

Estimating Internet Access for Welfare Recipients in Australia

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The internet offers a quick and cheap method for government agencies to contact their clients. Many agencies are now exploring ways in which they can utilise new technologies to improve the efficiency of their communication with clients. Centrelink is currently responsible for the administration of the Australian welfare system and the agency is keen to know whether the use of the internet as a vehicle for transmitting information to clients would be a feasible option. This paper builds on earlier work by Lloyd and Bill (2004) based on data from the 2001 Census of Population. In this earlier study, the researchers estimated an equation for the determinants of internet usage for the Australian adult population. The Census does not identify welfare recipients. In this paper the earlier estimates are applied to data from the Household Expenditure Survey (HES) to provide estimates of the level of internet usage among those identified in the HES as welfare recipients. This involves using variables that are available on both data sets to estimate the probability of internet usage for welfare recipients.

Keywords: welfare recipients; internet usage; Australia.

1. Introduction

Technological developments in computers and the internet have opened new opportunities for government in providing services to clients. Centrelink, as one of the largest Commonwealth agencies dealing directly with individual clients, has been keen to explore possibilities for maintaining and improving services while reducing costs. As the Commonwealth agency currently responsible for the payment of all pensions and benefits, for example the Old Age and Disability pensions, Parenting Payment Single and Partnered, and

Newstart Allowance, there is considerable scope to improve service delivery using new technologies. There has been a continuing concern that a digital divide should not develop in Australia on the basis of socio-economic characteristics, age and location of residence (see for example Lloyd and Hellwig 2000, Daly 2002), and a number of government programs have been designed to address this issue.

However the question remains: do Centrelink clients have access to computers and the internet? Would a reliance on communications using these methods disadvantage clients? Data to answer these questions directly are not available. The purpose of this study has therefore been to estimate the likely use of a home computer and of the internet for individuals identified in the 1998/99 Household Expenditure Survey (HES), conducted by the Australian Bureau of Statistics (ABS), as receiving a payment from the Commonwealth government. These are mainly pension and benefit recipients but Centrelink is also responsible for administering family payments that are available to a much wider group in the community. Estimates are made by applying the results of logistic regression equations from the 2001 Census to data from the HES. The results reported here are of work-in-progress.

2. Results

In 2001, for the first time, the Australian Census of Population and Housing, which is conducted every five years by the ABS, included questions on computer and internet use. People were asked whether they had used a home computer in the week prior to Census night and were also asked if they had accessed the internet at all during the week prior to Census night. Respondents were asked to indicate whether access to the internet had taken place at home, at work or elsewhere and were given the opportunity to indicate if it had been at a combination of these locations. None of these questions asked about intensity of use, so an individual who used a home computer once in the preceding week is counted in the same way as a person who had used it for long periods every day.

Lloyd and Bill (2004) and Bill and Lloyd (2003) provide a detailed description of the Census results. They found that certain characteristics were associated with not having used a home computer or the internet in the week before the Census. Over two-thirds of those in each of the following categories reported that they had not used a home computer or accessed the internet: those who did not speak English well, did not currently go to school, attended school to year 8 or below, were aged over 65 years, had

family incomes \$300–399/week, were Indigenous, were born in Southern or Eastern Europe, were not in the labour force or were occupied as labourers (Lloyd and Bill 2004). They used the data to formalise these relationships by estimating logistic regressions for home computer and internet usage.

While the 2001 Census contained information on home computer and internet usage, it did not contain information on sources of income so it was not possible to investigate computer and internet usage for Centrelink clients using the Census. The HES 1998/99 includes information on sources of income and therefore has been used as the data set for estimating computer and internet usage for Centrelink clients. Table 1 presents the independent variables used in the estimation of results that form the basis of this study. Tables 2 and 3 include the logistic regression results from Bill and Lloyd (2003) using Census data on variables that are common between the Census and the HES. The full equations reported in Lloyd and Bill (2004) also include variables for Indigenous status, speaking English not well or not at all and regions and remote location of residence. These variables were all significant in the full equation so there will be some omitted variable bias from the equations excluding them. However, these additional variables are not available in the HES.

The first column of Tables 2 and 3 present the estimated coefficient from the logistic equations. Each of the coefficients is significant at the usual levels as they were estimated using the full Census file. The second column reports the odds ratio relative to the base case. The base case is a married man aged 25–44, with no post-secondary education but not currently studying, employed in an occupation other than trades or labouring, with a household income of \$500–999/week, no dependent children and living in New South Wales. Bill and Lloyd estimate that the probability of such a person using a home computer was 43.8% and of using the internet was 51.2%. The odds ratio shows the effect of a change in one variable on the base-case probability. For example, a male with a degree was over three times as likely to use a home computer and four times as likely to use the internet as the base-case male with no post-secondary education holding all the other base case characteristics constant. A married man living in a household with a weekly income above \$1500 was 1.7 times as likely to have used a home computer and twice as likely to have used the internet as was an identical man in a household with a weekly income of between \$500 and \$999.

The logistic regression results reported in Tables 2 and 3 below show the large effects of education and income on home computer and internet usage.

Table 1. Explanatory variables used in regression model

Explanatory variable	Classes (Base Class*)
Gender & marital status	Male & not married
	Female & not married
	Male & married*
	Female & married
Age	15–24 years
	25–44 years*
	45–64 years
	65+ years
Educational qualifications & study status	Bachelor degree or higher
	Advanced diploma, diploma or certificate
	No post school qualification*
	Still at school
Labour force status & occupation	Other still studying
	Employed as Tradesperson or Labourer
	Employed in other occupations*
Household income	Unemployed
	Not in the labour force
	Household income under \$500 per week
	Household income \$500–\$999*
Dependents (in household)	Household income \$1,000–\$1,499
	Household income \$1,500 per week and over
	Dependents
State	No dependents (& not applicable)*
	New South Wales*
	Victoria
	Queensland
	South Australia
	Western Australia
	Tasmania
Australian Capital Territory	
Northern Territory & other territories	

Source: Bill & Lloyd (2003)

Table 4 presents some descriptive statistics from the HES for those receiving government payments and those who did not. The first column shows the proportion of those receiving payments who were in each category. The second column shows the proportion of those who did not receive payments in each category. The results show that payment recipients are more likely to be female, be aged 65+, have no post-secondary qualification and be outside the labour force. The regression results reported in Tables 2 and 3 show that each of these characteristics is likely to be associated with lower probabilities of home computer and internet usage.

Table 2. Centrelink regression model for people using a home computer, 2001

	Coefficient estimate	Odds ratio
Intercept	-0.3407	
Male and not married	-0.2976	0.743
Female and not married	-0.5828	0.558
Male and married (base)		1
Female and married	-0.2054	0.814
15-24 years	0.1149	1.122
25-44 years (base)		1
45-64 years	-0.2627	0.769
65+ years	-1.1263	0.324
Degree level	1.1457	3.145
Diploma/certificate	0.5275	1.695
No post-school (base)		1
Still at school	1.9454	6.996
Still studying other	1.7393	5.693
Employed as tradesperson or labourer	-0.8739	0.417
Employed in other occupation (base)		1
Unemployed	-0.3875	0.679
Not in the labour force	-0.6549	0.519
Household income under \$500 per week	-0.2628	0.769
\$500-\$999 (base)		1
\$1,000-\$1,499	0.2485	1.282
\$1,500 or more	0.5371	1.711
Dependent children	0.4466	1.563
No dependent children (base)		1
New South Wales (base)		1
Victoria	0.0661	1.068
Queensland	0.1581	1.171
South Australia	0.0943	1.099
Western Australia	0.1563	1.169
Tasmania	-0.0536	0.948
Australian Capital Territory	0.3517	1.421
NT and other territories	-0.3933	0.675

Source: Bill and Lloyd (2003)

3. Concluding Remarks

These results have been used to predict home computer and internet usage for the population aged 15+ in the HES. This population has been divided into those who received government payments and those who did not. The preliminary estimates show that the probability of those receiving government payments making use of home computers and the internet was about half that for the non-recipients in the sample. Sensitivity and benchmarking analysis of these results is still to be completed.

There are a number of outstanding issues arising from this project before

Table 3. Centrelink regression model for people using the Internet, 2001

Parameter	Coefficient estimate	Odds ratio
Constant	0.0462	
Male and not married	-0.212	0.809
Female and not married	-0.398	0.671
Male and married (base)		1
Female and married	-0.454	0.635
15-24 years	0.1071	1.113
25-44 years (base)		1
45-64 years	-0.57	0.565
65+ years	-1.685	0.185
Degree or higher	1.4504	4.265
Diploma/certificate	0.5434	1.722
No post-school (base)		1
Still at school	1.9125	6.77
Still studying other	1.8703	6.49
Employed as tradesperson or labourer	-1.35	0.259
Employed other occupation (base)		1
Unemployed	-0.76	0.468
Not in labour force	-1.053	0.349
Household income under \$500 per week	-0.338	0.713
\$500-\$999 (base)		1
\$1,000-\$1,499	0.3039	1.355
\$1,500 or more	0.7164	2.047
Dependent children	0.0092	1.009
No dependent children (base)		1
New South Wales (base)		1
Victoria	0.0734	1.076
Queensland	0.1278	1.136
South Australia	0.0629	1.065
Western Australia	0.1559	1.169
Tasmania	0.0301	1.031
Australian Capital Territory	0.5721	1.772
NT and other territories	-0.195	0.823

Source: Bill and Lloyd (2003)

we can fully answer the question of whether the use of the internet as a vehicle to communicate with customers is a feasible option. Firstly, the geographical breakdown available in the HES is limited to identification of the State or Territory where the respondent lives. Evidence from the 2001 Census shows that there is a consistent pattern of higher levels of home computer and internet use in the capital cities than in regional and rural areas. If the distribution of the population between the capital cities and outside those cities of those receiving income from the government is very different from that of the population as a whole, then the ability of these predictions to estimate access will be reduced. In addition, there

Table 4. Descriptive statistics for those receiving Government payments compared with those who did not; Australia, 1998/99

Characteristic	Recipient of Payment Proportion	Non-recipient of Payment Proportion
Male and not married	0.14	0.22
Female and not married	0.26	0.16
Male and married	0.20	0.63
Female and married	0.40	0.25
15–24 years	0.11	0.22
25–44 years (base)	0.35	0.42
45–64 years	0.22	0.32
65+ years	0.32	0.04
Degree level	0.06	0.18
Diploma/certificate	0.26	0.33
No post-school (base)	0.62	0.40
Still at school	0.02	0.07
Still studying other	0.08	0.12
Employed as tradesperson or labourer	0.05	0.20
Employed in other occupation (base)	0.19	0.63
Unemployed	0.09	0.02
Not in the labour force	0.67	0.15
Household income < \$500/week	0.52	0.11
\$500–\$999/week (base)	0.30	0.30
\$1000–\$1499/week	0.13	0.27
\$1500+/week	0.06	0.32
Dependent children	0.43	0.40
No dependent children (base)	0.57	0.60
New South Wales	0.33	0.35
Victoria	0.25	0.25
Queensland	0.20	0.17
South Australia	0.09	0.07
Western Australia	0.09	0.10
Tasmania	0.03	0.02
ACT	0.01	0.02
NT and other territories	0.00	0.01

Source: HES Unit record file

have also been some significant policy changes with respect to eligibility for government payments since 1998/99. These include welfare reforms and the introduction of a new tax system. The characteristics of those receiving Centrelink payments may have changed as a result of these policy changes. Finally, the 2001 Census is now almost four years old. A more recent ABS survey shows that 66 per cent of households (as distinct from persons as discussed above) in 2003 had access to a home computer compared with 58 per cent in 2001 (ABS 2004). The percentage of households with internet

access had risen from 42 per cent in 2001 to 53 per cent in 2003. If Centrelink were to use estimates from the above analysis to estimate the computer and internet usage of individual clients, it would be important to adjust these estimates in the light of the rapid growth in use of these technologies among the Australian population. Finally it may be worthwhile developing the capacity to communicate with clients through the internet as a way of encouraging the development of computer and internet skills among this group. However, at this stage, our preliminary estimates suggest that it would be inappropriate to rely completely on this form of communication with Centrelink clients.

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