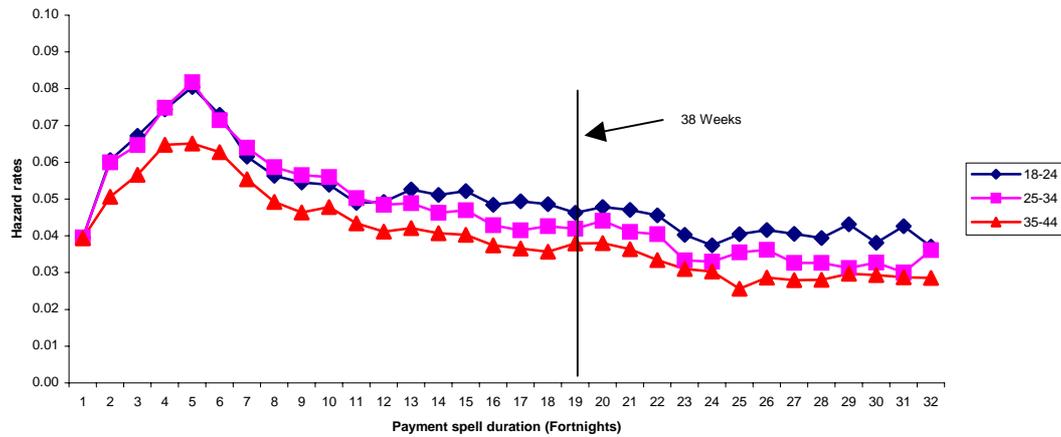


Figure 4a: Predicted hazard model - Logit - Linear specification of baseline hazard

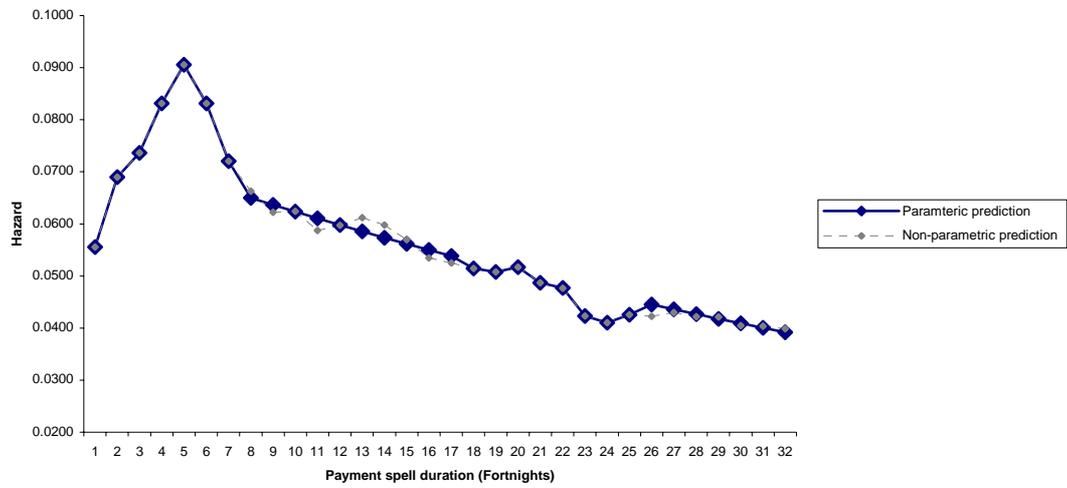
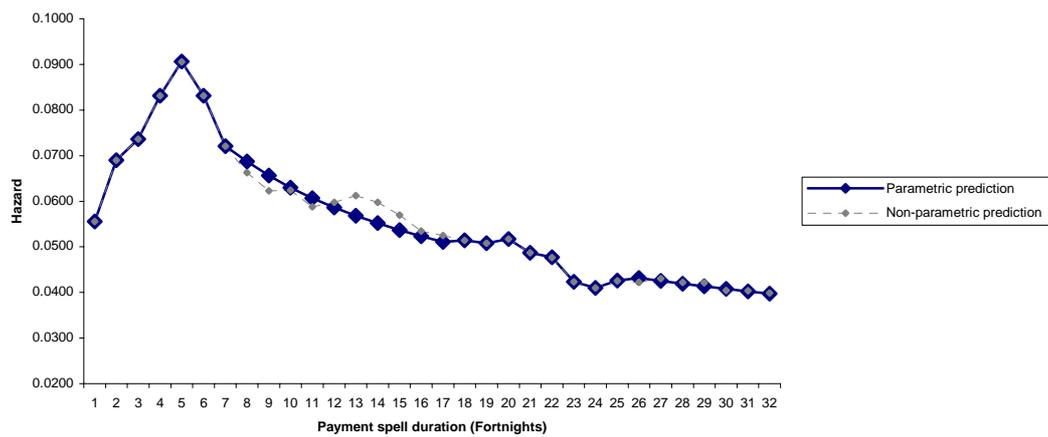


Figure 4b: Predicted hazard model - Logit - Log specification of baseline hazard



**Appendix Table 1: Hazard function coefficient estimates (standard errors) –
Logit model – Spells commencing 29/6/95 to 16/6/00**

	Non-parametric	Linear	Log
fortnt		-0.022 (0.000)	
logfn			-0.417 (0.006)
d1		-0.322 (0.011)	-1.092 (0.020)
d2	0.230 (0.011)	-0.070 (0.010)	-0.573 (0.015)
d3	0.301 (0.011)	0.023 (0.010)	-0.334 (0.013)
d4	0.432 (0.011)	0.177 (0.009)	-0.082 (0.012)
d5	0.526 (0.011)	0.293 (0.009)	0.105 (0.011)
d6	0.433 (0.012)	0.222 (0.010)	0.087 (0.011)
d7	0.277 (0.013)	0.089 (0.010)	-0.004 (0.011)
d8	0.187 (0.013)		
d9	0.120 (0.014)		
d10	0.124 (0.014)		
d11	0.059 (0.014)		
d12	0.077 (0.015)		
d13	0.103 (0.015)		
d14	0.077 (0.015)		
d15	0.026 (0.016)		
d16	-0.041 (0.016)		
d17	-0.061 (0.017)		
d18	-0.082 (0.017)	-0.026 (0.016)	0.031 (0.016)
d19	-0.095 (0.018)	-0.017 (0.016)	0.040 (0.016)
d20	-0.077 (0.018)	0.023 (0.016)	0.080 (0.016)
d21	-0.140 (0.019)	-0.018 (0.017)	0.037 (0.017)
d22	-0.162 (0.019)	-0.017 (0.018)	0.035 (0.018)
d23	-0.287 (0.021)	-0.120 (0.019)	-0.072 (0.019)
d24	-0.319 (0.021)	-0.131 (0.020)	-0.087 (0.020)
d25	-0.280 (0.021)	-0.069 (0.020)	-0.031 (0.020)
d26	-0.288 (0.022)		
d27	-0.270 (0.022)		
d28	-0.290 (0.023)		
d29	-0.291 (0.023)		
d30	-0.333 (0.024)		
d31	-0.336 (0.024)		
d32	-0.349 (0.025)		
d33	-0.400 (0.026)		
d34	-0.376 (0.026)		

Appendix Table 1 continued

	Non-parametric	Linear	Log
d35	-0.465 (0.028)		
d36	-0.484 (0.028)		
d37	-0.472 (0.029)		
d38	-0.503 (0.030)		
d39	-0.472 (0.030)		
d40	-0.495 (0.031)		
age2024	-0.052 (0.007)	-0.052 (0.007)	-0.052 (0.007)
age2529	-0.087 (0.008)	-0.087 (0.008)	-0.088 (0.008)
age3034	-0.187 (0.009)	-0.187 (0.009)	-0.187 (0.009)
age3539	-0.267 (0.010)	-0.267 (0.010)	-0.268 (0.010)
age4044	-0.356 (0.010)	-0.356 (0.010)	-0.357 (0.010)
age4549	-0.444 (0.011)	-0.444 (0.011)	-0.445 (0.011)
male	-0.086 (0.005)	-0.086 (0.005)	-0.086 (0.005)
ESB	0.047 (0.008)	0.047 (0.008)	0.047 (0.008)
NESB	-0.188 (0.007)	-0.188 (0.007)	-0.188 (0.007)
ATSI	-0.338 (0.012)	-0.338 (0.012)	-0.337 (0.012)
married	0.027 (0.008)	0.027 (0.008)	0.027 (0.008)
depkid	0.083 (0.021)	0.083 (0.021)	0.083 (0.021)
kidu13	-0.038 (0.021)	-0.038 (0.021)	-0.038 (0.021)
howner	0.227 (0.007)	0.227 (0.007)	0.227 (0.007)
ulfsr	-0.041 (0.001)	-0.041 (0.001)	-0.041 (0.001)
qtr2	-0.039 (0.006)	-0.039 (0.006)	-0.039 (0.006)
qtr3	-0.077 (0.006)	-0.077 (0.006)	-0.077 (0.006)
qtr4	-0.045 (0.006)	-0.045 (0.006)	-0.045 (0.006)
r2	0.032 (0.015)	0.032 (0.015)	0.032 (0.015)
r3	0.033 (0.017)	0.033 (0.017)	0.032 (0.017)
r4	-0.023 (0.013)	-0.023 (0.013)	-0.023 (0.013)
r5	-0.212 (0.019)	-0.212 (0.019)	-0.212 (0.019)
r6	-0.212 (0.019)	-0.212 (0.019)	-0.213 (0.019)
r7	-0.249 (0.017)	-0.249 (0.017)	-0.249 (0.017)
r8	-0.266 (0.019)	-0.266 (0.019)	-0.267 (0.019)
r9	-0.356 (0.017)	-0.356 (0.017)	-0.356 (0.017)
r10	-0.222 (0.022)	-0.222 (0.022)	-0.222 (0.022)
r11	-0.107 (0.020)	-0.107 (0.020)	-0.108 (0.020)
r12	-0.110 (0.016)	-0.110 (0.016)	-0.111 (0.016)
r13	-0.181 (0.018)	-0.181 (0.018)	-0.182 (0.018)
r14	-0.052 (0.014)	-0.052 (0.014)	-0.052 (0.014)
r15	-0.066 (0.014)	-0.066 (0.014)	-0.066 (0.014)

Appendix Table 1 continued

	Non-parametric	Linear	Log
r16	-0.119 (0.016)	-0.119 (0.016)	-0.120 (0.016)
r17	-0.233 (0.019)	-0.233 (0.019)	-0.233 (0.019)
r18	-0.267 (0.015)	-0.267 (0.015)	-0.267 (0.015)
r19	-0.063 (0.016)	-0.063 (0.016)	-0.063 (0.016)
r20	0.000 (0.016)	0.000 (0.016)	0.000 (0.016)
r21	-0.055 (0.015)	-0.055 (0.015)	-0.056 (0.015)
r22	-0.019 (0.018)	-0.019 (0.018)	-0.019 (0.018)
r23	-0.133 (0.017)	-0.133 (0.017)	-0.134 (0.017)
r24	-0.063 (0.016)	-0.063 (0.016)	-0.063 (0.016)
r25	0.031 (0.015)	0.031 (0.015)	0.030 (0.015)
r26	-0.118 (0.017)	-0.118 (0.017)	-0.119 (0.017)
r27	-0.152 (0.016)	-0.152 (0.016)	-0.153 (0.016)
r28	-0.248 (0.019)	-0.248 (0.019)	-0.249 (0.019)
r29	-0.007 (0.014)	-0.007 (0.014)	-0.007 (0.014)
r30	-0.010 (0.015)	-0.010 (0.015)	-0.010 (0.015)
r31	0.022 (0.015)	0.022 (0.015)	0.022 (0.015)
r32	-0.299 (0.022)	-0.299 (0.022)	-0.300 (0.022)
r33	-0.302 (0.022)	-0.302 (0.022)	-0.303 (0.022)
r34	0.000 (0.019)	0.000 (0.019)	0.000 (0.019)
r35	-0.161 (0.020)	-0.161 (0.020)	-0.161 (0.020)
constant	-2.243 (0.015)	-1.899 (0.015)	-1.150 (0.022)

Note: Standard errors are in parentheses. See Appendix Table 3 for a description of the variables.

**Appendix Table 2: Hazard function coefficient estimates (standard errors) –
Logit model (non-parametric baseline hazard specification) – Spells commencing
13/4/95 to 16/6/00**

d2	0.2228 (0.0112)	d38	-0.4518 (0.0286)	r3	-0.1460 (0.0173)
d3	0.3045 (0.0112)	d39	-0.4162 (0.0287)	r4	-0.0593 (0.0128)
d4	0.4286 (0.0111)	d40	-0.4581 (0.0298)	r5	-0.3156 (0.0183)
d5	0.5250 (0.0111)	postd18	-0.1564 (0.0614)	r6	-0.3840 (0.0185)
d6	0.4337 (0.0116)	postd19	-0.7217 (0.0506)	r7	-0.3783 (0.0169)
d7	0.2831 (0.0122)	postd20	0.1326 (0.0736)	r8	-0.4902 (0.0188)
d8	0.1984 (0.0128)	postd21	-0.2052 (0.0669)	r9	-0.4012 (0.0169)
d9	0.1336 (0.0132)	postd22	-0.1440 (0.0708)	r10	-0.2979 (0.0218)
d10	0.1351 (0.0135)	postd23	-0.6354 (0.0626)	r11	-0.2709 (0.0202)
d11	0.0724 (0.0140)	postd24	-0.2924 (0.0750)	r12	-0.2600 (0.0162)
d12	0.0848 (0.0142)	postd25	-0.0496 (0.0834)	r13	-0.2689 (0.0174)
d13	0.1130 (0.0144)	postd26	-0.6413 (0.0667)	r14	-0.1350 (0.0139)
d14	0.0785 (0.0149)	postd27	-0.0638 (0.0865)	r15	-0.1546 (0.0137)
d15	0.0242 (0.0154)	postd28	0.1764 (0.0986)	r16	-0.2151 (0.0160)
d16	-0.0188 (0.0160)	postd29	-0.0376 (0.0911)	r17	-0.3633 (0.0191)
d17	-0.0360 (0.0164)	postd30	0.0765 (0.0994)	r18	-0.3641 (0.0151)
d18	0.0930 (0.0600)	postpol9	0.0117 (0.0117)	r19	-0.1232 (0.0159)
d19	0.6458 (0.0487)	age2024	-0.0482 (0.0069)	r20	-0.0716 (0.0156)
d20	-0.1889 (0.0723)	age2529	-0.0878 (0.0075)	r21	-0.1881 (0.0144)
d21	0.0858 (0.0652)	age3034	-0.1871 (0.0085)	r22	-0.1628 (0.0177)
d22	0.0034 (0.0691)	age3539	-0.2687 (0.0093)	r23	-0.3396 (0.0172)
d23	0.3701 (0.0602)	age4044	-0.3597 (0.0100)	r24	-0.1605 (0.0154)
d24	-0.0053 (0.0729)	age4549	-0.4471 (0.0106)	r25	-0.0537 (0.0148)
d25	-0.2089 (0.0815)	male	-0.0856 (0.0045)	r26	-0.2941 (0.0166)
d26	0.3757 (0.0641)	ESB	0.0492 (0.0076)	r27	-0.2478 (0.0158)
d27	-0.1828 (0.0844)	NESB	-0.1946 (0.0067)	r28	-0.3501 (0.0185)
d28	-0.4420 (0.0967)	ATSI	-0.3437 (0.0121)	r29	-0.0828 (0.0135)
d29	-0.2273 (0.0888)	married	0.0333 (0.0074)	r30	-0.0968 (0.0144)
d30	-0.3826 (0.0972)	depkid	0.0747 (0.0202)	r31	-0.0487 (0.0151)
d31	-0.2883 (0.0235)	kidu13	-0.0401 (0.0202)	r32	-0.4241 (0.0217)
d32	-0.3180 (0.0242)	howner	0.2337 (0.0070)	r33	-0.4725 (0.0220)
d33	-0.3470 (0.0250)	ulfsr	-0.0158 (0.0012)	r34	-0.0154 (0.0190)
d34	-0.3262 (0.0253)	qtr2	-0.0426 (0.0060)	r35	-0.2159 (0.0198)
d35	-0.4142 (0.0267)	qtr3	-0.0292 (0.0057)	y9798	0.1310 (0.0050)
d36	-0.4270 (0.0273)	qtr4	-0.0069 (0.0057)	y9900	0.3288 (0.0060)
d37	-0.4177 (0.0277)	r2	-0.0172 (0.0151)	constant	-2.5296 (0.0191)

Note: Standard errors are in parentheses. See Appendix Table 3 for a description of the variables.

Appendix Table 3: Description of variables

fortnt	Duration of payment spell in fortnights.
logfn	Log of fortnt.
d1 – d40	$dn = 1$ if duration of payment spell is n fortnights; $dn = 0$ otherwise.
age2024 – age4549	$age_{xy} = 1$ if aged between x and y years.
male	Equal to 1 if male; 0 otherwise.
ESB	Equal to 1 if an immigrant born in one of the main English-speaking countries (UK, Ireland, USA, Canada, New Zealand or South Africa); 0 otherwise.
NESB	Equal to 1 if an immigrant born in a country other than one of the main English-speaking countries; 0 otherwise.
ATSI	Equal to 1 if an aborigine or Torres Strait Islander; 0 otherwise.
married	Equal to 1 if married (including <i>de facto</i>); 0 otherwise.
depkid	Equal to 1 if have a dependent child; 0 otherwise.
kidu13	Equal to 1 if have a dependent child under 13 years of age; 0 otherwise.
howner	Equal to 1 if own home (including paying off mortgage); 0 otherwise.
ulfsr	Unemployment rate in the month of the current fortnight of the payment spell in the ABS labour force statistical region of the individual's residence.
qtr2-qtr4	$qtrn = 1$ if quarter of the year at the time of commencement of the payment spell is n ; $qtrn = 0$ otherwise.
r2 – r35	$rn = 1$ if region of residence is n (based on Australian Bureau of Statistic labour force statistical regions); $rn = 0$ otherwise.
postd18 – postd30	$postdn = 1$ if duration of payment spell is n fortnights and spell commenced after 27 June 1995 (that is, the spell reached 9 months duration after the change from 12-month to 9-month reviews); $postdn = 0$ otherwise.
postpol9	Equal to 1 if payment spell commenced after 27 June 1995; 0 otherwise.
y9798	Equal to 1 if year is 1997 or 1998; 0 otherwise.
y9900	Equal to 1 if year is 1999 or 2000; 0 otherwise.
