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Higher Education, the Bane of Fertility?
An investigation with the HILDA Survey

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ABSTRACT

This paper uses the first wave of HILDA in an analysis of the determinants of fertility, focusing in particular on the role of education. Estimating lifetime fertility from micro data sets is generally quite difficult since a large proportion of the sample, because of their age, will have incomplete fertility. The HILDA survey allows this problem to be addressed, however, because as well as measuring the actual number of children a person has, there is also information on the additional number of children a person expects to parent. Thus it is possible to estimate the determinants of fertility in three dimensions: the actual number of children a person has, the expected future number of children, and total intended lifetime fertility, the sum of the first two.

The analysis is conducted in several stages. First, total intended lifetime fertility is modelled as a function of education and a host of other variables reflecting the opportunity costs and consumption elements of child rearing. The HILDA sample allows control for a host of other factors, reflecting both attitudes and values, and their roles are examined as well. The main result is that education lowers total lifetime fertility, although the strength of this relationship falls importantly with the addition of a range of variables, such as marital history and equivalised household income.

A second set of estimations concerns the determinants of the expected future number of children, controlling for the number of children a person already has. The estimations reveal that more educated people tend to have significantly higher fertility expectations than others, and that the effect is non-linear. The juxtaposition of the results of the two approaches could be interpreted to mean that higher education per se does not lower people's fertility expectation while the more educated tend to defer their fertility and may end up with fewer children due to some unexpected constraints such as deterioration or breakdown in relationship and fecundity problems at later stage. Realising these risks before hand along with appropriate institutional and financial supports from the government may help the educated people to achieve their fertility expectation.

In addition to education, all fertility measures are influenced importantly by, among others: household income (negative for the first and positive for the second); partnering (positive); the significance of religion in people's lives (positive); and values concerning motherhood (positive). Many different specifications were explored with the main conclusions being robust. It is recognised, however, that fertility decisions are likely to be made in combination with a host of other life-cycle issues, such as investment in education, and that the results of the estimations need to be qualified by this reality.

JEL classification: J13; I21

Keywords: Fertility expectation; Education

1. Introduction

The trade-off between the quality and quantity of children for individuals is well known in economics, and it is believed to have contributed to the fertility decline in the developed countries in the last few decades (Becker and Lewis 1973). At the society level, it seems that there also exists such a trade-off in the developed world. As the human capital of individuals has been increasing with increasing education levels, population growth has been slowing down with decreasing fertility. Consequently the growth rate of aggregate human capital in society as a whole is not as fast as it would be if the population grew at a constant rate, and that has important implications for economic growth in the long run.

Many developed countries including Australia have experienced a parallel increasing education level and decreasing fertility, and naturally the fertility decline has been attributed by many economists to the increased level of education, especially that of women. Since the education level will surely continue to increase in the future, it is important to know whether the negative correlation between education and fertility is inherent—increasing education level will inevitably lead to decreasing fertility—or just spurious, and how, if possible, public policy can counteract this effect.

The explanation offered by mainstream economics theory for this concurrence is the increase in opportunity costs associated with child bearing and rearing for women with increasing education. But several points are noteworthy. First, economics theories do not come to any clear-cut conclusions about the negative correlation between schooling and fertility. Second, empirical findings are also inconclusive. Third, the usually observed fertility—the number of children ever had—is just realised fertility, which is affected by many factors other than opportunity costs, such as fecundity and partnering conditions. Compared with realised fertility, fertility expectation may be where opportunity costs present a more plausible explanation. However, in fact, several studies in Australia (Beggs and Chapman 1988; Chapman et al. 2001; Breusch and Gray 2004) find that a mother's forgone lifetime earnings from child rearing have decreased markedly in the last decade or so, especially for more educated women.

According to economic theory, opportunity costs will affect people's fertility decision in terms of both number of children they expect to have and the timing and spacing of births. This paper only looks into the effects of education on fertility expectations in Australia. The analyses are based on the first wave of the HILDA Survey[1], and two kinds of fertility expectations have been investigated with two types of models.

Intended lifetime fertility is analysed with a static one-stage model; the results of estimation show that higher education is associated with lower intended lifetime fertility. However, when marital history and household income are controlled, the correlation becomes insignificant. The difference of education effects on fertility expectation between different age groups is also found to be insignificant.

The expected extra number of children in the future is analysed with a type of dynamic model. Conditional on the number of children ever had and other experiences in the past as well as the current situation, higher education is found to be

[1] See Watson and Wooden (2002) for overview of HILDA. For more information about the HILDA Survey, please refer to the website of Melbourne Institute of Applied Economic and Social Research at http://www.melbourneinstitute.com/.

positively correlated with fertility expectation. The conclusion is robust to various model specifications. Since the more educated people tend to defer their fertility and thus have had fewer children than less educated ones of the same age, the interaction terms of education and number of children ever had are also controlled in some model specifications. The results show that the schooling effects are more significant for women currently with one or two children, and after controlling for household income and marital status, the effects become insignificant.

Compared with the first kind of model, the second kind of model has less serious endogenous problems and utilises more information. Therefore the results are seen to be more reliable. The correlation between education and expected number of children in the future is non-linear, while the more educated people tend to expect more children than the least educated ones, suggesting that the negative effect of education on fertility is not inherent and could be counteracted by appropriate policies.

The remainder of the paper is organised as follows: the next section is literature review, followed by a description of the data and the methodology, then the results of estimation are reported and analysed. The last part is a brief summary and conclusions.

2. Literature review

2.1 World literature on the correlation of fertility and education

Beginning in 1830, sustained fertility decline was reported in France, from where it spread to other Western countries (van de Kaa 1996). Between 1870 and 1930 the median decline of marital fertility in Europe was about 40 percent, and the preceding mortality decline is part of the reason (Lee 2003). Generally, the decline in this period was mainly seen as a function of progress, that included modern education, improved health conditions and economic development (van de Kaa 1996).

However, the problem looms large as the trend continues. In the last few decades the decline has become much more dramatic, and has occured in almost all the developed countries. Now the Total Fertility Rates (TFRs)[2] of many countries in Europe, North America and East Asia are well below the replacement rate[3]. The issues of an aging population are becoming more serious as fertility declines and life expectancy increases, causing strong social and economic pressures. So it is not surprising that the worldwide fertility decline has drawn the attention of demographers, sociologists, economists as well as historians, and many theories have been proposed to reveal the causes of the trend from different aspects.

[2] The total fertility rate for any given year is the sum of age-specific fertility rates for that year. It represents the number of children a woman would give birth to during her lifetime if she experienced the current age-specific fertility rates at each age of her reproductive life. (ABS 2004a)

[3] In Europe, during the period of 1950-2000, the TFR dropped from 2.7 to 1.9 in France, from 2.2 to 1.4 in Germany, from 2.3 to 1.2 in Italy, from 2.6 to 1.2 in Spain, from 2.2 to 1.6 in Sweden. In North America, during the same period it fell from 3.7 to 1.5 in Canada, from 2.2 to 1.6 in the UK, and from 3.5 to 2.1 in the US. The decreases are especially dramatic in some Asian countries, such as Japan (from 2.8 to 1.3), South Korea (from 5.4 to 1.4) and Singapore (from 6.4 to 1.4). Many of the developing countries such as China, India and Viet Nam also have witnessed a rapid decline in fertility. (ABS 2003a)

Parallel with the declining fertility, most developed countries have witnessed decreasing mortality, increasing income and wealth, as well as increasing education and labour force participation of women. These are speculated to be the most important causes and have been the focus of many studies in demography, economics and other fields.

The "Demographic transition" theories of demographers emphasise the importance of decreasing mortality, which makes it possible for parents to have fewer children to achieve their ideal family size (van de Kaa 1996; Castles 2002). However, these theories do not explain why fertility continues to decline well below the replacement rate in many countries. The mainstream economic theories attribute the decline mainly to the increased opportunity costs of child-bearing and rearing for women with higher levels of education and high labour force participation (Schultz 1969; Becker 1991). However, the early economic approaches fail to explain "why fertility transition has occurred in different places under rather different economic conditions, and why initial stage of the transition is so rapid, relative to the more gradual pace of economic change" (Manski and Mayshar 2002:2). Diffusion of innovation and preference, change in culture and incompatibility of employment and child rearing have been emphasised by researchers in other paradigms (Pollak and Watkins 1993).

Though not free from criticism, the economic arguments of opportunity cost and the trade-off between child quality and quantity have provided logical linkages between increasing education levels, labour force participation and income and declining fertility. They have thus provided one of the most persuasive explanations for the worldwide fertility decline, and have been widely accepted.

However, the economic theories in fact do not predict a clear-cut negative correlation between education and fertility. Although more educated women are facing higher opportunity costs of childbrearing, they tend to have higher wages and also tend to have a partner with a higher education and higher income (Becker 1991), therefore they can afford to have more children than less educated women (Pollak and Watkins 1993). In theory, the total effect of increasing income on fertility is not necessarily positive and not necessarily negative either, depending on the elasticity of quality and quantity (Becker and Lewis 1973).

In addition, more educated women tend to defer marriage and fertility[4], thus some women may not finally achieve their desired fertility because of the limited time available for partnering and childbearing or for fecundity reasons. Education may affect family formation, female autonomy and gender equality and thus reduce fertility (Mason 1986; Basu 2002; Bratti 2003). Furthermore, more educated women may desire a smaller family, have better knowledge about contraception, and also experience much better child survival rates. In short, they have a higher ability to control their fertility and achieve their fertility objective (Rosenzweig and Schultz 1985; Schultz 1993; Cheng and Nwachukwu 1997; Lam and Duryea 1999; Basu 2002 and references therein). All these may contribute to the lower fertility of more educated women.

Furthermore, Bhat (2002) points out a largely ignored fact, that is, owing to resource constraints children from large families may receive less schooling. Lam and Duryea (1999) also find strong effects of parental schooling on children's schooling in Brazil. So the causation between fertility and education may also occur in reverse. If more

[4] The higher education of women is also associated with a higher divorce rate (Beck 1973).

educated women are more likely to come from small families, and people from small families tend to have fewer children, then the outcome of low fertility may be due to other reasons such as gene and family background, and not necessarily because of attaining more education per se. To sum up, education effects on fertility appear to be very complex and can work through various different channels. Generally, the total effects of education cannot be derived directly from economic theory, but are issues that need to be explained through empirical work.

The empirical findings on the correlation between education and fertility are mixed. In the economics literature a negative correlation is frequently reported (Rosenzweig and Schultz 1985; Easterlin 1987; Becker 1991; Sander 1992; Schultz 1993; Lam and Duryea 1999). However, some studies have shown evidence of a positive association—Bratti (2003) has listed a few, for instance, Ben-Porath (1973) and Danziger and Neuman (1989) for Israel, and Moffitt (1984) for the US. Some other papers find the correlation is not monotonic or insignificant. For instance, Bratti (2003) finds that the marital fertility of women with upper secondary schooling is the highest; the sample was restricted to married women aged between 21 and 39. Bloemen and Kalwij (2001) (cited in Bratti 2003) find no significant effect of an increase in years of schooling on the completed fertility of women in the Netherlands, though it causes a woman to schedule her births later. Applying the technique of time series analysis, Cheng and Nwachukwu (1997) show that in Taiwan, more education does not Granger-cause lower fertility either. In the context of developing countries, Jejeebhoy (1995) concludes that the effect of female schooling is highly context-specific, varying by region, time and development stage.

2.2 The fertility and education profile in Australia

The mixed findings in the literature highlight the importance of the specific context of female education level. The fertility profile of Australia shares the basic features of other developed countries, but exhibits some unique characteristics too.

1. Total fertility rate (TFR) has been continuously decreasing for about forty years. Since 1961 when the TFR peaked at 3.5 babies per woman due to the "baby boom" after the Second World War, the TFR in Australia had been decreasing all the time until 2001 it reached an all-time low of 1.73 babies per woman (ABS 2003a, 2005).
2. The profile of age-specific fertility has changed greatly: fertility among younger women (especially the 20-24 age group) has declined while fertility for the older women has increased over the last two decades. In 2002 women aged 30-34 experienced the highest fertility among all the age groups (ABS 2003a).
3. Median age of parents[5] has been increasing for several decades. After three-decades of decrease, in 1971 the median age of mothers reached a low of 25.4 years. However, since 1972 the median age of mothers has continuously increased. In 2003 it reached 30.5 years. The median age of all fathers increased from 29.9 years in 1982 to 33.3 years in 2002 too. In the meantime, the median age of parents having their *first* nuptial birth has also increased greatly. From 1982 to 2002 the median age of mothers experiencing first nuptial birth and that of fathers increased from 25.5 years to 30.1 years and from 28 years to 32 years (ABS 2003a, 2005).

[5] The age at which half the population is older and half is younger.

4. The proportion of births out of wedlock has been increasing since the 1950s and accelerating over the last two decades. Just after the Second World War, only 4% of all births were exnuptial. In 1982 this increased to 13.7%, and in 1992 the figure rose to 24%. By 2002 exnuptial births accounted for 31.3% of total births and the proportion increased further to 31.6% in 2003. In the meantime, the proportion of paternity-not-acknowledged births in all exnuptial births has been decreasing significantly from 38% in 1982 to 12% in 2002, reflecting the change in society's attitude to exnuptial births (de Vaus 2002a, ABS 2003a, 2005).

5. There has been a growing trend in lifetime childlessness of women. The lowest level of childlessness appeared after the Second World War. Among women born between 1930 and 1946 only 9% or so had not had any children, while in 1986 about one-fifth of women were likely to remain childless. As estimated recently by the Australian Bureau of Statistics, about 24% of women currently in their reproductive years (15-44 years) would have no children at all (ABS 2002).

In the literature, the declining fertility in Australia after the "baby boom" is mainly attributed to the following reasons: changes in social values and attitudes, especially the prevalence of feminism and individualism (Weston and Qu 2001; ABS 2004a); progress in contraceptive technology (Qu et al. 2000; de Vaus 2002b; ABS 2004a); institutional changes, such as the introduction of the Family Law Act 1975, which made divorce much easier, and the reinterpretation of the abortion law in New South Wales in late 1971, which gave women more freedom to control their births[6] (Weston et al. 2001; ABS 2003a). Changes in family formation—low marriage rate, delayed age of marriage, high divorce rate, and instability of marriage, increasing lifetime childlessness, decreasing infant mortality rate and the falling average number of children in families have also been cited as reasons for declining fertility in Australia (Barnes 2001; Fisher and Charnock 2003 and references therein; ABS 2002). The effects of the increasing participation of women in the labour market and education levels, and consequently the increasing opportunity costs for women to bear and rear children, have also been emphasised by many scholars (for example, McDonald 2001a & 2001b; Johnson and Kalb 2002; Castles 2002).

In the last few decades, both the education participation rate and the achieved education level have increased substantially (Le and Miller 2002; ABS 2003b). According to ABS (2003b), from 1992 to 2002, the education participation rate of all aged 15-19 increased from 72.8% to 77.3%, and that of all aged 20-24 increased from 27.1% to 37.2%. Females account for more than half of the higher education students all the time. In 1992, of all people aged 25-64, only 11.3% had gained a Bachelor degree or above, while in 2002 the proportion increased to 20.4%. Among all persons aged 15-64 years with post-school educational qualifications, the proportion of females had increased from 43.6% in 1992 to 46.8% in 2002.

The negative correlation between fertility and schooling is very evident in Australia (see Figure 1 in Day and Dowrick 2004:5). However, it is hard to say which one comes first. For instance, Day and Dowrick (2004) suggest that the decline in fertility is first. As they put it, "The decline in fertility over the past few decades is linked to a

[6] However, although the regulations of state/territories on abortion differ from each other, in general women's freedom on abortion is still limited in Australia. Only in certain circumstances is abortion permitted by the law. For instance, in Victoria an abortion is lawful only if the woman or the doctor "held an honest belief on reasonable grounds that the abortion was both 'necessary' and 'proportionate.'" (Cica 1998)

concurrent strong rise in labour force participation of Australian women as well as a *subsequent* rise in average education attainment" (Day and Dowrick 2004:3, my emphasis).

Thus the relationship between fertility and schooling is very complex, and it is impossible to draw a firm conclusion about which is the cause and which is the consequence. It is quite likely that they are both causes and consequences of each other at different stages. An important and more interesting question is that, given that more educated women tend to have fewer children, lower fertility leads to longer schooling of children, and the children with better education will have fewer children when they grow up, what can be expected about the fertility in the future. It seems certain that the education level will continue to increase. Then, will the fertility continue to decrease, and will it converge to a positive steady state? These are important theoretical issues, which are beyond the scope of this paper. The objective of this paper is to find some empirical evidence for the effects of education on fertility in Australia, and more specifically, on how education affects people's fertility expectation.

According to economic theory, opportunity cost is one of the most important reasons for education affecting people's fertility decisions. Some studies have estimated the forgone earnings of women from child rearing in Australia. Beggs and Chapman (1988) conducted the first trial using a 1986 survey. They found that for a woman with a secondary level education, a first child is associated with about $435,000 (in 1997 terms) lower lifetime earnings (after-tax) than for women with no child, and the forgone earnings for second and third children are respectively $75,000 and $55,000. A re-estimation by Chapman et al. (2001) using data from a 1997 survey shows that the impact of having children upon earnings had decreased greatly after one decade, and in 1997 for a woman with secondary level education the forgone lifetime earnings (after-tax) for having a first child are around $160,000 only. Recently, Breusch and Gray (2004) provide new estimates of a mother's forgone earnings using HILDA data. They arrive at similar conclusions, and find that the forgone earnings for a second and third child are much bigger than those in the former two studies. Their study suggests that a woman having completed year 12 education forgoes around 31% of lifetime potential income for a first child, and an additional 13% and 9% for a second and third child, respectively. They also find that the proportions of forgone earnings are falling with time, more clearly so for women with higher education.

Given the findings that the opportunity costs of rearing children in terms of foregone lifetime earnings of mothers in Australia are decreasing over time, especially for more educated women, it is interesting to know whether this is recognised by the Australian women, and reflected in their fertility expectation. Since more educated women tend to delay their fertility, it is not surprising to find a negative effect of education on realised fertility at a given age, but that does not mean they expect to have fewer children in their lifetime. A recent report by the Australian Institute of Family Studies (Weston et al. 2004) finds that women in their twenties and thirties with lower levels of education were not generally more likely than women with higher levels of education to want to have children but they were more likely to have had children.

So far, no published papers have analysed the effects of education on the fertility expectation in Australia. One most relevant work is a conference paper by Fisher and Charnock (2003) presented at the HILDA Conference 2003. Their focus is the association between selected structural factors and fertility expectation and partnering.

They constructed a measure of expected lifetime fertility by summing up the number of children people ever had and the number of children they would like to have in the future. Then they considered three parity progressions: from zero to one or more children, from one to two or more children, and from two to three or more children. They studied men and women separately in three age groups: 18-29 years, 30-49 years and 50+ years. Logistic regressions were applied. They found that women's education is clearly linked to higher expectations of childlessness, yet it is far less important in understanding expectations for one child and two child families. They also suggested that the higher rates of childlessness among higher educated women can be partially explained by their lower likelihood of being partnered, and that work involvement, rather than education per se, is more important in understanding the tendency for women to expect to have fewer children.

From the point of view of economists, one big weakness of the paper of Fisher and Charnock (2003) is that it does not consider the endogenous problems of some key explanatory variables, such as partnering status, labour force status, income, and also education, which often worry many economists a lot.

A paper by Yu, Kippen and Chapman (2004), presented at the 12th Biennial Conference of Australian Population Association, is also based on the HILDA survey and constructs a variable of lifetime fertility in the same way. The main focus of the paper is evaluating the HECS effects on people's intended lifetime fertility, and no significant effect was found. It also shows that education affects the intended lifetime fertility of men and women differently. For women, the higher the education level, the significantly lower the lifetime fertility. For men, on the contrary, those with higher education tend to expect more children in their lifetime.

This paper uses explanatory variables similar to those used by Yu, Kippen and Chapman (2004) but tries to answer different questions with a more restrictive sample (25-44 years). It attempts to find out whether in Australia more educated people expect to have fewer children as predicted by the opportunity-cost argument and to look at the difference by age group. The expected lifetime fertility and the expected extra number of children will be analysed with more complicated econometric methods.

3. Data and Methodology

3.1 Data

The dataset used in this research is the Household, Income and Labour Dynamics in Australia (HILDA) Survey (first wave, release 2.0), which is a household-based panel study initiated and funded by Department of Family and Community Services (FaCS) and conducted by Melbourne Institute of Applied Economic and Social Research, Australian Council for Education Research and Australian Institute of Family Studies. The survey began in 2001, and interviews are conducted annually. Up to now there are three waves available. In this research, only the first wave is used.

HILDA contains many variables: family formation, fertility, labour force participation, education, childcare, income and wealth. It is very rich in fertility and other family related information, such as the total children ever had, the intention of

having more children in the future and how many more[7], marital status and times of legal marriage, and many variables relating to child care. More interestingly, HILDA survey also asks many questions about people's religiosity, and attitudes to job and family, which may affect people's fertility preference as well as the perceived costs and benefits of children but these are rare in other surveys. To some extent they also can help the researcher control for the unobserved heterogeneity and make estimations more reliable.

Although three waves of HILDA are available, only one wave is used in this paper because given its short time span many important variables have hardly changed and some are only contained in one wave. So the analyses presented here are just cross-sectional.

The sample used in the estimation consists of people aged between 25 and 44. Since the key questions of interest are the effects of education on the intended lifetime fertility and the expectation of more children in the future, and no female older than 44 in the Survey expected to have more children in the future, only those younger than 45 were retained. To be consistent with the female sample, the male sample was also restricted to those younger than 45. The lower bound of age, 25, was chosen mainly because at that age most people are likely to have finished their full-time education. In fact in the HILDA Survey, the vast majority of people (about 99%) had finished their full-time education before age 25 except a few who were still studying.

Table 1 gives a statistical summary of the key variables in the analyses. A few outliers with extremely high realised fertility or expected fertility in the future (having or expecting more than 10 children) were excluded from the sample. In total there were 4843 valid observations in the sample, of which 53.64% were female. On average they intended to have 2.08 children in their life, and women intended to have more children (2.16) than men (1.99). Of the sample, 32.15% had no child at the time of the survey, 16.17% had one child, 28.27% had two children, 15.03% had three children, and the other 8.38% had four or more children. In the sample, 71.94% did not expect to have any more children, 9.37% expected to have one more child, 13.71% expected to have two more, 3.99% expected to have three more, and the other 1% or so expected to have four or more children.

Several dummies were constructed for the highest educational level achieved, comprising postgraduate, bachelor, diploma, certificate, year 12, and year 11 or below. In the sample, 8.84% had a postgraduate qualification, 16.33% had a bachelor degree, 9.8% had a diploma, 30.33% had some kind of certificate, 11.56% had finished year 12, and the other 23.13% had completed year 11 or below. A variable of years of schooling has been derived as well[8], and the average years of schooling were about 13 years.

[7] One problem is that HILDA only asks people about the number of children they would like to have for those who give six or more to the question on the likelihood of having more children in the future (on a scale from zero to 10). So the number of children people would like to have is underestimated for those who are uncertain about future fertility. To account for this problem, we arbitrarily assign one to the variable of expected fertility in the future and find that our key conclusions are basically robust under this treatment.

[8] For people with no post-school qualification, years of schooling equals the highest school completed. For the others, schooling is assigned 13 if the highest education level achieved is a kind of certificates, 14 if having got a diploma, 16 if getting a bachelor degree, 17 if getting a postgraduate diploma, and 18 if having a degree of master or doctorate.

Table A.7 shows a breakdown of the key characteristics of the women in the sample by education level. Looking at the intended lifetime fertility, it seems to be decreasing with education level. It is noteworthy that people with year 11 or below education have had more children than all others, while they expect to have fewer extra children in the future. In fact on average they have had 2.24 children, well above the intended lifetime fertility of most of the other people in the sample. That may be related to their relatively lower ability to control for fertility, and not necessarily reflects their intention. As shown in the table, the mortality of children is significantly lower for people with more education. Among those having ever had children, 2.14% of postgraduates once had a child that died, in comparison with 5.13% for people with year 11 or below education.

Several other interesting points should be highlighted. First, the highest average level of subjective importance of a paying job and that of motherhood[9] appear simultaneously at year 11 or below education, while the lowest ones appear simultaneously at the level of bachelor. That is somewhat surprising, as it does not show evidence of conflict between the attitude to a paying job and the attitude to motherhood as expected. Second, the most educated people on average have the highest proportion of legal marriage while the least educated people have the highest rate of separation/divorce. Third, among the postgraduates, only 3.81% had married two or more times, while the fraction of the least educated people is as high as 9.72%. Therefore, the effects of education on family formation and the stability of marriage appear to be very complex. Fourth, more educated people not only spend more time in education, but also tend to spend more time in employment after finishing full-time education. That inevitably tightens the time constraint on fertility. Fifth, the equivalised household income[10] is increasing with education. Six, religiosity seems to be positively correlated with education level achieved, with the least educated people on average thinking religion the least important.

The picture for males shares many common features with that for females (see Table A.8 in Appendix). For instance, the least educated men also expect the least number of extra children in the future, the mortality of children is still decreasing with education level, the attitude to paying job and attitude to motherhood still show positive correlation, number of siblings is negatively associated with education, and equivalised household income is positively correlated with education, and so on. However, differences between the sexes are also evident. First, in contrast to females, the two male groups with lowest education level have the highest concentration of lifetime childlessness. Second, the gap in intended lifetime fertility between education levels is much smaller than that for females, so is the gap in realised fertility. Third, the proportion of employed males on average is much higher than that of employed females, however, except for the least educated category, the differences between education levels are not very significant for men. Generally, compared with others,

[9] The question for the attitude to paying job in the HILDA Survey is how strongly you disagree or agree (corresponding scales 1-7) with the statement that to be happy in life it is important to have a paying job. And the question for attitude to motherhood is how strongly you disagree or agree (corresponding scales 1-7) with the statement that whatever career a woman may have her most important role in life is still that of being a mother. The question for religiosity is how important religion is in your life, measured on a scale from 0 to 10, where a value of 0 corresponds to "least important" and a value of 10 corresponds to "most important".

[10] The equivalence scale is constructed as follows: the first adult in the household adds 1 to the scale, second and subsequent adults add 0.5 to the scale, and each child below the age of 15 years adds 0.3 to the scale. (ABS 2004b)

males with year 11 or below education have a significantly lower employment rate, higher unemployment rate and higher proportion of being out of labour force.

Direct tabulation can give a general profile of the fertility and other characteristics of people with different education levels, while to have a clearer idea about the correlation between education and fertility, applying econometric methods is a necessity.

3.2 Methodology

Apart from censored-data problem due to the uncompleted fertility of the young people, the endogeneity of education is a more challenging problem for the estimation of the effects of education on fertility. Children could affect the cost of schooling for mothers, "more importantly, women's schooling could be correlated with unobserved traits that are jointly determined with fertility" (Sander 1992:229). Some studies did find that negative correlation between schooling and fertility was a product of selection (Sander 1992). Using instrument variables is one way to deal with the endogenous problem of education, while the difficulty is finding valid instruments. Sander (1992) uses mother's schooling and father's schooling as instruments for education and finds that women's schooling is not highly endogenous with fertility. It is debateable whether education of parents is a valid instrument because it apparently affects the household income and may play a role in the formation of children's preferences and attitudes as well.

Due to the endogeneity problems, the cross-section studies can only reveal the correlation between education and fertility rather than the causation. To deal with this problem Cheng and Nwachukwu (1997) applied the standard Granger causality test (Granger 1980) with time series data. First, with conventional regression method, Cheng and Nwachukwu (1997) found that education was statistically significant at the 1% level and negatively related with fertility; however, with Hsiao's (1981) version of the Granger causality tests they concluded that education did not Granger-cause lower fertility.

In this paper, which uses cross-section data, the Granger causality test cannot be applied, and the method of instrument variables is not used either because of the lack of valid instruments. Instead, different strategies have been tried to decrease the effects of the potential endogeneity problems and the sensitivity of the conclusions has been tested in various ways. Instead of realised fertility, fertility expectation is the focus of this paper. Both intended lifetime fertility and the expected extra number of children are analysed.

The literature shows that education affects fertility through various channels. It is interesting to know the total effects of education, while economists are usually more interested in the effect of the opportunity costs associated with education when people decide to have an extra child. To achieve this objective other effects should be separated from the total effects as much as possible.

To examine each of the two expectations, a baseline model is taken as the starting point, including education and some exogenous variables such as age, siblings, type of school attended and country of origin[11] (and also the number of children ever had

[11] In line with the World Population Prospects of the United Nations (2003), we have reclassified the countries of birth into three categories (apart from Australia): high-fertility countries, medium-fertility countries and low-fertility countries. Australia-born people are used as the reference group.

for the latter one). Then the model is extended by including more explanatory variables step by step, such as state and region of residence, religiosity and attitudes, marital status and household income, to see whether the coefficients of education variables are sensitive to the inclusion of these additional variables and how they change accordingly. In addition, different specifications are used to test the robustness of the key conclusions.

Since the dependent variables—intended lifetime fertility and expected number of children in the future—are both non-negative natural figures, Poisson regression is applied instead of OLS. The small goodness-of-fit χ^2 (large p-value) of the regressions also shows the hypothesis that the data are Poisson distributed cannot be rejected [12].

3.2.1 Intended lifetime fertility

Empirical studies are commonly based on realised fertility (for example, Sander 1992; Rosenzweig and Schultz 1985; Bratti 2003). However, realised fertility may be very different from lifetime fertility, especially for young people, and the education effect is highly likely to be overestimated due to the fact that educated people tend to delay their fertility. Using intended lifetime fertility can overcome this weakness to some extent, and is also better for testing the theoretical models that abstract from unobserved heterogeneity of individuals and unpredictable events. Although many people may not achieve their intended fertility due to various reasons (Bryson et al. 1999; Qu et al. 2000; Barnes 2001), many longitudinal studies have shown that individual preferences are often sufficiently stable to have a large effect on subsequent fertility (De Silva 1991 and references therein).

To analyse the intended lifetime fertility, a static, one-period model is applied (see Montgomery and Trussell 1986 for a detailed discussion of this kind of model). Here a kind of reduced form model is used for estimation.

Since in Australia about one-third of all births are exnuptial and nearly one-fifth of all families with children under 15 are one-parent (mostly lone-mother) families, fertility is treated as the outcome of individual decisions instead of a joint decision of married couples, while the presence of a partner is viewed as an external constraint.

Summing up the number of children ever had and the number of children expected in the future provides a handy measure of intended lifetime fertility but with certain measurement errors. Education variables, which are the key concern here, are always included in the models, while the other explanatory variables are carefully selected and extended step by step. In the baseline model, apart from the education variables, only some exogenous variables are controlled, including age, number of siblings, being the oldest child in the family, country of birth, and time since immigration if born abroad. As Bratti (2003) suggests, including a wide of family background variables is one way of controlling for the presence of unobserved heterogeneity.

In the first extension, a set of dummies for state and region of residence are also included. That can control for some state or region-specific factors such as local labour market conditions, while the problem is that they are not time invariant and could be endogenous as well. For instance, people with strong fertility preference may choose to live in places with more family-friendly local policies.

[12] For males, some specifications have a large χ^2, but tests show little evidence of over-dispersion.

The second extension is a set of variables that include religiosity and attitudes to a paying job and motherhood. There is a lot of literature, especially in demography, showing how religiosity and attitudes affect fertility (for example, Lehrer 1996; Hakim 2003; Lehrer 2004 and references therein; McQuillan 2004). Their influences are very complicated. Within the framework of economics, religiosity and attitudes may work through changing the curvature of people's utility function. For instance, for people with strong religiosity, the price elasticity of child may be very small[13]. Given their importance, these factors are not usually included in the empirical work, for different reasons. First, they are hard to quantify. Fortunately, HILDA Survey provides handy variables for them. Second, they are not time-invariant either and can change with fertility-related experiences. Hakim (2003) suggests that women can be grouped into three categories by their lifestyle choices—work-centred, home-centred, and adaptive. The preferences of the two polar groups—work-centred and home-centred—hardly change over time. As Hakim (2003:361) puts it, "they do not waver in their goals, even when they fail to achieve them". In this paper, following Hakim's suggestion, individuals are grouped into three categories by religiosity—very important (with a score of 8+), very unimportant (scoring 3-), and others. The sample is also divided into three groups by their attitudes to having a paying job and motherhood—strongly positive (scoring 6 or 7), strongly negative (scoring 1 or 2), and the others in between. The third category—the adaptive one—is used as the reference group in the estimation.

The third extension includes variables of marital history[14]: married once, married twice or more times, and the age of first marriage. Although the importance of marriage for fertility is decreasing over time in Australia, it is still one of the most important factors. This finding is highlighted by the estimation results.

The fourth extension includes equivalised household income. The importance of income in people's fertility decision cannot be overemphasised. One well-known puzzle is the commonly observed strong negative correlation between income and fertility, which is exceptionally true for human society—not for any other animals (see Aarssen 2005 for a detailed discussion). The estimation of the static models in this paper showed similar results. However, in practice family income is also affected greatly by people's fertility decisions, especially for those whose income is mostly from earnings. Therefore it is hard to derive causation from the observed correlation.

Concerning education variables, either education dummies or years of schooling along with the quadratic term of schooling were tried in the estimations. In order to see whether education effects are different for different age groups, education variables were interacted with age group dummies in some specifications (the interaction term of education and age group 25-29 is used as reference). In addition, type of school attended and the age of finishing full-time education were also controlled in all the specifications.

[13] Pollak and Watkins (1993:472) have cited an interview in Mali. When a woman was asked how many more children she would like to have, she said, "That's for God to decide." When asked for lifetime fertility, her answer was, "It's when God stops my births." That is an extreme case, but people with different levels of religiosity do have different ideas about the costs and benefits of having children.

[14] Since the dependent variable in the model contains number of children ever had, variables about fertility history, such as having child ever, having a child died ever, and age of youngest/oldest child, were not included.

The models were estimated separately for men and women; the results of the estimation are reported in Tables 2 and 3, respectively.

3.2.2 Expected extra number of children in the future

A dilemma exists in the static models discussed above, that is, including the potentially endogenous variables may bias the estimation of education effects; when excluding them some important information will not be utilised and an omitted variable problem appears.

In this section, the expected extra number of children in the future is analysed with a kind of life cycle dynamic model. Apart from the difference in the dependent variables, a critical difference between the dynamic model and the static model discussed in the last section lies in the inclusion of the number of children ever had in the dynamic model. Because the arrival of children imposes constraints on subsequent household decisions, including fertility in the future, in the dynamic model the case that people adjust their expectations as well as decisions over time is allowed. The expectation about future fertility is based on both of the historical experiences and the current situation, which are either exogenous or pre-determined. Therefore, although the endogenous problems cannot be ruled out, they are at least much less serious here than in the static models.

The education variables are the same as those presented in the previous section, and the interaction terms of schooling and age group dummies are also controlled in some specifications. In addition, since educated people tend to have had fewer children at a certain age especially when young, the education effects may vary by the number of children ever had. To test for this, education is also interacted with the number of children ever had in some other specifications (reported in Tables A.5, A.6 in Appendix).

Apart from education variables, several other factors may be important for people's fertility expectation. Budget constraint is often the top concern of economists, while it is only relevant for people who would like to have child(ren); its importance also varies across individuals, so religiosity and attitudes to a paying job and motherhood, which may affect people's fertility preference, should be included in the model. Opportunity costs may be different for people currently working and for those not working; thus labour force status should be controlled as well. In addition, in most cases the presence of a partner is also an important condition for fertility, and people's fertility expectation is inevitably affected by their past fertility experiences; therefore, variables about current marital status, having a child died ever, age of oldest child and age of youngest child were also included.

Again, I start with a baseline model and extend it step by step to see the sensitivity of the education effects to the extra variables included. In the baseline model, apart from the education variables and their interaction terms with age group dummies or the number of children ever had, the number of children ever had, the number of siblings, being the oldest child in the family, state of residence, region of residence, and age are also included. The first extension includes religiosity and attitudes, the second extension includes equivalised household income, the third includes employment status, and the last one includes current marital status and past fertility experiences. The results for women and men are reported in Tables 4 and 5, respectively.

4. Estimation results

As discussed earlier, both the static model and the dynamic model are extended several times by including more explanatory variables. In addition, several variations of model specifications are also estimated, such as using years of schooling instead of education dummies, using age group dummies instead of dummies for each age. In this paper it was chosen to report only one variation each for the static and dynamic models, and for men and women. The results of other variations are used as a reference and can be provided on request.

4.1 Lifetime fertility expectation of women

Table 2 shows the results of the static models of intended lifetime fertility for women[15]. Generally, women with the lowest education level—year 11 or below, have the highest intended lifetime fertility, and in most cases the intended lifetime fertility decreases as education level increases. This finding supports the opportunity cost argument and the commonly observed correlation between education and fertility. However, it is noteworthy that the differences between education levels become less significant when more explanatory variables are included; when marital history and equivalised household income are controlled they become very insignificant.

In the first extension, dummies of state and region of residence are included to control for some state and region-specific factors such as local labour market conditions. The coefficients of education variables hardly change and are still jointly very significant. In the baseline model, postgraduates expect to have about 21%[16] fewer children in their lifetime than those with year 11 or below education, and after the first extension the difference becomes 18.3%.

Including religiosity alone has little effect on the significance or the value of the coefficients of these variables (not shown in the table). However, when variables of attitudes are also controlled (in the second reported extension), education dummies become jointly insignificant, and individually they are also much less significant than before. Generally, women with strong religiosity have significantly higher fertility expectation than those thinking religion is the least important in life. The coefficients of the dummy variables of attitude to motherhood are even more significant. Compared with those having an adaptive attitude to motherhood, women who think motherhood is very important have about 13% higher fertility expectation while women who think motherhood is very unimportant have about 23% lower fertility expectation. The effects of attitude to a paying job are not significant, though as expected women who think a paying job is important have lower fertility expectation. This underlines the importance of the attitude to motherhood for fertility. In addition, schooling is found to be significantly correlated with attitude to motherhood in the sample, but it is hard to say whether those women who think motherhood is important choose to have less schooling or schooling affects women's attitude to motherhood, or both. As a result, selection effects cannot be ruled out of the observed negative correlation between schooling and fertility; not including attitude to motherhood will

[15] Since the Pseudo R^2 is very small in all these Poisson regressions, OLS was also applied, and the R^2 is much larger than the Pseudo R^2 in corresponding Poisson regressions. The conclusions are basically the same. To save space, the OLS results are not reported. They can be provided on request.

[16] For Poisson regression, the incidence rate ratio (IRR) for a one-unit change in x_i is $e^{\beta i}$, and it is approximately β_i when β_i is small.

generate an omitted-variable problem and thus cause bias in the estimation of education effect.

The third and fourth extensions are subject to more serious endogenous problems. Marital history variables are controlled in the third extension, and the coefficients of education dummies become much more insignificant, while marital history variables themselves are very significant. Generally, women who have ever been legally married on average have much (about 140%) higher fertility expectation than those never married, and the later the first marriage, the lower the expectation. Furthermore, the size of the effects is much larger than that of any other factors in the model. These results confirm the proposition that partnering and family formation provide an important channel through which education affects fertility (Fisher and Charnock 2003). But the problem is that women having higher fertility expectation may be more likely to marry and also choose to marry earlier; in other words, marital history could be endogenous and in fact is more likely to be so than most of the other variables.

In the fourth extension, equivalised household income is included, and its coefficient is negative, as commonly observed and very significant at the 1% level. The result shows that a $10,000 increase in equivalised household income per annum decreases the fertility expectation by about 4.7%[17]. Since the derived variable of intended lifetime fertility still contains part of the realised fertility, which may affect household income especially for those with earnings as the main source of income, the endogeneity problem cannot be ruled out and thus the reliability of the estimation is in question. The correlation between schooling and household income is also very complex: earnings are greatly affected by education, while higher income in turn allows women to pursue higher and usually more expensive education[18].

As for effects of other explanatory variables, the following is a brief summary. Generally, the number of siblings shows a significant and positive effect on expected lifetime fertility, although the size of the effect is modest. Immigrants on average have lower lifetime fertility expectation, while there seems to be a converging pattern as time since immigration gets longer, which is shown by the positive sign of the coefficient of years since migration. This finding is in line with other studies, such as Abbasi-Shavazi and McDonald (2000). The differences in lifetime fertility expectation between state and region of residence are not significant though women living in ACT have slightly higher expectation than in other states and women living in major cities have slightly lower expectation than in remoter regions. Since the key education variables in the models only refer to the highest achieved education level, and do not tell anything about the time of achieving it, age of finishing full-time education is controlled to partly account for this problem. The coefficient is insignificant, so is that of the type of school attended. Age dummies are also included in the models reported in Table 2. This most flexible form of age was used to capture the complicated age and cohort effects in most models of this paper.

[17] A model that included a quadratic form of equivalised household income was also tried; the income effect is convex and the minimum point is between $110,000 and $120,000. Very few women in the sample had a higher equivalised household income than that, so for most women the intended lifetime fertility is monotonically decreasing with equivalised household income.

[18] A further extension with variables for employment status included was also tried; the coefficients of these variables are very significant while the coefficient of income does not change much and is still very significant.

Since empirical studies show that opportunity costs—in terms of foregone lifetime earnings of mothers associated with child rearing—have decreased in the last decade or so, especially for educated women (Chapman et al. 2001; Breusch and Gray 2004), interaction terms of education and age group dummies are included in one kind of the variations of the model. The results are reported in Table A.1 in the Appendix (those for men are shown in Table A.2). As the table shows, the interaction terms appear to be very insignificant, either individually or jointly[19]. In the meantime, the differences between education levels are also insignificant both individually and jointly[20].

To sum up, the exercises of the static models used in this research suggest that more education is generally associated with lower expectation of lifetime fertility of women, while the significance of the differences between education levels varies with the model specification. When marital history and household income are controlled, the differences are not significant any more. The static model is always in a dilemma over the trade-off between omitting some important variables and ignoring potential endogenous problems. Since each specification has its pros and cons, it is very difficult to identify the true education effect.

4.2 Female expected fertility in the future

As discussed in the methodology section, using dynamic models can partly overcome some of the weaknesses of the static models. Table 4 presents a summary of the estimated results of the dynamic models for women. The reported specification uses education dummies instead of years of schooling to be more flexible and avoid forcing the schooling effect to be concave or convex.

The number of children ever had is grouped into five categories—having no child ever, having one child, having two children, having three children, having four or more children, and the first category is used as the reference group. As shown in Table 4, the extra number of children that women expected to have in the future for those with one child is about 31% lower than that for those having no child ever. For women with two or more children the expected number drops more dramatically—about 80% lower than that of the childless women, while the difference in expectation between women having two and those having three or more children is not very significant. Again, women ever having a child who died have significantly higher fertility expectation for the future, showing a strong replacement desire.

The results for education effects are somewhat surprising—the coefficients of the education dummies are all positive and mostly very significant, except those of certificate and diploma, in all the specifications. As shown in Table 4, women with year 12 education or with a degree have roughly 60% higher fertility expectation in the future than those with least education and these effects are very significant. Women having a diploma or certificate also expect to have about 30-40% more children in the future than the least educated ones, although the effects are less

[19] A model using years of schooling, its quadratic form, and its interaction terms with age group dummies has also been tried. All the interaction terms are still insignificant, both individually and jointly.

[20] OLS regressions show similar results. However, in OLS the education terms are jointly very significant in the baseline model at 1% level, and they are still significant at 5% level when state and region dummies are included. After religiosity and attitudes have been controlled, they become very insignificant even at 10% level.

significant. That is contrary to the results in the models of intended lifetime fertility and also those in the models of realised fertility, which are not reported in this paper.

This outcome is a little puzzling and deserves more in-depth analysis and careful interpretation. Some suggestions are presented below for how this might be achieved.

It is important to make sure whether or not the findings are sensitive to different model specifications. Different variations of model specifications have been estimated, such as using age, age^2, age^3 and age^4 or age group dummies instead of dummies for each age, using schooling and schooling^2 instead of education dummies, and also including interaction terms of education and number of children ever had. The conclusions are qualitatively consistent, that is, compared with the least educated women, all other women have a higher fertility expectation in the future. Models with sub-samples of women with no child, one child, two children, three children, and four or more children have also been estimated, and the significance and values of the coefficients of education dummies vary with the sub-samples and the model specifications. The coefficients are mostly positive, and some are very significant for some sub-samples. For the sub-samples of women with three children and those with four or more children, the coefficients of education dummies are generally insignificant. This result is partly due to the small sample size in these two categories, especially for the educated women—very few of them having four or more children.

As shown in Table A.7, tabulating fertility expectation in the future directly by education also shows a positive correlation between them, where the number of children ever had is not controlled for.

With these findings, it could be concluded with some confidence that educated women do expect higher fertility in the future than the least educated women. However, that does not mean the higher the education level, the higher the expected fertility in the future. In fact, the differences between those with year 12, postgraduate and bachelor level are not very significant, and the differences between those with certificate and those with year 11 or below—the two biggest groups—are insignificant as well. In other words, the education effects on expected fertility in the future are non-linear.

The next issue is how to interpret the results. Several other related findings may be helpful for understanding the results. The first one is that educated women on average have lower intended lifetime fertility while the difference between education levels is not significant after considering some important factors such as the household income and marital history (Table 2). The second is that the realised fertility of educated women is significantly lower than that of the less educated ones (the results not reported in this paper). The third one is about completed fertility of women older than 44 years (different from the sample used in this paper—women between 25 and 44 years)[21]. The completed fertility of educated women (45+ years) is also lower than that of less educated women, but the gap lies between the gap in realised fertility and that in intended lifetime fertility of educated and less educated younger women (25-44 years).

A discussion of the interpretations is presented below.

1. Income effect may be dominant over opportunity cost effect and also substitute effect in the fertility decisions of Australian women. Although educated

[21] These estimated results can be provided on request.

women face higher opportunity costs when making fertility decisions, they also have higher earnings if they work, and tend to marry men with higher incomes, and thus can afford to have more children. Some studies (for example, McDonald 2000, Weston and Parker 2002) point out that financial, job and housing insecurity are also concerns for women's fertility plans. For educated women, with higher household income, these worries are less serious. In the HILDA Survey it was found that educated women are more likely to own a house than the less educated. In addition, for a given age, higher education implies higher opportunity costs of child-rearing; for a given education level, the opportunity costs are also likely to be different for women at different ages and at different stages of lifecycle. Tables A.1 and A.3 in Appendix show estimation results of models with interaction terms of education and age groups. These interaction terms have been found to be generally insignificant[22]. In the meantime, the education dummies and their interaction terms with age group dummies are jointly very significant until the second extension when equivalised household income is controlled. These results indicate that opportunity costs may not be an important factor for women's fertility decisions and the income effect may be dominant over the effect of opportunity costs.

2. Educated women do not necessarily want or expect fewer children than the less educated, but since they defer their fertility they may not achieve their intention or expectation due to unexpected reasons such as fecundity or partnering problems. According to McDonald (2001c, cited in Weston et al. 2004), 7 per cent of women in Australia are infertile, and this trend increases with age. While some women attempt to extend their reproductive life through assisted reproductive technology, such procedures account for only 2 per cent of all births. In addition, evidence shows that unhappily married couples are less likely than other couples to have a (further) child (Lillard and Waite 1993). In the HILDA sample it was found that satisfaction with a partner decreases with age. Furthermore, educated women tend to be more independent, and it is more likely for them to have different ideas about fertility to their partners; some research also shows that disagreement over fertility intentions often leads to lower fertility (Thomson 1997; Greene and Biddlecom 1997, cited in Weston et al. 2004). These uncertainties may be underestimated by the educated women and thus it is possible for them to overestimate their expected fertility in the future.

3. In contrast, the less educated women may underestimate their fertility in the future. Less educated women tend to give birth earlier than educated women, partly because they show less concern about the quality of children and thus the necessary conditions for having a high-quality child. As shown in Table A.7, the least educated women in the sample on average have already had 2.24 children, much higher than the intended lifetime fertility of the educated women and perhaps above their own expectation as well although that cannot be proven with the current data. Some empirical studies show that educated women have a higher ability to control their fertility than less educated women (Rosenzweig and Schultz 1985; Schultz 1993;

[22] With cross-section data, age effect cannot be discriminated from cohort effect. However, given that opportunity costs—in terms of foregone lifetime earnings of mothers—decreased in the last decade, the cohort effect should predict a negative sign of the interaction terms of education and age group dummies (the interaction term of education and the youngest age group is used as the reference group). The age effect also predicts a negative sign at least for the interaction terms of education and the oldest age group. As a result, the coefficients of the interaction terms of higher education levels and the oldest age group should be negative. The estimation results (Tables A.1 and A.3) provide little evidence for that.

Cheng and Nwachukwu 1997; Lam and Duryea 1999; Basu 2002 and references therein), and thus can more efficiently avoid overshooting in fertility.

The coefficients of other explanatory variables, especially the significant ones, do not change much when the interaction terms of education and age group dummies are included. In the models of expected fertility in the future, continuous variables of religiosity and attitudes to a paying job and motherhood are used instead of dummies. The coefficients of religiosity are very significant and stable in all the extensions. Given all other factors the same, women thinking religion the most important (religiosity variable has a value of 10), expect about 40% higher fertility in the future than those thinking religion the least important (religiosity equals 0). The effect of attitude to motherhood is also positive and relatively significant and stable. The coefficients of attitude to a paying job are insignificant in all the cases.

Contrary to the results in the static models, equivalised household income in the dynamic models shows a significantly positive effect on fertility expectation. This finding is consistent with common sense and also the assumption in family economics that child is a normal good. If all other factors are the same, women with higher household income can afford to pay for longer education and bear higher costs of rearing children, so it is not surprising that after controlling for income the education effect on fertility becomes insignificant. As expected, currently employed women face a higher opportunity cost and thus have a lower fertility expectation (about 17% lower than those not in the work force), while the effect is only marginally significant at the 10% level. The coefficients of being unemployed are very insignificant.

However, when marital status and past fertility experiences are controlled, the coefficient of household income becomes much smaller and insignificant too. As Tables 4 and A.3 show, the coefficients of marital status variables are not only jointly very significant but also large in size. Generally, women in a *de facto* relationship appear to have the highest expectation of fertility in the future, about 37% higher than those never married and not in a *de facto* relationship. The expected fertility of the separated or divorced women is the lowest while the difference with the never married is insignificant. The finding that partnering greatly influences female income and fertility expectation is also consistent with other empirical studies, such as Weston et al. (2004).

Not surprisingly, the past fertility experiences are among the most important influencing factors for future fertility expectation. The age of the oldest child shows a very significant and negative effect; one year older of the oldest child lowers the expectation by about 7%. The effect of the age of the youngest child is also negative and much larger but less significant. Given all other factors the same, one year older of the youngest child decreases the fertility expectation by nearly 60%. The result that once having a child who died significantly increases the intended lifetime fertility gives support to the replacement argument (see Schultz 1969; Kirk 1996).

In addition, women having attended government schools are found to have significantly (about 15%) lower fertility expectation than those attended non-government schools. Also contrary to the static models, with all other factors the same, women living in the ACT tend to expect least number of extra children, and the differences to other states and territories are not large. There is no handy explanation for this and the reliability of this finding is also an issue due to the relatively small sample size of this category (see Table 1). The other explanatory variables including country of birth are insignificant too.

As more educated women tend to give birth late, they usually have fewer children than less educated women at a particular age, especially when young. To see whether education effects on expectation of extra fertility in the future are different for women with different number of children, other models were estimated, with the interaction terms of schooling and number of children ever had (dummies) included. The results for women are reported in Table A.5 in the Appendix (Table A.6 shows the results for men). As the table shows, the education effect on the expected extra number of children is larger for women with child(ren), and it is more significant for women with one or two children than for those having more children. However, after controlling for equivalised household income, they are not significant any more, again indicating strong associations between income, schooling and fertility. In addition, with these interaction terms included, the coefficients of the education dummies are more significant and larger, especially for the lower education levels. Generally, women with year 12 education have the highest expectation, followed by postgraduates and bachelors, and then the diploma and certificate holders. Again those with lowest education levels have the lowest expectation, everything else being equal.

These results confirm the findings reported in the literature that education affects fertility through various channels. Generally, the education effect appears to be non-linear, not monotonically increasing or decreasing with years of schooling. This may be connected with the non-linearity of expected return to schooling. In addition, in 2002 about 54.4% of all Australian aged 25-64 had a non-school educational qualification, so tertiary education in Australia is more likely to be a preference of individuals rather than a selective result by ability. Furthermore, the objectives of attending a certain kind of education may be different as well. For instance, women pursuing a certificate may be more likely aiming to find a job soon, either for personal interest or for income reasons. Given the immediate cost of the education and the fast changing market demand, these women's opportunity cost of giving birth is relatively high and their interest in fertility may be low. In comparison, the objectives of women pursuing postgraduate qualifications may be very different, varying from finding an ideal partner—including having more and high-quality children—to self-fulfilment, or finding a better job. For women who have finding an ideal partner and forming a happy family as the key objectives of attaining higher education, opportunity cost is most likely a minor concern for their fertility decisions. Even for those who attend education for the purpose of finding a better job, as other empirical studies (for example, Bratti 2003 and references therein) suggest, higher education not only implies higher opportunity costs of giving birth, but also means higher family income, which is also important for fertility. In short, opportunity cost is not necessarily a greater concern for women with more education.

4.3 The gender differences

So far, this paper has mainly focused on the fertility expectation of women, because they are expected to play a key role in fertility decisions. However, some studies suggest that the role of men is not negligible (for example, Fisher 2002; Fisher and Charnock 2003; Weston et al. 2004). Therefore, the fertility expectation of men was also analysed and the results are reported in Tables 3, 5 (also in Tables A.2, A.4 and A.6 in the Appendix). A comparison between male and female fertility expectations in Australia is drawn below.

Concerning the intended lifetime fertility, as shown in Table 3, the education effect for men is insignificant in all the model specifications. Interestingly, in the fourth extension where equivalised household income is included, the lifetime fertility expectation increase with education levels; that is quite different for women. In other aspects, there are no qualitative differences between men and women. For instance, number of siblings still show a significantly positive effect on fertility expectation, and there are few differences in the signs or significance of religiosity and attitudes to a paying job and motherhood, nor in marital history and income. Male immigrants also expect to have fewer children in their lifetime. The differences between state and region of residence are also insignificant. However, a test including a male dummy and its interaction terms with all other explanatory variables shows there are systematic differences between male and female (the male dummy and its interactions terms are jointly very significant), so their expectation was estimated separately[23].

In terms of the expected extra number of children in the future, systematic differences between the sexes are found with the same tests discussed above. In the models that do not include the interaction terms of education and age group dummies (see Table 5), compared with the reference group of year 11 or below, all other education categories show higher fertility expectation. The differences are mostly very significant and hardly change with the extensions. Again, the differences between the education categories other than year 11 or below are not large.

The inclusion of interaction terms of education and age group dummies makes the comparison more difficult (see Table A.4 in the Appendix). One big difference between the sexes lies in the finding that for men, the education dummies and their interaction terms are jointly very significant in all specifications except in the baseline model, where they are jointly significant at the 10% level only. It seems that education is a more important factor for fertility expectation of men than for women, but differences between education levels are also insignificant for men.

Similar to that for women, the education effect for men also varies with age group but is generally insignificant (see Table A.4 in the Appendix). For instance, in the youngest age group—those aged 25-29, women with year 12 have higher expected fertility than most of the other categories (see Table A.3 in the Appendix), while men with year 12 have almost the lowest expectation (see Table A.4 in the Appendix). Men with a bachelor degree or diploma have relatively higher fertility expectation than others, followed by postgraduates and certificate holders.

The effect of household income on fertility expectation is relatively smaller for men than for women, while in contrast to women, the size and significance of the income effect increases as more explanatory variables are controlled. Again, the correlation between marital status and fertility expectation in the future appears to be very significant. Those in *de facto* relationships and legally married expect to have significantly more children than those who have never married and are not in a *de facto* relationship, while the separated or divorced have a much lower expectation. Age of the oldest/youngest child also shows similar effect, while the replacement effect appears to be insignificant for men. The effects of religiosity and attitudes to a paying job and motherhood are also similar to those recorded for women.

[23] After controlling for religiosity and attitudes (second extension) in the models of intended lifetime fertility, the differences between male and female become insignificant.

Just like for women, a set of models with interaction terms of schooling and number of children ever had were also estimated for men, to check whether education effects vary with the existing number of children. As shown in Table A.6 in the Appendix, the differences are mostly insignificant.

5. Summary and Conclusions

This paper has analysed the results of a study on the education effect on people's fertility expectation in Australia, using the first wave of the HILDA Survey conducted in 2001. It has looked at how education affects people's intended lifetime fertility as well as their fertility expectation for the future conditional on the fertility history and other experiences in the past and on current circumstances.

Empirical studies have found that apart from increasing opportunity costs of rearing children, education also affects fertility through various other channels, such as by affecting income, partnering and family formation, timing of marriage and fertility, as well as fertility preference. Most of these empirical studies have been based on realised fertility, which is subject to both censored data and endogenous variable problems. In this paper a variable of intended lifetime fertility was constructed by summing up the number of children ever had and the number of children expected to have in the future. Using this variable instead of realised fertility can help to avoid the censoring problem, though it is not free of other problems. Generally, this kind of static model faces the dilemma of trading-off between the endogenous-variable problem and the omitted-variable problem. To avoid this dilemma, one type of dynamic model has been applied. The key idea of this dynamic model is that people adjust their fertility plan according to their experiences in the past and the current situation. In such a model, education as well as other explanatory variables are either exogenous or predetermined. Therefore, the endogeneity problem is at least less serious in the dynamic model than in the static model, although it cannot be ruled out entirely.

The main findings are summarised as follows:

1. Compared with those having least education, women in other education categories generally have lower intended lifetime fertility. When more factors such as attitude, income and marital history are controlled, the differences between education levels become insignificant.
2. As for fertility expectation into the future, the more educated people have significantly higher expectation than the least educated ones; however, the correlation is non-linear.
3. The differences of education effect between age groups are generally insignificant.
4. Partnering, religiosity and attitude to motherhood, and household income seem to play very important roles in both the intended lifetime fertility and the fertility expectation into the future. Married people have higher intended lifetime fertility than those who have never married, and people with a partner expect to have more children in the future than those without a partner. For people having child(ren), the older the youngest (and also the oldest) child, the lower the fertility expectation. Household income appears to have a significant positive effect on

fertility expectation into the future, showing that child is a normal good. Religiosity and attitude to motherhood also consistently show a positive effect on both the intended lifetime fertility and fertility expectation for the future and the effects are mostly very significant.

Various sensitivity tests, such as using different models specifications and extensions, have been tried, and these findings are basically robust. In addition, since in the first wave of the HILDA Survey, people who were not sure about their fertility in the future—giving FIVE to the question in the survey—were not asked about how many more children they expected to have, their fertility expectation was set to zero. That may under-estimate their fertility expectation. To account for this problem, two extra sensitivity tests were applied for each model in this paper by making different assumptions about the fertility expectation of these uncertain people[24], and no qualitative differences were found either.

Generally, there is little firm evidence showing that more educated people necessarily expect fewer children, either in their lifetime or for the future. In contrast, people having attended higher education tend to expect significantly more children in the future than people with the lowest education level. Given these findings, it might be concluded that higher education per se is not the bane of fertility, at least psychologically. It is more likely that people with higher education underestimate the potential fertility constraints such as a good and stable relationship and thus overestimate their fertility in the future; in the meantime the less educated people may underestimate their fertility in the future. This might be why the more educated people appear to achieve lower fertility than less educated ones, which is evident when looking at the completed fertility of the older people in the HILDA Survey (not reported in this paper).

The findings of this paper have important policy implications. First, the apparent conflicting public interest between education and fertility may not be inherent and could be overcome with appropriate policies. Second, both the educated people themselves and the public should be aware of the constraints that may hinder individuals in achieving their fertility expectation, allowing actions to be taken beforehand. Third, compared with opportunity costs, family formation and stability may be more important in people's fertility decisions. Fourth, while income seems to matter, child is a normal good, and the demand for child is increasing with income, apparently the source of income also matters. For most individuals and families, income is from earnings, and that forces them to make a trade-off between working and fertility. Family friendly policies may help resolve this dilemma.

[24] One exercise was assigning one—the median number of expected number of children in the future of those giving SIX to the question in the survey—to the fertility expectation of the uncertain people. Second exercise was assigning one—the median of expected number of children in the future of those giving SIX to the question and also would not like to have any more children in the future—to the fertility expectation of those who were uncertain about future fertility and would not like to have any more children, and assigning two—the median of expected number of children in the future of those giving SIX to the question and also would like to have more children in the future—to the fertility expectation of those who were uncertain about future fertility and would like to have more children.

Tables

Table 1: Summary Statistics for the Key Variables

Variables	Min-Max	Mean (std. dev)	No. of observations
Male	(0-1)	0.46 (0.50)	4843
Preferred lifetime fertility	(0-10)	2.08 (1.32)	4843
Children ever had	(0-9)	1.55 (1.40)	4843
Having no child	(0-1)	0.32 (0.47)	4843
Having one child	(0-1)	0.16 (0.37)	4843
Having two children	(0-1)	0.28 (0.45)	4843
Having three children	(0-1)	0.15 (0.36)	4843
Having four or more children	(0-1)	0.08 (0.28)	4843
Expected no. of children in the future	(0-10)	0.53 (0.96)	4843
Expect no more child	(0-1)	0.72 (0.45)	4843
Expect one more child	(0-1)	0.09 (0.29)	4843
Expect two more children	(0-1)	0.14 (0.34)	4843
Expect three more children	(0-1)	0.04 (0.20)	4843
Expect four or more extra children	(0-1)	0.01 (0.10)	4843
Single (never married)	(0-1)	0.18 (0.39)	4843
Legally married	(0-1)	0.59 (0.49)	4843
In *De facto* relationships	(0-1)	0.14 (0.35)	4843
Separated/divorced/widowed	(0-1)	0.08 (0.28)	4843
Age	(25-44)	35.15 (5.60)	4843
Age group 25-29 years	(0-1)	0.20 (0.40)	4843
Age group 30-34 years	(0-1)	0.25 (0.43)	4843
Age group 35-39 years	(0-1)	0.27 (0.44)	4843
Age group 40-44 years	(0-1)	0.28 (0.45)	4843
Years of schooling	(5-18)	13.14 (2.42)	4842
Postgraduate	(0-1)	0.09 (0.28)	4843
Bachelor	(0-1)	0.16 (0.37)	4843
Diploma	(0-1)	0.10 (0.30)	4843
Certificate	(0-1)	0.30 (0.46)	4843
Year 12	(0-1)	0.12 (0.32)	4843
Year 11 or below	(0-1)	0.23 (0.42)	4843
Age of finishing full-time education	(8-40)	17.03 (2.08)	4843

Attended government schools	(0-1)	0.75 (0.43)	4843
Attended Catholic or other non-government schools	(0-1)	0.25 (0.43)	4843
Attitude to paying job	(1-7)	4.97 (1.88)	4531
Attitude to motherhood	(1-7)	5.49 (1.79)	4529
Religiosity	(0-10)	4.08 (3.49)	4842
New South Wales	(0-1)	0.29 (0.45)	4843
Victoria	(0-1)	0.25 (0.43)	4843
Queensland	(0-1)	0.21 (0.41)	4843
South Australia	(0-1)	0.09 (0.29)	4843
South Australia	(0-1)	0.10 (0.30)	4843
South Australia	(0-1)	0.03 (0.17)	4843
South Australia	(0-1)	0.01 (0.08)	4843
ACT	(0-1)	0.02 (0.13)	4843
Number of marriages	(0-3)	0.78 (0.57)	4842
Married once	(0-1)	0.64 (0.48)	4843
Married twice or more times	(0-1)	0.07 (0.25)	4843
Age of first marriage	(13-44)	24.85 (4.44)	3213
Born in high-fertility countries	(0-1)	0.07 (0.26)	4843
Born in medium-fertility countries	(0-1)	0.07 (0.25)	4843
Born in low-fertility countries	(0-1)	0.08 (0.27)	4843
Australia Born	(0-1)	0.78 (0.41)	4843
No. of Siblings	(0-25)	2.87 (2.07)	4793
Relationship with Parents	(0-10)	7.90 (2.33)	4241
Living in major cities	(0-1)	0.59 (0.49)	4843
Living in inner regions	(0-1)	0.28 (0.45)	4843
Living in outer regions	(0-1)	0.11 (0.31)	4843
Living in remote areas	(0-1)	0.02 (0.13)	4843
Ever have a child died	(0-1)	0.02 (0.15)	4843
Time in paid work (years)	(0-30)	14.33 (6.8)	4837
Time unemployed (looking for work) (years)	(0-24)	0.66 (1.72)	4837
Equivalised household income (AUS$)	(0-400000)	35433.52 (25565.79)	3661

Table 2: Intended lifetime fertility of women

Dependent variables: Intended lifetime fertility

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	-0.230	-0.207	-0.151	-0.111	-0.055
	(0.000)***	(0.001)***	(0.015)**	(0.074)*	(0.461)
Bachelor	-0.143	-0.121	-0.077	-0.047	0.009
	(0.004)***	(0.014)**	(0.123)	(0.354)	(0.878)
Diploma	-0.127	-0.112	-0.100	-0.071	-0.051
	(0.016)**	(0.035)**	(0.058)*	(0.183)	(0.411)
Certificate	-0.037	-0.039	-0.040	-0.052	-0.049
	(0.332)	(0.306)	(0.303)	(0.180)	(0.280)
Year 12	-0.057	-0.044	-0.032	-0.028	-0.016
	(0.239)	(0.358)	(0.512)	(0.560)	(0.781)
Year 11 or below	*reference*	*reference*	*reference*	*reference*	*reference*
Age of finishing	-0.011	-0.010	-0.007	-0.0002	0.001
full-time education	(0.203)	(0.245)	(0.414)	(0.979)	(0.920)
Attended	-0.036	-0.040	-0.014	-0.020	-0.054
government schools	(0.281)	(0.227)	(0.671)	(0.553)	(0.167)
Number of siblings	0.039	0.038	0.034	0.035	0.028
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Being oldest child	0.012	0.015	0.011	0.014	0.011
in the family	(0.695)	(0.629)	(0.725)	(0.647)	(0.757)
Born in high-	-0.113	-0.072	-0.153	-0.186	-0.164
fertility countries	(0.088)*	(0.283)	(0.028)**	(0.007)***	(0.042)**
Born in medium-	-0.247	-0.212	-0.230	-0.199	-0.166
fertility countries	(0.001)***	(0.006)***	(0.003)***	(0.012)**	(0.091)*
Born in low-	-0.171	-0.155	-0.135	-0.139	-0.090
fertility countries	(0.036)**	(0.058)*	(0.104)	(0.093)*	(0.360)
Born in Australia	*reference*	*reference*	*reference*	*reference*	*reference*
Years since immigration	0.005	0.005	0.005	0.004	0.002
	(0.068)*	(0.073)*	(0.065)*	(0.135)	(0.548)
New South Wales		-0.024	-0.051	-0.029	0.001
		(0.827)	(0.648)	(0.793)	(0.993)
Victoria		-0.061	-0.067	-0.045	-0.049
		(0.586)	(0.550)	(0.687)	(0.724)
Queensland		-0.094	-0.099	-0.066	-0.047
		(0.408)	(0.387)	(0.565)	(0.738)
South Australia		-0.085	-0.096	-0.066	-0.077
		(0.475)	(0.422)	(0.578)	(0.597)
Western Australia		-0.029	-0.040	-0.008	-0.025
		(0.806)	(0.738)	(0.949)	(0.865)
Tasmania		-0.192	-0.196	-0.159	-0.171
		(0.160)	(0.152)	(0.247)	(0.293)
North Australia		-0.270	-0.312	-0.257	-0.367
		(0.199)	(0.138)	(0.223)	(0.184)
ACT		*reference*	*reference*	*reference*	*reference*
Living in major cities		-0.121	-0.130	-0.101	-0.104
		(0.272)	(0.239)	(0.360)	(0.446)
Living in inner regions		0.005	-0.002	-0.003	-0.044
		(0.965)	(0.988)	(0.977)	(0.754)
Living in outer regions		0.084	0.090	0.091	0.048
		(0.463)	(0.431)	(0.424)	(0.732)
Living in remote areas		*reference*	*reference*	*reference*	*reference*
Thinking religion			0.124	0.096	0.057
very important			(0.000)***	(0.007)***	(0.172)
Thinking religion			-0.096	-0.074	-0.082
very unimportant			(0.004)***	(0.026)**	(0.033)**

The others in-between			*reference*	*reference*	*reference*
Thinking paying job			0.058	0.048	0.026
very unimportant			(0.143)	(0.228)	(0.576)
Thinking paying job			-0.033	-0.025	-0.015
very important			(0.292)	(0.423)	(0.678)
The others in-between			*reference*	*reference*	*reference*
Thinking motherhood			-0.260	-0.227	-0.209
very unimportant			(0.000)***	(0.001)***	(0.007)***
Thinking motherhood			0.125	0.111	0.099
very important			(0.001)***	(0.002)***	(0.019)**
The others in-between			*reference*	*reference*	*reference*
Ever married once				0.896	0.923
				(0.000)***	(0.000)***
Ever married twice				0.887	0.924
or more times				(0.000)***	(0.000)***
Never married				*reference*	*reference*
Age at first marriage				-0.021	-0.022
				(0.000)***	(0.000)***
Equivalised household					-5.339e-06
income					(0.000)***
Age dummies	…	…	…	…	…
Constant	0.935	1.035	0.933	0.614	0.813
	(0.000)***	(0.000)***	(0.000)***	(0.009)***	(0.004)***
Observations	2463	2463	2463	2463	1840
Pseudo R^2	0.0136	0.0172	0.0287	0.0467	0.0540

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table 3: Intended lifetime fertility of men

Dependent variables: intended lifetime fertility

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.014	0.044	0.065	0.034	0.144
	(0.844)	(0.533)	(0.362)	(0.635)	(0.079)*
Bachelor	0.020	0.056	0.074	0.033	0.125
	(0.732)	(0.353)	(0.221)	(0.581)	(0.078)*
Diploma	0.080	0.096	0.111	0.052	0.102
	(0.207)	(0.132)	(0.084)*	(0.420)	(0.181)
Certificate	0.038	0.043	0.042	-0.006	0.045
	(0.375)	(0.323)	(0.337)	(0.895)	(0.364)
Year 12	-0.088	-0.058	-0.049	-0.076	-0.003
	(0.188)	(0.385)	(0.468)	(0.258)	(0.965)
Year 11 or below	*reference*	*reference*	*reference*	*reference*	*reference*
Age of finishing	-0.011	-0.009	-0.008	0.001	0.001
full-time education	(0.217)	(0.300)	(0.390)	(0.928)	(0.950)
Attended	-0.052	-0.060	-0.038	-0.044	-0.012
government schools	(0.162)	(0.111)	(0.315)	(0.250)	(0.782)
Number of siblings	0.040	0.039	0.033	0.030	0.026
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.003)***
Being oldest child	-0.003	-0.001	-0.003	0.012	0.016
in the family	(0.933)	(0.987)	(0.922)	(0.740)	(0.694)
Born in high-	-0.038	0.003	-0.109	-0.106	-0.111
fertility countries	(0.614)	(0.968)	(0.170)	(0.180)	(0.225)
Born in medium-	-0.063	-0.029	-0.054	-0.018	-0.096
fertility countries	(0.433)	(0.723)	(0.509)	(0.823)	(0.324)
Born in low-	-0.068	-0.050	-0.063	-0.057	-0.042
fertility countries	(0.460)	(0.595)	(0.500)	(0.539)	(0.695)
Born in Australia	*reference*	*reference*	*reference*	*reference*	*reference*
Years since immigration	0.0005	0.001	0.002	0.001	0.0006
	(0.878)	(0.787)	(0.590)	(0.772)	(0.914)
New South Wales		0.099	0.069	0.095	0.147
		(0.431)	(0.586)	(0.455)	(0.334)
Victoria		0.135	0.130	0.155	0.170
		(0.286)	(0.306)	(0.222)	(0.264)
Queensland		0.144	0.127	0.148	0.205
		(0.261)	(0.324)	(0.250)	(0.182)
South Australia		0.112	0.089	0.138	0.207
		(0.402)	(0.504)	(0.303)	(0.192)
Western Australia		0.087	0.085	0.143	0.174
		(0.515)	(0.526)	(0.285)	(0.271)
Tasmania		-0.037	-0.042	-0.005	0.053
		(0.817)	(0.791)	(0.975)	(0.767)
North Australia		-0.292	-0.255	-0.226	-0.246
		(0.287)	(0.352)	(0.409)	(0.441)
ACT		*reference*	*reference*	*reference*	*reference*
Living in major cities		0.044	0.062	0.092	0.077
		(0.737)	(0.637)	(0.485)	(0.622)
Living in inner regions		0.184	0.186	0.165	0.125
		(0.168)	(0.165)	(0.219)	(0.437)
Living in outer regions		0.179	0.196	0.217	0.159
		(0.187)	(0.149)	(0.111)	(0.329)
Living in remote areas		*reference*	*reference*	*reference*	*reference*
Thinking religion			0.123	0.094	0.056
very important			(0.006)***	(0.037)**	(0.289)
Thinking religion			-0.088	-0.052	-0.059
very unimportant			(0.014)**	(0.147)	(0.145)

The others in-between			*reference*	*reference*	*reference*
Thinking paying job			0.024	0.050	0.070
very unimportant			(0.680)	(0.395)	(0.292)
Thinking paying job			0.006	0.009	-0.003
very important			(0.874)	(0.810)	(0.948)
The others in-between			*reference*	*reference*	*reference*
Thinking motherhood			-0.187	-0.183	-0.171
very unimportant			(0.003)***	(0.004)***	(0.016)**
Thinking motherhood			0.115	0.084	0.078
very important			(0.002)***	(0.022)**	(0.061)*
The others in-between			*reference*	*reference*	*reference*
Ever married once				1.118	1.091
				(0.000)***	(0.000)***
Ever married twice				1.131	1.134
or more times				(0.000)***	(0.000)***
Never married				*reference*	*reference*
Age at first marriage				-0.024	-0.023
				(0.000)***	(0.000)***
Equivalised household					-3.314e-06
income					(0.000)***
Age dummies	…	…	…	…	…
Constant	0.529	0.269	0.223	-0.134	-0.097
	(0.005)***	(0.300)	(0.397)	(0.612)	(0.754)
Observations	2084	2084	2084	2084	1617
Pseudo R^2	0.0101	0.0137	0.0224	0.0521	0.0557

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table 4: Female expected fertility in the future

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.471	0.528	0.407	0.432	0.377
	(0.001)***	(0.000)***	(0.014)**	(0.010)***	(0.025)**
Bachelor	0.465	0.495	0.398	0.418	0.362
	(0.000)***	(0.000)***	(0.004)***	(0.003)***	(0.010)***
Diploma	0.330	0.332	0.251	0.273	0.224
	(0.013)**	(0.015)**	(0.091)*	(0.067)*	(0.135)
Certificate	0.246	0.235	0.206	0.212	0.163
	(0.036)**	(0.052)*	(0.116)	(0.106)	(0.219)
Year 12	0.489	0.518	0.464	0.481	0.450
	(0.000)***	(0.000)***	(0.001)***	(0.001)***	(0.002)***
Year 11 or below	*reference*	*reference*	*reference*	*reference*	*reference*
Age of finishing	0.020	0.025	0.026	0.024	0.016
full-time education	(0.230)	(0.146)	(0.180)	(0.222)	(0.418)
Attended	-0.192	-0.184	-0.158	-0.150	-0.181
government schools	(0.005)***	(0.010)***	(0.044)**	(0.056)*	(0.022)**
Number of siblings	-0.004	-0.014	-0.021	-0.026	-0.016
	(0.829)	(0.517)	(0.352)	(0.265)	(0.483)
Being oldest child	-0.085	-0.093	-0.108	-0.116	-0.105
in the family	(0.210)	(0.186)	(0.161)	(0.134)	(0.177)
Born in high-	0.137	-0.059	0.167	0.155	0.170
fertility countries	(0.348)	(0.714)	(0.350)	(0.387)	(0.350)
Born in medium-	-0.202	-0.302	-0.107	-0.105	-0.131
fertility countries	(0.196)	(0.069)*	(0.583)	(0.589)	(0.505)
Born in low-	0.122	0.051	0.119	0.110	0.084
fertility countries	(0.443)	(0.772)	(0.536)	(0.567)	(0.668)
Born in Australia	*reference*	*reference*	*reference*	*reference*	*reference*
Years since immigration	-0.009	-0.007	-0.011	-0.011	-0.011
	(0.236)	(0.397)	(0.188)	(0.194)	(0.208)
Having one child	-0.371	-0.408	-0.372	-0.439	-1.188
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.005)***
Having two children	-1.711	-1.773	-1.703	-1.767	-2.323
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having three children	-1.805	-1.850	-1.658	-1.718	-2.307
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having four or more	-1.534	-1.618	-1.577	-1.681	-2.210
children	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having no child	*reference*	*reference*	*reference*	*reference*	*reference*
New South Wales	0.591	0.606	0.658	0.668	0.617
	(0.024)**	(0.025)**	(0.037)**	(0.034)**	(0.051)*
Victoria	0.597	0.646	0.686	0.699	0.628
	(0.022)**	(0.016)**	(0.028)**	(0.026)**	(0.045)**
Queensland	0.578	0.648	0.737	0.754	0.680
	(0.029)**	(0.018)**	(0.021)**	(0.018)**	(0.033)**
South Australia	0.674	0.702	0.796	0.808	0.722
	(0.014)**	(0.013)**	(0.015)**	(0.014)**	(0.029)**
Western Australia	0.738	0.766	0.783	0.793	0.741
	(0.006)***	(0.006)***	(0.016)**	(0.015)**	(0.022)**
Tasmania	0.557	0.617	0.678	0.718	0.569
	(0.089)*	(0.065)*	(0.070)*	(0.056)*	(0.131)
North Australia	0.772	0.819	0.490	0.523	0.529
	(0.073)*	(0.062)*	(0.364)	(0.332)	(0.327)
ACT	*reference*	*reference*	*reference*	*reference*	*reference*
Living in major cities	0.056	0.159	0.279	0.296	0.387

	(0.802)	(0.495)	(0.287)	(0.260)	(0.143)
Living in inner regions	0.073	0.180	0.319	0.335	0.405
	(0.754)	(0.458)	(0.245)	(0.223)	(0.145)
Living in outer regions	0.171	0.348	0.456	0.481	0.581
	(0.483)	(0.170)	(0.114)	(0.096)*	(0.047)**
Living in remote areas		*reference*	*reference*	*reference*	*reference*
Religiosity		0.035	0.032	0.033	0.032
		(0.000)***	(0.004)***	(0.003)***	(0.005)***
Attitude to paying job		-0.007	0.009	0.013	0.013
		(0.683)	(0.658)	(0.503)	(0.526)
Attitude to motherhood		0.044	0.043	0.042	0.039
		(0.015)**	(0.029)**	(0.035)**	(0.050)*
Equivalised household income			4.287e-06	4.426e-06	2.779e-06
			(0.008)***	(0.006)***	(0.105)
Being employed				-0.181	-0.088
				(0.090)*	(0.423)
Being unemployed				-0.185	-0.097
				(0.465)	(0.710)
Not in the labour force				*reference*	*reference*
Legally married					0.178
					(0.082)*
In *de facto* relationship					0.313
					(0.003)***
Separated or divorced					-0.168
					(0.421)
Never married and not de facto					*reference*
Ever had a child died					1.103
					(0.000)***
Age of oldest child					-0.071
					(0.000)***
Age of youngest child					-0.917
					(0.031)**
Age dummies	…	…	…	…	…
Constant	-0.605	-1.141	-1.488	-1.343	-1.347
	(0.191)	(0.022)**	(0.009)***	(0.020)**	(0.020)**
Observations	2463	2310	1760	1760	1760
Pseudo R2	0.3544	0.3607	0.3605	0.3613	0.3741

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table 5: Male expected fertility in the future

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.332	0.482	0.443	0.451	0.389
	(0.017)**	(0.001)***	(0.010)**	(0.010)***	(0.025)**
Bachelor	0.288	0.424	0.432	0.446	0.383
	(0.013)**	(0.001)***	(0.003)***	(0.002)***	(0.009)***
Diploma	0.403	0.509	0.457	0.477	0.471
	(0.002)***	(0.000)***	(0.004)***	(0.003)***	(0.003)***
Certificate	0.217	0.266	0.318	0.331	0.294
	(0.030)**	(0.014)**	(0.010)***	(0.008)***	(0.018)**
Year 12	0.172	0.277	0.360	0.368	0.306
	(0.163)	(0.037)**	(0.015)**	(0.014)**	(0.041)**
Year 11 or below	*reference*	*reference*	*reference*	*reference*	*reference*
Age of finishing	0.033	0.032	0.027	0.024	0.025
full-time education	(0.014)**	(0.025)**	(0.092)*	(0.131)	(0.119)
Attended	-0.250	-0.166	-0.072	-0.068	-0.042
government schools	(0.000)***	(0.015)**	(0.358)	(0.380)	(0.592)
Number of siblings	0.028	0.017	0.019	0.022	0.016
	(0.092)*	(0.345)	(0.333)	(0.267)	(0.437)
Being oldest child	-0.019	-0.012	0.010	0.014	0.025
in the family	(0.761)	(0.860)	(0.899)	(0.855)	(0.748)
Born in high-	0.298	0.075	0.216	0.216	0.271
fertility countries	(0.015)**	(0.590)	(0.181)	(0.182)	(0.101)
Born in medium-	0.284	0.274	0.129	0.118	0.040
fertility countries	(0.037)**	(0.066)*	(0.477)	(0.514)	(0.824)
Born in low-	0.339	0.359	0.280	0.269	0.265
fertility countries	(0.030)**	(0.028)**	(0.139)	(0.157)	(0.160)
Born in Australia	*reference*	*reference*	*reference*	*reference*	*reference*
Years since immigration	-0.008	-0.008	-0.007	-0.007	-0.006
	(0.202)	(0.217)	(0.351)	(0.374)	(0.471)
Having one child	-0.360	-0.395	-0.389	-0.379	-1.210
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having two children	-1.500	-1.542	-1.508	-1.499	-2.229
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having three children	-1.817	-1.901	-1.824	-1.820	-2.521
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having four or more	-1.255	-1.267	-1.210	-1.214	-1.916
children	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having no child	*reference*	*reference*	*reference*	*reference*	*reference*
New South Wales	0.324	0.252	0.449	0.455	0.506
	(0.177)	(0.297)	(0.152)	(0.147)	(0.107)
Victoria	0.467	0.438	0.591	0.605	0.626
	(0.050)*	(0.068)*	(0.058)*	(0.053)*	(0.045)**
Queensland	0.459	0.414	0.621	0.626	0.673
	(0.058)*	(0.090)*	(0.050)**	(0.048)**	(0.034)**
South Australia	0.530	0.450	0.734	0.734	0.752
	(0.034)**	(0.075)*	(0.023)**	(0.023)**	(0.020)**
Western Australia	0.478	0.458	0.596	0.600	0.658
	(0.054)*	(0.066)*	(0.062)*	(0.061)*	(0.040)**
Tasmania	0.412	0.435	0.589	0.597	0.569
	(0.171)	(0.151)	(0.107)	(0.102)	(0.120)
North Australia	0.344	0.072	0.285	0.294	0.282
	(0.459)	(0.890)	(0.616)	(0.605)	(0.620)
ACT	*reference*	*reference*	*reference*	*reference*	*reference*
Living in major cities	0.652	0.541	0.608	0.603	0.672

	(0.024)**	(0.062)*	(0.067)*	(0.069)*	(0.041)**
Living in inner regions	0.700	0.581	0.667	0.659	0.702
	(0.017)**	(0.049)**	(0.049)**	(0.051)*	(0.037)**
Living in outer regions	0.464	0.474	0.495	0.480	0.538
	(0.126)	(0.121)	(0.159)	(0.171)	(0.125)
Living in remote areas		*reference*	*reference*	*reference*	*reference*
Religiosity		0.040	0.041	0.039	0.044
		(0.000)***	(0.000)***	(0.000)***	(0.000)***
Attitude to paying job		0.002	0.011	0.011	0.017
		(0.889)	(0.591)	(0.580)	(0.394)
Attitude to motherhood		0.059	0.055	0.058	0.070
		(0.001)***	(0.005)***	(0.004)***	(0.000)***
Equivalised household income			1.890e-06	2.059e-06	3.425e-06
			(0.080)*	(0.060)*	(0.006)***
Being employed				-0.250	-0.348
				(0.102)	(0.025)**
Being unemployed				-0.415	-0.420
				(0.070)*	(0.071)*
Not in the labour force				*reference*	*reference*
Legally married					0.363
					(0.000)***
In *de facto* relationship					0.471
					(0.000)***
Separated or divorced					-0.626
					(0.020)**
Never married and not de facto					*reference*
Ever had a child died					0.333
					(0.433)
Age of oldest child					-0.025
					(0.084)*
Age of youngest child					-0.785
					(0.001)***
Age dummies	…	…	…	…	…
Constant	-1.434	-1.834	-2.197	-1.959	-2.333
	(0.002)***	(0.000)***	(0.000)***	(0.001)***	(0.000)***
Observations	2084	1943	1536	1536	1536
Pseudo R2	0.2623	0.2703	0.2634	0.2645	0.2807

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Appendix

Table A.1: Intended lifetime fertility of women

Dependent variables: Intended lifetime fertility

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	-0.123	-0.091	-0.063	-0.111	0.005
	(0.394)	(0.534)	(0.668)	(0.451)	(0.973)
Bachelor	-0.152	-0.112	-0.074	-0.105	-0.004
	(0.119)	(0.255)	(0.451)	(0.286)	(0.975)
Diploma	-0.237	-0.209	-0.194	-0.204	-0.179
	(0.053)*	(0.088)*	(0.114)	(0.096)*	(0.188)
Certificate	-0.137	-0.127	-0.128	-0.161	-0.144
	(0.135)	(0.170)	(0.166)	(0.081)*	(0.163)
Year 12	-0.122	-0.108	-0.129	-0.133	-0.090
	(0.265)	(0.325)	(0.244)	(0.228)	(0.466)
Postgraduate * age group 30-34	-0.261	-0.255	-0.199	-0.116	-0.039
	(0.171)	(0.182)	(0.300)	(0.547)	(0.854)
Postgraduate * age group 35-39	-0.032	-0.052	-0.032	0.043	-0.060
	(0.853)	(0.760)	(0.854)	(0.802)	(0.761)
Postgraduate * age group 40-44	-0.149	-0.156	-0.123	0.024	-0.107
	(0.400)	(0.379)	(0.487)	(0.893)	(0.600)
Bachelor * age group 30-34	-0.057	-0.069	-0.046	0.007	0.018
	(0.660)	(0.598)	(0.726)	(0.955)	(0.901)
Bachelor * age group 35-39	0.098	0.064	0.054	0.102	0.036
	(0.438)	(0.612)	(0.669)	(0.423)	(0.809)
Bachelor * age group 40-44	-0.043	-0.066	-0.051	0.079	-0.029
	(0.738)	(0.611)	(0.691)	(0.542)	(0.850)
Diploma * age group 30-34	0.081	0.079	0.068	0.090	0.135
	(0.605)	(0.617)	(0.668)	(0.570)	(0.442)
Diploma * age group 35-39	0.229	0.202	0.189	0.219	0.209
	(0.131)	(0.184)	(0.212)	(0.148)	(0.222)
Diploma * age group 40-44	0.069	0.062	0.073	0.157	0.127
	(0.661)	(0.694)	(0.643)	(0.320)	(0.481)
Certificate * age group 30-34	0.102	0.103	0.100	0.096	0.081
	(0.389)	(0.388)	(0.403)	(0.422)	(0.545)
Certificate * age group 35-39	0.173	0.145	0.143	0.155	0.174
	(0.128)	(0.205)	(0.211)	(0.175)	(0.183)
Certificate * age group 40-44	0.080	0.066	0.073	0.132	0.089
	(0.491)	(0.569)	(0.527)	(0.255)	(0.506)
year 12 * age group 30-34	0.110	0.121	0.158	0.133	0.143
	(0.424)	(0.380)	(0.252)	(0.333)	(0.362)
year 12 * age group 35-39	0.118	0.119	0.161	0.169	0.099
	(0.410)	(0.405)	(0.263)	(0.240)	(0.555)
year 12 * age group 40-44	-0.016	-0.028	0.020	0.059	0.017
	(0.911)	(0.842)	(0.888)	(0.672)	(0.917)
Age of finishing full-time education	-0.010	-0.009	-0.006	0.001	0.001
	(0.252)	(0.291)	(0.461)	(0.951)	(0.920)
Attended government schools	-0.037	-0.042	-0.016	-0.021	-0.056
	(0.264)	(0.212)	(0.640)	(0.525)	(0.158)
Number of siblings	0.039	0.038	0.034	0.035	0.027
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.001)***
Being oldest child in the family	0.010	0.013	0.009	0.012	0.008
	(0.747)	(0.672)	(0.774)	(0.690)	(0.821)
Born in high-fertility countries	-0.116	-0.075	-0.152	-0.190	-0.156
	(0.082)*	(0.270)	(0.030)**	(0.007)***	(0.055)*

Born in medium-fertility countries	-0.252	-0.218	-0.235	-0.203	-0.165
	(0.001)***	(0.005)***	(0.003)***	(0.011)**	(0.093)*
Born in low-fertility countries	-0.179	-0.164	-0.142	-0.146	-0.092
	(0.029)**	(0.047)**	(0.088)*	(0.080)*	(0.354)
Years since immigration	0.006	0.006	0.006	0.005	0.002
	(0.053)*	(0.055)*	(0.051)*	(0.108)	(0.528)
New South Wales		-0.011	-0.040	-0.023	0.008
		(0.923)	(0.723)	(0.839)	(0.955)
Victoria		-0.045	-0.053	-0.036	-0.038
		(0.689)	(0.637)	(0.752)	(0.785)
Queensland		-0.077	-0.084	-0.056	-0.038
		(0.498)	(0.461)	(0.626)	(0.790)
South Australia		-0.069	-0.081	-0.056	-0.068
		(0.563)	(0.496)	(0.642)	(0.644)
Western Australia		-0.017	-0.029	-0.001	-0.018
		(0.886)	(0.804)	(0.992)	(0.904)
Tasmania		-0.178	-0.186	-0.151	-0.166
		(0.195)	(0.177)	(0.273)	(0.310)
North Australia		-0.249	-0.294	-0.249	-0.354
		(0.238)	(0.164)	(0.238)	(0.202)
Living in major cities		-0.118	-0.126	-0.100	-0.098
		(0.285)	(0.252)	(0.364)	(0.477)
Living in inner regions		0.008	0.002	-0.004	-0.035
		(0.941)	(0.984)	(0.969)	(0.802)
Living in outer regions		0.085	0.091	0.090	0.049
		(0.455)	(0.425)	(0.433)	(0.731)
Thinking religion very important			0.120	0.090	0.055
			(0.001)***	(0.011)**	(0.189)
Thinking religion very unimportant			-0.095	-0.076	-0.081
			(0.004)***	(0.023)**	(0.036)**
Thinking paying job very unimportant			0.054	0.046	0.025
			(0.173)	(0.253)	(0.596)
Thinking paying job very important			-0.035	-0.027	-0.018
			(0.256)	(0.384)	(0.627)
Thinking motherhood very unimportant			-0.260	-0.224	-0.213
			(0.000)***	(0.001)***	(0.006)***
Thinking motherhood very important			0.127	0.114	0.099
			(0.000)***	(0.001)***	(0.020)**
Ever married once				0.896	0.915
				(0.000)***	(0.000)***
Ever married twice or more times				0.885	0.913
				(0.000)***	(0.000)***
Age at first marriage				-0.020	-0.022
				(0.000)***	(0.000)***
Equivalised household income					-5.436e-06
					(0.000)***
Age dummies	…	…	…	…	…
Constant	0.963	1.037	0.950	0.666	0.852
	(0.000)***	(0.000)***	(0.000)***	(0.006)***	(0.003)***
Observations	2463	2463	2463	2463	1840
Pseudo R^2	0.0148	0.0184	0.0297	0.0474	0.0547

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.2: Intended lifetime fertility of men

Dependent variables: Intended lifetime fertility

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.110	0.161	0.115	0.082	0.113
	(0.552)	(0.386)	(0.537)	(0.660)	(0.589)
Bachelor	0.084	0.127	0.142	0.106	0.195
	(0.554)	(0.374)	(0.323)	(0.461)	(0.236)
Diploma	0.095	0.131	0.111	0.108	0.144
	(0.598)	(0.468)	(0.540)	(0.549)	(0.475)
Certificate	0.005	0.014	0.000	-0.090	-0.025
	(0.970)	(0.910)	(0.999)	(0.476)	(0.861)
Year 12	-0.059	-0.047	-0.069	-0.134	-0.027
	(0.697)	(0.761)	(0.652)	(0.381)	(0.874)
Postgraduate * age group 30-34	-0.170	-0.184	-0.101	-0.128	0.001
	(0.462)	(0.427)	(0.661)	(0.581)	(0.997)
Postgraduate * age group 35-39	-0.124	-0.146	-0.087	-0.111	-0.103
	(0.579)	(0.512)	(0.697)	(0.619)	(0.687)
Postgraduate * age group 40-44	-0.068	-0.097	-0.017	0.014	0.126
	(0.745)	(0.645)	(0.937)	(0.948)	(0.592)
Bachelor * age group 30-34	-0.202	-0.202	-0.180	-0.182	-0.216
	(0.244)	(0.246)	(0.300)	(0.296)	(0.277)
Bachelor * age group 35-39	0.011	-0.002	0.005	-0.034	-0.028
	(0.951)	(0.992)	(0.976)	(0.844)	(0.886)
Bachelor * age group 40-44	-0.060	-0.073	-0.090	-0.079	-0.044
	(0.726)	(0.669)	(0.600)	(0.644)	(0.824)
Diploma * age group 30-34	-0.088	-0.103	-0.024	-0.056	-0.026
	(0.687)	(0.640)	(0.915)	(0.797)	(0.918)
Diploma * age group 35-39	0.015	-0.015	0.017	-0.038	-0.054
	(0.943)	(0.943)	(0.939)	(0.860)	(0.829)
Diploma * age group 40-44	0.004	-0.017	0.003	-0.093	-0.066
	(0.983)	(0.936)	(0.987)	(0.655)	(0.779)
Certificate * age group 30-34	-0.068	-0.058	-0.032	0.041	0.057
	(0.649)	(0.698)	(0.834)	(0.786)	(0.739)
Certificate * age group 35-39	0.107	0.094	0.108	0.113	0.109
	(0.468)	(0.526)	(0.468)	(0.447)	(0.517)
Certificate * age group 40-44	0.065	0.056	0.060	0.130	0.079
	(0.651)	(0.700)	(0.678)	(0.373)	(0.638)
year 12 * age group 30-34	-0.008	0.017	0.053	0.089	0.081
	(0.967)	(0.931)	(0.785)	(0.643)	(0.701)
year 12 * age group 35-39	-0.111	-0.091	-0.029	-0.009	-0.149
	(0.592)	(0.661)	(0.889)	(0.964)	(0.525)
year 12 * age group 40-44	-0.051	-0.020	0.010	0.094	0.076
	(0.797)	(0.920)	(0.960)	(0.638)	(0.735)
Age of finishing full-time education	-0.010	-0.009	-0.007	0.002	0.002
	(0.258)	(0.343)	(0.411)	(0.839)	(0.830)
Attended government schools	-0.051	-0.058	-0.036	-0.041	-0.009
	(0.174)	(0.124)	(0.340)	(0.280)	(0.833)
Number of siblings	0.040	0.038	0.033	0.029	0.025
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.004)***
Being oldest child in the family	-0.008	-0.005	-0.007	0.006	0.010
	(0.818)	(0.876)	(0.835)	(0.853)	(0.794)
Born in high-fertility countries	-0.044	-0.002	-0.108	-0.105	-0.110
	(0.565)	(0.980)	(0.177)	(0.187)	(0.230)
Born in medium-fertility countries	-0.061	-0.027	-0.050	-0.015	-0.090
	(0.446)	(0.737)	(0.544)	(0.856)	(0.361)
Born in low-	-0.076	-0.056	-0.065	-0.061	-0.051

fertility countries	(0.411)	(0.547)	(0.485)	(0.514)	(0.638)
Years since	0.001	0.001	0.002	0.001	0.001
immigration	(0.842)	(0.760)	(0.602)	(0.768)	(0.889)
New South Wales		0.100	0.070	0.090	0.152
		(0.431)	(0.581)	(0.478)	(0.319)
Victoria		0.139	0.134	0.153	0.173
		(0.273)	(0.293)	(0.228)	(0.258)
Queensland		0.143	0.126	0.145	0.206
		(0.266)	(0.326)	(0.261)	(0.182)
South		0.110	0.088	0.133	0.209
Australia		(0.412)	(0.511)	(0.321)	(0.189)
Western		0.091	0.089	0.143	0.188
Australia		(0.498)	(0.504)	(0.286)	(0.234)
Tasmania		-0.024	-0.029	0.003	0.072
		(0.881)	(0.854)	(0.985)	(0.691)
North		-0.286	-0.247	-0.222	-0.256
Australia		(0.297)	(0.368)	(0.420)	(0.424)
Living in		0.036	0.055	0.087	0.062
major cities		(0.787)	(0.679)	(0.509)	(0.693)
Living in		0.174	0.177	0.159	0.108
inner regions		(0.195)	(0.189)	(0.238)	(0.502)
Living in		0.175	0.192	0.217	0.149
outer regions		(0.199)	(0.158)	(0.112)	(0.364)
Thinking religion			0.120	0.090	0.049
very important			(0.008)***	(0.046)**	(0.353)
Thinking religion			-0.089	-0.055	-0.065
very unimportant			(0.013)**	(0.123)	(0.111)
Thinking paying job			0.027	0.052	0.072
very unimportant			(0.651)	(0.372)	(0.280)
Thinking paying job			0.006	0.009	-0.004
very important			(0.875)	(0.798)	(0.914)
Thinking motherhood			-0.192	-0.187	-0.178
very unimportant			(0.003)***	(0.003)***	(0.013)**
Thinking motherhood			0.112	0.080	0.075
very important			(0.002)***	(0.029)**	(0.075)*
Ever married once				1.131	1.101
				(0.000)***	(0.000)***
Ever married twice				1.148	1.145
or more times				(0.000)***	(0.000)***
Age at first				-0.024	-0.023
marriage				(0.000)***	(0.000)***
Equivalised					-3.375e-06
household income					(0.000)***
Age dummies	…	…	…	…	…
Constant	0.517	0.265	0.245	-0.098	-0.076
	(0.016)**	(0.343)	(0.389)	(0.730)	(0.819)
Observations	2084	2084	2084	2084	1617
Pseudo R^2	0.0111	0.0146	0.0232	0.0531	0.0573

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.3: Female expected fertility in the future

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.282	0.290	0.248	0.249	0.239
	(0.159)	(0.157)	(0.271)	(0.270)	(0.290)
Bachelor	0.233	0.226	0.142	0.140	0.096
	(0.143)	(0.171)	(0.431)	(0.438)	(0.594)
Diploma	0.092	0.076	0.023	0.031	-0.016
	(0.613)	(0.684)	(0.907)	(0.878)	(0.938)
Certificate	0.147	0.112	0.103	0.088	0.030
	(0.348)	(0.487)	(0.548)	(0.607)	(0.864)
Year 12	0.280	0.299	0.339	0.342	0.313
	(0.099)*	(0.086)*	(0.070)*	(0.067)*	(0.096)*
Postgraduate * age group 30-34	0.267	0.365	0.368	0.419	0.310
	(0.380)	(0.237)	(0.267)	(0.209)	(0.353)
Postgraduate * age group 35-39	0.603	0.596	0.249	0.312	0.127
	(0.104)	(0.115)	(0.588)	(0.499)	(0.783)
Postgraduate * age group 40-44	0.412	1.046	0.581	0.613	0.389
	(0.557)	(0.225)	(0.516)	(0.494)	(0.664)
Bachelor * age group 30-34	0.522	0.567	0.632	0.673	0.584
	(0.035)**	(0.025)**	(0.020)**	(0.013)**	(0.032)**
Bachelor * age group 35-39	0.472	0.554	0.492	0.557	0.526
	(0.180)	(0.118)	(0.223)	(0.169)	(0.194)
Bachelor * age group 40-44	0.291	0.718	0.650	0.691	0.575
	(0.665)	(0.404)	(0.456)	(0.428)	(0.510)
Diploma * age group 30-34	0.563	0.535	0.596	0.622	0.589
	(0.052)*	(0.074)*	(0.064)*	(0.054)*	(0.069)*
Diploma * age group 35-39	0.524	0.549	0.408	0.444	0.352
	(0.182)	(0.166)	(0.363)	(0.323)	(0.436)
Diploma * age group 40-44	-0.743	0.270	-0.133	-0.098	-0.302
	(0.515)	(0.828)	(0.915)	(0.938)	(0.810)
Certificate * age group 30-34	0.378	0.395	0.384	0.430	0.406
	(0.148)	(0.142)	(0.186)	(0.140)	(0.164)
Certificate * age group 35-39	-0.287	-0.253	-0.212	-0.165	-0.168
	(0.476)	(0.539)	(0.644)	(0.719)	(0.715)
Certificate * age group 40-44	-0.867	-0.292	-0.901	-0.841	-0.789
	(0.333)	(0.776)	(0.471)	(0.501)	(0.528)
year 12 * age group 30-34	0.439	0.406	0.304	0.330	0.317
	(0.107)	(0.152)	(0.330)	(0.289)	(0.309)
year 12 * age group 35-39	0.715	0.740	0.406	0.463	0.376
	(0.054)*	(0.047)**	(0.352)	(0.290)	(0.391)
year 12 * age group 40-44	-1.291	-0.667	-0.913	-0.908	-1.116
	(0.256)	(0.592)	(0.465)	(0.467)	(0.373)
Age of finishing full-time education	0.021	0.028	0.030	0.028	0.019
	(0.190)	(0.108)	(0.126)	(0.160)	(0.328)
Attended government schools	-0.211	-0.198	-0.169	-0.161	-0.187
	(0.002)***	(0.006)***	(0.032)**	(0.042)**	(0.019)**
Number of siblings	-0.000	-0.008	-0.015	-0.020	-0.017
	(0.992)	(0.690)	(0.505)	(0.391)	(0.468)
Being oldest child in the family	-0.094	-0.098	-0.119	-0.128	-0.108
	(0.166)	(0.164)	(0.125)	(0.100)*	(0.168)
Born in high-fertility countries	0.110	-0.091	0.133	0.116	0.154
	(0.452)	(0.574)	(0.463)	(0.521)	(0.403)
Born in medium-fertility countries	-0.180	-0.280	-0.089	-0.083	-0.130
	(0.252)	(0.094)*	(0.648)	(0.672)	(0.510)
Born in low-fertility countries	0.123	0.050	0.108	0.095	0.054
	(0.442)	(0.777)	(0.579)	(0.623)	(0.787)
Years since	-0.008	-0.006	-0.010	-0.010	-0.009

immigration	(0.296)	(0.481)	(0.254)	(0.269)	(0.297)
Having one child	-0.413	-0.448	-0.401	-0.479	-1.226
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.010)***
Having two children	-1.745	-1.804	-1.729	-1.802	-2.379
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having three children	-1.921	-1.977	-1.782	-1.859	-2.331
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having four or more children	-1.841	-1.943	-1.816	-1.929	-2.252
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Once having a child died	1.140	1.131	1.020	1.045	1.128
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
New South Wales	0.603	0.615	0.656	0.666	0.618
	(0.022)**	(0.024)**	(0.039)**	(0.036)**	(0.052)*
Victoria	0.579	0.627	0.678	0.694	0.645
	(0.027)**	(0.020)**	(0.032)**	(0.028)**	(0.042)**
Queensland	0.596	0.664	0.746	0.767	0.696
	(0.025)**	(0.016)**	(0.020)**	(0.017)**	(0.031)**
South Australia	0.688	0.716	0.805	0.818	0.747
	(0.012)**	(0.012)**	(0.015)**	(0.013)**	(0.024)**
Western Australia	0.746	0.778	0.792	0.802	0.748
	(0.006)***	(0.006)***	(0.015)**	(0.014)**	(0.022)**
Tasmania	0.522	0.583	0.651	0.693	0.569
	(0.113)	(0.083)*	(0.085)*	(0.067)*	(0.134)
North Australia	0.787	0.860	0.505	0.539	0.522
	(0.069)*	(0.051)*	(0.353)	(0.321)	(0.337)
Living in major cities	0.055	0.170	0.292	0.311	0.398
	(0.805)	(0.466)	(0.268)	(0.238)	(0.133)
Living in inner regions	0.064	0.186	0.312	0.330	0.395
	(0.784)	(0.446)	(0.257)	(0.231)	(0.155)
Living in outer regions	0.172	0.350	0.445	0.479	0.569
	(0.481)	(0.168)	(0.125)	(0.099)*	(0.052)*
Religiosity		0.036	0.032	0.033	0.032
		(0.000)***	(0.004)***	(0.003)***	(0.005)***
Attitude to paying job		-0.012	0.002	0.007	0.010
		(0.500)	(0.924)	(0.725)	(0.631)
Attitude to motherhood		0.044	0.041	0.039	0.036
		(0.015)**	(0.043)**	(0.052)*	(0.072)*
Equivalised household income			4.067e-06	4.118e-06	2.580e-06
			(0.013)**	(0.012)**	(0.134)
Being employed				-0.200	-0.106
				(0.062)*	(0.337)
Being unemployed				-0.313	-0.185
				(0.220)	(0.485)
Legally married					0.195
					(0.056)*
In *de facto* relationship					0.321
					(0.003)***
Separated or divorced					-0.172
					(0.411)
Age of oldest child					-0.065
					(0.001)***
Age of youngest child					-0.923
					(0.053)*
Age dummies	…	…	…	…	…
Constant	-0.464	-0.997	-1.358	-1.178	-1.191
	(0.325)	(0.049)**	(0.020)**	(0.046)**	(0.045)**
Observations	2463	2310	1760	1760	1760
Pseudo R2	0.3638	0.3698	0.3682	0.3693	0.3778

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.4: Male expected fertility in the future

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.256	0.246	0.183	0.177	0.125
	(0.254)	(0.311)	(0.513)	(0.531)	(0.659)
Bachelor	0.236	0.327	0.314	0.322	0.235
	(0.212)	(0.104)	(0.183)	(0.175)	(0.324)
Diploma	0.319	0.313	0.227	0.247	0.211
	(0.151)	(0.186)	(0.397)	(0.358)	(0.435)
Certificate	0.185	0.217	0.210	0.214	0.169
	(0.289)	(0.246)	(0.339)	(0.332)	(0.445)
Year 12	-0.038	-0.026	0.067	0.058	0.001
	(0.852)	(0.905)	(0.790)	(0.818)	(0.996)
Postgraduate * age group 30-34	-0.158	0.100	0.125	0.151	0.195
	(0.597)	(0.755)	(0.741)	(0.691)	(0.606)
Postgraduate * age group 35-39	0.356	0.607	0.503	0.565	0.521
	(0.342)	(0.131)	(0.284)	(0.230)	(0.271)
Postgraduate * age group 40-44	0.682	0.794	1.008	1.035	0.916
	(0.127)	(0.084)*	(0.042)**	(0.038)**	(0.069)*
Bachelor * age group 30-34	-0.140	-0.052	-0.050	-0.045	0.041
	(0.563)	(0.843)	(0.868)	(0.882)	(0.894)
Bachelor * age group 35-39	0.526	0.594	0.706	0.747	0.816
	(0.098)*	(0.085)*	(0.072)*	(0.057)*	(0.039)**
Bachelor * age group 40-44	-0.015	-0.073	-0.056	-0.020	-0.138
	(0.977)	(0.886)	(0.918)	(0.971)	(0.802)
Diploma * age group 30-34	-0.088	0.122	0.119	0.109	0.178
	(0.765)	(0.696)	(0.737)	(0.758)	(0.617)
Diploma * age group 35-39	0.419	0.612	0.756	0.808	0.945
	(0.257)	(0.123)	(0.094)*	(0.074)*	(0.038)**
Diploma * age group 40-44	0.485	0.417	0.601	0.593	0.534
	(0.325)	(0.415)	(0.289)	(0.296)	(0.349)
Certificate * age group 30-34	-0.082	-0.036	0.100	0.103	0.112
	(0.720)	(0.885)	(0.726)	(0.719)	(0.694)
Certificate * age group 35-39	0.282	0.304	0.384	0.432	0.490
	(0.348)	(0.357)	(0.308)	(0.253)	(0.196)
Certificate * age group 40-44	0.015	-0.204	-0.337	-0.302	-0.320
	(0.971)	(0.637)	(0.479)	(0.527)	(0.503)
year 12 * age group 30-34	0.269	0.438	0.428	0.453	0.460
	(0.319)	(0.133)	(0.192)	(0.168)	(0.161)
year 12 * age group 35-39	0.051	0.297	-0.217	-0.185	-0.237
	(0.905)	(0.511)	(0.708)	(0.750)	(0.684)
year 12 * age group 40-44	0.952	0.973	1.034	1.100	1.030
	(0.049)**	(0.048)**	(0.047)**	(0.035)**	(0.049)**
Age of finishing full-time education	0.035	0.031	0.026	0.022	0.022
	(0.012)**	(0.037)**	(0.124)	(0.194)	(0.183)
Attended government schools	-0.241	-0.156	-0.053	-0.049	-0.028
	(0.000)***	(0.024)**	(0.500)	(0.533)	(0.723)
Number of siblings	0.024	0.012	0.012	0.015	0.008
	(0.146)	(0.517)	(0.538)	(0.467)	(0.709)
Being oldest child in the family	-0.032	-0.015	0.003	0.006	0.020
	(0.618)	(0.818)	(0.967)	(0.943)	(0.794)
Born in high-fertility countries	0.309	0.101	0.242	0.240	0.288
	(0.014)**	(0.479)	(0.146)	(0.149)	(0.089)*
Born in medium-fertility countries	0.270	0.261	0.093	0.076	0.007
	(0.049)**	(0.083)*	(0.610)	(0.679)	(0.971)
Born in low-fertility countries	0.337	0.389	0.287	0.274	0.275
	(0.032)**	(0.018)**	(0.133)	(0.153)	(0.150)
Years since	-0.008	-0.009	-0.007	-0.007	-0.006

immigration	(0.218)	(0.186)	(0.388)	(0.422)	(0.498)
Having one child	-0.368	-0.400	-0.389	-0.378	-1.287
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having two children	-1.526	-1.566	-1.546	-1.537	-2.361
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having three children	-1.868	-1.951	-1.883	-1.876	-2.640
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Having four or more children	-1.359	-1.383	-1.307	-1.311	-2.106
	(0.000)***	(0.000)***	(0.000)***	(0.000)***	(0.000)***
Once having a child died	0.767	0.874	0.605	0.610	0.283
	(0.007)***	(0.007)***	(0.114)	(0.111)	(0.511)
New South Wales	0.333	0.268	0.452	0.450	0.508
	(0.165)	(0.268)	(0.151)	(0.152)	(0.107)
Victoria	0.483	0.453	0.589	0.597	0.623
	(0.043)**	(0.060)*	(0.060)*	(0.056)*	(0.047)**
Queensland	0.480	0.452	0.651	0.648	0.689
	(0.048)**	(0.065)*	(0.040)**	(0.041)**	(0.030)**
South Australia	0.538	0.459	0.735	0.727	0.736
	(0.032)**	(0.070)*	(0.023)**	(0.025)**	(0.023)**
Western Australia	0.498	0.496	0.620	0.616	0.672
	(0.045)**	(0.047)**	(0.053)*	(0.055)*	(0.036)**
Tasmania	0.475	0.515	0.665	0.675	0.677
	(0.117)	(0.092)*	(0.071)*	(0.066)*	(0.066)*
North Australia	0.313	0.039	0.226	0.230	0.237
	(0.500)	(0.941)	(0.691)	(0.687)	(0.678)
Living in major cities	0.625	0.521	0.569	0.562	0.619
	(0.030)**	(0.072)*	(0.088)*	(0.092)*	(0.062)*
Living in inner regions	0.667	0.548	0.624	0.612	0.639
	(0.024)**	(0.064)*	(0.067)*	(0.073)*	(0.060)*
Living in outer regions	0.444	0.440	0.453	0.437	0.487
	(0.143)	(0.151)	(0.200)	(0.216)	(0.169)
Religiosity		0.040	0.041	0.039	0.044
		(0.000)***	(0.000)***	(0.000)***	(0.000)***
Attitude to paying job		0.001	0.010	0.010	0.017
		(0.961)	(0.635)	(0.617)	(0.405)
Attitude to motherhood		0.062	0.058	0.061	0.073
		(0.000)***	(0.004)***	(0.002)***	(0.000)***
Equivalised household income			1.710e-06	1.911e-06	3.143e-06
			(0.130)	(0.094)*	(0.014)**
Being employed				-0.296	-0.379
				(0.056)*	(0.016)**
Being unemployed				-0.447	-0.447
				(0.054)*	(0.058)*
Legally married					0.360
					(0.000)***
In *de facto* relationship					0.458
					(0.000)***
Separated or divorced					-0.629
					(0.019)**
Age of oldest child					-0.015
					(0.293)
Age of youngest child					-0.839
					(0.000)***
Age dummies	…	…	…	…	…
Constant	-1.364	-1.691	-1.988	-1.667	-2.020
	(0.005)***	(0.001)***	(0.001)***	(0.007)***	(0.001)***
Observations	2084	1943	1536	1536	1536
Pseudo R2	0.2715	0.2764	0.2723	0.2736	0.2887

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.5: Female expected extra number of children in the future (POISSON)

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.153	0.277	0.288	0.307	0.336
	(0.372)	(0.118)	(0.144)	(0.120)	(0.088)*
Bachelor	0.210	0.295	0.305	0.319	0.326
	(0.138)	(0.044)**	(0.058)*	(0.048)**	(0.042)**
Diploma	0.122	0.170	0.174	0.191	0.196
	(0.403)	(0.256)	(0.287)	(0.243)	(0.230)
Certificate	0.080	0.107	0.142	0.143	0.137
	(0.530)	(0.411)	(0.319)	(0.317)	(0.337)
Year 12	0.352	0.417	0.415	0.428	0.432
	(0.007)***	(0.002)***	(0.006)***	(0.004)***	(0.004)***
Schooling * having one child	0.078	0.061	0.031	0.031	0.004
	(0.020)**	(0.077)*	(0.410)	(0.413)	(0.925)
Schooling * having 2 children	0.188	0.156	0.071	0.079	0.067
	(0.001)***	(0.005)***	(0.280)	(0.230)	(0.306)
Schooling * having 3 children	0.072	0.040	0.034	0.045	0.006
	(0.375)	(0.632)	(0.714)	(0.634)	(0.952)
Schooling * having 4+ children	0.028	0.038	0.007	0.015	-0.023
	(0.782)	(0.713)	(0.956)	(0.909)	(0.850)
age of finishing full-time education	0.023	0.027	0.027	0.025	0.016
	(0.170)	(0.120)	(0.167)	(0.208)	(0.410)
Attended government schools	-0.198	-0.192	-0.160	-0.152	-0.182
	(0.004)***	(0.007)***	(0.041)**	(0.054)*	(0.021)**
Number of siblings	-0.005	-0.014	-0.021	-0.025	-0.017
	(0.786)	(0.504)	(0.365)	(0.271)	(0.471)
Being oldest child in the family	-0.090	-0.096	-0.111	-0.119	-0.105
	(0.186)	(0.172)	(0.152)	(0.125)	(0.180)
Born in high-fertility countries	0.109	-0.084	0.148	0.136	0.166
	(0.456)	(0.603)	(0.414)	(0.453)	(0.366)
Born in medium-fertility countries	-0.196	-0.297	-0.108	-0.107	-0.132
	(0.209)	(0.074)*	(0.580)	(0.585)	(0.501)
Born in low-fertility countries	0.126	0.050	0.114	0.105	0.084
	(0.428)	(0.773)	(0.553)	(0.585)	(0.668)
Years since immigration	-0.008	-0.006	-0.011	-0.011	-0.011
	(0.257)	(0.424)	(0.211)	(0.219)	(0.215)
Having one child	-1.458	-1.252	-0.804	-0.871	-1.259
	(0.002)***	(0.010)***	(0.130)	(0.101)	(0.056)*
Having two children	-4.241	-3.864	-2.636	-2.811	-3.222
	(0.000)***	(0.000)***	(0.003)***	(0.002)***	(0.001)***
Having three children	-2.767	-2.391	-2.109	-2.308	-2.426
	(0.009)***	(0.028)**	(0.083)*	(0.060)*	(0.091)*
Having four or more children	-1.940	-2.125	-1.689	-1.891	-1.989
	(0.117)	(0.097)*	(0.271)	(0.220)	(0.200)
New South Wales	0.617	0.630	0.674	0.683	0.622
	(0.018)**	(0.020)**	(0.033)**	(0.031)**	(0.049)**
Victoria	0.604	0.653	0.693	0.707	0.629
	(0.020)**	(0.015)**	(0.027)**	(0.024)**	(0.045)**
Queensland	0.602	0.667	0.751	0.769	0.682
	(0.023)**	(0.015)**	(0.019)**	(0.016)**	(0.033)**
South Australia	0.688	0.719	0.806	0.820	0.726
	(0.012)**	(0.011)**	(0.014)**	(0.013)**	(0.028)**
Western Australia	0.754	0.782	0.793	0.804	0.746
	(0.005)***	(0.005)***	(0.015)**	(0.013)**	(0.022)**

Tasmania	0.563	0.622	0.685	0.726	0.567
	(0.086)*	(0.064)*	(0.068)*	(0.053)*	(0.132)
North Australia	0.769	0.816	0.508	0.541	0.531
	(0.075)*	(0.063)*	(0.347)	(0.317)	(0.327)
Living in major cities	0.047	0.157	0.288	0.305	0.384
	(0.835)	(0.500)	(0.274)	(0.248)	(0.148)
Living in inner regions	0.058	0.174	0.323	0.340	0.404
	(0.802)	(0.474)	(0.240)	(0.218)	(0.146)
Living in outer regions	0.143	0.329	0.456	0.483	0.579
	(0.558)	(0.195)	(0.115)	(0.096)*	(0.048)**
Religiosity		0.034	0.032	0.033	0.032
		(0.000)***	(0.004)***	(0.003)***	(0.004)***
Attitude to paying job		-0.006	0.009	0.014	0.012
		(0.729)	(0.654)	(0.493)	(0.531)
Attitude to motherhood		0.040	0.042	0.040	0.038
		(0.026)**	(0.037)**	(0.045)**	(0.056)*
Equivalised household income			4.268e-06	4.421e-06	2.778e-06
			(0.009)***	(0.006)***	(0.105)
Being employed				-0.190	-0.096
				(0.075)*	(0.385)
Being unemployed				-0.192	-0.109
				(0.449)	(0.676)
Legally married					0.178
					(0.082)*
In *de facto* relationship					0.315
					(0.003)***
Separated or divorced					-0.167
					(0.424)
Ever had a child					1.131
Died					(0.000)***
Age of oldest child					-0.069
					(0.001)***
Age of youngest child					-0.930
					(0.029)**
Age dummies	…	…	…	…	…
Constant	-0.450	-0.998	-1.432	-1.274	-1.311
	(0.332)	(0.046)**	(0.012)**	(0.028)**	(0.025)**
Observations	2462	2310	1760	1760	1760
Pseudo R2	0.3575	0.3628	0.3610	0.3619	0.3744

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.6: Male expected extra number of children in the future (POISSON)

Dependent variables: expected extra number of children in the future

	(1)	(2)	(3)	(4)	(5)
	Baseline model	First extension	Second extension	Third extension	Fourth extension
Postgraduate	0.322	0.493	0.424	0.428	0.390
	(0.040)**	(0.004)***	(0.034)**	(0.033)**	(0.051)*
Bachelor	0.281	0.435	0.424	0.435	0.392
	(0.034)**	(0.003)***	(0.012)**	(0.011)**	(0.021)**
Diploma	0.410	0.534	0.465	0.482	0.492
	(0.003)***	(0.000)***	(0.007)***	(0.006)***	(0.005)***
Certificate	0.225	0.289	0.332	0.343	0.322
	(0.039)**	(0.015)**	(0.015)**	(0.013)**	(0.019)**
Year 12	0.183	0.300	0.376	0.384	0.334
	(0.158)	(0.032)**	(0.017)**	(0.016)**	(0.035)**
Schooling * having one child	0.043	0.041	0.057	0.058	0.050
	(0.198)	(0.246)	(0.153)	(0.143)	(0.209)
Schooling * having 2 children	-0.022	-0.018	0.001	0.002	-0.002
	(0.664)	(0.736)	(0.981)	(0.977)	(0.969)
Schooling * having 3 children	-0.093	-0.123	-0.154	-0.149	-0.163
	(0.340)	(0.225)	(0.172)	(0.188)	(0.142)
Schooling * having 4+ children	-0.149	-0.201	-0.242	-0.231	-0.255
	(0.164)	(0.068)*	(0.045)**	(0.055)*	(0.043)**
age of finishing full-time education	0.032	0.030	0.025	0.023	0.023
	(0.019)**	(0.035)**	(0.118)	(0.158)	(0.146)
Attended government schools	-0.255	-0.171	-0.077	-0.073	-0.047
	(0.000)***	(0.013)**	(0.325)	(0.348)	(0.548)
Number of siblings	0.028	0.018	0.020	0.023	0.017
	(0.082)*	(0.308)	(0.306)	(0.247)	(0.409)
Being oldest child in the family	-0.017	-0.009	0.013	0.017	0.029
	(0.783)	(0.891)	(0.859)	(0.822)	(0.707)
Born in high-fertility countries	0.304	0.073	0.211	0.212	0.264
	(0.014)**	(0.600)	(0.192)	(0.193)	(0.112)
Born in medium-fertility countries	0.288	0.271	0.131	0.120	0.044
	(0.034)**	(0.069)*	(0.470)	(0.508)	(0.810)
Born in low-fertility countries	0.353	0.369	0.288	0.277	0.278
	(0.024)**	(0.024)**	(0.130)	(0.148)	(0.143)
Years since immigration	-0.008	-0.009	-0.008	-0.007	-0.006
	(0.182)	(0.202)	(0.332)	(0.356)	(0.443)
Having one child	-0.936	-0.959	-1.156	-1.170	-1.924
	(0.041)**	(0.054)*	(0.036)**	(0.034)**	(0.001)***
Having two children	-1.214	-1.310	-1.528	-1.524	-2.228
	(0.073)*	(0.065)*	(0.052)*	(0.053)*	(0.006)***
Having three children	-0.641	-0.340	0.123	0.060	-0.478
	(0.604)	(0.791)	(0.931)	(0.966)	(0.736)
Having four or more children	0.594	1.251	1.808	1.663	1.241
	(0.653)	(0.359)	(0.221)	(0.260)	(0.421)
New South Wales	0.326	0.254	0.437	0.443	0.493
	(0.175)	(0.295)	(0.163)	(0.158)	(0.116)
Victoria	0.475	0.445	0.590	0.603	0.626
	(0.047)**	(0.064)*	(0.059)*	(0.053)*	(0.045)**
Queensland	0.470	0.425	0.625	0.630	0.677
	(0.053)*	(0.082)*	(0.048)**	(0.046)**	(0.033)**
South Australia	0.540	0.459	0.736	0.735	0.754
	(0.031)**	(0.070)*	(0.022)**	(0.023)**	(0.020)**
Western Australia	0.486	0.466	0.597	0.600	0.660
	(0.050)*	(0.063)*	(0.062)*	(0.061)*	(0.039)**

Tasmania	0.415	0.436	0.584	0.593	0.566
	(0.168)	(0.150)	(0.110)	(0.105)	(0.123)
North Australia	0.338	0.062	0.266	0.272	0.267
	(0.466)	(0.907)	(0.641)	(0.632)	(0.639)
Living in major cities	0.670	0.564	0.650	0.643	0.709
	(0.021)**	(0.053)*	(0.052)*	(0.054)*	(0.032)**
Living in inner regions	0.718	0.605	0.705	0.696	0.736
	(0.015)**	(0.041)**	(0.038)**	(0.041)**	(0.029)**
Living in outer regions	0.480	0.490	0.528	0.515	0.569
	(0.114)	(0.110)	(0.134)	(0.144)	(0.106)
Religiosity		0.040	0.041	0.039	0.044
		(0.000)***	(0.000)***	(0.000)***	(0.000)***
Attitude to paying job		0.003	0.012	0.013	0.018
		(0.856)	(0.547)	(0.531)	(0.369)
Attitude to motherhood		0.060	0.057	0.059	0.072
		(0.001)***	(0.004)***	(0.003)***	(0.000)***
Equivalised household income			2.016e-06	2.188e-06	3.557e-06
			(0.063)*	(0.046)**	(0.004)***
Being employed				-0.242	-0.341
				(0.116)	(0.028)**
Being unemployed				-0.391	-0.398
				(0.089)*	(0.088)*
Legally married					0.356
					(0.000)***
In *de facto* relationship					0.473
					(0.000)***
Separated or divorced					-0.634
					(0.018)**
Ever had a child died					0.308
					(0.471)
Age of oldest child					-0.025
					(0.081)*
Age of youngest child					-0.821
					(0.001)***
Age dummies	…	…	…	…	…
Constant	-1.428	-1.851	-2.217	-1.992	-2.371
	(0.002)***	(0.000)***	(0.000)***	(0.001)***	(0.000)***
Observations	2084	1943	1536	1536	1536
Pseudo R2	0.2672	0.2719	0.2659	0.2669	0.2831

Notes: (i) P values in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%.
(ii) Age dummies were included in all the models.

Table A.7: Breakdown of key characteristics of female by education levels

Characteristics	Postgraduate	Bachelor	Diploma	Certificate	Year 12	Year 11 or below
Intended lifetime fertility	1.83 (1.28)	1.94 (1.18)	2.00 (1.26)	2.24 (1.26)	2.17 (1.32)	2.43 (1.35)
Children ever had	1.23 (1.29)	1.14 (1.27)	1.48 (1.36)	1.86 (1.37)	1.61 (1.41)	2.24 (1.40)
Expected children in the future	0.60 (0.95)	0.79 (1.04)	0.52 (0.91)	0.37 (0.79)	0.56 (1.02)	0.19 (0.59)
Lifetime childless	22.03%	16.59%	15.77%	10.79%	12.97%	8.82%
Ever had a child died	1.27%	1.57%	2.87%	3.22%	3.17%	4.48%
Ever had a child died among people having ever had children	2.14%	2.86%	4.30%	4.08%	4.45%	5.13%
Legally married	64.41%	57.85%	56.99%	62.80%	59.94%	60.84%
In *de facto* relationship	11.02%	14.57%	14.34%	13.37%	13.83%	14.50%
Separated /divorced	7.2%	6.28%	10.04%	11.59%	8.65%	12.26%
Single	17.37%	21.30%	18.64%	12.24%	17.29%	12.41%
Religiosity (0-10)	4.67 (3.54)	4.76 (3.46)	4.41 (3.53)	4.59 (3.46)	4.63 (3.56)	4.27 (3.49)
Attitude to job (1-7)	4.52 (1.98)	4.51 (1.87)	4.64 (1.99)	4.79 (1.84)	4.61 (1.96)	4.94 (2.00)
Attitude to motherhood (1-7)	4.88 (1.99)	4.97 (2.00)	5.54 (1.81)	5.96 (1.56)	5.60 (1.69)	6.22 (1.46)
Never married	25.85%	34.08%	29.75%	21.26%	25.43%	22.57%
Married two or more times	3.81%	5.61%	8.24%	9.66%	7.23%	9.72%
Number of siblings	2.59 (1.65)	2.47 (1.63)	2.71 (2.19)	2.95 (2.06)	2.91 (2.11)	3.40 (2.35)
Equivalised household income	48595.01 (28467.22)	44577.84 (26710.96)	38007.27 (25951.06)	29541.3 (19905.14)	31741.74 (19851.9)	23594.09 (15922.21)
Proportion of employed years after full-time education	79% (0.20)	77% (0.23)	78% (0.22)	72% (0.25)	73% (0.28)	60% (0.32)
Proportion of unemployed years after full-time education	1.4% (.043)	1.6% (.045)	2.6% (0.066)	3.6% (0.094)	2.6% (0.074)	4.1% (0.112)
Employed	85.17%	80.72%	73.48%	67.63%	70.03%	52.47%
Unemployed	2.12%	2.24%	2.15%	3.38%	1.73%	4.63%
NLF	12.71%	17.04%	24.37%	28.99%	28.24%	42.90%
Born in Australia	75.42%	72.65%	78.49%	79.07%	72.33%	82.81%

Table A.8: Breakdown of key characteristics of male by education levels

Characteristics	Postgraduate	Bachelor	Diploma	Certificate	Year 12	Year 11 or below
Intended lifetime fertility	1.85 (1.25)	2.00(1.21)	2.13 (1.44)	2.04 (1.38)	1.70 (1.27)	1.98 (1.49)
Children ever had	1.22 (1.27)	1.10 (1.24)	1.48 (1.37)	1.50 (1.40)	0.96 (1.17)	1.63 (1.42)
Expected children in the future	0.73 (1.07)	0.96 (1.23)	0.69 (0.98)	0.54 (1.02)	0.74 (1.04)	0.35 (0.84)
Lifetime childless	18.75%	16.23%	13.27%	16.51%	27.70%	21.06%
Ever had a child died	1.04%	1.16%	1.53%	2.00%	1.41%	2.22%
Ever had a child died among people having ever had children	1.79%	2.29%	2.40%	3.04%	2.91%	3.14%
Legally married	63.02%	58.26%	56.63%	59.55%	50.23%	52.11%
In *de facto* relationship	14.06%	13.91%	12.76%	14.27%	15.49%	17.74%
Separated /divorced	4.69%	4.64%	8.16%	7.67%	2.82%	6.87%
Single	18.23%	23.19%	22.45%	18.51%	31.46%	23.28%
Religiosity (0-10)	3.88 (3.61)	4.03 (3.50)	3.82 (3.49)	3.45 (3.32)	3.49 (3.15)	3.23 (3.47)
Attitude to job (1-7)	4.90 (1.84)	4.87 (1.79)	5.09 (1.75)	5.40 (1.71)	5.26 (1.78)	5.62 (1.74)
Attitude to motherhood (1-7)	4.76 (1.88)	4.78 (1.88)	4.85 (1.84)	5.53 (1.67)	5.15 (1.84)	5.70 (1.72)
Never married	30.21%	35.07%	32.14%	30.07%	44.13%	36.59%
Married two or more times	3.13%	4.64%	8.16%	4.83%	4.23%	8.65%
Number of siblings	2.36 (1.47)	2.54 (1.99)	2.6 (1.91)	2.86 (2.01)	2.69 (2.15)	3.25 (2.33)
Equivalised household income	54352.17 (50479.32)	48966.91 (26024.1)	41884.78 (29409.49)	32998.33 (20641.77)	38582.85 (22855.28)	27547.53 (19319.7)
Proportion of employed years after full-time education	81% (0.23)	83% (0.20)	89% (0.16)	91% (0.15)	89% (0.19)	86% (0.20)
Proportion of unemployed years after full-time education	2% (0.050)	1.5% (0.046)	3.1% (0.062)	5% (0.117)	5.6% (0.130)	8.4% (0.135)
Employed	91.67%	93.91%	92.35%	90.80%	90.61%	78.94%
Unemployed	1.56%	2.32%	3.06%	4.48%	3.76%	9.53%
NLF	6.77%	3.77%	4.59%	4.72%	5.63%	11.53%
Born in Australia	61.98%	70.72%	78.57%	84.43%	75.59%	80.49%

References

Aarssen, Lonnie W. 2005. "Why is Fertility Lower in Wealthier Countries? The Role of Relaxed Fertility-Selection." *Population and Development Review,* 31:1, pp. 113-26.

Abbasi-Shavazi, Mohammad Jalal and Peter McDonald. 2000. "Fertility and Multiculturalism: Immigrant Fertility in Australia, 1977-1991." *The International Migration Review,* 34:1, pp. 215-42.

ABS. 2002. "*Australian Social Trends 2002: Trends in Childlessness.*" Australian Bureau of Statistics: Canberra.

ABS. 2003a. "*Birth Australia*." Catalogue No. 3301.0. Australian Bureau of Statistics: Canberra.

ABS. 2003b. "*Australian Social Trends 2003: Education and Training—National Summary Tables*." Australian Bureau of Statistics: Canberra.

ABS. 2004a. "*Australian Social Trends 2004*." Catalogue No. 4102.0. Australian Bureau of Statistics: Canberra.

ABS. 2004b. "*Explanatory Notes of Census of Population and Housing: Australia's Youth."* Australian Bureau of Statistics: Canberra.

ABS. 2005. "*Demography, Australia."* Catalogue No. 3311.0.55.001. Australian Bureau of Statistics: Canberra.

Barnes, Allison. 2001. "*Low Fertility: A Discussion Paper*." Occasional Paper No. 2. The Department of Family and Community Services: Canberra.

Basu, Alaka Malwade. 2002. "Why Does Education Lead to Lower Fertility? A Critical Review of Some of the Possibilities." *World Development*, 30:10, pp. 1779-90.

Becker, Gary S. 1991. *A Treatise on the Family*. Paperback reprint. Harvard University Press: Cambridge and London.

Becker, Gary S. and H. Gregg Lewis. 1973. "On the Interaction between the Quantity and Quality of Children." *Journal of Political Economy*, 81:2, pp. S279-88.

Beggs, J. and B. Chapman. 1988. "*The Forgone Earnings from Child Rearing*." Discussion Paper No. 190, Centre for Economic Policy Research, Australian National University.

Bhat, P. N. Mari. 2002. "Returning a Favor: Reciprocity between Female Education and Fertility in India." *World Development,* 30:10, pp. 1791-803.

Bratti, Massimiliano. 2003. "Labour Force Participation and Marital Fertility of Italian Women: The Role of Education." *Journal of Population Economics*, 16:3, pp. 525-54.

Breusch, Trevor and Edith Gray. 2004. "New Estimates of Mothers' Forgone Earnings Using HILDA Data." *Australian Journal of Labour Economics*, 7:2, pp. 125-50.

Bryson, Lois, Stefani Strazzari, and Wendy Brown. 1999. "Shaping Families: Women, Control and Contraception." *Family Matters*, 53:Winter, pp. 31-38.
Castles, Francis G. 2002. "Three Facts About Fertility: Cross-national Lessons for the Current Debate." *Family Matters*, 63:Spring/Summer, pp. 22-27.

Chapman, B., Y. Dunlop, M. Gray, A. Liu, and D. Mitchell. 2001. "The Impact of Children on the Lifetime Earnings of Australian Women: Evidence from the 1990s." *Australian Economic Review*, 34:4, pp. 373-89.

Cheng, Benjamin S. and Savior L. S. Nwachukwu. 1997. "The Effect of Education on Fertility in Taiwan: A Time Series Analysis." *Economics Letters*, 56:1, pp. 95-99.

Cica, Natasha. 1998. "*Abortion Law in Australia*." Research Paper 1 1998-99. Parliamentary Library, Parliament of Australia.

Day, Creina and Steve Dowrick. 2004. "Ageing Economics: Human Capital, Productivity and Fertility." *Agenda*, 11:1, pp. 3-20.

De Silva, W. Indralal. 1991. "Consistency between Reproductive Preferences and Behavior: The Sri Lankan Experience." *Studies in Family Planning*, 22:3, pp. 188-97.

de Vaus, David. 2002a. "Marriage, Births and Fertility." *Family Matters*, 63:Spring/Summer, pp. 36-39.

de Vaus, David. 2002b. "Fertility Decline in Australia: A Demographic Context." *Family Matters*, 63:Spring/Summer, pp. 14-21.

Easterlin, Richard A. 1987. "Fertility," in *The New Palgrave: A Dictionary of Economics 2*. John Eatwell, Murray Milgate and Peter Newman eds. The Stockton Press: New York, pp. 302-08.

Fisher, Kathleen. 2002. "Fertility Pathways in Australia: Relationships, Opportunities, Work and Partnering." Strategic Policy and Analysis Branch, Commonwealth Department of Family and Community Services: Canberra.

Fisher, Kathleen and David Charnock. 2003. "*Partnering and Fertility Patterns: Analysis of the HILDA Survey, Wave 1*." Presented at the HILDA Conference, 13 March 2003, Melbourne University.

Granger, C.W. 1980. "Testing for causality." *Journal of Economic Dynamics and Control*, 4, pp. 229-52.

Greene, M. E. and A. E. Biddlecom. 1997. "Absent and Problematic Men: Demographic Accounts of Male Reproductive Roles." *Population and Development Review*, 26:1, pp. 81-115.

Hakim, Catherine. 2003. "A New Approach to Explaining Fertility Patterns: Preference Theory." *Population and Development Review*, 29:3, pp. 349-74.

Hsiao, C. 1981. "Autoregressive Modeling and Money Income Causality Detection." *Journal of Monetary Economics*, 7, pp. 85-106.

Jejeebhoy, Shireen J. 1995. *Women's education, autonomy, and reproductive behavior: Experience from developing countries*. International Studies in Demography. Oxford and New York: Oxford University Press, Clarendon Press.

Johnson, David and Guyonne Kalb. 2002. "*Economic Analyses of Families: Existing Research Findings*." Melbourne Institute Working Paper No. 27/02. Melbourne

Institute of Applied Economics and Social Research, the University of Melbourne: Melbourne.

Kirk, Dudley. 1996. "Demographic Transition Theory." *Population Studies*, 50:3, pp. 361-87.

Lam, David and Suzanne Duryea. 1999. "Effects of Schooling on Fertility, Labor Supply and Investments in Children, with Evidence from Brazil." *Journal of Human Resources*, 34:1, pp. 160-92.

Le, Anh T. and Paul W. Miller. 2002. "The Rising Education Levels of Females in Australia." *Education Economics*, 10:1, pp. 1-24.

Lee, Ronald. 2003. "The Demographic Transition: Three Centuries of Fundamental Change." *Journal of Economic Perspectives*, 17:4, pp. 167-90.

Lehrer, Evelyn L. 1996. "Religion as a Determinant of Marital Fertility." *Journal of Population Economics*, 9:2, pp. 173-96.

Lehrer, Evelyn L. 2004. "Religion as a Determinant of Economic and Demographic Behavior in the United States." *Population and Development Review*, 30:4, pp. 707-26.

Lillard, Lee A. and Linda J. Waite. 1993. "A Joint Model of Marital Childbearing and Marital Disruption." *Demography*, 30:4, pp. 653-81.

Manski, Charles F. and Joram Mayshar. 2002. "*Private and Social Incentives for Fertility: Israeli Puzzles*." NBER Working Paper 8984: Cambridge, MA.

Mason, Karen Oppenheim. 1986. "The Status of Women: Conceptual and Methodological Issues in Demographic Studies." *Sociological Forum*, 1, pp. 284-300.

McDonald, Peter. 2000. "Low Fertility in Australia: Evidence, Causes and Policy Responses." *People and Place*, 8:2, pp. 6-20.

McDonald, Peter. 2001a. "Family Support Policy in Australia." *People and Place*, 9:2, pp. 14-20.

McDonald, Peter. 2001b. "Work-family Policies Are the Right Approach to the Prevention of Very Low Fertility." *People and Place*, 9:3, pp. 17-28.

McDonald, Peter. 2001c. "What Do We Know?" *The Sunday Age*, 17 June.

McQuillan, Kevin. 2004. "When Does Religion Influence Fertility?" *Population and Development Review*, 30:1, pp. 25-56.

Manski, Charles F. and Joram Mayshar. 2002. "*Private and Social Incentives for Fertility: Israeli Puzzles*." NBER Working Paper 8984: Cambridge, MA.

Montgomery, Mark R. and James Trussell. 1986. "Models of Marital Status and Childbearing," in *Handbook of Labor Economics Volume 1*. Orley Ashenfelter ed. Handbooks in Economics Series, no. 5, North-Holland: Amsterdam, Oxford and Tokyo, pp. 205-71.

Pollak, Robert A. and Susan Cotts Watkins. 1993. "Cultural and Economic Approaches to Fertility: Proper Marriage or Mesalliance?" *Population and Development Review*, 19:3, pp. 467-96.

Qu, Lixia, Ruth Weston, and Christine Kilmartin. 2000. "Children? No Children? Effect of Changing Personal Relationships on Decisions about Having Children." *Family Matters,* 57:Spring/Summer, 2000, pp. 14-19.

Rosenzweig, Mark R. and T. Paul Schultz. 1985. "The Demand for and Supply of Births: Fertility and Its Life Cycle Consequences." *American Economic Review*, 75:5, pp. 992-1015.

Sander, William. 1992. "The Effect of Women's Schooling on Fertility." *Economics Letters*, 40:2, pp. 229-33.

Schultz, T. Paul. 1969. "An Economic Model of Family Planning and Fertility." *Journal of Political Economy*, 77:2, pp. 153-80.

Schultz, T. Paul. 1993. "Returns to Women's Education," in *Women's Education in Eeveloping Countries: Barriers, Benefits, and Policies*. Elizabeth M. King and M. Anne Hill eds. Johns Hopkins University Press for the World Bank: Baltimore and London, pp. 51-99.

Thomson, Elizabeth. 1997. "Couple Childbearing Desires, Intentions, and Births." *Demography*, 34:3, pp. 343-54.

United Nations. 2003. "*World Population Prospects: The 2002 Revision. Volume I: Comprehensive Tables*", Department of Economic and Social Affairs, Population Division, United Nations, New York.

van de Kaa, D.J. 1996. "Anchored Narratives: The Story and Findings of Half a Century of Research into the Determinants of Fertility." *Population Studies*, 50:3, pp. 389-432.

Watson, Nicole and Mark Wooden. 2002. "*The Household, Income and Labour Dynamics in Australia (HILDA) Survey: Wave 1 Survey Methodology*." HILDA Project Technical Paper Series, No. 1/02. The Melbourne Institute of Applied Economic and Social Research, The University of Melbourne, Melbourne.

Weston, Ruth and Lixia Qu. 2001. "Men's and Women's Reasons for Not Having Children." *Family Matters*, 58:Autumn, pp. 10-15.

Weston, Ruth, Lixia Qu, Robyn Parker, and Michael Alexander. 2004. "*It's Not for Lack of Wanting Kids: A Report on the Fertility Decision Making Project.*" Australian Institute of Family Studies: Canberra.

Weston, Ruth and Robyn Parker. 2002. "Why is Fertility Rate Falling? A Discussion of the Literature." *Family Matters*, 63:Spring/Summer, pp. 6-13.

Yu, Peng, Rebecca Kippen, and Bruce Chapman. 2004. "Births, Debts and Mirages." Paper presented at the 12th Biennial Conference of the Australian Population Association, 15-17 September 2004, Canberra, Australia.