

The Effects of Macroeconomic Conditions on the Education and Employment Outcomes of Youth

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Abstract

This paper examines the impact of macroeconomic conditions on the education and employment outcomes of youths in school-to-work transition. The dataset is based on five cohorts from the Youth in Transition surveys (YIT) and the Longitudinal Surveys of Australian Youth (LSAY) and covers the period from 1985 to 2006, long enough to control explicitly for different macroeconomic conditions. The multivariate analyses show that both the unemployment rates, and to a lesser extent economic growth rates impact on youths' education and employment outcomes. Although the effects vary significantly by gender and education level, overall the results reveal that poor macroeconomic conditions tend to drive young people out of full-time work and into inactivity or part-time work. Young men who did not complete secondary school suffer the largest increase in unemployment risks as the unemployment rate increases.

JEL classification: E24; I21; J24

1. Introduction

This study examines the effects of macroeconomic conditions on the education-employment outcomes of youths in school-to-work transition by combining the Youth in Transition surveys (YIT) and the Longitudinal Surveys of Australian Youth (LSAY). Unlike the existing studies focusing either on employment or on education, this study investigates jointly post-school education and labour force

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participation. This is achieved by combining education and labour market outcomes in a multinomial logit specification. This reflects the interactions between both outcomes, with combining or switching between study and work a common practice among youths. This paper also contributes to the literature in the following aspects. Firstly, the analysis is carried out on data collected from 1985 to 2006, which is a long enough period to control explicitly for both poor and good macroeconomic conditions. Secondly, the macroeconomic data used reflect state differences in GDP growth and state and gender differences in unemployment, thus capturing the relevant macroeconomic environment of each young individual. Thirdly, the rich information in the survey data enables human capital endowments and socioeconomic backgrounds to be controlled for in the model. Cohort effects are also taken into account, as youths in different cohorts potentially faced structurally different social and labour market environments. Finally, because education level plays a major role in the school-to-work transition, the modelling approach allows youths with different levels of education to respond differently to changes in macroeconomic conditions.

The finding that youths entering the labour market face more difficulties in securing employment in periods of high unemployment has been documented in a multi-country study by the OECD (1998) and by Stevens (2007) for Germany. For Australia, analysing data collected between 1980 and 1994, Marks and Fleming (1998) found that young Australians were more sensitive to increases in the unemployment rate than the general population. Moreover, unemployment spells while young are likely to have long lasting (scarring) effects. For example, a recent study by Bell and Blanchflower (2010) finds evidence that 'spells of youth unemployment have harmful impacts on a number of outcomes – happiness, job satisfaction, wages and health – many years later'. Assessing how the youth labour market is affected by macroeconomic conditions can provide insights for policy makers particularly in the provision of opportunities for post-school education and employment.

The paper is structured as follows. Section 2 provides a description of the modelling approach and the data. The results are discussed in section 3 followed by the conclusions in section 4.

2. The Data and Empirical Strategy

The Empirical Strategy

In this study, youths who have left school are classified into seven mutually exclusive categories: 1) working full-time; 2) studying and working full-time; 3) studying and working part-time; 4) studying and not working; 5) working part-time; 6) unemployed and 7) not in the labour force (and not studying).

Jointly considering education and employment decisions provides a better framework to understand school-to-work transitions than a simple framework focusing on either labour market or education outcomes. A multinomial logit model is used to model these discrete multiple choices.^{1,2} Assume that the indirect utility function for a young individual i having education and labour market status j is given by:

$$U_{ji}^* = \alpha_j X_i + \beta_j W_i + \zeta_{ji}$$

where $j = \begin{cases} 0 & \text{working full-time (and not studying)} \\ 1 & \text{studying and working full-time} \\ 2 & \text{studying and working part-time} \\ 3 & \text{studying and not working} \\ 4 & \text{working part-time (and not studying)} \\ 5 & \text{unemployed (and not studying)} \\ 6 & \text{not in labour force (and not studying)} \end{cases}$

$$i = 1, \dots, n.$$

Where, the vector of explanatory variables X_i indicates the cohort, human capital endowments and socioeconomic backgrounds of individual i . The vector W_i reflects the prevailing macroeconomics conditions (GDP growth and unemployment rates) for individual i , and it also includes interactions with educational attainment. α_j and β_j are the corresponding vectors of coefficients for X_i and W_i , respectively, and for each alternative j . The model is estimated separately for males and females by maximum likelihood. The utility associated with the base category (full-time work) is normalised to zero.

Sample

The analysis is based on data from the Youth in Transition surveys (YIT Cohorts 65, 70 and 75) and the Longitudinal Surveys of Australian Youth (LSAY Cohorts 95 and 98). The YIT Cohorts 65, 70 and 75 surveyed young people born in 1965, 1970 and 1975 respectively. The respondents were surveyed annually from about 14 to 30 years

¹ See Greene (2002) for an introduction to multinomial logit models and examples of application. The multinomial logit model has a closed functional form and can handle a relatively large number of categories. It also has the less desirable property to rely on the assumption of independence of irrelevant alternatives (IIA). However, when modelling a dependent variable with seven outcomes, it is computationally intractable to account for the correlations between the outcomes. Moreover, it is difficult, in practice, to find alternative specific variables to identify the extra correlation parameters in the model.

² The Hausman's (1978) specification tests we carried out support the IIA assumption, with Chi-square values above 2.3 in absolute terms, the only exception being the Hausman test carried out by dropping the full-time work (and not studying) category. However, noting that the IIA axiom is 'implausible for alternative sets containing choices that are close substitutes', McFadden (1974) suggests that multinomial logit models should be applied 'where the alternatives can plausibly be assumed to be distinct and weighed independently in the eyes of each decision-maker'. It seems reasonable to assume that this statement applies to the seven alternatives considered in this paper. In addition, we have performed the Wald tests of whether any pair of categories can be combined and the null hypothesis was rejected at the one per cent level for each of these tests.

of age, depending on the cohort. LSAY 95 and 98 follow a group of young people who were in Year 9 in 1995 and 1998, respectively.³ LSAY 95 was discontinued in 2006 while LSAY 98 continued until 2008. The focus of this study is on young people who are over 18 and have left secondary school (either before or after completing Year 12).⁴ Appendix table A1 presents the distribution of the sample across the cohorts. All observations from the five cohorts are pooled together to obtain a large sample of youths presenting a maximum of variation in the economic conditions they experienced. The dataset consists of 8,955 males and 10,418 females with total numbers of observations of 43,166 and 53,939, respectively, and covers the period between 1985 and 2006.

Education and Labour Market Outcomes

Table 1 presents the labour force and education statuses of young people by education level. Studying here only refers to post-secondary study since observations of studying at school are excluded from the sample.

Table 1 - Education and Labour Force Status by Education Level and Gender (in per cent, unweighted)

Education	Studying			Working & not studying		Unemployed	Not in the labour force (& not studying)	No. of observations
	Working		Not in the labour force	Full-time	Part-time			
	Full-time	Part-time						
Males								
Year 11 or less	10.2	1.5	2.0	72.4	4.6	5.1	4.2	8,066
Year 12	11.7	25.7	15.5	37.3	5.5	1.7	2.7	23,364
Certificate	12.7	10.5	8.3	56.7	6.3	2.9	2.7	8,321
University	11.7	10.0	8.1	55.8	8.8	2.0	3.6	3,415
All males	11.6	17.0	11.0	49.1	5.8	2.6	3.1	43,166
Females								
Year 11 or less	5.8	3.1	3.1	49.5	15.1	4.6	18.7	7,286
Year 12	9.5	32.9	13.7	29.4	8.4	1.4	4.8	29,044
Certificate	10.2	13.4	7.8	47.9	11.4	2.9	6.3	11,634
University	10.5	10.3	5.2	58.2	10.5	1.5	3.9	5,975
All females	9.3	22.2	10.0	39.3	10.2	2.2	6.9	53,939

Note: Row percentages sum to 100.

Labour force and education statuses refer to the month of interview, which is between September and December for the vast majority of respondents. Moreover, note that since all observations are pooled together young persons completing Year 12 and then going to university would first appear in the Year 12 row before moving to the university row as their level of education increases. Therefore, observations in the

³ Most young people in Year 9 are 14 or 15 years of age.

⁴ Macroeconomic conditions are likely to also affect school-going behaviours. Indeed, in many ways it could be argued that the impact of macroeconomic conditions on the decision to stay on at school, from Year 10 to Year 12, is crucial. This has been the focus of the early literature in this area. By excluding youths still at school, this study explicitly focuses on another area, namely post-school decisions.

lowest education levels most often relate to younger respondents. Bearing this in mind, the table shows that male and female school completers have a much lower probability of being unemployed than those who have not completed Year 12. Males with an education level below Year 12 are the least likely to be in study and the most likely to have already entered the labour market. Young females with an education level below Year 12 exhibit a similar pattern, although they are less likely to be working and more likely to be out of the labour force. As one would expect, the majority of secondary school completers are enrolled in post-secondary education. As this group contains many university students, only a relatively small proportion is working (and not studying) or looking for a job. The proportion not-in-the-labour-force is higher among females than among males and this proportion decreases with the level of education.

Explanatory Variables from the Surveys

Individual characteristics controlled for in the model include demographics (age, country of origin), human capital endowments (current education level, school type, achievement in numeracy and literacy) and family and socioeconomic backgrounds (number of siblings, parental education and employment status).⁵ The means of these variables presented in Appendix tables A1 and A2 reflect the distribution of the observations across each category. Age, as well as numeracy and literacy, have been decomposed into dummy variables, to allow for non-linearity. Since the dataset is based on five cohorts with overlapping observations over time, for a given age, observations can come from different calendar years. This allows the multivariate analysis to disentangle the effects of age and time-specific economic conditions.

Appendix tables A1 and A2 show that most of the observations in the dataset relate to young people less than 23 years of age with a current education level of Year 12. Most young people come from a two-income household and the proportion of parents with post secondary education is low. As for numeracy and literacy, the quintiles are compiled within each cohort of YIT and LSAY surveys based on the full sample when the tests were conducted (that is, in Year 9 for LSAY and at age 14 for YIT).⁶

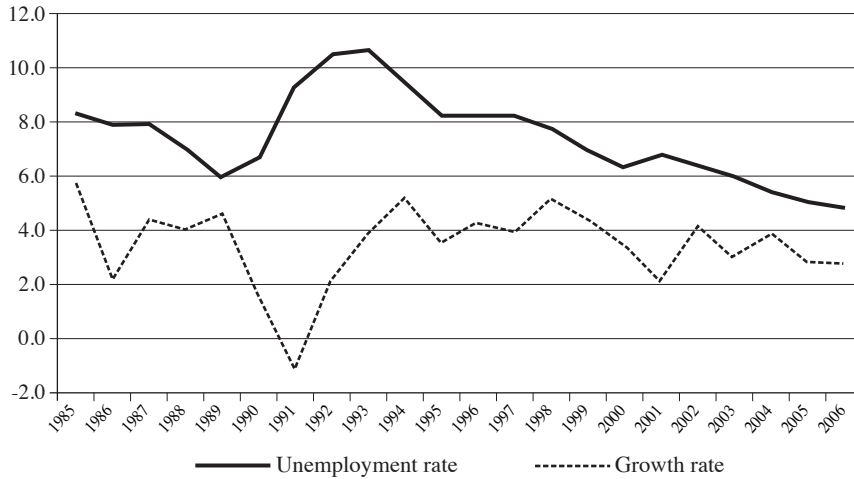
External Explanatory Variables: Macroeconomic Conditions

Macroeconomic conditions are measured by annual Gross Domestic Product (GDP) growth rates and unemployment rates. Annual GDP growth is available at the national level prior to 1991 (ABS 2008a) and by state from 1991 onwards (ABS 2008b). Monthly unemployment rates are available by state and gender for the whole period of analysis (ABS 2008c). These macroeconomic indicators have been linked to the individual-level dataset described above. In other words, given the time of interview, the gender and location of the respondent, each observation is matched with the corresponding monthly unemployment rate for the respective state, month and gender group, as well as with the corresponding annual GDP growth rate (at the national level for observations prior to 1991, and at the state-level afterwards).

⁵ Parental employment statuses are not observed in each wave. This information was collected in two different waves in YIT surveys, when the respondent was aged between 19 and 25 years old, in five consecutive waves in LSAY 95, between ages 18 and 23 years, and in three consecutive waves in LSAY 98, between ages 15 and 18 years.

⁶ Due to the effect of attrition and the fact that the dataset does not contain the same number of observations for each individual, tables A1 and A2 show that observations are not equally spread over the five quintiles.

Figure 1 - National Unemployment and Economic Growth Rates (1985-2006, in per cent)



Source: ABS

The macroeconomic data show that GDP growth rates varied greatly over time and across states between 1991 and 2006. For example, Queensland and Western Australia have been experiencing economic growth rates much higher than the national average since 2002. Figure 1 shows there is also great variation in the national unemployment and economic growth rates at the national level between 1985 and 2006. During this period the Australian economy experienced one recession and several years of strong economic growth (over four per cent). The 1991-92 recession resulted in high unemployment levels reaching nearly 11 per cent. Subsequently unemployment declined but remained high until the mid-1990s. The later years have been marked by low unemployment and high economic growth. Fortunately, this study includes periods of moderate and strong economic growth and both high and low levels of unemployment. This enables the econometric analyses to distinguish the independent effects of economic growth and unemployment.

Table 2 presents the distribution of young people across the seven education and employment categories by level of state unemployment. It shows a positive relationship between the proportion of young people being unemployed and state unemployment rates, and the relationship is stronger for males than for females.

This finding is consistent with Marks and Fleming (1998) who found that youth unemployment is sensitive to the national unemployment rate. For females, higher unemployment rates are also associated with higher proportions out of the labour force (and not studying). On the contrary, males tend to stay unemployed rather than withdraw from the labour force (for example by studying) when unemployment rates are above eight per cent.

Table 2 - Education and Labour Force Status by Level of State Unemployment Rate (in per cent, unweighted)

Unemployment rate	Studying		Not in the labour force	Working & not studying		Unem- ployed	Not in the labour force (& not studying)	Total	No. of obser- vations
	Working			Full- time	Part- time				
	Full- time	Part- time							
Males									
<4%	9.0	13.6	7.1	59.4	6.2	1.3	3.4	100	2,995
Between 4% and 6%	10.4	18.9	9.9	49.8	5.9	2.0	3.1	100	13,475
Between 6% and 8%	11.6	18.9	11.9	46.3	5.9	2.1	3.4	100	14,401
>8%	13.6	13.5	12.0	48.9	5.4	4.1	2.6	100	12,295
All males	11.6	17.0	11.0	49.1	5.8	2.6	3.1	100	43,166
Females									
<4%	10.6	17.5	8.1	46.0	10.0	1.0	6.8	100	2,914
Between 4% and 6%	9.4	25.5	9.0	39.2	9.8	1.7	5.4	100	19,442
Between 6% and 8%	9.2	22.4	10.5	38.5	10.3	2.2	6.9	100	19,060
>8%	8.9	17.6	11.3	39.0	10.6	3.2	9.4	100	12,523
All females	9.3	22.2	10.0	39.3	10.2	2.2	6.9	100	53,939

Table 2 also reveals a negative relationship between the proportion of young people working and state-level unemployment rates. Moreover, the proportion in study is at its lowest when the unemployment rate is low (below four per cent) for both males and females. When the unemployment rate is between four and eight per cent, young people are more likely to be studying (and not working part-time). However, the proportion studying declines when the unemployment rate is above eight per cent. Presumably, such high levels of unemployment may lead to more uncertainty regarding the return from further education. It might also make it harder for students to find a part-time job to finance their studies.

3. The Results

The multinomial logit model described in section 2 is used to estimate the effects of prevailing macroeconomic conditions on youths' education and labour market outcomes controlling for human capital endowments, socioeconomic background and cohort effects. Since most individuals in the data have multiple observations, a clustering method is applied to obtain robust standard errors.⁷ Although the model explicitly controls for a broad range of individual characteristics (see section 2.4), this discussion focuses on the effects of education and macroeconomic conditions. of education and macroeconomic conditions.⁸ Tables 3 and 4 present the predicted

⁷ Although we use individual clusters, ideally one would want to use multi-level nested clusters given the different measurement levels of the external explanatory variables. However, multi-level nested clustering in multinomial logit models is technically challenging and the development of such an algorithm is beyond the scope of this paper. See Cameron *et al.* (2011) for a useful discussion of this issue.

⁸ Other marginal effects are reported in Appendix tables B1 and B2. See Héroult *et al.* (2010) for a discussion of these other effects (albeit in a slightly different version of the model).

probabilities of all seven employment and education outcomes and the marginal effects of macroeconomic conditions on these probabilities by level of education.^{9,10} The predicted probabilities can serve as benchmarks to gauge the size of the marginal effects.

Two additional columns in tables 3 and 4 report the sum of the marginal effects for two broad and mutually exclusive categories, that is 'work' and 'study'. We classify the respondents according to their main activity. The 'work' category includes students working full-time, while students working part-time are counted in the 'study' category. Of course, any other grouping of some of the seven outcomes is possible by simply adding up the corresponding marginal effects.

For GDP growth and unemployment rates, which are continuous variables, the marginal effects are the first derivatives of the probability of being in each category. By interacting GDP growth and unemployment rates with education, we can compute these marginal effects for each education level. GDP growth indicates the general performance of the domestic economy, while unemployment reflects not only the strength of the economy but more particularly the state of the labour market.¹¹

Specifically, the level of education refers to the highest education level already achieved. The marginal effects indicate the percentage change of the predicted probabilities after a one-percentage point increase in GDP growth or in the unemployment rate. The following discussion essentially focuses on the marginal effects that were found to be statistically significant, as well as on the two broad categories described above.¹²

Turning to the GDP growth on Panel 2, the largest effects are found for females with a university degree. For each additional point of GDP growth, females in this group see an increase in their full-time work probability by about 1.2 percentage points, accompanied by a 1.5 percentage points decline in their probability of being out of the labour force (0.991 plus 0.471). GDP growth also increases, albeit to a lesser extent, full-time work probabilities (and overall work probabilities) for females with a certificate and for those who did not complete secondary school. The impact is quite different on females with an education level of Year 12. Females in this group become less likely to work and more likely to pursue further education as GDP growth increases.

The impact of GDP growth on males is somewhat smaller in magnitude. Similar to females, those with an education level of Year 12 become less likely to work and more likely to study as GDP growth increases. The effects go in the same direction but are more limited for those who did not complete Year 12. Young people in this group become more likely to work full-time rather than part-time, and more likely to combine work with their study rather than to study and not work, as GDP growth

⁹ In tables 3 and 4, significance is indicated by *** at the one per cent level, ** at the five per cent level and * at the 10 per cent level. The corresponding standard errors are in italics.

¹⁰ All results are unweighted. See Winship and Radbill (1994) for a discussion on the use of sample weights in multivariate analysis.

¹¹ To test the sensitivity of the results, the model was also run under two alternative specifications. In the first (second) specification GDP growth (unemployment) rates were included but not unemployment (GDP growth) rates. The results were barely affected or, if anything, reinforced with quite a few marginal effects becoming slightly larger or slightly more significant.

¹² If not stated otherwise, we refer to these two categories when we mention the probabilities of working or of studying.

Table 3 - Predicted Probabilities and Average Marginal Effects of Macroeconomic Conditions on Employment and Education Outcomes by Level of Education (males, standard errors in italic)

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(1) + (4) + (5)		
			Studying		Not in the labour force		Working and not studying		Part-time		Unemployed		Not in the labour force (and not studying)			STUDY	WORK
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time			
Predicted Probabilities																	
Year 11 or less	0.102 *** 0.001	0.015 *** 0.000	0.020 *** 0.000	0.724 *** 0.002	0.046 *** 0.000	0.051 *** 0.000	0.042 *** 0.000	0.035	0.872								
Year 12	0.117 *** 0.000	0.257 *** 0.001	0.155 *** 0.001	0.373 *** 0.001	0.055 *** 0.000	0.017 *** 0.000	0.027 *** 0.000	0.411	0.545								
Certificate	0.127 *** 0.001	0.105 *** 0.001	0.083 *** 0.001	0.567 *** 0.002	0.063 *** 0.000	0.029 *** 0.000	0.027 *** 0.000	0.187	0.757								
University	0.117 *** 0.001	0.100 *** 0.001	0.081 *** 0.001	0.558 *** 0.003	0.088 *** 0.001	0.020 *** 0.000	0.036 *** 0.000	0.182	0.763								
Marginal effects of the GDP growth rate (in percentage points)																	
Year 11 or less	0.194 0.179	0.286 ** 0.142	-0.211 ** 0.102	0.122 0.274	-0.399 *** 0.134	0.040 0.100	-0.031 0.130	0.074	-0.083								
Year 12	-0.330 * 0.179	0.564 *** 0.142	0.227 ** 0.102	-0.410 0.274	0.032 0.134	-0.156 0.100	0.072 0.130	0.791	-0.707								
Certificate	0.004 0.134	-0.081 0.152	-0.233 * 0.133	-0.274 0.198	0.319 *** 0.091	0.033 0.056	0.231 *** 0.063	-0.314	0.049								
University	0.073 0.190	-0.547 *** 0.201	-0.144 0.158	0.323 0.296	0.136 0.166	-0.027 0.095	0.187 0.123	-0.691	0.532								
Marginal effects of the unemployment rate (in percentage points)																	
Year 11 or less	0.284 0.194	0.125 0.150	0.108 0.117	-1.419 *** 0.326	0.354 ** 0.156	0.515 *** 0.105	0.034 0.136	0.233	-0.782								
Year 12	-0.900 *** 0.194	-0.171 0.150	0.177 0.117	0.748 ** 0.326	0.158 0.156	0.011 0.105	-0.022 0.136	0.005	0.006								
Certificate	0.304 * 0.168	-0.269 0.209	0.209 0.177	-0.759 *** 0.258	0.110 0.103	0.109 * 0.059	0.296 *** 0.070	-0.060	-0.346								
University	-0.436 ** 0.206	0.143 0.227	0.295 0.190	-0.814 ** 0.340	0.054 0.172	0.109 0.087	0.649 *** 0.118	0.438	-1.196								

Table 4 - Predicted Probabilities and Average Marginal Effects of Macroeconomic Conditions on Employment and Education Outcomes by Level of Education (females, standard errors in italic)

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(1) + (4) + (5)			
	Working		Studying		Not in the labour force		Working and not studying		Part-time		Unemployed		Not in the labour force (and not studying)			(2) + (3)	STUDY	WORK
	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time				
Predicted Probabilities																		
Year 11 or less	0.058 *** 0.000	0.031 *** 0.000	0.031 *** 0.000	0.031 *** 0.000	0.496 *** 0.001	0.151 *** 0.001	0.496 *** 0.001	0.151 *** 0.001	0.046 *** 0.000	0.186 *** 0.001	0.046 *** 0.000	0.186 *** 0.001	0.062	0.705				
Year 12	0.095 *** 0.000	0.329 *** 0.001	0.136 *** 0.000	0.136 *** 0.000	0.294 *** 0.001	0.084 *** 0.000	0.294 *** 0.001	0.084 *** 0.000	0.014 *** 0.000	0.048 *** 0.000	0.014 *** 0.000	0.048 *** 0.000	0.465	0.472				
Certificate	0.102 *** 0.000	0.134 *** 0.001	0.078 *** 0.001	0.078 *** 0.001	0.480 *** 0.001	0.114 *** 0.000	0.480 *** 0.001	0.114 *** 0.000	0.029 *** 0.000	0.063 *** 0.000	0.029 *** 0.000	0.063 *** 0.000	0.212	0.696				
University	0.105 *** 0.000	0.103 *** 0.001	0.052 *** 0.001	0.052 *** 0.001	0.581 *** 0.001	0.105 *** 0.000	0.581 *** 0.001	0.105 *** 0.000	0.015 *** 0.000	0.039 *** 0.000	0.015 *** 0.000	0.039 *** 0.000	0.155	0.791				
Marginal effects of the GDP growth rate (in percentage points)																		
Year 11 or less	0.164 0.148	-0.159 0.196	-0.202 0.126	-0.202 0.126	0.735 ** 0.305	-0.233 0.217	0.735 ** 0.305	-0.233 0.217	-0.115 0.091	-0.189 0.209	-0.115 0.091	-0.189 0.209	-0.361	0.665				
Year 12	-0.055 0.148	0.360 * 0.196	0.196 0.126	0.196 0.126	-0.565 * 0.305	0.005 0.217	-0.565 * 0.305	0.005 0.217	-0.049 0.091	0.108 0.209	-0.049 0.091	0.108 0.209	0.556	-0.615				
Certificate	-0.197 ** 0.100	-0.036 0.140	-0.251 ** 0.108	-0.251 ** 0.108	0.382 ** 0.163	0.201 * 0.105	0.382 ** 0.163	0.201 * 0.105	-0.025 0.044	-0.075 0.086	-0.025 0.044	-0.075 0.086	-0.287	0.386				
University	0.132 0.147	0.028 0.177	-0.991 *** 0.110	-0.991 *** 0.110	1.236 *** 0.261	0.086 0.158	1.236 *** 0.261	0.086 0.158	-0.020 0.060	-0.471 *** 0.132	-0.020 0.060	-0.471 *** 0.132	-0.963	1.454				
Marginal effects of the unemployment rate (in percentage points)																		
Year 11 or less	-0.184 0.234	-0.070 0.280	-0.448 ** 0.192	-0.448 ** 0.192	-0.324 0.495	0.842 *** 0.323	-0.324 0.495	0.842 *** 0.323	-0.032 0.123	0.216 0.315	-0.032 0.123	0.216 0.315	-0.518	0.335				
Year 12	-0.616 *** 0.234	0.440 0.280	-0.092 0.192	-0.092 0.192	-0.376 0.495	0.205 0.323	-0.376 0.495	0.205 0.323	0.129 0.123	0.310 0.315	0.129 0.123	0.310 0.315	0.347	-0.787				
Certificate	-0.410 *** 0.144	-0.024 0.224	0.199 0.160	0.199 0.160	-0.708 *** 0.242	0.394 *** 0.144	-0.708 *** 0.242	0.394 *** 0.144	0.086 0.062	0.462 *** 0.127	0.086 0.062	0.462 *** 0.127	0.175	-0.724				
University	-0.048 0.215	1.431 *** 0.250	-0.026 0.160	-0.026 0.160	-3.202 *** 0.370	1.038 *** 0.210	-3.202 *** 0.370	1.038 *** 0.210	0.010 0.082	0.797 *** 0.187	0.010 0.082	0.797 *** 0.187	1.405	-2.212				

increases. For all young people with a certificate or a university degree, GDP growth reduces the probability of pursuing further study and increases their employment probabilities. This suggests that pursuing further study may be a deliberate strategy to delay labour market entrance in times of poor macroeconomic conditions. A difference between males and females is that although GDP growth tends to reduce the probability to be out of the labour force (and not studying) for females, it seems to have the opposite effect on males, especially on those with a certificate.

Panels 2 and 3 in tables 3 and 4 show that the unemployment rate has more pronounced effects on youths' education and employment outcomes than GDP growth. As unemployment rises, all males, except those with an education level of Year 12, face a decline in their full-time work (and overall work) probabilities and an increase in their unemployment probabilities. In particular, young males with an education level of Year 11 or less suffer the most dramatic increase in unemployment risks. For this group, a one-percentage point increase in the general unemployment rate translates into an increase in unemployment probabilities by more than half a percentage point.^{13,14} In addition, the decline in full-time work probabilities is also accompanied, for this group, by a significant increase in part-time work probabilities.

Young males with a certificate or a university degree become more likely to withdraw from the labour force as the unemployment rate increases. The difference between these two groups is that although those with a university degree experience a sharper drop in their employment probabilities, they face an increase in their probability of studying (and not working full-time) whereas those with a certificate see a decrease.

Again, the results are quite different for young males with an education level of Year 12. They become less likely to study as unemployment rises. This result is driven by the reduction in the probability of combining work and study for full-time workers. A possible explanation is that there might be fewer apprentices or traineeships on offer as the labour market deteriorates. Alternatively, in times of high unemployment, many youths may not see the improved career prospects that higher qualification can bring.¹⁵

All females see a sharp decline in their full-time work probabilities as unemployment rises. The decline is particularly large for females with a university degree, at 3.2 percentage points with each additional point of unemployment. The loss of full-time work opportunities for females with an education level of Year 12 or a certificate when the unemployment situation deteriorates is also reflected in the

¹³ This can be interpreted as a lower-bound estimate of the elasticity of the youth unemployment rate with respect to the general unemployment rate for this particular educational group. It is a lower bound estimate since unemployment probabilities do not correspond exactly to the youth unemployment rate as commonly defined, but rather to the incidence of unemployment among youths. The numerator is the same as in the unemployment rate but the denominator is larger since it also includes (the few) youths out of the labour force.

¹⁴ These results, if converted to odds ratios, would be in the lower range of the estimates found by Marks and Fleming (1998, table A4) for the cohorts born in 1961 and 1965. However, Marks and Fleming (1998) do not distinguish the effects of the unemployment rate by education level and do not find any significant effect for the 1970 cohort.

¹⁵ Most trainees and apprentices are classified as students working either full-time or part-time. Unfortunately, a clear distinction between trainees and apprentices and other students could not be made consistently in the dataset due to the poor quality of the information available in this regard in YIT surveys.

significant reduction in the probability of combining study and full-time work. For all females, this decline in full-time work probabilities is associated with an increase in the probabilities of withdrawing from the labour force or of working part-time. The former may reflect an increase in the number of discouraged job seekers while the later possibly indicates that employers are more inclined to offer part-time rather than full-time positions as the labour market deteriorates, and more particularly in sectors with large female participation such as the service industries.

As unemployment rises, young females with a university degree become more likely to pursue further study, and thus to delay their entry into the labour market. By contrast, females with an education level of Year 11 or less see a drop in their probability of studying.

4. Conclusion

This study examined the effects of macroeconomic conditions on education and employment outcomes of young people after they have left school, controlling for human capital endowments and socioeconomic background. The main finding is that the effects of macroeconomic conditions on education and employment outcomes differ greatly by gender and by level of education. Overall, the effects of GDP growth are rather positive, encouraging youths with no post-school qualifications to invest in further education and facilitating school-to-work transitions for others. As GDP growth increases, (i) those who already have post-school qualifications become more likely to work and less likely to pursue further study; (ii) by contrast, young people with a highest education level of Year 12 become more likely to study and less likely to work; (iii) males with education level of Year 11 or less become more likely to pursue further education and slightly less likely to work; (iv) there is no significant effect on unemployment probabilities. However, females with education level of Year 11 or less become less likely to study and more likely to work (and rather full-time than part-time).

Overall, the effects of the unemployment rate appear to be more important than those of GDP growth. Although the effects vary significantly by gender and education level, overall the results reveal that increases in the unemployment rate tend to drive young people out of full-time work and into unemployment, inactivity or, especially for females, into part-time work. In addition, it tends to discourage further education for males with no post-school qualification. By contrast, females with a university degree become significantly more likely to pursue further education and less likely to work, thus delaying their entry on the labour market. For females with Year 12 or a certificate, the negative effect on the probability of studying is driven by the decrease in the probability of combining full-time work and study. Although all males see an increase in unemployment risks as the unemployment rate increases, those who did not complete secondary school experience the largest increase. For females, the increase in unemployment risks is smaller than for males and not significant. Another negative impact of higher unemployment rates is the significant increase in the probability of being out of the labour force (and not studying) for both males and females with a certificate or a university degree.

These results emphasise the fact that the impacts of macroeconomic conditions vary greatly by education level and by gender. The contribution of this study was to estimate the net effects for each group. Our findings confirm the results of earlier studies (see OECD, 1998; Stevens, 2007; Marks and Fleming, 1998) regarding the

sensitivity of the education and employment outcomes of young people with respect to macroeconomic conditions. Given the evidence that bad starts on the labour market are likely to have long lasting (scarring) effects, the results of this study should provide insights for policy makers in designing government policies targeting particular groups of young people depending on the prevailing macroeconomic conditions, in particular in times of high unemployment. The aim of these policies should be (i) to avoid the waste and/or depreciation of human capital affecting young people with post-school education withdrawing from the labour force or falling into unemployment; (ii) to limit both the over- and underinvestment in education likely to occur because of the effects of macroeconomic conditions.

The finding that the effects of macroeconomic conditions vary by education level and gender suggests that these effects may work through different channels. For example, on the one hand, better macroeconomic conditions may encourage some young people to enrol in post-school education because it reduces the uncertainty about returns to education and it makes it easier to find a job to support the study's financial costs. On the other hand, better macroeconomic conditions also make early entry on the labour market easier and possibly more attractive. Exploring the channels through which macroeconomic conditions affect education and employment outcomes of young people should be the topic of much needed further research.

Appendix

Appendix A: Summary Statistics for the Regression Sample

Table A1 - Sample Sizes of YIT and LSAY Cohorts Over Time

Year	Youth in Transition			LSAY		Total
	65	70	75	95	98	
1985	1,780	0	0	0	0	1,780
1986	1,457	0	0	0	0	1,457
1987	1,826	0	0	0	0	1,826
1988	1,609	1,438	0	0	0	3,047
1989	1,457	1,483	0	0	0	2,940
1990	1,327	1,319	0	0	0	2,646
1991	1,458	1,450	0	0	0	3,224
1992	1,344	1,311	316	0	0	5,041
1993	1,332	1,146	2,386	0	0	5,273
1994	1,338	1,041	2,795	0	0	4,701
1995	1,119	0	2,322	0	0	3,130
1996	0	0	2,011	0	0	1,932
1997	0	0	1,932	10	0	1,865
1998	0	0	1,855	478	0	2,023
1999	0	0	1,545	5,123	0	6,528
2000	0	0	1,405	4,210	27	5,409
2001	0	0	1,172	3,298	594	4,926
2002	0	0	1,034	3,404	4,791	8,195
2003	0	0	0	3,149	5,398	8,547
2004	0	0	0	2,976	5,058	8,034
2005	0	0	0	3,010	5,146	8,156
2006	0	0	0	2,412	4,013	6,425
Total	16,047	9,188	18,773	28,070	25,027	97,105

Note: Sample size numbers do not include secondary school students and respondents under 18 years of age.

Table A2 - Sample Statistics for Males(a) (unweighted results)

	Studying		Not in the labour force	Working & not studying		Unem- ployed	Not in the labour force (& not studying)	ALL
	Working			Full- time	Part- time			
	Full- time	Part- time						
Year 11 or less	0.16	0.02	0.03	0.28	0.15	0.37	0.26	0.19
Year 12	0.54	0.82	0.76	0.41	0.52	0.35	0.48	0.54
Certificate	0.21	0.12	0.15	0.22	0.21	0.22	0.17	0.19
University	0.08	0.05	0.06	0.09	0.12	0.06	0.09	0.08
Public secondary school	0.65	0.47	0.58	0.72	0.64	0.78	0.67	0.65
Catholic secondary school	0.21	0.27	0.22	0.18	0.21	0.15	0.20	0.20
Independent secondary school	0.14	0.26	0.21	0.11	0.15	0.07	0.14	0.15
Reading score: Quintile 1	0.12	0.05	0.07	0.15	0.14	0.24	0.18	0.12
Quintile 2	0.15	0.11	0.12	0.18	0.15	0.18	0.19	0.16
Quintile 3	0.19	0.15	0.16	0.20	0.18	0.19	0.18	0.19
Quintile 4	0.22	0.24	0.23	0.19	0.20	0.17	0.19	0.21
Quintile 5	0.33	0.45	0.41	0.27	0.32	0.22	0.26	0.33
Math score: Quintile 1	0.08	0.04	0.05	0.11	0.12	0.23	0.16	0.09
Quintile 2	0.14	0.08	0.10	0.18	0.17	0.19	0.19	0.15
Quintile 3	0.14	0.11	0.10	0.16	0.14	0.15	0.15	0.14
Quintile 4	0.24	0.22	0.24	0.23	0.23	0.19	0.21	0.23
Quintile 5	0.40	0.55	0.51	0.32	0.34	0.24	0.28	0.39
Age category: 18-19	0.30	0.38	0.42	0.16	0.28	0.26	0.36	0.26
20-21	0.29	0.38	0.35	0.25	0.30	0.32	0.24	0.29
22-23	0.21	0.18	0.17	0.27	0.25	0.24	0.23	0.23
24-25	0.12	0.04	0.04	0.17	0.11	0.08	0.09	0.12
26-27	0.05	0.01	0.01	0.09	0.04	0.06	0.05	0.06
28-30	0.03	0.00	0.01	0.06	0.02	0.04	0.03	0.04
Australian born	0.93	0.89	0.85	0.93	0.92	0.90	0.91	0.91
English speaking migrant	0.03	0.04	0.03	0.03	0.03	0.05	0.04	0.03
Non-English speaking migrant	0.04	0.08	0.12	0.03	0.04	0.05	0.05	0.05
No sibling	0.05	0.04	0.05	0.05	0.05	0.08	0.06	0.05
1 sibling	0.33	0.37	0.36	0.31	0.34	0.28	0.30	0.33
2 siblings	0.34	0.34	0.32	0.33	0.34	0.31	0.35	0.33
3 or more siblings	0.28	0.25	0.26	0.31	0.28	0.33	0.29	0.29
Post-secondary education (parents)								
None	0.46	0.27	0.35	0.51	0.40	0.59	0.41	0.44
1 parent only	0.35	0.44	0.41	0.32	0.38	0.27	0.39	0.36
Both	0.19	0.29	0.24	0.17	0.22	0.13	0.20	0.20
Both parents not employed	0.02	0.01	0.03	0.03	0.02	0.05	0.04	0.03
One parent employed	0.23	0.16	0.24	0.25	0.20	0.28	0.24	0.23
Both parents employed	0.75	0.83	0.74	0.72	0.78	0.67	0.72	0.74

Note: (a) Males over 18 who have left secondary school. Column Proportions.

Table A3 - Sample Statistics for Females(a) (unweighted results)

	Studying		Not in the labour force	Working & not studying		Unem- ployed	Not in the labour force (& not studying)	ALL
	Working			Full- time	Part- time			
	Full- time	Part- time						
Year 11 or less	0.09	0.02	0.04	0.17	0.20	0.29	0.37	0.14
Year 12	0.55	0.80	0.73	0.40	0.44	0.35	0.37	0.54
Certificate	0.24	0.13	0.17	0.26	0.24	0.29	0.20	0.22
University	0.13	0.05	0.06	0.16	0.11	0.07	0.06	0.11
Public secondary school	0.63	0.52	0.62	0.69	0.70	0.79	0.77	0.65
Catholic secondary school	0.25	0.28	0.20	0.21	0.20	0.14	0.16	0.22
Independent secondary school	0.12	0.20	0.17	0.10	0.10	0.07	0.07	0.13
Reading score: Quintile 1	0.06	0.04	0.07	0.08	0.11	0.19	0.12	0.08
Quintile 2	0.13	0.10	0.12	0.16	0.17	0.18	0.20	0.14
Quintile 3	0.20	0.17	0.17	0.21	0.22	0.21	0.21	0.20
Quintile 4	0.21	0.25	0.22	0.22	0.21	0.19	0.19	0.22
Quintile 5	0.39	0.44	0.41	0.33	0.29	0.23	0.29	0.36
Math score: Quintile 1	0.09	0.05	0.08	0.10	0.15	0.22	0.17	0.10
Quintile 2	0.17	0.14	0.16	0.20	0.23	0.25	0.24	0.19
Quintile 3	0.15	0.14	0.15	0.17	0.15	0.17	0.17	0.16
Quintile 4	0.27	0.28	0.26	0.26	0.25	0.20	0.24	0.26
Quintile 5	0.32	0.38	0.36	0.26	0.22	0.16	0.19	0.29
Age category: 18-19	0.22	0.40	0.47	0.15	0.22	0.27	0.16	0.25
20-21	0.28	0.38	0.33	0.24	0.26	0.31	0.21	0.29
22-23	0.24	0.16	0.14	0.28	0.23	0.24	0.21	0.22
24-25	0.15	0.04	0.04	0.19	0.13	0.10	0.15	0.13
26-27	0.07	0.01	0.02	0.09	0.08	0.05	0.13	0.07
28-30	0.04	0.01	0.01	0.05	0.08	0.03	0.14	0.04
Australian born	0.92	0.89	0.85	0.93	0.92	0.93	0.93	0.91
English speaking migrant	0.03	0.04	0.03	0.03	0.03	0.03	0.03	0.03
Non-English speaking migrant	0.05	0.08	0.12	0.04	0.04	0.04	0.03	0.05
No sibling	0.05	0.04	0.04	0.05	0.05	0.04	0.07	0.05
1 sibling	0.34	0.36	0.33	0.32	0.31	0.31	0.23	0.32
2 siblings	0.33	0.35	0.34	0.33	0.34	0.31	0.31	0.34
3 or more siblings	0.28	0.25	0.29	0.30	0.31	0.34	0.38	0.29
Post-secondary education (parents)								
None	0.46	0.32	0.39	0.52	0.52	0.64	0.62	0.47
1 parent only	0.33	0.41	0.37	0.31	0.30	0.24	0.25	0.33
Both	0.21	0.27	0.25	0.16	0.17	0.12	0.13	0.20
Both parents not employed	0.02	0.01	0.02	0.03	0.03	0.06	0.08	0.03
One parent employed	0.22	0.17	0.23	0.24	0.25	0.31	0.26	0.23
Both parents employed	0.76	0.82	0.75	0.73	0.72	0.63	0.66	0.74

Note: (a) Females over 18 who have left secondary school. Column Proportions.

Appendix B. Supplementary Results

Table B1 - Average Marginal Effects of the Control Variables on Employment and Education Outcomes (males, in percentage points)

	Studying						Working and not studying						Not in the labour force (and not studying)					
	Working			Not in the labour force			Full-time			Part-time			Unemployed		Marg. eff. z-value			
	Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value	
Education (reference: less than Year 12)																		
Year 12	1.93	3.02	18.62	35.76	11.32	24.82	-28.41	-27.95	0.15	0.36	-1.96	-6.00	-1.64	-4.93				
Certificate	1.18	1.59	8.26	13.16	5.28	10.41	-13.49	-11.24	1.33	2.59	-1.44	-3.85	-1.11	-2.90				
University	0.62	0.65	7.92	8.92	8.87	8.68	-22.21	-13.61	4.73	5.00	-1.31	-2.46	1.39	1.83				
School type (reference: Government)																		
Catholic	0.69	1.25	5.15	7.96	-0.04	-0.08	-5.32	-6.13	0.12	0.32	-0.53	-2.12	-0.06	-0.25				
Independent	0.63	0.98	6.96	9.83	1.94	3.03	-8.45	-8.61	-0.11	-0.29	-0.91	-3.22	-0.07	-0.23				
Reading score (reference: Quintile1)																		
Quintile 2	-0.73	-0.79	3.32	3.23	1.25	1.41	-2.27	-1.63	-0.91	-1.73	-0.38	-1.02	-0.27	-0.79				
Quintile 3	-1.31	-1.44	3.82	3.68	1.09	1.30	-2.13	-1.53	-0.52	-0.99	-0.48	-1.32	-0.46	-1.25				
Quintile 4	-1.07	-1.15	5.70	5.61	2.21	2.61	-5.26	-3.70	-0.76	-1.41	-0.46	-1.15	-0.37	-0.99				
Quintile 5	-2.02	-2.15	8.17	8.09	2.72	3.28	-8.05	-5.73	0.18	0.32	-0.71	-1.79	-0.30	-0.78				
Math score (reference: Quintile1)																		
Quintile 2	0.91	1.09	-1.42	-1.16	-0.16	-0.16	4.94	3.22	-1.42	-1.97	-1.68	-3.35	-1.18	-2.41				
Quintile 3	1.56	1.72	1.55	1.23	-0.26	-0.28	2.79	1.79	-2.21	-3.08	-2.08	-4.14	-1.35	-2.72				
Quintile 4	1.96	2.22	2.57	2.10	1.98	2.12	0.41	0.27	-2.67	-3.81	-2.33	-4.50	-1.91	-3.96				
Quintile 5	2.26	2.58	6.20	5.11	3.51	3.77	-3.87	-2.56	-3.21	-4.57	-2.64	-5.11	-2.25	-4.60				
Age (reference: 18-19)																		
20-21	-3.23	-6.51	-2.01	-4.24	-5.96	-12.08	12.55	21.53	-0.04	-0.13	0.42	1.81	-1.73	-6.56				
22-23	-5.45	-9.54	-8.71	-14.73	-11.17	-19.23	26.76	35.80	-0.05	-0.12	0.02	0.10	-1.40	-4.58				
24-25	-5.79	-8.29	-13.97	-19.24	-15.33	-24.89	39.66	39.71	-1.61	-3.28	-0.84	-2.86	-2.12	-5.70				
26-27	-6.50	-7.86	-16.15	-19.12	-16.17	-24.57	43.12	34.19	-2.35	-4.19	-0.71	-1.99	-1.24	-2.28				
28-30	-6.70	-6.75	-16.87	-15.63	-16.71	-23.87	43.63	27.28	-0.90	-1.03	-0.96	-2.42	-1.49	-2.44				

Table B1 - Average Marginal Effects of the Control Variables on Employment and Education Outcomes (males, in percentage points) (cont.)

	Studying						Working and not studying						Not in the labour force (and not studying)				
	Working			Not in the labour force			Full-time			Part-time			Unemployed		Marg. eff.	z-value	
	Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value		Marg. eff.	z-value			
Country-of-origin (reference: Australian born)																	
English speaking migrant	-1.07	-0.88	3.04	1.96	0.06	0.05	-4.03	-2.15	0.30	0.41	1.05	1.84	0.65	0.94			
Non-English speaking migrant	-2.24	-2.36	4.75	3.97	11.65	9.89	-13.82	-9.31	-1.15	-2.06	0.88	1.70	-0.07	-0.18			
Siblings (reference: none)																	
One	-1.04	-0.84	1.83	1.49	-1.61	-1.35	2.61	1.54	-0.18	-0.27	-0.87	-1.70	-0.73	-1.35			
Two	-0.80	-0.65	1.97	1.60	-2.29	-1.93	2.49	1.48	-0.22	-0.32	-0.79	-1.53	-0.36	-0.66			
Three or more	-1.61	-1.31	0.90	0.72	-2.43	-2.03	4.17	2.46	-0.11	-0.16	-0.51	-0.99	-0.41	-0.76			
Parents' post-secondary education (reference: None)																	
One	0.46	0.90	3.34	5.54	1.30	2.57	-4.83	-5.85	-0.10	-0.31	-0.54	-2.48	0.37	1.47			
Both	1.38	2.13	4.07	5.61	1.30	2.07	-6.38	-6.37	-0.01	-0.03	-0.29	-0.93	-0.07	-0.27			
Parents' employment status (reference: None)																	
One	1.59	1.24	1.85	0.90	-5.87	-2.64	6.10	2.44	-1.64	-1.56	-1.19	-1.71	-0.85	-0.96			
Both	1.97	1.57	4.26	2.11	-7.92	-3.60	5.43	2.20	-1.17	-1.12	-1.53	-2.19	-1.05	-1.20			
Cohort (reference: YIT 65)																	
YIT 70	-0.62	-0.43	8.49	6.71	1.17	0.84	-7.15	-4.42	-0.89	-1.82	0.76	1.62	-1.76	-4.34			
YIT 75	-0.04	-0.04	8.11	8.08	-2.93	-2.58	-7.46	-5.24	2.35	4.50	1.53	3.20	-1.55	-3.92			
LSAY 95	-8.61	-7.99	10.19	11.67	-4.92	-4.44	-0.31	-0.23	3.25	6.43	-0.69	-1.88	1.09	2.43			
LSAY 98	-11.10	-10.28	7.49	8.65	-6.63	-6.03	6.93	4.99	2.86	5.38	-0.47	-1.25	0.93	1.93			

Table B2 - Average Marginal Effects of the Control Variables on Employment and Education Outcomes (females, in percentage points) (cont.)

	Studying						Not in the labour force (and not studying)								
	Working			Not in the labour force			Working and not studying			Unemployed					
	Full-time	Part-time	Not in the labour force	Full-time	Part-time	Unemployed	Full-time	Part-time	Unemployed	Full-time	Part-time	Unemployed			
Marg. eff.	z-value	eff.	Marg. eff.	z-value	eff.	Marg. eff.	z-value	eff.	Marg. eff.	z-value	eff.	Marg. eff.	z-value	eff.	
Country-of-origin (reference: Australian born)															
English speaking migrant	-0.76	-0.85	2.16	1.60	-0.18	-0.18	-1.13	-0.66	0.61	0.61	-0.17	-0.43	-0.54	-0.65	-0.65
Non-English speaking migrant	-0.79	-1.10	4.72	4.73	9.77	9.77	-10.06	-8.39	-2.04	-2.98	-0.34	-1.16	-1.27	-1.88	-1.88
Siblings (reference: none)															
One	0.60	0.70	1.42	1.10	-1.21	-1.23	0.90	0.56	0.01	0.01	0.49	1.22	-2.21	-2.55	-2.55
Two	-0.21	-0.24	0.61	0.48	-0.92	-0.94	0.87	0.55	0.20	0.24	0.36	0.92	-0.93	-1.06	-1.06
Three or more	-0.12	-0.15	-1.77	-1.36	-0.46	-0.47	1.12	0.70	0.47	0.54	0.52	1.30	0.25	0.28	0.28
Parents' post-secondary education (reference: None)															
One	-0.02	-0.05	3.79	6.63	1.05	2.50	-2.09	-2.74	-1.18	-2.85	-0.58	-3.34	-0.96	-2.43	-2.43
Both	0.67	1.29	4.59	6.90	2.25	4.22	-5.72	-6.47	-0.67	-1.30	-0.31	-1.23	-0.80	-1.64	-1.64
Parents' employment status (reference: None)															
One	1.64	1.55	0.47	0.24	-1.06	-0.73	3.96	1.84	0.56	0.48	-1.37	-1.98	-4.21	-3.35	-3.35
Both	1.94	1.89	2.94	1.53	-2.70	-1.90	3.97	1.87	-0.24	-0.21	-2.06	-3.00	-3.84	-3.04	-3.04
Cohort (reference: YIT 65)															
YIT 70	-2.81	-2.79	8.37	7.18	3.38	2.95	-8.64	-5.50	0.00	0.01	1.19	2.69	-1.50	-2.20	-2.20
YIT 75	-2.83	-3.26	11.44	12.61	0.29	0.33	-11.69	-9.25	4.13	6.49	0.87	2.53	-2.19	-3.92	-3.92
LSAY 95	-4.59	-5.35	14.36	15.70	-2.74	-3.16	-12.57	-9.53	4.89	7.78	-0.69	-2.32	1.34	1.95	1.95
LSAY 98	-5.28	-6.12	11.99	13.11	-4.81	-5.64	-8.25	-6.07	5.70	8.16	-0.54	-1.80	1.20	1.72	1.72

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