Final Report

Labour Force Potential of
Disability Support Pension Recipients

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Executive Summary

This report evaluates the employment and earnings effects of compulsory participation interviews for recipients of Disability Support Pension (DSP).

In light of a stark growth in the number of DSP recipients in the last two decades, policy makers sought for measures to control growth of the program, and to that end introduced several reforms. Some of those reforms aimed at reducing the number of new claimants; other reforms aimed at re-activating those who already receive the payment and improve their employment outcomes. A reform in the latter category was the introduction of compulsory participation interviews for DSP recipients below age 35 with a weekly capacity to work of eight hours or more in July 2012. During the interviews, which are repeated quarterly to six-monthly, a participation plan is discussed and decided on. Possible activities in the participation plan include participation in a program of support or rehabilitation program, employment, education or study, work experience, or community-based activities. While interviews are compulsory, the activities specified in the participation plan are voluntary.

Centrelink data over the period July 2012 to May 2013 are used to describe employment activities and earnings of DSP recipients across all age groups and work capacity bandwidths in June 2012; this is to compare the employment potential of age groups and work capacity bandwidths that became eligible for participation interviews later on, and those who did not. The report then proceeds to evaluate the outcomes of those who did receive interviews over time. We analyse how their probability of being employed and their earnings change after the interview, and whether they experience an increased probability of participating in a program of support with Disability Employment Services or Job Services Australia. We apply a combination of matching techniques and difference-in-differences-estimation techniques to ensure an unbiased estimation of the interviews' effects on employment and participation in active labour market programs.[1]

The report draws the following conclusions:

1) DSP recipients who were interviewed were more likely to have been employed before the interview; that is, the policy seems to have been applied to those who would have had a chance of better outcomes without the interviews as well.

2) There is no evidence that the interviews cause an increase in employment.

3) There is no evidence that the interviews increase earnings for those who are employed.

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[1] Other possible outcomes of interviews, such as up-take of study or education, or community work, are not within the scope of this evaluation.

4) Participation interviews result in referrals to DES/JSA and subsequent participation in a program of support that would otherwise not occur. The effect is large in relative terms, but small in absolute terms. It is too early to tell whether the additional participation in support programs leads to improved employment outcomes later on for those who took it up.

5) The labour force potential for the next age group 35 to 44 is similar to that of the age group who receive participation interviews already. Were the reform to be extended, similar effects would thus be expected.

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List of Abbreviations

ABS	Australian Bureau of Statistics
ATSI	Aboriginal or Torres Strait Islander
CITW	Continuing Inability to Work
CP	Carer Payment
DEEWR	Australian Government Department of Education, Employment and Workplace Relations (now Department of Employment)
DES	Disability Employment Services
DHS	Australian Government Department of Human Services
DSE	Disability Supported Employment
DSP	Disability Support Pension
DSS	Australian Government Department of Social Services
FaHCSIA	Australian Government Department of Families, Housing, Community Services and Indigenous Affairs (now DSS)
GDP	Gross Domestic Product
GFC	Global Financial Crisis
IS	Income Support
JCA	Job Capacity Assessment
JSA	Job Services Australia
NSA	Newstart Allowance
RED	Research and Evaluation Database
WCB	Work Capacity Bandwidth
WHO	World Health Organization
WP	Wife Pension
WTW	Welfare to Work

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1 Introduction

Although the prevalence of disability as well as the proportion of people who are permanently unable to work due to disability is falling in Australia (Disability, Ageing and Carers Survey 2003, 2009, 2012), growth in Disability Support Pension (DSP) numbers has been strong in the last two decades when the number of recipients more than doubled from around 330,000 in 1991 to around 820,000 twenty years later. This appears to be an alarming trend.

However, McVicar and Wilkins (2013) warn that the alarm over DSP growth may be overstated. They show that population ageing and the increase in women's retirement age each explain about a third of the growth in the proportion of working-age population on DSP since the early 1980s, and argue that one of the main reasons for the remaining residual in DSP growth are the several reforms to other benefit systems (such as restricted entry to Newstart Allowance (NSA) and Parenting Payment) which resulted in a shift from other payments to DSP despite a decrease in overall welfare receipt.[2] Nonetheless, further population aging and future increase in the retirement age are likely to translate into further growth in DSP rolls. Moreover, the long-term nature of disability payments implies that any program growth during bad economic times is unlikely to be reversed when economic conditions improve again. Burkhauser et al. (2013) thus argue that "Australia could be one recession away from disability benefit blowout" if further inflows onto DSP rolls are not slowed down.

Where the extent of the problem in the future is debatable, so is the best course of action to solve it. Several recent Australian welfare reforms have increased the participation requirements for receipt of IS payments related to support for individuals with disabilities. After the Welfare to Work reform in 2006 and a further amendment in 2011[3], an additional reform was introduced in an attempt to activate more potential labour market participants in

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[2] Cai and Gregory (2003) show that the inflow rate increased with rising unemployment rates between 1971 and 1993 and McVicar and Wilkins (2013) suggest that decreasing unemployment rates between 1993 and 2008 may have had a moderating effect on DSP growth.

[3] In July 2006, eligibility for DSP was made conditional on a person having a work capacity of less than 15 hours per week, rather than 30 hours per week as had previously been the case. Those with an assessed partial work capacity of between 15 and 29 hours per week would no longer qualify for DSP and were granted alternative conditional (i.e. 'active') payments, such as Newstart Allowance (NSA). Further, on 3 September 2011, a new qualification requirement for DSP was introduced so that all new claimants, other than those with a manifest disability or severe impairment were required to have completed a program of support to assist them to find and maintain employment, during which time they may be eligible to receive NSA. ('Manifest disability' is determined where a person clearly meets DSP eligibility requirements (without a Job Capacity Assessment) including for reasons of permanent blindness, terminal illness, intellectual disability, nursing home level care requirement, category 4 HIV/AIDS. 'Severe impairment' is defined under Subsection 94(3B) of the Social Security Act 1991 as having 20 or more points under the Impairment Tables, with 20 points being allocated under a single Impairment Table.)

2012. Specifically, from 1 July 2012, limited participation requirements – attendance at participation interviews in 3-month intervals (later 6-month intervals) with a Department of Human Services (DHS) adviser, with the aim of developing a formal participation plan – were introduced for DSP recipients less than 35 years of age and assessed as having a partial capacity to work of between 8 and 14 hours per week.[4] Prior to July 2012 this group had no participation requirements, although they could voluntarily access employment support services.

This analysis will examine the extent to which this latest reform (the requirement to attend participation interviews and develop a participation plan) has had identifiable short-run impacts on participation in employment services and other forms of labour force participation for those covered. Increased labour force participation, including participation in active labour market programs is just one, albeit important, objective of the participation requirements policy. Participation requirements for DSP recipients less than 35 years of age aim to encourage recipients to participate in activities appropriate to individual circumstances, which may be employment-related activity or other types of activity, for example, voluntary work or community-based activities. The success of the policy will be judged on the broad policy objectives and long-term outcomes, whereas this study focuses exclusively on its short-term effects on employment participation and participation in employment services.

The study has been initiated by the Department of Employment evaluation team and will feed into the in-house evaluation to provide a focus on differential impacts across multiple groups, implications for targeting and employment services, and any implications for possible future extensions of the reform. Specifically, the proposed research project was designed to address the following research questions:

1.   What are the short-run impact (up to ten months following intervention) of the July 2012 reform on labour force participation for those covered?

2.   What would be the projected impacts of the reform on older age groups, were it to be extended to DSP recipients aged 35+ years with a partial capacity to work of 8+ hours per week?

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[4] As for earlier reforms, those with a manifest disability or severe impairment are not required to attend such interviews. There are further exemptions for people already employed or studying and participants in Australian Disability Enterprises or the Supported Wage System.

2   Literature Review

The project builds on and contributes to the wider international literature, which has made major advances in recent years developing our understanding of the impacts of disability benefits on labour supply. In what follows, we will first briefly describe some of the major studies from other countries, before discussing some of the most recent findings for Australia.

It is now widely accepted in the literature that disability payment receipt decreases labour supply, although the magnitude of the effects differs across studies. One of the latest studies is Maestas et al (2013) who compare individuals who were on the margin of being accepted for disability benefits but were rejected, with those who were on the margin but accepted. They find that employment would have been 28 percentage points higher had they not received benefits. The magnitude of this effect depends on the degree of impairment with a zero effect for those with a severe impairment to 50 percentage points for those with less severe impairments.

Using the accepted and rejected applications for an evaluation of labour supply potential of disability payment programs is not new and has already been used in the 1980s by Bound (1989) on U.S. data for example. Bound (1989) however concluded in contrast to most recent studies, that the labour force potential of disability payment recipients is limited as less than 50 percent of rejected male applicants worked. Von Wachter et al (2011) apply the same strategy and confirm that employment rates of older rejected applicants are low but also find that there is employment potential for the increasing numbers of younger and low-mortality beneficiaries. Chen and van der Klaauw (2008) also use this strategy and found that during the 1990s the labour force participation rate of disability payment recipients would have been at most 20 percentage points higher had they not received benefits.

Another strand of papers uses differences in the characteristics of the disability benefit system over regions to assess the effect of disability payments on labour supply. Several papers use differences in disability payment rates between regions (such as Gruber, 2000, who uses different payment rates between the U.S. and Canada) or over time (such as Campolieti, 2004) to estimate labour supply responses to disability insurance benefits. Another strand of literature used variation between regions in the amount of earnings allowed without loss of disability pension payments to show that an increase in allowable earnings increases employment (such as Campolieti and Riddell, 2012).

Other studies use variations in screening stringency or eligibility over time or between regions and found that more intense screening and stricter eligibility criteria reduce the number of applications for disability insurance programs and/or increase employment rates (Staubli, 2011, for Austria; Gruber and Kubik, 1997; and Autor and Duggan, 2003, for the U.S.; de Jong et al, 2011, for the Netherlands or Karlström, 2008 for Sweden).

Anti-discrimination laws that prevent employers to discriminate against disabled workers were found to have only small positive effects on employment (Acemoglu and Angrist, 2001; Burkhauser et al, 2012).

A large number of international studies exploit variations in reforms over different regions or subgroups and apply difference-in-difference-estimators. This evaluation study will follow this approach as well since the 2012 reform that introduced participation interviews was only introduced for a certain subgroup of DSP recipients, namely those under the age of 35, creating a quasi-experimental set-up.

However, every labour market and welfare system is unique so that it is difficult to generalize findings from one country to another. This analysis will extend our knowledge on the labour force potential of Disability Support Pension recipients in Australia. To date, we know that disability decreases the probability of labour force participation by one-quarter for males and one-fifth for females in Australia (Wilkins, 2004). Worsening labour market conditions increase applications and grants of disability benefits in Australia as shown in Cai and Gregory (2004).

McVicar and Wilkins (2013) discuss possible factors behind the growth in DSP recipiency rates over the last thirty years. They argue that a major factor for the past growth is to be seen in reforms to other IS payments which made DSP relatively more 'attractive' and led to a *shift* from other programs to DSP; however, overall welfare recipiency rates among individuals with a disability have decreased and employment rates increased since the 1990s. On the other hand, about a third of the past growth is explained by population aging and changes to the Age Pension eligibility age – factors outside of the control of the DSP program, but also factors that are likely to continue further growth in DSP recipiency in the future.

Moreover, Burkhauser et al. (2013) argue that inflows on disability rolls increase during a recession since disability is the result not only of a given health impairment, but its interplay with the economic and social environment; however, because of the long-term nature of most disability payment programs around the world, this is not reversed during the next economic

recovery, thereby contributing to an ever-increasing stock of disability payment recipients. They show how the Australian disability program pension growth tracks the US experience, whereas Sweden and the Netherlands experienced a very different trend after they had implemented reforms. Before these reforms, the disability support programs in the Netherlands and Sweden were highly unsustainable with respect to the stock (which is still considerably higher relative to the working-age population than is the case in Australia) and growth in the number of recipients and the associated costs. The Swedish experience showed that it was difficult to move people off a disability payment, and if they did, they mostly moved to another benefit payment. Reforms aimed at increasing opportunities and incentives to work[5] only significantly increased the probability to return to work for new claimants but not of existing claimants. Early intervention was found to be necessary to have an effect (Burkhauser et al, 2013). The Dutch and Swedish reforms were successful because specific reforms were implemented to decrease the number of new entrants directly. This was achieved by targeting reforms not only at potential claimants but also by providing incentives for employers to assist employees with rehabilitation and workplace accommodations.[6] According to Burkhauser et al (2013), "a key lesson from their [Dutch and Swedish] reforms is that preventing the problem is far easier than solving it once it occurs". (Oguzoglu, 2010) also provides evidence for Australia confirming that once someone has left the labour force, it is difficult to return to the labour market, indicating that policy-makers should focus on preventing individuals from entering an IS program, rather than on re-engaging them with the labour market at a later stage.

Recent Australian reforms to reduce the inflow into DSP, especially the 2006 Welfare to Work reforms and the reform of DSP Impairment Tables in January 2012[7] are in line with this finding.

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[5] This mainly involved a reduction in benefit payments for those who did not return to work and a new schedule that aligned the provision of rehabilitation services more closely to the onset of impairment and work capacity assessment (Burkhauser et al, 2013).

[6] In the Netherlands, employers have to pay the first 2 years of disability benefits for their employees and are required to pay a tax for the number of people who move into the long-term disability insurance (Burkhauser et al, 2013).

[7] Another (albeit small) change in regulations that aims in the same direction is the requirement from 2011 onwards that new DSP claimants have tested their work capacity *prior* to being assessed for eligibility for DSP.

3   Disability Support Pension Reforms

The requirement to attend participation interviews is the latest reform in a series of welfare reforms for disabled income support (IS) recipients assessed as having a partial capacity to work. This series of reforms started with the *2006 Welfare to Work* reforms which aimed to increase labour market participation of working age welfare recipients. Previously, only 15 per cent of the 2.6 million working age Australians on income support were required to seek work actively. Increased obligations to seek work were introduced for people on Parenting Payment and Newstart Allowance (NSA), and eligibility criteria for the Disability Support Pension (DSP) were tightened (Australian Government, 2005).

(a) 2006 Reform

The *2006 Welfare to Work* reform limited eligibility for DSP to those new claimants with a work capacity of less than 15 hours a week instead of 30 hours per week as had previously been the case. For people already in receipt of DSP prior to 1 July 2006, this meant that they could stay on DSP without any changes to their eligibility or work obligations. However, persons who applied for DSP after 1 July 2006 only received DSP if they were assessed as having a work capacity[8] of less than 15 hours per week, instead of the 30 hours per week which had previously been the maximum allowed work capacity in addition to meeting other eligibility criteria for DSP. New claimants with an assessed partial work capacity (PCW) of between 15 and 29 hours per week could no longer qualify for DSP but, subject to meeting eligibility criteria, could be granted alternative payments such as NSA. These NSA payments are however conditional on the recipient actively looking for work within their limits of working capacity (Hanel et al, 2013).

People who claimed DSP within a transition period (between 11 May 2005 and 30 June 2006) remained bound by the old rules, but were re-assessed two years later under the new rules (Hanel et al, 2013). The Welfare to Work reforms have already been the subject of a detailed in-house evaluation report (DEEWR, 2008), which found evidence of increased IS exit rates and increased employment participation for those remaining on IS. Hanel et al. (2013)

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[8] A necessary condition for qualification for DSP is that claimants must have a 'continuing inability to work' (CITW). From 1 July 2006, Job Capacity Assessments (JCA) have been used to assess capacity to work and associated eligibility for IS payments. "A JCA is a comprehensive assessment of a person's current and future work capacity in weekly-hours bandwidths (0-7 hours, 8-14 hours, 15-22, 23-29 hours, 30+ hours), including identification of a person's barriers to employment and interventions that may be required to help them overcome those barriers (Parliament of Australia, 2006)". Since 1 July 2011 Employment Services Assessments (ESAts) are used to assess people for employment services (Disability Employment Services and higher levels of service in Job Services Australia) while JCAs continue to be used for DSP claims and reviews.

confirmed increased IS exit rates for individuals with a partial capacity to work, but showed that those who exited IS also returned to IS again usually within a short period of time. Despite the limited, but positive, effect on IS exit rates, it was also found that entry to DSP did not decline because of the WTW reform. An increased grant rate offset the reduced number of claimants. Furthermore it was observed that the number of people transferring from Parenting Payment to DSP increased, in a similar way as the increase in women's age of entitlement for the Age Pension resulted in an increase in the number of DSP recipients (McVicar and Wilkins 2013). The up-take of DSP depends not only on how DSP is regulated, but is also influenced by reforms of other IS payments. While the 2006 WTW reform mostly aimed at reducing inflows into DSP, the July 2012 reform evaluated in this report targets existing recipients to increase their labour force participation - a strategy which appears to have had limited success elsewhere in the world.

(b) 2012 Reforms

In January 2012, the Impairment Tables used in the process of determining applicants' eligibility for DSP were updated. Impairment Tables had been largely unchanged since 1997 and at the time did not reflect the substantial changes to DSP eligibility criteria that had since been introduced. The previous approach of assessing medical diagnoses and their impact on body systems was changed to an assessment approach that focuses on functional abilities required for work and/or training activities. The tables were, where possible, brought in line with World Health Organization's International Classification of Functioning, Disability and Health (Advisory Committee to FaHCSIA, 2011).

The latest reform which will be analysed in this report is the introduction of participation interviews that are compulsory for Disability Support Pension recipients who are younger than 35 and assessed as having a work capacity bandwidth (WCB) of 8+ hours per week. Specifically, from 1 July 2012 Disability Support Pension recipients who fall into this category have to meet with an advisor every three months after the first interview. After 18 months, biannual participation interviews are required. The aim of these participation interviews is to develop and monitor a formal participation plan. Although attending the participation interviews is compulsory, the activities set out in the plan are voluntary. Even if the recipients are already working, they are required to meet for a first interview. Exemptions from these participation interviews are granted to people who (1) are working in an Australian Disability Enterprise (ADE), (2) are working under the Supported Wage System, (3) have a dependent child less than 6 years of age (DSS, 2014) or (4) are granted an exemption.

Prior to July 2012, the group of people required to attend participation interviews had no participation requirements, although they could voluntarily access employment services. DSP recipients who are not required to attend the participation interview have the option to attend voluntarily. The new 2012 participation requirements affect current and new DSP recipients (DSS, 2014).

Also, from 1 July 2012, DSP recipients are allowed to increase their work hours up to 30 hours per week whereas previously the payments were suspended or cancelled as soon as a DSP claimant worked 15 hours a week or more. Notwithstanding that, to qualify for DSP they must have a maximum WCB of less than 15 hours per week. According to DSS(2014), the intent of this rule is to "allow people to further test their ability to take on more work while maintaining the safety net of the DSP payments". If a DSP recipient works 30 hours a week or more on a long term basis and their working credit balance (not to be confused with the WCB) has reduced to zero, their DSP payment is immediately suspended and can remain suspended for up to 2 years. Additionally, if the recipient's partner is receiving a Wife Pension (WP) or Carer Payment (CP), these payments may also be suspended for the same period.

An exemption is made for DSP recipients who are permanently blind, as they remain eligible for DSP regardless of the number of hours they work.

DSP payment is subject to an income test and therefore any additional income earned from employment may reduce the amount of DSP paid to the person. A short-term increase of work hours of more than 30 hours is allowed (DSS, 2014).

A DSP recipient who does not have a current work capacity assessment may be required to undertake an Employment Services Assessment (ESAt) to determine if they meet the criteria for employment services. The result however may not affect their eligibility status.

Disability Support Pension recipients may also access a number of employment assistance services such as Job Services Australia (JSA), Disability Employment Services (DES), Remote Jobs and Communities Program (RJCP) and ADE[9].

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[9] "*Australian Disability Enterprises provide: (1) employment to people with disability, illness or injury who are unable to work in the open labour market, such as, those who cannot benefit from Disability Employment Services assistance, but who are able to work for at least 8 hours per week in a supported environment and (2) support to customers who are in their own business workplace, in work crews, or in contract-labour arrangements. Support is generally provided for more than 24 months, and can continue for as long as the customer remains employed by the service. Customers can usually get this support by contacting an Australian*

DES provides support and assistance to people with a disability, injury or health condition to help prepare them for, find and keep a job in the open labour market. DES provides two support services: Disability Management Service (DMS)[10], and Employment Support Service (ESS)[11] (DSS, 2014).

Disability Enterprise themselves. However, where a referral for assistance is recommended by us following a Job Capacity Assessment or Employment Services Assessment, we may refer the customer to an Australian Disability Enterprise" (Department of Human Services, 2013).

[10] *"This service is for people with disability, illness, or injury who need the help of an employment service but do not expect to need long-term support in the workplace"* (Department of Human Services, 2013).
[11] *"This service is for people with a permanent disability and with an assessed need for longer term, regular, ongoing support in the workplace"* (Department of Human Services, 2013).

4   Details of the Participation Interviews

From 1 July 2012 onwards, a DSP recipient has to attend a participation interview if he or she

(1) is younger than 35, and

(2) has a work capacity bandwidth of 8+ hours per week, and

(3) is not working in an ADE, and

(4) is not working under the Supported Wage System, and

(5) does not have a dependent child less than 6 years of age.

Additionally, a DSP customer may choose to attend a participation interview voluntarily.[12] A DSP recipient who meets the above criteria has to attend an initial participation interview, agree and sign a participation plan, and attend ongoing interviews quarterly for 18 months and 6-monthly thereafter until the recipient no longer meets the criteria for participation requirements. During the interviews, an old participation plan may be replaced by a new participation plan, depending on the recipient's changing needs and goals over time (DSS, 2014).

A DSP recipient who meets the above conditions, but who (a) is already engaged in any work at or above the relevant minimum wage, (b) is self-employed or (c) is enrolled in an approved course of study, is only required to attend an initial interview and to develop and sign a participation plan. However these people remain exempt from attending ongoing interviews, as long as they continue working or studying in an approved course of study (DSS, 2014).

During the participation interview, the DSP customer agrees on a plan of voluntary activities (for example, education, training, employment or other non-vocational activities) set out in a 'participation plan'. Examples of activities include (DSS, 2014):

- undertake a program of support

- participate in disability employment services including DES,

- voluntary work,

- training activity,

- Language, Literacy and Numeracy Program,

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[12] The current WCB has to be 8+ hours and either the future WCB with intervention or the future work capacity with mainstream intervention of 8 hours or more.

- vocational training,

- education and/or study,

- paid work,

- work experience,

- RJCP activities (in remote communities with limited labour market activities),

- participate in a rehabilitation program,

- other activities designed to eliminate or reduce any disadvantage the person has in the labour market,

- drug and alcohol counselling, or

- local connections program.

Should a DSP recipient fail to attend a scheduled participation interview, in a first step efforts are undertaken to contact the DSP recipient and reschedule the interview. As many as two attempts of contact by phone are made and additionally a letter is sent stating the new time of the participation interview and information on the number of attempts to establish contact over the phone. If the DSP recipient still fails to attend the rescheduled interview, DSP payment can be immediately suspended. If the recipient makes contact to reschedule the interview within 13 weeks, the payment is restored and back-paid to the suspension date. Otherwise, the payment is cancelled. If the third rescheduled interview is also missed, payment is immediately suspended and is not restored until the recipient successfully attends the interview. If no further contact is made to reschedule the interview within 13 weeks of suspension, payment is finally cancelled (DSS, 2014).

Furthermore, DSP may be suspended or cancelled if the recipient does not sign the participation plan and all other options for contacting the person or applying an exemption have been exhausted. However, before this happens, the recipient is given the opportunity to renegotiate the plan if the recipient does not agree with the plan. Payments may be suspended if the recipient does not sign the plan and fails to return the plan within three days (DSS, 2014).

5   Methodology

5.1   Descriptives

The starting point for the project is to provide descriptive statistics and accompanying discussion showing how many people can be identified to be on DSP by age group and WCB on 30 June 2012, one day before the reform. We also report the proportion of DSP recipients who already participate in employment and the amount of labour earnings. This gives insights into how many people are actually targeted by the reform and what the potential is for increasing participation in employment across different age groups. We differentiate between open employment and disability supported employment (DSE) in the Supported Wage System (SWS) or in ADE.

5.2   Evaluation of the employment impacts of the 2012 Reform

To learn more about how the July 2012 reforms affected employment among the relevant DSP recipients, one would like to see how certain outcomes for the treated group (DSP recipients who are required to attend participation interviews) have changed after the reform compared to before the reform. However, any such changes could potentially also be attributed to changes in other economic conditions, contemporaneous policy reform, or other trends over time. In order to identify treatment effects not confounded by time trends, one can compare the changes in outcomes for those 'treated' compared to changes in outcomes for an appropriate control group of DSP recipients who are as similar as possible, but are not themselves treated. A commonly-used method for this purpose is the difference-in-differences estimator (DiD). The DiD subtracts changes in the outcome variable of the control group from changes in the outcome variable of the treatment group. This method allows for the computation of a treatment effect that is not confounded by time trends or time invariant differences between treatment and control group.[13] Table 2 shows how the difference-in-differences method is implemented. The treatment effect is derived by calculating '(A-B)-(C-D)', where A, B, C, and D, are the predicted or observed values for an employment outcome (such as the employment rate or daily earnings) of treated and untreated individuals before and after the point in time when treatment occurred.

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[13] To identify the treatment effect, one has to make the strong assumption that the difference in the outcomes of treatment and control group remained constant over time (that there are no differential time trends for treatment and control group).

Table 1: Difference-in-Difference Method

	After	Before	After-Before
Treatment	A	B	A-B
Control	C	D	C-D
Treatment-Control	A-C	B-D	(A-B)-(C-D)

Two treatment effects may be identified. The first is the Intention-To-Treat-Effect (ITT). For the ITT, the control group does not necessarily have to have *received* the treatment; just the fact that they became *eligible* for "treatment" might have been enough to evoke behavioural changes for this group of recipients. The ITT measures the average effect of a program on those individuals who became eligible. An effect of an anticipated treatment regardless of actual receipt of the treatment is possible, but does not necessarily occur. At the very least, it requires widespread knowledge of the treatment among the eligible population. For that reason we also evaluate the Average-Treatment-Effect (ATE), which measures the effect of actually having *received* a certain treatment. In both cases, we construct two groups each that are very similar to each other, except that (i) one group was eligible for the treatment and the other group was ineligible, and that (ii) one group received the treatment and the other group did not.

In order to create two groups of people who are observationally very similar, we construct two groups who only differ slightly with respect to their age. That is, we compare people who are just below the age participation threshold with people who are just above the age threshold and are not required to attend the interview. This allows us to compare two groups over time that are very similar (with only a slight age difference) but one group received the treatment and the other did not. Treated individuals are young enough to be eligible for participation interviews during the entire period of observation (from 1 July 2012 until the end of our sampling frame on 1 May 2013), and fulfill a number of other conditions: They

    (1) are born after 1 July 1979 and before 1 June 1982,

    (2) have a current or future work capacity bandwidth of 8+ hours per week on 30 June 2012,

    (3) are not working in an Australian Disability Enterprise on 30 June 2012,

    (4) are not working under the Supported Wage System on 30 June 2012,

    (5) have no dependent children less than 6 years of age on 30 June 2012.

Condition (1) is necessary to ensure that all individuals in the treated group are as homogenous in age as possible, and are young enough to not be exempted from participation interviews based on age at any point during the period of observation: no individual in the treatment group turns 35 in or before May 2013. The control group has all characteristics (2)-(5) but is born between 1 July 1974 and 1 June 1977. Again, the restriction on date of birth ensures homogeneity in age as well as the correct treatment status for all individuals in the group: every individual has turned 35 before July 2012 and is always exempt from participation interviews.

We tested whether treatment group and control group show any significant differences in a selection of key variables such as employment and earnings before the reform, partner status or children (among others), and the individual's primary disability (see the next Section for the results). Differences are generally small, but significant in some areas. We use a matching procedure to deal with those differences between control group and treatment group: one individual from the control group is assigned to an individual in the treatment group (nearest-neighbor matching); the member of the control group is chosen so that he or she most closely resembles the individual in the treatment group in terms of their socio-economic characteristics. The remaining members of the control group who are not found to be a close match to any of the members in the treatment group are discarded and not used for the analysis. Treatment and control group exhibit no significant differences in socio-economic characteristics after this procedure.

The other treatment effect that will be analyzed in this report is the Average-Treatment-Effect (ATE) where the treated group consists only of people who have actually received the treatment (i.e. attended a participation interview). Again, age divides the group of people into treatment and control group, but now the treated group has to actually have received the treatment. Specifically, the treated:

(1) are born after 1 July 1979 and before 1 June 1982,

(2) have a current or future work capacity bandwidth of 8+ hours per hours per week on 30 June 2012,

(3) are not working in an Australian Disability Enterprise on 30 June 2012,

(4) are not working under the Supported Wage System on 30 June 2012,

(5) have no dependent children under 6 years of age on 30 June 2012,

and

(6) have attended a participation interview between 1 July 2012 and May 2013.

The control group for the ATE is drawn as a subset of the control group used for the calculation of the ITT. As is discussed in more detail in the next Section, receipt of an interview *among the eligible group* as well as the timing of the interviews are not unrelated to personal characteristics. The process of selection into an interview and the timing of the interview among the eligible group is emulated within the non-eligible group, to ensure that we compare 'like-for-like' for the evaluation of the ATE. For each individual in the eligible population who actually received an interview in any specific month after the reform was introduced, we draw one individual from the non-eligible population who most closely resembles that particular treated individual in terms of their socioeconomic characteristics. The interview date of that treated individual is treated as a 'hypothetical interview date' for the individual from the non-eligible group who is similar in their characteristics, but due to their date of birth never received an interview. The remaining members of the non-eligible population who were not found to be similar to any of the individuals who actually received an interview were again discarded and not used for the analysis. No significant differences between treatment group and control group remain after this procedure. More details of both groups' characteristics are given in the next Section.

We will first calculate the impact of the reform on two different outcome variables: the probability of having any labour earnings, and mean daily earnings. The estimation will be based on comparing changes in the outcome variables over time for the treatment group, with changes in the same outcome variable over time for the control group.

Specifically, the impact of eligibility for participation interviews (ITT) will be calculated for twelve intervals of one month after the reform was introduced in June 2012, and the impact of

actually having a participation interview (ATE) will be calculated for twelve intervals of one month after the initial interview. That means that for the calculation of the ITT, employment status and earnings during the *before-period'*, the month immediately prior to the reform on 30 June 2012, which will be compared with employment status and earnings of the same individuals one, two, three, …, twelve months after June 2012 (*'after-period'*). Using different dates for the 'after-period' allows us to look at the dynamics of the treatment effect over time.

For the calculation of the ATE, the 'before-period' is the month immediately prior to the interview date for the treatment group. Likewise, the 'before-period' for the control group is the month prior to their "*hypothetical"* interview *as described above* Employment status and earnings in the month prior to the interview (for the treatment group) or prior to the hypothetical interview (for the control group) are then compared with employment status and earnings during the 'after-period', i.e. one to twelve months later.

Table 2: Treatment effects for different time periods

	Compare outcomes on …		
Intention-to-Treat Effect	Before Period: Pre-reform month	Twelve After-Periods:	
	Calendar month	*Pre-reform month plus*	*Calendar months*
	Jun 2012	1, …, 12 months	July 2012 – Jun 2013
Average Treatment Effect	Compare outcomes on …		
	Before Period: Pre-interview month	Up To Twelve After-Periods:	
	Calendar month	*Pre-interview month plus*	*Calendar months*
	Jun 2012	1, …, 12 months	July 2012, …, Jun 2013
	Jul 2012	1, …, 11 months	Aug 2012, …, Jun 2013
	Aug 2012	1, …, 10 months	Sep 2012, …, Jun 2013
	Sep 2012	1, …, 9 months	Oct 2012, …, Jun 2013
	Oct 2012	1, …, 8 months	Nov 2012, …, Jun 2013
	Nov 2012	1, …, 7 months	Dec 2012, …, Jun 2013
	Dec 2012	1, …, 6 months	Jan 2013, …, Jun 2013
	Jan 2013	1, …, 5 months	Feb 2013, …, Jun 2013
	Feb 2013	1, …, 4 months	Mar 2013, …, Jun 2013
	Mar 2013	1, 2, 3 months	Apr 2013, …, Jun 2013
	Apr 2013	1 or 2 months	May 2013, Jun 2013
	May 2013	1 months	Jun 2013

In order to isolate the treatment effect from other confounding factors associated with being treated and the outcome variables of interest, we also control for a set of observable characteristics. We estimate the following regression equation for the outcome variables of

interest y_i (whether individual i has any earnings while receiving DSP; the daily amount of his or her earnings if positive earnings are recorded):

$$y_i = \beta_0 + \beta_1 \cdot X_i + \beta_2 \cdot Treat_i + \beta_3 \cdot After_i + \beta_4 \cdot Treat_i \cdot After_i + u_i \qquad (1)$$

where $Treat_i$ is a binary dummy variable taking the value 1 if the individual is in the treatment group (zero otherwise), $After_i$ is a binary dummy variable taking the value 1 if the observation belongs to the 'after-period' (zero otherwise), and X_i is a set of control variables for individual's characteristics. The Difference-in-Differences coefficient of interest is β_4. It identifies the estimated impact of being eligible for a participation interview or of having had a participation interview on employment or earnings. Coefficients β_1 show how the outcome of interest varies with different socioeconomic characteristics that are included in X_i, e.g. for men and women, by household structure or health conditions. Coefficient β_2 reflects how y_i varies between the treatment and the control group before the reform and β_3 shows how y_i varies over time (time trend common to both treatment and control group).

Another important potential outcome of participation interviews is whether they cause interviewees to participate in a program of support with DES or JSA. In order to evaluate the policy with respect to its effects on this dimension of employment outcomes, we analyse whether the interviews result in referrals to DES or JSA with a subsequent episode of program participation.[14] We do so in a methodological set-up similar as before. The dependent variable now takes the value one in any month when a referral to DES or JSA was recorded (and that date of referral was followed by an episode of program participation). Otherwise, the variable takes the value zero. We control the same set of variables X_i as before; $Treat_i$ indicates that the individual was part of the treatment group which at some point received a participation interview. The variable Int_i now indicates the interview month (the real interview month for the treatment group, and the hypothetical interview month for the control group); as before, β_2 reflects that control group and treatment group might be different in their probability of being referred to DES or JSA regardless of the newly introduced participation interviews; β_3 captures whether for some reason the referral-probability was generally different in the interview months than at other points in time, even for individuals who had no participation interview. The effect of participation interviews on referrals to DES with subsequent episodes of program participation is measured by β_4.

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[14] A referral as a result of a participation interview naturally can only occur if there an interview was conducted. For referrals, we thus do not calculate and ITT, but analyse this outcome only in the framework for calculating ATEs.

$$y_i = \beta_0 + \beta_1 \cdot X_i + \beta_2 \cdot Treat_i + \beta_3 \cdot Int_i + \beta_4 \cdot Treat_i \cdot Int_i + u_i$$

Conceptually, the main difference between the analysis of referrals rather than program participation itself is that the first analyses the reform's effect of *inflows* into program participation, whereas the latter analyses its effect on the *stock* of participants. If the population of program participants is relatively stable, i.e. the number of participants at any given point in time is large in comparison to the number of *new* participants at that same point in time, policies that encourage the up-take of a program may not yield visible results on the existing stock of program participants for a long time, despite potentially significant effect on inflows into that population.

6   Data and Descriptive Statistics

The project will exploit two data sources, both held by the Department of Employment during the study period: the Research and Evaluation Dataset (RED) and administrative data in the Employment Services System. Combined, these data sources offer a picture of this specific group of DSP recipients and their behaviours and outcomes both pre and post reform.

The RED contains detailed administrative records for all IS recipients tracked over time. For this study, information up to May 2013 was available (10 months after the introduction of the participation interviews in July 2012). In principle, pre-reform data can go back indefinitely (at least back to the late 1990s).

The RED contains information on exits from DSP (whether from IS or to other IS payments) and on earnings from employment during DSP episodes. Earnings are reported fortnightly, and are used to generate an employment participation variable defined as "any labour market earnings in the last fortnight". Where zero earnings are reported it is assumed that the person was not employed in the corresponding reporting period; that is, the employment status outcome measure is based on reported earnings in RED. The amount of earnings is reported as "mean daily labour market earnings in the last fortnight". Both variables are converted into monthly variables: i) a person is defined as employed in any month with at least one fortnight of positive earnings; ii) daily earnings in a month are calculated as the mean daily earnings over all reported fortnights with positive earnings.

We augment the de-identified RED data with DES data which can be matched at the individual level for those IS recipients who participate in DES. These data can therefore give access to additional information on individual characteristics (e.g. primary disability) as well as additional data on participation in employment services. We assume that recipients who cannot be matched do not participate in employment services.

6.1   Descriptive Statistics

Figure 1 shows the number of DSP recipients by age group in June 2012, before the introduction of the reform on 1 July 2012. The majority of recipients was in the 45+ age group (56 per cent). Around 17 per cent were between 16 and 34 and therefore in the target age group of the 2012 participation interview reform.[15]

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[15] Our own calculations based on the RED data described above yield that out of a total of 846,171 individuals who received DSP at any time between 1 June 2012 and 30 June 2012, 140,848 were aged 16 to 34. FaHCSIA's report "Characteristics of Disability Support Pension Recipients, June 2012" yields nearly identical numbers *as at* June 2012, and reports that there were 136,570 DSP recipients aged 16 to 34 out of a total of 827,460.

Figure 1: DSP recipients by age categories
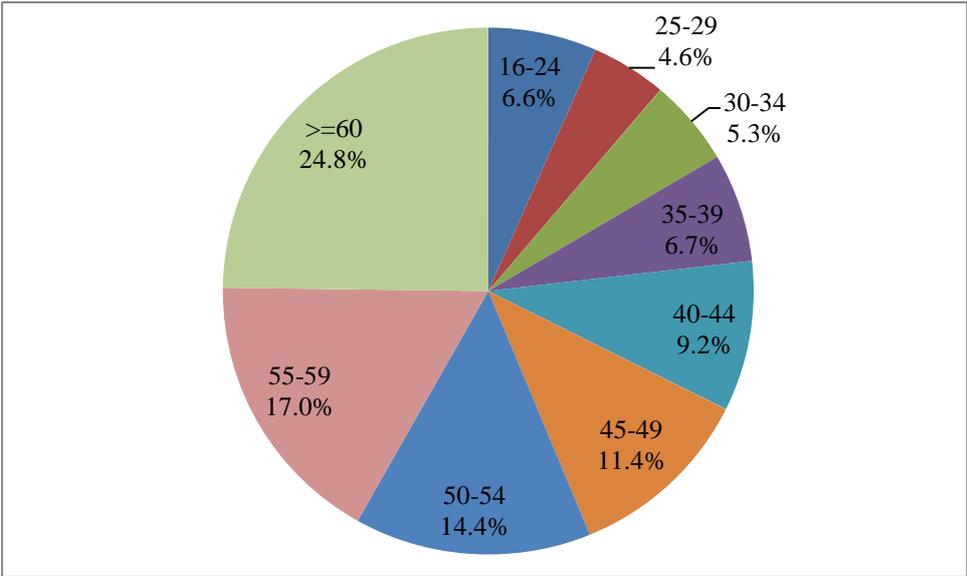
Source: FaHCSIA 2012, Characteristics of Disability Support Pension Recipients, June 2012

Figure 2: WCB by age categories
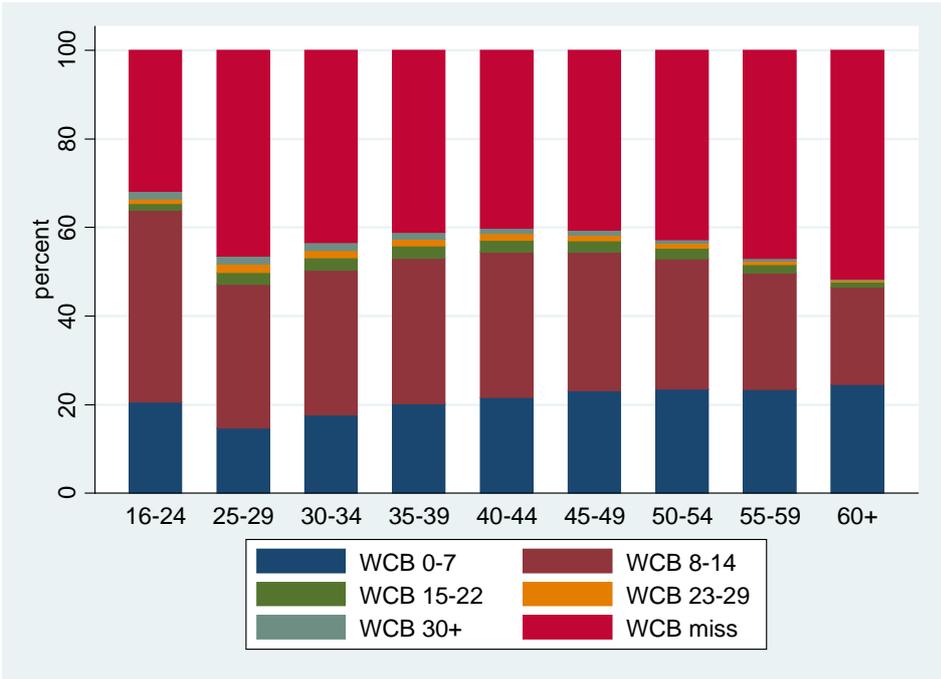
Notes: Snapshot of the number of individuals on DSP in June 2012. Categories are based on maximum of three assessments of the capacity to work: the current capacity to work, the expected future capacity to work in two years without interventions, and the expected future capacity to work with intervention. Those with a WCB 15+ or with no WCB assessment who receive DSP after the introduction of the *Welfare to Work* reform are most likely to be those in the grandfathered group (recipients who began a claim before 11/05/05), or have a manifest eligibility.
Source: Research and Evaluation Database (RED), own calculations.

Figure 2 shows the Work Capacity Bandwidth (WCB) by age groups. Note that there are very few DSP recipients assessed as having a WCB of more than 15 hours per week but many with a missing Job Capacity Assessment (JCA). Many of these cases were grandfathered under the 30 hour rule (who joined before 2006) and in most cases will not have had a JCA; other recipients have a manifest disability (for example, because of terminal illness) and are thus exempt from JCAs. The proportion of people with a WCB of 8 to 14 hours is very similar across age groups, although slightly higher in the older age groups (where a WCB of 0-7 hours is slightly higher than in the younger age groups). We keep the individuals with WCBs greater than 14 in the following graphs, but one has to keep in mind when interpreting the following graphs, that the proportion of those people among all DSP claimants is very low.

Figure 3 shows employment rates[16] by WCB and age group. Employment rates in this graph include only earnings from open employment and exclude earnings from disability supported employment. The employment rates are similar across different age groups, but as expected, are quite dissimilar across different WCBs within an age group. Employment rates are highest for people with a WCB of 15+ hours a week (11 per cent for the youngest age group and 15 per cent for the oldest age group). Only 6 per cent of the 16 to 24 year olds with a WCB of 0-7 hours are employed while approximately 12 percent of the 16 to 24 year olds with a WCB of 8-14 hours a week are employed. For those with a WCB less than 15 hours, employment rates are higher for younger than for older DSP recipients. Employment rates of the target group of the 2012 reform are around 10 per cent (for the oldest age group, ages 30-34) to 11 percent for the youngest age group (16-24). Within the WCB8-14 and WCB15+, the similarity of employment rates across ages groups, shows that employability of DSP recipients does not change greatly with age (at least until age 50-54) if one's work capacity is held constant; this suggest that the effect of activation measures – if any – should be similar across those age groups as well. In theory, there is scope for increasing employment rates among all age groups. However, to what extent activation measures (such as participation interviews) can increase employment rates in practice, will also be determined by – among other factors such as the activation measure itself – the general labour market conditions and by employers' willingness, as well as capacity, to hire individuals with disabilities in part-time jobs.

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[16] Employment is based on whether the person is in a spell with any continuous or variable daily earnings from employment.

Figure 3: Employment rate by WCB and age group

Figure 3a: Total employment
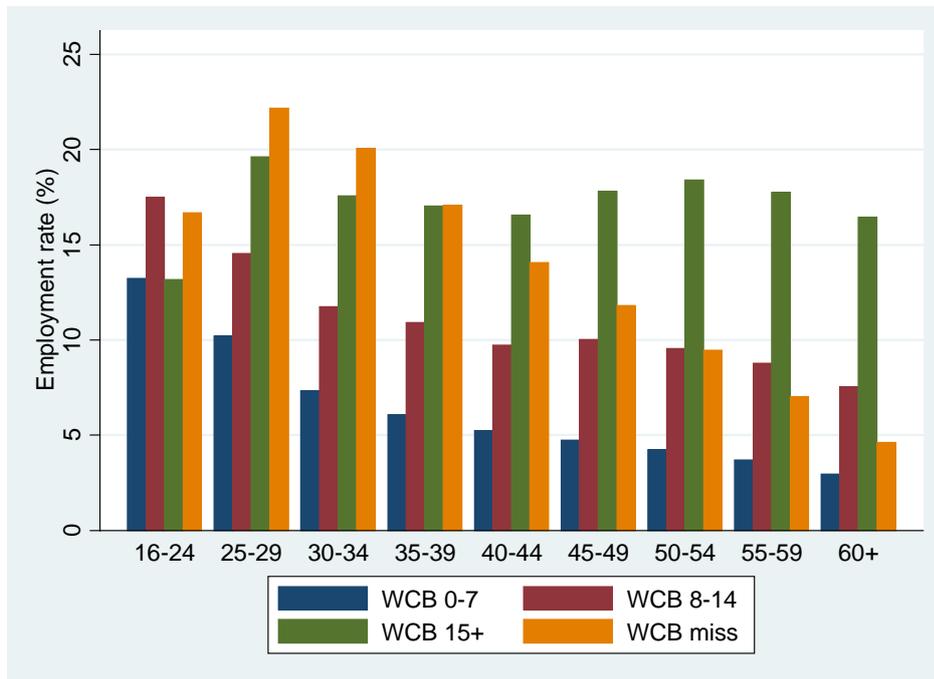
Figure 3b: Open employment (excluding earnings from SWS or ADE)
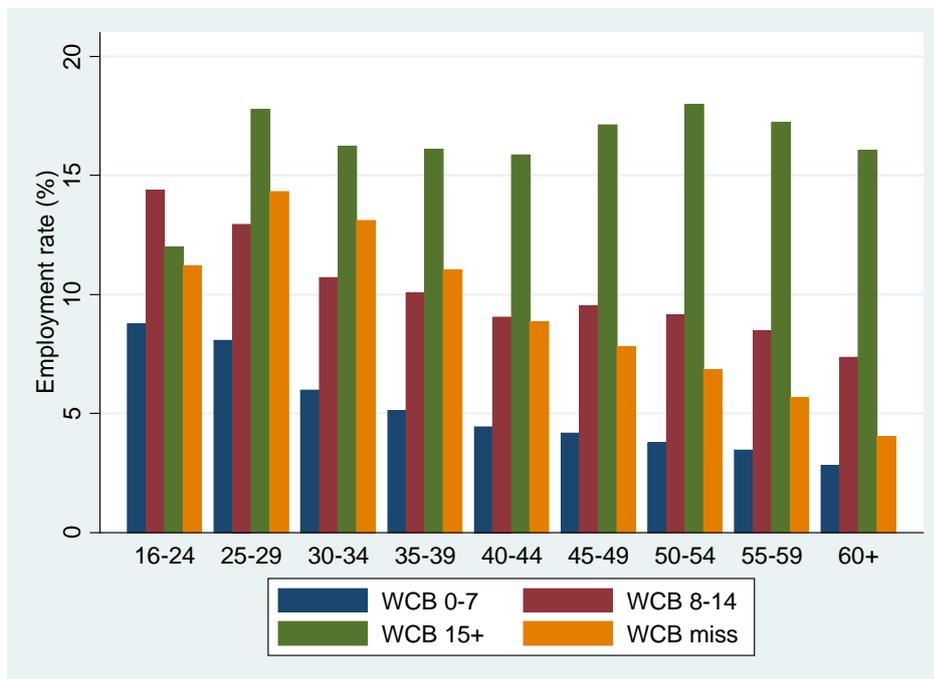
Notes: Proportion of people on DSP with any labour earnings in June 2012. The upper figure shows the probability of any positive earnings being recorded; the lower figure shows the probability that positive earnings from sources other than employment in ADE or SWS are recorded. Also see notes to Figure 2.
Source: Research and Evaluation Database (RED), own calculations.

Figure 4: Employment rate in disability supported employment by WCB and age
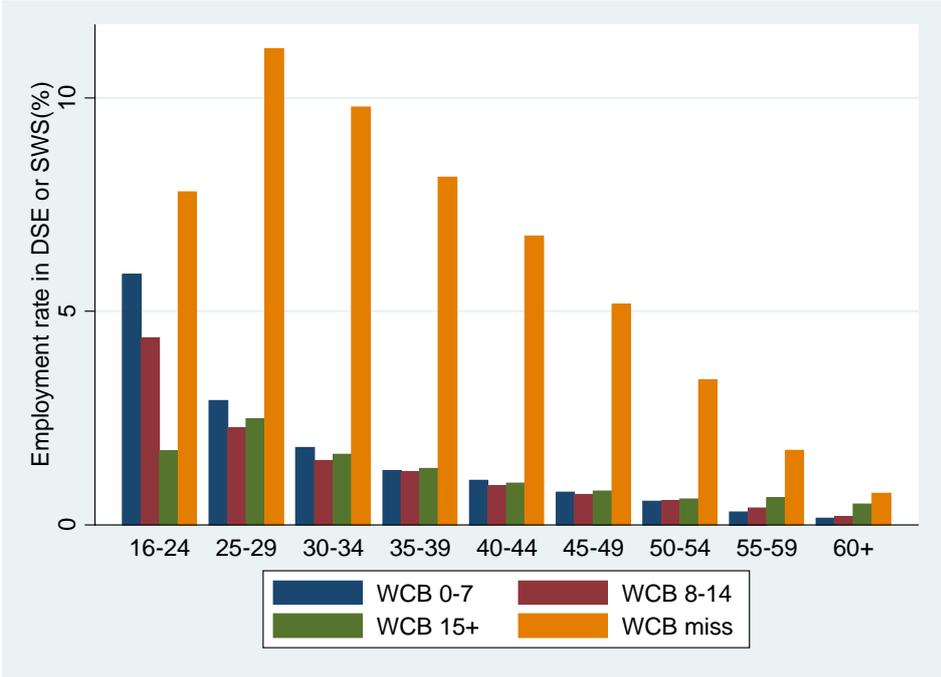
Notes: Proportion of people on DSP with any Labour Earnings from work in ADE or the SWS in June 2012.
Also see notes to Figure 2.
Source: Research and Evaluation Database (RED), own calculations.

Some DSP recipients work in disability supported employment (such as ADE or the SWS). The employment rates for those types of employment are shown in Figure 4.[17] These employment rates are much smaller, especially for older age groups (less than 3 percent for the 45+). For younger people (16-24) the employment rate is around 6 percent.

On average across all age groups and WCB, mean daily labour earnings for DSP recipients who participate in open employment amount to $37.02; median daily earnings are somewhat lower with $25.71 (again, for the purpose of this study open employment excludes those who are employed in disability supported employment or in the Supported Wage System).

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[17] People employed in disability supported employment may also be additionally employed in the open sector.

Figure 5 Earnings from open employment by WCB and age group

Figure 5a Mean daily earnings from open employment ($)
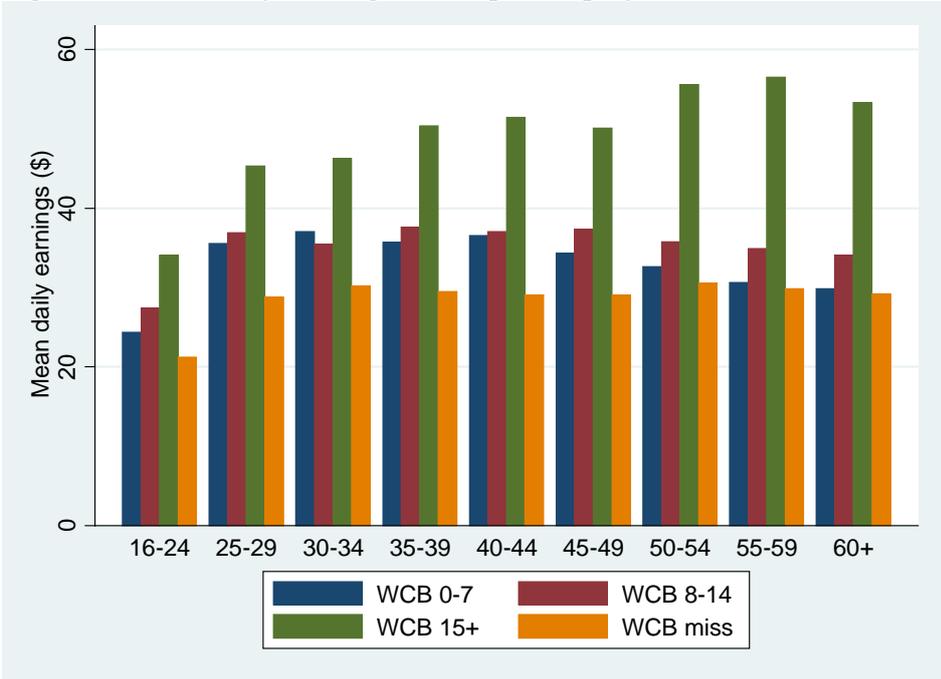
Figure 5b Median daily earnings from open employment ($)

Notes: Mean and median labour earnings of individuals on DSP with any Labour Earnings in June 2012, calculated over the period that earnings are recorded. This excludes DSP recipients working in disability supported employment (in ADE or the SWS). Also see notes to Figure 2.
Source: Research and Evaluation Database (RED), own calculations.

Figures 5 shows labour earnings across age groups and for different WCB. Within the main target group of people with a WCB of 8-14 hours, there is some variation across age groups; the highest earnings are recorded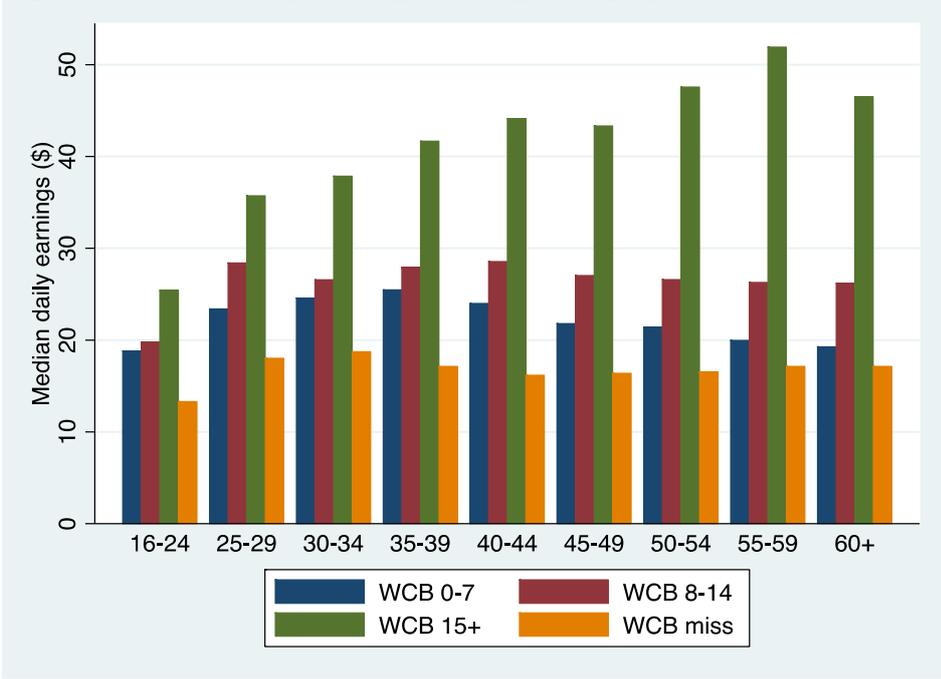 for those aged 25-45, with younger and older recipients having slightly smaller mean and median daily earning rates. The difference in earnings is stronger across WCB. The starkest difference across age groups can be found between DSP recipients with WCB 15+ and all other DSP recipients; those with higher WCB earn substantially higher amounts per day and this increases with age; for those older than 50 years of age, mean daily earnings exceed $50, and median daily earnings are not much below that. For recipients with lower WCB, mean daily earnings are below $40 and daily median earnings well below $30, and both are decreasing in age. DSP recipients with WCB of 0-7 hours and 8-14 hours look very similar to each other in the age group 25 to 40; in older recipients, a small earnings gap between a WCB of 0-7 hours and 8-14 hours appears. In median earnings, this gap is somewhat wider in all age groups. Those with missing WCB have the lowest mean and median earnings in all age groups, and lag considerably behind those with WCB 0-7 hours and 8-14 hours. Clearly, DSP recipients' earnings decline sharply with the recipient's WCB (as expected); earnings also deteriorate somewhat with age except in the highest WCB. Note that the majority of DSP recipients with reported earnings have variable earnings, which are recorded fortnightly, and rarely yield the same earnings over a long period of time such as a full year. Extrapolating daily earnings of those who are employed thus will not yield a valid estimate for example of their annual earnings.

Figure 6 shows mean and median earnings for those who work in disability supported employment. Here, mean and median earnings are significantly lower than for those working in open employment, but the earning rates are very similar across age groups and WCB. The lower earnings rates indicate that those working in disability supported employment work fewer daily hours, at a lower wage or more often on supported wages, than those who work in the open labour market.

Figure 6: Daily earnings from disability supported employment by WCB and age group

Figure 6a Mean daily earnings from supported employment ($)
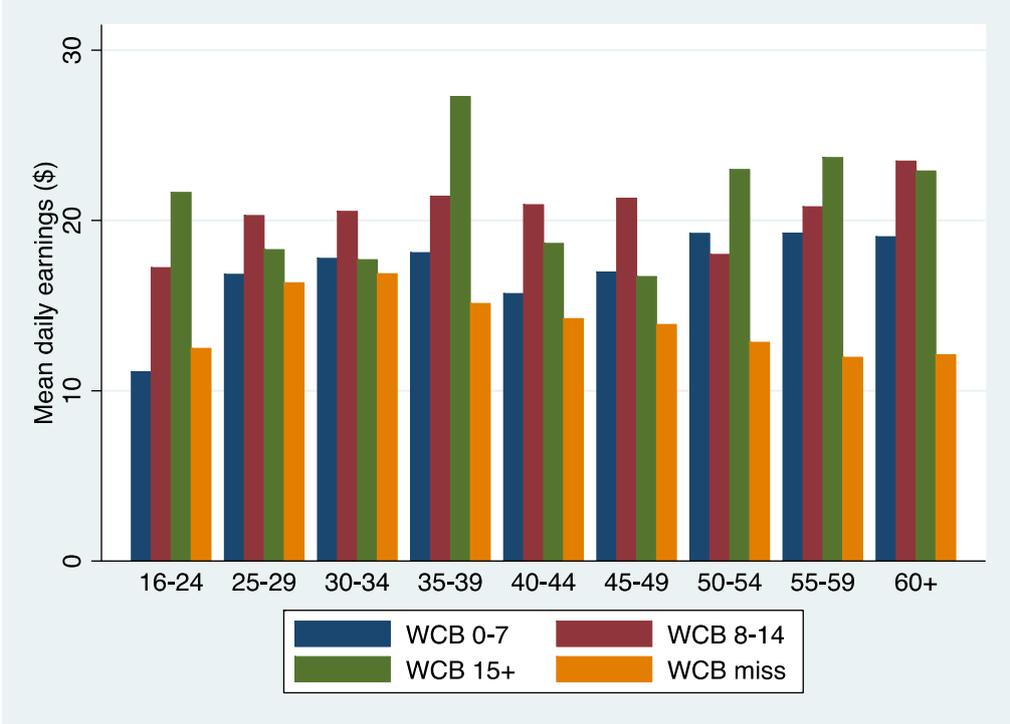
Figure 6b Median daily earnings from supported employment ($)
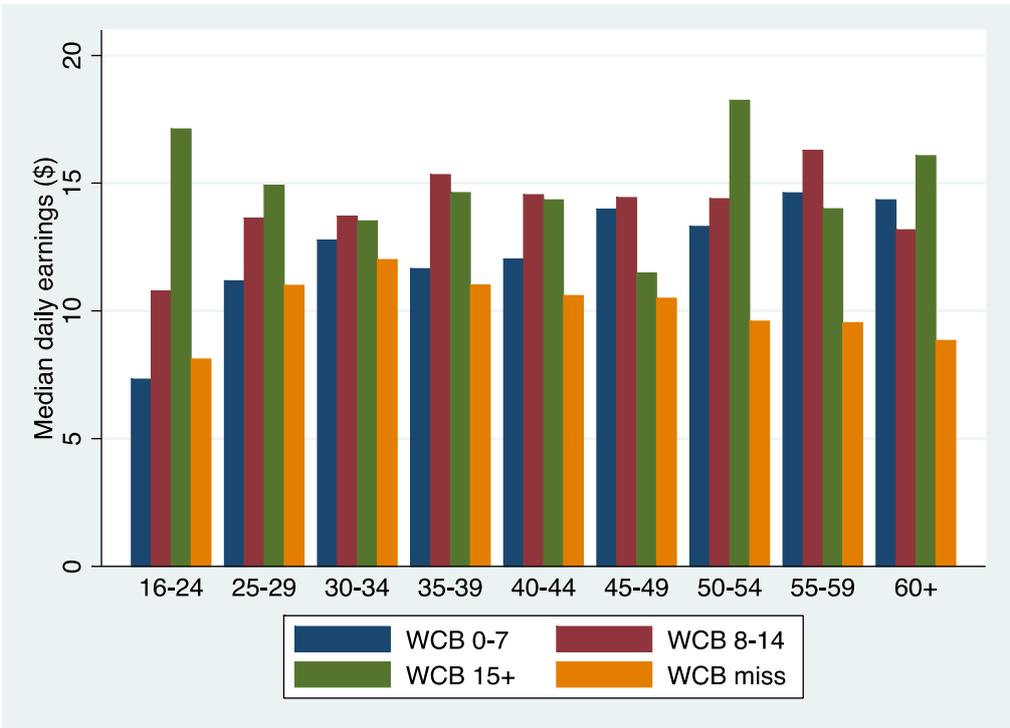
Notes: Mean and median labour earnings for DSP recipients who work in ADE or the SWS in June 2012. Also see notes to Figure 2.
Source: Research and Evaluation Database (RED), own calculations.

Figure 7 shows participation in a support program provided by Disability Employment Services (DES) or Job Services Australia (JSA). Participation in a support program is common for individuals with a partial capacity to work; 40 to 50 per cent of working-age individuals in the WCB15+ category receive support from DES or JSA. For individuals with lower WCB, participation in a support programs is, naturally, less common; in the youngest age group, 10 and 20 per cent of recipients with WCB 0-7 and WCB 8-14 receive support from DES or JSA, and the rate further declines with age.

Figure 7 Participation in a DES/JSA program of support by WCB and age group
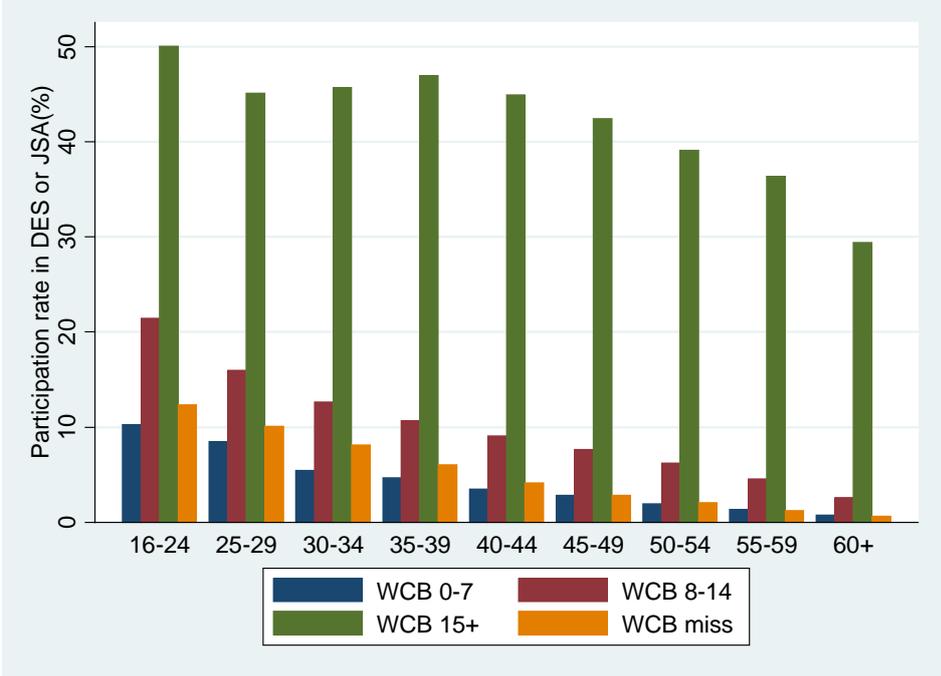
6.2 Observations available for the evaluation of the reform's effect on employment

There were 25,282 people in the RED identified to be on DSP in June 2012 born after 1 July 1979 and before 1 June 1982. Restricting the dataset to individuals with a WCB of more than 7 hours per week, leaves us with 6,142 individuals. As the participation interviews are not compulsory for (i) individuals on disability supported employment (those in Australian Disability Enterprises or the Supported Wage System), (ii) individuals with children under 6 years of age or (ii) individuals with a manifest disability, we additionally exclude those individuals from the analysis. We furthermore exclude the highest percentile of earnings recipients to avoid influential outliers likely due to data entry or coding errors. These restrictions leave us with 5,032 individuals for the **'before-period'** for the calculation of the ITT. The analogous population aged 35-38 comprises 6,431 individuals.

Means-comparisons-tests were used to test how similar treatment and control group are in their socio-economic characteristics at the time of the 'before-period'. At the 5- per cent-level of significance, the eligible population is more male, Australian-born, childless, and less likely to have a partner who receives IS. They are also less likely to have a physical primary disability and more likely to have psychiatric primary disability or an intellectual/learning disability. (The full set of means-comparison tests is presented in Appendix A). To ensure that the analysis compares like-for-like, 5,032 individuals from the non-eligible population are drawn, each of which is as close a match to one of the treated individuals as possible. The remaining 1,399 non-eligible individuals are removed from the analysis. Table 3 shows characteristics of treatment and control group after that procedure in the before-period; the two groups are now comparable in all observed characteristics with the exception of the prevalence of intellectual primary disabilities and psychiatric primary disabilities, which differ at the 5- per cent- level.[18,19]

Around four in ten individuals in the treatment group as well as in the control group are female, 6 per cent are Indigenous Australians, and nine out of ten were born in Australia. Most individuals are Single (more than 90 per cent); among the minority who do have a partner, almost two out of three have a partner who receives income support as well. The average medical impairment rating is around 15 per cent above the minimum of twenty impairment points. For one in two individuals, the primary disability is a psychiatric condition, and one in four suffers primarily from a physical condition; another eight per cent have an intellectual impairment. Fourteen per cent of the individuals in treatment and control group report positive earnings in the 'before-period' month; the average daily earnings for the employed amounted to $37 for the treatment group and $40 for the control group.

Table 3 Socioeconomic characteristics of treatment and control group (ITT)

	Group:	Treatment: Was eligible	Control: Was not eligible	Diff.	Std. Err.
Variable:					

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[18] Instead of using 35-38 year-olds as basis for the control group and 31-34 year-olds as basis for the treatment group, one could define narrower or wider age-intervals. We tested two alternative specifications: in the first, we restrict the analysis to those being born within one year before or after the relevant age threshold; in the second, we expand the analysis to those born within five years before or after the age threshold. This report presents the estimation results based on the three-year-windows for the date of birth before and after the age threshold: the number of observations is too small for the smaller window, but the matching procedure for the wider window failed to balance the treatment group and control group in terms of the crucial characteristic of their probability of being employed.

[19] Note that the reported characteristics for the treated group describe the 'real' target population of the reform, whereas the control group is an artificially constructed population designed with the sole purpose of matching the treatment group that has no direct equivalent in the 'real world'.

Gender					
Male	0.60	0.61	0.00	0.01	
Female	0.40	0.39	0.00	0.01	
Indigenous Status					
Not Indigenous	0.94	0.94	0.00	0.00	
Aboriginal/ Torres Strait Islander	0.06	0.06	0.00	0.00	
Country of birth					
Australia	0.89	0.89	0.00	0.01	
Main English-speaking country	0.03	0.03	0.00	0.00	
Not a main English-speaking country	0.08	0.07	0.00	0.01	
Family					
No partner	0.92	0.92	0.00	0.01	
Partner who receives IS	0.05	0.05	0.00	0.00	
Partner who does not receive IS	0.03	0.03	0.00	0.00	
Has no children	0.89	0.89	0.00	0.01	
Has children	0.11	0.11	0.00	0.01	
Medical Impairment rating (points)	23.43	23.39	-0.05	0.15	
Primary Disability					
Physical	0.27	0.27	0.00	0.01	
Intellectual/Learning	0.08	0.07	-0.01	0.01	*
Psychiatric	0.54	0.56	0.02	0.01	*
Sensory	0.03	0.02	0.00	0.00	
Unknown/ not recorded	0.08	0.07	-0.01	0.01	
Employment					
Employed (=has reported earnings)	0.14	0.14	-0.01	0.01	
Daily Earnings if employed ($)	37.31	40.10	2.79	1.61	
Number of observations	5032	5032			

Notes: All individuals had on 30 June 2012 a future WCB of 8 hours or more, no children less than 6 years of age, were not working in an ADE or in the SWS. Treated individuals are the birth cohorts July 1979 to June 1982. Control individuals are a sub-sample drawn from the birth cohort July 1974 to June 1977. The sub-sample was drawn in such a way as to closely resemble the treated individuals, using nearest-neighbour-matching. Table entries are proportions unless stated otherwise.
***, ** and * indicate significance at the 0.1%-level, 1%-level and 5%-level.
Source: Research and Evaluation Database (RED), own calculations.

The observations used for the calculation of the ATE are a sub-set of those 5,032 treatment observations and 5,032 control observations for the ITT. In the eligible population, 1,319 actually received an interview before May 2013. Only a small number of interviews took place immediately in the month after the reform, and most interviews for these individuals happened in the three-months-period from August 2012 to October 2012. Table 4 shows the distribution of interview dates for the treated sample.

Table 4 Timing of participation interviews

Month of interview	Frequency
July 2012	11.8%
August 2012	12.0%
September 2012	15.0%
October 2012	8.6%
November 2012	6.2%
December 2012	6.7%
January 2013	7.8%
February 2013	7.8%
March 2013	7.8%
April 2013	7.7%
May 2013	8.5%

Source: Research and Evaluation Database (RED), own calculations.

The individuals who receive an interview differ substantially from the eligible population as a whole in terms of a range of socio-economic characteristics (compare the first column of Table 5 with that of Table 3. Detailed means-comparison tests for interviewees and non-interviewees as well as for early and later interviewees are included in Appendix B). Those who receive an interview are somewhat more likely to be female, and marginally more likely to be not Indigenous and to be Australian-born. They have a very slightly lower probability of having children, and a very slightly higher probability of having a partner who does not receive IS. The prevalence of intellectual disabilities and sensory disabilities is lower among the interviewed, while physical and psychiatric conditions are more common; their impairment level is somewhat lower. However, most of these differences are small. The most important and noticeable difference occurs in the employment probability, which is 22 per cent among those who received an interview, compared to only 14 per cent among the whole eligible population. Apparently, the more employable DSP recipients were more likely to receive an interview. In other words: the reform has reached a more employable group. This immediately raises the question whether and to what extent the participation interviews were successful in activating additional labour force potential above and beyond the generally higher employability of the target group.

When drawing a comparable sub-set from the non-eligible population to form a new control group for the calculation of the ATE, we take those characteristics into account. Similar as before, for each of the 1,319 individuals with an interview, we use one of the 5,032 non-eligible individuals from the control group for the ITT, who closely resembles the interviewee in their socio-economic characteristics. The interview date of the treated individual is

assigned as 'hypothetical interview date' to that matching individual from the non-eligible population.

Table 5 Socioeconomic characteristics of treated and control group (ATE)

Variable	Group: Treatment: Was eligible; received interview	Control: Was not eligible; hypothetical interview	Diff.	Std. Err.
Gender				
Male	0.56	0.56	0.00	0.02
Female	0.44	0.44	0.00	0.02
Indigenous Status				
Not Indigenous	0.95	0.95	0.00	0.01
Aboriginal/ Torres Strait Islander	0.05	0.05	0.00	0.01
Country of birth				
Australia	0.91	0.91	0.00	0.01
Main English-speaking country	0.03	0.03	0.00	0.01
Not a main English-speaking country	0.06	0.05	0.00	0.01
Family				
No partner	0.91	0.91	0.00	0.01
Partner who receives IS	0.05	0.05	0.00	0.01
Partner who does not receive IS	0.04	0.03	0.00	0.01
Has no children	0.88	0.86	-0.02	0.01
Has children	0.12	0.14	0.02	0.01
Medical Impairment rating	23.09	22.72	-0.37	0.25
Primary Disability				
Physical	0.32	0.33	0.01	0.02
Intellectual/Learning	0.05	0.04	-0.01	0.01
Psychiatric	0.57	0.57	0.00	0.02
Sensory	0.02	0.02	-0.01	0.01
Unknown/ not recorded	0.04	0.04	0.00	0.01
Employment				
Employed (=has reported earnings)	0.22	0.20	-0.03	0.02
Daily Earnings if employed	38.90	39.83	0.93	2.56
Number of observations	1319	1319		

Notes: Treated and control individuals are a sub-set of the population represented in Table 3: the first column is based on all individuals who received a participation interview between July 2012 and May 2013 from the treated population in Table 3; and the second column comprises randomly drawn individuals with characteristics similar to them . Also see notes to Table 3.
Source: Research and Evaluation Database (RED), own calculations.

Table 5 shows the characteristics of treatment and control group for the calculation of the

ATE after that selection process, in the month prior to their actual or 'hypothetical' interview.

They are now very similar to each other and no longer show significant differences in any of

the observed characteristics, including earnings in the month prior to the interview/hypothetical interview.

Starting with a total of 10,064 observations for the calculation of the ITT and 2638 for the calculation of the ATE, those numbers are slightly reduced over time as some people either drop out of DSP over time or experience a change in circumstances such that they no longer fulfil the requirements for being in the treatment group or control group. As a result, more observations are available to calculate the effect of the reform one month after its introduction, or the effect of an interview one month after the interview, than are available to calculate the same effects a few months later. Table 6 shows the development over time. Out of the 5,032 individuals in treatment and control group for the calculation of the ITT, about 82 per cent and 85 per cent are still available for the analysis twelve months later. For the ATE, the decline in the number of observations is much steeper. This is because the timing of the interview additionally restricts the potential period of observation after the interview. For example, an individual who was interviewed in December 2012 gives us information about the change in employment outcomes within 5 months after the interview, but not beyond.

Table 6 Number of observations over time

	ITT		ATE	
	Treated	Control	Treated	Control
Before-period	5032	5032	1319	1319
After-period				
+ 1 month	4980	4994	1319	1303
+ 2 months	4894	4927	1193	1188
+ 3 months	4826	4868	1089	1078
+ 4 months	4727	4812	984	974
+ 5 months	4621	4742	879	871
+ 6 months	4544	4666	779	770
+ 7 months	4482	4614	692	686
+ 8 months	4424	4545	608	605
+ 9 months	4350	4473	501	495
+ 10 months	4297	4421	320	320
+ 11 months	4219	4343	172	176
+ 12 months	4141	4292	38	38

Notes: The 'before-period' is 1 July 2012 for the ITT, and the month before the interview for the ATE (from July 2012 to May 2013).
Source: Research and Evaluation Database (RED), own calculations.

For the effect of participation interviews on earnings, the sample needs to be further restricted to those who have any recorded earnings, which is the case for only just over twenty per cent of the population of interest (see Table 5). To ensure a sufficient quality of the results, the

effect of the reform on employment and program participation is presented for only ten months after the reform/after the interview in this report. The effect of participation interviews on earnings for those who are employed is further restricted to a period of eight months after the interview, which is the longest time period for which both treatment group as well as control group comprise at least 100 employed individuals each.

7   Estimation results

7.1   Employment and earnings

Table 7 shows the effect of *eligibility* for a participation interview on the employment rate of DSP recipients in the relevant age group (ITT analysis). Each row represents a separate estimation; for each estimation, the employment rate is measured in the before-period, as well one, two, three, …, or twelve months later. The observations used for each of the estimations varies slightly, as the first estimation is constrained to individuals who are observed in the before-period and one month later, the second estimation is constrained to individuals who are observed in the before-period and two months later, and so on (see Table 6). Column A shows the predicted employment rate for a 33 to 34 year old DSP recipient at a given point in time after becoming eligible for a participation interview, and column B shows the employment rate in the month before the reform was introduced, holding other socioeconomic characteristics (as included in Table 5) constant. The third column A-B shows the increase in employment rates after the reform, which is close to zero for all chosen points in time. The reform is not connected to a visible increase in employment rates in the eligible population. As a comparison, columns C and D present the same employment rates for the control group (while holding socioeconomic characteristics constant, and identical to the treatment group). The employment rates for the control group that before July 2012 is about 14 per cent. After the reform, there is a small decrease over time which amounts to about one to one and a half percentage points (column C-D). Finally, the seventh column (A-B)-(C-D) shows the difference-in-difference-estimate for the impact of eligibility for participation interview, which is about zero to a maximum of one and a half percentage points, but statistically insignificant.

Table 8 shows the corresponding results for mean daily earnings. Those who will become eligible for a participation interview in July 2012 earned \$37.30 per day on average if they were employed in June 2012 and \$37.93 per day if they were employed a month later. If we restrict the estimation to individuals who were observed in June 2012 and ten months later, we predict average daily earnings of \$36.38 in June 2012 and \$39.40 in June 2013. The individuals who are observed longer after June 2012 earn less than those who are observed for shorter periods, but the difference is small. When comparing earnings before July 2012 and ten months later (column A-B), we see an increase of up to eight per cent. However, these are nominal changes and at least partly explained by inflation. Moreover, the changes in earnings for the employed members of the treatment group are not very different with the development

of earnings over time for the employed members of the control group who did not become eligible for participation interviews. Employed individuals in the control group earned about $40 per day before and after July 2012. A for the treatment group, those who are observed for a longer period of time after July 2012 earn slightly less, and nominal earnings increase by about five per cent ten months after the reform. Finally, the difference-in-differences estimate for the impact of eligibility or participation interviews on daily earnings is statistically insignificant for the first ten months after introduction of the reform. Its sign is sometimes positive and sometimes negative, and the standard errors are large.

Table 7 Effect of eligibility (ITT) for participation interview on employment rate

	A	B	A-B	C	D	C-D	(A-B) - (C-D)	
Time after becoming eligible	Treated | After	Treated | Before	Difference	Control | After	Control | Before	Difference	Difference in differences	Std. Err.
1 month	14.3%	14.4%	0.000	13.6%	13.9%	-0.003	0.003	0.010
2 months	14.4%	14.2%	0.001	13.6%	13.9%	-0.003	0.004	0.010
3 months	14.3%	14.2%	0.002	13.6%	13.9%	-0.003	0.005	0.010
4 months	15.0%	14.2%	0.008	13.3%	13.9%	-0.006	0.013	0.010
5 months	15.4%	14.4%	0.010	13.4%	13.9%	-0.004	0.015	0.010
6 months	14.8%	14.5%	0.004	12.8%	13.9%	-0.010	0.014	0.010
7 months	14.0%	14.5%	-0.004	12.3%	13.9%	-0.016	0.012	0.010
8 months	14.1%	14.5%	-0.004	12.4%	13.9%	-0.015	0.010	0.010
9 months	14.0%	14.6%	-0.006	12.6%	13.9%	-0.013	0.007	0.010
10 months	13.9%	14.7%	-0.008	12.4%	14.0%	-0.016	0.008	0.010

Notes: Treated and control individuals are the population described in Table 3. Also see notes to Table 3.
Source: Research and Evaluation Database (RED), own calculations.

Table 8 Effect of eligibility (ITT) for participation interview on average daily earnings

	A	B	A-B	C	D	C-D	(A-B) - (C-D)	
Time after becoming eligible	Treated | After	Treated | Before	Difference	Control | After	Control | Before	Difference	Difference in differences	Std. Err.
1 month	37.93	37.30	0.62	39.47	40.21	-0.74	1.37	2.28
2 months	39.83	37.23	2.60	39.26	40.03	-0.77	3.37	2.29
3 months	38.96	37.30	1.66	41.09	39.94	1.15	0.51	2.35
4 months	39.41	37.25	2.16	41.26	39.64	1.62	0.54	2.35
5 months	39.28	37.26	2.02	42.00	39.68	2.32	-0.30	2.34
6 months	40.70	37.30	3.40	41.07	39.58	1.48	1.92	2.38
7 months	37.68	37.11	0.57	39.19	39.50	-0.31	0.88	2.40
8 months	39.27	36.99	2.28	41.40	39.01	2.39	-0.11	2.42
9 months	40.29	36.50	3.79	42.27	38.81	3.46	0.33	2.42
10 months	39.40	36.38	3.02	40.74	38.65	2.09	0.94	2.45

Notes: Treated and control individuals are the population described in Table 3. Also see notes to Table 3.
Source: Research and Evaluation Database (RED), own calculations.

Tables 9 and 10 refer to the average treatment effect. The before-period is now the month of interview for the treated group, and estimation is restricted to individuals who are observed in the before-period and one month later, or in the before-period and two months later, and so on. On average, those who had an interview between July 2012 and May 2013 had an employment rate of 22 per cent in the month before their interview (Column 'B', first row). Restricting the sample to individuals who were observed two, three, and so on up to 10 months after the interview is equivalent to restricting the sample to individuals who had their interview before April 2013, March 2013 and so on. Individuals for whom we can observe any effects of participation interview for up to ten months had their interview no later than in September 2012. As can be seen in column B, the employment rate prior to an interview is relatively stable at around 22 to 23 per cent for those different interview dates. As discussed in the previous section, given the sharp difference in employment rates for those with participation interviews (22 per cent) versus those without (14 per cent), it appears the higher an individual's employability, the higher was their probability of having a participation interview.

Table 9 Effect of receiving a participation interview (ATE) on employment rate

	A	B	A-B	C	D	C-D	(A-B) - (C-D)	
Time after becoming eligible	Treated | After	Treated | Before	Difference	Control | After	Control | Before	Difference	Difference in differences	Std. Err.
1 month	22.8%	22.3%	0.005	19.7%	19.6%	0.001	0.004	0.022
2 months	22.4%	22.5%	-0.001	19.8%	20.3%	-0.005	0.004	0.023
3 months	22.9%	23.1%	-0.002	19.9%	21.0%	-0.011	0.009	0.025
4 months	22.0%	21.9%	0.001	19.1%	20.3%	-0.012	0.013	0.026
5 months	20.6%	22.1%	-0.015	18.2%	20.1%	-0.019	0.004	0.027
6 months	21.8%	22.4%	-0.006	19.0%	20.2%	-0.012	0.006	0.029
7 months	22.3%	22.5%	-0.002	17.9%	20.1%	-0.022	0.021	0.031
8 months	21.4%	21.9%	-0.005	16.9%	19.1%	-0.022	0.017	0.032
9 months	20.5%	23.0%	-0.025	16.8%	19.9%	-0.031	0.005	0.035
10 months	19.4%	20.8%	-0.014	15.9%	18.5%	-0.026	0.012	0.043

Notes: Treated and control individuals are the population described in Table 5. Also see notes to Tables 3 and 5.
Source: Research and Evaluation Database (RED), own calculations.

However, if we compare the same individuals before and after the interview, no difference in employment rates is visible in the first 10 months. There is some very minor decline in the employment rates (up to about two percentage points after nine months), but the effect is small and very insignificant. Moreover, it is also found in the control group, equally small and insignificant. This suggests that the stable employment rates over time for the treated group

would have been observed without participation interviews as well. Overall, participation interviews do not seem to have increased employment rates among DSP recipients in the relevant age group. Table 10 shows, likewise, no clear positive effect on daily earnings over time for the treated group. While the selection into having an interview was partly driven by the DSP recipient's employability, daily earnings do not seem to have played as much of a role in the selection: employed interviewees had daily labour earnings of about $37 to $40 before participating in the interview; only marginally higher than $36 to $37 per day that we observed for the entire eligible population before the introduction of the reform. After being interviewed, earnings increased by up to $3 eight months after the interview, but were lower than before the interview for other time intervals. No clear trend is visible. The same patterns in earnings over time (being sometimes slightly higher and sometimes slightly lower after the 'hypothetical interview' than before) is observed for the control group (see column 'C-D'); the difference-in-differences estimator finally shows no significant effect, neither positive nor negative of participation interviews on sub-sequent earnings of the employed.[20]

Table 10 Effect of receiving a participation interview (ATE) on average daily earnings

Time after becoming eligible	A Treated | After	B Treated | Before	A-B Difference	C Control | After	D Control | Before	C-D Difference	(A-B) - (C-D) Difference in differences	 Std. Err.
1 month	38.46	39.23	-0.77	39.28	39.06	0.22	-0.99	3.57
2 months	39.66	40.01	-0.34	40.66	39.80	0.86	-1.20	3.76
3 months	38.58	39.01	-0.43	41.13	39.23	1.89	-2.32	3.91
4 months	39.74	37.05	2.69	39.84	38.50	1.33	1.35	4.23
5 months	35.30	37.14	-1.84	37.51	37.81	-0.30	-1.54	4.17
6 months	36.82	36.71	0.12	36.11	37.18	-1.07	1.19	4.33
7 months	40.32	37.91	2.41	35.86	36.96	-1.10	3.50	5.00
8 months	40.40	37.34	3.06	37.25	36.96	0.28	2.78	5.29

Notes: Treated and control individuals are the population described in Table 5. Also see notes to Tables 3 and 5.
Source: Research and Evaluation Database (RED), own calculations.

7.2 Participation in a program of support from DES or JSA

Of all individuals who had a participation interview, 22 per cent participated in a program of support with DES or JSA in the month before their interview. This participation rate was higher than for the control group, for which it was around 15 per cent. Did the interviews

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[20] To further verify the absence of any earnings effects, we also estimated the effect on median earnings using a quantile regression, and changed the definition of control group and treatment group to comprise a wider or narrower window of birth dates (one year and five years.) No significant earnings effect for those estimations is found; the results are shown in Appendix C.

cause individuals to participate in a support program, who otherwise would not have done so? Our methodological approach for investigating this question is somewhat different from the approach we used to estimate the interviews' effects on earnings and employment. Participation in a support-program is usually not designed to be as short-term as daily earnings or having any positive earnings can be (which both tend to vary considerably from one fortnight to the next for DSP recipients). The number of individuals who begin or end a support program at any given point in time is thus small compared to the number of individuals who continue in a support program at the same point in time. In such a case, the probability of becoming participant in a support program is in many ways the more interesting outcome, than the probability of being a participant is.

We thus amend the analysis to one that is suitable to show possible effects of participation interviews on *inflows* into program support, rather than the *stock* of support program participants. We focus on referrals to DES or JSA which subsequently resulted in program participation. For each episode of participation in a support program, the date when the program begins as well as the referral date are recorded. We construct a dummy variable that indicates for each individual, whether a successful referral (that is a referral that results in commencement of a support program) to DES or JSA occurred in any given month: if the individual participates in a program of support at any point in time between 2010 and the end of our observation period in May 2013, the dummy variable takes value one in the month they were referred to that program, and zero in all other months (including those of program participation). Relating the month of program referral to their month of interview allows us to graphically show the effect of participation interview on referrals as shown in Figure 8. Each month, around 0.5 to 1.5 per cent of all individuals in the control group and treatment group respectively are referred to DES or JSA, which we can interpret as an underlying 'baseline' rate of successful referrals. It is plausible to assume that the difference between treatment and control group in this baseline rate reflects the treatment group's higher employability. Only in the treatment group and only in the month of their actual interview does this rate increase substantially to almost 4 per cent.[21] The increase by 2.5 percentage point is thus plausibly attributable to participation interviews. Figure 9 shows a similar picture for males and females, who both experience the same "spike" in referral rates exactly in the month when their interview took place. No such effect is found for the "hypothetical interview month" for the control group. Interestingly, there is also no "dip" in referral rates in the month(s) leading

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[21] In absolute numbers, 79 referrals during the interview month are observed for the treatment group.

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up to the month of the participation interview, which suggests that the spike in the interview months represents *additional* referrals, rather than a mere change in timing of referrals.

Figure 8 Referral rate to DES/JSA over time
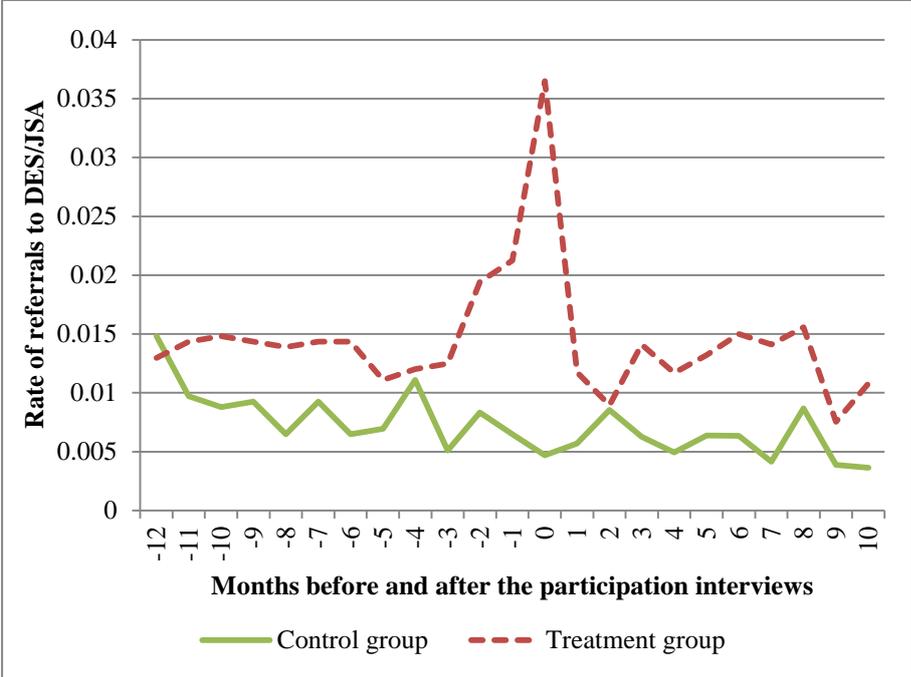
Notes: Only referrals that result in commencement of a support program are included. Treated and control individuals are the population described in Table 5. Also see notes to Tables 3 and 5.
Source: Research and Evaluation Database (RED), own calculations.

Figure 9 Referral rate to DES/JSA over time by gender
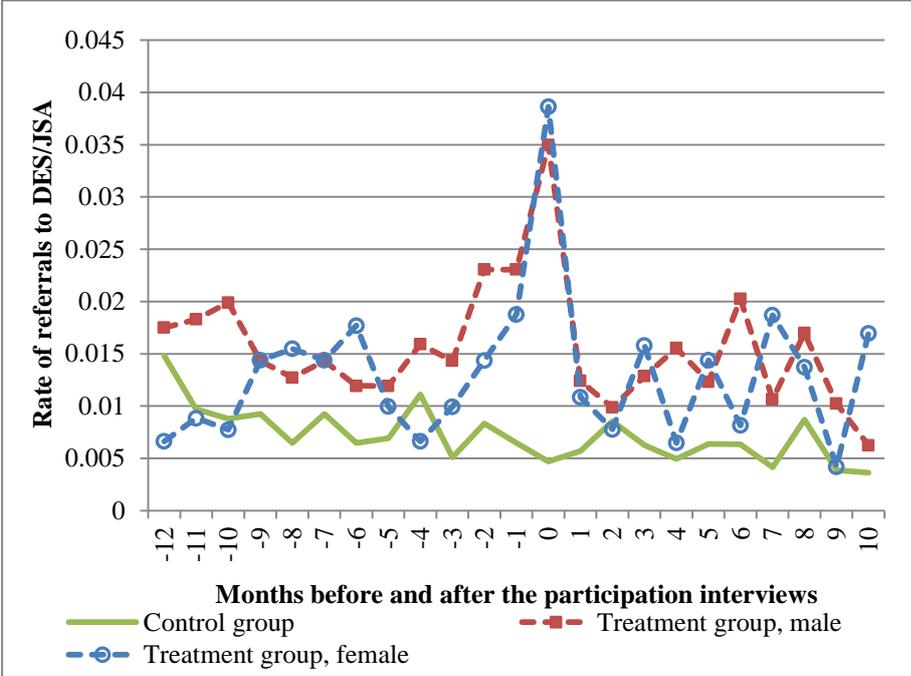
Notes: Only referrals that result in commencement of a support program are included. Treated and control individuals are the population described in Table 5. Also see notes to Tables 3 and 5.
Source: Research and Evaluation Database (RED), own calculations.

Table 12 shows the results of a regression to test whether this spike is statistically significant. The estimation's left-hand side contains whether an individual was referred to DES or JSA in a given month and the main explanatory variable is a dummy-variable indicating whether the given month was the interview month. We also control treatment status and whether the month was that of the "hypothetical interview" for the control group, as well as the same socio-economic characteristics as before. We find that the fact that a given month is the interview month increases the probability of being referred to DES or JSA by 2.5 percentage points with a standard error of .003, which is highly statistically significant at the 0.1 per cent-level. When we repeat the estimation and include an interaction term of this dummy variable with an individual's gender, the estimation yields a somewhat smaller effect for men and a higher effect for women; however the difference by gender is not statistically significant.

Table 11 Effect of participation interviews on monthly referrals to DES/JSA

	Coefficient	*Standard Error*	
-Average increase in the probability of referral to DES/JSA during interview months, compared to other times	0.025	0.003	***
Interacted with gender:			
Base-effect: average increase in referral rate during interview month for men and women	0.021	0.004	***
Additional increase in referral rate only for women	0.010	0.007	

Notes: Only referrals that result in commencement of a support program are included. Treated and control individuals are the population described in Table 5. Also see notes to Tables 3 and 5.
Source: Research and Evaluation Database (RED), own calculations.

It appears that participation interviews, while having no clear effect on employment and earnings, do lead to more successful referrals to DES or JSA. The magnitude of this effect is open for interpretation. On the one hand, the overall referral rate is low even when interviews are conducted: only about 1 per cent of the individuals in the treatment group get a referral in a 'normal' month, and only about 4 per cent get such a referral when they receive an interview. This has to be seen in light of the overall participation rate: of all individuals who were interviewed, 22 per cent were already participating in a support program at the time of the interview, and by extension, 78 per cent were not participating. Yet during the interviews, it appears that only 4 out of 78 interviewees, who were not in a program of support already, were referred to one. On the other hand, the interviews caused the rate of referral to increase by 2.5 percentage points, to nearly 4 per cent. That is, the interviews more than doubled the referral rate. Moreover, the referral rate in the months just before and just after the interview

suggest that this is not about a change in timing, but that the additional referrals that we observe during the interview months, otherwise would not have occurred. Although small in absolute terms, in relative terms this increase is of practical significance. Another open question is, however, to what extent this will translate into employment outcomes over time. DES usually provides 18 months of employment assistance followed by placement support, and whether the additional participation led to improved employment outcomes will thus be better judged when at least two years after the interviews have passed.

Conclusions

This research studied the employment and employment service related impacts of participation requirements for DSP recipients under 35 years of age based on participation interviews conducted between 1 July 2012 and May 2013 (the first 11 months of policy implementation), allowing potential impacts to be measured over periods of up to 10 months. Findings for this study population can be summarised as follows.

1)   DSP recipients with higher employment probability were more likely to be interviewed.

Individuals who had a participation interview by the end of our observation period were substantially more likely to have been employed prior to the interview. There was no such difference in earnings across interview dates. This is in line with a selection process that works well in targeting those who are likely to benefit the most, but also with a selection process that targeted those who might have progressed regardless of the participation interview, in which case resources are devoted to achieve an outcome that would occur without intervention as well.

2)   There is no evidence that the interviews increase employment.

Neither eligibility for an interview, nor actually having an interview are accompanied by a significant increase in employment rates later down the track that were not also observed for a similar control group who had no access to participation interviews. The evidence strongly suggests that employment rates among DSP recipients under 35 years were not affected by the reform. Based on this, there is no reason to believe that participation interviews for DSP recipients 35 years and over would increase their employment participation.

3)   There is no evidence that the interviews increase earnings for those who are employed.

There is some increase in nominal daily earnings after individuals become eligible for an interview or after an interview took place, but that growth in earnings occurs partly mechanically due to inflation, occurs also for the control group that had no access to participation interviews, and is small. Based on this, there is no reason to believe that participation interviews for DSP recipients 35 years and over would increase their earnings when being employed.

4) Participation interviews result in referrals to DES/JSA and subsequent participation in a program of support that would otherwise not occur.

During the month when an interview occurs, the number of individuals being referred to DES or JSA is significantly higher than at any other point in time. This does not appear to be about a change in timing, but about an increase in the number of referrals that otherwise would not occur. The magnitude of the effect is small in absolute terms, but of practical significance in relative terms. To what extent additional referrals translate into improved employment outcomes will have to be analysed at a later point in time, as the outcomes of support programs that commenced only one year ago cannot be observed yet.

5) The labour force potential for the next age group 35 to 44 is similar to that of the age group who receive participation interviews already. Were the reform to be extended, similar effects would thus be expected.

Approximately 17 percent of the DSP recipients fall into the relevant age group for treatment. Another 17 percent of DSP recipients are between 35 to 44 years old. These have a similar distribution of WCB and similar (slightly smaller) employment rates as the currently treated age group (approx. 8 percent compared to approx. 12 percent). The majority of DSP recipients are 45 years old and older. Employment rates in open as well as in supported employment decrease with age in every WCB except WCB15+, which is less common for those of age 45 and above. Potential effects if the reform were to be extended are expected to be smaller for older recipients than for the currently affected group, i.e. for the majority of DSP recipients.

Participation requirements in the form of participation interviews and compulsory participation plans (but no compulsory activities) had no discernible impact on employment participation in the population studied here. This is in line with international experiences, which suggest that measures that aim at re-activating recipients of disability payments tend to be less effective than measures that assist employers and employees in keeping individuals with health impairment in employment before individuals drop out of the labour force. However, we also note that the target population faces significant barriers to employment, and the policy might therefore need some more time to take full effect. A longer study timeframe could thus yield different results, as could a larger number of completed participation interviews.

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Appendix A

Table A 1 Socioeconomic characteristics of treated and control group (ITT) before matching

Group: Variable:	Treatment: Was eligible	Control: Was not eligible	Diff.	Std. Err.	
Gender					
Male	0.60	0.58	-0.02	0.01	**
Female	0.40	0.42	0.02	0.01	**
Indigenous Status					
Not Indigenous	0.94	0.93	-0.01	0.00	
Aboriginal/ Torres Strait Islander	0.06	0.07	0.01	0.00	
Country of birth					
Australia	0.89	0.86	-0.03	0.01	***
Main English-speaking country	0.03	0.05	0.01	0.00	***
Not a main English-speaking country	0.08	0.09	0.02	0.01	***
Family					
No partner	0.92	0.88	-0.04	0.01	***
Partner who receives IS	0.05	0.08	0.03	0.00	***
Partner who does not receive IS	0.03	0.04	0.01	0.00	*
Has no children	0.89	0.77	-0.12	0.01	***
Has children	0.11	0.23	0.12	0.01	***
Medical Impairment rating	23.43	23.40	-0.03	0.14	
Primary Disability					
Physical	0.27	0.33	0.06	0.01	***
Intellectual/Learning	0.08	0.06	-0.02	0.00	***
Psychiatric	0.54	0.51	-0.03	0.01	**
Sensory	0.03	0.02	-0.01	0.00	*
Unknown/ not recorded	0.08	0.07	-0.01	0.00	
Employment					
Employed (=has reported earnings)	0.14	0.13	-0.01	0.01	
Daily Earnings if employed	37.31	39.78	2.47	1.51	
Number of observations	5032	6431			

Notes: All individuals had on 30 June 2012 a future WCB of 8 hours or more, no children less than 6 years of age, were not working in an ADE or in the SWS. Treated individuals are the birth cohorts July 1979 to June 1982; control individuals are the birth cohorts July 1974 to June 1977. ***, ** and * indicate significance at the 0.1%-level, 1%-level and 5%-level.
Source: Research and Evaluation Database (RED), own calculations.

Appendix B

Table B 1 Socioeconomic characteristics of individuals eligible for participation interviews by actual interview status

Variable:	*Group:* *Treated: Was eligible and had an interview*	*Control Was eligible and had no interview*	*Diff.*	*Std. Err.*	
Gender					
Male	0.56	0.62	0.06	0.02	***
Female	0.44	0.38	-0.06	0.02	***
Indigenous Status					
Not Indigenous	0.95	0.94	-0.02	0.01	*
Aboriginal/ Torres Strait Islander	0.05	0.06	0.02	0.01	*
Country of birth					
Australia	0.91	0.88	-0.03	0.01	***
Main English-speaking country	0.03	0.04	0.01	0.01	
Not a main English-speaking country	0.06	0.08	0.03	0.01	**
Family					
No partner	0.92	0.92	0.00	0.01	
Partner who receives IS	0.05	0.05	0.00	0.01	
Partner who does not receive IS	0.04	0.03	0.00	0.01	
Has no children	0.88	0.89	0.01	0.01	
Has children	0.12	0.11	-0.01	0.01	
Medical Impairment rating	22.98	23.59	0.61	0.24	*
Primary Disability					
Physical	0.32	0.25	-0.07	0.01	***
Intellectual/Learning	0.05	0.09	0.05	0.01	***
Psychiatric	0.55	0.54	-0.01	0.02	
Sensory	0.02	0.03	0.01	0.01	
Unknown/ not recorded	0.07	0.08	0.02	0.01	
Employment					
Employed (=has reported earnings)	0.22	0.12	-0.10	0.01	***
Daily Earnings if employed	37.56	37.14	-0.43	2.26	
Number of observations	1319	3715			

Notes: All individuals had on 30 June 2012 a future WCB of 8 hours or more, no children under 6 years of age, were not working in an ADE or in the SWS, and born between July 1979 and June 1982. Treated individuals had a participation interview between July 2012 and May 2013 and control individuals did not. ***, ** and * indicate significance at the 0.1%-level, 1%-level and 5%-level.

Source: Research and Evaluation Database (RED), own calculations.

Table B 2 Socioeconomic characteristics of interviewed individuals by interview date

Group: Variable:	Treated: Had 'early' interview	Control: had 'late' interview	Diff.	Std. Err.
Gender				
Male	0.54	0.58	0.04	0.03
Female	0.46	0.42	-0.04	0.03
Indigenous Status				
Not Indigenous	0.96	0.95	0.00	0.01
Aboriginal/ Torres Strait Islander	0.04	0.05	0.00	0.01
Country of birth				
Australia	0.93	0.90	-0.03	0.02
Main English-speaking country	0.02	0.04	0.02	0.01
Not a main English-speaking country	0.05	0.06	0.01	0.01
Family				
No partner	0.91	0.92	0.01	0.02
Partner who receives IS	0.06	0.04	-0.01	0.01
Partner who does not receive IS	0.03	0.04	0.01	0.01
Has no children	0.88	0.88	0.00	0.02
Has children	0.12	0.12	0.00	0.02
Medical Impairment rating	22.97	23.20	0.23	0.37
Primary Disability				
Physical	0.34	0.31	-0.03	0.03
Intellectual/Learning	0.04	0.06	0.02	0.01
Psychiatric	0.56	0.58	0.02	0.03
Sensory	0.02	0.02	-0.01	0.01
Unknown/ not recorded	0.04	0.04	0.00	0.01
Employment				
Employed (=has reported earnings)	0.21	0.23	0.02	0.02
Daily Earnings if employed	36.85	40.74	3.89	3.40
Number of observations	648	671		

Notes: All individuals had on 30 June 2012 a future WCB of 8 hours or more, no children under 6 years of age, were not working in an ADE or in the SWS, born between July 1979 and June 1982, and had a participation interview between July 2012 and May 2013. 'Early' interviews occurred in September 2012 or earlier; 'late' interviews occurred in October 2012 or later. ***, ** and * indicate significance at the 0.1%-level, 1%-level and 5%-level.

Source: Research and Evaluation Database (RED), own calculations.

Appendix C

Table C 1 Effect of receiving a participation interview on daily earnings – alternative specifications

Time after becoming eligible	Median daily earnings		Age window: 1 year		Age window: 5 years	
	Difference in differences	Std. Err.	Difference in differences	Std. Err.	Difference in differences	Std. Err.
1 month	-0.99	3.57	-2.31	5.54	-1.38	2.82
2 months	-1.20	3.76	-3.74	6.34	-1.94	3.00
3 months	-2.32	3.91	-4.52	6.14	0.31	3.07
4 months	1.35	4.23	2.90	6.26	1.19	3.30
5 months	-1.54	4.17	-1.28	6.35	-3.41	3.41
6 months	1.19	4.33	0.18	6.17	-5.16	3.60
7 months	3.50	5.00	6.48	7.05	-3.82	4.05
8 months	2.78	5.29	3.58	7.77	0.30	4.31
9 months	6.05	5.83	8.70	8.17	0.20	4.78
10 months	8.50	7.96	-0.52	8.91	-2.86	6.08
11 months	6.79	9.44	-16.25	12.01	-5.43	7.76
12 months	-4.85	13.37	-15.16	19.10	-4.81	14.15

Notes: All individuals had on 30 June 2012 a future WCB of 8 hours or more, no children under 6 years of age, were not working in an ADE or in the SWS, born between July 1979 and June 1982, and had a participation interview between July 2012 and May 2013. 'Early' interviews occurred in September 2012 or earlier; 'late' interviews occurred in October 2012 or later. ***, ** and * indicate significance at the 0.1%-level, 1%-level and 5%-level.
Source: Research and Evaluation Database (RED), own calculations.