

# The Impact of Housing Assistance on the Employment and Wage Outcomes of Labour Market Program Participants

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**Abstract:** This paper examines the employment and wage outcomes of Australians undertaking Mutual Obligation Activities (MOAs). Specifically, it considers whether the outcomes for MOA participants vary according to whether they receive housing assistance. The research is motivated by evidence from the US which often identifies superior employment and earnings outcomes of welfare recipients living in public or assisted housing. The paper utilizes all four waves of data from the Household Income and Labour Dynamics in Australia (HILDA) database. In Australia, direct housing subsidies can be received in one of two main forms: public housing; or Commonwealth Rent Assistance (CRA). Either of these forms of assistance might blunt work incentives as individuals lose eligibility for assistance once their income reaches a certain threshold. On the other hand, housing subsidies can promote employment outcomes, by lifting those in precarious housing circumstances into more secure and affordable housing. Preliminary results suggest that housing subsidies have little impact (either negative or positive) on the employment outcomes of MOA participants. Further, there is evidence that outcomes for MOA participants undertaking employment and community participation programs and training programs are inferior to those MOA participants undertaking employment assistance programs.

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## I. Introduction

A central objective of the Australian Government's welfare reform program is to increase the rate of economic participation among Income Support Program (ISP) recipients. One important component of this program has been the introduction—and increasing emphasis on—mutual obligation. Mutual obligation is an attempt to discourage passive receipt of welfare assistance, and instead encourage welfare recipients to “give something back” to the broader community (DEST, 2007). While the mutual obligation program encompasses a wide range of specific activities, the fundamental premise underlying the initiative is that participation in one of the specified activities will improve an individual's chances of finding work, stimulate a sustained job-search, and motivate individuals to accept suitable employment opportunities.

Following a series of pilot schemes, and the 1997 “Work for the Dole” legislation, Mutual Obligation Activities (MOAs) began in July 1998. A long term unemployed individuals—aged from 18 through to 24—must participate in an additional approved activity to remain eligible for benefits. The program has subsequently expanded to include more categories of the unemployed and a larger number of MOAs. This Australian emphasis on mutual obligation for welfare recipients is consistent with similar reforms undertaken abroad. In the United States, for example, the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) requires recipients to work in order to receive welfare payments.<sup>1</sup> Similarly, in 1998 Britain embarked on a welfare reform process that included a mutual obligation component for individuals in receipt of welfare.

Australian MOAs target individuals who have been unemployed for six months or more. More specifically, when the MOA program began on July 1<sup>st</sup> 1998, the Australian Government required all jobseekers aged 18-24 who had received Newstart Allowance or Youth Allowance, for a continuous period of 6 months or more, to participate in an MOA in addition to searching for employment. In July 1999 the program was expanded to include job seekers in the age category of 25-34 who were in receipt of Newstart Allowance for a period of 12 months or

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<sup>1</sup> These welfare programs emphasised welfare receipt as conditional upon commitment to ongoing work requirements. Within her detailed study of recent welfare reform in the United States, Blank (2002) indicates that by “2002 at least 50 percent of all recipient families and 90 percent of two-parent families were required to be working, or in work preparation programs, although states were given great discretion to design and implement these programs.” (Blank, 2002: 1106).

more.<sup>2</sup> As demonstrated by Table 1 below, the range of eligible activities includes employment and community participation, training and even relocation.

**Table 1: Approved MOAs and Participation Requirements**

| Approved MOA  | Participation Requirement   |
|---|---|
| Work for the Dole (18–49 years)                             | 150–390 hours, depending on age, within six months  |
| Community Work (18–49 years)                                | 150–240 hours, depending on age, within six months  |
| Part-time employment  | A minimum of 130 hours in 13 fortnights   |
| Community Development Employment Projects (CDEP) programme  | Participation in the Community Development Employment Projects (CDEP) programme meets mutual obligation requirements as long as participants remain eligible for the programme and comply with CDEP work rules. |
| Green Corps (ages 17 to 20)                                 | Usually five days per week for six months   |
| Defence Force Reserve (18–49 years)                         | 150–240 hours, depending on age, in six months  |
| New Apprenticeship Access Programme (NAAP)                  | The length of the course followed by intensive job search for a minimum of 17 weeks   |
| Language, Literacy and Numeracy training                    | 6–20 hours per week for up to 400 hours   |
| Part-time study in an approved course                       | 12 hours per fortnight + participation in another activity if course is less than 16 weeks  |
| Youth Pathways  | At least six months, varying hours  |
| Job Placement, Employment and Training (JPET) (15–21 years) | At least six months, varying hours  |
| Relocation to improve prospects                             | Movement to an area with higher employment prospects followed by 14 weeks of intensive job search   |

The selection of a specific MOA activity is, in principal, left to the discretion of the individual MOA participant. However, some additional details shed light on the officer’s role in this process. The choice of MOA begins with a mandatory interview wherein the range of eligible activities is introduced to the participant. The participant indicates their preference, and the officer in charge of the interview will assist, where appropriate, in planning and organising the activity.<sup>3</sup>

The MOA initiative is just one component of a broad range of policies aimed at improving labour market participation, and reforms of other welfare programs are sought that promote sustainable employment outcomes. One policy example is Housing Assistance (hereafter HA). The recently negotiated Commonwealth-State Housing Agreement (CSHA) requires State and Territory governments to reform rent-setting formulae in ways consistent with the promotion of

<sup>2</sup> At this time, the range of eligible activities was also expanded.

<sup>3</sup> The participant might be eligible for reduced MOA load if they are judged to be “partially capable of work”, while language and numeracy programs may be compulsory “in some cases”. Arguably, assistance programs are more focused on obtaining successful employment outcomes than other categories.

economic participation among public housing tenants. Furthermore, the 2003 Agreement explicitly emphasizes linkages between HA and “other relevant Commonwealth and State programs, including those relating to income support, health and community services” (Commonwealth of Australia, 2003: 2, 3).

A number of US studies purport to show that welfare programs are more successful if the recipients are also eligible for housing assistance.<sup>4</sup> It is thought that housing assistance promotes employment outcomes because:

- They have more secure and stable housing arrangements that makes the search for employment opportunities more productive (for example an address for correspondence, security of tenure in public housing that can aid transitions into employment by making it easier to take advantage of programs designed to help prepare for and hold a job)(Van Ryzin, Kaestner and Main, 2003),
- They help the unemployed to relocate closer to employment opportunities where the housing cost burden is more onerous. Housing subsidies can improve the ability of low income workers to keep jobs by freeing up resources that can be used to meet work-related expenses such as childcare and transportation (Verma and Hendra, 2003)<sup>5</sup>.
- If housing subsidies depress work effort, welfare reforms of the MOA kind have a potentially larger impact among this group because they counteract these disincentive effects (Verma *et al*, 2003).

This paper uses a panel of the long term unemployed to test this hypothesis in Australia. The eligibility of the panel sample for HA programs is identified and public housing tenants are defined as renters whose landlord is a state housing authority. The other major HA program is CRA. Eligibility for CRA is determined using a simulation model of the Australian tax benefit system. Our analysis of the first four waves of the Household Income and Labour Dynamics in Australia (HILDA) survey suggests that an MOA participant receiving housing subsidies is no more likely to obtain better employment and wage outcomes than other MOA participants. Further, there is some evidence that outcomes for MOA participants undertaking employment

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<sup>4</sup> Some US studies examine exits from time limited welfare benefit programs, rather than the effectiveness of MOA type programs.

<sup>5</sup> Though one could equally argue that the income effects allow recipients to put in less work effort without as large a sacrifice of expenditure on other items.

and community participation programs and training programs are inferior to those MOA participants undertaking employment assistance programs. Importantly, this is one aspect of our study that is consistent with evidence from abroad, and it offers some important policy lessons (Miller, 1998; Riccio and Orenstein, 2001).

The remainder of this paper is structured as follows. The previous literature examining the impact of HA on the employment and earning outcomes of labour market participants is summarised in Section II. We pay particular attention to US studies that compare the work outcomes of welfare reforms across the two subgroups, those receiving housing subsidies and those not receiving housing subsidies. The data and methodology are described in Section III and the empirical results are presented and interpreted in Section IV. Finally, Section V concludes with the policy implications arising from the research and suggests areas for future work.

## **II. Previous Studies**

The recent spate of US studies which examine the impact of HA has been motivated by policy reforms that emphasise improvements in employment outcomes. As noted in our introduction, under the 1996 Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA) receipt of welfare assistance is conditional upon commitment to ongoing work requirements.<sup>6</sup> This work commitment required 50% of welfare recipient families to be working, or in work preparation, by 2002. Another central feature of the PRWORA is a 60 month life-time limit on welfare receipt. Such time limits may have two effects. Firstly, a life-time limit creates incentive for individuals to exit welfare as quickly as possible, especially if they expect to be recipients later in life. Secondly, as Blank explains, "...once time limits are imposed, ex-recipients can no longer use cash assistance as a back-up to work" (Blank, 2002: 1113).

While the PRWORA is a federal initiative, welfare assistance is administered by individual states. A subsidiary program known as the Temporary Assistance for the Needy Families (TANF) is a block grant that is passed directly to the states, thus allowing them to adjust policy details in accordance with circumstances unique to their own constituents. Time limits, for example, can be shortened or even extended beyond the standard 60 month lifetime limit at the state's own expense. The individual states measure their level of welfare dependency via reference to "caseload", which is the total number of welfare dependent individuals (cases).

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<sup>6</sup> These welfare programs emphasized welfare receipt as conditional upon commitment to ongoing work requirements. Within her detailed study of recent welfare reform in the United States, Blank (2002) indicates that by "2002 at least 50 percent of all recipient families and 90 percent of two-parent families were required to be working or in work preparation programs, although states were given great discretion to design and implement these programs." (Blank, 2002: 1106).

Welfare to work programs have been introduced in nearly all states, and in the period from 1994 to 1999, Blank reports a 17.9% increase in the caseload participation of job or work activities. (Blank, 2002: 1111).<sup>7</sup> Though the specific nature of these programs varies widely, Blank explains their intention is to improve work incentives, improve employment skills, and create an understanding that sustained job-search is expected (Blank, 2002: 1112).

Time limits are not the only recent imposed constraint on welfare recipients. Sanctions have also been implemented as an incentive mechanism advanced against those who do not enact precise work requirements. The imposed sanction is an effective reduction in welfare benefits. Sanctions are another policy that operates with the discretion of the states, and the precise level of reduction is variable from one state to another (Blank, 2002: 1112). Time limits and sanctions are related, and are consistent with the overall theme of the PRWORA to mobilize welfare recipients into the workplace. However, these two policy measures are not identical. Effective sanctions force the individual to participate in activities that may help them obtain employment, while time limits are simply restrictions on the amount of support available to any one individual.

Analysis of the PRWORA welfare initiative has led to investigations of related support policies, such as HA. As outlined by Van Ryzin *et al* (2003), government directed housing policies and welfare programs began as separate and distinct policy initiatives. In the years since their implementation, it has been shown that recipients of one form of assistance are often the recipient of the other. In contrast to the extensive revisions of welfare policy inherent in the PRWORA, HA policy in the US has not been altered significantly in recent times. The three forms of HA utilized in the US remain largely unchanged: 1) Publicly owned and subsidized building projects are utilized in the case of *Public Housing*, 2) *Vouchers* are distributed to the tenants of private residencies in order to subsidize their rent, while 3) *Private Subsidized Projects* are privately owned and privately subsidized housing units that are reserved for low-income renters. As explained by Schroder (2002), most academic research divides HA into just two categories, Vouchers (which is tenant driven HA) and Public Housing (which includes both forms of the project based HA).

Identifying and understanding any causal relationship between HA and employment outcomes is not without difficulty. The characteristics of those who receive HA appear to be different from those who do not obtain such assistance. Studies using data from welfare reform experiments have shown that families on welfare who receive HA are likely to have more

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<sup>7</sup> “Since the passage of the PRWORA, states are mandating participation in job search assistance and work preparation among a much higher share of their caseload.” (Blank, 2002: 1111)

children, have longer welfare spells, are more likely to be members of a minority group, and are less likely to be employed than families without HA (Newamn and Harkness, 1997; Blank and Riccio, 2001). Those receiving HA are likely to be some of the most disadvantaged in society and it is important to control for all of the characteristics of those receiving HA in an empirical study. This issue is discussed further in Section III below.

There is a reasonably large literature which has investigated the impact of HA on employment outcomes.<sup>8</sup> However, the literature examining the same relationship only among welfare recipients is relatively small. Many US studies have used experimental approaches to examine impacts of HA and welfare reform on employment outcomes benefiting from random assignments (Miller *et al.*, 1997, Miller, 1998, Lee *et al.*, 2003, Riccio and Orenstein, 2003, Verma *et al.*, 2003). Random assignment ensures that both the program or treatment group and control group are on average alike in all respects. The US Department of Health and Human Services granted waivers to some US states to adopt welfare policy changes, but only on the condition that those states conducted random-assignment evaluations of any changes. Particular counties or welfare offices within these US states could be exempt from the welfare policy changes. Within these counties or welfare office zones, some welfare receiving families were randomly subjected to the new welfare policies. This created a treatment group. Families on welfare that are not subjected to the new welfare policies form the control group. These studies, discussed below, find that HA recipients have more favourable outcomes relative to welfare recipients not receiving HA.

Lee *et al.* (2005) examine the impact of welfare reform on HA recipients using data from experimental welfare reform evaluations in Indiana and Delaware. In Indiana, welfare recipients in the treatment group were required to participate in work activities or job search activities if they were unable to find work. Sanctions were imposed for non-compliance and a 24 month limit was imposed during which participation in work activities must occur. Similar welfare policies were applied to the treatment group in Delaware. Tests were then conducted to examine whether there are differences in the outcomes for the control and treatment groups. The study finds that welfare reforms had similar impacts on the earnings and welfare benefits of HA recipients and non-recipients. However, in those instances where HA did have an impact, it was a superior employment outcome to those not in receipt of HA.

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<sup>8</sup> See Shroder (2002) for a review. In summary, most studies find that HA decreases earnings and employment. Some however, find the opposite effect. Most estimated effects are small and hypothesis tests often fail to reject the hypothesis of no effect at standard levels of significance. Further most suffer from methodological or data problems and many provide estimates for small, atypical subsets of assisted households.

Verma *et al* (2003) make use of random assignment evaluations of two welfare reform initiatives in the states of Minnesota and Connecticut. The Minnesota's Family Investment Program (MFIP) provided financial incentives to welfare recipients who went to work and required participation of longer-term welfare recipients in certain types of employment and training programs. Connecticut's Jobs First Program is another welfare reform program which incorporates time limits, financial incentives and a work requirement. Welfare recipients were randomly assigned across existing welfare programs (control group) and reform programs (treatment groups) and the groups are tracked over time to gauge short and longer term impacts. Comparison of welfare recipients who receive HA with those that do not receive HA suggests that the former are not a harder to employ group. In fact employment outcomes are superior for those receiving HA.<sup>9</sup> Similar findings from Minnesota from similar approaches are confirmed by Miller *et al* (1997) and Miller (1998) in tracking the outcomes of individuals for the first 18 months after they entered the study, focusing primarily on MFIP's effects on single-parent families.

Riccio and Orenstein (2001) use data from a random assignment of a welfare program in Atlanta. The sample includes single parent welfare recipients and a treatment group consisted of some randomly assigned welfare recipients being required to look for work, or prepare for work, as a condition of receiving their full benefits. Outcomes were compared for the treatment and control groups over time with the authors also controlling for other socio-economic characteristics. Findings indicate that a public housing tenants' probability of being employed over 3 years increases by 10 percentage points if exposed to sanctions for non-participation in education or labour market preparation activities.<sup>10</sup> The effect of these mandatory activities are, however, more marginal if the individual is receiving subsidized private housing (Riccio and Orenstein, 2001: 94).

Sanctions had no effect at all on the employment outcomes of those individuals who are not in receipt of HA. The authors offer two tentative arguments as to the cause of this disparity in results. Firstly, they argue that those living in public housing tend to be a more disadvantaged group, and hence are more likely to benefit from program services and the participation mandate (Riccio and Orenstein, 2001: 82.) Their second argument, similar to the first, is that welfare-to-

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<sup>9</sup> The U.S. study conducted by Verma *et al* (2003) suggests that: "The impacts of welfare reform on employment and earnings were consistently larger for recipients with HA than for those with no assistance".

<sup>10</sup> The differences between the two groups were significant, as the authors summarise: "Those assigned to the control group did not have access to the assistance provided by either of these welfare-to-work strategies, although they were free to seek and take part in any other program in the community for which they were eligible. However, they were not required to look for work or prepare for work as a condition of receiving their full welfare benefits" (Riccio and Orenstein, 2001: 69).

work programs might generate a more intensive treatment for those in public housing. Furthermore, Riccio and Orenstein claim that this second argument is supported by their survey data (2001: 83). In any event, the studies of Miller, and Riccio and Orenstein do offer some preliminary evidence that welfare activities with some mandatory component might combine with HA to generate a superior employment result for participants.

Other studies have examined the impact of HA on employment and earnings outcomes of welfare recipients in the absence of changes to welfare policies. They are unable to make use of random-assignments and commonly apply logistic regression modeling to samples of data from other US states. Some have created their own control groups by identifying non-program participants which have similar characteristics of program participants (Susin, 2005; Harkness and Newman, 2006). These studies then compare employment and earnings outcomes in subsequent years. Given the random nature of the groupings, differences in outcomes can be solely attributed to the effect of HA. These two studies also provide evidence that employment outcomes for welfare recipients receiving HA are at least as good relative to those welfare recipients who do not.

Results from other studies of this type are less conclusive. They find that HA has little impact, either way, on the employment and earnings of welfare recipients. Van Ryzin *et al* (2003) examine the effects of HA on the transition from welfare to work in New York City. The authors used data from a survey of female welfare recipients, augmented with housing program, census, and crime rate data. Outcomes were compared across two waves of the survey. The first was carried out in 1996 and a follow up survey was carried out in 1997. To control for the somewhat more disadvantaged characteristics of those in subsidised housing, logistic regressions explaining welfare receipt and employment participation at follow up interview are estimated. The study finds little support that HA has any impact either enabling or hindering, on welfare to programs in New York City suggesting that synergies between housing subsidies and welfare reform may not exist.

Corcoran and Heflin (2003) examine how current and former welfare recipients receiving HA differ from those not receiving assistance in terms of welfare history, potential barriers to employment and employment and welfare exit outcomes. The sample is 753 mothers who receive cash assistance and were single parents in Michigan. Multivariate analysis is conducted by estimating logit and OLS models that relates various measures of employment and welfare outcomes in the second wave of data to individual characteristics and their housing situation. They find that women in public housing had slightly more

barriers to employment than their unassisted counterparts, but this difference was only marginally statistically significant. The study emphasises the importance of taking into account low human capital, discrimination, physical and mental health problems, alcohol and drug dependence and domestic violence as factors shaping the transition from welfare to work.

Another group of studies conducted after welfare reform examine the outcomes of welfare leavers with and without HA. These studies use relatively simple techniques to compare outcome of HA recipients and non-recipients once they have left welfare. Verma and Hendra (2003) compares the outcomes of welfare leavers receiving HA with non HA recipients for Los Angeles county. The study is motivated by the idea that those receiving HA at the time of exit are less vulnerable to financial and housing hardship than their unassisted counterparts. HA may have positive employment effects because it improves the ability of low income workers to keep jobs by freeing up resources that can be used to meet work-related expenses such as child care and transportation. Tenant-based assistance provides an additional potential benefit because it is portable and can in principal facilitate mobility to access employment opportunity. On the other hand HA is means-tested and therefore contributes to poverty and unemployment traps that could blunt work incentives. The study benefits from the use of administrative records that form a panel data set that allows assisted and unassisted welfare leavers to be profiled after exit. The authors find that leavers with tenant-based assistance were somewhat more likely to have positive employment outcomes.

Nagle (2003) also compares welfare leavers receiving HA with those that don't in Massachusetts. The study uses survey data and compares the outcomes of the two across the two groups over the period 1999 to 2000. The study finds that HA recipients were generally found to be more disadvantaged, have more children, be single parents, older, a member of a minority group and have poor English language skills. However, they were somewhat more likely to be employed but with a lower average hourly wage. They also spent more time on welfare than non-assisted respondents. Friedman *et al* (2003) follow the path of families moving from welfare to work, and from homelessness to shelter to their own residence. Housing Assistance, in the form of a housing subsidy, was essential in this process.

This paper is the first Australian study to consider the *combined effect* of HA and the MOA program on employment outcomes. There has been, however, one significant examination of the effect of MOA on employment outcomes in Australia. The impact of the threat of Mutual Obligation Activities has been studied in the Australian context by Richardson (2002).

Richardson's detailed study utilizes a proportional hazard model to examine the impact of MOA on long term unemployed. The study suggests that while MOA's have some marginal impact in forcing individuals out of welfare, the MOA program did not affect the average duration that individuals were actually on welfare roles.<sup>11</sup>

In summary, the literature, in general, offers empirical support for a positive relationship between HA and employment outcomes among welfare recipients, at least in parts of the US. The work that has examined the combined effect of HA and welfare programs that incorporate some obligatory activity also suggests that HA does improve the employment outcomes for those in receipt of such assistance. The single study of the Australian version of obligatory welfare initiative, the MOA program, suggests that it has a limited impact on movements off welfare roles. The current study builds on the existing literature by examining the combined impact of MOA and HA on employment outcomes, and compares it with the effect of MOA in isolation.

### **III. Data and Methodology**

#### *Data*

This paper utilizes the Household Income and Labour Dynamics in Australia (HILDA) dataset. HILDA is a longitudinal (panel) dataset consisting of four waves of data covering the period 2001 to 2004.<sup>12</sup> The dataset is ideal to undertake the analysis since it is possible to identify whether individuals have been required by Centrelink or Job Network to undertake a MOA. Furthermore, HILDA includes the employment and earnings outcomes of people undertaking mutual obligation activities in subsequent years. The dataset also includes a number of demographic, geographic, human capital and labour market history variables.<sup>13</sup> Our sample is restricted to all MOA participants of working age. Working age persons are non-dependent persons aged 15-64 during waves 1-4. MOA participants are persons who have ever participated in a MOA program in their lifetime. MOA participants are identified from the HILDA Survey as persons who have participated in a MOA in wave 1, 2 or 3, or who have been required to participate in a MOA before wave 1.

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<sup>11</sup> "The analysis finds some evidence that the threat of additional activity requirements increases the probability of exit immediately prior to those requirements being imposed. However, this effect was not sufficient to impact significantly on the average duration on benefits of individuals in the treated group." (Richardson, 2002: 407)

<sup>12</sup> A systematic review entitled *Housing Assistance and Non-Shelter Outcomes* completed in 2003 (Bridge, Flatau, Whelan, Wood and Yates, 2003) concluded that relationships between HA and economic participation are complex, and typically involve a range of mediating variables. Robust research methods are then critical to identifying and measuring the key relationships. The review identified panel databases as a potentially important resource facilitating identification and measurement of the relationship between HA and economic participation outcomes.

<sup>13</sup> Our selection of control variables is consistent with other works in the literature, both a small and large set of control variables proposed by Van Ryzin *et al*, (2003) and also the study by Corcoran and Heflin (2003).

For MOA participants, we are able to observe their employment outcomes in wave 4. If an individual was a MOA participant in wave 4, it indicates the individual was unemployed in wave 4, and vice versa. Hence, wave 4 MOA status is synonymous with being unemployed in wave 4. Since our dependent variable is employment status in wave 4, our sample includes MOA participants up to wave 3 only. A person is defined as a HA recipient if the person received CRA or was in public housing at any point in waves 1 to 4.

Table 2 provides a breakdown of the sample by receipt of HA. The sample includes 428 MOA participants and the table shows that 39 per cent of this sample received HA. Of those receiving HA, 66 per cent received it in the form of CRA, 24 per cent received public housing while the remainder received both.

**Table 2: MOA participants by HA status**

| HA status              | Frequency  | Per cent     |
|------------------------|------------|--------------|
| <i>HA</i>              | <i>167</i> | <i>38.9</i>  |
| CRA only               | 111        | 25.9         |
| Public housing only    | 40         | 9.3          |
| CRA and public housing | 16         | 3.7          |
| <i>No HA</i>           | <i>261</i> | <i>61.0</i>  |
| <i>Total</i>           | <i>428</i> | <i>100.0</i> |

Source: Confidentialised unit records from the HILDA Survey waves 1-4

Table 3 lists the range of MOA programs undertaken by HA participants and non-HA participants. It is important to note that some MOA participants have undertaken more than one program, i.e., the programs are not mutually exclusive. The table groups all MOA participants into the three broad categories of MOA activities. The largest category is the *Assistance program*, which utilizes activities that are more focused on employment outcomes, than either *Employment and community participation*, or *Training*. As noted in Section 1, the selection of a specific MOA activity is left to individual MOA participants although a planning officer will provide some guidance and assistance. Over three quarters of the sample have undertaken *Assistance* MOA activities of which ‘Job Search Training’ and ‘Intensive Assistance’ are the most common activities. Tests are conducted to examine whether there are statistically significant differences between the MOA programs undertaken by those receiving HA versus those that don’t receive HA. Results reveal that Job search training is more likely to be undertaken by MOA participants not receiving HA. Other MOAs such as ‘Work for the Dole’ and ‘Part-time Study’ are more likely to be undertaken by participants receiving HA. While participants receiving HA might have reasons for favouring these programs it could also be the case that they are more likely to be assigned these programs by planning officers.

**Table 3: MOA programs by HA status**

| MOA programs                                  | HA   | No HA             |
|---|------|-------------------|
| <i>Employment and community participation</i> | 40.7 | 19.5 <sup>+</sup> |
| Part-time paid work                           | 5.4  | 6.9               |
| Work for the Dole                             | 25.7 | 13.0*             |
| Community Development Employment projects     | 0.0  | 1.9 <sup>+</sup>  |
| Community work                                | 1.2  | 0.0               |
| Green Corps                                   | 0.6  | 0.8               |
| Relocation                                    | 2.4  | 0.8               |
| Voluntary unpaid work                         | 13.2 | 12.3              |
| <i>Training</i>                               | 24.6 | 17.2 <sup>#</sup> |
| Part-time study                               | 19.2 | 12.3 <sup>#</sup> |
| Defence Force Reserve                         | 1.2  | 0.8               |
| New Apprenticeship Access Program             | 1.2  | 1.5               |
| Approved literacy/numeracy training           | 3.6  | 3.8               |
| Advance English for Migrants                  | 0.6  | 1.1               |
| <i>Assistance</i>                             | 77.8 | 77.8              |
| Job Search Training                           | 43.7 | 52.5 <sup>#</sup> |
| Job Placement Employment and Training         | 7.8  | 5.0               |
| Intensive Assistance                          | 50.9 | 47.1              |
| Job Pathway Program                           | 6.6  | 3.8               |

Source: Confidentialised unit records from the HILDA Survey waves 1-4

Notes: \* Statistically significantly different from HA participants at 1% level, <sup>+</sup> Statistically significantly different from HA participants at 5% level, <sup>#</sup> Statistically significantly different from HA participants at 10% level. If there are no asterisks, the difference from HA participants is not statistically significant at the 1, 5 or 10% level

Ideally the receipt of HA would be randomly assigned to the MOA participants included in our sample. If this was the case, any difference in employment and wages outcomes identified in the subsequent empirical analysis could then be fully attributed to HA receipt. However, if there are important differences between the characteristics of HA recipients and non-recipients, HA is unlikely to have been randomly assigned. Unless we can control for all of the factors determining the receipt of HA in our empirical model, results using conventional statistical techniques will be biased. The issue is examined in Table 4 which cross-tabulates the socio-demographic characteristics of the sample by HA status.

Results from tests conducted to examine whether there are statistically significant differences between the socio-demographic characteristics of HA recipients versus non-recipients are provided. They demonstrate that MOA participants receiving HA are more likely to be female, aboriginal, have less employment experience or time in paid work and more time Not in the Labour Force (NILF). There is therefore evidence that HA is provided to more disadvantaged groups and this suggests that there are also likely to be unobservable traits of HA recipients which we cannot control for in our empirical model. This is an issue discussed further below.

**Table 4: Wave 4 socio-demographic characteristics variables by HA status, percent by column**

| Characteristics                                      |   | HA   | No HA             | Total |
|--|---|------|-------------------|-------|
| Gender   | Male  | 53.9 | 68.2*             | 62.6  |
|  | Female  | 46.1 | 31.8*             | 37.4  |
| Age group  | 15-19   | 6.6  | 6.5               | 6.5   |
|  | 20-34   | 44.3 | 43.7              | 43.9  |
|  | 35 or over  | 49.1 | 49.8              | 49.5  |
| Country of birth                                     | Australian non-Aboriginal   | 71.3 | 76.2              | 74.3  |
|  | Australian Aboriginal   | 7.2  | 3.1 <sup>+</sup>  | 4.7   |
|  | Main English-speaking <sup>a</sup>                                  | 6.6  | 9.2               | 8.2   |
|  | Other   | 15.0 | 11.5              | 12.9  |
| Income unit type                                     | Couple with dependent children                                      | 12.6 | 17.6              | 15.7  |
|  | Couple with no dependent children                                   | 19.8 | 24.9              | 22.9  |
|  | Sole parent   | 6.0  | 3.4               | 4.4   |
|  | Single  | 61.7 | 54.0              | 57.0  |
| Number of dependent children                         | Zero  | 81.4 | 78.9              | 79.9  |
|  | One   | 9.6  | 8.8               | 9.1   |
|  | Two   | 3.0  | 5.7               | 4.7   |
|  | Three   | 3.0  | 4.2               | 3.7   |
|  | Four or more  | 3.0  | 2.3               | 2.6   |
| Region   | Major city  | 23.4 | 27.2              | 55.4  |
|  | Inner regional  | 18.0 | 15.7              | 25.7  |
|  | Outer regional, remote or very remote                               | 3.0  | 1.9               | 18.9  |
| Disability/long-term health condition                |   | 37.7 | 30.3              | 33.2  |
| Labour force status<br>(% by column)                 | Employed full-time  | 26.9 | 46.0*             | 38.6  |
|  | Employed part-time  | 21.6 | 21.5              | 21.5  |
|  | Unemployed  | 21.6 | 13.0 <sup>+</sup> | 16.4  |
|  | NILF  | 29.9 | 19.5 <sup>+</sup> | 23.6  |
| Highest qualification<br>(% by column)               | Bachelor degree or higher   | 6.0  | 8.4               | 7.5   |
|  | Other post-school qualifications                                    | 32.9 | 32.6              | 32.7  |
|  | Year 12 or under  | 61.1 | 59.0              | 59.8  |
| Main activity while NILF<br>(% of persons ever NILF) | Home duties/childcare   | 19.2 | 11.9 <sup>+</sup> | 31.7  |
|  | Study (school, TAFE or university)                                  | 16.2 | 15.7              | 34.2  |
|  | Own illness or injury   | 7.8  | 4.6               | 12.6  |
|  | Travelling/holiday/leisure  | 1.8  | 7.3*              | 11.1  |
| Labour market history since left full-time education | Time in paid work as percent of time since left full-time education | 52.8 | 63.0*             | 58.7  |
|  | Time unemployed as percent of time since left full-time education   | 20.2 | 16.8              | 18.3  |
|  | Time NILF as percent of time since left full-time education         | 18.6 | 11.0*             | 14.2  |
| Current weekly wage (\$, wage earners)               |   | 555  | 562               | 560   |
| Sample   |   | 167  | 261               | 428   |

Source: Confidentialised unit records from the HILDA Survey waves 1-4

a. Main English Speaking countries are New Zealand, UK, Ireland, Canada, USA and South Africa.

\* Statistically significantly different from HA participants at 1% level

<sup>+</sup> Statistically significantly different from HA participants at 5% level

If there are no asterisks, the difference from HA participants is not statistically significant at the 1, 5 or 10% level

Table 5 investigates whether there are changes in the characteristics of HA recipients and non-recipients before and after they have received HA. The impact of transitions on and off HA on employment, wages and other variables using tests of statistical difference is examined. Tests are carried out for variables that have changed over time.<sup>14</sup> The before-observations are taken from the first observation for each individual. The after-observations are taken from the last observation for each individual. The test of within group differences in column (3) is a test of whether (2) differs significantly from (1). The test of within group differences in column (6) is a test of whether (5) differs significantly from (4). The mean time interval between the first and last observation is 2.3 years and 2.0 years for the HA and non-HA groups respectively. The difference in mean time intervals between the two groups is not statistically significant at the 1, 5 and 10% levels.

For column (7), the test is whether [(2)-(1)] is significantly different from [(5)-(4)] in the table below. Overall the results suggest that the employment and wage gains made by HA recipients are not significantly different from the gains made by non-HA recipients. The table shows that only three variables exhibit significant difference-in-differences. These variables are number of children aged 0 to 4, years in paid work since leaving full time education and the number of years unemployed. The similarity in means across the groups supports their suitability as treatment and control groups.

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<sup>14</sup> Significance tests for control variables such as gender would be meaningless because the change across time is zero and the difference-in-differences would be zero.

**Table 5: Movements On and Off HA**

| Partnered  |                                     | HA         |           |  | No HA      |           |  | Test of difference-in-differences (sig.) (7) |
|--|-------------------------------------|------------|-----------|--|------------|-----------|--|--|
|  |                                     | Before (1) | After (2) | Test of difference within group (sig.) (3) | Before (4) | After (5) | Test of difference within group (sig.) (6) |  |
| Employment rate  |                                     | 0.287      | 0.485     | 0.000*                                     | 0.452      | 0.674     | 0.000*                                     | 0.646  |
| Current weekly wage                                    |                                     | 84.114     | 239.234   | 0.000*                                     | 204.471    | 355.287   | 0.000*                                     | 0.919  |
| Partnered  |                                     | 0.281      | 0.323     | 0.195                                      | 0.437      | 0.425     | 0.613                                      | 0.176  |
| Number of children                                     | Aged 0-4                            | 0.066      | 0.132     | 0.034 <sup>+</sup>                         | 0.172      | 0.161     | 0.632                                      | 0.048 <sup>+</sup>                           |
|  | Aged 5-9                            | 0.090      | 0.096     | 0.828                                      | 0.123      | 0.123     | 1.000                                      | 0.864  |
| Disabled   |                                     | 0.305      | 0.377     | 0.109                                      | 0.253      | 0.303     | 0.102                                      | 0.683  |
| Region   | Major cities                        | 0.246      | 0.234     | 0.656                                      | 0.280      | 0.272     | 0.746                                      | 0.904  |
|  | Inner regional                      | 0.168      | 0.180     | 0.656                                      | 0.169      | 0.157     | 0.514                                      | 0.465  |
|  | Outer, remote or very remote region | 0.018      | 0.030     | 0.319                                      | 0.008      | 0.019     | 0.083 <sup>#</sup>                         | 0.972  |
| Highest qualification                                  | Bachelor degree or higher           | 0.060      | 0.060     | 0.158                                      | 0.077      | 0.084     | 0.158                                      | 0.158  |
|  | Other post-school qualification     | 0.365      | 0.329     | 0.158                                      | 0.352      | 0.326     | 0.145                                      | 0.771  |
|  | Year 12 or below                    | 0.575      | 0.611     | 0.000*                                     | 0.571      | 0.590     | 0.318                                      | 0.598  |
| Labour force experience since left full-time education | Years in paid work                  |            |           |  |            |           |  |  |
|  |                                     | 10.346     | 11.421    | 0.000*                                     | 13.036     | 14.672    | 0.000*                                     | 0.050 <sup>+</sup>                           |
|  | Years unemployed                    | 2.942      | 3.769     | 0.000*                                     | 2.399      | 2.920     | 0.000*                                     | 0.001*                                       |
|  | Years NILF                          | 3.678      | 4.249     | 0.000*                                     | 1.887      | 2.379     | 0.000*                                     | 0.475  |
| Sample   |                                     |            | 167       |  |            | 261       |  |  |

Notes:

\* Test statistic is significant at 1% level

<sup>+</sup> Test statistic is significant at 5% level

<sup>#</sup> Test statistic is significant at 10% level

If there are no asterisks, the test statistic is not significant at the 1, 5 or 10% level

### *Methodology*

This paper examines the impact of HA on both the employment and earnings outcomes of MOA participants using a number of different statistical techniques. Following previous research these techniques include logit and tobit models but the paper also estimates difference in difference models. By incorporating movements on and off HA, difference-in-difference models can provide greater insights in the impact of HA on employment and wages.<sup>15</sup> Each model is discussed in turn.

Initially, employment outcomes and wages are examined using a model taking the following form:

$$Y_i = f(\alpha_i + \lambda M_i + \beta H_i + \phi X_i + \varepsilon_i) \quad (1)$$

where  $Y$  measures either employment or wages,  $i$  indexes individuals,  $M$  indexes the type of MOA activity undertaken,  $H$  represents HA, and takes the value 1 if the recipient received HA at any point in waves 1 to 3 and 0 otherwise. Finally,  $X$  is a vector of socio-demographic characteristics. In some models, HA status is broken down into its specific forms of CRA and public housing. In the models explaining employment outcomes  $Y$  is a binary variable taking the value 1 if the MOA participant is employed (in wave 4) and 0 otherwise. It is estimated using a logit model specification. In models explaining the level of weekly wages in wave 4,  $Y$  represents the weekly wages of the MOA participants and takes the value of 0 in 57% of observations. A tobit model is used to estimate the wage equation specification.

Our preliminary analysis of the data revealed that there are likely to be unobservable characteristics of HA recipients which we cannot directly control for. There is therefore a danger that the coefficient on the HA variable will be picking up these unobservables leading us to conclude erroneously that HA has an impact on employment and wage outcomes. Employment outcomes and wages are therefore also modeled using a difference-in-difference model. This more complex specification has been utilized in previous work on MOA in Australia (see Richardson 2002)<sup>16</sup>. The difference-in-difference model takes on the following specification:

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<sup>15</sup> This method of estimation is often incorporated in medical studies where a specific treatment is administered to one group (in our case HA), and the outcome is compared to a non-treated group, i.e., a control group (those not receiving HA).

<sup>16</sup> Richardson (2002) analyses exits from Income Support Programs incorporating a difference in difference specification within a hazard function framework.

$$Y_{it} = f\left(\alpha_i + \lambda M_i + \sum_{j=2}^T \gamma_j YEAR_{ij} + \sigma H_i + \theta(H_i \cdot h_{it}) + \varphi X_{it} + u_{it}\right)$$

(2)

The model includes two additional terms as compared to equation 1.

As this estimation technique emphasizes differences made by the treatment, the time period in which the treatment is administered must be observed by the model. Therefore,  $b$  is 1 if the observation belongs to a time period after the individual receives HA and 0 before.

The control group comprises persons who did not receive HA during waves 1-4. The treatment group,  $H$ , represents persons who received HA at any point in waves 1-4. We can interpret  $\sigma$  as the HA treatment group specific effect (average permanent differences between treatment and control groups). The coefficient  $\gamma$  may be interpreted as a time trend common to treatment and control groups and captures “unobservables” (fixed effects) specific to  $t$  but common to all  $i$ . In principle a person could receive HA treatment in  $t$ , exit the treatment program in  $t+1$  and then re-enter the treatment program in  $t+2$ . In this case the variable  $b$  will take the values 1,0,1. For the control group,  $b$  equals 0 regardless of  $t$ . Finally,  $\theta$  is the HA difference-in-difference estimator and captures the effects of movements on and off HA. Once again HA can be disaggregated into CRA and public housing.

Note that sample sizes are higher in difference in difference models since for each individual in the sample, there are between 1 and 4 observations, depending on how many times the individual was interviewed. For example, if the individual was interviewed in waves 3 and 4 only, there will be two observations for this individual. If the individual was interviewed in all 4 waves, there will be four observations for this individual. This occurs because of the problem of attrition that commonly afflicts longitudinal analysis. The attrition rates for Waves 2, 3 and 4 are 13.2%, 9.6% and 8.4% respectively (MIAESR, 2006). Ideally the attrition rate should be similar across all population sub-groups. However, in wave 2, the attrition rate was highest among individuals aged 15 to 34 years, single or in a de facto relationship, born in a non-English-speaking country, with low levels of education qualifications, residing in Sydney, Melbourne, rural Western Australia or Tasmania, housed in an apartment, flat or unit, or unemployed in wave 1. Attrition in the HILDA Survey is clearly non-random (MIAESR, 2002). The issue of attrition will be addressed in future analyses.

#### IV. Results and Interpretation

Results from the estimation of the logit model for employment outcomes are provided in Table 6. The reader is referred to the appendix for the definition of each explanatory variable. Results from this model indicate that the receipt of HA is negatively associated with the probability of being employed. The coefficient on the HA variable is statistically significant at the 5 per cent level and indicates that HA recipients are 12.6 per cent less likely to be employed relative to MOA participants who did not receive HA. Results also suggest the probability of being employed is negatively associated with being female, single, having young children, being disabled, and the number of years unemployed. Relative to Australian (non-Aboriginal) participants, those from mainly English speaking countries are less likely to be employed *ceteris paribus*. Results suggest an inverted U-shaped relationship between the number of years in paid work and the probability of being employed. The probability of being employed initially increases with the number of years in paid work before decreasing once a participant has had paid work for 18 years.

Further, results indicate that relative to *Employment Assistance* only MOA activities (the omitted activity category), *Training* activities deliver inferior employment outcomes for MOA participants. Results suggest that participants undertaking *Training* are 13.5% less likely to be employed than those who obtained employment assistance only.

*Training* activities include approved literacy and language training, part-time study, or apprenticeships. It may also include defense force reserve commitment. The most common activity within *Employment and Community Participation and Training* is the Work for the Dole scheme, managed by Community Work Coordinators, who refer participants to specific tasks and activities. Community work, and Green Corps are also part of the program. In contrast, *Employment Assistance* activities are much more focused on delivering employment outcomes. These activities include a specific Job placement Assistance Programs, which requires regular contact with the job placement provider, and also considerable Career Planning, and also Voluntary Work-Training courses. This third MOA category is more aligned with programs running in the US, where welfare programs incorporating sanctions seem to deliver improved employment outcomes

(Miller, 1998; Riccio and Orenstein, 2003).<sup>17</sup> Given the assistance sometimes provided by Centrelink officers in choosing an MOA activity, there is a possibility of ‘cream skimming’ whereby MOA participants with relatively high levels of human capital are channelled into the employment assistance programs.

Recent comparisons with the UK form of MOA, find similar qualitative evidence that not all the Australian MOA categories match the UK equivalent in focusing on employment outcomes. The study by Curtain (2001) compares the Australian and UK forms of MOA, and explains:

“The in-depth comparison shows that there are a number of features of the operation of mutual obligation arrangements in Australia which appear to be inferior to those in the UK. In particular, the primary focus on employment outcomes in the UK is notably different to the more imprecise outcomes nominated in the Australian case. Another feature of the UK arrangements compared to Australia is the greater emphasis on a coordinated approach focused on the needs of the individual job seeker” (YEAR, 3).

The work of Curtain, and our own empirical evidence, suggests that serious questions might be asked of the effectiveness of not the entire MOA program, but rather some elements of the program that are not delivering employment outcomes.<sup>18</sup>

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<sup>17</sup> Further, Stromback and Dockery (2000) examine the effectiveness of labour market programs previously undertaken in Australia (before those initiated under MOAs) in assisting persons to make a transition out of job search and into sustained employment. They find that wage subsidy programs (such as Jobstart) have the most favourable impact on employment, followed by brokered employment programs (Jobskills, Landcare and Environmental Action Program (LEAP), New Work Opportunities), job search assistance (Job clubs) and finally training programs (Special intervention, Skillshare, and Jobtrain).

<sup>18</sup> The model was also estimated with HA disaggregated into CRA and public housing. Results suggest that it is public housing rather than CRA which is associated with a lower probability of being employed. The coefficient indicates that public housing recipients are 14.8 per cent less likely to be employed although the coefficient is only statistically significant at the 10 per cent level. Moreover, there are only 40 MOA participants in the sample receiving public housing. All of the other results from the estimation of this model are the same as for the model with HA employed in its aggregate form, presented in the previous table.

**Table 6: Logit Model of Employment Outcomes**

| Explanatory variable                                   |                                    | Coef.               | Std. error | Sig.  | Marg. eff. |
|--|------------------------------------|---------------------|------------|-------|------------|
| MOA program<br>(omit Assistance only)                  | Employment/community participation | -0.354              | 0.250      | 0.156 | -0.085     |
|  | Training                           | -0.552 <sup>#</sup> | 0.289      | 0.056 | -0.135     |
| HA   |                                    | -0.527 <sup>+</sup> | 0.238      | 0.027 | -0.126     |
| Female   |                                    | -1.007*             | 0.246      | 0.000 | -0.241     |
| Partnered  |                                    | 0.565 <sup>+</sup>  | 0.268      | 0.035 | 0.132      |
| Number of children                                     | Aged 0-4                           | -0.903*             | 0.256      | 0.000 | -0.215     |
|  | Aged 5-9                           | -0.317              | 0.298      | 0.288 | -0.076     |
|  | Aged 10-14                         | 0.065               | 0.302      | 0.831 | 0.015      |
| Ethnicity<br>(omit Australian non-Aboriginal)          | Australian Aboriginal              | -0.538              | 0.532      | 0.311 | -0.133     |
|  | Main English-speaking countries    | -0.861 <sup>+</sup> | 0.426      | 0.043 | -0.212     |
|  | Other countries                    | -0.520              | 0.356      | 0.144 | -0.127     |
| Disabled   |                                    | -1.090*             | 0.244      | 0.000 | -0.262     |
| Region<br>(omit major cities)                          | Inner                              | 0.397               | 0.320      | 0.215 | 0.091      |
|  | Outer, remote or very remote       | -0.230              | 0.778      | 0.768 | -0.056     |
| Highest qualification<br>(omit no post-school qual.)   | Bachelor or higher                 | -0.371              | 0.457      | 0.417 | -0.091     |
|  | Other post-school qualification    | 0.232               | 0.264      | 0.380 | 0.055      |
| Labour force experience since left full-time education | Years in paid work                 | 0.073 <sup>+</sup>  | 0.033      | 0.029 | 0.017      |
|  | Square of years in paid work       | -0.002*             | 0.001      | 0.006 | -0.001     |
|  | Years unemployed                   | -0.133*             | 0.035      | 0.000 | -0.032     |
| Constant   |                                    | 1.853*              | 0.335      | 0.000 |            |
| <i>Diagnostics</i>                                     |                                    |                     |            |       |            |
| Sample   | 417                                |                     |            |       |            |
| Chi <sup>2</sup> (19)                                  | 98.525                             |                     |            |       |            |
| P>Chi <sup>2</sup>                                     | 0.000                              |                     |            |       |            |
| Cox and Snell R <sup>2</sup>                           | 0.210                              |                     |            |       |            |
| Nagelkerke R <sup>2</sup>                              | 0.284                              |                     |            |       |            |
| -2 log-likelihood                                      | 465.997                            |                     |            |       |            |

Source: Confidentialised unit records from the HILDA Survey waves 1-4

Notes:

\* Test statistic is significant at 1% level

<sup>+</sup> Test statistic is significant at 5% level

<sup>#</sup> Test statistic is significant at 10% level

If there are no asterisks, the test statistic is not significant at the 1, 5 or 10% level

a All explanatory variables are 0-1 dummies except the Number of children and Labour force experience variables.

Results from the logit specification could suffer from endogeneity bias since there are unobservables not included in the model which are likely to be important in explaining both employment outcomes and HA status. Difference-in-difference regressions can overcome this problem. In these regressions the HA variable captures the unobservable differences between HA recipients and non-recipients.

Results from the estimation of the Logit difference-in-difference model for employment are provided in Table 7. Results confirm preliminary findings from Table 4 and Table 5. The coefficient on the HA is large negative and statistically significant, indicating that there are important unobservable characteristics which imply that HA recipients have a lower probability of being employed. However, the coefficient on the difference-in-difference estimator is not statistically significant indicating that duration on HA or moves on and off HA do not impact on the probability of being employed. It is therefore reasonable to argue that the negative association between HA and the probability of employment is being driven by systemic but unobservable differences between those receiving HA and those that don't that are not controlled for in the model. Making a transition on (or off) HA does not appear to have any impact (either positive or negative) on the probability of being employed.

Other results indicate once again that MOA activity type might be important in explaining the probability of employment. Relative to *Employment Assistance* only MOA activities (the omitted activity category), *Training* and *Employment and community participation* activities deliver inferior employment outcomes for MOA participants. Results suggest that participants undertaking *Training* and *Employment and community participation* are 10.6 per cent and 12.7 per cent respectively less likely to be employed than those who obtained *Employment assistance*.

The coefficients on the time trend variables indicate that the probability of employment has increased during the four waves of the HILDA survey *ceteris paribus*. This is in concordance with the strengthening Australian economy during this period. Results also suggest the probability of being employed is negatively associated with being female, having young children, being disabled, and the number of years unemployed. Results confirm the inverted U-shaped relationship between the number of years in paid work and the probability of being employed found in the previous results.<sup>19 20</sup>

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<sup>19</sup> The logit difference-in-difference model for employment with also estimated with HA disaggregated into its components. The coefficient on the CRA variable was negative and statistically significant indicating that are likely to be unobservable differences between those receiving CRA and those that don't. The coefficient on the public housing variable was not statistically significant. Further the coefficients on the CRA and public housing difference-in-difference variables are not statistically significant indicating that making a transition on (or off) these forms of HA does not appear to have an impact on the probability of being employed. Other results from the estimation of this model are consistent with those presented in Table 7.

**Table 7: Logit Difference-in-Difference Model for Employment**

| Explanatory variables                                  |                                     | Coef.               | Robust<br>std.<br>error | Sig.  | Marg.<br>eff. |
|--|-------------------------------------|---------------------|-------------------------|-------|---------------|
| MOA program  | Employment/community participation  | -0.522*             | 0.152                   | 0.001 | -0.127        |
|  | Training                            | -0.442 <sup>+</sup> | 0.189                   | 0.017 | -0.106        |
| Time trend   | Wave 1                              | -1.360*             | 0.203                   | 0.000 | -0.298        |
| (omit wave 4)  | Wave 2                              | -1.087*             | 0.203                   | 0.000 | -0.245        |
|  | Wave 3                              | -0.991*             | 0.202                   | 0.000 | -0.226        |
| Received HA in waves 1-4 (H)                           |                                     | -0.562 <sup>+</sup> | 0.207                   | 0.011 | -0.137        |
| Difference-in-difference estimator (H*h)               |                                     | -0.015              | 0.234                   | 0.950 | -0.004        |
| Female   |                                     | -0.575*             | 0.161                   | 0.000 | -0.139        |
| Partnered  |                                     | 0.273               | 0.169                   | 0.110 | 0.067         |
| Number of children                                     | Aged 0-4                            | -0.417 <sup>+</sup> | 0.171                   | 0.012 | -0.103        |
|  | Aged 5-9                            | -0.253              | 0.204                   | 0.203 | -0.062        |
|  | Aged 10-14                          | 0.071               | 0.192                   | 0.723 | 0.017         |
| Ethnicity  | Australian Aboriginal               | -0.011              | 0.363                   | 0.976 | -0.003        |
| (omit Australian non-Aboriginal)                       | Main English-speaking countries     | -0.004              | 0.284                   | 0.989 | -0.001        |
|  | Other                               | -0.394 <sup>#</sup> | 0.234                   | 0.090 | -0.095        |
| Disabled   |                                     | -0.887*             | 0.169                   | 0.000 | -0.209        |
| Region   | Inner region                        | 0.239               | 0.203                   | 0.217 | 0.059         |
| (omit major cities)                                    | Outer, remote or very remote region | -0.090              | 0.560                   | 0.884 | -0.022        |
| Highest qualification                                  | Bachelor degree or higher           | -0.056              | 0.325                   | 0.852 | -0.014        |
| (omit Year 12 or below)                                | Other post-school qualification     | 0.183               | 0.164                   | 0.264 | 0.045         |
| Labour force experience since left full-time education | Years in paid work                  | 0.076*              | 0.022                   | 0.000 | 0.019         |
|  | Square of years in paid work        | -0.002*             | 0.001                   | 0.000 | -0.001        |
|  | Years unemployed                    | -0.126*             | 0.024                   | 0.000 | -0.031        |
| Constant   |                                     | 1.567*              | 0.222                   | 0.000 |               |
| <i>Diagnostics</i>                                     |                                     |                     |                         |       |               |
| Sample   | 983                                 |                     |                         |       |               |
| Chi <sup>2</sup> (23)                                  | 215.460                             |                     |                         |       |               |
| P>Chi <sup>2</sup>                                     | 0.000                               |                     |                         |       |               |
| Cox and Snell R <sup>2</sup>                           | 0.197                               |                     |                         |       |               |
| Nagelkerke R <sup>2</sup>                              | 0.263                               |                     |                         |       |               |
| -2 log-likelihood                                      | 1,138.831                           |                     |                         |       |               |

Source: Confidentialised unit records from the HILDA Survey waves 1-4

Notes:

<sup>20</sup> Logit models were also run separately for males and females. Results (not presented here but available from the authors upon request) are generally consistent with those presented above. The exception is that the coefficient on the HA variable was not statistically significant in the logit difference-in-difference model estimated only for females. Other model estimations (instrumental variable techniques or IVs) sought to control for the potential endogeneity of the HA variables. Finding instruments believed to affect HA but not the probability of employment is difficult. Variables that act as proxies for wealth such as the number of siblings, whether an individual's parents were divorced or separated and whether one or both of an individual's parents had died when they were 14) were used. Another variable was based on the gender mix of a participant's children. Children of mixed gender are less likely to share bedrooms and therefore individuals are more likely to be living in larger properties, receiving larger public housing subsidies than individuals with equivalent children but of the same gender. Whether an individual's parents have ever divorced or separated proved to be the best determinant of a HA receipt, however the coefficient on this variable was only mildly significant. However, in the logit models using IVs, the negative coefficient on the HA variable is no longer negative nor statistically significant. The same is true of the coefficients on the CRA and public housing variables when HA was disaggregated. Results are available upon request.

\* Test statistic is significant at 1% level

+ Test statistic is significant at 5% level

# Test statistic is significant at 10% level

If there are no asterisks, the test statistic is not significant at the 1, 5 or 10% level

To follow other studies we also examine the impact of HA on the wages of MOA participants. Wages are another useful labour market program outcome. The results from the estimation of tobit models explaining the wages of participants are provided in Tables 8 and 9 below. Results from Table 8 indicate that MOA participants who received HA have lower wages relative to those receiving no HA. Other results from the estimation of models relating to employment are confirmed by this model explaining wage outcomes. Lower wages are associated with being female, single, having young children, and being disabled. There is also a negative association between wages and the number of years unemployed. Relative to Employment Assistance activities, MOA participants undertaking Employment and community participation and Training activities have lower wages. Relative to Australian (non-Aboriginal) participants, those from mainly English speaking countries have lower wages and the level of wages initially increases with the number of years in paid work before decreasing with a threshold level of about 18 years. Moreover, there is evidence that region is important with higher wages associated inner regions relative to major cities.<sup>21</sup>

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<sup>21</sup> The tobit model of wages is also estimated with disaggregated HA. Results from this model indicate that receipt of public housing is associated with lower wages while receipt of CRA has not statistically significant impact. Results relating to the other explanatory variables are consistent with those presented in Table 8.

**Table 8: Tobit Model for Wages**

| Explanatory variable                                   |                                    | Coef.                 | Std. error | Sig.  |
|--|------------------------------------|-----------------------|------------|-------|
| MOA program<br>(omit Assistance only)                  | Employment/community participation | -124.429 <sup>#</sup> | 75.343     | 0.099 |
|  | Training                           | -153.878 <sup>#</sup> | 89.012     | 0.085 |
| HA   |                                    | -152.518 <sup>+</sup> | 72.854     | 0.037 |
| Female   |                                    | -291.227 <sup>*</sup> | 72.975     | 0.000 |
| Partnered  |                                    | 161.483 <sup>+</sup>  | 77.602     | 0.038 |
| Number of children                                     | Aged 0-4                           | -257.689 <sup>*</sup> | 81.179     | 0.002 |
|  | Aged 5-9                           | -214.527 <sup>+</sup> | 88.722     | 0.016 |
|  | Aged 10-14                         | -36.678               | 91.292     | 0.688 |
| Ethnicity<br>(omit Australian non-Aboriginal)          | Australian Aboriginal              | -78.624               | 165.998    | 0.636 |
|  | Main English-speaking countries    | -277.263 <sup>+</sup> | 135.496    | 0.041 |
|  | Other countries                    | -80.073               | 108.666    | 0.462 |
| Disabled   |                                    | -244.024 <sup>*</sup> | 76.183     | 0.001 |
| Region<br>(omit major cities)                          | Inner                              | 222.669 <sup>*</sup>  | 92.493     | 0.017 |
|  | Outer, remote or very remote       | -176.022              | 235.181    | 0.455 |
| Highest qualification<br>(omit no post-school qual.)   | Bachelor or higher                 | -39.732               | 136.757    | 0.772 |
|  | Other post-school qualification    | -3.195                | 77.850     | 0.967 |
| Labour force experience since left full-time education | Years in paid work                 | 40.725 <sup>*</sup>   | 10.245     | 0.000 |
|  | Square of years in paid work       | -1.191 <sup>*</sup>   | 0.264      | 0.000 |
|  | Years unemployed                   | -47.644 <sup>*</sup>  | 11.443     | 0.000 |
| Constant   |                                    | 387.788 <sup>*</sup>  | 90.737     | 0.000 |
| Sigma  |                                    | 610.443               | 31.104     |       |
| <i>Diagnostics</i>                                     |                                    |                       |            |       |
| Sample   | 417                                |                       |            |       |
| Chi <sup>2</sup> (19)                                  | 96.62                              |                       |            |       |
| P>Chi <sup>2</sup>                                     | 0.000                              |                       |            |       |
| Pseudo R <sup>2</sup>                                  | 0.0249                             |                       |            |       |
| Log-likelihood   | -1,888.003                         |                       |            |       |

Notes:

\* Test statistic is significant at 1% level

+ Test statistic is significant at 5% level

# Test statistic is significant at 10% level

If there are no asterisks, the test statistic is not significant at the 1, 5 or 10% level

Table 9 provides results from the estimation of the tobit difference-in-difference model for wages. Results from this model are consistent with those for employment using the difference-in-difference estimator. The coefficient on the housing assistance is negative and statistically significant indicating that the receipt of housing assistance is negatively associated with the level of wages – a result being driven by unobservable characteristics. However, the coefficient on the difference-in-difference variable is not statistically significant indicating that moves on and off HA do not have an impact on wages. The negative association between HA and wages is likely to be due to unobservable differences between those receiving HA and those that don't. Making a transition on (or off) HA does not appear to have any impact (either positive or negative)

on wages. All other results are consistent with those from the estimation of the other tobit models.<sup>22</sup>

**Table 9: Tobit Difference-in-Difference Model for Wages**

| Explanatory variables                                  |                                     | Coef.    | Robust<br>std.<br>error | Sig.  |
|--|-------------------------------------|----------|-------------------------|-------|
| MOA program  | Employment/community participation  | -136.596 | 50.495                  | 0.005 |
|  | Training                            | -144.234 | 58.019                  | 0.012 |
| Time trend   | Wave 1                              | -411.026 | 69.184                  | 0.000 |
| (omit wave 4)  | Wave 2                              | -305.665 | 63.642                  | 0.000 |
|  | Wave 3                              | -280.787 | 65.035                  | 0.000 |
| Received HA in waves 1-4 (H)                           |                                     | -147.439 | 71.694                  | 0.030 |
| Difference-in-difference estimator (H*h)               |                                     | -85.526  | 79.950                  | 0.268 |
| Female   |                                     | -207.472 | 53.241                  | 0.000 |
| Partnered  |                                     | 112.443  | 56.197                  | 0.030 |
| Number of children                                     | Aged 0-4                            | -130.574 | 57.518                  | 0.010 |
|  | Aged 5-9                            | -138.510 | 58.069                  | 0.024 |
|  | Aged 10-14                          | -2.976   | 55.914                  | 0.960 |
| Ethnicity  | Australian Aboriginal               | 14.795   | 100.965                 | 0.892 |
| (omit Australian non-Aboriginal)                       | Main English-speaking countries     | -88.013  | 81.170                  | 0.308 |
|  | Other                               | -110.126 | 83.890                  | 0.123 |
| Disabled   |                                     | -239.911 | 48.713                  | 0.000 |
| Region   | Inner region                        | 100.910  | 80.546                  | 0.086 |
| (omit major cities)                                    | Outer, remote or very remote region | -65.946  | 129.743                 | 0.716 |
| Highest qualification                                  | Bachelor degree or higher           | 67.971   | 93.419                  | 0.442 |
| (omit Year 12 or below)                                | Other post-school qualification     | 32.936   | 48.464                  | 0.507 |
| Labour force experience since left full-time education | Years in paid work                  | 34.648   | 6.711                   | 0.000 |
|  | Square of years in paid work        | -1.060   | 0.194                   | 0.000 |
|  | Years unemployed                    | -42.841  | 7.660                   | 0.000 |
| Constant   |                                     | 386.907  | 54.910                  | 0.000 |
| Sigma  |                                     | 578.532  | 63.522                  |       |
| <i>Diagnostics</i>                                     |                                     |          |                         |       |
| Sample   | 983                                 |          |                         |       |
| Chi <sup>2</sup> (23)                                  | 234.71                              |          |                         |       |
| P>Chi <sup>2</sup>                                     | 0.000                               |          |                         |       |
| Pseudo R <sup>2</sup>                                  | 0.032                               |          |                         |       |
| Log-likelihood   | -3,548.547                          |          |                         |       |

Notes:

\* Test statistic is significant at 1% level

+ Test statistic is significant at 5% level

# Test statistic is significant at 10% level

If there are no asterisks, the test statistic is not significant at the 1, 5 or 10% level

<sup>22</sup> When HA is disaggregated the coefficient on the CRA difference-in-difference variable is negative and statistically significant (albeit at the 10 per cent level). This provides some limited evidence that transitions on to CRA are associated with lower wages.

## V. Conclusion

The Australian MOA program is consistent with an international emphasis on participation by welfare recipients. The United States and Britain have both introduced similar initiatives in the same time as Australia. Using a sample of Australian MOA participants this paper has examined the impact of HA on their employment and wage outcomes. The study has presented a series of tests in an effort to understand the relationship between MOA and HA, and employment and wage outcomes. The paper demonstrates the importance of using a difference-in-difference estimator to yield valid results and policy implications. Overall results provide little evidence that HA has any impact on the probability of employment and wages of MOA participants – either positive or negative.

Other results indicate that the type of MOA activity is important in explaining employment and wage outcomes. Specifically, relative to *Employment Assistance* activities, MOA participants undertaking *Employment and Community Participation*, and *Training* experience a lower probability of employment and lower wages. Interestingly, Australian *Employment Assistance* activities are most like the US form of obligatory activity, which always seem to deliver a superior employment outcome (Miller, 1998; Riccio and Orenstein, 2001).

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## **Appendix**

### **MOA Activities**

#### **Employment and Community Participation:**

1. Part-time paid work (at least 130 hours over 13 fortnights)
2. Work for the Dole: a wide range of activities, history/heritage programs, the environment, community care, tourism. Community Work Coordinators manage the work for the dole participants, refer participants to appropriate activities.
3. Community Development Employment Projects (CDEP). These are Indigenous community organizations that are funded by ATSIC for remote communities.
4. Community Work (at least 200 hours in six months).
5. Green corps: five days a week for six months.
6. Relocation: you choose to move to another area where your skills are in higher demand or there are more jobs. It must be followed by 14 weeks of intensive job search.

#### **Training:**

1. Approved Language Literacy, and Numeracy Training: 10-20 hours a week, in an initial training bloc of 160 hours.
2. Part-time study (short courses of less than 16 weeks, or long courses more than 16 weeks). Must complete the unit of study, it must be approved, and there is minimum contact hours.
3. Apprenticeship program must be approved and followed by intensive job search for 17 weeks
4. Defense force reserve. (200 hours in six months)

#### **Assistance Programs:**

1. Job placement Employment and Training: This requires regular contact with the job placement provider for the length of program (at least six months).
2. Career Planning: available in most locations, involving two small-group sessions, each running for about two hours. The option is two additional one-on-one sessions. It does not satisfy MO requirements.
3. Voluntary Work-Training courses: Centre-ink has large national register of approved not for profit community organization you can contact.

## Variable Definitions

| Variable   |                                    | Variable definitions  |
|--|------------------------------------|---|
| MOA program<br>(omit Assistance only)                  | Employment/community participation | 1 if participant in the following programs: Part-time paid work, Work for the Dole, Community Development Employment projects, Community work Green Corps, Relocation, Voluntary unpaid work; 0 otherwise |
|  | Training                           | 1 if participant in the following programs: Part-time study, Defence Force Reserve, New Apprenticeship Access Program, Approved literacy/numeracy training, Advance English for Migrants; 0 otherwise     |
|  | Assistance                         | 1 if participant in the following programs: Job Search Training, Job Placement Employment and Training, Intensive Assistance, Job Pathway Program; 0 otherwise  |
| HA   |                                    | 1 if received HA at some point during waves 1-4   |
| Female   |                                    | 1 if female, 0 otherwise  |
| Partnered  |                                    | 1 if partnered, 0 otherwise   |
| Number of children                                     | Aged 0-4                           | Number of children aged 0 to 4  |
|  | Aged 5-9                           | Number of children aged 5-9   |
|  | Aged 10-14                         | Number of children aged 10-14   |
| Ethnicity<br>(omit Australian non-Aboriginal)          | Australian Aboriginal              | 1 if born in Australia and of Aboriginal or Torres Strait Islander origin; 0 otherwise  |
|  | Australian non-Aboriginal          | 1 if born in Australia and not of Aboriginal or Torres Strait Islander origin; 0 otherwise  |
|  | Main English-speaking countries    | 1 if born in New Zealand, UK, Ireland, Canada, USA or South Africa; 0 otherwise   |
|  | Other countries                    | 1 if born in countries other than Australia and main English-speaking countries; 0 otherwise  |
| Disabled   |                                    | 1 if has a disability or long-term health condition; 0 otherwise  |
| Region<br>(omit major cities)                          | Major cities                       | 1 if residing in major cities; 0 otherwise  |
|  | Inner                              | 1 if residing in inner regional areas; 0 otherwise  |
|  | Outer, remote or very remote       | 1 if residing in outer, remote or very remote regional areas; 0 otherwise   |
| Highest qualification<br>(omit no post-school qual.)   | Bachelor or higher                 | 1 if possess bachelor degree or higher; 0 otherwise   |
|  | Other post-school qualification    | 1 if possess other post-school qualification; 0 otherwise   |
|  | No post-school qualification       | 1 if no post-school qualification; 0 otherwise  |
| Labour force experience since left full-time education | Years in paid work                 | Total years in paid work since leaving full-time education  |
|  | Square of years in paid work       | Square of above   |
|  | Years unemployed                   | Total years unemployed since leaving full-time education  |