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Are youths on income support less happy? Evidence from Australia

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ABSTRACT

Are Youths on Income Support Less Happy? Evidence from Australia

The central research question addressed in this paper is how receipt of income support payments affects the well-being of youths. Using 1997-2004 panel data from a nationally representative survey of Australian youths, we attempt to estimate the size of the welfare stigma faced by Australian youths, where stigma is defined as the effect of welfare receipt on reported happiness levels. In analysing the determinants of happiness, we argue that it is important to control for dynamics and initial conditions. The latter arguably measures an initial setpoint of happiness which the psychological literature has found strong support for. In contrast to the general findings of the existence of a welfare stigma for adults, based on our results using dynamic panel probit models, our findings suggest that for Australian youths, there is a small negative but not statistically significant stigma associated with welfare receipt.

JEL Classification: I31, I38, C33

Keywords: well-being, happiness, welfare stigma, youths

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1. Introduction

This paper examines whether receipt of income support payments affects the well-being of youths. Most current research on well-being has focused on adult well-being and not youth well-being. The few exceptions include Marks and Fleming (1999), Dockery (2005) and Winkelmann (2006).

The main contribution of this paper is estimating the stigma associated with particular types of income support programs. Data used are from the 1995 Year 9 cohort of the Longitudinal Surveys of Australian Youth (LSAY) in which respondents were asked to rate their happiness on a four-point scale in the surveys from 1997 to 2004 (i.e., a total of 8 waves). These years correspond to the cohort's final 2 years of high school and their entry into post-secondary education or training and the labour force. The LSAY data were also recently used by Dockery (2005) to study the well-being of Australian youths. However, there are several differences distinguishing Dockery's study and ours. First, Dockery focused on the role of labour market experience on self-reported happiness while we focus on the role of receiving income support on self-reported happiness. Second, while he uses a static random effects panel logit for his main empirical analysis to estimate the probability that an individual is very happy with their life as a whole, we use more elaborate dynamic panel data methods in our empirical application. Third, while he uses LSAY data from 1997-2002, we use a more recent LSAY panel that extends from 1997-2004. In contrast to the general findings of the existence of a welfare stigma for adults, based on our results using dynamic panel probit models, our findings suggest that for Australian youths, there is a small negative but not statistically significant stigma associated with welfare receipt.

The next section discusses in more detail the context of our research question. Section 3 describes the data. Section 4 discusses the various panel data approaches used to analyse the LSAY data. Section 5 presents the results and a robustness check. Finally, section 6 concludes.

2. Welfare Stigma

Anecdotal evidence and case studies on the negative psychological consequences of welfare abound but very little empirical evidence to substantiate this argument exists. Although the existence of welfare stigma has been amply documented by sociologists in interviews or focus groups, where recipients candidly disclose feelings of low self-esteem and a lack of self-respect (for example, Edin and Lein 1997, Rogers-Dillon 1995), this

issue has not been examined in much detail by economists. Exceptions are Moffitt (1983), Bingley and Walker (1997) and Kalb (2000). Given our sample of Australian youths who are not yet expected to be engaged full-time in the labour market, following the approach of these authors in using a labour supply model to measure the stigma effect would be inappropriate. Instead, by regarding measures of subjective well-being as measures of true utility measured with some noise (Di Tella and MacCulloch 2006), the approach taken in this paper is to directly estimate in an econometric model the welfare stigma effect on utility or levels of subjective well-being.

Even though there has been much empirical work on the determinants of happiness, there has been little empirical work linking the effects of receiving income support payments on self-reported happiness. For example, the survey by Frey and Stutzer (2002) reviews work that has been done on the effects of unemployment on happiness and the stigma associated with being unemployed, but does not list any work that discusses how receipt of government transfer payments can affect happiness. Similarly, the review of progress in the study of subjective well-being in the psychological literature by Diener et al. (1999) does not mention any studies that relate welfare receipt to well-being. One exception is Nichols-Casebolt (1986) who used data from the PSID to investigate the impact of the AFDC program in the US on a person's psychological well-being. Using both cross-sectional and panel data models, she found a consistency of negative signs on the AFDC coefficient which she argues lends credence to the argument that AFDC has negative psychological consequences for recipients.

A commonly stated policy objective is to reduce the stigma associated with welfare programs so that those who need help the most can receive it without being discriminated against. A prerequisite for this is understanding how the size of stigma varies with each type of program, or more generally the relationship between stigma and program design. We elaborate on the data used and the programs considered in the next section.

3. Data

The analysis in this paper is based on data from the 1995 Year 9 cohort of the LSAY, the same data that were used in Dockery (2005) with the difference that we use a more recent panel that spans from 1997-2004 whereas his analysis was based on a panel from 1997-2002. The LSAY is a nationally representative survey and comprises a series of panel surveys of young Australians aimed at collecting information on the transition from

school to work. The data are collected from a panel survey of youth who were first surveyed as Year 9 students in 1995, with median and modal age of 14. The sample was selected by a two-stage process in which a random sample of schools was selected, and then a random sample of Year 9 classes from within those schools. The data come from self-completed questionnaires administered in 1995 and 1996 and telephone interviews conducted in each year from 1997 to 2004. A total of 13,613 valid returns were gained from those completing the 1995 survey and 4,660 valid returns were obtained in 2004. Hence, the attrition rate over the ten waves to 2004 stands at 65.8 per cent.

In each wave from 1997 onwards, each individual was asked to respond to the question ‘how happy are you with your life as a whole’ using a four-point scale of ‘very unhappy’, ‘fairly unhappy’, ‘fairly happy’ or ‘very happy’. The response to this question is used as the main indicator of individual well-being. A score of 3 equates to ‘fairly happy’ and a score of 4 to ‘very happy.’ As happiness was measured only from Wave 3 onwards, our analyses are based on an unbalanced panel of 29,146 observations for 5,865 individuals over eight waves of data (Waves 3 to 10).

In the LSAY data, a majority of young Australians report being generally happy with their lives. Following Dockery (2005), we collapse the four-point dependent variable in LSAY into a binary variable defined by whether or not the individual indicated they were very happy with their life as a whole as opposed to not being very happy (i.e., either fairly happy, fairly unhappy or very unhappy). In the next section, it will be discussed how this transformation allows us to exploit the longitudinal nature of the data by estimating dynamic panel probit models using this binary happiness measure as the dependent variable. Although less than 3 per cent of individuals indicated that they were either fairly unhappy or very unhappy with their life as a whole in each year, a considerable proportion of individuals reported a change in their happiness levels from one wave to the next, providing useful variation in the data which is necessary for constructing our coefficient estimates. For example, using our binary happiness variable, between Wave 3 and Wave 4, 66.8% reported the same level of happiness while 13.8% reported a drop in happiness and 19.4% reported an increase in happiness. These proportions remained largely the same through all waves of the data. By the end of our observation period (between Wave 9 and Wave 10), 74.1% reported the same level of happiness, 11.4% reported a drop in happiness and 14.5% reported an increase in happiness. Some descriptive statistics for our sample to be used in the multivariate analysis in section 5 are given in Table 1.

Table 1: Descriptive Statistics

	Mean	Standard Deviation
<i>Dependent variable:</i>		
Happiness (scale 1-4)	3.507	0.531
Very happy (=4)	0.522	0.499
Fairly happy (=3)	0.464	0.499
Fairly unhappy (=2)	0.013	0.115
Very unhappy (=1)	0.001	0.029
Happiness (binary)	0.522	0.499
<i>Characteristics:</i>		
Male	0.432	0.495
Aboriginal or Torres Straits Islander	0.014	0.119
Born in non-english speaking country	0.070	0.256
Mother has degree/diploma	0.285	0.451
Father has degree/diploma	0.310	0.462
Number of siblings (Wave 3)	2.034	1.297
Living with both parents (Wave 3)	0.850	0.357
Living only with mother (Wave 3)	0.105	0.306
Living only with father (Wave 3)	0.022	0.147
In school	0.360	0.480
Currently working	0.666	0.472
Youth Allowance	0.051	0.221
Sole Parent Allowance	0.008	0.091
Disability Support Pension	0.003	0.056
Family Payments	0.014	0.118
Other payments	0.019	0.137
Any welfare payments	0.091	0.287
Log income	3.435	2.693
<i>Exclusion restrictions:</i>		
Open to new experiences (Wave 3)	0.445	0.497
Popular (Wave 3)	0.092	0.289
Intelligent (Wave 3)	0.148	0.356
Calm (Wave 3)	0.266	0.442
Hardworking (Wave 3)	0.368	0.482
Outgoing (Wave 3)	0.369	0.482
Confident (Wave 3)	0.265	0.441

Notes: Pooled data for LSAY waves 3-10 (1997-2004). Sample size = 29,146.

Australian youths who received any welfare payments are generally most likely to be on Youth Allowance. Of the 9 per cent of person-year observations who received any welfare payments between 1997 to 2004, about 5 per cent received the Youth Allowance. Much fewer received the Sole Parent Allowance (less than 1 per cent) and Disability

Support Pension (less than 1 per cent), which is not surprising given the relatively young age of our sample.

Youth Allowance (YA) is an income support payment made by Centrelink on behalf of the Department of Family and Community Services and Indigenous Affairs (FaCSia). It is an income support payment for young Australians which integrates payments irrespective of whether they are in education, training, unemployed or sick. The Youth Allowance payment is paid to the parents of young people under 18 years and only to individuals once they are over the age of 18. Participants are likely to be discouraged or disaffiliated school leavers and so have been influenced by similar factors to those that affect 'students at risk' and 'early school leavers.' These factors include: family and financial constraints, academic failure, boredom, truancy, alienating school environment, poor teacher/student relations and a school culture where the school is not responsive to the student's needs.

In 1998, YA replaced five different income support payments including Newstart Allowance, Youth Training Allowance and Sickness Allowance for those under 21 years. These various income support arrangements for young people were perceived to be inefficient and unfair and to include disincentives for young people to undertake full-time education or training. A policy change introduced in 1 Jan 1999 required Youth Allowance recipients over the age of 18 years to undertake additional activities such as engagement in part-time work, voluntary work, education or training or participation in a government-funded program such as a literacy or numeracy program or a work for the dole scheme.

In analysing how Youth Allowance was administered, Jope and Beaumont (2003) found that the attitudes of Centrelink officers towards young people were perceived to vary, from accepting and helpful on the one hand, to judgmental and unhelpful on the other. Poor communication skills and negative attitudes on the part of some Centrelink staff contributed to difficulties in establishing rapport. Some young people were consequently reluctant to disclose relevant information, leading to inaccurate assessments of their job readiness. Negative experiences and long waiting times meant that some young people were reluctant to deal with Centrelink directly. Instead, they would go elsewhere, particularly to workers in youth agencies, for assistance and to sort out mistakes with the administration of YA. These youth agency workers said they spent a lot of time on Centrelink business, which may have reduced their capacity to focus on other issues.

Table 2: Descriptive Statistics Comparing Welfare and Non-Welfare Receipt

	Mean for on welfare	Mean for off welfare	P-value for difference
<i>Dependent variable:</i>			
Happiness (scale 1-4)	3.446	3.513	0.000
Very happy (=4)	0.467	0.528	0.000
Fairly happy (=3)	0.514	0.459	0.000
Fairly unhappy (=2)	0.018	0.013	0.042
Very unhappy (=1)	0.002	0.001	0.227
Happiness (binary)	0.467	0.528	0.000
<i>Characteristics:</i>			
Male	0.369	0.438	0.000
Aboriginal or Torres Straits Islander	0.032	0.012	0.000
Born in non-english speaking country	0.060	0.071	0.030
Mother has degree/diploma	0.198	0.293	0.000
Father has degree/diploma	0.204	0.320	0.000
Number of siblings (Wave 3)	2.343	2.003	0.000
Living with both parents (Wave 3)	0.723	0.863	0.000
Living only with mother (Wave 3)	0.165	0.099	0.000
Living only with father (Wave 3)	0.036	0.021	0.000
In school	0.147	0.382	0.000
Currently working	0.413	0.691	0.000
Log income	4.614	3.317	0.000
<i>Exclusion restrictions:</i>			
Open to new experiences (Wave 3)	0.423	0.447	0.017
Popular (Wave 3)	0.094	0.092	0.697
Intelligent (Wave 3)	0.142	0.149	0.298
Calm (Wave 3)	0.262	0.266	0.595
Hardworking (Wave 3)	0.380	0.367	0.182
Outgoing (Wave 3)	0.387	0.367	0.041
Confident (Wave 3)	0.245	0.267	0.013

Notes: Pooled data for LSAY waves 3-10 (1997-2004). Sample size for on welfare = 2,642 and off welfare = 26,504. P-values for the difference are based on a two sample t-test.

In contrasting the outcomes and characteristics of those on welfare with those not on welfare, Table 2 makes it quite clear that there are significant differences between these two groups of youths. Youths not on welfare are generally happier, have more educated parents, are more likely to be living with both parents, be in school and have a job. Without any statistical adjustments, the raw difference in means between the two groups in terms of their happiness levels is $52.8\% - 46.7\% = 6.1\%$. In other words, youths not on welfare are found to be 6.1 percentage points happier than youths on welfare. However, from Table 2, it is quite clear that this difference between groups is confounded by the differences in

characteristics between the groups and is a naïve estimate of the effect of being on welfare. The challenge of the empirical strategy employed in the next section is to recover estimates of the stigma effect of welfare on happiness.

4. Methods

In striving to find a robust methodological approach for studying the determinants of subjective well-being, two important findings have emerged from the literature. First, it is likely that current happiness is influenced by past levels, implying a dynamic process where, in addition, assumptions made about the initial conditions or setpoint levels of happiness are likely to be important.¹ Note, for example, the raw state dependence in the LSAY data, where approximately 70 per cent of youths report the same level of happiness from one wave to the next. Second, fixed individual effects are important for accounting for time-invariant factors related to observable characteristics such as personality traits.²

The main focus of the empirical work done in this paper is estimating the stigma effect of various income support programs. This is measured by how the act of receiving each type of income support payment (and not the benefit amount) changes happiness levels. Following Dockery (2005), we collapse the four-point dependent variable in LSAY into a binary variable defined by whether or not individuals indicated that they were very happy with their life as a whole as opposed to not being very happy. For an individual i at period t , our discrete choice panel data model can be summarised as follows:

$$y_{it} = \gamma y_{i,t-1} + x'_{it}\beta + \alpha_i + \varepsilon_{it} \quad (1)$$

where y_{it} is the binary measure of happiness, $y_{i,t-1}$ is lagged happiness, x_{it} is a $k \times 1$ vector of individual characteristics, α_i the individual-level specific effects (unobserved heterogeneity) and the error term ε_{it} which is normally distributed with mean zero and variance σ_ε^2 . Static panel models for happiness make the restriction that $\gamma = 0$, a

¹ The setpoint theory of happiness postulates that people react to or are affected psychologically by events but they eventually adapt back to their baseline level of well-being. A part of the psychology literature provides strong supporting evidence for such a theory and suggests that initially endowed levels of happiness matter. A widely cited paper by Brickman, Coates and Janoff-Bulman (1978) found the related result that lottery winners do not have statistically significant higher life satisfaction scores than controls, suggesting a quick adaptation in happiness levels. More recently, using a method known as 'ecological momentary assessment' where for one week, subjects are asked to rate their mood when prompted every 90 minutes or so by a pocket computer, Riis et al. (2005) found that people's moods are generally resilient to negative life events like chronic illnesses, suggesting an over-time persistence or state dependence of subjective well-being.

² For example, Carbonell and Frijters (2004) state in their conclusion: "As to future research, it would seem of great importance to take individual fixed effects into account or else to include as regressors the time-invariant personality traits that have such large influence on general satisfaction." (p. 655)

restriction we prefer not to make given evidence on over-time persistence of levels of happiness in our raw data. Our primary interest in this paper centres around the coefficients on the welfare variables in β . In a sense, relating our work here to the broader treatment effects literature, the aim here is to estimate some kind of a ‘treatment effect’ of being on welfare.³

In order to estimate (1) we use a dynamic random effect probit specification. The main problem with this approach is that unless the initial levels of happiness are truly exogenous, they are correlated with the unobserved heterogeneity. This is the so-called “initial conditions” problem. One solution to this problem, proposed by Heckman (1981), is to specify a separate model for y_{i1} given the individual specific effect and the exogenous individual characteristics. In Heckman’s method, the initial value of the latent variable is approximated by a linear reduced form equation

$$y_{i1}^* = z_{i1}'\pi + \theta\alpha_i + \varepsilon_{i1} \quad (2)$$

where z_{i1} is a vector of exogenous instruments that also includes period 1 values of the x variables. Equations (1) and (2) together specify a complete model for a dynamic model for happiness. Combining this static probit equation for $t=1$ with the dynamic panel probit equation for later periods in (1), a full information maximum likelihood approach can then be applied to obtain parameter estimates.

An alternative approach, suggested by Wooldridge (2005), is to specify the distribution of the individual specific effect conditional on the exogenous individual characteristics, the initial observation y_{i1} and time-averages of all time varying variables

$$\alpha_i = \alpha_1 y_{i1} + \alpha_2 \bar{x}_i + v_i \quad (3)$$

where \bar{x}_i is a matrix of time averages.⁴ The Wooldridge method forms the likelihood function conditional on the initial observation y_{i1} . One can then derive the distribution of (y_{i2}, \dots, y_{iT}) given the exogenous individual characteristics and y_{i1}

$$f(y_2, y_3, \dots, y_T | y_1, x, \alpha; \beta, \gamma) = \prod_{t=2}^T f(y_t | y_{t-1}, y_1, x, \bar{x}, \alpha; \beta, \gamma) \quad (4)$$

³ The approach used is similar to the approach adopted in Card and Sullivan (1988) who employed a random effects dynamic panel logit model to estimate the effects of a subsidised training program on the probability of employment.

⁴ The time averages \bar{x}_i are introduced to control to some extent for the correlation between exogenous variables and α_i . \bar{x}_i are also included in our Heckman type model.

and estimate the parameters of interest by maximum likelihood. One advantage of this approach is that estimation can be carried on using canned procedures in standard econometric packages. Another advantage of this approach is that the researcher does not have to specify the distribution of y_{it} .⁵

In this paper, we estimate both the Heckman (1981) and Wooldridge (2005) versions of the random effects dynamic panel probit model in an attempt to measure the size of the welfare stigma effect.⁶ We also estimate a pooled dynamic probit model. The main advantages of the pooled model are that it performs relatively well under misspecification of error structure and it is consistent (but not efficient) if the exogeneity assumption of x_{it} required by the dynamic panel probit models is violated (Wooldridge 2002, p. 405).⁷

5. Results

Table 3 reports the coefficient estimates for the Heckman estimator (rescaled), the Wooldridge estimator (rescaled) and the pooled dynamic probit, where the estimates from the panel data models have been rescaled in order to be comparable to the pooled probit estimates.⁸ The model in Table 3 is based on using detailed welfare participation measures, where welfare receipt is given by program type. The coefficients on each of these welfare variables estimate the stigma associated with each of the programs.

⁵ On the other hand, it is arguable that the distribution of the random effect conditional on the exogenous individual characteristics and the initial observation is likely to be complex and would depend on all the exogenous variables in all time periods. This would imply experimenting with adding various interaction terms between the initial observation and the time averages variables in equation (3).

⁶ The exclusion restrictions used in the Heckman approach to model initial happiness are given in Tables 1 and 2, which include variables measuring personality traits in Wave 3 of our data that should directly affect initial happiness in our first observation point ($t = 1$ or Wave 3) for each person but not affect happiness directly for Wave 4 (or $t \geq 2$) and beyond.

⁷ Another robustness check we performed is relaxing the random effects (or quasi-fixed effects) assumption by estimating dynamic linear probability models with fixed effects. We experimented with dynamic linear probability models with fixed effects based on the Arellano and Bond (1991) dynamic panel model, estimated using one-step and two-step first difference General Method of Moments. However, we found that the resulting coefficient estimates on welfare were unstable and very sensitive to the choice of the number of instruments used. Hence, we do not report their results.

⁸ Scaling is done by multiplying coefficient of panel estimates by $\sqrt{1-\hat{\sigma}_u^2}$. See Arulampalam (1999) for a detailed discussion.

Table 3: Coefficients for Dynamic Random Effects Probit Models, Detailed Welfare Measures

	Heckman estimator (rescaled)	Wooldridge estimator (rescaled)	Pooled Dynamic Probit
Lagged happiness	0.297*** [0.000]	0.275*** [0.000]	0.819*** [0.000]
Male	-0.116*** [0.000]	-0.116*** [0.000]	-0.114*** [0.000]
Aboriginal or Torres Straits Islander	0.042 [0.674]	0.056 [0.572]	0.034 [0.701]
Born in non-english speaking country	-0.249*** [0.000]	-0.223*** [0.000]	-0.176*** [0.000]
Mother has degree/diploma	0.014 [0.649]	0.016 [0.589]	0.018 [0.498]
Father has degree/diploma	-0.006 [0.838]	-0.032 [0.274]	-0.027 [0.296]
Number of siblings (Wave 3)	-0.009 [0.306]	-0.007 [0.445]	-0.007 [0.412]
Living with both parents (Wave 3)	0.095 [0.255]	0.045 [0.575]	0.053 [0.459]
Living only with mother (Wave 3)	-0.063 [0.484]	-0.075 [0.387]	-0.055 [0.478]
Living only with father (Wave 3)	0.126 [0.264]	0.108 [0.332]	0.109 [0.277]
In school	-0.126** [0.011]	-0.126** [0.013]	0.035 [0.132]
Currently working	0.024 [0.413]	0.025 [0.412]	0.022 [0.481]
Youth Allowance	-0.034 [0.387]	-0.038 [0.357]	-0.032 [0.476]
Sole Parent Allowance	-0.077 [0.408]	-0.079 [0.408]	-0.089 [0.391]
Disability Support Pension	-0.371* [0.089]	-0.384* [0.088]	-0.428** [0.025]
Family Payments	0.000 [0.996]	0.004 [0.957]	-0.041 [0.621]
Other payments	-0.077 [0.194]	-0.079 [0.201]	-0.075 [0.238]
Log income	0.009* [0.055]	0.010** [0.043]	0.013** [0.013]
m(In school)	0.264 [0.185]	0.163 [0.414]	-0.039 [0.811]
m(Currently working)	0.117* [0.059]	0.093 [0.144]	0.074 [0.210]
m(Youth allowance)	-0.540*** [0.000]	-0.539*** [0.000]	-0.456*** [0.000]
m(Sole Parent Allowance)	0.219 [0.426]	0.254 [0.371]	0.221 [0.367]
m(Disability support pension)	-0.182 [0.636]	-0.138 [0.721]	-0.036 [0.927]
m(Family payments)	0.202 [0.366]	0.189 [0.397]	0.177 [0.331]
m(Other payments)	0.031 [0.871]	0.086 [0.671]	0.053 [0.778]
m(Log income)	0.004 [0.661]	0.006 [0.549]	0.004 [0.668]
Initial happiness		0.599*** [0.000]	0.372*** [0.000]
Constant	-0.106 [0.298]	-0.302*** [0.003]	-0.569*** [0.000]

Notes: * significant at the 10 per cent level; ** significant at the 5 per cent level; *** significant at the 1 per cent level. *P*-values in parentheses. The variables *m*(.) are the means of the variable in parentheses over time. The Heckman and Wooldridge estimators include time dummies. Significance in the Heckman and Wooldridge estimators are based on base coefficients, not rescaled coefficients.

Table 4: Average Partial Effects for Dynamic Random Effects Probit Models and Bias Corrected Least Squares Dummy Variable Model, Detailed Welfare Measures

	Heckman estimator (1)	Wooldridge estimator (2)	Pooled Dynamic Probit (3)
Lagged happiness	11.56***	10.25***	30.90***
Male	-4.50***	-4.22***	-3.92***
Aboriginal or Torres Straits Islander	1.64	2.03	1.15
Born in non-english speaking country	-9.65***	-8.16***	-6.06***
Mother has degree/diploma	0.53	0.58	0.60
Father has degree/diploma	-0.23	-1.15	-0.91
Number of siblings (Wave 3)	-0.37	-0.25	-0.21
Living with both parents (Wave 3)	3.67	1.64	1.82
Living only with mother (Wave 3)	-2.42	-2.73	-1.88
Living only with father (Wave 3)	4.82	3.89	3.74
In school	-4.86**	-4.59**	1.20
Currently working	0.91	0.89	0.76
Youth Allowance	-1.33	-1.37	-1.12
Sole Parent Allowance	-2.98	-2.90	-3.09
Disability Support Pension	-14.30*	-13.93*	-14.61**
Family Payments	-0.01	0.15	-1.42
Other payments	-2.98	-2.86	-2.58
Log income	0.36*	0.36**	0.41**
Initial happiness		22.81***	13.33***

Notes: * significant at the 10 per cent level; ** significant at the 5 per cent level; *** significant at the 1 per cent level.

As coefficients from non-linear models do not have a meaningful interpretation, Table 4 summarises the Average Partial Effects (APE) for the variables of interest. APE measures are computed by averaging individual marginal effects over our sample and are arguably more meaningful than taking the marginal effects at the mean of the independent variables (e.g., using the pre-programmed procedure *mf* in Stata), as a person with such mean composite characteristics might not realistically represent any actual individuals.

The probability of being happy in the dynamic random effects probit models can be expressed as

$$P(y_{it} = 1 | x_{it}^*, \alpha_i) = \Phi\left(\beta^s x_{it}^* + \alpha_i\right) \quad (5)$$

where $\Phi(\square)$ is the standard normal cumulative distribution function, $\beta^s = \beta\sqrt{(1-\hat{\sigma}_u^2)}$ is the scaled coefficient and $x_{it}^* = (x_{it}, y_{i,t-1}, \bar{x}_i)$. The panel data estimates need to be re-scaled by a factor of $\sqrt{(1-\hat{\sigma}_u^2)}$ so that its APEs can be comparable with the APEs of the pooled estimates. To calculate the APE for a discrete variable x_j , we first evaluate (5) at $x_j = 1$ and $x_j = 0$. The difference of these two expressions is then averaged over N individuals. For a continuous variable x_j , the APE can be estimated by taking the derivative of the

probit probabilities with respect to the variable in question. This is given by $N^{-1}\beta^s\phi(\beta^s x_{it}^* + \alpha_i)$ where $\phi(\square)$ is the standard normal probability distribution function.

The APEs from the dynamic panel probit models in columns (1) and (2) and the pooled dynamic probit in column (3) are remarkably close for the welfare variables. It appears that there is a small negative but statistically insignificant stigma associated with Youth Allowance, as well as on Sole Parent Allowance, Family Payments and Other Payments. Of the welfare variables, only Disability Support Pension (DSP) is statistically significant, suggesting that receipt of DSP lowers the probability of being happy by approximately 14 to 15 percentage points. However, given that less than one per cent of youths report being on DSP (see Table 2), we suspect that rather than capturing a stigma effect of DSP, we are more likely capturing the effect of disability on happiness for a few individuals.

In columns (1) and (2) of Table 4, it is clear that lagged happiness is statistically significant and positive, validating our choice of employing dynamic panel models which do not make the restriction that $\gamma = 0$ in equation (1). In addition, the APEs on initial happiness are also large and significant, supporting the hypothesis that baseline levels of happiness do matter.

When we collapse the welfare variables into an aggregate welfare measure (Tables 5 and 6), the findings largely mimic the results using the more detailed welfare measures in Tables 3 and 4. In particular, we find that there is a small negative but statistically insignificant stigma associated with any kind of welfare receipt, and that lagged happiness and initial conditions do matter.

One robustness check we perform involves relaxing the strict exogeneity assumption underlying the dynamic panel probit in columns (1) and (2) of Tables 3 to 6. Using a pooled dynamic probit model with time averages and initial conditions, the APEs for the welfare variables are found to be largely similar in sign and magnitude with the dynamic panel probits (column (3) in Tables 4 and 6). In particular, only DSP is found to be statistically significant. Note that due to the fact that individual specific effects are not modelled, the APE on lagged happiness in the pooled model is considerably larger (approximately three times the magnitude) than in the dynamic panel probits, as the former do not distinguish between unobserved heterogeneity and state dependence.

Table 5: Coefficients for Dynamic Random Effects Probit Models, Aggregate Welfare Measure

	Heckman estimator (rescaled)	Wooldridge estimator (re-scaled)	Pooled Dynamic Probit
Lagged happiness	0.296*** [0.000]	0.276*** [0.000]	0.823*** [0.000]
Male	-0.127*** [0.000]	-0.125*** [0.000]	-0.122*** [0.000]
Aboriginal or Torres Straits Islander	0.051 [0.600]	0.071 [0.474]	0.049 [0.573]
Born in non-english speaking country	-0.253*** [0.000]	-0.227*** [0.000]	-0.179*** [0.000]
Mother has degree/diploma	0.015 [0.615]	0.018 [0.545]	0.019 [0.472]
Father has degree/diploma	-0.005 [0.846]	-0.031 [0.280]	-0.026 [0.311]
Number of siblings (Wave 3)	-0.009 [0.338]	-0.006 [0.533]	-0.006 [0.481]
Living with both parents (Wave 3)	0.076 [0.348]	0.029 [0.718]	0.037 [0.600]
Living only with mother (Wave 3)	-0.095 [0.274]	-0.104 [0.226]	-0.081 [0.293]
Living only with father (Wave 3)	0.105 [0.343]	0.089 [0.422]	0.095 [0.343]
In school	-0.119** [0.014]	-0.120** [0.018]	0.036 [0.118]
Currently working	0.027 [0.339]	0.029 [0.338]	0.027 [0.394]
Any welfare payments	-0.039 [0.227]	-0.042 [0.218]	-0.048 [0.194]
Log income	0.008* [0.085]	0.009* [0.068]	0.012** [0.022]
m(In school)	0.271 [0.170]	0.168 [0.397]	-0.038 [0.813]
m(Currently working)	0.106* [0.086]	0.085 [0.178]	0.067 [0.253]
m(Any welfare payments)	-0.239*** [0.005]	-0.229*** [0.010]	-0.184*** [0.026]
m(Log income)	0.009 [0.377]	0.010 [0.313]	0.007 [0.413]
Initial happiness		0.599*** [0.000]	0.370*** [0.000]
Constant	-0.096 [0.340]	-0.299*** [0.003]	-0.561*** [0.000]

Notes: * significant at the 10 per cent level; ** significant at the 5 per cent level; *** significant at the 1 per cent level. *P*-values in parentheses. The variables *m*(.) are the means of the variable in parentheses over time. The Heckman and Wooldridge estimators include time dummies. Significance in the Heckman and Wooldridge estimators are based on base coefficients, not rescaled coefficients.

Table 6: Average Partial Effects for Dynamic Random Effects Probit Models and Bias Corrected Least Squares Dummy Variable Model, Aggregate Welfare Measure

	Heckman estimator (1)	Wooldridge estimator (2)	Pooled Dynamic Probit (3)
Lagged happiness	11.57***	10.31***	31.06***
Male	-4.94***	-4.58***	-4.20***
Aboriginal or Torres Straits Islander	1.97	2.57	1.67
Born in non-english speaking country	-9.85***	-8.31***	-6.19***
Mother has degree/diploma	0.58	0.65	0.64
Father has degree/diploma	-0.22	-1.14	-0.89
Number of siblings (Wave 3)	-0.35	-0.20	-0.18
Living with both parents (Wave 3)	2.94	1.06	1.29
Living only with mother (Wave 3)	-3.69	-3.82	-2.78
Living only with father (Wave 3)	4.04	3.24	3.26
In school	-4.64**	-4.38**	1.25
Currently working	1.07	1.04	0.92
Any welfare payments	-1.54	-1.53	-1.64
Log income	0.32*	0.32*	0.37**
Initial happiness		22.85***	13.29***

Notes: * significant at the 10 per cent level; ** significant at the 5 per cent level; *** significant at the 1 per cent level.

6. Conclusion

The empirical approach taken in this paper attempts to measure the magnitude of the welfare stigma effect in the presence of over-time persistence of well-being and unobserved heterogeneity. By modelling a dynamic structure that approximates initial conditions, we attempt to capture an initial setpoint of happiness, a concept which has found increasing acceptance in the psychology literature (see Lucas et al. 2003 and the references therein). As the dynamics of the adjustment process towards baseline levels of well-being is currently not well understood, allowing for past happiness to affect current happiness in a dynamic panel setting is one way forward. We also aim to incorporate the effect of omitted characteristics such as unobserved personality traits by a random effects specification that includes time averages of exogenous regressors. In addition, in such dynamic quasi-fixed effects models, given that the focus is not on interpreting the magnitude of state dependence, the lagged dependent variable arguably plays a similar role as fixed effects would and could capture the effects of any omitted variables in the model.

The key focus of this paper is an attempt to answer how receipt of income support payments affects the well-being of youths. Based on estimating dynamic panel probit models with quasi-fixed effects on a 1997-2004 panel from a nationally representative survey of Australian youths, we find little evidence to support the notion that there exists a significant welfare stigma effect for youths on income support. This finding is in contrast with the general finding in the literature of a welfare stigma effect for adults on welfare.

One possible explanation is that low-income youths under age 18 who receive Youth Allowance (the program which most youths on income support are on) have the benefits paid to their parents and do not receive the benefits directly. In this case, the link to the notion of receiving welfare is rather indirect. Another possible explanation is that youths often have youth agencies or guidance counsellors they can turn to that serve to act as intermediaries between the central welfare offices (Centrelink) and themselves. Having such a buffer also reduces any likely negative psychological impacts of having to liaise with welfare case workers directly.

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