

Working Paper

# Assessing the impact of receiving Disability Living Allowance (DLA): Secondary analysis of existing data

by Karen Mackinnon, Sergio Salis and David Wilkinson

Department for Work and Pensions

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Karen Mackinnon, Sergio Salis and David Wilkinson

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# Abbreviations

DLA	Disability Living Allowance
DWP	Department for Work and Pensions
ELSA	English Longitudinal Study of Ageing
FRS	Family Resources Survey
HSE	Health Survey for England
LOS	Life Opportunities Survey
ODI	Office for Disability Issues
UKDA	UK Data Archive

# 1 Introduction

Disability Living Allowance (DLA) is a tax-free benefit for children and adults who need help with personal care or have walking difficulties because they are physically or mentally disabled. These needs must have lasted for three months and customers are likely to need this help or have these difficulties for at least another six months. It is a benefit designed to meet the extra costs of disability and with recipients being free to choose how to spend it. As Berthoud (2009) points out, little is known about the impacts of DLA on recipients' care and mobility arrangements, their standard of living, social inclusion or sense of identity. Berthoud's feasibility study recommended two pieces of work, of which this is one. This report seeks to identify any impact of receiving DLA on such measures through quantitative secondary analysis of existing data. The other piece of work looks at similar questions through semi-structured interviews with a small sample, see Corden *et al.* (2010).

## 1.1 About DLA

DLA is a non-means-tested benefit and is available for people who are aged under 65 when they claim. It has two components:

- a care component – for those who need help looking after themselves or supervision to keep safe; and
- a mobility component – for those who can't walk or need help getting around.

Some people will be entitled to receive just one component while others may get both. The care component and mobility component are paid at different rates depending on how a person's disability affects them.

To get the care component of DLA, the disability must be severe enough for the customer to:

- need help with things such as washing, dressing, eating, getting to and using the toilet, or communicating their needs;
- need supervision to avoid putting themselves or others in substantial danger;
- need someone with them when they are on dialysis; or
- be unable to prepare a cooked main meal for themselves (if they had the ingredients), if they are aged 16 or over.

There are three rates of care component depending on how their disability affects the customer. The lowest rate is awarded if the customer needs help or supervision for some of the day or they are unable to prepare a cooked main meal. The middle rate is awarded if the customer needs help with personal care frequently or supervision continually throughout the day only, or help with personal care or someone to watch over them during the night only, or someone with them while they are on dialysis. The highest rate is awarded if the customer needs help or supervision frequently throughout the day and during the night.

To get the mobility component of DLA, the disability must be severe enough for the customer to have any of the following walking difficulties, even when wearing or using an aid or equipment they normally use:

- because of a physical disability, customers are unable or virtually unable to walk without severe discomfort, or at risk of endangering their life or causing deterioration in their health by making the effort to walk;
- customers have no feet or legs;
- customers are assessed to be both 100 per cent disabled because of loss of eyesight and not less than 80 per cent disabled because of deafness and they need someone with them when they are outdoors;
- customers are severely mentally impaired with severe behavioural problems and qualify for the highest rate of care component; or
- customers need guidance or supervision most of the time from another person when walking outdoors in unfamiliar places.

There are two rates of the mobility component depending on how their disability affects them. The lower rate is awarded if the customer needs guidance or supervision outdoors. The higher rate is awarded if the customer has any of the other, more severe, walking difficulties.

A customer, who has a progressive disease and is not reasonably expected to live for more than six months, can get DLA more quickly and easily. They can get the highest rate of the care component whatever their care needs are and they can get the care component and (if they meet the conditions) the mobility component, without waiting three months. A claim for someone under the special rules can be made without them knowing or without their permission.

A little over three million people in Britain received DLA in August 2009 (Department for Work and Pensions (DWP) Work and Pensions Longitudinal Study). More than half of these were people of working age (1.7 million), roughly one-third were of pension age (1 million) and the remainder were aged under 16 (320,000). The Office for Disability Issues (ODI)<sup>1</sup> using data from the Family Resources Survey (FRS) indicate that, in total, five million people of working age have some kind of long-term limiting illness or disability. Not all of these have care and mobility needs that would qualify them for DLA if they applied, but some do.

This aim of this report is to consider the impact of receiving DLA on recipients. A matching approach is used to identify people with similar characteristics to recipients and compare outcomes between DLA recipients and a matched comparison group. A range of outcome measures are considered.

The analysis uses existing data from the English Longitudinal Survey of Ageing (ELSA) from 2002 to 2006 and the 1996/1997 FRS Disability Follow-up Survey.

The next section of the report introduces the data used in the study. We then outline the analytical approach used (Chapter 3) which broadly follows the approach (i) laid out by Berthoud (*op. cit.*). Our analysis first considers a model for the probability of DLA receipt (Chapter 4), and in Chapter 5 we introduce the outcome measures considered and then consider the impact of DLA receipt on these measures (Chapter 6). In Chapter 7 we offer some conclusions.

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<sup>1</sup> The ODI Disability prevalence estimates for 2008/09 show 10.8 million people in Great Britain with a long-term limiting illness or disability; 5 million were of working age, 5.1 million were adults over State Pension age and 700,000 were children.

## 2 The Data

In this study we use two national surveys that focus on ageing and disability. The first is English Longitudinal Study of Ageing (ELSA) which only covers people in England and households where there was at least one adult of 50 years or older in the household who had agreed to be re-contacted at some time in the future when participating in the Health Survey for England (HSE). We consider the first three waves of the survey which took place in 2002, 2004 and 2006. Our second source is the 1996/97 Family Resources Survey (FRS) Disability Follow-up survey, which covers all adults in the UK. The ELSA data is much more up to date than the FRS data and offers the possibility of longitudinal analysis, but is limited in terms of the age of respondents, while the FRS data covers all ages and has a much bigger sample, but is now somewhat dated.

Further details of the two surveys are provided below.

### 2.1 The English Longitudinal Study of Ageing

ELSA is a longitudinal survey of ageing and quality of life among older people (see Taylor *et al.*, 2007; Scholes *et al.*, 2008 and Scholes *et al.*, 2009 for technical reports on the first three waves of data collection). It covers:

- health, disability, and healthy life expectancy;
- the relationship between economic position and both physical and cognitive health;
- the determinants of economic position in older age;
- the timing and circumstances of retirement and post-retirement labour market activity;
- the nature of social networks, support and participation; and
- household and family structure and the transfer of resources.

It covers only England and only individuals over the age of 50 (in 2001). We have data from the first three waves of the survey, with data collected between March 2002 and March 2003 (Wave 1); between June 2004 and July 2005 (Wave 2); and between May 2006 and August 2007 (Wave 3).

The ELSA sample was selected from three survey years (1998, 1999 and 2001) of the HSE. Households were included in ELSA if they contained at least one adult of 50 years or older in the household who had agreed to be re-contacted at some time in the future when participating in the HSE.

Table 2.1 shows the number of respondents in each wave of the survey and the number and percentage of Disability Living Allowance (DLA) recipients in the survey. There were 11,392 respondents in Wave 1; 8,780 in Wave 2 and 8,764 in wave three, of which 1,276 were new respondents, i.e. not in either of the first two waves, such that overall there were 12,668 respondents in any wave of ELSA and 7,168 that appeared in all three waves.

Overall, there were 975 DLA recipients in the three ELSA surveys, representing 7.7 per cent of all respondents. Almost one-fifth of these, 199, reported that they received DLA in each wave of the survey. Not all respondents were in each wave of the survey, so these 199 respondents represent 2.8 per cent of respondent who were in all waves of the survey. For the individual waves of the survey the percentage of respondents who reported that they received DLA was similar, ranging from 5.5 per cent in Wave 1 to 5.8 per cent in wave 2. Note these estimates are slightly lower than those obtained from administrative sources for Great Britain, which indicate that roughly 8 per cent of people aged 50 or more received DLA.

**Table 2.1 The number and percentage of ELSA respondents who reported receiving DLA**

	Received DLA		Total in Wave(s)
	N	%	
Received DLA			
Wave 1 (2002)	623	5.5	11,392
Wave 2 (2004)	506	5.8	8,780
Wave 3 (2006)	488	5.6	8,764
All 3 waves	199	2.8	7,168
Any Wave	975	7.7	12,668

Source: ELSA.

There were just 229 respondents who reported new periods of DLA receipt. These were respondents who reported that they did not receive DLA in either of the first two waves of the survey, but subsequently reported DLA receipt. Given this small number we have not conducted any longitudinal analysis on new DLA customers.

## 2.2 The Family Resources Survey Disability Follow-up Survey

The FRS collects information on the incomes and circumstances of private households in the United Kingdom (or Great Britain before 2002-03). See the annual report series FRS for further information.

The survey was launched in October 1992 and aims to:

- support the monitoring of the social security programme;
- support the costing and modelling of changes to National Insurance contributions and social security benefits; and
- provide better information for the forecasting of benefit expenditure.

Its annual target sample size is 29,000 households and those interviewed in the survey are asked a wide range of questions about their circumstances including income, receipt of social security benefits, housing costs, assets and savings.

The FRS Disability Follow-up Survey is based on a follow-up survey of disabled respondents in the 1996/97 FRS, see Craig and Greenslade (1998) or Grundy *et al.*, (1999) for further details. Respondents who match any one of a series of sift criteria based on age, benefit receipt or reported health problems are asked to take part in a further interview. This asks in detail about cause, type and severity of disability, the extra needs and costs which result, and participation in leisure and social activities. The aim of the survey was to find out the size and characteristics of the disabled adult population of Great Britain. The survey has been widely used, for example to estimate the extra costs of disability (Zaidi and Burchardt, 2005) and to look at employment rates of disabled people (Berthoud, 2008).

Table 2.2 shows the number of respondents in the 1996/97 FRS, the number of respondents aged 50 or more and the same for the Disability Survey, together with the number and percentage of DLA recipients in each survey. There were 45,251 respondents in the FRS and 18,958 were aged 50 or more. Overall, there were 1,569 respondents or 3.5 per cent of FRS respondents who were DLA

recipients and 930 or 4.9 per cent aged 50 or more that were DLA recipients. This latter figure is slightly lower than the ELSA figures of between 5.5 per cent and 5.8 per cent of people aged 50 or more receiving DLA.

Not all of these respondents completed the follow-up survey. Respondents were filtered through a number of questions to identify those with disabilities or health problems such that overall there were 7,263 respondents to the follow-up survey of which 5,396 were aged 50 or more.

Out of these, 914 (13.0 per cent) reported that they received DLA and 601 (11.1 per cent) aged 50 or more reported that they received DLA. These figures for the percentage of respondents receiving DLA are much higher than for ELSA because the respondents have been selected to be those with disabilities or health problems who are clearly much more likely to receive DLA.

**Table 2.2 The number and percentage of FRS respondents who reported receiving DLA**

	Received DLA		Total
	N	%	
<b>FRS Survey</b>			
All respondents	1,569	3.5	45,251
Aged 50 plus	930	4.9	18,958
<b>Follow-up Disability Survey</b>			
All respondents	914	13.0	7,263
Aged 50 plus	601	11.1	5,396

Source: FRS 1996/97 and Follow-up Disability Survey.

# 3 Analytical approach

The approach we use is based on option (i) in Berthoud (2009). It uses propensity score matching methods (Rosenbaum and Rubin, 1983) to identify a matched comparison group of Disability Living Allowance (DLA) non-recipients for whom the distribution of observed variables is as similar as possible to the distribution for DLA recipients. We can then compare outcomes for DLA respondents and our matched comparison group.

It involves calculating the propensity score for each individual, which is the probability of receiving DLA given the characteristics of individuals. Then DLA recipients are matched to non-recipients on the basis of this propensity score. The need to do this is to correct for biases in the data that arise, because the impact of receiving DLA may be related to factors that also affect whether an individual received DLA. A good example of such a factor is the severity of disability. If DLA recipients are more severely disabled than non-recipients then our estimates will be biased. The matching approach aims to find a group of non-recipients who are the same in terms of severity of disability as DLA recipients, and furthermore aims to seek a match on all characteristics that relate to receipt of DLA and the impact of receiving DLA.

Once we have estimated the probability of receiving DLA (propensity score), each DLA recipient is matched to the DLA non-recipient with the propensity score closest to them. We allow non-recipients to be matched to more than one recipient and specify that the propensity score for the recipient must be within 0.01 of the non-recipient.

Not all DLA recipients are matched to someone from the pool of non-recipients, because the differences in propensity scores are too high, this is discussed further in Section 4.3.

We may also be concerned that an individual in the pool of non-recipients might appear in the matched comparison group too many times because they have the nearest propensity score to many DLA recipients. Again, this is discussed further in Section 4.3.

One of the key challenges to the matching approach is to find survey questions that allow us to replicate the DLA entitlement criteria discussed briefly in the introduction. The extent to which this is possible is open to question, but our previous work Kasparova et al (2009) showed that we could make reasonable predictions about the success of a DLA claim based on a very limited number of variables from the DLA claim form. These variables corresponded roughly to the entitlement criteria for Care and Mobility awards using data from the main DLA claim form alone.

The two surveys under consideration differ in their scope for replicating these entitlement criteria. The Family Resources Survey (FRS) allows us a reasonable approximation of claim form questions to assess the entitlement criteria, but English Longitudinal Study of Ageing (ELSA) provides only limited information to do this.

## 3.1 Approximating DLA care entitlement criteria

There are three levels of DLA care award: higher, middle and lower rate. The care entitlement criteria for these levels of award are based on the following six criteria. The customer must be so severely disabled physically or mentally that they:

- 1 require frequent attention throughout the day in connection with bodily functions;
- 2 require continual supervision throughout the day in order to avoid substantial danger to themselves or others;

- 3 require prolonged or repeated attention in connection with their bodily functions at night;
- 4 require in order to avoid substantial danger to themselves or others they require another person to be awake for a prolonged period or at frequent intervals for the purpose of watching over them;
- 5 require in connection with their bodily functions, attention from another person for a significant portion of the day (whether during a single period or a number of periods);
- 6 have difficulty preparing a cooked meal for themselves if they have the ingredients.

Furthermore, if an individual's needs meet criteria 1 and 2 and either or both of criteria 3 and/or 4 then they would be expected to qualify for a higher rate care award.

If an individual's needs meet either or both of criteria 1 and 2 or either or both of criteria 3 and 4 then they would be expected to qualify for a middle rate care award.

If an individual's needs meet criteria 5 or 6 then they would be expected to qualify for a lower rate care award.

### **3.1.1 ELSA questions related to care entitlement**

In ELSA there is no information about the frequency of attention required, nor is there any information about the time of the day when needs arise, so for example it is not possible to assess criteria 3 in relation to night-time needs. However, we do have information about care needs through a series of questions as follows:

Because of a health or memory problem, do you have difficulty doing any of the activities on this card? (exclude any difficulties you expect to last less than three months):

- 1 bathing or showering;
- 2 using the toilet, including getting up or down;
- 3 preparing a hot meal;
- 4 dressing, including putting on shoes and socks;
- 5 walking across a room;
- 6 eating, such as cutting up your food;
- 7 getting in or out of bed;
- 8 using a map to figure out how to get around in a strange place;
- 9 shopping for groceries;
- 10 making telephone calls;
- 11 taking medications;
- 12 doing work around the house or garden;
- 13 managing money, such as paying bills and keeping track of expenses.

Many of these items are similar to needs asked about on the DLA claim form, but they are not strictly related to the entitlement criteria outlined above. The first two of the items listed above (have difficulty with bathing or showering and have difficulty with using the toilet, including getting up or down) clearly relate to criteria 1, 3 and 5, which are about needing help in connection with

their bodily functions. Furthermore, the third item in the list above (have difficulty preparing a hot meal) is similar to criteria 6 (to have difficulty preparing a cooked meal for themselves if they have the ingredients). However, ELSA does not provide any information that is clearly related to criteria 2 and 4, which are related to avoiding danger to themselves or others.

Given that the data available in relation to care needs is not strongly correlated with the DLA care entitlement criteria discussed above, we may not expect our matching approach to work particularly well using ELSA data, but we try to compensate for this limited information by including dummy variables for all the items in the list above in our models in the hope that at least some of them will be correlated with the DLA care entitlement criteria and hence give us a better approximation of the need criteria.

**3.1.2 FRS questions related to care entitlement**

In a similar way to the series of questions asked in ELSA about care needs, the FRS Disability Survey has a number of questions about care needs. These are as follows:

- Do you have difficulty ...?
- Do you need help....?
- How often do you need help....?
- Who usually helps you?
- On the days you need help, how much help do you need?

From these questions the FRS Disability Survey allows us to derive variables that more closely resemble the care entitlement criteria than was possible using ELSA data. We can derive variables for each of the six care entitlement criteria discussed at the beginning of Section 3.1. The questions we use to do this are outlined in Table 3.1. We then use responses to these questions to give us variables that relate to meeting the entitlement criteria for a higher rate, middle rate and lower rate award and include just these three care need variables in our models.

**Table 3.1 FRS questions related to care award entitlement criteria**

<b>Criteria</b>	<b>Difficulties with or need help with</b>	<b>Frequency</b>
Frequent attention throughout the day in connection with their bodily functions.	Getting to the toilet or using the toilet during the day. Using something like a commode, bedpan or bottle during the day. Using incontinence aids or devices during the day. Washing their hands and face. Washing all over.	At least 2 days per week. At least twice per day.
Continual supervision throughout the day in order to avoid substantial danger to themselves or others.	Need someone to be with them most of the time to avoid dangers, either to themselves or other people.	During the day or during the day and night. Every day.

Continued

**Table 3.1 Continued**

<b>Criteria</b>	<b>Difficulties with or need help with</b>	<b>Frequency</b>
Prolonged or repeated attention in connection with their bodily functions at night.	Getting to the toilet or using the toilet during the night. Using something like a commode, bedpan or bottle during the night. Using incontinence aids or devices during the night.	Every night. At least twice per night or more than 20 minutes.
In order to avoid substantial danger to themselves or others they require another person to be awake for a prolonged period or at frequent intervals for the purpose of watching over them.	Need someone to be with them most of the time to avoid dangers, either to themselves or other people.	During the night or during the day and night. Every night. At least twice per night or more than 20 minutes.
In connection with their bodily functions attention from another person for a significant portion of the day (whether during a single period or a number of periods).	Getting to the toilet or using the toilet during the day. Using something like a commode, bedpan or bottle during the day. Using incontinence aids or devices during the day. Washing your hands and face. Washing all over.	At least two days per week. At least 20 minutes per day.
To have difficulty preparing a cooked meal for themselves if they have the ingredients.	Preparing a hot meal for themselves.	

## 3.2 Approximating DLA mobility entitlement criteria

There are two levels of mobility awards: higher and lower rate. The mobility entitlement criteria for these levels of award are shown below:

Higher rate mobility award – must be unable or virtually unable to walk.

Lower rate mobility award – must be so severely disabled physically or mentally that, disregarding any ability (they) may have to use routes which are familiar to them on their own, they cannot take advantage of the faculty outdoors without guidance or supervision from another person most of the time.

### 3.2.1 ELSA questions related to mobility entitlement

ELSA includes a number of questions that relate to the mobility entitlement criteria. These are shown in Table 3.2. The two columns indicate the responses to these questions that we allocate to the two different award rates. So that if there is a response of ‘cannot walk’ to any of the listed questions then the respondent is assumed to have met the entitlement criteria for a higher rate award.

## 10 Analytical approach

The data available in relation to mobility needs is reasonably close to the DLA mobility entitlement criteria discussed above, but it is difficult to replicate the lower rate mobility criteria through these questions. So, in line with our approach to the care needs variables, we also consider other questions relating to mobility needs even though they are not strictly related to the entitlement criteria outlined above. Furthermore, Berthoud (op. cit.) indicates that mobility impairments predict care needs, so it is also useful to include these additional control variables, given the limited indicators we have relating to the care entitlement criteria.

**Table 3.2 ELSA questions related to mobility award entitlement criteria**

ELSA question	Meets higher rate entitlement criteria	Meets lower rate entitlement criteria
How would you rate your pain if you were walking on a flat surface?	Can't walk or never walks	
How often do you have problems with keeping your balance when walking on a level surface?	Spontaneous response – never walks or can't walk	Always Very Often Often
How often do you have problems with dizziness when walking on a level surface?	Spontaneous response – never walks or can't walk	Always Very Often Often
Do you have to stop for breath when walking at your own pace on level ground?		Yes
If has ever had pain or discomfort in chest. Do you get it when you walk uphill?	Cannot walk	
Are you troubled by shortness of breath when hurrying on level ground or walking up a slight hill?	Cannot walk	
Do you get short of breath walking with other people of your own age on level ground?	Cannot walk	
Do you get pain or discomfort in either of your legs which comes on when you walk?	Cannot walk	
Timed walk – Observed	Not observed – in wheelchair Not observed – bedbound	Observed walking with help of another person
By yourself and without using any special equipment, how much difficulty do you have walking for a quarter of a mile?	Unable to do this	Much difficulty

The questions we include are as follows:

Please tell me whether you have any difficulty doing each of the everyday activities on this card. Exclude any difficulties that you expect to last less than three months. Because of a health problem, do you have difficulty doing any of the activities on this card?

- 1 walking 100 yards;
- 2 sitting for about two hours;
- 3 getting up from a chair after sitting for long periods;
- 4 climbing several flights of stairs without resting;
- 5 climbing one flight of stairs without resting;
- 6 stooping, kneeling, or crouching;
- 7 reaching or extending your arms above shoulder level;
- 8 pulling or pushing large objects like a living room chair;
- 9 lifting or carrying weights over ten pounds, like a heavy bag of groceries;
- 10 picking up a five pence coin from a table.

### **3.2.2 FRS questions related to mobility entitlement**

Like ELSA, the FRS has a number of questions that allow some identification of respondents meeting the mobility entitlement criteria. We define those respondents who meet the higher rate mobility criteria as having the following responses to questions:

- respond 'no' to whether they can walk at all;
- can only walk 50 yards without stopping and without severe discomfort;
- can walk less than 200 yards without stopping and without severe discomfort and this takes more than five minutes;
- has difficulty walking a quarter of a mile because leg(s) amputated at or above ankle; or born without legs or feet; or need someone to lean on;
- has difficulty walking a quarter of a mile (for reasons not indicated above) or great difficulty walking up or down stairs or difficulties standing AND cannot walk without physical support (need something to keep your balance all the time or regularly use aids to walking or getting about, such as wheelchair, walking sticks, crutches, walking frame, tripod, Zimmer or trolley).

Similarly we can identify respondents who meet the lower rate mobility criteria as those that do not fall in the category above related to higher rate mobility award, but report that they do not have difficulty walking a quarter of a mile or great difficulty walking up or down stairs or difficulties standing, but need someone to help them when they are outdoors or in places they do not know well.

Again here we feel it is difficult to replicate the lower rate mobility criteria through these questions, but we are fortunate in that the FRS provides a number of questions identifying severity of impairments, see below, which provides us with further controls for mobility and care needs in our models.

The FRS Disability Survey identifies the severity of the following 13 dimensions of disability:

- locomotion;
- reaching and stretching;
- dexterity;
- personal care;
- continence;
- seeing;
- hearing;
- communication;
- behaviour;
- intellectual functioning;
- consciousness;
- eating, drinking and digestion;
- disfigurement.

Each respondent was scored for each of the 13 dimensions and an overall severity score was calculated based on a weighted sum of the three highest scores equal to the highest score + 0.4 x the second highest score + 0.3 x the third highest score. This score was then rescaled to produce a final severity score on a scale of 0 to 10<sup>2</sup>.

Each of the separate severity scores and the overall severity score are included in our models to estimate the probability of receiving DLA.

### 3.3 Other control variables

In addition to the variables we derive to replicate the DLA care and mobility entitlement criteria and our other needs-based variables, both surveys include a number of questions identifying the health conditions of respondents. For ELSA we group these into those related to eyes, cardio-vascular conditions and other chronic conditions and include dummy variables for each of these types of condition. For FRS the basis for the conditions is slightly different and here we include dummy variables for conditions related to blood disorders, eyes, circulatory problems and respiratory problems.

We also include some demographic control variables in our models partly to identify whether a respondent was likely to claim for DLA and also to include some variables that may influence our outcome measures apart from receipt of DLA. In Kasparova et al. (2007) we discussed issues around non-claiming of DLA, putting forward eight main models of non-claiming covering: delay, awareness and comprehension, identity and acceptance, skill transfer, critical mass and social networks, threshold or trigger events, risk aversion and the cost of claiming, negative feedback. It is these types of issue that we seek to control for through our additional demographic variables. These variables are gender, age, whether living with a partner, whether working, retired or doing something else, income and net wealth.

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<sup>2</sup> See User Guide for Disability Follow-up to the 1996/97 Family Resources Survey.

It is possible that some of these factors are determined in part by DLA receipt, so there may be problems of endogeneity, which require some cautious interpretation. For example, Berthoud (2008) shows that disability affects employment status. However, employment status will be a key determinant of many of the outcome measures under consideration, so it needs to be included in the model.

## 4 Estimating the probability of receiving DLA

In this section we present the results from the estimation of probit models for the probability of DLA receipt that forms the basis of our matching process. It is worth noting that these models are not models of eligibility. They combine the probability of applying for Disability Living Allowance (DLA) with the probability of an application being successful conditional on having applied.

First we discuss the English Longitudinal Study of Ageing (ELSA) estimates and then move on to Family Resources Survey (FRS) estimates and briefly discuss the quality of this matching.

### 4.1 ELSA estimates

Our matching equation for the ELSA data is shown in Table 4.1 with each column representing one wave of the survey. The first set of variables relate to care needs, then we consider mobility needs, conditions and other factors relating to DLA receipt.

For care needs only the first three needs are related to the care entitlement criteria. Individuals who have difficulties using the toilet were not significantly more likely to receive DLA than those without such difficulties, possibly reflecting that the ELSA data does not fully capture the entitlement criteria that relate to needing frequent help with such functions. Recall that ELSA only asks whether respondents need help with these activities and not how much and how often.

Individuals who had difficulties bathing or showering were more likely to receive DLA with positive significant coefficients in all ELSA waves, albeit only significant at the ten per cent level in waves two and three.

Similarly, individuals who had difficulties preparing a hot meal were also more likely to receive DLA with positive significant coefficients in all ELSA waves, and strongly significant, at the one per cent level, in Wave 2.

Some of the other care needs variables also came out as significantly related to DLA receipt despite the fact they were not strongly related to the care entitlement criteria. None of them were positive and significant in all models and indeed some of them were negative and significant in some models. Examples of other care needs being positive and significantly related to DLA receipt are difficulties with ‘dressing, including putting on shoes and socks’ significant in wave three only and difficulties with ‘eating, such as cutting up your food’ significant in Wave 1 only.

Turning to the mobility needs variables, the two variables that we constructed to try and replicate the mobility entitlement criteria, namely ‘cannot walk’ and ‘restricted walking’ are both positively and strongly significantly related to DLA receipt, being statistically significant at the one per cent level in all models. Similarly, having difficulties walking 100 yards was positively and strongly significantly related to DLA receipt, being statistically significant at the one per cent level in all models.

Again, some of our other mobility needs variables also came out as significantly related to DLA receipt despite the fact they were not strongly related to the mobility entitlement criteria. For example, having difficulties ‘climbing several flights of stairs without resting’ was positively and strongly significantly related to DLA receipt, being statistically significant at the one per cent level in all models.

Health conditions reported by respondents are not explicitly mentioned in either of the care or mobility entitlement criteria, but we might expect that given that we do not accurately measure these entitlement criteria, especially for care needs, that people with certain conditions may have a greater probability of DLA receipt. We group conditions under three headings: eye conditions, cardiovascular conditions and chronic conditions. Only the chronic conditions are positively related to DLA receipt. The most commonly reported chronic conditions were arthritis and asthma.

In terms of the other factors included in the models, the patterns are generally consistent across each wave of the survey. Women were less likely to receive DLA than men. Older people were less likely to receive DLA than our youngest age group aged 50 to 59, reflecting that new claims for people aged over 65 would be for AA rather than DLA.

People who lived with a partner were less likely to receive DLA (Wave 1 only) and people who were working and whose partner was working were less likely to receive DLA.

People with low household income (below £100 per week) were also less likely to receive DLA, partly because if they did receive income from DLA then they were more likely to have household income above that level, but also possibly reflecting that they may not be aware of DLA or think they are not eligible to receive it. People with higher total net wealth were also less likely to receive DLA.

**Table 4.1 The probability of receiving DLA (ELSA estimates)**

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Care needs</b>			
Using the toilet, including getting up or down	-0.141 (0.100) 0.157**	0.068 (0.115) 0.157*	-0.116 (0.112) 0.157*
Bathing or showering	(0.075) 0.245**	(0.082) 0.324***	(0.083) 0.182*
Preparing a hot meal	(0.096) 0.090	(0.102) 0.022	(0.109) 0.102
Getting in or out of bed	(0.082) 0.089	(0.095) 0.080	(0.094) 0.167**
Dressing, including putting on shoes and socks	(0.073) 0.048	(0.079) -0.168	(0.081) -0.278**
Walking across a room	(0.099) 0.305**	(0.113) 0.092	(0.116) -0.060
Eating, such as cutting up your food	(0.121) -0.017	(0.131) 0.075	(0.136) -0.151
Taking medications	(0.139) 0.178	(0.146) -0.365**	(0.155) 0.077
Making telephone calls	(0.137) 0.058	(0.161) 0.052	(0.147) 0.148*
Doing work around the house or garden	(0.078) 0.137	(0.082) 0.095	(0.083) 0.168
Using a map to figure out how to get around in a strange place	(0.091)	(0.098)	(0.107)

Continued

Table 4.1 Continued

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
Shopping for groceries	0.158* (0.082)	0.125 (0.089)	0.002 (0.091)
Managing money, such as paying bills and keeping track of expenses	-0.118 (0.125)	0.107 (0.124)	0.045 (0.129)
<b>Mobility needs</b>			
Cannot walk	0.322*** (0.079)	0.467*** (0.086)	0.520*** (0.086)
Restricted walking	0.312*** (0.068)	0.289*** (0.070)	0.264*** (0.070)
Walking 100 yards	0.400*** (0.082)	0.376*** (0.086)	0.280*** (0.087)
Sitting for about two hours	0.001 (0.068)	-0.010 (0.073)	-0.078 (0.075)
Getting up from a chair after sitting for long periods	0.043 (0.071)	0.022 (0.076)	0.002 (0.077)
Climbing several flights of stairs without resting	0.214*** (0.080)	0.252*** (0.083)	0.264*** (0.083)
Climbing one flight of stairs without resting	0.163** (0.078)	0.034 (0.082)	0.122 (0.083)
Stooping, kneeling, or crouching	0.106 (0.075)	0.066 (0.079)	0.124 (0.079)
Reaching or extending your arms above shoulder level	0.041 (0.069)	0.099 (0.074)	0.148** (0.074)
Pulling or pushing large objects like a living room chair	-0.083 (0.079)	0.027 (0.085)	0.221** (0.086)
Lifting or carrying weights over 10 pounds, like a heavy bag of groceries	0.242*** (0.080)	0.174** (0.082)	0.023 (0.088)
Picking up a five pence coin from a table	-0.018 (0.085)	0.078 (0.094)	0.117 (0.091)
<b>Conditions</b>			
Eye	0.063 (0.069)	0.055 (0.073)	0.054 (0.071)
Cardio vascular	-0.051 (0.057)	-0.010 (0.060)	-0.038 (0.063)
Chronic	0.197*** (0.067)	0.232*** (0.073)	0.268*** (0.073)

Continued

Table 4.1 Continued

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Other factors</b>			
Female	-0.307*** (0.059)	-0.294*** (0.063)	-0.245*** (0.063)
<b>Age (Ref group aged 50-59)</b>			
Aged 60-64	-0.189** (0.084)	-0.099 (0.092)	-0.064 (0.095)
Aged 65-69	-0.382*** (0.095)	-0.394*** (0.103)	-0.359*** (0.109)
Aged 70-79	-1.043*** (0.100)	-0.902*** (0.104)	-0.792*** (0.107)
Aged 80 plus	-1.858*** (0.138)	-1.782*** (0.140)	-1.673*** (0.140)
Whether live with partner	-0.133* (0.077)	0.040 (0.091)	-0.033 (0.097)
Whether working	-0.976*** (0.103)	-0.981*** (0.117)	-1.020*** (0.111)
Whether partner working	-0.258*** (0.097)	-0.325*** (0.113)	-0.203* (0.115)
Whether retired	-0.132* (0.073)	-0.173** (0.074)	-0.250*** (0.078)
Whether partner retired	-0.047 (0.080)	-0.088 (0.089)	-0.092 (0.099)
Income below £100 per week	-0.859*** (0.092)	-0.794*** (0.129)	-0.720*** (0.121)
Net total wealth £000s	-0.001*** (0.000)	-0.001*** (0.000)	-0.001*** (0.000)
Constant	-1.288*** (0.105)	-1.301*** (0.118)	-1.334*** (0.117)
Pseudo R squared	0.440	0.404	0.405
Observations	11,210	8,647	8,571

Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 4.2 FRS estimates

Our matching equations from the FRS data are shown in Table 4.2 with the first column being results for the full sample of the disability survey and the second column just looking at people aged 50 or over. Remember that this survey, unlike ELSA, has already filtered out people without a disability or without health problems, so the nature of the matching is likely to be slightly different here. Furthermore, given that the survey questionnaire allows us to better replicate the DLA entitlement criteria we might expect a better match from the FRS data than the ELSA data.

In both models the derived variables to proxy for the care and mobility entitlement criteria are positive and strongly significant, with one exception for our lower rate care entitlement variable for the sample of people aged 50 or more. Overall, this suggests that our derived variables are strong predictors of DLA receipt.

Turning to our measures of health conditions, the significant variables relate to people with blood disorders or circulatory or respiratory illnesses. In line with the ELSA finding, respondents with eye conditions were not significantly more likely to receive DLA.

Considering the severity of the disability, the coefficient on the overall severity score is positive and significant indicating that respondents with more severe disabilities were more likely to receive DLA. The other statistically significant severity scales typically relate to mobility problems, e.g. there is a large and positive significant coefficient for people with deformities, and also positive significant coefficients for severity scores relating to locomotion or reaching and stretching. Interestingly there are also some significant negative coefficients for severity scores relating to hearing, behaviour and digestion indicating that people with a high degree of disability in these areas were less likely to receive DLA, once we have all the other controls for DLA receipt.

The other factors in the model are broadly in line with the estimates from the ELSA data. We did not find a significant relationship between low income respondents and DLA receipt using the FRS data, but here we did find a positive relationship between benefit unit income and DLA receipt, which is broadly in line with the negative relationship between being from a low income household and receiving DLA found with the ELSA data.

**Table 4.2 The probability of receiving DLA (FRS estimates)**

	FRS full sample	FRS aged 50 or more
<b>Whether meets care needs eligibility criteria (relative to not meeting any eligibility criteria)</b>		
Higher rate	0.852*** (0.229)	0.615** (0.264)
Middle rate	0.502*** (0.110)	0.184 (0.144)
Lower rate	0.544*** (0.073)	0.404*** (0.090)
<b>Whether meets mobility needs eligibility criteria (relative to not meeting any eligibility criteria)</b>		
Higher rate	0.710*** (0.071)	0.774*** (0.093)
Lower rate	0.730*** (0.111)	0.440** (0.193)
<b>Conditions</b>		
Blood disorder	0.593*** (0.191)	0.418* (0.239)
Eyes	0.166 (0.105)	0.129 (0.125)
Circulatory	0.100* (0.057)	0.131** (0.064)

Continued

**Table 4.2 Continued**

	FRS full sample	FRS aged 50 or more
Respiratory	0.073 (0.066)	0.170** (0.080)
<i>Severity of disabilities</i>		
Locomotion	0.051*** (0.012)	0.061*** (0.016)
Reaching and stretching	0.027** (0.012)	0.038*** (0.014)
Dexterity	-0.011 (0.009)	-0.021* (0.011)
Seeing	-0.002 (0.016)	0.011 (0.019)
Hearing	-0.041*** (0.014)	-0.029* (0.016)
Continence	-0.002 (0.012)	0.000 (0.015)
Consciousness	0.018 (0.015)	0.037 (0.024)
Communication	0.027 (0.019)	0.030 (0.025)
Behaviour	-0.029*** (0.011)	-0.013 (0.015)
Intellectual function	-0.007 (0.014)	-0.032* (0.018)
Digestion	-0.249* (0.151)	-0.236 (0.186)
Deformities	0.431** (0.177)	0.670*** (0.218)
Independence	0.008 (0.009)	0.022* (0.012)
Overall	0.080*** (0.022)	0.092*** (0.030)
<b>Other factors</b>		
Female	-0.094* (0.054)	-0.131* (0.071)
<b>Age (Ref group aged 50–59)</b>		
Aged 60–64	-0.201** (0.102)	-0.184* (0.107)
Aged 65–69	-0.560*** (0.164)	-0.544*** (0.173)
Aged 70–79	-1.655*** (0.164)	-1.655*** (0.173)

Continued

**Table 4.2 Continued**

	FRS full sample	FRS aged 50 or more
Aged 80 plus	-2.803*** (0.211)	-2.815*** (0.222)
Aged 16-24	0.078 (0.134)	
Aged 25-34	-0.033 (0.108)	
Aged 35-49	-0.066 (0.075)	
Whether live with partner	-0.257*** (0.056)	-0.287*** (0.071)
Whether working	-0.628*** (0.095)	-0.658*** (0.159)
Whether partner working	0.372*** (0.143)	0.389** (0.151)
Benefit unit income £000s	0.473*** (0.146)	0.710*** (0.215)
Total assets £000s	-0.001* (0.001)	-0.001 (0.001)
Constant	-1.652*** (0.092)	-1.850*** (0.122)
Pseudo R-squared	0.372	0.406
Observations	7155	5321

Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### 4.3 Quality of the match

We use these probability models to derive propensity scores for all respondents and then match DLA recipients with the non-recipient with the closest propensity score to form our matched comparison group.

#### 4.3.1 Multiple matches

As discussed in Chapter 3, our matching approach allows DLA non-recipients to be matched with more than one recipient. We find that in roughly half the cases an individual in the comparison group is matched only once.

Table 4.3 shows the number of times a comparator individual is used in the comparison group using the ELSA data. It is rare for an individual to appear five or more times. The maximum number of times a comparator individual is used in the comparison group is, nine, ten and eight in each of the three waves.

**Table 4.3 Number of times an individual is matched to a DLA recipient**

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
Received DLA	578	490	481
Number of times comparator appears in matched comparison group			
1	279	249	231
2	56	51	61
3	21	15	17
4	12	8	9
5 or more	16	10	7

Table 4.4 shows the number of times a comparator individual is used in the comparison group using the FRS data. Again it is rare for an individual to appear five or more times. The maximum number of times a comparator individual is used in the comparison group is nine in the full FRS sample and ten in the sample of people aged 50 or more.

**Table 4.4 Number of times an individual is matched to a DLA recipient**

	FRS full sample	FRS aged 50 or more
Received DLA	880	552
Number of times comparator appears in matched comparison group		
1	387	263
2	102	51
3	34	21
4	12	10
5 or more	23	13

### 4.3.2 Common support

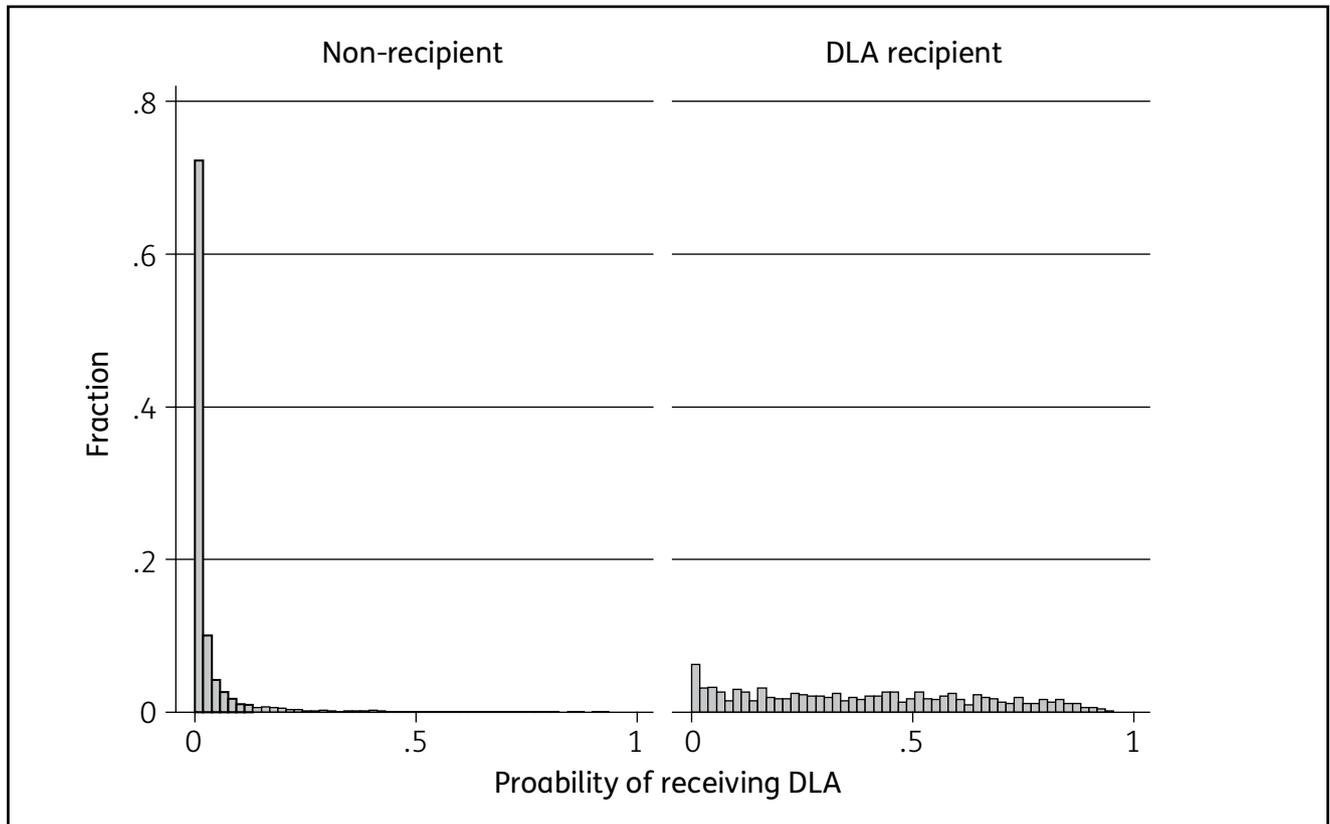
Also, as noted in Chapter 3, not all DLA recipients were matched to someone from the pool of non-recipients. However, we drop very few DLA recipients from our analysis. For ELSA we lose roughly ten DLA recipients from each wave of data and for the FRS around 20, depending on whether we consider the full sample or those aged 50 or more. This amounts to roughly two per cent of DLA recipients in each case.

The reason for losing these DLA recipients from our sample is that there are no non-recipients with a propensity score sufficiently close to our group of DLA recipients. In most cases this happens because there are no non-recipients with a sufficiently high propensity score to be close enough to DLA recipients with high propensity scores. This is known as the common support problem, whereby there is a range of propensity scores for which the scores of recipients are not matched by non-recipients.

This is illustrated by graphing the propensity scores for DLA recipients and non-recipients before matching. Figure 4.1 shows the propensity scores before matching for the ELSA Wave 1 sample, highlighting a very different distribution of scores; 90 per cent of propensity scores for non-recipients were below 0.1, while for DLA recipients less than one-quarter had a propensity score below 0.1.

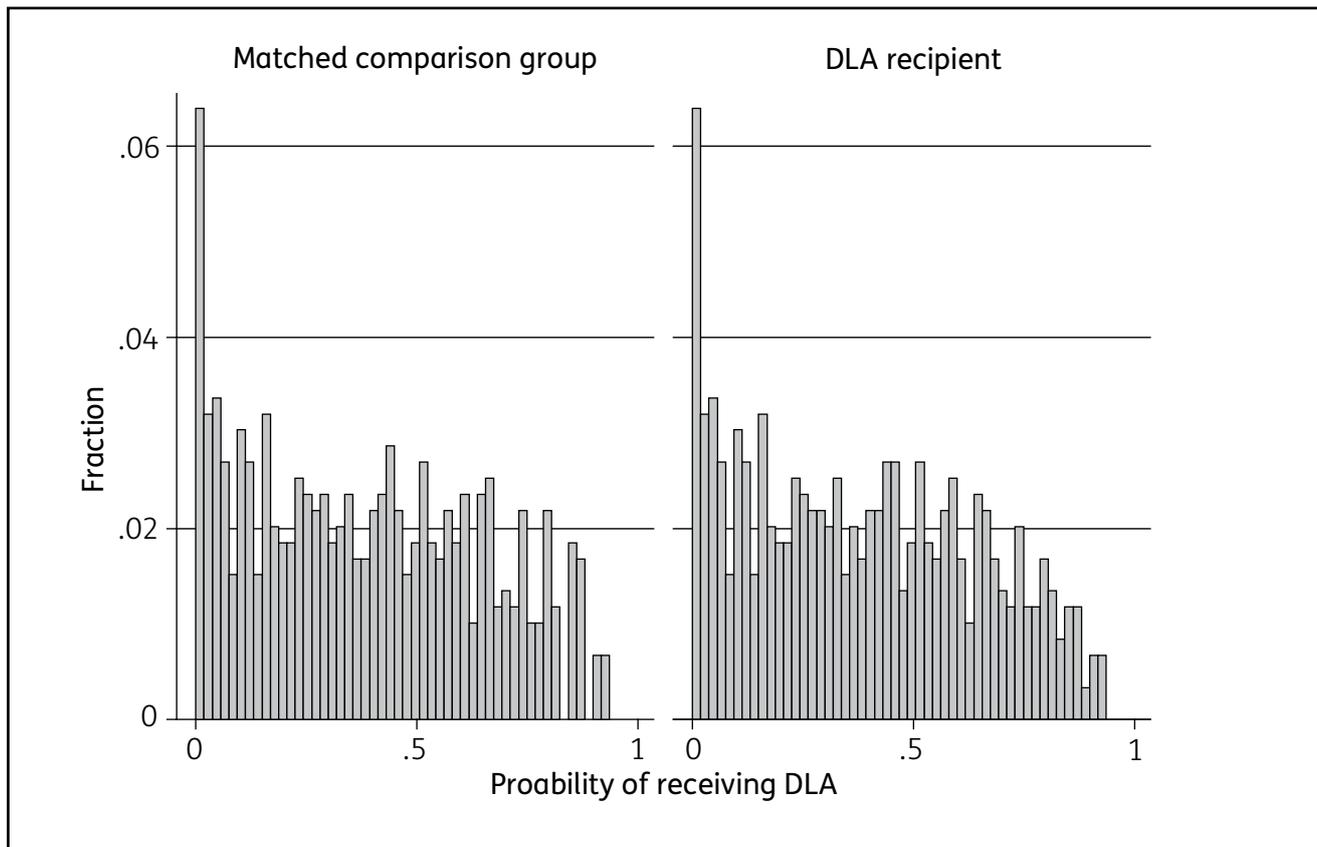
This still represents a relatively high proportion of DLA recipients with a very low estimated probability of receipt. This suggests that the model does not pick up all factors that affect DLA receipt or that large numbers of people who would be eligible for DLA don't actually claim it.

**Figure 4.1 Comparison of unmatched propensity scores (ELSA Wave 1)**



The sample size of the non-recipients was much higher than for DLA recipients, recall that less than six per cent of the ELSA samples received DLA, so it was possible to find non-recipients with relatively high probabilities of receiving DLA. This can be seen in Figure 4.2 which shows the distribution of propensity score after matching for the recipients and non-recipients. Here the distributions are similar, although as discussed above there were a few recipients with a high probability of receiving DLA for whom we could not find a match.

**Figure 4.2 Comparison of matched propensity scores (ELSA Wave 1)**



Similar propensity score distributions are found for the other waves of ELSA data and for the FRS data. The se are shown in Figures 4.3 to 4.6 for ELSA and Figures 4.7 to 4.10 for the FRS.

**Figure 4.3 Comparison of unmatched propensity scores (ELSA Wave 2)**

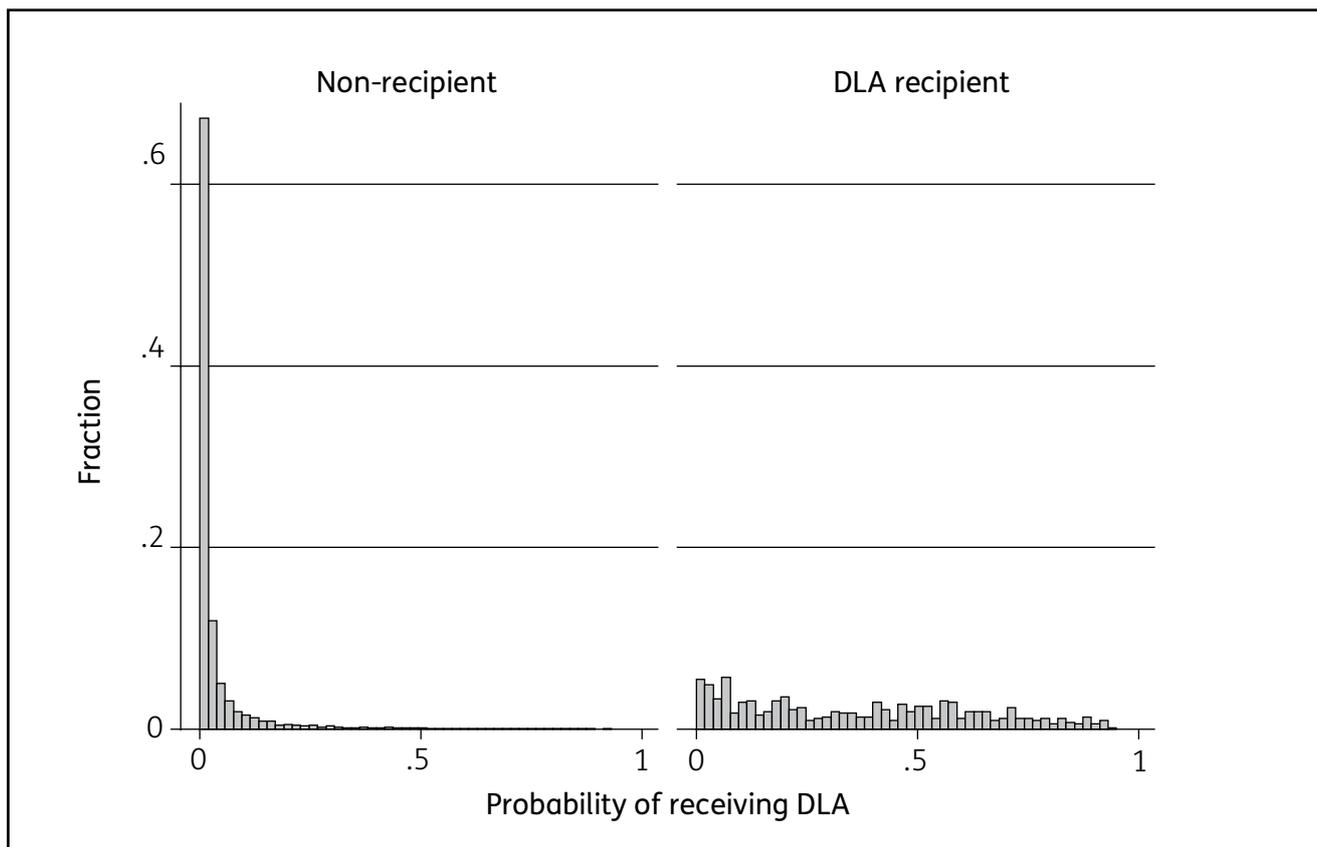


Figure 4.4 Comparison of matched propensity scores (ELSA Wave 2)

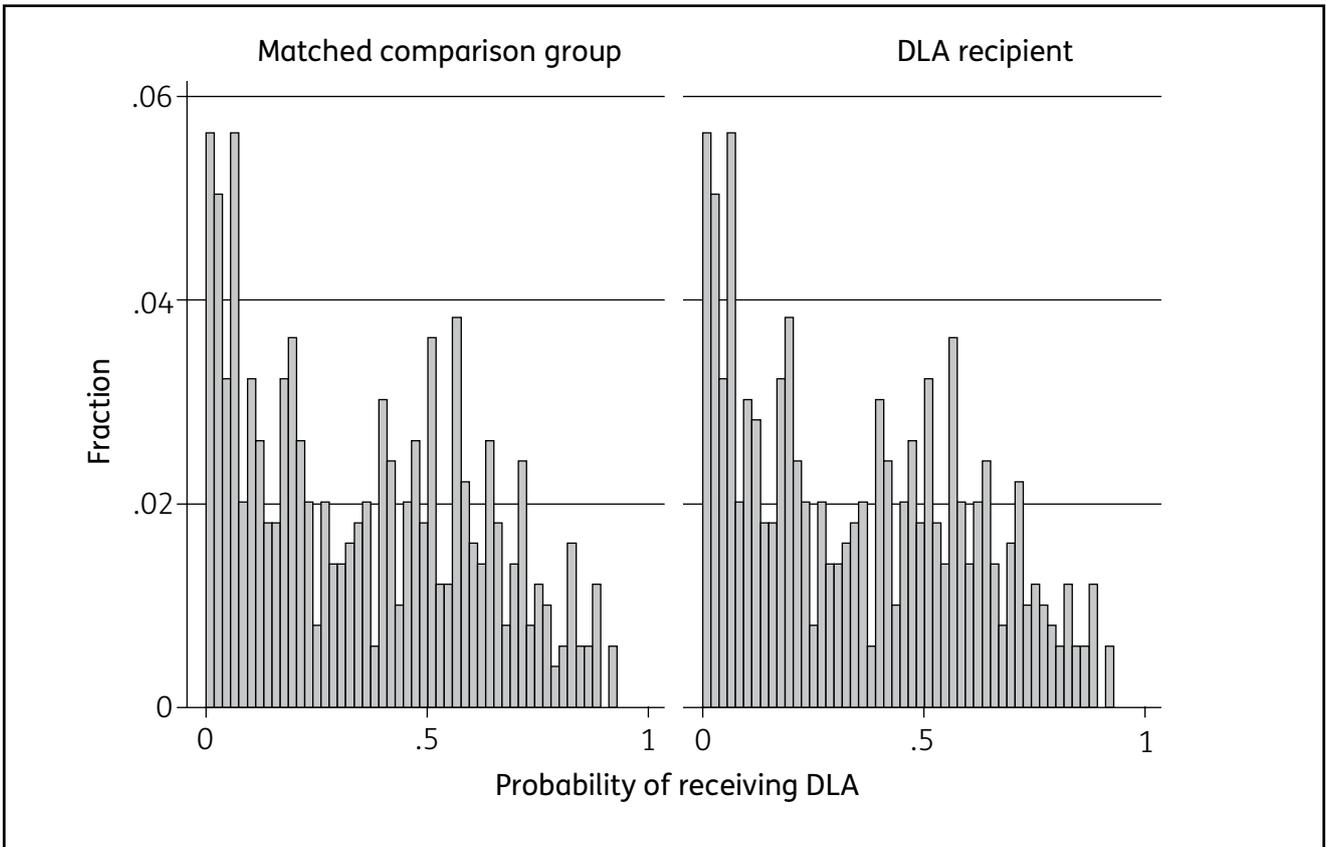
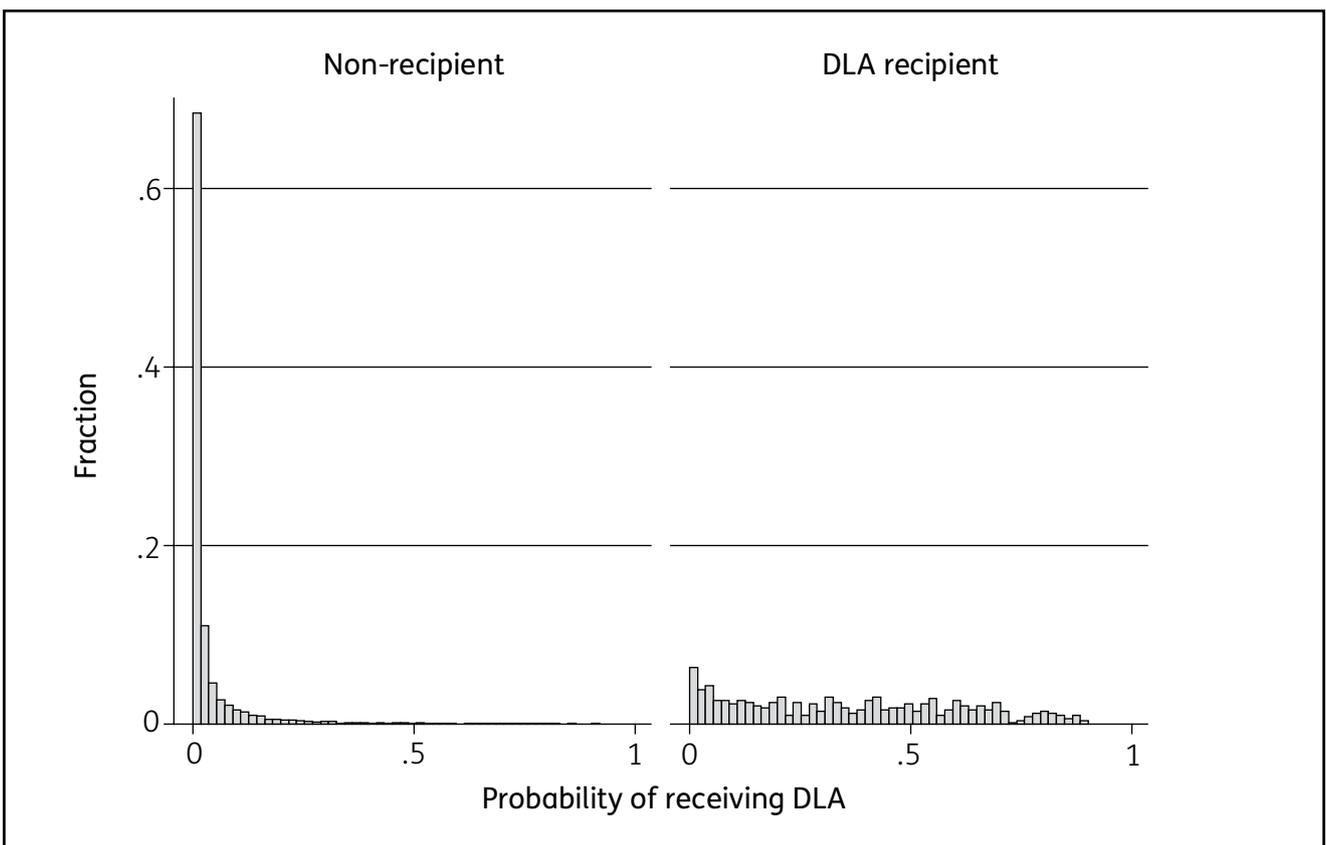
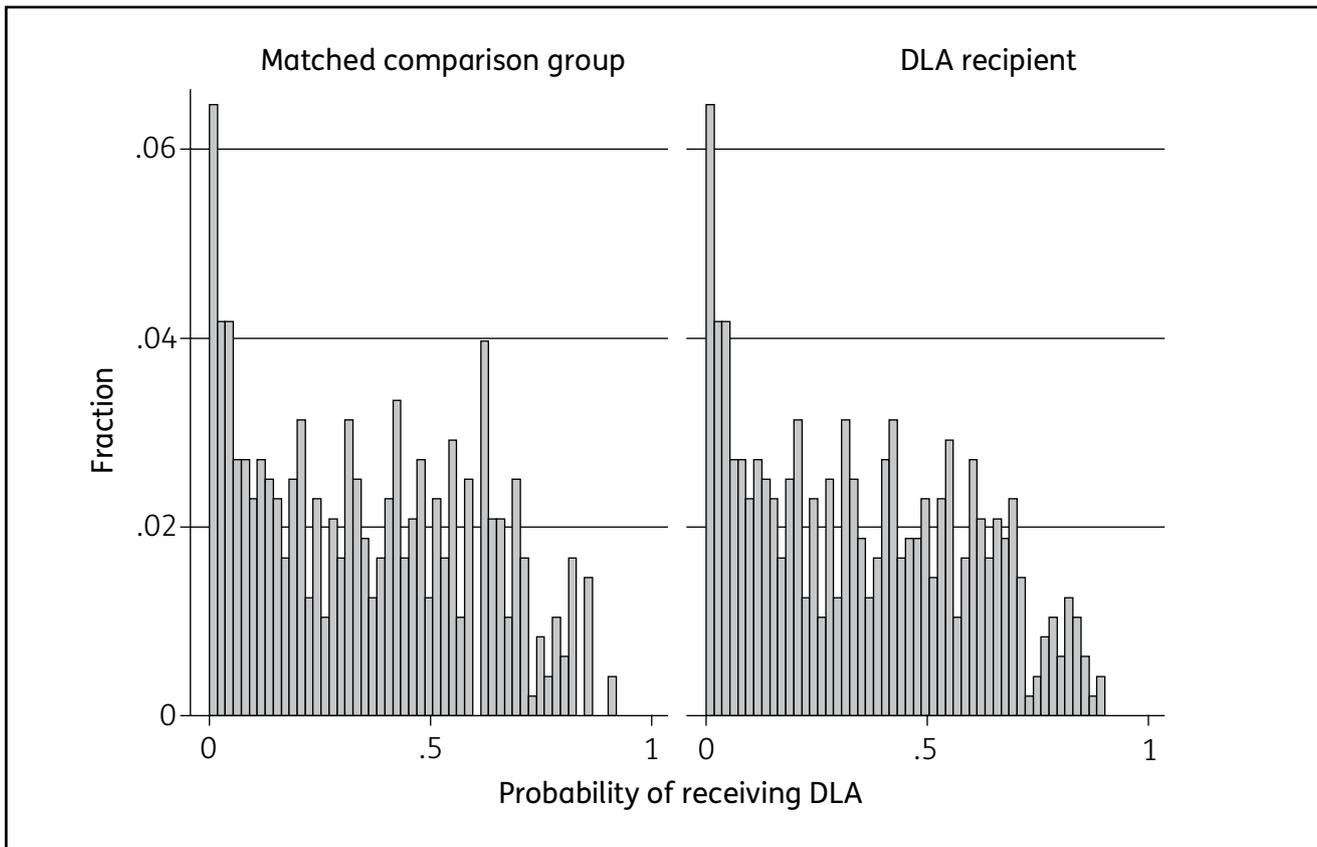


Figure 4.5 Comparison of unmatched propensity scores (ELSA Wave 3)



**Figure 4.6 Comparison of matched propensity scores (ELSA Wave 3)**



**Figure 4.7 Comparison of unmatched propensity scores (FRS full sample)**

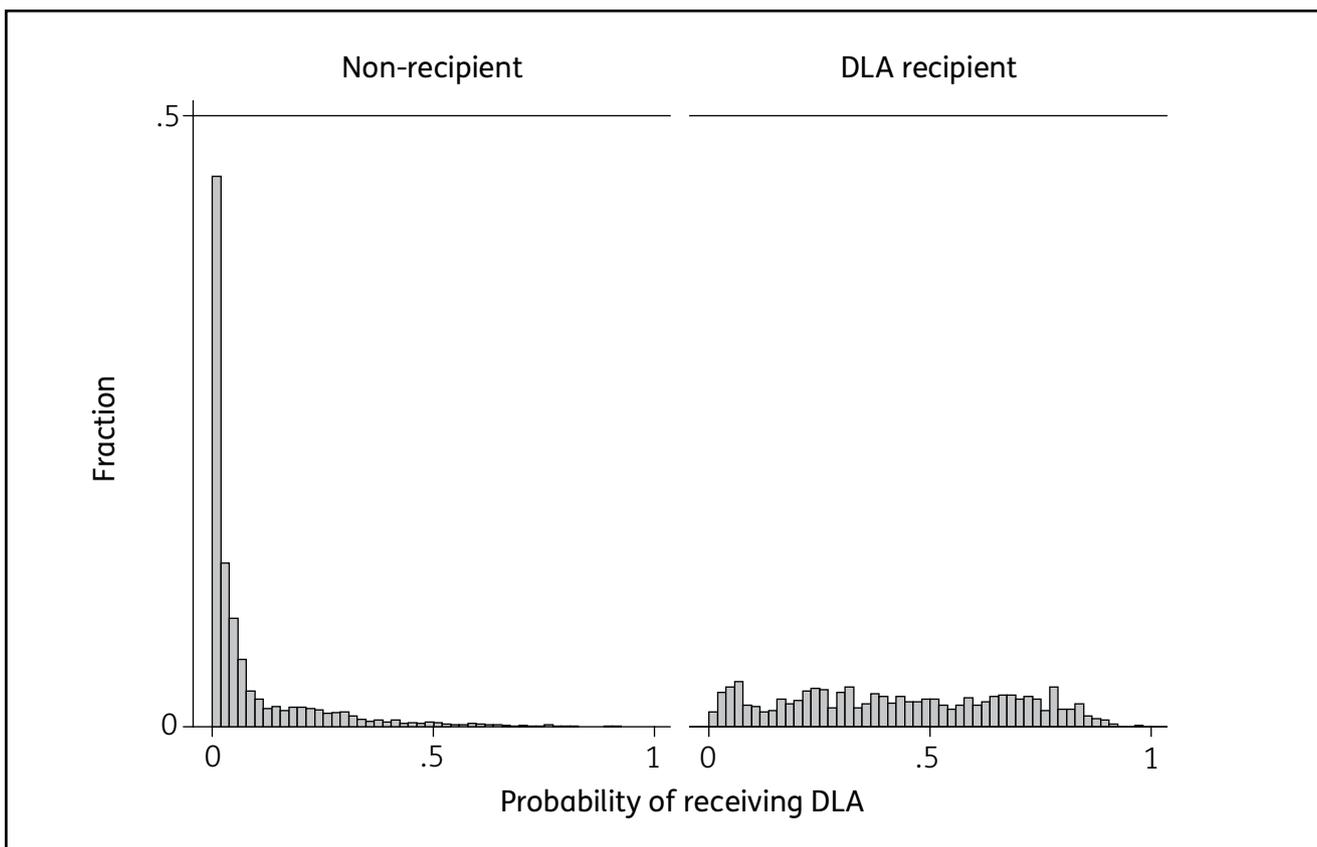


Figure 4.8 Comparison of matched propensity scores (FRS full sample)

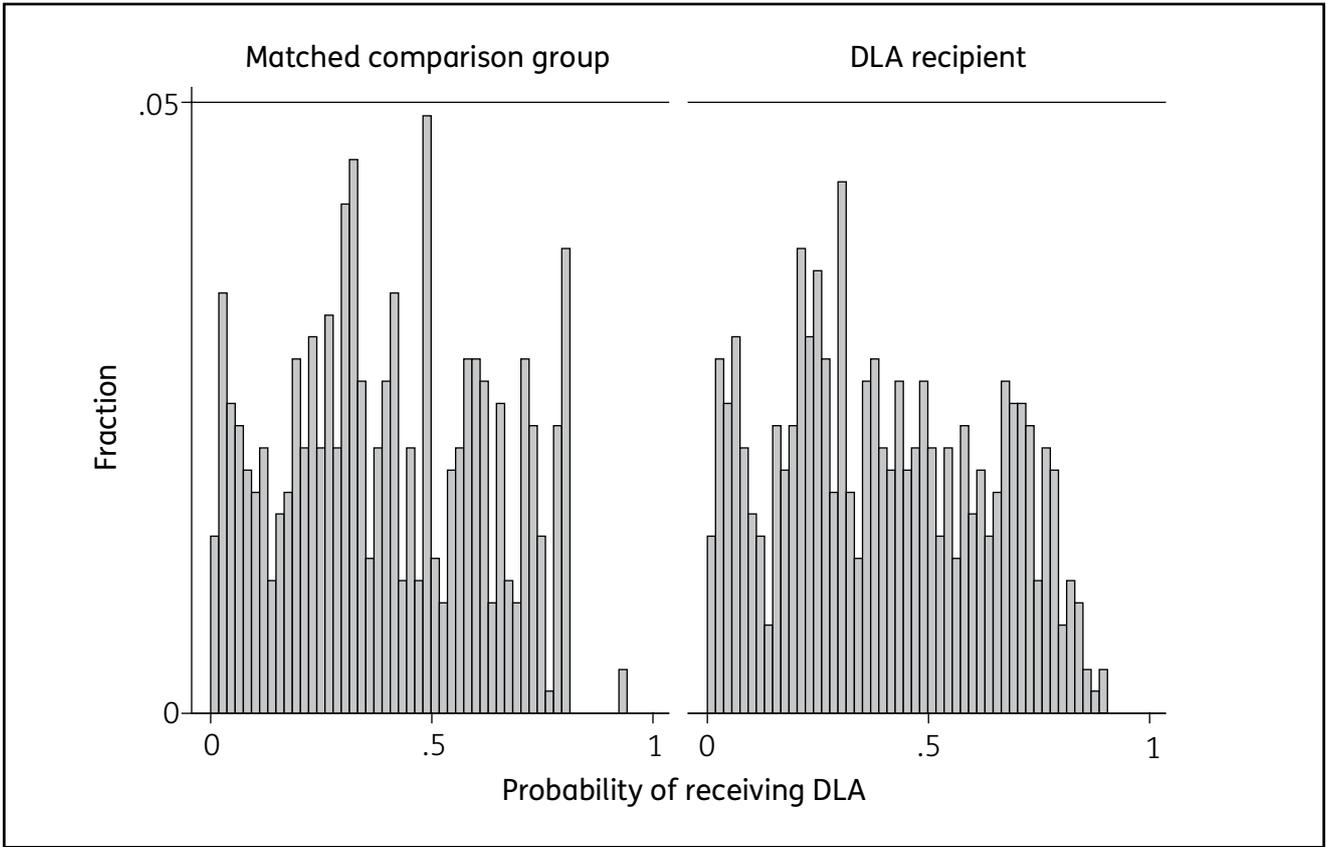
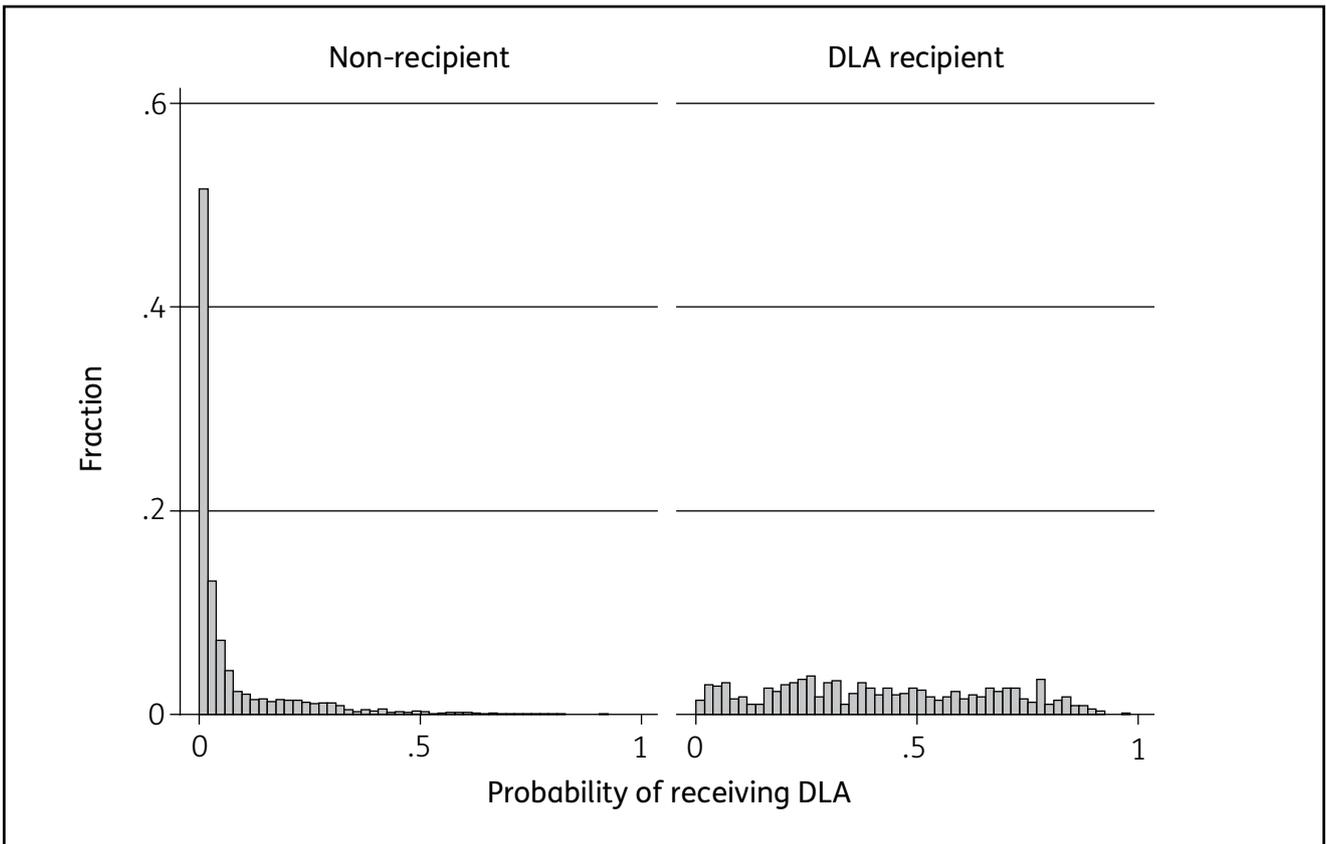
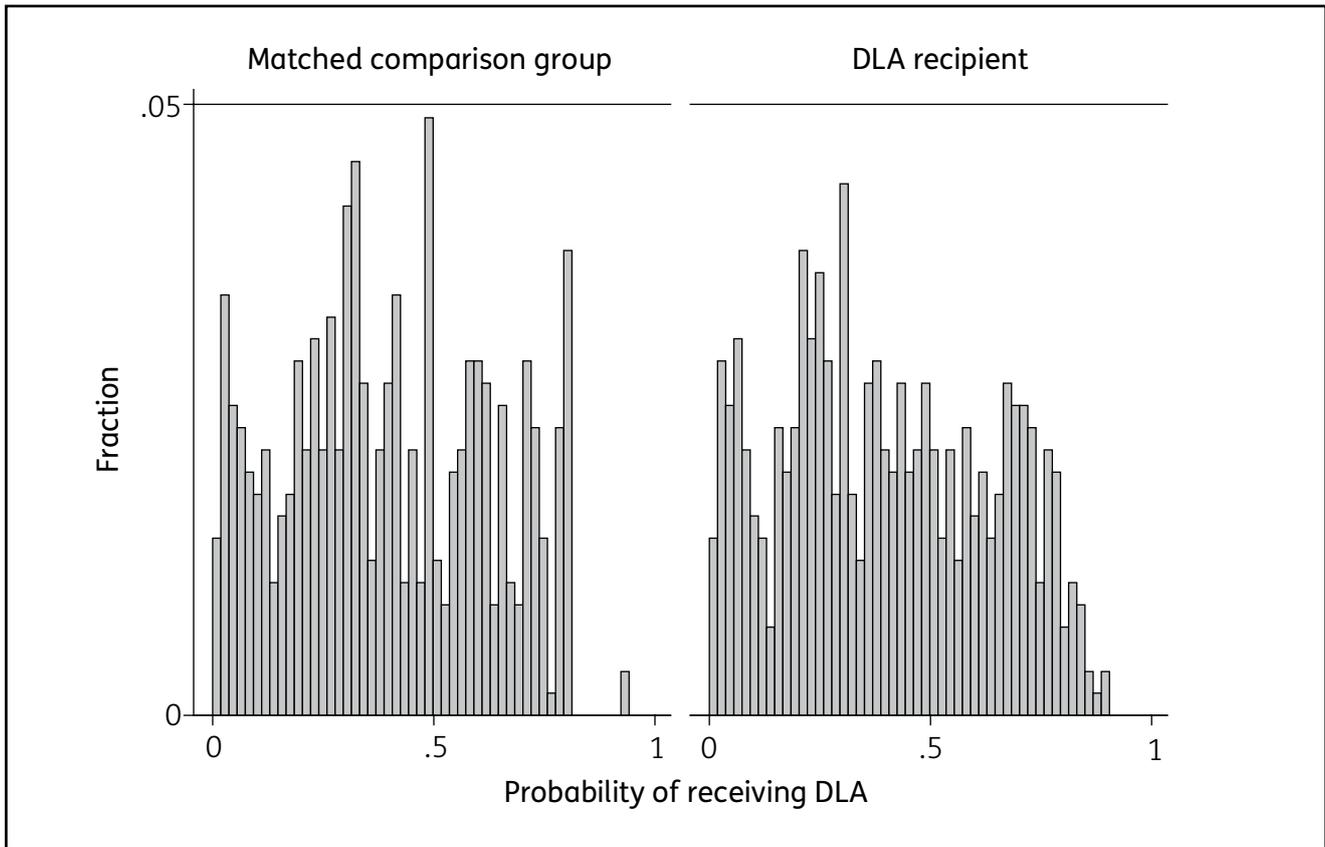


Figure 4.9 Comparison of unmatched propensity scores (FRS, 50 plus)



**Figure 4.10 Comparison of matched propensity scores (FRS, 50 plus)**



### 4.3.3 Comparability of characteristic of matched comparison group

We also compared our matched comparison groups with our group of DLA recipients to check to see whether they are indeed similar in terms of their observed characteristics. For a good match, the differences between DLA recipients and the matched comparison group should be less than the difference between DLA recipients and the full unmatched sample for all characteristics. Furthermore, any differences between the group of DLA recipients and the matched comparison group should not be statistically significant.

This is the case for nearly all the variables in all of our models. The exception is for older DLA recipients aged 70 to 79, where in ELSA waves one and three and the FRS the difference between DLA recipients and the matched sample is slightly bigger than for the unmatched sample and the difference is statistically significant.

We feel that the closeness of the match on all the other characteristics means that we have got a good comparison group for the analysis.

# 5 Outcome measures

The obvious impact of Disability Living Allowance (DLA) is that recipients have more income in the form of the benefit received. Although again following Berthoud (op. cit.), we focus on impact in relation to a wider set of outcomes that can be thought to encompass the notion that the benefits received provide for the additional day-to-day needs associated with severe physical or mental impairments.

There is evidence from qualitative studies that DLA receipt has an impact on a range of measures (see for example Corden *et al.*, 2010). Our work aims to see whether it is possible for those broader impacts to be quantified. The work is exploratory and, because there is such a range of possible outcomes, we would not expect large impacts on all of them. The work is a first attempt to see if it is possible to detect any impact at all.

After consideration of the survey questionnaires we incorporate a very wide range of measures that may have resulted from DLA receipt. In practice, our analysis finds very little significant impact (in a statistical sense) on many of the outcome measures considered. This is not altogether surprising given that DLA recipients can spend this income however they choose and different recipients will have different priorities, but it is useful to consider a wide range of outcome measures to be able to comment on the outcomes DLA receipt did have a significant impact on relative, to the types of things that it did not have a significant impact on.

The outcome measures we consider fall under three broad headings:

- care and mobility arrangements;
- standards of living; expenditure on specific goods and services; and
- the degree of social inclusion or exclusion they experience;

The different surveys have a number of different measures, and ELSA does not include all measures in all years.

## 5.1 Care and mobility arrangement measures

The measures we use to look at for care and mobility arrangements focus on:

- whether the respondents uses aids and gadgets to assist daily living;
- whether they have made modifications to their home; and
- whether they get help with problems associated with their daily living.

Our matching process should ensure that respondents have similar levels of need, so the impact analysis considers how DLA receipt influences how they respond to these needs.

A full list of items is not reported here, see the results tables in Chapter 6, but we give a flavour of the items under consideration here. Aids and gadgets used include the use of a wheelchair (manual and electric) and Zimmer frame/walker. Modifications to the home include whether there were hand rails, widened doorways etc.

English Longitudinal Study of Ageing (ELSA) provides information on a lot of detailed items (Table 6.1), while the questions from the FRS ask single questions about groups of different types of aid (Table 6.2).

## 5.2 Standard of living arrangement measures

The measures we use for standard of living focus on:

- some basic financial indicators of how well respondents cope financially;
- ELSA also includes some questions on expenditure on key items; and
- whether respondents' households have items from a list of popular consumer durable goods.

Details of the full list of items are shown in Tables 6.3 (ELSA) and 6.4 (Family Resources Survey (FRS)). Both surveys ask questions about a similar list of consumer durables covering ownership of computers, washing machines etc. The financial indicators are different between the surveys with ELSA asking about difficulties paying for accommodation and FRS asking whether respondents need to spend more money on certain items (washing, cleaning bedding etc.) but cannot afford to do so.

## 5.3 Social inclusion/exclusion measures

ELSA has numerous questions that we can use to look at social inclusion and exclusion. These include items asking whether respondents would like to go to the cinema, eat out etc. more often; whether they have access to transport; whether they have undertaken any of a range of activities including holidays, day trips; whether they were members of any organisations or clubs e.g. resident group or church group; and whether they have difficulties getting to places they may need to go e.g. bank, post office, shops. Full details are in Table 6.5.

The FRS has relatively few questions, but we can identify whether respondents have used a range of modes of transport or undergone a similar list of activities to those asked about in ELSA. Full details are in Table 6.6.

## 6 The impact of DLA receipt on recipients

We now turn to our assessment of the impact of Disability Living Allowance (DLA) receipt on our wide range of outcome measures. It is worth re-iterating here that DLA recipients have no compulsion to spend their benefit income on any specific items. The question this analysis seeks to answer is whether DLA recipients are more likely to: have aids or gadgets, modifications to their home, consumer durables etc. than non-recipients with similar needs and other characteristics.

First we present impacts on care and mobility arrangements based on English Longitudinal Study of Ageing (ELSA) estimates, then we consider our Family Resources Survey (FRS) estimates. We then turn to estimated impacts on standards of living measures and, finally, measures of social inclusion and exclusion. We would expect to find more significant results in the FRS estimates because the sample sizes are much bigger, but we do find both sets of estimates produce a number of significant results.

### 6.1 Care and mobility arrangements

First we consider the care and mobility arrangements as measured in ELSA, see Table 6.1. We split these into having various aids to assist care and mobility, modifications to the home and getting help with activities of daily living. Here, if the matching approach has not fully worked, we may still expect to see differences that may reflect a greater need for such aids, gadgets and modifications.

Table 6.1 indicates a number of significant coefficients on having these aids. DLA recipients were more likely to report having at least one of the listed aids than non recipients in all waves, with large and statistically significant differences of 13 percentage points in waves two and three. In Wave 2, 40 per cent of DLA recipients had one of the listed aids compared with 27 per cent of the matched comparison group. In wave three, the figures were 69 per cent and 57 per cent.

Looking at the individual items, the most consistent finding across the three waves of data was that DLA recipients were more likely to have a manual wheelchair than non-recipients. In Wave 1, nine per cent more of DLA recipients had a manual wheelchair than in the matched comparison group. In Wave 2 this was five per cent and wave three seven per cent, with all differences statistically significant.

Other aids that were statistically significant in some of the waves of data are: having a cane or walking stick (waves two and three), an electric wheelchair (Wave 1), a buggy or scooter (waves two and three), and special eating utensils (wave three). Most of the coefficients are small and not statistically significant indicating that DLA receipt did not have a big impact on having many of these aids.

The pattern of results is similar for modifications to the home. DLA recipients were more likely to report having at least one of the listed modifications than non-recipients in waves one and three, with large and statistically significant differences of 11 and nine percentage points respectively. In Wave 1 56 per cent of DLA recipients had one of the listed modifications compared with 45 per cent of the matched comparison group. In wave three, the figures were 61 per cent and 52 per cent.

Looking at the specific modifications we find that none of the differences between the group of DLA recipients and the matched comparison group were statistically significant at the five per cent level in more than one wave of the ELSA data, but nearly all of the listed modifications had a statistically significant difference in one of the waves. Among these differences were that hand rails, bathroom

or kitchen modifications were more prevalent among DLA recipients in Wave 1, and accessible parking, chair lift or stair glide and alerting devices were more prevalent among DLA recipients in wave three.

There were no significant differences for any of the items in Wave 2 of the ELSA data, and in Wave 1, we also found that DLA recipients were slightly less likely to have a lift than non-recipients.

Our measures of whether respondents got help relating to their health or disability show that in general DLA recipients were more likely to get help. DLA recipients were more likely to report that they got help with activities of daily living and the differences were large and strongly statistically significant in waves two and three. In Wave 2 82 per cent of DLA recipients got help with problems associated with activities of daily living compared with 72 per cent of the comparison group, the corresponding figures for wave three were 75 per cent for DLA recipients and 64 per cent for the comparison group.

None of the differences in terms of whether the respondents got help from privately paid employees or from social or health workers were statistically significant, but the differences in terms of whether the help they received always or usually met their needs mirrored the differences in whether they got help with large and strongly statistically significant differences in waves two and three of the data.

**Table 6.1 The impact of DLA receipt on care and mobility arrangements – difference between DLA recipients and the matched comparison group (ELSA Data)**

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Whether have aids or gadgets</b>			
Cane or walking stick	.05 (.04)	.08 (.04) **	.11 (.04)***
Zimmer frame or walker	.00 (.02)	.03 (.02) *	-.01 (.03)
Manual wheelchair	.09 (.03)***	.05 (.02)***	.07 (.03)**
Electric wheelchair	.04 (.01) ***	.01 (.01)	.00 (.02)
Buggy or scooter	.02 (.02)	.05 (.01) ***	.09 (.02)***
Special eating utensils	.01 (.01)	.00 (.00)	.02 (.01)**
Personal alarm	.01 (.02)	.03 (.01) *	.01 (.02)
Any of above	.07 (.04) *	.13 (.04) ***	.13 (.04)***
<b>Whether have modifications to home</b>			
Widened doorways or hallways	.01 (.02)	.02 (.02)	.03 (.02)
Ramps or street level entrances	.01 (.02)	.04 (.02) *	.01 (.03)
Hand rails	.08 (.04)**	.02 (.04)	.08 (.04)*
Automatic or easy open doors	-.01 (.01)	.01 (.01)	.01 (.01)
Accessible parking or drop off site	.01 (.02)	.00 (.02)	.05 (.02)***
Bathroom modifications	.09 (.04) **	-.02 (.04)	.06 (.04)
Kitchen modifications	.07 (.01) ***	.00 (.02)	.01 (.02)
Lift	-.03 (.01)**	-.00 (.01)	.01 (.01)
Chair lift or stair glide	.01 (.02)	.02 (.02)	.04 (.02)**
Alerting devices	.02 (.02)	.02 (.03)	.06 (.03)**
Any of above	.11 (.04) ***	.02 (.04)	.09 (.04)**

(continued)

Table 6.1 continued

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Whether get help</b>			
Help with problems associated with activities of daily living	.05 (.04)	.10 (.04) <sup>***</sup>	.11 (.04) <sup>***</sup>
Help from privately paid employee	-.03 (.02) *	.01 (.02)	.02 (.03)
Help from social or health worker	.02 (.02)	.03 (.02)*	.03 (.04)
Whether help always or usually meets needs	.04 (.04)	.13 (.04) <sup>***</sup>	.13 (.04) <sup>***</sup>

Source: ELSA 2002-2006

Standard errors in parentheses

<sup>\*\*\*</sup> p<0.01, <sup>\*\*</sup> p<0.05, \* p<0.1

Turning to the FRS measures we find a similar pattern (Table 6.2). DLA recipients were typically more likely to report that they used a whole range of aids than the matched comparison group. Unlike in ELSA, in the FRS respondents were asked about groups of aids and not about specific items.

The estimates for walking aids outlined in the first row of Table 6.2 is broadly similar to having any of the aids or gadgets in the first block of results reported in Table 6.1. The FRS results are very similar to those reported for waves two and three of ELSA. Here 15 per cent more DLA recipients reported using one of the aids mentioned than members of the comparison group and when the sample was restricted to people aged 50 or more the difference was 12 per cent (the ELSA estimates for waves two and three were of a 13 per cent difference). For DLA recipients of any age 66 per cent reported using one of the aids compared with 51 per cent of the comparison group. For people aged 50 or more the numbers were 72 per cent and 60 per cent.

Similarly when we consider the use of special furniture, small aids or gadgets and house adaptations we find a significantly higher percentage of DLA recipients reporting using these aids or having these adaptations than in the matched comparison group. Typically the differences are large, especially for people aged 50 or more where all the reported differences were at least ten percentage points.

The evidence for the remaining items reported in Table 6.2 is not so strong or consistent. The use of surgical aids or supports was more prevalent only for people aged 50 or more. Differences in the use of incontinence aids were large and indicated that DLA recipients were less likely to use incontinence aids, but these differences were not statistically significant. The use of vision aids was more prevalent for the whole population of DLA recipients, but not more prevalent for DLA recipients aged 50 or more. There was little difference in the use of aids for hearing or speech difficulties, between the group of DLA recipients and the matched comparison group.

**Table 6.2 The impact of DLA receipt on care and mobility arrangements – difference between DLA recipients and the matched comparison group (FRS Data)**

	FRS full sample	FRS aged 50 or more
<b>Care and mobility arrangements</b>		
Regularly use any aids to walking or getting about <sup>1</sup>	.15 (.03) ***	.12 (.04) ***
Use special furniture or daily living aids <sup>2</sup>	.07 (.03) **	.13 (.04) ***
Use any small aids or gadgets <sup>3</sup>	.05 (.03) *	.10 (.03) ***
Present accommodation has adaptations because of health problems/disability <sup>4</sup>	.13 (.03) ***	.15 (.04) ***
Regularly used any surgical aids or supports <sup>5</sup>	.04 (.03)	.07 (.03) **
Regularly used incontinence aids or devices <sup>6</sup>	-.12 (.07)	-.10 (.09)
Regularly used vision aids <sup>7</sup>	.15 (.06) **	.07 (.07)
Regularly used aids for hearing or speech difficulties <sup>8</sup>	.01 (.02)	.03 (.02)

Source: FRS Disability Survey 1996/97

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>1</sup> Aids listed were wheelchair, walking sticks, crutches, walking frame, tripod, Zimmer, and trolley.

<sup>2</sup> The special furniture or daily living aids listed include: bed hoist, bed poles and ladders, cradle for bedclothes, orthopaedic mattress, ripple mattress, sheepskin mattress, other special bed or bedding, commode, sani-chair, toilet hoist, other aids to toileting, bath seat, bath hoist, non-slip mat, other aids to bathing, environmental controls (e.g. Possum), special chair.

<sup>3</sup> Aids and gadgets listed were special crockery, special cutlery, special utensils, leg tin opener, potato peeler, tap turner/special taps, special door handles, pick up aid (e.g. "Helping Hand"), dressing aids, electric toothbrush, gadget to summon help.

<sup>4</sup> Adaptations listed were ramp outside instead of steps, ramps inside instead of steps, doors altered for better access (e.g. widened), stair lift, other alterations for better access, fitted furniture altered (e.g. shelves, cupboards, cooker), new bathroom or toilet added, bath grab-rail installed, door answering/opening system, hand rails outside, hand rails inside, shower installed.

<sup>5</sup> Aids and supports listed were surgical footwear (e.g. built up shoe), callipers, surgical corset, other brace or support, artificial leg, artificial eye, pylon leg support, splints, surgical collar, artificial arm, artificial foot, pacemaker.

<sup>6</sup> Ileal loop, catheter, ileostomy/colostomy bag, bag for urine, incontinence pants, incontinence pads, rubber sheet/mattress cover or other protective bedding.

<sup>7</sup> Vision aids listed were guide dog, white cane, magnifying glass, braille equipment, writing frame (e.g. for cheques), frame for telephone, talking book machine, cassette recorder, audible/tactile measuring device, Sonic aid, ordinary stick, low vision aid.

<sup>8</sup> Aids listed were hearing aid, adaptor for telephone, adaptor for TV, adaptor for radio, flashing light for telephone, flashing light for door, flashing alarm clock, pointer board, typewriter.

### 6.2 Standards of living

Our standard of living measures are quite varied covering general questions about how well respondents get on financially, whether they have difficulties paying for things and whether their household has certain consumer durable goods.

Overall, we find quite small differences between the DLA recipients and the matched comparison group in the ELSA data reported in Table 6.3 and very few differences that were statistically significant.

First considering our set of financial indicators, there was little evidence that DLA recipients get on better financially than the comparison group. In terms of paying for accommodation, generally there was no difference between DLA recipients and the comparison group, except in Wave 2 where three per cent fewer DLA recipients reported that they had been more than two months behind with their rent in the last 12 months. However, less than two per cent of DLA recipients reported that they had been more than two months behind with their rent in the last 12 months.

In wave three, four per cent more DLA recipients reported having central heating in their homes, a difference that was statistically significant, but differences in the other waves of ELSA data were smaller and not statistically significant. In Wave 2 of ELSA only five per cent of DLA recipients reported that they did not have DLA.

There were no significant differences in the percentage of DLA recipients and the comparison groups who reported that they had missed meals or cut the size of their meals because there was not enough money for food and there was no difference between the two groups in terms of expenditure on food, clothing, leisure, transfers and fuel.

Similarly, for most of the consumer durables listed in Table 6.3 there was no difference in the percentage of respondents reporting their household had the items between the group of DLA recipients and the comparison group. In Wave 1 of the data the only significant difference was in ownership of a microwave oven, where 90 per cent of DLA recipients had a microwave oven compared with 83 per cent of the comparison group. In Wave 2 91 per cent of both groups reported their household had a microwave oven, but in the third wave, a significant difference was again evident with 95 per cent of DLA recipients reporting they had a microwave oven compared with 91 per cent of the comparison group.

In Wave 2 the only item that households with a DLA recipient were more likely to possess was digital/satellite/cable television. Here 47 per cent of DLA recipients reported their household had digital/satellite/cable television compared with 37 per cent of the comparison group. Such a difference was not found in the other waves of ELSA data.

In wave three, three per cent more DLA recipients than members of the comparison group reported that they had a television. Across the three waves roughly 99 per cent of all respondents reported that they had a television, so this finding for wave three is unexpected and hard to explain.

Also in wave three a much higher percentage of DLA recipients than the comparison group reported that their household had a computer. Again this difference was not found in the earlier waves of ELSA data. Here 50 per cent of DLA recipients reported that their household had a computer compared with 36 per cent of the comparison group. For Wave 2 the figures were 42 per cent and 37 per cent and in Wave 1 32 per cent and 31 per cent.

**Table 6.3 The impact of DLA receipt on living standards – difference between DLA recipients and the matched comparison group (ELSA data)**

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Financial indicators</b>			
How well get on financially	-.00 (.03)	-.03 (.02)	.00 (.03)
Difficulties paying for accommodation	.02 (.02)	-.01 (.02)	-.01 (.02)
More than 2 months behind with rent (in last 12 months)	.00 (.01)	-.03 (.01) **	.01 (.01)
Have central heating	.00 (.04)	.03 (.02)	.04 (.02)**
Whether cut size of meals / skipped meals (in last 12 months)	-.01 (.02)	-.01 (.02)	-.01 (.02)
Weekly expenditure on food (£)	-0 (1)	0 (2)	1 (1)
Weekly expenditure on clothing (£)		1 (2)	1 (2)
Weekly expenditure on leisure (£)		-246 (333)	
Weekly expenditure on transfers (£)		5 (6)	
Weekly expenditure on fuel (£)		1 (1)	1 (1)
<b>Possessions, whether household has:</b>			
Television	-.00 (.01)	-.00 (.00)	.03 (.01)**
Video recorder	.03 (.02)	.02 (.02)	.04 (.03)
CD player	.04 (.04)	-.00 (.03)	.05 (.03)*
Deep freeze/fridge freezer	.01 (.02)	-.00 (.02)	.04 (.02)*
Washing machine	.03 (.03)	.01 (.02)	-.04 (.03)
Tumble dryer/washer dryer	.06 (.04)	.02 (.04)	.08 (.04)*
Dish washer	-.02 (.03)	.00 (.03)	.05 (.04)
Microwave oven	.07 (.03)***	.00 (.02)	.04 (.02)**
Computer	.02 (.04)	.06 (.04)	.14 (.04)***
Online – digital/satellite/cable television	.02 (.04)	.10 (.04) **	.05 (.04)
Phone (landline)	.02 (.02)	.02 (.02)	.02 (.02)
Car	.04 (.04)	.08 (.05) *	.08 (.05)*

Source: ELSA 2002-2006.

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The evidence from the FRS (Table 6.4) is broadly similar, although a few more items in the list of household possessions come out with significant differences between the group of DLA recipients and the matched comparison group.

The financial indicators we use from the FRS relate to a need or desire to spend more on certain items, but not being able to afford to do so. Of the six items considered, just two of them have significant differences between the group of DLA recipients and the matched comparison group, and in one of these cases (need to spend more on medical supplies but can not afford to do so) there was no difference for people aged 50 or more, and the other case (need to spend more on clothing or bedding but can not afford to do so) indicated a lack of spending was more prevalent among DLA recipients. All the reported differences were small and there is little evidence that DLA recipients were more likely not to spend more because they could not afford to do so.

Looking at the possession of consumer durables, generally DLA recipients were more likely to report that their household had possessions than the comparison group. This was true for the full sample and people aged 50 or more for possession of a video recorder and tumble dryer/washer dryer, and just for the full population for possession of a CD player, deep freeze/fridge freezer, microwave oven, satellite dish. Note that these last two items were also to be found more prevalent among DLA recipients in the ELSA data.

DLA recipients were however less likely to report that they had a separate fridge than the comparison group, especially for people aged 50 or more. The difference is large, 11 percentage points, and is somewhat offset by the higher proportion of DLA recipients who reported that they had a combined deep freeze or fridge freezer.

**Table 6.4 The impact of DLA receipt on living standards – difference between DLA recipients and the matched comparison group (FRS data)**

	FRS full sample	FRS aged 50 or more
<b>Financial indicators</b>		
Need to spend more on medical supplies but cannot afford to	-.02 (.02) **	.00 (.02)
Need to spend more on washing, dry cleaning or laundry but cannot afford to	-.00 (.02)	.01 (.02)
Need to spend more on clothing or bedding but cannot afford to	.04 (.02) **	.05 (.02) **
Should spend more on food but cannot afford to	.00 (.03)	.00 (.03)
Would spend more on transport if could afford to do so	.02 (.03)	-.03 (.04)
Would spend more on heating if could afford to do so	-.02 (.03)	-.01 (.04)
Have central heating	.03 (.02)	-.00 (.03)
<b>Possessions, whether household has:</b>		
Television	-.00 (.01)	.01 (.01)
Video recorder	.07 (.03) **	.09 (.03) **
CD player	.10 (.03) ***	.07 (.04) *
Deep freeze/fridge freezer	.04 (.02) **	.05 (.03) *
Separate fridge	-.06 (.03) *	-.11 (.04) ***
Washing machine	.02 (.02)	.02 (.03)
Tumble dryer/washer dryer	.12 (.03) ***	.08 (.04) **
Dish washer	-.00 (.02)	-.04 (.03)
Microwave oven	.08 (.03) **	.07 (.04) *
Computer	-.01 (.02)	-.04 (.03)
Satellite dish	.05 (.02) **	-.01 (.03)
Phone (landline)	.03 (.02)	.04 (.02) *
Mobile phone	.01 (.02)	.02 (.02)
Car	.06 (.03) *	.04 (.04)

Source: FRS Disability Survey 1996/97.

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

## 6.3 Social inclusion and exclusion

Our final groups of measures relate to social inclusion and exclusion. The ELSA data allows for consideration of a wide range of measures (Table 6.5). The evidence is much in line with that for our care and mobility arrangements and standard of living measures with some significant differences between DLA recipients and the matched comparison group, but only for a few measures.

First, consider activities that respondents would like to do more often, given that they only did them once or twice a year. There was no strong evidence that DLA recipients were more likely to report that they would like to go more often to the cinema, eat out, go to an art gallery or museum or theatre, concert or opera than the comparison group. There were only two significant differences, both concerning going to the cinema and both were of similar magnitudes, but in opposite directions. In Wave 2, more DLA recipients reported that they would like to go to the cinema more often than the comparison group, but in wave three less DLA recipients reported that they would like to go to the cinema more often than the comparison group.

DLA recipients were more likely to report that they had use of a car when needed than the comparison group in Wave 2 (with a difference significant at ten per cent in Wave 1). While this may be interpreted as an impact of receiving DLA it may also reflect that DLA recipients were more mobile than the comparison group. There were no differences between the two groups in reporting whether health or expense prevented them using public transport.

We also considered whether respondents had a range of activities from reading a daily newspaper to having taken a holiday abroad in the last year. For most of these items there was no difference between DLA recipients and the comparison group. However, in wave three DLA recipients were much more likely to report that they used internet or email and owned a mobile phone than the matched comparison group. The first of these findings is in line with the result reported in Table 6.3 that in wave three of ELSA DLA recipients were much more likely to have a computer in the household. This may be an impact of DLA receipt or it could be that people who use the internet or email have better networks and may be more aware of DLA and hence more likely to claim for it than those people who do not use internet or email. Our analysis does not allow us to identify the causality of this relationship.

ELSA also asks a number of questions about membership of community organisations, allowing us to capture whether DLA recipients participated more in the community than the matched comparison group. For most indicators there was no difference between DLA recipients and the comparison group. The only exception was membership of tenant groups (in Wave 2 only), where seven per cent more DLA recipients were members of a tenant group than members of the comparison group. Here 16 per cent of DLA recipients were members of a tenant group compared with nine per cent of the comparison group.

We also considered how receipt of DLA impacted on whether respondents had difficulties getting to a range of local services. These are the last group of items reported in Table 6.5. For none of the places listed were there any significant differences in the percentage of DLA recipients and the comparison group in reporting difficulties accessing these services. Between 20 and 30 per cent of respondents reported difficulties in accessing each of the services in both the group of DLA recipients and the comparison group.

**Table 6.5 The impact of DLA receipt on social inclusion/exclusion – difference between DLA recipients and the matched comparison group (ELSA data)**

	ELSA Wave 1	ELSA Wave 2	ELSA Wave 3
<b>Social inclusion / exclusion</b>			
<b>Would like to more often:</b>			
Go to cinema	.01 (.03)	.11 (.05)**	-.10(.05)**
Eat out of the house	-.03 (.03)	.03 (.05)	.00 (.05)
Go to art gallery or museum	.01 (.04)	.06 (.04)	-.06 (.05)
Go to theatre, concert or opera	-.00 (.04)	.08 (.05)*	.03 (.05)
Have use of car when needed	.06 (.03)*	.09 (.04)**	.05 (.04)
Health prevents use of public transport	-.02 (.04)	.03 (.04)	n/a
Expense prevents use of public transport	-.01 (.01)	.00 (.01)	n/a
Read a daily newspaper	-.02 (.04)	.07 (.04)	-.04 (.05)
Have a hobby or past-time	.04 (.04)	.03 (.05)	-.01 (.04)
Taken a holiday in UK in last year	.03 (.04)	.06 (.05)	.01 (.05)
Taken a holiday abroad in last year	.03 (.04)	.04 (.04)	.03 (.04)
Gone on a daytrip or outing in last year	-.03 (.04)	-.00 (.05)	.05 (.05)
Use internet and/or email	-.03 (.03)	.00 (.04)	.11(.04)***
Own a mobile phone	-.01 (.04)	.08 (.05)*	.10 (.04)**
<b>Social participation. Member of:</b>			
Political party, trade union or environmental groups	-.03 (.03)	.01 (.03)	.01 (.03)
Tenants groups, resident groups, neighbourhood watch	-.01 (.03)	.07 (.03)**	-.03 (.04)
Church or other religious groups	-.01 (.03)	.00 (.03)	.02 (.04)
Charitable associations	.02 (.03)	-.01 (.04)	.00 (.03)
Education, arts or music groups or evening classes	-.02 (.02)	-.01 (.03)	.02 (.02)
Social Clubs	-.02 (.04)	.07 (.04)*	.05 (.04)
Sports clubs, gyms, exercise classes	-.03 (.03)	-.02 (.03)	.03 (.02)
Any other organisations, clubs or societies	.00 (.03)	-.01 (.04)	-.05 (.04)
<b>Whether have difficulties getting to:</b>			
Bank or cashpoint	-.03 (.04)	-.05 (.04)	n/a
Chiropodist	.07 (.04) *	-.06 (.05)	n/a
Dentist	-.04 (.04)	-.03 (.04)	n/a
GP	.01 (.03)	-.04 (.03)	n/a
Hospital	.01 (.04)	-.04 (.04)	n/a
Local shops	.04 (.03)	-.02 (.03)	n/a
Optician	-.05 (.04)	-.04 (.04)	n/a
Post office	-.00 (.03)	-.01 (.03)	n/a
Shopping centre	.03 (.04)	-.04 (.04)	n/a
Supermarket	.00 (.03)	-.01 (.04)	n/a

Source: ELSA 2002-2006.

Standard errors in parentheses

\*\*\* p&lt;0.01, \*\* p&lt;0.05, \* p&lt;0.1

Our final measures consider social activities of respondents using FRS data. These are most similar to the inclusion measures collected in ELSA, but only look at activities undertaken in the last four weeks.

First we compare use to different forms of transport and find no difference between DLA recipients and the comparison group in a broad measure of transport use. In line with the ELSA evidence there is no limited evidence about DLA recipients participating in more social activities than the comparison group. We consider ten activities and for the full FRS sample, there were significant differences for just two activities, with DLA recipients more likely to have gone shopping or visited friends or family in the last four weeks than the matched comparison group. For people aged 50 or more differences were evident for three of the ten activities, with DLA recipients more likely to have gone to a restaurant or pub, countryside, seaside, zoo, park or gardens and shopping in the last four weeks than the matched comparison group.

**Table 6.6 The impact of DLA receipt on social inclusion/exclusion – difference between DLA recipients and the matched comparison group (FRS data)**

	FRS full Sample	FRS aged 50 or more
Used any of forms of listed transport <sup>1</sup>	.01 (.02)	.03(.02)
<b>Activities in the last 4 weeks:</b>		
Cinema or theatre (include ballet and opera)	.02 (.02)	.02 (.02)
Pop, rock or classical concerts	.00 (.01)	.01 (.01)
Visit art galleries, museums or other exhibitions	.00 (.01)	.01 (.01)
Visit historic buildings or towns	-.00 (.01)	.01 (.01)
Go to a restaurant or pub	.05 (.03)*	.08 (.04)**
Go to funfairs, amusement arcades, fetes or shows	.00 (.01)	.01 (.01)
Go to the countryside, seaside, zoo, park or visit gardens	.03 (.02)	.07 (.03) ***
Go to watch sporting events	.01 (.01)	.02 (.01)
Go shopping	.08 (.03) **	.09 (.04) **
Visit friends or family	.08 (.03) **	.06 (.04)

Source: FRS Disability Survey 1996/97.

Standard errors in parentheses

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

<sup>1</sup> Forms of transport listed were bus, coach, minibus, car, van or lorry, Dial-a-ride, Motability, boat/ferry, bicycle, ambulance, train, taxi/minicab, electric pavement vehicle, motor cycle/moped, aeroplane.

# 7 Conclusions

The aim of this report was to assess the impact of receiving Disability Living Allowance (DLA) using existing data sources English Longitudinal Study of Ageing (ELSA) and the Family Resources Survey (FRS) and a matching approach. DLA is a benefit designed to meet extra costs faced by disabled people, but with recipients being free to choose how to spend. Thus we might expect that whilst some of the impact of DLA may be on things that are directly related to the recipients' disability, other impacts can cover a wide variety of areas which will ultimately depend on individual preferences.

One of the challenges of this report was to see if the existing data would allow us to estimate models of whether a person received DLA. This was complicated by the detailed entitlement criteria for DLA receipt and by the fact that to receive DLA a person must apply for it and there is no way of knowing from the data used whether someone has applied for DLA or not. Thus, our models of DLA receipt needed to also capture whether a person was likely to apply for DLA and whether they met the entitlement criteria. Hence these models estimate DLA receipt and do not estimate the take-up of DLA.

The two surveys do not allow us to develop variables that precisely reflect the DLA entitlement criteria, but we use our judgement to get proxy variables for these criteria and use other questions from the surveys that we argue may be related to these criteria to give a broad range of predictors of DLA receipt. We have shown that the FRS provides a good set of questions that we feel gives us a reasonable approximation of the care and mobility entitlement criteria for the different award rates, but ELSA provides much less information, particularly concerning the care entitlement criteria. We are also not convinced that we fully reflect the criteria for a lower mobility award from either of our data sources.

With these caveats in mind we estimate equations for the probability of receiving DLA that look plausible in terms of most of our derived variables having a strong statistically significant positive association with receiving DLA. The coefficients on these derived variables in the models using FRS data are larger and more powerful than those using ELSA data, reflecting that we can better approximate the entitlement criteria using questions from FRS than ELSA.

Our analysis suggests that estimating matching equations for DLA receipt is feasible, but improvement could be made by using a survey that is more up to date than the FRS disability survey and allows for better identification of care needs than is currently possible from ELSA.

Further development work on outcome measures would also be useful. In our analysis we consider a very wide range of indicators, but focus on a more tightly defined and reasoned set of outcome indicators may allow for the impacts of DLA receipt to be more clearly identified.

Future similar analysis of the Life Opportunities Survey (LOS) may be useful<sup>3</sup>.

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<sup>3</sup> Details of this survey can be found at <http://www.officefordisability.gov.uk/disability-statistics-and-research/life-opportunities-survey.php>

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This working paper seeks to identify any impact of receiving Disability Living Allowance (DLA) on recipients' care and mobility arrangements, their standard of living and measures of social inclusion/exclusion through quantitative secondary analysis of existing data. The paper also focuses on whether the approach to estimating impact is robust and how it may be improved. A propensity score matching approach is used, applied to data from the English Longitudinal Study of Ageing and the Family Resources Survey Disability Follow-up survey.

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